# Adolescent students' ideas about provisional historical explanation

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Acknowledgements

Abstract

Adolescents' ideas about provisional historical explanation were analysed in a sample of Portuguese 12 to 20 year-old students, attending the 7th, 9th and 11th grade. In the light of a theoretical framework considering three conceptual clusters - explanatory structure, explanatory consistency, and objectivity and truth - students' ideas were categorised in a model of five levels of progression, functioning as the main working hypothesis, and generated through a qualitative analysis. At Level 1 (the story), students' ideas appear mainly related to description. At Level 2 (the right explanation), there is a focus on the correct explanation, explanations are assessed in everyday terms, and the direct observation paradigm tends to be valued. At Level 3 (the more factors the better), students' concerns appear linked to an ideal of aggregation of factors, evidence is discriminated as sources to the explanation, and the "memory paradigm" tends to be valued. At Level 4, (a consensual explanation?), there is a preoccupation about a perspectiveless neutrality, valuing verification and interlinked factors (explanations may take the narrative form). An objectivist trend defends the search for a consensual explanation whilst a relativist view denies its possibility due to existing different perspectives. At Level 5 (perspective), neutrality and perspective are recognised as genuine features of historical explanation, these appearing in conflict with ideas of perspectiveless neutrality. Explanations may take the narrative mode, and an interlink of factors is valued. Explanatory assessment may appear as evidential confirmation and refutation, and reference may be made to the substantive historical context. A statistical analysis of data concerning levels of progression by sex, age and grade, and responses to some specific sub-tasks, was carried out. Differences on sex were not found statistically significant but differences on age and grade appeared significant at the 5% level.

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Main abbreviations

C	=	Explanatory consistency
D	=	Methodological detachment
E	=	Evidential consistency
F	=	Final study
L	=	Logical consistency
M	=	Explanatory mode
O	=	Objectivity and truth
P1	=	Pilot study 1
P2	=	Pilot study 2
P3	=	Pilot study 3
P4	=	Pilot study 4
PHE	=	Provisional historical explanation
S	=	Explanatory structure
W	=	Factorial weight

Notes

1. This study follows mainly the formal standards recommended by the American Psychological Association (1994) for reference citations, bibliography, tables and figures, seriation, use of italics and quotation marks.

2.The words *pupil* and *student* are currently undergoing a shift in usage. In this study student is applied to all subjects in the Portuguese sample. Pupil is used where English work employs that word.

Introduction

> The more satisfying the answers to an explanatory
> question appear to be, the more provisional will
> they be also.
> (Hawthorn, 1991, p. 33)

The idea of provisional explanation has emerged in recent discussions in various fields of knowledge. The debates among philosophers concerning the nature of history, the different answers about the past given by historians, the controversial history curricula proposed by educationalists and politicians, have all contributed to making explicit the idea of the provisionality of historical explanation. Hence, at an everyday level one may remain at the surface of such an assumption when trying to explain the past. One may either take an easy-going attitude ("explanations depend on a point of view, we cannot know which one is better") or, rest on a dogmatic position according to personal preferences ("only this explanation [which pleases me most] is true").

The learning of history may challenge these common-sense views. Criticisms have been made of current teaching approaches which are supposed not to foster an informed decision by students about historical answers. In Portugal, as once (and perhaps still) in the UK, educationalists complain about rote-learning, over-loaded content approaches. A critique of a "scientistic" perspective of history might be addressed to history teaching in Portugal as well. In the USA, and also in the UK now, some educationalists complain about a deconstructionist approach in school history advocated by some others, which may lead students to uncritical attitudes. Barth (1992) pointed out when referring to this deconstructive approach to history in the social studies curriculum in the USA:

> Ask high school juniors and seniors if their opinions are as valid as yours and most will respond with an emphatic, "Yes!." The logical conclusion to this divergent inquiry line of thinking is: "History is just someone's opinion of what is important ... History is not important." (p. 13)

These thoughts may raise a pertinent question: What views do historically literate adolescents actually take about the idea of provisional historical explanation? Do some of those students reveal a more critical, balanced attitude than these views expressed previously?

A positive link between provisionality and fruitfulness of knowledge, as suggested by Hawthorn, may exist within the history field: the more satisfactory an historical explanation appears, the more questions, and of a wider scope, it might raise. A theoretical exploration of the concepts involved in this assertion makes us understand that *provisional historical explanation* is not an obvious, single-track idea. There are criteria employed in history to permit the assessment of more or less valid conclusions, within an informed view, whether objectivist or relativist. What criteria are these? Due to the complexity of notions and diversity of perspectives entangled in this issue, it is legitimate to ask:

> What theoretical meanings and boundaries encompass the idea of provisional historical explanation?

Therefore, in this study a survey into philosophical approaches to the idea of provisional explanation was undertaken in order to gain awareness about some related notions, prior to its handling at educational level. A first boundary was posed to the meaning of historical explanation: it concerns why-type questions in history.

In the light of the relevant notions related to the idea of provisional historical explanation which has sprung from the theoretical discussion, the analysis of students' ideas was then made possible. The initial problem to investigate was:

> To what extent do adolescent students operate with a notion of provisionality in historical explanation and, when they employ a notion of this kind, what meanings do they assign to it?

This study aims to contribute to a better understanding about adolescents' thinking in history and, specifically, to encourage Portuguese teachers to develop a critical approach to history teaching.

Chapter 1 discusses some lines of research about pupils' ideas of history relevant to this study, namely, about levels of progression in history, historical explanation, and the idea of provisionality in history. It also presents some concepts borrowed from the personal construct theory.

Chapter 2 gives an overview about models of explanation in history, as it has been discussed in the philosophical field, namely, the nomological-deductive, rational, narrative, and structural models, prior to a working definition of historical explanation. Two historical answers to the central question used in the empirical study were analysed in accordance with the definition proposed.

Chapter 3 analyses some notions related to the idea of provisionality in historical explanation, namely, on truth and objectivity from early debates, to new trends concerning criteria for explanatory assessment. In the light of this discussion, it presents a set of ideas as a theoretical working hypothesis. The two historical versions analysed in the previous chapter were tentatively compared vis-à-vis the criteria for explanatory assessment.

Chapter 4 describes the first empirical explorations of Portuguese adolescent students' ideas about provisional historical explanation, and the emergence of a model of categorization through levels of progression about such ideas.

Chapter 5 describes the method of the main empirical study carried out through several phases (four piloting phases and a final data collection) to analyse Portuguese adolescent students' ideas about provisional historical explanation.

Chapter 6 analyses the data collected during the several piloting phases and discusses the progressive generation of the model of students' ideas about provisional historical explanation in the light of the empirical data.

Chapter 7 synthesizes the theoretical and methodological framework of the model of students' ideas about provisional historical explanation, charts its main constructs in a conceptual map, and traces the main ideas along five levels of progression.

Chapter 8 analyses the main data in a qualitative approach, by discussing examples of each level of progression in the light of the model proposed.

Chapter 9 presents a statistical analysis of the main data and discusses its major findings.

Chapter 10 gives a set of final reflections about the major hypothesis progressively generated (the model of adolescent students' ideas about provisional historical explanation) and about some partial findings, which have implications for history education and for further research on cognition.

1 Pupils' ideas related to provisional historical explanation

An area of research concerned with the exploration of pupils' ideas in history has been developed since the late sixties. Some of the resulting work may be seen as relevant to the study of adolescent pupils' ideas about provisional historical explanation, and they will be briefly discussed within three major topics: (a) progression in pupils' ideas of history; (b) historical explanation; and (c) provisionality in historical knowledge. Another topic (d), adopting the framework of Kelly's construct theory, will define such notions as perspectivism versus literalism, alternative constructivism versus accumulative information, and a loose versus a tight attitude. These will also be explored, since they have contributed to the clarification of some constructs applied in this study.

Progression in pupils' ideas of history

During the 1960s and early 1970s, research in education was strongly influenced by Piagetian theory, emphasising cognitive development through three main invariant sequential stages. This trend was reflected in debates about the place of history in the curriculum, for example Hallam (1967, 1970, 1975), and in studies about pupils' thinking in history, for example Peel (1967a, b, 1971).

Hallam's studies aimed to investigate the age at which children could reason historically; as history was concerned with alien, abstract issues, only at the formal operational stage, he claimed, would children be able to grasp historical ideas. His results (1967) suggested that only at the chronological age of 16, and at a mental age between 16.5 and 18.2, could adolescents understand history. This finding proved to be quite harmful to history teaching during the seventies: it provided a ground for withdrawing the teaching of history from the curriculum for early ages, in countries such as the USA, France, Portugal, and discouraged many history teachers from challenging pupils' naive or inappropriate views in history.[1] In 1970 Hallam reflected

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[1] In Portugal, a history curriculum starting at sixth grade (11-12-year-olds) was implemented in the school reform after 1974 and it flourished until a new school reform started in 1990. The view that many historical topics are quite difficult for young adolescents seems popular among Portuguese teachers; for example, Pre-history and Medieval topics are commonly cited as demanding too sophisticated concepts for sixth and seventh graders.

on the controversy about whether logical progression was mostly influenced by maturation or social interaction:

> Whether it is possible to accelerate children's logical thinking is being strongly debated at present. How far does the development of thought depend on maturation and how far on interaction with the environment, both social and intellectual? Do we have to accept that certain chronological or mental ages are essential before children can reach the concrete or formal levels, or is it possible to arrange the learning situation in such a way that the children's thought processes are so challenged that they have to adapt to the new, more complex material? The evidence is by no means complete or conclusive but a teacher task is obviously to try to develop thinking skills as far as is practicable....The suggestion that it may be possible to accelerate thought processes has been eagerly adopted in the USA - perhaps over-eagerly as far as Piaget is concerned. He has recently explained that while it may be possible to accelerate these stages "there is not much to be gained by doing it beyond a certain measure". (p. 171)

Later in 1975, Hallam argued against this reductionist view and stressed the effect of good teaching in the acceleration of each sequential stage.

Peel (1971), in the light of the Piagetian notion of formal operations, examined the nature of adolescent thinking and the process of development from concrete, descriptive or content-dominated answers to a formal, explanatory or possibility-invoking pattern. He discriminated three major categories in cognitive development: restricted (1), circumstantial (2), and imaginative (3), and hypothesized some different factors rather than personal variables (subject, topic, previous knowledge, type of questions, among others) as interfering in this process. His study of pupils' history thinking (1967a) relied on a similar categorization of adolescents' answers to a why-type question. According to his categorization, at a first level, those answers might be bizarre, tautological, and a-historical; at a second level, a single plausible cause is given; at a third level, a comprehensive account involving more than one imagined possibility and their joint or sequential effect is presented.

Lammont (1970) advocated the Brunerian mode of enquiry applied to the teaching of history. This approach had started in American schools as reported by Fenton (1966) and, in England, a line of research into pupils' thinking, with studies carried out by Brown (1959) and Hallam (1967) as well as suggestions of enquiry and problem-solving in the history classroom, had appeared.

Thompson (1972) gave a summary of the research undertaken at the time in the history teaching field, explicitly questioning the overall theoretical framework on which such

studies relied: they had assumed a model of categorization according to general patterns of thinking and they had not taken into account possible factors relevant to history as a specific subject matter and, within it, to particular topics, adequacy of approaches, means of assessment; those studies tended to suggest that what had been done in practice was more than what was possible for a child to understand. Nonetheless, he welcomed a fruitful trend emerging in the work of Hallam and Peel: both authors started to explore ideas beyond substantive thinking in history.[2] In the light of these pertinent comments, Thompson (1972) pointed out:

> The criterion for progression in history should not be how much factual information has been imported, but what improvement has been achieved in historical thinking. (p. 34)

Sharing a similar preoccupation, Dickinson and Lee (1978b, 1984) raised questions about the logic of history to be taken as a basis for history teaching. They also questioned the Piagetian framework of developmental stages for children's understanding of history. A turning point in the investigation of children's thinking in history was made with their exploratory study "Understanding and Research" (1978b) followed by "Making Sense of History" (1984). In the former a set of logical levels related to the nature of history thinking was devised by Lee (1978) for analysis of children' s understanding of individual action. As these levels should be empirically based, psychological criteria were also apparent in parallel to historical criteria, such as the notion of equilibrium inspired by Piaget. A sample of 131 pupils from three schools, ranging between 12 and 18 years old, in year 8 of schooling (12+ to 13+ year-olds), year 11 (15+ to 16+ year-olds), and year 12 (16+ to 18+ year-olds), was used in this cross-sectional study. In the light of data collected, it was hypothesized that equilibrium could be attained at different levels, but ideas at higher levels would exhibit "greater permanence and stability" than at lower levels (Dickinson and Lee, 1978b, p. 104). Children's ideas appeared to move in a pendulum process, since even-number levels of progression indicated a state of equilibrium and odd-number levels showed a state of disequilibrium, that is, revealed large inconsistency and contradiction. This criterion of equilibrium/disequilibrium evolved to the notion of "oscillation" up and down ideas typical of each level, observed on empirical grounds in further studies (Booth, 1980; Shemilt, 1980; Ashby and Lee, 1987). In "Making Sense of History" Dickinson and Lee (1984) suggested some moves children made on empathetic understanding. Pupils from two schools, between 8 and 18 years old, constituted the sample surveyed and the data were intensively analysed in a qualitative approach. A set of ideas, ranging from a "confusion and content" category characterized by astonishment, puzzlement and

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[2] Pupils' substantive ideas in history were explored by Coltham (1960) and De Silva (1971).

cynicism, followed by exploration of concrete details, leading towards an "explanation" category when children could use their own experience, beliefs and imagination to give meaning to past situations, was traced. The progression was observed as circuitous and gradually developed with shifts up and down.

Booth emphasised the same need for focusing on historical thinking in this area of research. Booth (1978) explicitly abandoned Piagetian ideas of invariant developmental stages - the progression from the concrete operational stage towards the formal, logico-deductive stage - as required for the understanding of history by students. Inspired by Kelly' s construct theory, he claimed that, in historical thinking, there was "the need for 'heart' as well as 'head'" (p. 106). Divergent thinking and open-mindedness, Booth pointed out, were attitudes required for achieving historical synthesis, which involves specific principles:

> The credibility and effectiveness of that synthesis will rest on factors stemming from three areas: first, the care and accuracy with which the evidence is comprehended and analysed...; second, the nature and extent of the thinker's "second record";..and third, the degree of imaginative insight he has shown. (Booth, 1978, p. 106)

According to these criteria, Booth (1978, 1980, 1987) carried out a developmental study over a one-and-a-half year period with an "experimental" and a control group of mixed-ability adolescents (14+ years old) attending a Modern World History course. The aim was, mainly, to assess pupils' ability to evaluate documentary evidence and to deduce key concepts. Responses were categorized in two sets, at first sight reminiscent of Piaget's stages and Peel's categories, bearing in mind the nature of history and in particular Fischer's account of the role of "adductive" thinking (Booth, 1980, p. 247):

1. Concrete, related to immediate content, reasons given in descriptive terms;

2. Abstract, creative, indicating adductive historical thought.

Results suggested significant gains by the experimental group through tests during the 17 month period, in comparison with the control group. In the light of these results, Booth emphasised syllabus content and teaching methods as relevant factors to children's progression in history. Another study was conducted in a sample of 11 year-olds in mixed-ability groups following a humanities course, during an academic year. Results suggested gains in all tasks except in the written one. Intelligence and teaching methods rather than maturation were hypothesized as major factors of progression.

Shemilt (1980) accepted a logic in history different from science but he did not abandon the Piagetian stages completely. In his evaluation study of "The History 13-16 Project" he argued that children might show "possibility reasoning" in the field of history

without the requirement of a formal operational level, which was related to the natural science paradigm. Shemilt concluded that the carrying out of the project constituted a positive challenge in order to corroborate that "pupils' understanding of the methods, logic and perspectives of history can be significantly enhanced" (p. 10). However, criteria for conceptualization of methods, logic and perspective of history by pupils were not given in the evaluation study.

In subsequent studies (1984, 1987), Shemilt discussed some of the relevant data taken from the "History 13-16 Project" in the light of a categorization cohering with that applied by Dickinson and Lee in "Making sense of history". In "Beauty and the Philosopher" (1984), adolescents' ideas on empathy were categorized in five stages: from stage 1 (*dry bones and a sense of superiority*) to stage 5 (*empathetic methodology*) with three intermediate stages (assumptions of shared humanity, everyday empathy applied to history, and historical empathy). This categorization appears to broadly equate the levels proposed by Ashby and Lee in 1987, who presented a categorization on ideas of empathy in a cross-sectional study using a sample between 8 and 18-year-old pupils. These levels were (1) the "divi" past , (2) generalized stereotypes, (3) everyday empathy, (4) restricted historical empathy, (5) contextual historical empathy.[3] This model of analysis suggests a progression of children and adolescents' ideas from a syncretic picture about the past towards more or less elaborate historical notions, with intermediate levels expressing ideas relying just on a common-sense (firstly, stereotyped, then, everyday-based) view.

The focus of the several studies mentioned above was on *how* pupils' ideas evolve from less coherent to sophisticated patterns in historical thinking, irrespective of the notion of developmental stages. It was also hypothesized that teaching methods would be relevant factors to foster progression in historical understanding. This line of research has received some support from cognitive psychology, particularly in the work of Donaldson (1978).[4] She contrasted Piaget's studies about children's notions of point of view with those conducted by Hughes: the former, by presenting tasks with an abstract context to the subjects, concluded that the child up to the age of eight-nine cannot achieve decentration, that is, she/he is not able to imagine that her/his own viewpoint is one of several possible viewpoints and that all these perspectives are interrelated; the latter, by using a task with a more familiar context (two dolls representing a boy trying

[3] As Ashby and Lee (1987) pointed out: "There are clear signs of convergence between the main strands of research in this area, and this may justify some degree of confidence in the validity of these interim remarks and optimism as to what may be possible in the future" (p. 66).

[4] Ashby and Lee (1987), for example, explicitly referred to Donaldson's work as "the best guide" in cognitive and developmental psychology about children's dispositions and strategies (p. 65).

to escape a policeman) showed different results - 90% of the responses from children between three-and-a-half and five years were correct. Donaldson suggested that when a situation makes *human sense* to the child, involving motives and intentions, it can be instantly apprehended. Donaldson (ibid.) suggested that the degrees of abstractness may affect the level of egocentrism not only in the child, but also in the adult:

> What is being claimed is that we are all egocentric through the whole of our lives in some situations and very well able to decentre in others [...].
>
> I want to argue that the difference between child and adult in this respect is less than he [Piaget] supposes. (p. 25)

Also Johnson-Laird & Wason (1977) suggested that intelligent subjects may perform differently in abstract or realistic contexts - adults might successfully perform in a "realistic" version of a given task and be unsuccessful in its abstract version. This would disconfirm Piaget's prediction that formal operational thinking is likely to be unaffected by the type of tasks undertaken. Subsequent studies within this framework, also inspired by Vygotsky's concern with social and linguistic influences on cognition, have investigated cognitive competence as a function of context and content, that is, situated cognition. As Butterworth (1992) stated with regard to the relationship between language and cognition, the implicit messages given by adults when proposing a task to children may influence the outcomes. Moreover, the child may experience difficulties in determining what the adult either means or intends to emphasise. This point draws attention to the methods to be applied in the analysis of pupils' ideas and reminds us that the meanings to be assigned to children's responses must be taken with caution.

Other lines of research in children and adolescents' ideas of history have differed from this trend, putting emphasis alternatively, on age progression in second-order ideas (Knight, 1989), or on logical progression in substantive ideas (Cooper, 1991), or on the nature of second-order and substantive ideas irrespective of levels of progression (Leinhardt, Beck and Stainton, 1994; Carretero and Voss, 1994).

Knight (1989), applying a categorization closer to Piaget and Peel, carried out a cross-sectional study with a sample of 6+ to 14+ year-olds to explore children's understanding of others. He investigated this competency through a sequential set of subcompetencies, of the kind in terms of which educational objectives used to be traced: (1) to recognise another's perspective (through the use of privileged information), (2) to describe another's perspective, (3) to explain an action, (4) to make predictions for actions, (5) to

tackle equivocal information.[5] He devised a five-point scale concerning a distinction between non-response, the wrong answer, and the right answer: (1) non response or wrong answers not substantiated, (2) wrong or implausible answers substantiated by mistaken premises or inferences, (3) right or plausible answers not substantiated, (4) wrong or implausible answers coherently substantiated, and (5) right or plausible answers suitably substantiated. This scale does not discriminate between more and less elaborate "right" or "plausible" answers - its major concern seems to be with the age at which children reveal these historical subcompetencies at a satisfactory level. The statistical analysis suggested a progression through age in the attainment of scores of 67% and 80% on the various subcompetencies: privileged information was attained at six (67% score) and seven years old (80% score); description of other's perspective and explanation of action were attained at nine years old (67% score) and at 10-12 years old (80% score); prediction was attained at 12 years old (67% score) and equivocal information proved to be harder to attain. The six year-olds showed little competence on tasks and a significant difference between six-and-eight year olds was suggested.

Cooper (1991) carried out a research on children's ideas in history mainly focusing on substantive concepts. Her categorization of children's ideas was inspired by notions from Piaget and Peel as well as from Ashby and Lee. She investigated the hypotheses that young children can become involved in historical problem-solving and that there is a sequence in the early stages of their thinking which can be evaluated. She taught two "experimental" groups of eight-nine year old children during 16 weeks using careful strategies, and results on tests were compared with those from a control group. An assessment scheme for a written task about a story was devised using a 10 point scale based on Ashby and Lee (1987) and Piaget (1932), and also reminiscent of Peel's categories (1971). This scale ranged from an egocentric or illogical level (1) and descriptive levels (2 and 3) to increasing abstract levels showing a primitive argument (4 and 5), a genuine argument (6 to 8) and integrative thought (9 and 10). She suggested that children could be involved in historical thinking, that this involvement was sequential and possible to evaluate, and that teaching strategies were relevant to the development of historical thinking.

In other countries, second-order ideas of children in history are starting to be investigated. In the USA, Wineburg (1991) began to carry out an enquiry about cognitive processes related to the subject of history, using a rationale converging with what has been researched in England: in order "to understand the 'historic sense' we must study people as they engage in the process of historical enquiry" (p. 1). He

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[5] See Coltham and Fines (1971). For a critique of this approach see Gard and Lee (1978).

compared a sample of eight historians to a sample of eight 16 year-old 11th-graders and suggested that historians can interpret historical documents in more sophisticated ways than students. As Wineburg himself stated, these results were "predictable but not trivial" (ibid., p. 83). Beyond a statistical analysis revealing those differences, the main heuristics or criteria applied by the subjects were identified through a qualitative exploration of the protocols. Those criteria were three: (a) corroboration, the act of comparing documents with one another, (b) sourcing, the act of looking first to the source of the document before reading the text, and (c) contextualization, the act of situating a document in a given context. Although an intention of giving a categorization in logical progression was not explicit in this study, those criteria identified permitted establishment of two differentiated degrees of historical thinking: historians puzzled about discrepancies, compared, corroborated and refuted evidence, and ended with suggestions, whilst students looked for the single correct answer as in a multiple-choice task. This line of research investigating how students understand second-order - and also substantive - concepts in history, although not related to levels of progression, has been extended with works such as those reported in Leinhardt, Beck and Stainton (1994), Carretero and Voss (1994) - Beck and McKeown, Britt et al., Perfetti et al., Torney-Purta, in the USA; Carretero et al., in Spain; Berti, in Italy; and Halldén, in Sweden, among others.

The scoring of pupils' performance in class usually takes more conventional approaches such as marks (analytical, holistic marking, or marking guidelines), ranks and, sometimes, grades or levels used on a holistic basis, referred to given goals, such as the attainment targets in the National Curriculum (Cresswell and Houston, 1991). A categorization by logical levels of ideas might be useful in order to deepen the analysis of pupils' data, in a context of research. The paradigm of levels of progression of pupils' ideas in history has been recently discussed more thoroughly in Ashby and Lee (1987) and Lee (1994). In 1994 Lee discussed and synthesized the main constructs about progression in children's understanding of history, as it has been the object of research in this field:

1. Progression is distinct from a notion of aggregation of substantive information (although it can be related to substantive concepts) and can be most easily tracked in terms of second-order concepts like evidence, change, cause, empathy, account, significance and time;

2. Children reveal tacit ideas about those historical concepts, even when nothing explicit is taught about them. These tacit second-order concepts profoundly affect their substantive reasoning;

3. It is possible to trace levels of progression in those historical concepts. Lee distinguished between assessment levels and construct levels, the former being related

to achievement, sometimes stated on an arbitrary basis, the latter related to purposes and standards of research, and empirically grounded. The main assumption for these construct levels is "that it is possible to find sets of ideas, tacit or explicit, that allow or inhibit certain cognitive moves" (p. 3). Higher levels can resolve problems created by limitations of lower levels.

4. Some overall ideas about levels of progression can be synthesized: levels of progression are made up of interlinked ideas, progressively increasing in power from level to level; they present a multi-stranded nature, logically related; each level may represent a relatively stable set of ideas with which children operate. Levels are construct levels in a double sense: "they are children' s ways of making sense of history ... they are our own way of making sense of the children's world" (p. 5).

Therefore, a categorization by levels of progression is a working hypothesis subsumed in this study. Thus, pupils' ideas about provisional historical explanation will be analysed within this framework.

Pupils' ideas about historical explanation

A considerable amount of research concerned with pupils' progression in history deals with the concept of historical explanation, albeit understood in different ways.

Peel (1967a), having as a main presupposition the Piagetian developmental stages, discussed explanatory thinking in pupils by comparing it with reflective thinking: both were made up of chains and groups of associations of ideas or events; the difference lay in the criterion controlling the sequence of association. In explanatory thinking, this criterion was of a practical kind in that the chain of reasoning would lead to successful action or, at least, would reduce the problem to an established principle which made action possible. The main features of explanatory thinking were: (a) the control of associations by practical criteria; (b) the testing of hypotheses against the facts; (c) the acceptance of some event or theory as being reasonably probable; and (d) the formation of language that deals with concepts and classes of objects. If the primary school pupil could solve problems in the presence of concrete elements of the situation, the adolescent could draw possible explanations and hypotheses, and test them; the child describes the situation, the adolescent explains it. In a study with 14+ to 17+ year-old pupils, Peel analysed problem-solving answers about Stonehenge, reflecting on the reasons given by pupils more than on the judgements they made. In another study, Peel (1967b) discussed some data from students' Ph.D. research with a sample of 10-15 year-olds. Pupils were asked about the findings of an archaeological site: "How do you

think the town would come to be buried?" and "Why do you think the barley growing over the roads and wall foundations was lighter in colour than the barley growing over the other areas?" (p. 175). If the answers to the first question were categorized in three levels according to the broad model he established for a causal explanation (restricted - circumstantial - imaginative thinking), in the second question the categorization implicitly pointed to some features of historical thinking, namely perspective, evidence and imagination. Four levels were constructed: level 1, a-historical and perceptually dominated; level 2 , with a sense of time but still largely perceptual and non realistic; level 3, with a single primary cause without reference to secondary causes; level 4, imaginative, with a connected examination of a sequence of primary and secondary causes. With another area of content (Peel, ibid.), the pupils were also asked to judge upon the actions and decisions of Henry III in context: "Was King Henry a religious man? Why do you think so?"(p. 185) and answers were categorized from perceptual reasoning to a sustained deductive argument. This model received criticisms from supporters of the rational explanation model, as dismissing the genuine character of history. According to his critics, Peel treated historical explanation on grounds of the scientific paradigm - the handling of external causes - rather than looking for the internal side of the human situation, the agents' reasons and motives.[6] Despite these criticisms, Peel's work provided an important framework for subsequent research. It contributed to the exploration of pupils' ideas in history, according to his main concern (1967b):

> We need to know how the ideas are formed, changed, extended and used to lead to more mature understanding of the process of history. (p. 182)

In 1971 Peel discussed whether the difference between merely describing and giving a comprehensive explanation represented a change in quality of thought. He related this change to age, and argued that it could be observed in history and geography: young children revealed little reflection upon the information given, the 12-14 year-olds were dominated by concrete pictorial evidence, scarcely imagining other possible factors, whilst the 14-15 year-olds began to show a capacity for coordinating several factors and of imagining different possibilities. The broad scheme of progression from description to explanation devised by Peel has proved to be useful in research on pupils' historical understanding since history does not deal with mere factual description. It deals with a more elaborate conceptualization, be it highly inductive, when inferring from the evidence, or hypothetical-deductive, when involving a set of logical operations to arbitrate among different possible conclusions.

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[6] See this criticism in Dickinson and Lee (1978b).

Hallam (1967), using a sample between 11+ and 16+ students, looked to answers of a rational explanation-type, like "Do you think William of Normandy was a cruel man?" or, "Why did William destroy Northern England?" (pp. 198-9) but those answers were still analysed using a framework related to the Piagetian general patterns of thinking. He concluded that a mental age of 16.5 to 18.2 was required for the beginning of the formal stage in history and concrete thinking would begin in the twelfth year.

In order to explore pupils' ideas of a rational explanation-type by using a specific framework for data analysis, Dickinson and Lee (1978b, 1984) conducted two pioneering studies, already described in so far as levels of progression are concerned. In 1978b Dickinson and Lee explored rational type answers to questions like: "'Why did Jellicoe turn the fleet away from the Germans?", and also employed empathy-type questions like "Imagine you are Jellicoe talking to a sympathetic listener the day after the battle ... Explain ... what the situation was" (p. 115). In the second study (Dickinson and Lee, 1984) explanatory questions of rational kind were also made explicit, like "Why do you think the Anglo-Saxons used oath-helping and the ordeal to decide if someone was guilty of a crime?" (p. 118) The categorization given for analysing explanatory thinking in pupils of different ages consequently assumed the model of rational explanation in history.

Shemilt, in "The devil's locomotive" (1983), also relied on the intrinsic nature of history, with its logic, methods and perspectives, for the analysis of pupils' ideas about narrative and explanation in history, using a sample of 167 pupils taking part in the "History 13-16 Project". They were 15 year-olds interviewed for evaluation of the Project. Shemilt suggested that "adolescents are perfectly capable of addressing highly abstract questions when these can be appropriately presented... even though - given present teaching methods - no more than a minority of children can be expected to conceptualize in ways teachers and historians would consider legitimate" (ibid., p. 4). The evaluation study showed higher levels of progression in the Project group than in the control group. The levels categorized pointed to a progression from a descriptive pattern towards a contextual narrative pattern, rather than a misconstruction in opposition to a construction of ideas. Those levels were, basically:
Level 1. Historical narrative seen as lacking inner logic, the *why* being immanent to the *what*; causal links seen as factual as the events.
Level 2. Narrative seen to embody an austere logic, as a series of events; some oscillation between admitting alternative outcomes (stories) and denying their causal possibility.

Level 3. Narrative seen as a selective commentary upon events; a positivistic view in which causation becomes an almost metaphysical concept.

Level 4. Narrative begins to be contextualized within a given period, although the understanding of period might appear rather restrictive; some assumptions beyond a positivist pattern of external forces.

In Shemilt's categories of pupils' ideas about historical explanation, an integrative model of rational-causal explanation seemed to be implicit. In considering the idea of historical explanation as a contextual narrative beyond a mere selection of external causes, Shemilt posited himself as a defender of the rational mode, but he analysed the notion of *cause* as tackled by pupils in its varied degrees, the external meaning included. He built his categories taking this notion into account, as historical narratives usually do.

A similar model of causal explanation integrating reasons and causes seems to underlie current research on children's ideas in history: Thompson (1984) exemplified children's ideas about causal explanation in history, in a study with 150 pupils from two schools, with ages between 12 and 17. He asked pupils about the outbreak of the Peasants' revolt in 1381 and responses were categorized from anachronistic thinking, ignoring relevant information, to the understanding of different possible factors. Medley (1988), reflecting on the assessment objective "to make use of and understand the concepts of cause and consequence" prescribed for History at G.C.S.E., argued that, since cause is not a self-evident concept, the question would be "how are we to help our pupils to move from the mere regurgitation of a list of causes to actually doing something analytical with cause" (p. 27). Assuming that the use of a *comparison-situation* is a common criterion used by historians in causal weighting, he carried out an enquiry in his own school to see how pupils from 13 to 18 years old weigh different causes in historical explanation. A sample of 111 pupils was asked about the causes of the Russian Revolution of November 1917. The categories for data analysis were constructed as they are briefly described below:

Level 1. Certain causes described as "important" without making comparisons, as if they were self-evident or obvious.

Level 2. One cause compared with another by means of describing a single consequence of the absence of a particular factor. This level implies the use of counterfactual reasoning.

Level 3. A number of causes weighted against each other by means of arguments concerning the consequences of some causal factors being altered or taken away. Compensating factors, timing and interrelating causes are typical of this level.

Level 4. Causes weighted against each other by reference to an actual comparison-situation. This highest level was hardly attained even by a few pupils.

This model brings a useful feature to research, that of which criteria pupils apply when weighing different factors. However, the assumption that counterfactual reasoning and the recourse to a comparison-situation should be ingredients in assessing the relative importance of causes, if taken in absolute terms, might narrow the scope of analysis of pupils' responses. Other criteria might be at work when children reason on causes in history.

Cooper (1991), while exploring pupils' ideas about evidence, found arguments of explanatory-type which children were able to use between the ages of seven and nine, as well as explanations. Children could progress from (a) illogical thought, (b) incipient argument, and (c) genuine argument, characterized by the use of conjunctions (therefore, because..), to (d) the "explainer stage", implying a synthesis of arguments and the use of abstract concepts. The "Chata Project", which has been carried out by Lee, Dickinson and Ashby since 1991, is exploring the use of reason and cause in historical explanation by children. Thus, an integrative model of rational and causal - in the sense of external factors or conditions - explanation emerges nowadays as a focus in this field of research.

This study subsumes the hypothesis that adolescent students may apply notions of reasons and motives as well as external causes in the explanations they construe. Since the theoretical focus of this enquiry is the concept of provisional historical explanation, one question to investigate is:

What explanatory models underlie adolescent students' explanations?

The idea of provisionality in history and adolescent thinking

The idea of provisionality contrasted with definitiveness brings an element of uncertainty (in a broad sense) to historical conclusions. It presupposes creative as opposed to reproductive thinking and reasoning about different possibilities. Thus, some studies carried out in the psychological or history teaching field, and relating to these broad ideas in connection with adolescents, were considered.

Piaget and Inhelder's studies on children's ideas about chance (1975) were specifically related to logical arithmetical operations and suggested that the formation of notions of chance and probability correlated with the cognitive stages. They traced a developmental sequence of that notion across age, as follows:

1. Before 6-7 years of age, the child does not distinguish the possible from the necessary.

2. At 7-8 years of age, the child is capable of such a differentiation and can construct a notion of multiple possibilities through a concrete disjunction. Chance is seen by contrast to necessity.

3. After 11-12 years of age, the judgement of probability becomes organized: there is a synthesis between chance and operations, and a system of probabilities is structured.

Peel (1967a) pointed out that thinking could progress further from explanatory thinking to productive thinking characterized as when known explanations were used in new settings or for restating a problem, and to integrative thinking, seen when looking for better and more sensitive hypotheses.

Byrnes and Overton (1986) examined the comprehension of certainty and uncertainty across concrete and propositional reasoning tasks by 6 to 10-year-old children. From their research they suggested that the comprehension of conclusions of certainty emerges earlier than the understanding of uncertain conclusions. The discrimination between certain and uncertain conclusions is well-grasped in concrete as in causal contexts by the fifth-grade (10-year-olds), but in a propositional context (conditional syllogisms) that comprehension seems to emerge in the fifth-grade only. In similar situations, namely, within concrete or within propositional contexts, there seems to be a high degree of stability across different tasks; across concrete and propositional contexts, the relation between certainty and uncertainty is less apparent. This gives support to their discrimination between two competencies - propositional uncertainty and concrete indeterminacy - correlating with formal and concrete operations.

Landman and Manis (1992) investigated the imagining of possible alternatives to real life in three samples of adults, one of university undergraduate women, one of well-educated women having contacted the Centre for Continuing Education of Women, the third sample being a group of individuals who had lost someone in an auto accident and a matching control group. The study suggested that the "might-have-been" or counterfactual thought related to real-life issues is a common type of reasoning among diverse sets of adults.

From the studies above, and those of Johnson-Laird and Wason (1977) and Donaldson (1978), we might hypothesize that considering different possibilities in concrete situations is part of common thinking and that adolescents can already understand uncertainty in a propositional context.

How can adolescents cope with this element of uncertainty when they are confronted with several competing answers to an historical question?

Hallam (1972), within the Piagetian framework, suggested that pupils develop reversibility when information is processed through two viewpoints about an event or topic.

Rees (1976) investigated pupils' notions of probability and inference specifically related to the historical domain, along the lines of the Brunerian statement that the learner should solve problems at the heart of each discipline. He explored the generation of causal inferences and of counterbalancing evidence to support different perspectives in boys of 12-13 years old with a median range of ability. A design with an experimental and a control group matching for sex and ability was applied to a sample of 60 pupils, the "treatment" being the teaching of five weekly follow-up lessons to the initial testing in order to see teaching effects on the acceleration of logical thinking. The formal stage was seen in the context of history and characterized as when adolescents "could conjecture several possibilities and support their case by going beyond the evidence given" (pp. 23-4). When exploring the uncertainty structure of history during the follow-up teaching lessons, he asked for judgmental answers in questions such as "Did William the Conqueror treat the conquered English badly?". Rees tried to make pupils substitute more flexible and more qualified judgements for absolutist, unqualified judgements. He also tried to foster understanding that in an historical situation more than one factor might be seen, and the search for implicit features in data. Rees found "substantial advances ... in the capacity of the experimental group to reason more purposefully and to make more flexible and elaborated judgements" as well as "a greater grasp of conjecture and uncertainty" (ibid., pp. 283-8). This study brought an innovative element in that it contextualized within the historical field the provisional element inherent in knowledge. It might be controversial, however, whether the acceleration of formal operations in pupils in a short period of time could effectively occur as a result of teaching methods. Pupils might have learned to give the "right answer" in a specific context, which was, to produce apparently flexible responses (irrespective of more or less sophistication).

The categories built by Dickinson and Lee, Ashby and Lee and Shemilt, in order to analyse pupils' ideas about different historical concepts, implicitly or explicitly, looked for an idea of provisionality built into the concept of historical interpretation and explanation. The model given by Lee in 1978 considered a sense of provisionality in the

idea of a rational explanation. The one who is explaining reconstructs the past by inferring from evidence and using analogy - that reconstruction can be only provisional. Recent materials from the "Chata Project" (Lee, Ashby and Dickinson, 1993) pointed to the consideration of ideas of alternative valid stories, integrating some awareness of methodological objectivity, in the analysis of pupils' thinking about accounts and stories.

Shemilt (1983) implicitly invoked an idea of provisional explanation (as a narrative) in the construction of his categories: he looked for the understanding of different possibilities (accounts) historically contextualized. In 1987, in his study on adolescents' ideas about evidence, Shemilt suggested the same concern:

> It is precisely because primary evidence needs to be indexed by means of secondary sources (contextual knowledge amounting to nothing other than witting or unwitting acceptance of secondary material) that uncertainty is built into the fabric of an academic enterprise that involves accepting a library of published texts in order to rewrite a single volume. (p. 58)

Cooper (1992b) also considered a sense of provisionality in the interpretation of evidence when using the following scheme for pupils' answers about a map where Neolithic artefacts had been found:

> What do you know for certain?
> What can you guess?
> What would you like to know? (p. 9)

In parallel to this research on pupils' ideas of history, the idea of provisionality was made explicit in the History National Curriculum (DES, 1991) about historical interpretation (Attainment Target 2) and about the use of evidence (Attainment Target 3). This has stimulated a reflection about ways of handling such requirements in class (Nicklin, 1992; Harper, 1993; McAleavy, 1993). Lang (1993) discussed the notion of bias usually taught in history class. He noticed that bias is seldom defined for teaching or assessment purposes and he distinguished it from distortion, arguing that:

> If we complain that a source is biased, the implication is that we would prefer a source that isn't: there is, of course, no such thing. The problem is that our conception of objectivity all too often gets confused with the notion of neutrality. This is quite mistaken. (p. 11)

Accordingly, this notion of bias involves the notion of point of view. This position stresses the need for interpreting evidence in context, but it may contain the danger of ignoring a necessary distinction between a more and a less reliable source.

A postmodernist view of provisionality, emphasising the relativity and contingency of historical knowledge, has been the object of debate and controversy in so far as its application to history classes is concerned. In 1991, Jenkins, Jenkins and Brickley, advocating a postmodern approach, launched the proposal of deconstructing history in school and the need to historicize interpretations with certaintist pretensions. Aldrich (1991) in reply to this programme, reacted against such a postmodernist view of history, giving a set of examples of countries where modernism has not yet emerged:

> Scepticism or, more radically, nihilism, just do provide the dominant underlying presuppositions of "our times" But in what sense is that true?
>
> Can it be universally applied in any meaningful way across the several peoples and cultures...?
>
> Is it ... true in the 1990s for the people of Botswana, Hungary, Iran and Portugal?[7] Is postmodernism possible without modernism? (p. 11)

The debate has continued, with replies from Jenkins (1992, 1994) and Brickley (1992, 1994). Breuilly (1994), arguing against the postmodern proposal of Jenkins and Brickley, stressed that in history validity is assessed by recourse to evidence, concepts and logical argument. The postmodernist pressure appears as if "one has to choose either between truth as fixed dogma or to brace oneself to live 'a life without truths" (Breuilly, 1994, p. 29).

This controversy has been useful in showing how different meanings of provisionality in historical conclusions may be understood and applied in the history class, ranging from a relativist and sceptical view emphasising the contingency of knowledge and, consequently, the need for its deconstruction, to an objectivist view recognising the possibility of valid reconstructions of the past, by recourse to specific historical criteria, in which evidence is seen like a bridge to reality.

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[7] It might be thought that, if an ante-modernist age subsumes fundamentalism, to include countries as Portugal and Iran, in the 1990s, within the same label, might be far from being rigorous.

In the light of these debates about uncertainty, objectivity and contingency of knowledge to be tackled by students, a major purpose of this study is to investigate:

To what extent do adolescent students operate with a notion of provisionality in historical explanation and, when they employ a notion of this kind, what meanings do they assign to it?

What specific criteria do they use for deciding among different possible explanations?

The idea of personal constructs

Some ideas borrowed from Kelly's theory of personal constructs helped to illuminate the analysis of pupils' data in this study. Kelly (1980) opposed constructive alternativism - his central philosophical assumption - to accumulative fragmentalism:

> It is not that we, as scientists, know just so much, and are out to add to the store, but rather that our experiences, pressed full cycle, will lead us to question more freely, to be less taken by the "obvious" to see fresh possibilities of relationships, to put facts together into more productive combinations, and to entertain sweeping alternative constructions of events where once we could only "feel" and "perceive" and "learn" what was already "known". (p. 11)

Humans progress from the known to the unknown and the newest experiences give a new perspective to prior experiences. The conception of knowledge as accumulation of information as if truth was something to be reached bit by bit was rejected by Kelly. He noticed that each step of knowledge challenges what we thought was already settled. Conventional assumptions are reconsidered and we realize that we may possess approximations to truth, not fragments of it. This idea of constructive alternativism contrasted with mere accumulation of information contributed to the building up of the model for categorization of students' ideas.

The idea of constructs was originally given by Kelly as compartments carrying binary distinctions - such as the tight versus loose construct. In the present study, some constructs were made explicit in terms of polar alternatives, as when contrasting *perspectiveful* versus *perspectiveless* neutrality, or a *tight* versus *loose* attitude in decisions about different explanations. A tight attitude is defined as leading to unvarying predictions whereas a loose attitude opens diverse possibilities. But constructs also allow for a scalar mode, such as the preempted, constellatory,

propositional levels of constructs (Bannister and Fransella, 1986). The *preempted* construct exclusively confines the idea enunciated (e.g., "personal opinion is just personal opinion"). The constellatory construct fixes its meanings in a stereotyped, common-sense definition, not allowing for a revision of ideas. In the empirical study this level is termed *stereotyped* or *everyday*[8]. The propositional construct allows for considering other possible meanings (hypotheses) than those previously stated. In the empirical study this construct is termed *elaborate*.

According to the "organization corollary" as discussed by Adams-Webber (1979) each person develops a hierarchical network of constructs organized in a system and sub-systems. A linkage between constructs is characteristic of logical thought and this permits that whenever a person interprets an event, she/he construes it in terms of one or more of her/his constructs. The more constructs a person can develop on an event, the more clear and distinct its meaning will appear. Each construction represents an hypothesis chosen for consolidating the personal system, thus reducing inconsistencies - we decide which pole of a given construct will provide the best answer. It is within the framework given above that "perspectivism" (in a psychological approach) has been explored. Landfield (1980) defined it as implying "some capacity to step back from a problem and to conceptualize it more thoroughly, complexly, and integratively". Perspectivism is contrasted with literalism described as "an absolute interpretation of an event or a relationship without the implication that it is necessarily 'bad" (p. 289). Whereas the literalist tends to give an absolute interpretation of an event, looking upon the situation as if there were only one way of viewing it, the perspectivist recognises that there may exist several ways - several hypotheses - of regarding the situation.

This approach offers an integrated view of the person, refusing the cognition/emotion binary. As Bannister and Fransella (1986) pointed out:

> So a construct is not a thought or a feeling; it is a discrimination. It is part of the way you stand towards your world as a complete person. (p. 21)

In so far as historical interpretation and explanation focus on the understanding of others (some being more familiar, some stranger), it might be related to the "sociality corollary" which stresses that understanding the other integrates cognition and emotion. At different stages in the process of construction different modes of experience may occur; less rational attitudes may appear as strategies to preserve the existing construct system and not to be faced with chaos. Along the lines set out by Kelly, Bannister and

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[8] Stereotyped and everyday ideas were conflated since the distinction was not germane to the constructs employed in the study.

Fransella (1986) defined such attitudes as "hostility", operationalized as (a) the refusal to see evidence contrary to our expectations by denying the validity of the source of evidence which is too crucially disconfirming, or (b) the use of the "conspiracy theory" claiming that all evidence is controvertible. Hostility is overcome when we find a way of making sense of the situation. This unitary view integrating emotion in different degrees might help to analyse some cases of students' responses of moves from elaborate ideas about historical criteria, to a tighter argumentation for practical choices grounded on emotional preferences.

Therefore, it was assumed that pupils' attitudes towards different explanations about a given past situation - particularly, about the Portuguese maritime empire in the sixteenth century - might be interpreted also with the aid of some constructs defined within this approach, namely:

> Constructive alternativism/ aggregation of information/fragmentalism
> Perspectivism/literalism
> Tight/loose attitudes
> Preempted/stereotyped/elaborate degrees of constructs

These constructs are implicitly or explicitly considered in the construction of the model for the analysis of students' ideas.

In the light of these lines of research, the major purpose of this study is to investigate students' ideas about:
- the tacit meanings assigned to provisional historical explanation;
- the specific criteria used for deciding among different possible explanations.

Summary

This chapter discussed some major concepts applied in the present study, in the light of relevant literature in the field of research on pupils' ideas in history and cognitive psychology. Those concepts were presented within four major topics which subsume the working hypotheses of the empirical study: (a) progression in pupils' ideas of history; (b) pupils' ideas about historical explanation; (c) the idea of provisionality in history and the adolescent thinking, (d) some constructs developed by Kelly's theory of personal constructs.

2 The concept of historical explanation

A working definition of the concept of explanation is required prior to exploring students' ideas of provisional historical explanation. This chapter intends (a) to discuss some models of historical explanation in the light of debates carried out in the domain of the philosophy of history - the nomological-deductive model, the rational model, the narrative model, the structural model, (b) to give a working definition of the concept of explanation applied in this study and, and (c) to analyse some answers to the central historical question used in the empirical study, in the light of the models discussed.

Models of historical explanation

Explanation together with objectivity have been among the major issues of debate and controversy concerning the nature of history. Before launching a brief discussion on some of its ambiguous meanings, a first boundary for the use of the concept in this study was established:

> The concept of historical explanation is used in the sense of a tentative answer as to why a past event or situation occurred.

Different models of causal explanation have been used by historians and discussed in the field of philosophy of history. Four main approaches are presented here - the nomological-deductive model, the rational model, the narrative model and the structural model - with an analysis of their key features as stressed by their defenders, in the light of concrete pieces of historical work. To emphasise some assumptions seen as relevant to the analysis of the empirical data, they are given in italics.

The nomological-deductive model

The nomological-deductive model is based on the assumption that a certain occurrence is deduced from a general law, that is, when we assign a cause or a set of causes (C) to a given event (E) that means that we are considering a generalization in which when C occurs, E will necessarily occur as well. The meaning of causation is drawn from the verification of regular repetition of the conjunction of C and E. In a symbolic form, it can be expressed by the following:

$$\text{If } C1, \ C2, \ C3, \ ..., \text{ then } E$$

In this classical model of causal explanation causes were regarded as necessary and sufficient conditions, *empirically verifiable*. Mill in 1872 (reprinted in 1959) stated that derivative laws between coexisting elements of each state of society (laws of coexistence) and between different states of society (laws of succession) could be deduced from those general laws of causation, and verified a posteriori:

> The empirical laws must be the result of but a few instances, since few nations have ever attained at all, and still fewer by their own independent development, a high stage of social progress. If, therefore, even one or two of these few instances be insufficiently known, or imperfectly analysed into their elements, and therefore not adequately compared with other instances, nothing is more probable than that a wrong empirical law will emerge instead of the right one. [...] The only check or corrective is, *constant verification* [italics added] by psychological and ethological laws. We may add to this, that no one but a person competently skilled in those laws is capable of preparing the materials for historical generalization, by analysing the facts of history, or even by observing the social phenomena of his own time.
> (p. 89)

Recent logicians, such as Hempel and Popper, have brought some fresh ideas to the concept of causal explanation, influencing all aspects of the analysis of scientific knowledge. It is a realist and empiricist approach, since it is based upon the idea of observable and non-observable entities. Causes are abstract links between entities and they are deduced from a general theory - or hypothesis - which can be subject to testing.

Hempel, in his article "The Function of General Laws in History" (1942/1959), defended the deductive-nomological model of reasoning as the basis for every science, history included. Historians do use that mode of reasoning, even when they only presume to give a description of the past. They cannot avoid subsuming work under a general hypothesis in order to relate events. Hempel defended the classical model of general law but assigned

to it the meaning of a *universal hypothesis* not only to be empirically confirmed but remaining *open to disconfirmation:*

> By a general law we shall here understand a statement of universal conditional form which is capable of being confirmed or disconfirmed by suitable empirical findings. (p.345)

The paradigm of a *complete explanation*, in the sense of a set of determining conditions of a certain effect, remained. The logic of explanation is the logic of prediction; the former is complete when it can function as a prediction. Nonetheless, Hempel conceded that most explanations are not of such a type: they rest on probabilistic rather than deterministic laws. Within this model, the expression previously enunciated should be substituted by the following:

$$\text{If } C1, \ C2, \ C3, \ \text{probably } E$$

For Hempel, history is one of those sciences whose explanations do not rely on general laws; some of them can be considered to be probabilistic. Exemplifying, he alluded to the explanation on the migration of Dust Bowl farmers to California because continual drought and sandstorms made their lives difficult and California promised a better standard of living. This explanation presupposed that "populations tend to migrate to regions which offer better living conditions". Such an assumption obviously cannot function as a general law, but as a universal hypothesis of a statistical kind (populations tend to...). Accordingly, Hempel (1959) agreed that:

> Many an explanation offered in history seems to admit of an analysis of this kind: if fully and explicitly formulated, it would state certain initial conditions, and certain probability hypotheses, such that the occurrence of the event to be explained is made highly probable by the initial conditions in view of the probability hypothesis. (pp. 350-1)

Hempel claimed that explanations in history are usually vaguely asserted and that they cannot be subject to a full empirical confirmation and to prediction. In consequence, they are only explanation sketches, more vague and incomplete than most of those in other sciences. Yet they are considered scientifically acceptable, requiring a filling-out process, trying to find out more specific statements in order to confirm or disconfirm the initial conditions (factors) stated as relevant. This process relies on some sort of evidential confirmation; the assessment of an explanation sketch implies a judgement of their scope and empirical foundation. Thus, Hempel selected two main criteria for assessing explanatory power: one, implicitly stated, is *logical consistency*, which makes the

difference between a complete explanation and an explanation sketch; another, made explicit and emphasised, is *evidential confirmation:*

> The soundness of the historical explanation must rely on the criterion of assessing exclusively whether it rests on empirically well confirmed assumptions concerning initial conditions and general laws. (p. 353)

Popper was another influential logician who concerned himself with the foundations of the natural and social sciences. His work "The Logic of Scientific Discovery" (1980), first published in German in 1934, prior to Hempel's quoted article, defended similar ideas on the deductive-nomological mode of reasoning, as the basis for every science. He explicitly refuted the inductive model based on the Humean assumption that in science plain observation comes first and that laws are arrived at by a process of induction. Popper claimed that the problem arises first whether it be suggested by practical or theoretical reasons, and that this is true in every science in the natural or the social field. Universal statements are seen as theories, which can be tested by experience through falsifiability: theories (T) can be contradicted by means of true singular statements (S), that is, as T then S, if not S then not T. Although theories can be refuted, they are never empirically verifiable since there cannot be a total and conclusive confirmation. Hence theories stand while they are *well-corroborated* "with respect to some system of basic statements" but they must be considered always provisional since they remain *open to refutation* (Popper, 1980, p. 275). Corroboration is not a timeless truth-value but a logical relation between a theoretical system and some system of accepted basic statements. When reflecting specifically on social and historical knowledge, Popper (1961) emphasised a distinction between laws and trends, according to the distinction made by Comte and Mill on laws of coexistence and laws of succession. Laws can be applied to static phenomena; but in the field of dynamics, when the concept of time enters, laws (laws of succession) cannot be precisely determined. Even in the natural sciences these laws of succession can only be called "quasi-laws of succession", since the changing of the set of specific conditions will influence the outcome (Popper exemplifies this with laws about the seasons, or the phases of the moon). Popper therefore asserted that there can be neither laws of succession, nor laws of evolution. In the social field, there may be trends with a dynamic feature, but predictions cannot be made since the specific conditions can always change. Trends depend on initial conditions and it is essential to understand their continuing changes in order to look at them as tendencies, not predicting laws (this is a direct criticism of what he calls the Marxist historicist approach). As was stated above, even laws, according to Popper, are hypotheses with a provisional character in the sense that they can and must be corroborated but they can never obtain a final proof, they are permanently open to falsification or refutation.

Summarizing Popper's general approach, he viewed scientific method as "deductive, hypothetical, selective by way of falsification" (1961, p. 137). Like Hempel, he defended the unity of scientific method and applied it to history with certain limitations. He explicitly asserted that the focus made of historical explanations is on particular facts and their initial conditions instead of universal laws. However, he also agreed that there are inherent laws in these initial conditions usually taken for granted by historians. These laws are *tacitly assumed*. Even when dealing with notions of governments, wars, or nations, historians are implicitly using abstractions provided by scientific or pre-scientific analyses. Historical events are typical while belonging to classes of events, and unique while historians show interest in describing features of their peculiarity with no explicit concern about a causal explanation. Popper (1961) pointed out:

> These two tasks of history, the disentanglement of causal threads and the description of the "accidental" manner in which these threads are interwoven, are both necessary, and they supplement each other; at one time an event may be considered as typical, i.e., from the standpoint of its causal explanation, and at another time as unique. (p. 147)

If laws are just theories in the scientific field, theories are just interpretations in history, since historical approaches cannot be tested. For example, many facts can be interpreted in the light of class struggle or the struggle of racial supremacy (two hypotheses which Popper overtly aimed to combat), but supporters of either hypotheses often misunderstand evidence as confirmation or even as a proof for their own favoured explanation; those explanations must only be considered as more or less interesting interpretations and not as confirmed theories. For Popper *historical explanations are mere interpretations*, not theories; they are *points of view* which can be formulated as testable hypotheses but they cannot be tested in the sense of being refuted. This characteristic makes historical explanations more debatable, more provisional than those constructed in the field of natural sciences. In spite of this view, Popper considered that historical explanations have the same scientific pattern as those concerning other fields of enquiry. The writing of history,

> from a preconceived selective point of view does not mean that we may twist the facts until they fit into a framework of preconceived ideas. On the contrary, all available evidence which has a bearing on our point of view should be considered carefully and objectively (in the sense of scientific objectivity). (Popper, 1961, p. 150)

Popper therefore valued historical interpretation provided it was well-grounded on evidence logically related to the focus made.

Although the nomological-deductive model is assumed in the analysis of constructed explanations, historians do not make use of general laws as an explicit methodological criterion. Under this criticism, M. White (1965), a follower of that model as applied to history, discussed a concrete explanation given by Geyl on the prosperity of Holland, when replying to Toynbee, who had asserted that Holland's prosperity was due to the challenge of the sea. Unlike Toynbee, Geyl considered that not only that factor (which until a certain moment had even functioned as a negative factor to development), but *a whole set of factors* should be taken into account (M. White, 1965):

> If one looks a little more closely, one will observe that within the European and even within the Netherlands cultural area the rise of Holland was fairly late, and this no doubt as a result of these very conditions created by sea and rivers. If in the end it overcame these conditions, it was not without the assistance of the surrounding higher forms of civilization [...].
>
> But can, even after that initial stage, the continued struggle with the water be decisive in explaining the later prosperity and cultural fecundity of the country? Is it not indispensable to mention the excellence of the soil ... and above all the situation, which promoted the rise of shipping and of a larger international commerce? Was the case of Holland then wholly due to hard conditions after all? Is it right to isolate that factor from among the multifarious complexity of reality and to suppress the favouring factors? (p. 112)

M. White argued that the only way for Geyl to defend his explanation would be to justify generalizations implied in each factor by means of *comparison with similar situations*, in the light of evidence of other countries confirming generalizations like: "whenever a nation is subjected to the challenge of the sea, has excellent soil, is assisted by its neighbours, and has an excellent maritime situation, it will rise to great heights of success". This kind of generalization, however, may not be defended, as only one example - the example given - is covered by it. Some historical explanations, at least, are of this type: they can only be confirmed by the very example stated as "the effect". Because of this weakness, White considered that historical explanations are "more tenuously constructed, more debatable, more subject to doubt than the explanations of natural scientists" (p. 29).

(a) History as a particular science

Some authors, such as Gardiner (1961) and McClelland (1975), defended the nomological-deductive model in a mitigated way - they maintained that history is an empirical science in a broad perspective, in terms of methodological requirements, but simultaneously emphasised some features of its uniqueness.

Gardiner (1961) defended this approach by analysing similarities and differences between *common-sense* and *scientific explanation*: both rely on inferring correlations through experience, both are selective, in the sense that they isolate a cause or causes as most relevant; however, while in everyday explanations contiguous elements leading to laws are uncritically subsumed, in science they are subject to analysis, confirmation and refutation. The use of language is different in either context. Moreover, the scientist makes use of deductive reasoning and tends to express concepts in quantitative terms, attempting to get precision and objectivity in his/her search for more and more fruitful explanations. These differences can lead to the misunderstanding that common people and scientists are speaking of different worlds. Each form of explanation is relative to the corresponding conceptual framework. The concept of cause, for example, is a concept borrowed from everyday language. Although not used in physics any more, that does not imply that it cannot be used in other levels of science. Gardiner asserted that these arguments do not mean that explanations are different in nature, neither are there any levels superior to others; they are necessary and have different functions. Historical explanation has some common points with other forms of explanation. Most of the time it is implicitly suggested by expressions like "under these circumstances, it was not surprising that ...", but it has characteristic distinct features too. History is mainly concerned with particular connections which may never be repeated again, it does not deal with general correlations of the kind that scientists usually look for. In history, concepts used as generalizations are vague and complex, they provide just indications of factors, thus it is inappropriate to consider them under subsumed laws. Moreover, the historian cannot submit his explanation to confirmation and refutation. These aspects do not make historical explanation weaker than other explanatory forms, Gardiner claimed. It is not the half-stage of a scientific explanation, since it aims to be itself, not something else. Explanations cannot be confirmed but they can be *supported* (by evidence) or *justified* (through further specification of the factors involved).

When analysing the concept of causation in history, Gardiner (ibid.) discussed two problems which might be useful to highlight: (a) the role of chance in explanation and, (b) different levels of causes:

(a) The interference of chance in a causal relationship is considered as an occasional collision of two sets of independent causal relationships. Thus an occurrence, whose logical links within a set of causal relationships can be explained, might appear as *a chance factor* to another set of events.

(b) The problem of different *levels of causes* is related to the perspective which most interests the historian. The same question can be answered at various levels: at the level of

individual reasons, at the level of the immediate context, or at the level of long-run conditions.

McClelland (1975) took a similar mitigated view, stressing that both Collingwood and Hempel advocated the impossible: the former denying that historians make use of generalizations; the latter ignoring the indeterminacies crucial to history, which make the nomological-deductive model difficult to apply in this specific field of enquiry. Relying on Gardiner's view, McClelland asserted that historical explanation is beyond a precise classification. Every historian regards insight as an important strategy, but she/he knows that human behaviour cannot be explained merely by either recreating the agent's calculation or by using universal generalizations. What historians usually try is to assume a critical position about their own assumptions, to respect evidence, to pursue a coherent logic, to expose their premises. This framework highlighted by McClelland allows room for a shift in the focus of discussion on historical explanation: it is arguable that what matters now is to analyse concrete explanations and those strategies used by historians in order to defend their own explanations. Aligning with those who consider history to be a science, McClelland found a useful comparison between historical strategies and those applied in social sciences. Being himself familiar with economics and economic history, he attempted to discuss some common points between causal explanation in history and economics. He assumed that factors are selected according to the model:

If (C1, C2 ... Cn) then E, *ceteris paribus*

The notion of *ceteris paribus* was emphasised by McClelland and other authors who have seen historical explanation under the probability-statistical model. This notion represents all other non specified conditions sufficient to the occurrence of E. It means that C1, C2, ... Cn will be followed by E unless some other unknown factors interfere. This explanation can be formalized like this:

Probably, if (C1, C2, ... Cn) then E

Analysing the historian's work, McClelland observed that the historian usually wants *to assess the relative importance of factors* selected. McClelland asserted that *counterfactual reasoning* usually underlies the argumentation for some favoured factors, although counterfactual examples in historical explanation have been an issue of controversy among historians who often remain sceptical about their use. He examined two kinds of questions used by historians in assessing the relative weight of causes where counterfactual reasoning is usually implicit: (a) How can each factor affect the probability

of the occurrence? (b) can a particular factor be considered a necessary condition or not? In both cases, a comparison-situation is implicitly or explicitly applied.

(a) How can each factor affect the probability of the occurrence?

If C1 is considered more relevant than C2, that means that there is a greater probability of E occurring when C1 is present than when C2 is present. This analysis implies a counterfactual judgement: if not C1, probably not E. Generally speaking, considering a counterfactual possibility in history involves a statement like: if not C1, what would have happened? Statements such as "if Hitler had invaded England", "if the Greeks had discovered gunpowder" are frequent in historical speculation and they clearly refer to a past situation in which such factors would be present. The level of probability of past occurrences is thus calculated in considering the non-existence of each factor - or set of factors. But sometimes this relevance is estimated just by adding each real factor according to the actual temporal sequence. In this case, the historian will estimate the difference in the probability of two causal assertions:

$$\text{If } (C1, \ C2) \text{ then probably } E$$
$$\text{If } C1 + C2, \text{ then probably } E$$

that is, the probability of E will change when C1 and C2 are acting together or in a sequence. In this kind of judgement, McClelland asserted, a counterfactual statement is not implied. All it requires is to know how the probability of the occurrence changes when actual factors are simultaneously present.

(b) What factor can be considered a necessary condition or not?

About this second question, McClelland pointed out that the historian might claim that what interests him is to compare necessary and non-necessary conditions. But even this reasoning, he insisted, conveys a counterfactual possibility about what had happened if the indispensable (necessary) factors would not have existed.

The rational model

Radically opposed to the general-law paradigm, another approach in the tradition of philosophers such as Dilthey and Croce views history as an autonomous field of enquiry. Historical knowledge is considered genuinely different in nature from sciences - an ideographic as opposed to nomothetic enquiry. This approach is based on the major assumption that human events, which constitute the focus of history, are unique and can only be recreated through understanding and interpretation. Within this framework,

philosophers such as Oakeshott and Collingwood totally rejected the deductive mode of reasoning as applicable to historical explanation.

For Oakeshott (1933), history is a world of ideas, not just facts to be discovered - it is a form of experience. He claimed that historical explanation has a completely different meaning from the causal model used in scientific experience. We cannot find the single cause or the decisive cause in history because that would imply an abstraction which isolated events from their relations and interconnections, and that is not history - "no event is merely negative, none is non-contributory" (p. 129). The change of history is in itself explanatory, thus historical description overlaps explanation:

> The course of events is one, so far integrated, so far filled in and complete, that no external cause or reason is looked for or required in order to account for any particular event. (ibid., p. 141)

This principle of unity or continuity is characteristic of historical experience, a structural presupposition in the attempt to explain the historical past. This is distinct from *the practical past* which is a fancied past to extract the inspiration desired by practical experience, usually serving politics (as for instance with patriotism, or religion). This distinction does not mean that the historical past is fixed. What is known is not what really happened but "what evidence obliges us to believe", a world of facts and events created by present evidence (ibid., p. 104).

In the same wavelength Collingwood (1946) viewed history as an autonomous field of knowledge, tending to value it as being superior to the natural sciences. The genuine nature of the former consists of a tentative grasping of both the internal (the thought) and external sides of actions, while science is only concerned with the external side of events. The object to be discovered in history is thought expressed in actions, the inside of action is the cause in history. Thus the causal model of science does not apply to this kind of knowledge. The historian recreates past actions and agents' *reasons* in his own thought, by insight, upon working out the evidence available. This implies an inferential method, but such an assumption does not mean that the historian begins with facts, with a blank mind. It is asserted that underlying presuppositions implicitly frame the point of view of each author who imagines a particular past situation from his own cultural context.

More recently, Dray and other philosophers influenced by the Collingwoodian approach have supported the same view in its essential features and have argued against the applicability of the nomological-deductive model to historical explanation. Sciences are concerned with abstractions, looking for regular patterns among events. History is concerned with the peculiarity of human events and affairs (their *rationale*) and this aim

cannot be accomplished by recourse to universal laws. Dray (1964a) defended the position that an explanation of a human action usually involves reconstructing "the agent's calculations" through insight. This calculation represents the agent's reasons for acting - and this is the essence of rational explanation. Reconstruction of the agent's reasons (beliefs, purposes or principles) must be worked out by the historian, who does it "using his own, or his own time's conception of rational purposes and principles". This feature brings no guarantee of the correctness of the explanation given, though it is always open to be improved by evidence. It is upon this basis that evidence gives an inductive character to rational explanation: "for we build up to explanatory equilibrium from the evidence" (pp. 118-55).

Dray (1964a) claimed that historical explanations can be logically complete. In spite of being a defender of the rational model, he discussed external factors in large-scale situations as he was interested in arguing against the general law model on the same grounds. He analysed underlying assumptions in concrete historical explanations, for example, the French Revolution: although the concept *revolution* can be a generalization, that characteristic is not usually the focus in which the historian is interested - she/he will look for the specificity of *that* revolution, for the uniqueness of the *explanandum*, rather than for similarities among revolutions. The uniqueness of the *explanans* - since it is hard to find other instances of underlying general hypotheses out of the situation under scrutiny - and the complexity of various factors stressed, make the case for general laws in historical explanation problematic.[1] Although conceding that in explaining broad states of affairs generalizations can be assumed, otherwise it would be impossible to relate events, he claimed that historians may use no laws at all in their explanations. This being the case, other grounds are required to support causal selection in history. He suggested two tests: the pragmatic and the inductive test. The pragmatic test - the "handle" test, according to Collingwood (Dray, 1964a, pp. 95-7) - relies on the criterion of indicating those conditions seen as important because they appear under human control in what concerns the historical agents.[2] This involves attributing *praise or blame* to someone over a situation and the relationship between causal links and the assignment of responsibility to some agent is essential in history. This test may be applied to non-occurrences, absences or failures of agents too: a causal explanation of what went wrong will focus not

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[1] M. White (1965) felt a similar problem when he discussed the possible underlying laws in the factors emphasising the rise of Holland, given by Geyl; he viewed it, however, as a sign of a logical looseness of the historical explanation, while Dray summed it up as evidence against the general law model.

[2] Dray discriminated cause and condition in a similar way to Hart and Honoré: conditions are the matrix or background within which the causes operate. For this distinction, Hart and Honoré (1966) made two main contrasts: between normal and abnormal conditions, and between a free deliberate action or other actions. Cause is the abnormal occurrence which makes the difference between the normal course of events and what really happened. Also a voluntary action may be sometimes identified as the cause of some particular occurrence.

only on what could or could not have been done, but on what should or should not have been done. As it requires the isolation of some conditions (i.e., it may always be filled in with other factors) the explanation can be considered incomplete. The second test - the inductive test - is intended to show that without C (the cause), E (the event) could not have happened. Although this reasoning may appear similar to the covering law model (if C then E), what is done in history is to establish a *particular causal connection* and then to generalize towards a trend from this particular case/cases.

Two specific types of explanations discussed by Dray (1964a) are worth considering as they can be useful for the analysis of students' responses: the model of continuous series and "how-possibly" type questions. The *model of the continuous series*, Dray pointed out, lies in between scientific and historical explanation and is applied in everyday affairs. It consists of the reference to a series of facts constituting the story of what happened since a fact is thought of as a logical condition of the event to be explained. Although considered philosophically naive by Russell due to "the infinite divisibility of space and time (ibid., p. 68), Dray asserted that in its pragmatic dimension this model may provide a logically satisfactory explanation. In the case of a *how-possibly type question*, the explanation seeks to discover how an event, which seemed impossible to occur under the known circumstances, could nevertheless occur. To show how E occurred in spite of Cn (conditions known) demands a filling in of missing information to remove the unlikelihood of E. But simply adding details in a temporal sequence does not provide a complete explanation in so far as it stops short of mentioning sufficient conditions. This explanation can be a logically satisfactory one if it is transformed into an answer to a why-type question.[3]

Dray (1980) analysed the Taylor/Trevor-Roper debate on the causes of World War II, in order to emphasise the rational framework underlying concrete historical explanations. Dray questioned Taylor's criticism of the explanation assigning to "Hitler's will" alone, with a plan implemented according to it, the status of "the cause" of war. He agreed with Taylor that this cause cannot be seen as a sufficient one, but he defended the proposition that it must be a necessary cause in terms of a rational explanation ("people cause those consequences of their actions they fully intend"). Dray stressed that, in spite of disagreement on a substantive issue, the explanatory paradigm is the same in both explanations. Both authors argued about causes under the criterion of a discrimination of cause and mere condition: what is controversial is the specific rationality of the agents' actions.

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[3] Since, according to Dray, a mere temporal sequence does not provide a satisfactory explanation in how-possible questions, we might infer that the model of continuous series has no explanatory power in answers to this type of question.

Dray (1964b) made a distinction between *rational* and *dispositional* explanation. If a dispositional property is attributed to things, as for instance, "the glass broke when the stone hit because it is brittle", the fact of the glass being brittle cannot be seen as a cause since it does not represent an antecedent event. It has, however, explanatory force and thus it can be considered as subsuming a lawlike explanation, containing a hypothesis ("brittle materials tend to be broken under specific conditions"). The hypothesis can be close to predictability when the behavioural pattern is applied to things or human reflexes, "single-track behaviours". But when complex behaviour is considered - as in the case of tracing the dispositional characteristics of historical agents - they are "many-tracked" and thus indeterminable. Behaviour cannot be deduced from motives: such connections cannot be seen under the covering-law model. When, for example, it is asserted that Disraeli attacked Peel because of his ambition, it does not mean that such a dispositional characteristic was determinant of his actual actions. But, although Dray considered dispositional explanations as showing explanatory force, he clearly denied an overlap between dispositional and rational explanation. Disposition, Dray claimed, is a "spectator's word"; it belongs to the language of observing and predicting, rather than of deliberating and deciding" (1964b, p. 149). While in the dispositional model it is assumed that the agent will tend to behave in a certain way due to certain dispositions, in a rational explanation the historian will try to recreate the agent's rational deliberation, by insight. Dispositional analysis leads, according to Dray, to observe behaviour from the wrong standpoint - as a spectator instead of through empathetic reconstruction. Arguing against authors such as Gardiner, who do not view mental states as causes, Dray asserted that motives, intentions, purposes, dispositions (these being standing conditions) can function as causes - it just depends on the specific context. As an example of his view, he quoted an historical piece written by D. Thomson about the different interests shown by landowners and manufacturers in nineteenth-century England: underlying causal connections, a rational basis for the behaviour of each group can be found.

The ambiguity of the term cause was discussed by Von Wright (1971), who noticed:

> The "causalist" will perhaps link intentions, motives and reasons to causes, and actions to events. The "actionist" groups the concepts differently: motives and reasons with actions, and events with causes - and between the two groups he sees a sharp divide. (p. viii)

Von Wright analysed causation in terms of conditionship relations - the sufficient and necessary conditions within a system. He considered different types of causal explanation, of the why-necessary kind, and of the how-possible kind. Von Wright pointed out that explanations of the why-necessary kind may be only indirectly relevant in

history, that is, when the *explanans* or the *explanandum* is related to human affairs. How-possible type explanations are relevant to history when they explain how the actions are possible. As historical explanation does not imply a nomic connection, he preferred to call this type a "quasi-causal explanation". In this case, *explanans* and *explanandum* are linked by a set of statements constituting the premises of *practical inferences*. Ontologically speaking, a given event may provoke (actuate) a practical reasoning leading to a given action which creates a new situation. This situation may actuate another practical inference leading to another new situation. Von Wright contrasted two kinds of factors in history: internal circumstances, in terms of motives and reasons, and external circumstances, in terms of natural and technological changes.

The narrative model

Another trend sees history as self-explanatory narrative. Walsh (1967) contributed to this approach, introducing the concept of colligation in order to solve problems posed by the Collingwoodian rejection of generalizations in history.

Gallie (1964) emphasised the uniqueness of history and opposed the deductive model, but he saw causal explanations as an ancillary strategy. History is a *narrative* and it is in *itself explanatory:* it involves generalizations of different kinds about human behaviour, some being classificatory, some causal, and some part of a general theory of human actions. Some of them are so familiar, based on everyday experience, that they cannot be considered important and characteristic of history. What matters in history is "a followable and on the evidence acceptable narrative" (ibid., p.109). There are some sequences of events working as necessary conditions of an occurrence. They can contribute to a more complete narrative, but often those statements conveying an explanatory meaning by the use of expressions such *therefore* or *because* can be transformed into narrative sentences. Gallie also pointed out that historians can make generalizations beyond what the agents had perceived. He can establish long-term trends relating to several moments, leading to new questions and generalizations. This feature brings to narrative a larger and more complex *explanatory scope*. Historical explanations cannot be tested or confirmed, since they are not a question of facts, but of arranging facts. They can not even be preferred in isolation to other possible explanations. For Gallie, they can be just an intrinsic part of a narrative, and this narrative will be acceptable provided it is *consistent, plausible* and *according to evidence*.

Atkinson (1978) also assumed that narrative is intrinsically explanatory. He rejected the causal model but he also discussed the limits of rational explanation. Atkinson admitted

that generalizations are embodied in the historical narrative and they are related to evidence. He attacked the probabilistic approach asserting that it takes away the attraction of the deductive model by assuming the non-sufficiency of causes and thus making it a less convincing approach. Probability must be considered either in terms of generalizations universal in content but with low probability, or in terms of generalizations proportional in content and with high probability. It is the former pattern that it is usually applied in history. He discussed Hempel's example of Dust Bowl farmers (a population tends to migrate to regions which offer better living conditions) as exemplifying the former pattern of low probability under a universal generalization. Since the sufficiency of causes cannot be sustained, we can speak only of *necessary, contributory, or facilitating causes*. Each kind of cause will be considered according to a specific context. Rational explanation is also criticised at some points. Arguing against Dray, Atkinson traces a distinction between explaining behaviour in terms of the agent's norms and beliefs and justifying it by the outcomes of those norms and beliefs. This distinction thus subsumes a question about the relative *scope* of historical explanation. If in political history, Atkinson asserted, there is room for rational explanation, in social and economic history rational explanation is of limited value since the object of enquiry is not so much concerned about the individual's role. Like Gallie, he proposed the narrative model as self-explanatory. A narrative cannot be constructed without general knowledge, causal and rational explanations. Going further, Atkinson discussed causal explanation in three concrete pieces of historical work: (a) from Thucydides, on the causes of the Peloponesian war, (b) from Thompson, on British participation in World War I, and (c) from Taylor, on World War II. In this analysis he emphasised five special features :

1. The *variety of factors* selected - states of affairs, events and actions, reasons for actions.

2. A *plurality of causes*, especially in Taylor's explanation, which implies considerations dealing with the concept of necessary and sufficient conditions.

3. The *particularity* of some factors, while generalizations are not stressed.

4. The *relative importance of causes*, leading to an implicit concern for weighting each factor.

5. A tendency to distinguish between *long-term and immediate causes*, the latter being seen as accidental.

Atkinson pointed out that, while the two former features are related to the concept of cause, the third casts doubt about the law model in history, the fourth gives room for discussing objectivity in history and the fifth considers different models of causation. There is no sharp distinction between causal and non-causal language, he claimed. Causal assumptions are always implicit in every context, the mere descriptive level does not occur in history. Atkinson discussed the meaning of sufficient and necessary factors in history - causes can be seen as parts of sufficient conditions and partial causes can be

cumulative. However, there are different levels of explanation, and there is therefore no possibility of completeness. This argument seems to be related to the ontological field of history rather than to explanatory logical power. It also fits with notions of relatively superficial precipitating causes and long-run conditions, which give room for considering different points of view and thus different levels, not necessarily incompatible, of causal explanation. Although historians tend to consider an indefinite number of causes, there is always some selection according to a given point of view. Different causes, say, of World War I or II will be selected by several historians according to their nationalities, stressing different aspects and omitting others. Even time-distance influences the causal relationship - day by day more and more comparisons and contrasts can be drawn up. Thus Atkinson claimed that, in spite of controversies, historical work progresses because more reliable data are found in order to make better causal judgements.

The structural model

Some historians in France and then in many other countries have developed historical enquiry and explanation under an approach quite different from the nomological-deductive and the intentional models. The structural model envisages the analysis of large-scale phenomena under several perspectives (geographical, economic, social, political, cultural) thus showing a special concern about *long-run conditions* other than the immediate context and events. Events and their context (short-term conditions) appear as the surface (this being the object of *histoire événementielle*) of a much more complex reality. This movement initially represented by the "Annales school" created by Lucien Fébvre and Marc Bloch has been largely influential in various countries, and was practised to some degree by historians such as Braudel in France, Pirenne in Belgium, Godinho in Portugal. Lloyd (1986) summarized the main assumptions of this approach. Three main conceptual clusters can be stressed: (a) history as a science, (b) society as a real structure, and (c) history as total history.

(a) History as a science

History is a science understood in a flexible way, with less precise contours than the traditional conceptualization - it takes into account recent scientific approaches in which the reductionist deductive model of causation is replaced by a complex concept involving theoretical hypotheses, empirical generalizations, particular descriptions, analogies, metaphors and models. It presupposes an epistemic access to reality, assuming a *critical realism* such as has been defended by authors like Harré (1985) and Bhaskar (1975). It is opposed to *naive realism* whose assumptions about the real world are tacit, including the

notion that experience is unmediated. We do have access to the real world but we construe the meaning of it through hypotheses. The social world is viewed as a reality, as a structured whole, not as an aggregation of individuals. It follows that a framework is required that is different not only from the intentional model of explanation but also different from the nomological-deductive one. As structuralism accepts the existence of a social structure, the concept of causation reflects this assumption, and the level of analysis is concerned with intertwined relationships between long-term, and short-term conditions and events.

(b) History as a structure

History as enquiry attempts to grasp the deep, structural conditions of the real world - geographical, economic, demographic, cultural. Society is seen as an organized structure and different durations are considered in its analysis. Within this broad approach, social interrelationships can be understood differently according to different sub-perspectives: (1) The *structuralist* conception sees society as a very tightly integrated entity conditioning individuals, though these can have an active role too (a position defended by Marxists such as Hobsbawm and Thompson, and functionalists such as Parsons and Braudel); (2) the *structurist* conception sees society as an organized but loosely integrated entity, with a strong potential to be transformed into a different structure by individual actions. Arguing for this last view, Lloyd (1993) pointed out:

> A third alternative [opposed to methodological individualism and holism] says that social and behavioural explanations both have to be approached from the dual perspectives of action and structure. Methodological structurism approaches explanation by developing concepts of the separate real existence yet *mutual interdependence of individuals and institutional structures* [...] Thus methodological structurism is explicitly based on an ontology of the social that recognises two nodes of causal power. (p. 46)

Lloyd presented Ladurie's work as an outstanding example of the structurist approach. For example, in 1974 Ladurie wrote:

> In reality, if we restrict ourselves, as in the present chapter, to sixteenth-century data, we are bound to emphasise the role of the *coqs de village* of peasant origin. At Saint-Guilhém-le-Désert the consolidation of landholdings was not the work of noble lords, but of three commoners without the shadow of a title, either noble or professional [...]
> Was this a regional phenomenon peculiar to Languedoc or the Midi? There is little doubt that the land structure of Languedoc, with its alods and its manorial tenancies subject to minimal

> quitrents, lent itself more readily to peasant progress than the regions of western France, where the nobility held the land and the people more firmly in its grip. (p. 94)

Here, Ladurie tried to intertwine the analysis of the social structure and process (consolidation of landholdings and social class relationships), and the narrative of small groups and actions (in particular in places such as Saint-Guillém -le-Désert).

(c) Total history

History aims to be a total history in the sense of attempting to grasp a multivariate and changing reality. As this goal can never be fully achieved, interdisciplinarity and teamwork among different social researchers are valued as strategies to get a better understanding of the more profound levels of reality.

This model presents some similarities with narrativism defended by Gallie and Atkinson when aiming to produce a descriptive and explanatory full account. Historical understanding is built upon answering how and why questions within a web, without overvaluing one or another. They are just abstractions of a single narrative and thus they cannot be totally isolated. Lloyd (1993) asserted:

> Even supposed non-explanatory descriptions in fact involve some explanatory element, so it is not a choice between explanation or understanding or description. These are all parts of one enquiry. (p. 50)

Nonetheless, this approach gives more emphasis to an enquiry into interactions between structural conditions, on the one hand, and conjunctural conditions and immediate events and actions, on the other. In order to give an account of this complex causal web, historical explanation is thought of as a complex reasoning making use of deductions, inductions, inferential analogies, models and metaphors.[4]

This approach is seen as part of a new trend which is beginning to be called "the 'new' new history" integrating different approaches (Olábarri, 1995). For the last twenty years the tendency towards specialization and the influence of the philosophy of difference, deconstruction and representation proposed by authors such as Foucault, Derrida and Barthes, have switched historiography to new approaches. The world is seen as a representation - the existence of extratextual reality being questioned - and the analysis of

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[4] It is assumed here that this kind of reasoning is not characteristic only of history - it is a general pattern in science, such as has been defended by authors like Harré and Bhaskar, among others.

mediation between authors and the supposed reality is the focus - a linguistic turn puts an emphasis on analysis of language: written and spoken, symbol and gesture, representation, language of sources, language of the historian and even language of silence. In parallel to these relativist approaches, micro-history (such as practised by Ladurie) and cultural history (influenced by Bourdieu and Elias) appear as a realist approach.

Explanatory models: a summary

The concept of historical explanation has been understood under varied meanings according to different approaches concerning the nature of history.

One view defends the nomological-deductive model. It assumes that scientific explanation is essentially deductive, thus ideally predictive, and that historical explanation follows the same general pattern. This perspective, taken by Popper and Hempel, brings out the problem of a complete explanation whether on logical grounds, that is, concerning explanatory power, or in terms of sufficiency of causes concerning a relationship with reality. Defenders of D-N model agree that sufficient causes cannot be established either in history or in other branches of enquiry. There can be more or less *probabilistic explanations* (Hempel), or as yet *non-refuted hypotheses* (Popper). Furthermore, as in history explanations cannot be confirmed or disconfirmed, they are seen as weak (logically speaking) scientific explanations - explanation sketches (Hempel) or mere interpretations (Popper). Authors such as Gardiner and McClelland see history as integrated in a general scientific level of enquiry, presenting common points with social sciences, but these authors also emphasise some specificity in historical explanation. Gardiner analysed causation pointing to differences and similarities between *common-sense*, scientific and historical explanations. McClelland concentrated his analysis on *factorial weight* in explanations of the historical and social science domain.

Another view defends the rational model and sees history as an autonomous field of knowledge, with different characteristics of enquiry. History deals with the unique, the particular, and does not rely in generalizations. Explanation is concerned with reasons for actions - *motives and goals* - and to know *how* a person acted is to know *why* a person did it. A full explanation can be thus constructed in history, inferred from evidence, recreated through insight. Nowadays, authors such as Dray concede that historians do use vague or complex generalizations and deal with external factors too - especially when broad states of affairs and processes constitute the object of enquiry, using why-type questions. *Dispositions*, usually associated with rational explanation, can have

explanatory force too, but Dray considers them to be an external view of human behaviour, which is relatively inferior to rational explanation. Historical questions of the how-possible type were specifically analysed by Dray and Von Wright: they must be treated as a why-type question in order to get a logically satisfactory explanation (Dray) and they are relevant in history in the search for the necessary conditions which made a state of affairs occur.

Another, fourth view, the structural model presents a different framework. Authors in the tradition of M. Bloch, L. Fébvre and Braudel defend the existence of conditioning *structures and conjunctures* of immediate events and actions. They are concerned with grasping the "more profound levels" of conditionship of superficial actions and events. Unlike a structuralist holism, which saw structures as determining individual actions, structurists such as Lloyd admit an interaction between the individual and the immediate, on the one hand, and short and long-term situations, on the other. This branch of structuralism assumes a critical realism about society and rejects the old dichotomy of deductive versus inductive reasoning in explaining social/human events. It affirms that complex ontological causation is explained by an equally complex reasoning employing deductions, inductions, analogies, models and metaphors. The focus on explanation, nowadays, tends to move away from summing up arguments towards one or other model of causation. It is not very fruitful in terms of contribution to a critical analysis of history to keep on discussing whether historical explanation is (a) nomological-deductive or, (b) inferential-inductive. In the former approach, a scientific status is assigned to history, this area of knowledge appearing as a "poor relative" of other more "complete" sciences under the paradigm of sufficient and predictable causes. In the latter approach, the complete autonomy of history is assumed. Such a controversy was undertaken - and must be understood - within a specific ideological and scientific context, from the 1930s to the 1960s.

In each approach, after all, causes in history are seen as necessary, more or less determinant, but never taken as factors sufficient on their own. Historians usually do not consider a single cause in history. (Marxist historians, for example, emphasise the economic factor, but do not consider it as a sufficient cause.) Thus, some consensus seems to be found in envisaging different, contributory factors for explaining historical situations, events and actions. Those factors can be more necessary or even determinant causes or conditions, or merely facilitating conditions. Controversy usually relies on (a) whether factors must be seen as causes, conditions or reasons, and (b) what counts as more or less relevant factors.

In order to analyse these kinds of issues, a shift in debate has taken place towards the analysis of concrete explanations produced by historians. (This is discussed in the following chapter). Critical philosophy of history is now concerned with questions like:

What strategies do historians use for weighing the relative importance of factors?

This question is concerned with the methodological grounds used and argued by historians in order to produce and justify their explanations.

A working definition of historical explanation

The theoretical background given above highlighted some specific features which were selected as grounds for the empirical study. Accordingly, historical explanation in this study will have the following working definition:

Historical explanation is supposed here to be an answer to a why-type question about past human actions, events, and states of affairs. It may include questions of a how-possible type. Each explanation presupposes a selection of factors - reasons, motives, dispositions, external conditions, structural, conjunctural conditions, along the lines of the different explanatory models. Each author may assign a different relative importance to factors selected and, among a range of factors (the standing conditions), some might be considered necessary or mere contributory/facilitating conditions to the *explanandum*. Conditions which make the difference to whether a situation occurred or not may be considered as *the* cause.

Therefore, when analysing concrete explanations emphasis will be put mainly on the following constructs concerning explanatory structure:
1. Explanatory mode (which kind of factors are implicitly or explicitly selected: conditions, causes, reasons, motives, dispositions, long/short-term conditions).
2. Explanatory weight (what weight is attributed to factors selected: sufficient, necessary or facilitating conditions).
It is assumed that competing explanations to the same historical question can be examined on evidential and logical grounds and thus, their relative explanatory scope and power may be assessed. As this is related to the issue of objectivity in history it may be considered to lie at the very heart of ideas about provisionality in historical explanation. Therefore it will be analysed more closely in the following chapter, concerning "Ideas of provisionality in historical explanation".

Analysis of answers to an historical question

According to the working definition of historical explanation made explicit above, we shall now analyse the different answers to a specific historical question used in the main empirical study.[5] This analysis aims to bring out some features concerning the structure of historical explanation already highlighted: underlying explanatory models and factorial weight. These features will constitute part of the framework for the analysis of adolescents' ideas of historical explanation. Criteria for assessing the relative power and scope of valid explanations, also considered in the main data analysis, will be discussed in the next chapter, after giving a theoretical framework for the idea of provisionality in historical explanation.

The concrete historical question is concerned with the so-called Portuguese Oriental Empire during the sixteenth century. The Portuguese maritime expansion evolved along the African coast in the fifteenth century, culminating with the arrival of Vasco da Gama' s fleet in India in 1498. After that, the Portuguese quickly took control of the maritime trade in the Indian Ocean, by imposing a tax (*cartaz*) on every commercial ship navigating through that sea and maintaining a trade monopoly till 1530. A question of how-possible type (if the paradox explicit in parentheses is considered) can be raised about this state of affairs:

How could the Portuguese (from such a small and far-away country) manage to establish a maritime empire in the Indian Ocean?

A traditional explanation from the Portuguese perspective is known, tending to attribute those deeds to the outstanding courage of Portuguese people and the capacity of their leaders. It can be illustrated from the work of A. Matoso (1946), stated in strong nationalistic terms:

In spite of having a population of no more than 1,300,000 inhabitants Portugal conquered an empire of an amazing vastness [...]

This large domain quickly conquered with small human and financial resources can only be explained by the Portuguese colonial vocation, her humanitarian administrative system, the great leaders' moral correctness, the sacrifices for the country made by all the people who were living under the Portuguese flag. (p. 306)

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5 The historical question and versions of answers selected for the main empirical study are further described in chapter 5.

Putting aside, for the moment, considerations about distinctions between the practical and the historical past, we shall concentrate, first, on the explanatory model underlying this version. The "colonial vocation ... the great leaders' moral correctness, the sacrifices made by the people" can be seen as dispositional characteristics determining, together with an external condition ("administrative system", also conveying a "humanitarian" disposition), the outcome - the Portuguese empire. These "natural" dispositions convey somehow implicitly the major motive for action: love for one's country. Together, these dispositions and motive are given as the single, sufficient cause for the rise of the empire (it "can only be explained by..."). Negative, external factors functioning as obstacles to that occurrence (small human and financial resources) were overcome by those internal dispositions and will power.

It is true that there might be strong motives and dispositions to get economic and political power in the name of "Faith and Empire". Nonetheless, evidence stressing other contributing factors, such as navigational expertise and the naval correlation in the Indian Ocean, is omitted. Moreover, if negative factors such as "small human and financial resources" cannot be refuted (Portugal was a small, not rich country, compared to others in Europe or in Asia), naval resources (advanced naval equipment, with canons included) must not be ignored either. The authoritative assertion "it can be only explained by" suggests an unbalanced conclusion, not open to criticism. It is a clear piece of historical propaganda constructed with the obvious nationalistic ingredients of the time in Portugal - "good" colonialism, great leadership, spirit of sacrifice, love for country, the Portuguese flag. The purpose was emotionally involving pupils to make sacrifices for the country and persuading them to obey their leaders (the dictator Salazar was in power). The analysis of this version permits us to draw some conclusions about its weakness on methodological grounds. Dray's statement (1964a) about historical inadequacy when evaluating different accounts might fit well here:

> ... one [explanation] can be so bad, without containing any false statements, that it will be said
> no longer to give a "true picture" at all. (pp. 37-8)

Thus, it can be said that the explanation of Matoso represents an example of explanation constructed for practical reasons, with lack of objectivity.[6]

A second version is given by O. Marques (1976) following a narrative discourse obeying strictly historical concerns:

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[6] Oakeshott's idea of a practical past, related to political and religious purposes (see p. 44 in this chapter) may be applied to this example of explanation.

In 1474 young Prince John (the future John II) was put in charge of overseas expansion. To him, rather than to Prince Henry or anyone else, the creation of a comprehensive plan of discovery, with its means and goals, should be credited [...]

Vasco da Gama departed from Lisbon with three vessels and a supply ship, in July 1497 ... After having reached the limit of Bartolomeu Dia's navigation, the ships began making their own discoveries ... This was already Moslem territory, and pilots became available [...]

The great number of Portuguese taking the lead in these and other Spanish (as well in French and English) voyages shows how skilled in seafare the Portuguese were at the time and how eagerly sought after they were as unrivalled experts in navigation ... The economic, political, and religious happenings and conditions that had forced the Portuguese out of Europe promoted voyages of exploration inland. Gold, spices, and Prester John ... would justify the first travels far from the coast[...]

The Portuguese had arrived in India with the main purpose of getting spices and other profitable merchandise. They also posed as crusaders in a permanent fight against the Moslems. They soon realised that to secure control of spice sources and trade in the Indian Ocean they had to destroy the long-established network of Moslem traders and trading places [...]

Openly defying the Moslem hegemony and combating the Islamic faith, the Portuguese had to meet as their main enemies in Asia the Egyptians and the Turks, allied to the many smaller Mohammedan kingdoms. Most of the naval power and land struggle took place in the western Indian Ocean, between Arabia and India. It helped the Portuguese considerably that none of the major Moslem countries was openly turned towards the sea or based its power upon the sea. Kingdoms like Persia and the Mughal Empire were continental rather than maritime. Only the Egyptians and the Turks were in a situation that required meeting the Portuguese challenge, yet their main strength and interests lay elsewhere, in the Mediterranean, the Red Sea, and Europe. (pp. 217-22)

This passage is constructed by intertwining structural/conjunctural conditions with goals, motives and some event steps.

1. Motives and rational goals convey the idea of a powerful rationale for action: the goal of searching for spices, the wish to fight against the Moslems leading to a well-established plan of discovery. Such purposes, motives and actions of a rational kind appear as one of the major conditions for the political success in Asia.

2. Structural conditions - economic, political and religious - gave rise to the maritime expansion. These conditions are stated with strong emphasis ("forced"), suggesting a structuralist view which accepts that the long-run situation determines the surface events and states of affairs. Nonetheless, another related long-term factor is selected as a necessary condition - navigational expertise (which can also be seen as an outcome of technological advance as a result of structural conditions stated above). It is implicitly

seen as a necessary factor ("how skilled in seafare the Portuguese were ... unrivalled experts in navigation").

3. Conjunctural conditions - the division of Moslem and Indian countries, the concentration of their military resources on land or places other than the Indian Ocean - appear as facilitating conditions of the Portuguese oriental empire ("it helped the Portuguese considerably that none of the Moslem countries ... ".)

Thus several contributory factors with a different weight are given to explain the situation. Some are stated in terms of long-term or short-term conditions, some in terms of individual or collective purposes, motives and reasons. Within such a causal interrelationship, some facilitating conditions appear as *chance* factors: Moslem pilots, naval weakness of Asian countries. The last factor could imply a counterfactual judgement (what would have happened if those countries concentrated their force on the Indian Ocean?) but, as it is stated, it seems to represent a mere adding of one factor more ("It helped the Portuguese considerably").[7] The explanatory pattern seems to be close to narrative as it involves description and explanation, and close to the structural model as it selects different levels of causes. A decisive role for the structural level (the necessary standing conditions) seems apparent, but the role of individuals and contiguous factors are also recognised. From these considerations we might see this piece of historical work as of a structurist-narrative mode.

Another hypothesis about the Portuguese oriental empire was drawn up by Needham, Wang-Ling and Gwei-Djen (1971). It was suggested again by A. Pacey (1990), in his explanation concerning the same issue:

> The famous voyages of exploration which were sent out from Portugal by Prince Henry the Navigator were cautious and systematic, based on carefully recording and mapping navigational data[...]
>
> It was not until 1488 that the Cape of Good Hope was reached, and not until another decade had passed that Vasco da Gama sailed round the Cape to reach Mozambique. There he encountered Arab shipping and was able to secure the services of an Arab pilot to guide him along the East African coast to Mombasa and Malindi. From the latter port, another pilot helped the Portuguese ships across the ocean to South India. The irony is that Chinese fleets had visited these ports sixty years before but had now been totally withdrawn, and the Islamic naval challenge to the Portuguese, when it came, was ineffective. Western Europe's new route to Asia was thus open. (p. 57)

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[7] This reasoning might be one example of non-counterfactual reasoning analysed by McClelland (see p. 43 in this chapter).

The hypothesis emphasised here - the withdrawal of the Chinese fleets - seems to be asserted as the necessary condition - the main cause - which brought about the occurrence of Portuguese naval power in the Indian Ocean. It strongly suggests a low probability of Portuguese success in the Indian Ocean if the Chinese fleet were still there at the time that the Portuguese rounded the Cape of Good Hope. It is difficult to deny an underlying, obvious generalization in this statement, based on common-sense reasoning: when two fleets face each other, the stronger will probably win. It will be important, however, to emphasise here the notion of *ceteris paribus* subsumed in probabilistic generalizations (other unknown factors could act against this possibility). The given hypothesis clearly involves a counterfactual speculation of the kind "what would have happened if...?", overtly expressed, again, in another passage (Pacey, 1990).[8]

> Had the Chinese still been patrolling the Indian Ocean when the Portuguese arrived, one can only speculate what might have happened. The decision to withdraw the Chinese fleet was a momentous one, not only for what it portended with regard to China's own development, but also for what it meant in world affairs to have the "door left open" into the Indian Ocean. (p.63)

This narrative suggests that only by chance (a question of timing) did the Portuguese find the Indian Ocean free of more powerful naval forces. The whole construction of the former piece stresses the slow pace of Portuguese progression through the African coast ("It was not until 1488"), this contributing as a double factor to the Portuguese empire: (a) a careful planning of voyages in order to attain the intended goals, and (b) different timings for the Chinese and the Portuguese, in what concerns the control of the Indian Ocean. The former factor - well-planned trips - can be seen as an implicit outcome of conscious goals of agents such as Prince Henry. The latter, as Gardiner (1961) pointed out, can be seen as the accidental conjunction of two independent causal sets: the pace of careful Portuguese explorations and the political process in China.[9]

This passage might be considered an explanatory narrative. Necessary and facilitating conditions are intertwined with antecedent steps, all those features functioning as a comprehensive explanation of the Portuguese oriental empire. Thus, conditions like:

. Systematic planning of maritime voyages
. Availability of Arab pilots
. Chinese withdrawal from the Indian Ocean
. Moslem naval inefficiency

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[8] As Von Wright (1971) and McClelland (1975) among others stated, counterfactual hypotheses are used in history, as is the case here.

[9] See reference to Gardiner's discussion of the meaning of chance in historical explanation in this chapter, p. 41.

are simultaneously presented in a descriptive/explanatory form, with a different factorial weight.

It might be of interest to compare the construction of this explanation with that given by Marques. With the exception of the Chinese withdrawal factor, emphasised by Pacey, both authors presented the same set of antecedent conditions: planned voyages, relevant antecedent steps along the African Coast as far as India, help of Arab pilots, Moslem naval inefficiency. Nonetheless, while in Marques such conditions were described in an affirmative way, in Pacey the low pace of maritime trips was stressed: "It was not until 1488 that the Cape of Good Hope was reached and not until another decade had passed that Vasco da Gama sailed round the Cape...". These step events described in a negative form, together with the positive contribution of Arab pilots ("an Arab pilot to guide him", "another pilot helped the Portuguese") prepares the impact of Pacey's main hypothesis. Unlike Marques' explanation, which provides a rationale for Portuguese actions, Pacey's speculation presupposes a noneurocentric point of view about the European expansion towards the East.

Therefore, although two different answers are given in these explanations, it is possible to find some common grounds as to their nature. Following the pattern of analysis made by Atkinson (1978), some historical features can be seen in both explanations:
1. A variety of factors selected - states of affairs, events, motives and reasons. Conditions are, thus, taken from different explanatory models.[10]
2. A plurality of causes - there is not a single cause, but several contributory conditions whether necessary or facilitating conditions;
3. The particularity of some factors, such as the help of Arab pilots or the naval correlation in the Indian Ocean;[11]
4. A relative factorial weight: some factors are considered as necessary or more powerful factors, others have only a facilitating role.

In the vein of Atkinson, it can be asserted that those features are important in order to analyse the implicit explanatory modes applied by historians. The last feature - relative factorial weight - may lead to questions about the objectivity versus relativity of historical explanations. A different factorial weight reminds us that each historical explanation is provisional. In what sense this concept may be used is the issue to be discussed in the following chapter.

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[10] A distinction between two levels of causation: the structural situation seen as more decisive conditions, and contiguous events seen as facilitating conditions, is only explicit in Marques.

[11] Contrary to Atkinson, some generalizations are implicit: in Marques' explanation, the economic, political and religious conditions; in Pacey's, the assumption about a hypothetical Chinese and Portuguese encounter in the Indian Ocean.

Summary

A theoretical framework for the concept of provisional historical explanation applied in the empirical study was given. This chapter (a) analysed different explanatory models of historical explanation - nomological-deductive, rational, narrative and structural - in the light of theoretical debates undertaken by some defenders of each view, (b) gave a summary of the main features of these four models thought useful as a theoretical background for the analysis of students' ideas about provisional historical explanation, (c) formulated a working definition of the concept of historical explanation in the sense applied in the empirical study, and (d) examined three historical explanations - three diverging answers to a concrete historical question used in the main empirical study - in the light of the framework suggested.

3 Ideas of provisional historical explanation

In this study, the main theoretical assumption concerning the nature of history is that historical explanation is always provisional. This chapter gives (a) a brief survey, in the theoretical field, of different answers to the question "why is historical explanation provisional?", (b) an overview of philosophical debates on objectivity and truth in history, from early to recent debates about scientific and historical objectivity and evidence (the postmodernist approach, broadly speaking, and the critique of postmodernism), (c) new trends about historical objectivity, in the light of the critique of postmodernism, (d) a set of operational ideas related to provisional historical explanation grounded on the new trends previously highlighted, and subsumed in the analysis of students' ideas, and (e) an analysis of competing explanations to an historical question employed in the empirical study, in the light of the theoretical framework.

Why is historical explanation provisional?

A ready-made definition for the concept of provisionality as applied to historical explanation does not exist. In a first, yet superficial approach it can be said that historical explanation is *provisional* as contrasted with *final*. It is assumed here that there is no final answer in history: different explanations over time, and alternative explanations can be found at any given time about the same past events or states of affairs. Why does this happen in history? What kind of issues does this entail? According to different explanatory frameworks, disparate answers to such questions have been given. Some authors surveyed in the previous chapter explicitly discussed the issue.

Hempel (1959) would say that historical explanation is provisional because it is statistically *probable* (in an ontological sense), like most scientific explanations; and also, because it must be considered as an explanation sketch only, since it is more vaguely construed, logically more *incomplete* than most of those in other sciences. Such a condition is due to its characteristic non-testability, experimentally speaking: historical explanation can only be filled out by more specific evidential statements to be

confirmed or disconfirmed. Gardiner (1961) and McClelland (1975) followed this realist framework subsuming an ontological probability of historical explanation.

Popper (1980, Chapter I) explicitly asserted that scientific explanation is provisional; it is a hypothesis permanently *open to refutation*. He refuted the idea of probability in explanation, which is based upon inductive principles of inference: such principles imply an infinite regression, since they must be judged themselves as being only probably valid. An anticipation, a hypothesis, comes first through logical deduction, being tested then by means of falsifiability. A scientific explanation can be considered proximate to the truth provided it is corroborated by past experience and not yet falsified by counter-evidence (1972). Thus, corroboration does not mean certainty or absolute truth. The search for truth remains the major scientific aim, but it is always tentative, since we can never attain truth or even probability - "we do not know: we can only guess" (p. 278). Popper opposed the notion of *verisimilitude* to that of probability, the former involving degrees of approximation to truth, open to critical examination. In spite of this conceptualization, he assumed an *objectivist* approach by asserting the need for intersubjective criticism. In 1961, Popper claimed that historical explanation is much more provisional than explanation in other sciences because it cannot be confirmed or refuted, since it is considered just as an interpretation relative to a certain point of view (pp. 150-2). It can be said that its verisimilitude is much more arguable than that of natural sciences.

Dray (1964a, 1980, 1991), in the same line as Collingwood, assumed that historical explanation is intrinsically evaluative - the object of history itself is *value-laden*. The selection of questions and answers, questions of causal importance, facts themselves, imply a moral evaluation. Historical explanation is always relative to a value-judgement, but it is still objective, because it is a re-construction of a real past. It can be said that historical explanation is *partial*, in the sense that it explains part of the reality; it explains from a specific standpoint, and this is a genuine feature in history, not a methodological weakness - it is not causally, but logically tied to the very notion of historical understanding.

Lloyd (1993) assumed that historical explanation is *partial* in the sense that it implies a progressive discovery of the total reality with its causal powers. It is a *realist* position in the sense attributed by Bhaskar (1975).[1] Lloyd defended a convergence between

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[1] About the critical realism defended by followers of the structural model see chapter 2, pp. 50-1.

coherence and correspondence ideas of truth, a combination of social knowledge and empirical evidence.

Entangled in these ideas about provisional historical explanation are notions of certainty, truth and objectivity in historical explanation and, broadly speaking, in historical enquiry. These issues have been largely discussed within general theories of knowledge, and within the specific field of philosophy of history.

Truth and objectivity in history

A debate on truth and objectivity in historical enquiry has focused especially on two problems: (a) the possibility of truth in historical knowledge, namely, whether there is an *epistemic access* to reality or an *epistemic gap* between the knowing subject and reality; and (b) the meaning and criteria for assessing objectivity. As both (a) and (b) can be understood as entangled in each other, such a framework will underlie a brief survey of debates on historical objectivity, thought to be useful since it might contribute to a better understanding of students' ideas about provisional historical explanation.

Early debates

The issue of objectivity in historical understanding and explanation has been subject to debate and controversy not only recently, but since the nineteenth century when the method of natural sciences was seen as the paradigm for objectivity. According to this paradigm, objectivity implied the control of interferences from the subject so that the object - or the knowledge of it - could not be modified by such interferences (Labovitz and Hagedon, 1981).

Concerns about objectivity under a positivist model provoked a major controversy on the validity of historical explanation. The author's interpretation inherent in an historical conclusion was seen as conflicting with the required impartiality of the subject. The crucial question in this debate was: To what extent can an historical explanation be valid since it is constructed with a subjective element? In the discussion of this issue, it is possible to distinguish two early approaches under the influence of positivism.

1. One, concerned with stating general laws about the social process, contrasted a *scientific* (as corresponding with reality) with a *distorted perspective* on explanations about society. Such an approach was represented by Comte, Marx and Mill.

2. Another, with the preoccupation of strictly applying a criterion of neutrality to the collection of facts from reliable sources, emphasised the value of plain description over interpretation and explanation. Ranke is the most cited representative of this view.

Thus, objectivity was equated with *absolute neutrality* as it was believed to be characteristic of the scientific method. In spite of this, we may infer that some light was shed on the idea of objectivity by both views presented above. The Marxist position was probably the first approach to relate objectivity to the notion of social production of knowledge - it stressed the importance of cultural context in shaping the author's point of view. Such concepts were analysed, however, in terms of right-wrong poles: those sharing working class values, which were engendered through contact with the real, material forces, were able to develop a scientific analysis and grasp the right features in the social world; those sharing bourgeois values, isolated from the real conditions of material production, would tend to distort reality. The German school (in which Ranke is included), so much preoccupied with objectivity in a narrow sense, positively contributed to refining source criticism. Sources were subject to a strict cross examination in order to get the "facts" and such a labour contributed to enhancing the historical method.

Opposed to these two positivist trends, another approach to history was developed: idealists such as Dilthey and Croce stressed the uniqueness of historical knowledge, seen as dealing with particulars, unlike the sciences, and they assumed historical interpretation as intrinsic to historical knowledge. Later on, in the same line of thought, the historian's autonomy was emphasised by Collingwood. He made the notion of point of view more explicit, integrating it in the very idea of historical objectivity. *Methodological detachment* came to be distinguished from a plain notion of neutrality, as one of those important claims for objectivity. Historical objectivity should thus be observed under three methodological rules: location in space and time, consistency, and reliability in dealing with evidence.

All those approaches referred to above rely on *realist* assumptions, although conceptualized at different levels.

1. Early positivists assumed that there can be a direct access to past reality by means of historical sources, if subject to criticism. They presupposed that *certainty* of knowledge can be attained, provided that neutrality is guaranteed; such an assumption implies that sources must be questioned to decide whether they are reliable in terms of conveying the truth or not. Concerns about searching for the truth led sometimes to over-valuing *direct observation and memory*, seeing witnesses and agents as the most trustworthy or complete sources. Such a stage in historical thinking, the *scissors and paste* model as Collingwood labelled it, represented, however, a progressive move towards a

conceptual distinction between the independent past and documents on it. It must be seen as a stage beyond the *authority* model which, in Collingwoodian terms, conveyed a still syncretic view of the past and its *testimonies*: facts existed ready-made to be recorded and transmitted. Testimonies were thus supposed to reproduce what really had happened and should be followed by historians who, accordingly, would be trusted as authorities as well.

2. Idealist-empiricists assumed that there is *some access* to reality through evidence, but they also recognised and affirmed some subjectivity and historicity as a genuine feature of historical knowledge. Ideas of absolute truth were replaced with ideas of partial - or proximate - truth. Certainty ceased to be a goal for knowledge. The idea of a *provisional* answer in history gained some refinement by integrating the notion of historicity of knowledge. Objectivity was still affirmed, involving notions of specific methodological standards such as personal detachment and evidential consistency.

A different approach seen as a *relativist* (versus realist) trend was represented by authors such as Beard (1970). He mounted an overt attack on the so-called neutrality of Ranke and his followers and demonstrated how such an objective truth as equated to neutrality involved an oriented-view from specific perspectives. Ranke, for example, "successfully avoiding any historical writing that offended the most conservative interests in the Europe of his own time ... may be correctly characterized as one of the most 'partial' historians produced by the nineteenth century" (ibid., p. 139). Beard's arguments could have contributed to a more elaborate idea of objectivity, but his criticism is rather seen as a sceptical attitude towards history: assuming some methodological standards, such as *direct observation* and *neutral selection*, as objective, he considered that on those (and other) grounds, objective truth in history could never be attained. However, that "noble dream" of objective history would be always worth pursuing, and it could come nearer to realization through the use of rigorous methodological criteria.

Recent debates on truth and objectivity

(a) The debate on scientific objectivity

The debate on objectivity in history has continued into the second-half of this century, at a time when even philosophers of natural science question the kind and possibility of objective knowledge held in scientific work, generally speaking. Popper (1980) argued for scientific objectivity in the sense that theories can be "intersubjectively tested, but not fully justifiable or verifiable" (p. 44). Popper presupposed that there is a world out

there and that we can have an *epistemic access to reality*; he and Hempel recognised, however, for different reasons already discussed, that a scientific explanation cannot be considered as the absolute truth since it cannot achieve certainty. As Kuhn (1970) stated, Popper is "sceptical of efforts to produce any neutral observation language" (p. 267). Kuhn not only affirmed those traditionally shared criteria of objectivity (such as *accuracy* and *consistency*) within a scientific community, but also recognised the influence of subjective factors such as maxims, norms and values in the choice of a theory. Such arguments were developed in order to clarify the meaning of objectivity, not to argue for a limitation of it. The debate on the nature of scientific explanation gave rise to some relativist - sometimes strongly *sceptical* - approaches to scientific knowledge. Authors such as Feyerabend and Lakatos turned to the study of history of science to emphasise notions of change over time, thus assuming that there cannot be found any common foundations for science.

(b) The debate on historical objectivity

Parallel to the debate on scientific objectivity in the work of Popper and Hempel, a discussion related to history was undertaken by philosophers in the tradition of Collingwood. The notion of *perspective* in history has been illuminated from that approach: the idea of absolute impartiality in history was definitely rejected. According to that view, history only makes sense when we think from one certain point of view. As Walsh claimed (1967), if all points of view were taken away, nothing intelligible would be left. Walsh discussed objectivity by recognising two factors in historical conclusions: point of view (a subjective element) and the evidence which has to be accepted. He analysed the notion of point of view in its components, distinguishing four types of presuppositions leading to disagreement among historians: (1) personal bias, (2) group prejudice, (3) conflicting theories of historical interpretation, and (4) philosophical conflicts. While personal likes and dislikes (type 1) can and must be overcome by the historian at work, the other assumptions are matters of principle and not of prejudice, thus more difficult to detect. Those assumptions shared by groups like nation, race, class or religion (type 2) must be justified on rational grounds; disagreements about the relative importance of causes (type 3) can rely on conflicting philosophical principles (type 4), provided they are not due to mere partisanship and thus not empirically well-confirmed. The historian reads the past by necessarily using general judgements according to moral conceptions (type 4). It would be useful that historians become aware of their own moral preconceptions so that they could not be used naively; but asking historians to put them completely aside would be excessively sanguine. Thus, Walsh distinguished those personal assumptions to be considered as

genuine and accepted as such in an objective explanation from those leading to a biased conclusion. In order to get a valid history it is crucial to distinguish general presuppositions from propaganda: when the author relies upon *personal emotions and interests, or practical concerns* of an economic, political, or religious kind, she/he will tend to deliberately omit or distort that evidence working against her/his practical purposes. In such a position, only a disposition to search for evidence confirming what is previously expected will be found.

Following a similar line of thought, some philosophers of history argued for objectivity in history, considering that it genuinely integrates the notion of perspective. Dray (1964a, 1980) developed the idea of *value judgement* as a necessary feature of historical enquiry. As Rubinoff (1991) pointed out concerning historical explanation:

> According to the Drayvian model, then, causes are not simply objective facts waiting to be discovered, such that once discovered they remained unchanged, for all time and eternity in that museum of antiquity called history. They are rather as much the products as the presuppositions of historical judgement or interpretation, whose construction is guided primarily by a value judgement concerning the locus of responsibility (as in the case of the historiography of the American Civil War) or some set of quasi-values comprising what might be called the historian's "point of view". (pp. 5-6)

Such objective relativism, as Rubinoff called it, presupposes that there is an epistemic access to reality through inferential reasoning upon evidence. As history aims to reconstruct a reality which is itself value-laden, it applies a value-judgement in order to refer to the past "as it actually was" (Dray, 1980, p. 46). In 1991, Dray viewed Collingwood and himself under a *perspectivist approach*, recognising the existence of several points of view and mutual understanding among each other, contrasted with a *convergence point of view* defended by Rubinoff (1991).[2]

Thus, the role of historian's presuppositions has been more or less emphasised, according to relativist or objectivist views. The problem "To what extent does the historian's point of view affect historical validity?" remained open to debate until recently.

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[2] In relation to this discussion, compare Rubinoff's Introduction and Dray's Comment, in Van der Dussen and Rubinoff (1991).

1. Sceptics such as Beard assumed that authors' presuppositions necessarily make historical conclusions non-objective. This is an approach viewing the concept of objectivity under the early-positivist paradigm.

2. Perspectivists like Walsh and Dray called for objectivity accepting personal assumptions. Historical conclusions are not absolutely neutral - conflicting historical versions rely on different presuppositions, and within the same perspective only it is possible to judge an historical conclusion.

3. Objectivists maintained the belief in objective history, including the notion of point of view as a source of principles for the historical enquiry and its conclusions. Genuine versions of the past are open to discussion and judgement under criteria of objectivity, integrating the idea of perspective, as other sciences do. Such a view was defended by authors such as Danto (1965) and Passmore (1966) (as discussed further.)

As the approach to evidence affects the view taken about objectivity in history - for the non-sceptics, evidence is supposed to be the bridge linking the historian's conclusions to an independent reality, even if it implies an interpretative element - it is worthwhile examining this concept closer.

(c) Ideas about evidence

The notion of evidence related to the idea of mediate knowledge has provoked much controversy in the field of philosophy of history. Authors such as Beard, who equated scientific knowledge with direct observation, or Oakeshott, who treated evidence as something present, gave impetus to several discussions on the nature of evidence, under an objectivist-realist view. Danto (1965), like Passmore (1966) and Dray (1980) emphasised that evidence is precisely what gives access to the past. As Danto metaphorically argued, it cannot be seen like a curtain hiding the object of study but instead documents "are just what enable us to find about the past" (1965, p. 89). However, we cannot state something as evidence by using a temporally neutral language - it would permit us only to describe a document as a present object, without recognising it as evidence of some past. Only by means of historical experience (and this requires much knowledge) can we move to a stage of temporal perspective. This brings up again the problem of the interpretative element in evidence: when dealing with evidence historians do not look at it candidly as a blank mind. They have to apply a set of theoretical statements for recognising evidence: this recognition means establishing a relation between what we see as history-as-record, the documents, and history-as-actuality, which cannot be seen. According to Danto (ibid.), this relation cannot be established without an a priori theory regulating it. The Baconian paradigm

of drawing theories after collecting plain facts is no longer accepted. In historical work, we start by using a priori hypotheses grounded on theories for interpreting evidence.

The notion of *past facts* replacing an early-positivist view of atomic, outside entities was already analysed by Walsh (1967). He assumed that nowadays historians reject the common-sense idea of *fact* as the given element which we must discover to build up theories on them. However, according to Walsh, followers of the correspondence theory are still inclined to contrast fact with theory: a theory will be a statement or judgement built upon hard facts. For him, such an assumption illustrates a conceptual confusion between propositions about the past, which we can consider as certain (e.g., "Vasco da Gama arrived in India in 1498"), and material evidence for the past (e.g., a diary of da Gama's trip). Facts necessarily have a propositional form and imply an interpretative element. If they equate with the truth, it will be only partially. Evidence also can provide different interpretations about the past. Authors aligning with the coherence theory claim that there is no distinction of principle between fact and theory. For them, facts are provisionally fixed as well as theories, in each branch of science and, much more in history, where criteria for reliability of the kind available in natural sciences cannot be strictly applied. Walsh noticed that such an assumption ignores the notion of *memory knowledge*, which is a fundamental basis for history. Like Collingwood, Walsh asserted that the remembered past does not exactly equate with what happened, and discussed memory knowledge in parallel to sense-perception: we cannot directly grasp the past as it was through memory, as much as we cannot grasp the present world through sense-perception. Combining notions inherent in both correspondence and coherence theories, Walsh concluded that historical facts entail a given element which cannot be isolated from the interpreting element. That given element relies on evidence, which is present but not arbitrary. Memory knowledge is what permits some access to the past by means of evidence.

The notion of evidence implies a conceptual leap from the present, the observed object, to the non-observable past. Van der Dussen (1991) discussed Goldstein's position (1976) about the nature of relationship between evidence and the past. Goldstein claimed that such a relationship cannot be philosophically justified, therefore an *epistemic gap* exists. The historian cannot grasp the past through inference, since that would imply that each body of evidence entailed a specific conception of the past, "on the contrary, the historical occurrence is hypothesized in order to make sense of the evidence" (Goldstein, 1976, p. 127). Van der Dussen, based on Peirce's theory of abduction, made a distinction between inductive and hypothetical inference: while a conclusion is drawn from particulars through induction, causes are inferred from effects through an hypothesis. When historians try to relate evidence to a specific past, they are

practising abduction, a kind of hypothetical reasoning. However, this makes the relation between past statements and evidence a rather problematic one. According to van der Dussen (1991),

> it cannot provide proofs in the strictly logical sense: only provisional answers to certain questions can be given, with various degrees of plausibility (which may reach, though, a level of almost certainty). (p. 163)

In the light of such arguments it might be said that philosophers of history in the tradition of Collingwood tend to see evidence as being permissive; historical conclusions can be selected from evidence only by means of plausibility.

d) Postmodernism and human knowledge

A recent perspective assuming sceptical or subjectivist views of the world can be found in the social and human fields of enquiry. A postmodernist approach tends to deny the possibility of epistemic access to the real world. The main assumptions of this general view, as summarized by Lemert (1992), are:

> 1. Reality is discussible - not much more than this.
>
> 2. Language is primary.
>
> 3. Reality is figurative, available only within language.
>
> 4. In language one can say any and everything, including the most general of things.
>
> 5. One can never escape one's language, including all other general statements about things.
>
> 6. All the above is an historical event more than an ideological position or a logical argument.
>
> 7. Hence, post modernism is both the end of modernity and dependent upon modernity for its language. (pp. 23-4)

A social theory of difference is assumed, deriving from a *decentering view* of the world. The idea of a general truth is denied - the world being composed of differences can only be understood from diverse perspectives. Each perspective is relative to a given cultural context, a given specific language, and only within its own framework can it be evaluated. As Lemert (1992) synthesized, French poststructuralists such as Foucault and Derrida, concerned about attitudes towards the Other, attacked general principles of subjectivity and the idea of centre versus periphery. These ideas of subjectivity and centre were thus *deconstructed*, explained in relation to their own specific contexts. History should be rethought in a decentering way .

Within such a deconstructionist framework, ideas of subjectivity and centre were replaced with the idea of discourse: language takes the place of truth; there are no final vocabularies, there are no essences. Terms are subject to change - the *contingency* of a world perceived through contingent languages is stressed. Irony is the postmodernist attitude facing this contingent world (Lemert, 1992). Ironists, as Rorty (1989) called them, are:

> never quite able to take themselves seriously because always aware that the terms in which they describe themselves are subject to change, always aware of the contingency and fragility of their final vocabularies, and thus of their selves. (pp. 73-4).

It is under this paradigm that Jenkins (1991) has proposed to rethink - and to deconstruct - history at school.

e) Critique of postmodernism

Early deconstructionists like Foucault and Derrida expressed a humanistic concern about denouncing dogmatic, ethnocentric attitudes in relation to the Other, to the Different, in western culture. They have positively contributed - at least, at the level of the "politically correct" discourse - to combating eurocentric, nationalistic or sexist ideas. But such a deconstructionist-ironist attitude has also contributed to casting doubt on knowledge in diverse fields. Preoccupation with pursuing and improving the standard of explanations of the natural and the social world tends to be pushed into the shadows since all discourses are equally justified, let them be fiction, science or history. As Garfinkel (1981) argued, in connection with social theory, it is necessary to go beyond a "thorough-going relativism" and examine the explanatory frames of concrete explanations in order to assess their relative validity, on factual grounds (p. 156).

A critical realism - or transcendental realism, as Bhaskar (1975) called it - has emerged from the intense debate undertaken between two different views, one defended by authors such as Feyerabend and Lakatos, emphasising the social condition of knowledge, and especially concerned with the history of science and its change over time, another represented by authors such as Scriven and Hesse, criticizing the formal scientific models and their roles, and stressing the stratification of science and the difference between explanation and prediction. Bhaskar assumed the need for making a synthesis of these two approaches under a realist view in such a way,

to show in particular why and how the realism presupposed by the first strand must be extended to cover the objects of scientific thought postulated by the second strand. (p. 9)

Thus, critical realism is not a move back to early positivism. While dogmatic positivism entails an epistemic fallacy, taking statements about our knowledge of the real for statements about the real, Bhaskar claimed that knowledge is a social product and the objects about which knowledge is produced have an independent existence. Science has to be developed under two criteria:

1. its capacity to sustain the idea of knowledge as a produced means of production;

2. its capacity to sustain the idea of the independent existence and activity of the objects of scientific thought. (ibid., p. 17)

With respect to the concept of explanation, Bhaskar asserted that the differentiation of the world entails its stratification: a *necessary* and an *accidental* sequence of events can be distinguished; the former means that when a certain event (E1) occurs, the production of another specific event (E2) is stimulated. Bhaskar rejected the Humean concept of causation as a conjunction of atomistic events; instead, he assumed the existence of generative mechanisms and structures as a basis for causal laws, that is, "existing tendencies of things to act in a certain way" (ibid., p. 56). Laws are concerned with *independent tendencies of things*, not with conjunctions of known events. The world is viewed as an open system in which different mechanisms operate, as opposed to a closed system of science whose aim is to create a constant conjunction of events, under experimental conditions.

Critical realism has been considered by defenders of objective standards of knowledge as a relevant ground for building up more fruitful analyses of various fields of enquiry, rather than the deconstructionist approach. In accordance with this approach, new trends in the analysis of historical objectivity have developed.

New trends in thinking about historical objectivity

Reactions to scepticism and relativism have arisen in the field of history, grounded on a realist-objectivist approach. The latter involves (a) a *critical realism* presupposing an epistemic access to reality without denying a social production of knowledge; and (b) a *critical objectivism* which recognises specific standards for historical interpretation and explanation validated by the scientific community. Such a view has stimulated discussion on criteria of justification and evaluation in historical enquiry. With this

aim, McCullagh (1984) and Martin (1989) have turned the debate on historical explanation towards the critical analysis of concrete historical pieces of research. This tendency, which has already emerged in the work of authors such as Dray, Gardiner and Atkinson, is gaining now more attention.

McCullagh (1984) recognised that the general aim for historical work is to describe the past, "though in fact it may not do so, or not do so accurately" (p. 1). Thus, consciously avoiding the analysis of questions of truth about the past, he prescribed some general assumptions:

1. The existence of a world independent from our beliefs about it.
2. A reality accurately perceived under certain conditions.
3. A reality structured according to the concepts we use to describe it.
4. Reliable rules of inference to get truth about reality.

McCullagh stated that those assumptions are commonly shared by historians, who are especially committed to (a) *accuracy of observations* of evidence, and (b) *adequacy of inferences*. For the same reason, historians reject those descriptions not sufficiently grounded on evidence. It is not enough to get a coherent description - otherwise it could not be distinguished from fiction or propaganda - it must be supported by some evidence and not contradicted by other. This is a distinctive feature of history: novelists look for coherence and go beyond what evidence permits them to assert; propagandists produce a misleading portrait of reality, omitting or denying evidence in order to pursue some practical ends. Such types of accounts are more readily open to falsification when available evidence is exhibited. For McCullagh, a commitment to truth is thus a genuine attitude of historians:

> In practice, then, historians do try to discover the truth about the past [...]
>
> Historians commonly believe that their well-supported descriptions of the past are true, but can such faith be rationally justified? (p. 3)

As McCullagh claimed (ibid.), we can get the truth only if high standards of historical justification are followed. However, he recognised that some problems arise concerning the nature of evidence: it can give room for different conclusions, thus there is always the possibility of a conclusion not being necessarily true. Moreover, the premises of historical inference being fallible, conclusions can be fallible too. The same happens with implicit generalizations, which cannot be proved. Inductive inferences, which are the most common pattern of reasoning in history, imply that even if premises are true they do not necessarily entail a true conclusion. Such constraints on historical truth led McCullagh to consider that historical conclusions can often be proved probably true, given empiricist assumptions. He was aware of the historicity of scientific and

historical standards: he grounded his criteria on Popper's proposal of scientific demarcation (criteria of falsifiability and corroboration) and on Collingwood's account of the history of history (the critical use of evidence by historians today). Yet following Popper, McCullagh stated several conditions to be held in order to prefer a singular description - a hypothesis - to others:

1. Evidential consistency (it must be grounded on observation statements)
2. Greater scope (it must imply more variety of observation statements)
3. Greater explanatory power (it must make the observation statements more probable than any others)
4. Plausibility (it must be more consistent with other accepted hypotheses)
5. Less *ad hocness* (it must contain fewer new suppositions)
6. Non disconfirmation (it must be not denied by observable statements)

McCullagh added two criteria more (as Popper did) to those stated above: simplicity and a higher degree of falsifiability, the former being related to less *ad hocness* and the latter implying greater scope and power (and sometimes greater simplicity too). Thus, broad hypotheses are simple and of a large scope, being narrowed when some falsifications are introduced. When hypotheses are confirmed under various conditions and not refuted, they can be credible, as Mc Cullagh stated:

> Historians, therefore, prefer hypotheses which imply the very probable existence of more available evidence which will either confirm or disconfirm them than is implied by any competing hypotheses; but they do not prefer hypotheses which present a long ad hoc story accounting for a few observations, such that although the story could conceivably be confirmed or disconfirmed by a large number of observation statements, in fact the number of actual observations it implies is very small. (ibid., p. 20)

McCullagh seems to rely on evidential consistency as the basic condition for a simple hypothesis (historical description) to be true. Explanatory scope and power is not enough for a hypothesis be accepted as true; *ad hocness* and implausibility does not imply that a hypothesis must be false; but, implausibility and disconfirmation give grounds to consider it as false. Once more, these arguments show McCullagh's concern about *evidential confirmation and non-refutation*. McCullagh criticised Feyerabend's statement about the impossibility of comparing different explanatory theories, if based on different observation statements. Against such an argument, he claimed that most historical hypotheses are based on the same view of the world and thus they can be comparable. McCullagh also replied to conservative conventionalism, defended by Lakatos. Hypotheses being more or less approximate to truth, there is no room for

preferring well-confirmed, non-refuted hypotheses in terms of truth. Reacting to this relativist view, McCullagh claimed that the criteria formerly stated are used to justify faith in the truth of a particular conclusion as the best explanation available. That does not mean, he stated, contrary to what was asserted by Lakatos, that standing hypotheses should be held when new discoveries show another incompatible and superior explanation. So far as causal explanation is concerned, McCullagh considered that, according to Humean assumptions, historical descriptions can be true or false, but interpretations and explanations are only more or less adequate. Arguing for the best explanation, McCullagh based his discussion on Popper's arguments about hypothesis formation and deduction of testable consequences. When two hypotheses are unfalsified, the better will be that with greater *scope*, but most open to falsification (p. 18).

Martin (1989) also emphasised the need for a more fruitful focus on historical analysis oriented towards a critical examination of criteria for justifying actual historical explanations. In order to pursue such an aim, Martin raised two questions about the logic of explanatory controversy: (a) "How do historians attempt to show that one weighted explanation is better than competing weighted explanations?", and (b) "How should they attempt to show this?" (p. 54). Accordingly, Martin analysed: (1) Kinds of arguments adduced as justification for competing explanations, and (2) the manner in which historians assign relative importance to causes of particular occurrences.

Concerning (1), kinds of arguments adduced as justification for competing explanations, Martin discussed different explanations of a concrete issue (the collapse of Maya civilization) and found three kinds of arguments about the *explanans*. These arguments can be directed to (a) the truth of the facts entailed in the *explanans*; (b) the explanatory relevance of the *explanans*; or (c) the sufficiency of the *explanans*. Each of these three kinds of arguments can have a positive and negative pole - positive arguments will increase the likelihood and negative arguments will decrease the likelihood of a given explanation. Martin found that both positive and negative arguments related to (a), the truth of the *explanans,* are often present as justification of the favoured explanation by means of exhibiting some data to support it and some data against the other competing ones. Arguments of this kind are thus summed up to show that the favoured explanation is either more consistent with data available than others, or more plausible than others when grounded on some specific set of evidence. Martin clearly emphasised *evidential* consistency (i.e., confirmation and non-refutation) and plausibility (as referred to a higher degree of probability of the occurrence happening) as criteria for justifying and assessing explanatory adequacy. Affirmative arguments

showing (b), the explanatory relevance of a given partial explanation, are presented by recourse to *a comparison-situation*. Positive arguments of this kind are not frequent and negative ones are almost non-existent. Such arguments entail a concern for logical consistency (internal logic and plausibility). Usually, Martin asserted, they are assumed more than expressed. They only explicitly appear when the *explanans* is not of a familiar type or when controversy about such factors exists. As an example of this, Martin examined Sanders' partial explanation of Maya collapse due to subsistence failure, by comparing it to what happened in Africa and Indonesia - thus giving support to a tendency for population to move from forest to grass as a consequence of the pressures of agricultural needs. Concerning arguments on (c), the sufficiency of the *explanans*, Martin found some negative and none positive, which means that historians do not attempt to produce sufficient explanation. Negative arguments of this kind, when they exist, play a role against the sufficiency of a non-favoured explanation, in order to give room to a more relevant *explanans*. Such negative arguments can be presented in terms of showing the implausibility of a given *explanans* as being sufficient to the explanandum or as contradicting evidence. On these grounds for justification, which historical explanation can be considered better than others? Summing up the discussion so far, Martin stressed that competing explanations must be justified not only by support of evidence but also by a critical interpretation of its logic and plausibility.

Concerning (2), the manner in which historians assign relative importance to causes of particular occurrences, Martin discussed whether causal weighting is based on objective or subjective criteria. He criticised Dray's and M. White's positions when they asserted a value-judgement as the ultimate criterion for selecting the relevant factors for an explanation. Martin argued for an objective, factual criterion of distinguishing causes from conditions, by means of a comparison-situation. Relying on studies by Hart and Honoré, M. White and Scriven, he proposed that a situation under scrutiny should be compared with another one in which the same conditions are present but the effect is different. The factor absent in that comparison-situation will be considered as the relevant cause or, at least, as a partial cause. The relevant cause is often constituted by a conjunction of factors, not a single factor - here, again, it is possible to rank those relevant factors in terms of relative importance to the occurrence. This "is a purely factual matter ..., explanations in terms of 'the cause' are relative, but not subjective" (Martin, ibid., p. 60). What matters is that it is always possible to distinguish causes from conditions on factual grounds by formulating an appropriate explanatory question. If an explanatory question is selected according to a specific value-laden framework, that is characteristic of all enquiries, not of historical enquiry only.

Ideas of provisional historical explanation as a working hypothesis

This study assumes that, nowadays, explanations are given and accepted as provisional answers to an historical question. That assumption does not entail that explanations cannot be discussed and assessed: historians usually apply some specific criteria to justify their own, or preferred, explanations against other competing ones. Such standards can be used to discriminate between an historical explanation produced under commitments of a detached perspective as opposed to a propagandist explanation produced under practical interests, or they can be used to assess the adequacy, scope and power of competing explanations. These criteria for determining the degree of acceptability of an explanation can be systematised as referring to principles of consistency in its various forms.

The notion of consistency is ambiguous: it may refer to internal coherence within the account, or to the plausibility of the relative causal weighting, or to the probability of the historical situation, or to evidential confirmation and non-refutation, to apply the Popperian logic of theory assessment. Although notions of consistency with evidence and logical consistency may be seen as interrelated, a discrimination between some of the different notions involved is useful for purposes of empirical analysis.[3] Therefore, the operational concept applied in this study discriminates:

1. *Evidential consistency* , concerning the extent to which an explanation is accepted in the light of - or as consistent with - 'the' evidence, through confirmation and non-refutation.

2. *Logical consistency* in terms of internal and external consistency: internal consistency or *coherence,* concerning the extent to which an explanation does not contain internal contradictions, and external consistency or *plausibility,* concerning the extent to which an explanation is consistent with knowledge of real or imagined events in the real world.[4]

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[3]Kosso (1993), for example, argued for an interrelationship between evidential and logical consistency in so far as justification of historical knowledge is concerned: "it is misleading to force a choice between justification as based on a kind of coherence or an appeal to evidence ... because an appeal to historical evidence is itself an appeal to coherence" Thus, in the same article, he used that word with a focus on corroborated evidence: "the degree that ... accounts are consistent and of explanatory relevance to each other" (p. 3), or as related to internal logic: "Descriptions of the physically impossible or the logically inconsistent ...cannot be accurate" (p. 5).

[4]This operational discrimination was also inspired by Pennington and Hastie (1992). Principles of acceptability and confidence are applied to story construction implying causal reasoning. Two certainty principles were picked out: 1) *coverage,* "the extent to which the story accounts for evidence presented at the trial" and 2) *coherence,* with three components: *consistency,* "the extent to which the story does not contain internal contradictions", *completeness,* "the extent to which a story has all its parts", and

Concepts of *scope* and *power* may be related to ideas about the relative consistency (in terms of evidence and logic) of competing explanations. An explanation of a greater scope and power, involving a wider range and depth of questions which can be answered in the light of existing evidence might bring out new and fruitful perspectives on an historical issue.[5] In relation to evidential consistency, not only can we try to "demonstrate" that a favoured explanation is well-supported, and not yet refuted by evidence, but we can also argue for the greater scope of that explanation due to its consistency with a greater variety of corroborating evidence. In relation to logical consistency, we can assess a favoured explanation as coherent and plausible, but we can also argue for a greater logical power of that explanation because (a) it is of a greater scope, and (b) the causes emphasised appear more probably to make the *explanandum* happen.[6] It must be noticed that notions of evidential and logical consistency are interlocked with factorial weighting. Arguments for and against competing explanations in the light of criteria of evidential and logical consistency (thus, at an epistemological level) imply a discussion about the relative causal weighting in those explanations (thus, at a substantive level).

The notion of a *complete* explanation can also be tied to explanatory power and scope.[7] When an explanation entails an idea of logical adequacy, the most powerful can be seen as a *complete* explanation. When that explanation entails an idea of consistency with a greater variety of evidence (suggesting a larger explanatory scope), it may be seen as relatively more complete, although in this sense a genuine incompleteness must be recognised.

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plausibility, "the extent to which the story is consistent with knowledge of real or imagined events in the real world" (pp. 189-206).

[5] Concepts of explanatory scope and power are often mentioned in philosophical analysis with a loose meaning. Those concepts were used by McCullagh in a more precise way but mainly applied to the assessment of singular historical *descriptions*. See in this chapter pp. 76-7.

[6] These two assumptions (a, b) entail two different views about explanatory assessment. McCullagh defended that explanatory adequacy can be assessed in terms of logically comparing their relative scope, only. Martin claimed that there are factual grounds for explanatory assessment: this is done by recourse to a comparison-situation which can show how a given *explanans* made the *explanandum* occur. Both approaches are kept in the framework for the empirical analysis.

[7] Followers of the D-N model defend that historical explanation is always logically incomplete. Followers of the rational model assert that historical explanations can be complete in terms of being logically satisfactory.

Ideas examined above entail the assumption that there are methodological criteria to assess objectivity in historical explanation. Objectivity does not mean absolute neutrality, in the sense attributed by early positivists. The assumption of absolute neutrality in producing any branch of knowledge has been challenged today by different philosophical approaches discussing ideas concerning the social production of knowledge. These ideas entail the recognition of perspective. A recent relativist view, postmodernism, emphasises the context and *contingency* of knowledge, while objectivists claim that it is possible to find some methodological standards inter-subjectively shared, like those analysed above. The notion of methodological detachment - or *perspectiveful neutrality* - is nowadays distinct from that of *perspectiveless neutrality*, the former entailing the recognition of perspective as a genuine feature of human knowledge. Whether it is possible to find a consensual perspective about an issue, as Rubinoff claimed, or different perspectives necessarily remain, as Dray counter-argued (see p. 69), it is a still an unresolved matter.

Concerning the possibility of an epistemic access to reality, relativists tend to assume a sceptical attitude about it while objectivists tend to assume a realist position presupposing that the real world can be known in some way. Synthesizing these views:

- A position of doubt about the possibility of historical knowledge associated with notions of absolute neutrality (in the sense of perspectiveless neutrality) tends to lead to a *subjectivist* approach.

- A realist position about historical knowledge associated with notions of perspectiveless neutrality tends to lead to resembling that of a *positivist* approach.

- A position of doubt about historical knowledge associated with notions of perspective tends to lead to a *relativist* approach, knowledge being viewed as always contingent, relative to a specific context.

- A realist position about historical knowledge associated with notions of perspectiveful neutrality (contrasted with perspectiveless neutrality) tends to lead to an *objectivist* approach or, critical realism. This view presents several nuances: historical explanations can be seen as partially true, proximate to truth or probable.[8]

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[8] These nuances apply to theories of knowledge developed by critical realists such as Bhaskar and Harré or logical positivists such as Popper and Hempel, and to philosophical approaches to history defended by structurists such as Lloyd and objectivists such as Martin.

The conceptualization discussed in this chapter constituted the main theoretical framework for the analysis of students' ideas about provisional historical explanation. Such a framework must be seen as a working hypothesis about the idea of provisional historical explanation. It intended to clarify those features related to questions of objectivity in the working definition of historical explanation given in the previous chapter, which is:

> Historical explanation is supposed here to be an answer to a why-type question about past human actions, events, and states of affairs. It may include questions of a how-possible type. Each explanation presupposes a selection of factors - reasons, motives, dispositions, external conditions, structural, conjunctural conditions, along the lines of the different explanatory models. Each author may assign a different relative importance to factors selected and, among a range of factors (the standing conditions), some might be considered necessary or mere contributory/facilitating conditions to the *explanandum*. Conditions which make the difference to whether a situation occurred or not may be considered as *the* cause.

Therefore, when assessing the relative scope and power of competing explanations, the following constructs related to explanatory consistency, such as discussed above, will be analysed:

1. Evidential consistency
2. Logical consistency (coherence and plausibility)

Ideas about objectivity in historical knowledge will be analysed in terms of methodological detachment and access to truth.

Assessing competing explanations to an historical question

In the previous chapter, three explanations were given concerning the question: "How could the Portuguese (from such a small and far away country) manage to establish a maritime empire in the Indian Ocean?". Those explanations were discussed in the light of possible explanatory modes underlying each of them (see chapter 2, pp. 56-61). The same explanations will be here compared in terms of argumentation about competing explanations.

Comparing different explanations

The first version, written by Matoso (1946) for nationalistic purposes, was considered as a piece of propaganda more than as an historical answer. In order to exaggerate the excellence of the Portuguese people and their leaders' dispositions, it omitted a set of factual evidence - such as naval equipment or the naval correlation - which played an important role in the establishment of the Portuguese empire in the Indian Ocean, according to many other versions. For those reasons, even without considering overt expressions of nationalistic exhortation, that explanation cannot be seen as a credible historical explanation. It might be considered as an *ad hoc* explanation since it does not take into account some relevant factors consistent with evidence (such as those cited above) and leading to a more plausible explanation.

The other two explanations, namely one written by Marques, and the other written by Pacey, might present more powerful answers to the formulated question, as more consistent with evidence and as more plausible.

Analysis of two competing explanations

Setting aside a non-objective explanation, the version of A. Matoso, the other two can be seen as valid competing historical explanations. They stated the following conditions:

Marques' explanation:	Pacey's explanation:
. economic, political, religious situation	. naval expertise
. trade purposes	. plan of discovery
. religious purposes	. slow pace of journeys
. naval expertise	. trade purposes
. plan of discovery	. help of Arab pilots
. information gathering	. Moslem naval inefficiency
. help of Arab pilots	. Chinese withdrawal
. Moslem naval inefficiency	

Both explanations presented a known list of factors since the work of Godinho (1962) and Braudel (1985), who emphasised structural conditions leading to a systematic planning of explorations, against the traditional view of Portuguese expansion as

adventurous explorations from a small and poor country. Explanations given by Marques and Pacey presented some factors in common, namely:

. naval expertise   . trade purposes

. plan of discovery   . help of Arab pilots

. Moslem naval inefficiency

Factors common to both explanations are however given a different causal weighting in each. For Marques, conjunctural conditions such as naval planning are intertwined in structural conditions (political, economic, religious situation) embedding specific purposes and naval expertise; this whole set of conditions (C1) seems to have more weight than the contingent help of Arab pilots (C2) or even Moslem naval inefficiency (C3). Thus, the former set (long run conditions) seems to work as the most relevant, necessary causes to the whole situation, and the latter explicitly appears as merely facilitating conditions to the specific occurrence (E). A diagram of Marques' explanation might be designed along the lines shown in Figure 3.1.

Figure 3.1 A diagram of Marques' explanation
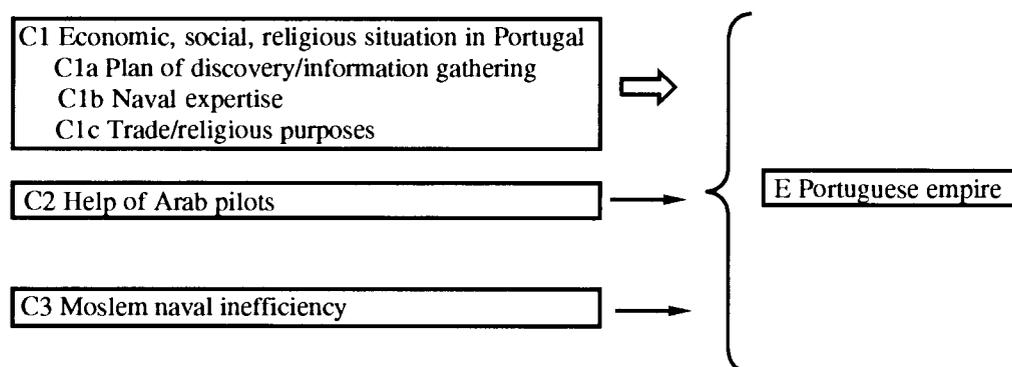
According to this scheme, structure C1 conditioning C1a, C1b and C1c made E occur with contribution of C2 and C3. This factorial weight appears to assume a mere addition of contributory factors to the necessary conditions without implying counterfactual reasoning.[9]. Nonetheless, it can be challenged by the following counterfactual argument implicit in the quoted passage: what would have happened if the Moslems (Turks and Egyptians including) turned their power to the Indian Ocean?

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[9] See McClelland's argument on this type of causal weight, p. 43.

For Pacey, factors seen as relevant conditions in the former explanation (naval expertise, trade purposes) assume a minor weight in order to give room to another hypothesis, seen as the most probable relevant cause: the Chinese fleet's withdrawal. Such an explanation can be illustrated by the diagram in Figure 3.2.

Figure 3.2 A diagram of Pacey's explanation
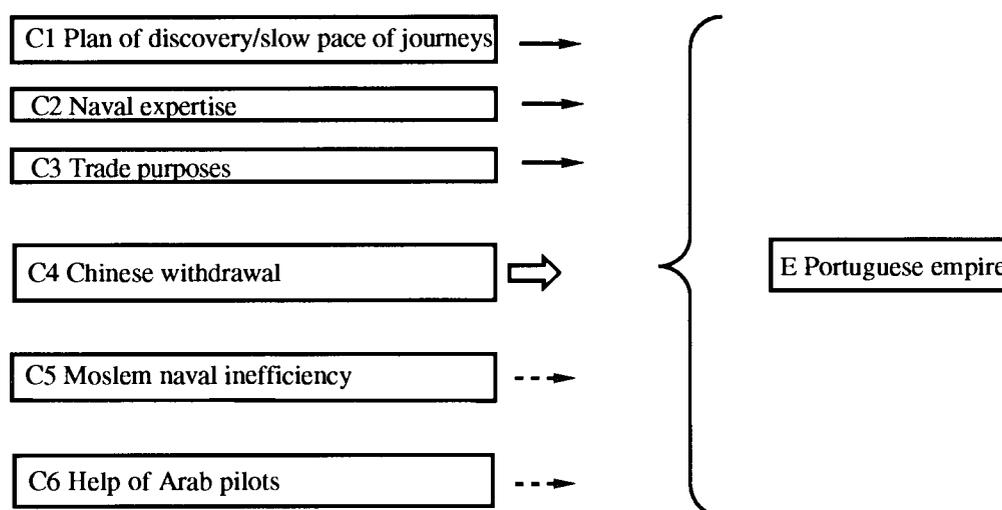
In this conceptual framework, C1 combined with C2 C3 and, especially C4, caused E, with contribution of C5 and C6. C4 entails a counterfactual argument which can be stated as follows: if C4 did not occur something could probably happen preventing the occurrence of E. It is this factor - the Chinese withdrawal - which makes the difference between the two explanations. To what extent can this speculative factor be considered relevant? Such a question can be analysed by recourse to a comparison-situation, as was suggested by Hart and Honoré, Scriven, M. White and Martin. It could be argued like this:

1. The Portuguese arrived in India and succeeded in controlling the Indian Ocean by means of different kinds of actions - diplomacy, followed by aggression and expansion.[10] As Arab ships were poorly equipped for warfare, and Turkish interests relied on Mediterranean and European countries, it was relatively easy for the Portuguese fleet - a well-equipped fleet and with an experienced crew - to dominate the other naval forces in the Indian Ocean.

2. There is evidence that Chinese fleets, composed of much larger ships than the Portuguese and well-armed with guns (but not cannons) and soldiers, had stayed in the

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[10] For evidence about the Portuguese arrival in China, see for example, Boxer (1969).

Indian Ocean, at least for trade and scientific explorations.[11] Before the Portuguese arrived in India the Chinese had withdrawn, thus allowing them a maritime control in that area. If the Chinese were there, other possibilities could occur: we can compare it, for example, with a similar real situation, when the Portuguese arrived in China, thirty years after their arrival in India, as is confirmed by consistent evidence. Boxer (1969), for example, pointed out:

> Where they tried to apply in the South China Sea the strong-arm methods which had served so well in the Indian Ocean, they were decisively defeated by the Chinese coast-guard fleets in 1521 and 1522. Though they subsequently gained admission to the coveted China trade, it was on the terms laid down by the Chinese authorities and not on those imposed by themselves. (p. 49)

The evidence confirms that the Portuguese looked at China as a sovereign country, and after a first moment of troubled relations, the two people negotiated peacefully with each other, the Portuguese obtaining a license to establish a commercial factory in Macao, in 1557. Grounded on that comparison - or contrast of actions - it can be said that the Portuguese got different trade conditions in India and in China. We might thus hypothesize that, if the Chinese junks were still in the Indian Ocean at the end of fifteenth century, it is plausible that Portuguese expectations for controlling the spice trade would probably be cancelled, giving room perhaps for more peaceful relationships and fair trade in the Indian Ocean.

Arguments for the assessment of competing explanations

In order to decide which explanation - that of Marques or that of Pacey - is the best, we can compare them in the light of the conceptual framework presented by McCullagh (see p. 76).

1. Both explanations are consistent with non-refuted evidence, but Pacey's explanation gives more variety of evidence bearing upon the corresponding hypothesis. Pacey went further than Marques in stating a range of factors (he added the *Chinese factor*). That factor can contribute to explain why Portuguese control in the East stopped where it met China (which can be seen as a comparison-situation). Therefore, it might give a wider scope to that explanation.

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[11] See evidence about Chinese explorations in Needham et al. (1971).

2. Both explanations are plausible, since the empire had to be built within a favouring political, cultural and technological structure (suggested by Marques), and it might be only made possible thanks to a chance factor - the Chinese withdrawal (according to Pacey). So far as explanatory power is concerned, Pacey gave emphasis to a counterfactual speculation, which may be rejected by some authors as not representing a "real" cause. Marques stressed long-term conditions, but those can be considered as the relevant standing conditions to the whole process of Discovery and Expansion, and not specifically as a direct explanation of the Portuguese control of the Indian Ocean. Pacey's speculative factor might be seen as probably relevant to the occurrence of the Portuguese control of the Indian Ocean, given the standing conditions. If the Chinese were still in the Indian Ocean by end of the fifteenth century, as the Portuguese progressed carefully in their maritime explorations and gathered information about India, it is plausible that such an hypothetical situation might have completely changed world history. The Chinese withdrawal, together with the other necessary conditions, might be considered as a more complete explanation of the Portuguese control of the Indian Ocean.

Summary

Ideas of provisionality in historical explanation constitute the main theoretical assumption for the analysis of students' ideas. This chapter examined those ideas through a philosophical approach. It presented (a) a brief summary of views defended by authors such as Hempel, Popper, Dray and Lloyd, representing several approaches to the concept of historical explanation, and (b) a broad survey of debates about objectivity and access to truth, in history and in theory of knowledge (the examination of new trends about objectivity in historical explanation, represented by authors such as McCullagh and Martin, who mainly inspired the framework for the analysis of students' ideas, completed the theoretical survey). According to this framework, (c) ideas of provisional historical explanation were given as a working hypothesis, and (d) two concrete explanations employed in the empirical study were analysed.

4 First explorations of students' ideas about provisional historical explanation

An exploratory study was designed in order to provide the first empirical grounds for the progressive building of a categorization for pupils' constructs about provisional historical explanation (PHE). Specifically, it was intended to generate some indicators of ideas related to the provisionality of historical knowledge on the basis of an a priori model treated as a working hypothesis. It must be emphasised that, at this stage of the work, the concept of historical explanation was not yet fully defined. Therefore, the ideas initially explored were mainly related to provisionality in historical interpretation. This chapter describes the research design of these first explorations setting out (a) the working hypothesis, (b) early decisions on population and sampling, research techniques, instruments and procedures for administration, (c) data analysis of these first explorations to highlight some ideas in order to build a model of students' ideas about PHE, and (d) a brief discussion of the emerging model as a working hypothesis, and of the limitations of this first analysis.

A working hypothesis: a model of students' ideas

Taking into account some trends (a) from previous research on children's ideas about history, and (b) from work in philosophy of history, a categorization of adolescents' ideas about PHE was initially drawn up. Three conceptual levels of ideas about the provisional nature of historical explanation were generated in advance as an a priori model. Figure 4.1 shows this first model of students' ideas about PHE.

Figure 4.1 A priori model of students' ideas about PHE

Level 1

Students consider given or constructed explanations as true when they are based on reliable evidence. They tend to see historians as apprehending past reality by keeping their presuppositions totally separate from their history. Propaganda in explanations can be detected.

Level 2

Students consider that historical explanations vary according to the different criteria that historians use to give meaning to past situations. A balanced explanation, their own explanations included, is seen as *the explanation* if based upon examination of different or opposing versions.

Level 3

Category 1: Students recognise that several explanations can coexist with regard to whatever past situations might be selected for study. Explanations - those constructed by themselves included - are perceived as relative to a specific authorship. Specific criteria used in history are also recognised.

Category 2: Students recognise that historical explanations are provisional, understanding them as a reconstruction of the past that integrates the historian's point of view. They can attribute a given context, in time, place and culture, to that point of view. They can also discuss an explanation in the light of procedures used in history.

This early working hypothesis was progressively reformulated on the basis of the empirical data and gave rise to the revised model presented in chapter 7.[1]

Population and sampling

The first step in sampling was to define the population from whom information was to be collected. Within a universe of adolescents attending secondary school, the ages of 14 and 16 years were the first boundaries established for the target population. However, drawing a sample based simply on an age criterion would have brought about serious difficulties for this study since Portuguese classrooms are organized by year grade (from 1st to 12th grade) and not by age. The target population was then defined

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[1] The model of students' ideas about PHE, functioning as the main working hypothesis in this study, was reformulated through the analysis of data from the main study, which encompassed the pilot studies (see chapter 6) and the final study (see chapter 8).

so as to permit appropriate access to the sample without provoking serious methodological difficulties.

Criteria for defining the target population

Bearing in mind the concerns mentioned above, the target population was defined as those adolescents attending the last academic year of compulsory education (9th-graders, with ages ranging between 14 and 17 years old). Such a decision was made not only for practical reasons (it would be easier to get access to the sample using class as a criterion) but also as a consequence of concerns about controlling the historical background of subjects (the same grade implies the same taught content, since a compulsory national curriculum has always existed in Portugal). Moreover, the early intention was to get an overall picture about the ideas of students who were coming to the end of their compulsory schooling.

Thus at this early stage of work, the target population was defined as the 14 -17 year-old 9th-graders (N= approximately 800) attending 12 secondary schools in which the in-service teacher training is carried out by the University of Minho.[2]

Sampling decisions

From the target population defined above a sample was drawn up taking into account some basic sampling criteria. The exploratory study was carried out through two phases: a first phase in two secondary schools - one located in Famalicão, an industrial (mainly textiles) town; the other located in Braga, the commercial and cultural centre of Minho; a second phase, in three secondary schools - in Famalicão and in Braga, again, but with other subjects, and in Vila Verde, a rural-centre town. It was assumed that subjects would thus be representative of different cultural origins (rural, industrial and urban settings, with heterogeneous social status).

In this early stage, the sample was not yet randomly selected: subjects were volunteer participants in the study. Within each school, groups of three students were formed. Decisions made about such a design were inspired by Ashby and Lee (1987) taking into

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[2] The decision to limit the population to students from schools linked to the University of Minho was due to concerns about achieving a representative sample. The intent was to control for some previous experience in teaching methods and approaches. This in-service teacher training is addressed to university students in their 5th year of graduation in the Teaching of History and Social Sciences.

account the potential for stimulating discussion within groups of three students. Thirty-six subjects were involved in these first explorations, which employed the following design:

First exploratory study: 3 students x 3 groups x 2 schools (N=18)
Second exploratory study: 3 students x 2 groups x 3 schools (N=18)

Research techniques

In order to pursue the intended goals, research techniques had to take into account the following:

(a) the characteristics of the specific population: their experiences within Portuguese society, school and their history classes;

(b) previous research on adolescent thinking about historical concepts carried out in different cultural and school settings (see chapter 1).

It was considered that the enquiry model might foster student thinking in terms of the second-order concepts to be explored, according to what is suggested by previous research. However, since this kind of reasoning is not usually developed through history class work in Portuguese schools, it was hypothesized that such a mode of thinking might not be spontaneously apparent in a non-led discussion context. Thus, a two-step sequence of work was designed. In the first step, each group would experience historical method through the construction of one or more explanations using several sources about an issue; in the second step, each group would be interviewed about ideas related to what they had previously experienced.

The technique selected was a combination of (a) videotaped groupwork without external interference, suggested by the work of Dickinson and Lee in "Making Sense of History" (1984) for the introductory phase of work, followed by (b) an interview with each group proposing reflection on the initial non-led discussion and intending to provoke students' thinking about the provisional nature of explanation. The latter was broadly inspired by the phenomenological interview used by Shemilt (1987). It aimed to confront students with the limits of their own reasoning but presupposed that sometimes a few clues to assess consistency of ideas could be given by the interviewer. In addition, the interview should take place employing a familiar style, as a friendly teacher-student conversation so that students could feel themselves free to speak. Such a decision derived from the assumption that (a) students would have to cope with an unfamiliar field of discussion and interviewer, and that (b) the main focus for these explorations was to list the main notions constructed by students, and the possible

levels in their conceptualization.

Instruments

Designing the instruments to be applied involved decisions on: (a) which historical material would be appropriate within the context described above, and (b) which leading questions to create for discussion and interviewing.

The historical content

It was intended to select historical issues which might appear both challenging and familiar to the subjects. A first look over the ninth-grade history curriculum (as the sample was drawn up from 9th-graders) showed a focus on such contemporary issues like the two World Wars, the Depression, Post-World War II in Europe, the EEC. Units selected for the exploratory studies took the taught curriculum into account.

(a) The first content unit

It was decided to design a first unit that would be sufficiently familiar to students, but not taught in school, about a contemporary issue. As the Gulf War was about to take place, it was an issue frequently discussed by the media at that time. So, a problem relating the Gulf War to the Israeli-Arab conflict was launched for discussion. A set of materials on the Israeli - Arab conflict was organized. It was assumed that students would be motivated by discussing an issue closely related to present conflicts. However, some difficulties were found in organizing a simultaneously meaningful and simple set of data intended to be a first systematic approach to be tackled by students. The historical kit was supposed to provide different sources simultaneously (primary/secondary, written/visual) as a diversified basis for students construing their own explanations, and different explanatory versions (Western, Palestinian and Jewish) in order to assess the relative value of each explanation (see Appendix A).

Students' reactions to this material were observed through videotaping. Such observations suggested that the need for varied material had led to the organization of too long a kit. A tendency to concentrate attention on graphic (maps) and schematic information (such as chronology) was apparent. The Brazilian account appeared to be read in full; other written materials seemed to be rapidly scanned. These conclusions

were taken into account when planning another unit for the second exploratory study.

(b) The second content unit

Since the former unit is not included in the school curriculum, an early decision for this second-phase was to use a previously taught unit in order to establish some control over taught/non-taught knowledge. The outbreak of World War I was chosen as the problem to be discussed and explained in the light of different sources. This unit included cartographic, visual and written sources from the textbook used in history classes and other materials, organized in two sets, including arguments from the side of the Triple Alliance and from the side of the Triple Entente (see Appendix B). This second content unit appeared to be easily tackled by students.

Guidelines for discussion and interviewing

The main guidelines to support students' work as described above in the previous section (a non-led discussion followed by an interview) were constructed.

(a) Guidelines for discussion

For the first stage of the work (a non-led discussion), a general topic to be discussed by each group was given. In the first unit (around the Israeli-Arab issue) this topic was:

> Discuss the historical materials given and present an explanation on the following issue:
> The West does not want Israel to participate in the Gulf War. This is related to the Israeli-Arab conflict. Why does this conflict exist?

For the second unit (about the outbreak of World War I) the following rubric was drawn up:

> The present events in Yugoslavia make us think about the beginnings of World War I.
> Try to answer the following questions with the support of your history textbook and other materials available:
> - how did World War I begin?
> - why did this conflict occur?

(b) Guidelines for interviewing

The main guidelines for interviewing were designed to create a bridge between the students' explanation/s constructed in their groups and a led-discussion focusing on ideas related to the provisional nature of historical explanation. The guidelines for interviewing each group are shown in Figure 4.2.

Figure 4.2 Guidelines for the interview (exploratory studies)

1. On arguments justifying an explanation:
   - Are they acceptable?
     - All? - Why?
     - Some? - Which one and Why?

2. On validity of explanations:
   - How many explanations to be considered?
     - One - Which one and Why?
     - Several - Only one true? - Which one and Why?
     - All equally valid? - Why?
     - One more valid? - Which one and Why?

3. On explanations given by primary or secondary sources:
   - What is the relative value?
     - Primary more valued?
     - Secondary more valued?
     - All equally valued?
   - Why?

4. On the historian's role when explaining:
   - To what extent?

5. On explanatory assessment:
   - Which criteria to follow?
     - When assessing primary sources?
     - When assessing secondary sources?

6. On their own explanatory assessment:
   - What is the relative validity compared to the others?
     - More valid?
     - Less valid?
     - Equally valid?
   - Why?

7. On the limits of explanation:
   - Is it an explanation forever?
   -Why?

Procedures

In the first phase, after a brief conversation with each group about the broad purpose of the study (adolescent thinking in history) students were invited to discuss the issue in the light of the material given and of previous knowledge they might have about it. They were told that each group would carry on their study alone and that their work would be videotaped in order to achieve the intended purpose. They could control the video camera and pause the filming whenever they needed to.

Observation of tapes of the first group suggested a tendency to forget the analysis of written materials (Portuguese students are not much accustomed to dealing with several and complex sources at the same time.) For this reason a brief introduction concerning the need to analyse different materials was subsequently made in each group. Once one (or several) explanations were reached by each group, a follow-up interview was conducted by the researcher, which was also videotaped. The work (tape and interview) occurred during a morning or afternoon period (about 3 hours), with a break, for each group.

These exploratory studies were conducted during 1991: the first phase in January and February; the second phase in October and November.

A first data analysis

Data collected in the two phases of these explorations were analysed to provide a first empirical basis for a model to be refined further. As already emphasised at the beginning of this chapter (p. 88), in these first explorations students' ideas were analysed as relative to provisional historical interpretation as historical explanation was still considered in a loose way. It was intended to capture sets of interrelated ideas about provisionality with an open brainstorming approach, independent of correspondence to tacit and stable individual constructs. As data were gathered in a situation of peer-interaction (and, sometimes, with some "pressure" from the interviewer - see decisions on research techniques, pp. 91-2), moves in constructs suggested by some students and silence and perplexity observed in some others might be mainly provoked by the concrete context of the interview.

A first categorization grounded on empirical data

The analysis of responses about the Israeli Conflict issue (first exploratory study) suggested an empirically-based recategorization of the a priori model proposed. Four conceptual levels of ideas were considered. A first level of ideas relying on *substantive information* prior to the level 1 initially hypothesised (relying on acceptance of *reliable explanations*) was formulated; level 2, hypothesised as relying on ideas of a balanced explanation viewed as *the* explanation, was not considered since data did not provide clear indicators; the other two levels were maintained. This early empirical model was as shown in Figure 4.3.

Figure 4.3 Early empirical model of students' ideas about PHE

LEVEL 1 - AUTHORITY ACCEPTED

> Explanations seen as information to be simply accepted.

LEVEL 2 - SOURCE CRITICISM

> Historical explanations accepted if based on reliable evidence
>
> Explanations valued in terms of reliability: primary sources valued
>
> Neutrality seen as opposed to point of view

LEVEL 3 - PERSPECTIVE

> Point of view recognised as legitimate in history
>
> Primary sources valued

LEVEL 4 - CONTEXTUAL PERSPECTIVE

> Concern for a tentatively perspectiveful neutrality
>
> Point of view recognised in a social context

Level 1: Authority accepted

Students tend simply to accept every explanation as information without raising questions about its credibility:

> Susana (17 years old): I think that all of them [different versions] have their points of view, they are all linked together, the idea is basically the same ...
>
> Int.: If they have their points of view, to what extent might some of them reflect propaganda?
>
> Susana: I think that the Jews' one ... hmm ... I don't think that it can be considered exaggerated ... I think that for them it must be like that ... I think that with the Jews and with Palestinians

it is the same...

The authority of whatever information is given may be a basic criterion at this level. Contradicting information in explanations is not explored, as the perplexity showed by Susana and Carla seems to suggest:

> Int.: Do you find any contradictions between the arguments presented by different authors?
>
> Carla (17 years old): Yes, I do ...
>
> Int.: Can you give some examples?
>
> [Carla keeps on looking at the materials, Susana taps her pen and coughs ... Only Paulo, 16 years old, answers:]
>
> Paulo: The Jews say that they have the right to be back and the Palestinians say that they cannot be taken out of their land ...

There is a tendency to pass immediate moral judgement on past facts directly rather than assessing existing explanations:

> Int.: Considering these three sets of explanations how do you evaluate them?
>
> Susana: I think that the Palestinians were a bit incorrect to the Jews, I think they want the land only for themselves [...]
>
> Int.: This is part of your *own* explanation [...] Can you analyse and give your opinion about the explanations given here ?
>
> Susana: I think ... For me the most correct one was that one adopted by the United Nations.

As Susana's responses suggest, some students focused their argumentation on the *actions* assumed by agents in the past (Jews, Palestinians, UN), discussing their motives and producing moral judgements for and against them, rather than considering *explanations* as such.

Level 2: Source criticism

Historical explanations are correct if based on reliable evidence. Such a concern often leads to a preference for explanations from primary sources as they can suggest the emotions and feelings of the real situation. Memory can be overvalued as the following excerpt suggests:

> João (15 years old): ... They [explanations in primary sources] are testimonies from people who live with their religion ... their beliefs are explained here ... they have a basis ...
>
> Luísa (14 years old): ... This can show the meaning of diverse opinions from both parts ...

> They are all important ... but these [explanations in primary sources] are more important
> because they are the basis for reconstructing the events ...
>
> Paula (15 years old): These have an opinion about what people do feel ...
>
> João: As far as this issue is concerned we have to abstain from the issue ... we don't know how
> they really feel themselves ... we in the West have a general idea, but we cannot reach
> conclusions ... Those who are involved can discuss what is going on there...

João consistently argued for the value of the agents' *testimonies* for reaching conclusions, and Paula seemed to follow his argument. Luísa conceptualized explanations as *opinions* which can be understood in context and also valued primary sources more as a basis for a reconstruction of events. For this group, historical conclusions appear to have two degrees of reliability, the most reliable being those produced by historical agents.

In another group, comparing different sources (a more elaborate view about historical work, although it was suggested by the material given) was viewed as essential for the best historical explanation:

> Isabel (14 years old): Here [explanations given by Arabs and Jews] people speak about the
> issue but they are always arguing in favour of their own rights ... First, it is necessary to
> believe in primary sources, afterwards ...
>
> Rui (14 years old): ... to see the common aspects among them ... to compare them and take
> from them what is not different!
>
> They can put propaganda in there, to exaggerate ... the person has to ...
>
> Mónica (14 years old): ... to know the situation ...
>
> Rui: Yes, because ... [we need] evidence ...

Historians put aside their prejudices and immerse themselves in the sources, compare and evaluate them, and this way they can give a correct explanation. Primary sources may be wrong or involved in some kind of propaganda - as was recognised by Isabel, Rui and agreed by Mónica. Two degrees of reliability of historical conclusions appeared again, but were attributed in terms of neutrality (to be or not to be neutral). Another excerpt shows the same concern:

> Isabel: Here they say Zionists wanted to occupy the land of the Arabs. No ... I don't think so ...
> because [...]
>
> Rui: ... A state for them ... This author must be Arab, isn't he? ... Ah ...

The historian's role seems to be to detect the truth in sources, armed with neutrality, that

is, not being influenced by the perspectives of the people involved:

> Rui: The western explanation is more accurate because it is produced by an outsider, as an observer ... she/ he is telling the truth ... she/he doesn't directly intervene ...

Questions of validity concerning the historian's job are thus mainly related to the need for reliability of evidence. Explanations are valid if they are accurate. Neutrality appears to be treated within its absolute contours. A scissors and paste model seems to emerge here:

> Rui: For explaining this [situation] we based ourselves on the others here! So it [our explanation] is as reliable as they are ... Well, we are not experts, of course ...

A comment about propaganda made by João, appears more elaborate than a mere scissors and paste notion:

> João (15 years old): A primary source has more value, but it doesn't take away validity from others which have to be taken into account too. Problems of propaganda give us a distorted image of reality ... but it shows us that there is a need for propaganda ... it does not invalidate the sources.

This last answer suggests that the historian explains by making inferences from sources rather than by pasting the right facts. His sophisticated idea of evidence might reveal an attitude that is on the verge of accepting perspective as inherent in historical explanation.

Level 3: Perspective
Historical explanations are seen as varying according to the different criteria which historians use to look at and give meaning to past situations. Explanations are always mediated by the historian's presuppositions:

> Elisa (14 years old): ... we don't know if it is exactly like that, we have to know the basis which they [all explanations] rely on ...
>
> Gabriela (14 years old): Each historian has sympathy for certain people and this may be reflected in his explanation.

In this group, the notion of author's perspective emerged at the individual level, conceptualized as an everyday assumption ("sympathy for certain people"). In another

group, Joana tried to analyse the idea of personal opinion, assigning a critical attitude to it rather than a mere impressionist sympathy for a specific situation:

> Int.: And what will interfere in historical analysis?
>
> Patrícia (14 years old): Sources ...
>
> Int.: Sources ... only?
>
> Patrícia and Joana (14 years old): Personal opinion!
>
> Carlos (14 years old): There are different opinions ...
>
> Int.: And how is an opinion formed?
>
> Joana: I think that ... listening to what people say, how we agree with them or not ... and so we are forming our opinion.

However, recognition of perspective may still be tied to an ideal of direct observation:

> Patrícia: As we don't have direct observers [...] we must be very careful, we must analyse a large variety of information to be compared ...
>
> Because it is important to compare different points of view!

The provisional condition of explanation emerges here again, tied to a notion of perspective although still in a common-sense approach:

> Int.: And what about the analysis to be done by yourselves?
>
> Elisa: It will be another secondary source, won't it? It may be not certain, either ...
>
> Gabriela: [Our explanation] presents our point of view too ... It has to do with the point of view of people ...
>
> Elisa: Each historian will go on making theory ... As about some exotic paintings, we never know ...

Such a conceptualization of perspective appears to be a strong relativist metaphor ("as about some exotic paintings") without pointing to any criteria applied in history in order to assess different versions. However, it may contain a basis for a more elaborate reasoning about provisionality in historical explanation rather than merely a notion of perspectiveless neutrality from the author's side.

Level 4: Contextual perspective

Historical explanations are seen as provisional while involving a process in which the historian always applies her/his own perspective and methodological neutrality. An author's perspective can be conceptualized not only in the personal sphere, but in terms

of the social context in which individual presuppositions are constructed.

It was hypothesized that adolescents could express understanding of this contextualization, although not yet in a clear way. However, no responses in this study gave indicators of this level of progression.

A second categorization grounded on empirical data

The first categorization was revised through the second phase of these explorations, in the light of responses suggesting some sub-patterns within the former categories. Thus, level 1 (authority accepted) was divided into two sub-categories (information and dogmatism) and level 2 (positivism) was also divided into two subcategories (neutrality and consensus), the latter suggesting the second level of the a priori hypothesis; level 3 (perspective) and level 4 (contextual perspective) were kept in their original form. The following scheme presents such a recategorization.

Level 1: Authority accepted
History produces true explanations about past facts. It gives *the* version about a real situation.

It was hypothesized that two sub-levels might fall into this category:
A: Information
At this preliminary level students concentrate their reasoning on recalled knowledge (like level 1 in the former categorization) or on quoted information. Examining sources for an explanation or thinking about how history is made are not questions which they seem disposed to think about. They tend to show some perplexity during such a level of discussion, their answers being fragmented:

> Int.: What makes you believe in those statements [from the allies side] more than those from Germany?
>
> João (15 years old): The pan-germanism means that they were ... ... nationalists and so they were ... [pause]
>
> Pedro: [intervenes] The Germans were not neutral!

João rarely wanted to intervene in the discussion but he made some comments about the historical issue. Information provided by previous knowledge ("pangermanism means

nationalism") or by given sources, seems to be the key to such responses and takes the place of source critique.

B: Dogmatism
There is a right version about the past conveyed by books and teachers. This is viewed as the criterion against which different versions are seen and criticized as wrong versions coloured by propaganda:

> Int.: ... How can you distinguish more and less valid arguments? Which criterion do you use to differentiate between them?
>
> Carla (14 years old): Because we studied it. Germany was a country wanting to give the image of country well-prepared for the war ... but here they say they are right, they were a people like a family! They used to think themselves as superior ...
>
> Int.: What makes you to think that?
>
> Berta (14 years old): Their attitudes ...
>
> Ana: They wanted to rule all the countries!
>
> Int.: But here they say that they didn't want to dominate!
>
> Ana (15 years old) - A person wouldn't accuse himself, of course!
>
> Berta: [nodding her head]
>
> Int.: And how do you know that they didn't want to accuse themselves?
>
> Berta: We learnt that ... The teacher told us ...

Differences in arguments are identified and propaganda in what is judged as a "wrong" source is detected. The "right" version tends to be accepted without being submitted to the same critique. The historian must discover the true facts in sources and transmit them. Direct sources or recent explanations will give equally valid explanations:

> Int.: How do historians make a valid work?
>
> Carla: They copy what happened before.
>
> Berta: It is not exactly that!
>
> Ana: It is not copying ... because they were going to discover ...
>
> Berta: A text that can prove ... They have to get something on which to base their conclusions.
>
> ....
>
> Int.: Are historical explanations more or less valid than those given by ... [direct witnesses]?
>
> Ana: I think that it is the same! They lived then and historians are living now ...

Level 2: Positivism

Historical explanations are valid if based on reliable evidence. Historians putting aside their prejudices examine different sources and accept or reject statements in order to give the best explanation. The notion of point of view can be hazily expressed or stated as a negative feature to be controlled.

Two sub-levels can be considered:

A: Sum

Different arguments are considered in the light of sources given:

> Int.: In what sense do those arguments differ from each other?
>
> Maria (14 years old): Germany defends herself ... as much as we understood she was criticized and she was defending herself. She also accuses Serbia, France and Britain [...] The American professor also counterattacks ...

An explanation may be seen as a sum of evidence previously compared:

> Int.: What is your attitude towards these explanations given here? Is there anything you need to be careful about in dealing with these explanations?
>
> Susana (14 years old): We search out ... we try to know sources more closely ...
>
> Maria (15 years old): [We search out] In other books ...
>
> Susana: Other ways ...
>
> Int.: And what do you do after reaching your conclusions?
>
> Paula (14 years old): We compare them ...
>
> Int.: And will your comparison be a summing-up of various materials, sources, or will it be something different made up by yourselves?
>
> Maria: It will be the sum of them.
>
> Susana: Yes, the sum!

This idea of summing-up sources is not a construct created by Maria and Susana; it is rather their choice about a bipolar construct proposed by the interviewer: [an explanation as a] sum of sources versus an autonomous conclusion. Early methodological decisions allowed for the possibility of offering some clues in order to clarify trends to be explored later on (see pp. 91-2).

A hypothetical tendency to value explanations on the basis of memory since they can transmit the emotional climate of the real situation, appears to be exemplified in Ana's statements:

Ana (16 years old): ... Direct sources lived it. History books come from people who think and write on it afterwards, and their opinions on what happened can fail!

Int.: Do you think that primary sources are more valid than a posteriori explanations?

João: Yes, they are!

As the interviewer intended to clarify such a tendency she posed here a leading question, for which she should have substituted: "which explanations do you consider more valid: those given by direct sources or those given by historians?"[3]

The notion of different points of view may be overtly asserted, but still in a common-sense approach:

Int.: ... Can we consider totally correct, valid or false any historical explanation given by an historian, a textbook or a published book?

Susana: Valid, yes. But, totally valid ...

Int.: Why do you say that?

Maria: It depends on his point of view on the issue ...

It may convey an empirical basis for the historical work, that is, it can be entangled with the idea of primary evidence (through "testimonies") for reaching a conclusion, as Susana and Paula seemed to consider, or it might represent a subjective element (way of thinking), according to Maria:

Int.: And how does the historian form his own point of view?

Paula: Basing it on data, testimonies of people living those events, or ...

Susana: Documents ...

....

Paula: They [historians] can interpret in different ways ...

Int.: And to what is that due?

Maria: Each way of thinking ...

B: Consensus

Historical explanations presuppose a point of view that has to be controlled, by assuming a neutral attitude. A consensus on historical conclusions is desirable and when such a consensus cannot be reached, explanations tend to be undervalued:

---

[3] During these first empirical explorations it was intended to explore distinctions between explanations from primary and secondary sources. Students' responses provoked an a posteriori distinction, in this study, between direct observation and memory.

Int.: Which are the most valid explanations? Those appearing in history books now or ...?

Pedro (14 years old): I think that explanations appearing in history books now are more valid because they have revised all facts, they have grasped ideas about what happened and on what provoked the war. In those past times they didn't tell the truth, they were trying to defend themselves, they were creating propaganda for their country!

....

Pedro: I think that they [recent explanations] are valid but some facts have been distorted over time, some events can be exaggerated and reported now in a completely different way from what had happened ... and now historians have to look for evidence ...

Int.: So in history we always have that dilemma: those who witness the events can give ...

Pedro: False information ...

Int.: Or somewhat falsified ... And how can historians solve that, how can they evaluate source reliability?

Pedro: They can see whether information is false or correct through a posteriori or present events. For example, what is happening in Yugoslavia now [...]: generally, the problem is race. The Aryan race ... they all want to be superior to others ... and these problems happen ...

Here Pedro relied on the idea of a comparison situation as a strategy to assess explanations - although he overlapped explanation (which he seemed to mean with his generalization "the problem is race") with information, as he called it. But the idea of a correct explanation to be reached by means of research ("now historians have to look for evidence") stood up (and in a more elaborate way than in statements produced at level 2):

Int.: Propaganda aside, can historians offer a total neutrality for dealing with the issue without any preference for this or that?

Pedro: Sometimes it can happen ...

Int.: Sometimes only? How do you see it as possible?

Pedro: It depends on countries. Historians will never - some will, but surely most of them surely won't - defend the argument that they can be guilty.

Int.: And if he is an anti-militarist?

Pedro: In that case, they will defend the reality!

The ideal of a correct explanation seemed to be conflicting with the recognition of a point of view: a consensus among historians (in order to get the right explanation) appeared to be the way to reach a balanced explanation (this concern for balance suggests an ideal of detachment as a genuine criterion):

Ana (16 years old): If a group of historians decide to give an opinion and reach a conclusion, they must not deepen an issue more than another ... and they must try to make a balance.

Int.: Why do you speak of a group of historians rather than of a single one?

Ana: Because one single historian cannot give his own opinion, it cannot be considered valid.

Int.: And if they don't reach out a consensus, have we history or not?

[Smiles, perplexity]

Pedro: No, we don't make history if they don't reach a consensus.

Ana: History can be made, but it cannot be true history.

Level 3: Perspective

Historical explanations vary according to different criteria which historians use to look at and give meaning to past situations. Explanations are mediated by the historian's presuppositions and that is accepted as a genuine historical feature:

Luis (14 years old): ... The author always has his personal opinion; even when he doesn't want to express it ... anyway, he is expressing it through what he writes.

Int.: And what will the other authors think about that?

Francisco (14 years old): Each author has his own ideas. He might want to give a picture of his own opinion. The author may not write it, but it's always in there.

The notion of author's perspective emerges at the individual level, conceptualized as an everyday assumption. But it takes into account a distinction between a valid explanation and propaganda:

Int.: And what about your own explanation: does it meet similar criteria?

Francisco - It is valid too ...

Luis: Yes, it is!

Int.- Why?

Joana (16 years old): For knowing the events which really happened ...

Luis: We don't reach exactly how the events occurred, but we get an idea ... well, we can get a distorted idea, of course, if we see one side only, but ...

A recognition of perspective may appear along with some awareness of a need to assess different versions and for a detached attitude. A group showing responses typical of a scissors and paste pattern in the first half of the interview, appeared to move to more sophisticated reasoning, maybe fostered by Paula's responses:

Susana (14 years old): The author must copy what he sees in sources ...

Int.: To copy ... how?

Paula (15 years old): It is not to copy. He must compare and reach conclusions!

....

Int.: Is your explanation more or less valid [than all the others given]?

Paula: Our book makes us think that Germany was guilty of everything. Now, with these documents, I think that our explanation is more valid than that of the textbook!

Int.: And if you compared it to versions given?

Susana: It is more valid than both we have analysed [versions from one or other side] ... We have various ways of seeing the situation ... We must base ourselves not only on a single fact, but on several things. And above all, [we must] be neutral, not take a single side.

Neutrality, in Susana's words, seemed to mean a detached, non-biased attitude (not to take a single side) but involving the consideration of several perspectives (versions from different sides). Such a conceptualization of perspective may still seem common-sense based, reflecting a mere personal opinion. However, considering the preceding level of Portuguese students' responses assigning a negative attribution to perspective, overlapping the concept with bias, it may suggest some criteria (appealing to a perspectiveful neutrality) for a more elaborate reasoning about provisionality in historical explanation rather than a plain notion of neutrality.

Level 4: Contextual perspective

Historical explanations are provisional while involving a process in which historians apply specific criteria for validating their hypotheses, always constructed from a given perspective. Perspective - or point of view - can be interpreted not only in the personal sphere, but also related to the cultural context (beliefs, norms and interests in a society) in which the historical work is produced.

It was hypothesized that adolescents could express understanding of this contextualization, although not yet in a clear way. However, the responses given did not provide indicators of this level.

A first discussion of results

The model generated on the basis of the early explorations of students' ideas can be charted as follows in Figure 4.4.

Figure 4.4 The model after the exploratory studies

LEVEL 1 AUTHORITY

    Historical explanation simply accepted or rejected

        A INFORMATION

        Focus on information

        B DOGMATISM

        Right/wrong explanations

        Wrong explanations criticized

LEVEL 2 POSITIVISM

    Historical explanations accepted if based on reliable evidence

        A SUM

        A good explanation as a sum of evidence

        Personal opinion plainly accepted

        Primary sources sometimes valued

        B CONSENSUS

        Concern for a perspectiveless neutrality

        Point of view recognised as negative

        A consensual explanation valued

LEVEL 3 PERSPECTIVE

    Point of view recognised as legitimate

    Concern for a tentatively perspectiveful neutrality

LEVEL 4 CONTEXTUAL PERSPECTIVE

    Concern for a tentatively perspectiveful neutrality

    Point of view recognised in a social context

Each logical category implies a set of interrelated ideas, all of which may not be observed in each student; one may produce responses mainly characteristic of a specific level, that is, she/he may reveal a dogmatic position as it was featured in level 1-B above, and simultaneously give a few arguments suggesting a more sophisticated level conflicting with what seems to be her/his main pattern of thinking. Such an oscillation is consistent with previous research about children's ideas in history (Ashby and Lee, 1987). But it also might be due to the technique (group-interview) applied.

Contrary to the a priori hypothesis assuming that at a first stage of thinking ideas based on the notion of a strictly neutral explanation would be observed, data suggested the following:

1. The idea of an absolutely neutral explanation may be tied to elaborate ideas about consistency with evidence and plausibility. Therefore, a preliminary stage focusing on substantive information rather than arguing about explanations was substituted.

2. Prior to ideas linked to a concern with absolute neutrality, common-sense ideas of perspective seem to emerge - in terms of personal opinion underlying explanations - together with a conflicting idea of picking-up or discovering the real facts; such a pattern sometimes suggests a fixed attitude of defending one position against another.

3. There appeared to be a tendency at the first levels to value primary sources as giving better explanations than historians (memory and direct observation ideal).

4. A coherent pattern of ideas around provisionality, an integration of the use of criteria for assessing different explanations and a recognition of perspective as a genuine feature in historical explanation, was not found among the students. As this might have been due to the kind of research design applied, it was kept as an hypothesis about the most elaborate level to be explored in further phases. Thus, it was considered in the construction of instruments for the main study.

Limitations of the early analysis

The exploratory studies were seen as a launch pad for a more rigorous empirical study to be designed subsequently. The main study would take into account not only the main ideas suggested through these first explorations but also their recognised limitations. These were, mainly:

1. A still vague idea about the kind of historical explanation to be focused on, requiring further attention to the concept of explanation.

2. An approach valuing the notion of perspective and its contingent nature, leaving ideas related to criteria for assessing historical explanations less clear.

Awareness that such limitations could led to a study relying on assumptions at an everyday level provoked a process of reflection on notions of provisional explanation. Concepts discussed in chapters 2 and 3 are the synthesis of such a process and provided the theoretical background to the main empirical study. The theoretical survey lead to a systematization of ideas about historical explanation (explanatory structure, explanatory consistency and objectivity and truth) as fully described in chapter 7.

Summary

This chapter broadly described the first empirical explorations of students' ideas about provisional historical explanation. The intention to devise a model of students' ideas based on empirical data led to the implementation of an early research design and corresponding analysis of data. It started (a) with an a priori model of ideas about PHE in a logical progression, as a working hypothesis, followed by decisions on (b) population and sampling (five groups of three students, from five schools, in two studies with Portuguese 14-17 year-old 9th-graders), (c) research techniques, (d) instruments, and (e) procedures. A first qualitative analysis was given next, in order to highlight some major ideas for the building of a model based on empirical data. Finally, the emerging model was briefly discussed as a working hypothesis on students' ideas about PHE.

5 Method of the main study

Once a set of categories was generated grounded on the exploratory empirical work, the design of the main empirical study was undertaken, aiming to gradually deepen a theoretical understanding of the students' constructs about PHE. This chapter describes the method used in the main study from its several piloting phases to the final study: (a) population and samples, (b) research techniques, (c) instruments, and (d) administration. The following abbreviations will be used to distinguish each phase of data collection: P1 means piloting phase 1 (or, for reasons of simplification, pilot 1); P2 means piloting phase 2 (or, pilot 2); P3 means piloting phase 3 (or, pilot 3); P4 means piloting phase 4 (or, pilot 4); F means final study. Figure 5.1 summarizes the objectives, main decisions and samples of each phase of the main study.

Figure 5.1 The main study: phases, objectives, decisions and samples

PHASE	MAIN OBJECTIVES/DECISIONS	SAMPLE SIZE/ORIGIN
P1	trialling of tasks, revising model: task-set and model revised	90 x 7th-8th-9th grades (1 school)
P2	simplifying questions: written tasks refined	30 x 7th-8th grades (2 schools)
P3	testing model's higher levels: raising new hypotheses, population redefined, task-set reformulated	11 x 11th grade (2 schools) 4 university students
P4	last trial of task-set: written tasks refined	21 x 7th-9th-11th grades (2 schools)
F	collecting data for final analysis: qualitative and statistical analysis	121 x 7th-9th-11th grades (2 schools)

The pilot studies

<u>Population and sampling</u>

The exploratory studies as described in chapter 4 were developed having in mind a population ranging between 14 and 17 years old, attending the 9th school grade. However, this first approach was directed to only a very restricted range of the 14-17 year-olds in "basic school": it was apparent that this early decision had narrowed the levels of population under focus as, hypothetically, the brightest adolescents should be attending higher grades and those experiencing some learning difficulties might stay at lower grades. Besides this, among the 9th graders, a range of ages from 13 to 20 years old could be found since retention in each grade has been very common in Portuguese schools. Reconsideration of how to define the population was therefore required.

(a) Defining the population

Ab initio, the study intended to explore adolescent ideas about provisional explanation. From this broad canvas, a concrete population was identified: in order to enlarge the scope of the target population, it was decided to include pupils attending the 7th, 8th and 9th grades, thus focusing on the last stage of basic schooling. The main reason for a definition by grade was that classrooms in Portugal are organized on a basis of grade of schooling (as mentioned in chapter 4, pp. 89-90); it would cause serious trouble in arrangements for the empirical work if this structure was not taken into account.

Three cycles (stages) constitute basic school in Portugal: the first cycle (stage 1), traditionally the primary school, runs from the 1st to the 4th grade, with an age range of 5 to 16, now that compulsory school is extended to the age of sixteen ; the second cycle (stage 2), formerly the preparatory school, includes the 5th and the 6th grade, with ages from 9 to 16; the third cycle (stage 3), includes the 7th, 8th and 9th grade, formerly the first secondary school stage, with ages ranging from 11 to 20 (but pupils may leave at 16 years old). Secondary school runs from the 10th to 12th grade with ages ranging from 14 to 20. History used to be taught as a compulsory subject from 6th to 9th grade and the samples studied had experienced this curricular structure (see Figure 5.2). With the Curricular Reform, which has been gradually implemented in the 1990s, history is now a subject studied from the 5th grade (included in History and Geography of Portugal, in the 5th and 6th grades).

Figure 5.2 History in the school curriculum, prior to the Curricular Reform

GRADE	COMPULSORY CURRICULUM	OPTIONAL
6	Portuguese, History of Portugal, Foreign Language, Natural Sciences Mathematics, Art, Handicrafts, Physical Education, Musical Education	Religious and Moral Education
7-8-9	Portuguese, French, English, History, Geography, Physics and Chemistry, Biology, Mathematics, Art, Craft-work, Physical Education	Religious and Moral Education Several subjects, at 9th grade

The target population from which the initial sample was drawn was, then: adolescents ranging from 12 to 20 year-olds attending the "third cycle" (7th, 8th and 9th grades) at schools involved in teacher-training supervised by the University of Minho. These restrictive boundaries were decided for practical reasons:

1. Contacts with schools would be easier thus reducing time in preliminary procedures to get permission for data collection.

2. The geographical area would be of a size that could be easily covered.

All schools are located in Minho, the northwestern region of Portugal, and all are linked to the teacher training programme of the University of Minho. The target population appeared to present some homogeneity as far as cultural background and teaching methods were concerned. Such a consideration was useful when taking into account problems of external validity for possible generalizations from a representative sample of this population.

A classroom approach would also facilitate data collection. Proposing a written task to pupils in their natural environment (their classroom), would minimize threats of "experimental" effects. Thinking of teacher trainers and trainees (who directly work with that population), as the public for whom the conclusions of this study might primarily be of interest, in terms of immediate educational action, also strongly contributed to the decision of clustering subjects by classroom.

(b) Early sampling procedures

It was assumed that the final study would attempt to ensure a representative sample from the target population, drawing it under non-biased procedures (a stratified random sample). However, at this early stage, concerned with developing a process of piloting through several phases, the sample selection was decided on a deliberate basis (subjects would volunteer), although taking into account some theoretical criteria: (a) Schools should be characterized as having a heterogeneous population in terms of their socio-cultural background[1], (b) the sample would include classrooms from grades 7, 8, 9 and, (c) the sample size would be large enough to permit some reasonable conclusions in order to make progress in refining the theory and reformulating the instruments.

A school located in an industrial town and surrounded by a rural environment was chosen for the first piloting phase - a school in Famalicão already selected for the exploratory studies, but with other subjects. Within that school, 7th, 8th and 9th grade-classes, with ages ranging from 12 to 19 years, were selected for the study (see Table 5.1).

Table 5.1 P1 sample by age and grade

| GRADE | AGE | | | | | | | TOTAL |
	12	13	14	15	16	17	19	N
7	23	3	3	3				32
8	1	17	1	6	2			27
9	-	-	13	10	5	2	1	31
TOTAL	24	20	17	19	7	2	1	90

At the 7th grade, ages range from 12 to 15, at the 8th grade from 12 to 16, at the 9th grade from 14 to 19. Age modes are 12 years at the 7th grade, 13 years at the 8th grade, 14 years at the 9th grade.

The piloting process was developed through three further phases. The second phase was administered to a sample of 30, out of which 12 were 13 year-olds attending the 7th grade

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[1] Although all schools are located in a specific region (Minho), and are thus supposed to share its cultural values, some pupils come from villages and small towns where a rural environment still exists, whereas others live in the city or in industrial towns.

grade and 18 were 13 to 16 year-olds attending the 8th grade. The third phase was administered to 15 subjects from a different population: 11 were 11th-graders and 4 were undergraduate students attending the 4th year of the course in History and Social Sciences, at University of Minho. The fourth phase was applied to a sample (N=21) matching in grade that tested in the final study. Table 5.2 shows the whole pilot samples by age and grade.

Table 5.2 Pilot samples by age and grade

PHASE + GRADE	AGE								TOTAL N
	12	13	14	15	16	17	19	21-24	
P1 (gr. 7-8-9)	24	20	17	19	7	2	1		90
P2 (gr. 7-8)	-	18	9	1	2	-	-		30
P3 (gr. 11)		-	-	-	5	6	-		11
(under grad.)	-	-	-	-	-	-	-	4	4
P4 (gr. 7-9-11)	2	3	4	4	4	4	-	-	21
TOTAL	26	41	30	24	18	12	1	4	156

Research techniques

The exploratory studies (chapter 4) indicated some meaningful patterns in pupils' thinking, permitting a first empirically-based categorization. They provided indicators on pupils' general ideas, in a context of social interaction that can be characterized as fostering higher-level responses, as some previous research suggests, namely Dickinson and Lee (1984), Ashby and Lee (1987). Nonetheless, specific information on the personal constructs of each pupil was still not available. Selecting a research technique to accomplish this aim was then of prime importance. The redefinition of the target population (12 to 20 year olds attending the 7th, 8th and 9th grade) implied the implementation of a cross-sectional study, in the line of previous research such as those conducted by Dickinson and Lee (1978b, 1984), Ashby and Lee (1987), already described in chapter 1. Therefore, the research technique and the specific instruments to be devised had to suit adolescents of different ages and grades.

A survey of the several techniques used for data collection in the broad area of research in question (i.e., on students' ideas about historical concepts) was drawn up in order to look for a technique appropriate to this specific study and its explicit aims. Among the varied investigation techniques, the most frequently used were:

1. Observation techniques: these have been applied taking the form of videotaping discussion in two different contexts: (a) on specially constructed tasks (Dickinson and Lee, 1984, Ashby and Lee, 1987), and (b) on ordinary classroom exercises (Ashby and Lee, 1987). In both approaches using this type of observation technique, applied to cross-sectional studies, the authors were committed to foster a situation free from adult intervention. Their main strength is that, since the constancy of the instruments used (video-taping instead of interviewer/interviewee interaction) can be guaranteed, threats to internal validity from the instruments employed are reduced (Ashby and Lee, 1987). This technique has been shown to provide sensitive data for generating a theoretical categorization of pupils' ideas about history. It gives valuable information not only on the conclusions that pupils reach, but also on their thinking process. The present study used such a technique for its exploratory stage and it is suggested that it contributed to providing a first empirical basis for the emerging model of the theoretical categorization. Nonetheless, it has limitations, mainly: (a) There is the danger of subjects diverging in their discussion from what is under focus, especially when they are dealing with a quite new form of reasoning (second-order) and, (b) it does not allow for specifying each pupil's personal constructs.

2. Interviewing techniques have been frequently used to complement other techniques. They have been used in a preliminary phase for scanning the main issues to be explored during the process of the study or to follow up another task to deepen and clarify the observed indicators. This technique is seen as one of the best methods of gathering data to produce reliable indicators of pupils' reasoning and their outcome conclusions. It has been used in several cross-sectional studies (Hallam, 1967, Shemilt, 1980, Knight, 1989). The interviewer effect, however, must remain a concern as a possible threat to validity.

3. Written tasks (paper-and-pencil tests) have been frequently used in this field of research under different conceptual frameworks (Hallam, 1967; Peel, 1971; De Silva, 1971; Dickinson and Lee, 1978b; Shemilt, 1980; Booth, 1980). In spite of their largely recognised limitations - they are restrictive in terms of the kind of questions which may be asked and the kind of answers which may be received, and they allow no control for probing writing readiness - they frequently constitute one of the necessary instruments for data collection in main designs (cross-sectional studies included). Their merit lies in providing extensive data (in the sense of sample size), in permitting data collection in which the process of administration is more easily controlled, and in producing data which are simpler to code than those which are produced by interviewing techniques.

Other techniques requiring longitudinal approaches (subjects' performance is assessed in several occasions over a given period of time) or the use of experimental designs (with experimental and control groups) for assessing teaching strategies have also been used (Booth, 1980; Shemilt, 1980; Cooper, 1991). These techniques are time-consuming and aim to involve teachers directly in order to provoke effective changes in teaching methods. They are seen as less useful for selecting the most valid instruments for this study, which aims to undertake an exploration of second-order historical thinking of a population (Portuguese adolescents) who is probably being confronted for the first time with this kind of issue.[2]

After an overview of the range of techniques capable of providing relevant data on second-order historical thinking, decisions were made concerning the techniques and instruments to be used in the main empirical study, focused on adolescents' ideas about PHE. An individual data gathering approach was now required in order to explore the pupils' personal constructs in a more comprehensive and in-depth manner. A written task was found to be the most desirable instrument for getting more "objective" indicators from a wider sample. However, as stated before, written responses hardly permit the researcher to form a sufficiently clear picture of personal ideas, since (a) the questions are standardized for the whole sample, not allowing for flexibility; (b) there is the danger of not being able to control the misunderstanding of written materials and tasks, to a higher degree than in direct interaction; (c) the difficulties in written communication skills experienced by some of the students can be another non-controlled variable. Awareness of these limitations introduced the possibility of complementing the written task with another, more thorough data-production technique. It was decided to use a follow-up interview, which would be conducted with a given percentage of the selected sample, choosing subjects who had indicated several levels of ideas and, within each level, particularly those appearing to be creative or ambiguous. Interviewing was thus intended to further explore the responses given by the pupils in the written task, so that more illuminating data could be obtained.

Once decisions on the techniques to be applied were made - a written task and a follow-up interview - it was then possible to start the construction of the corresponding instruments.

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[2] This hypothesis comes from the author's observation of a large number of history classes undertaken as a supervisor of teacher-training.

Early instruments

Bearing in mind the instruments to be devised, decisions had to focus on solving two problems: (a) Which historical material to include that would be simultaneously valid for the assumed purposes, and meaningful and challenging for the sample, and (b) which tasks to be done by the pupils in order to generate relevant empirical indicators through which the theoretical model could be refined.

(a) Historical materials

The historical content to be selected and its inherent organization should constitute a valid area for eliciting ideas about the provisional nature of explanation in history. Furthermore, it should be familiar enough (not too discrepant from personal experiences) and challenging (capable of provoking cognitive conflict) to the pupils.

Having these criteria in mind, an issue related to the Portuguese maritime discoveries and expansion was viewed as constituting a potentially interesting topic. This theme was studied within the Portuguese National Curriculum for history at several grades: 6th, 8th and 10th grade (see Figure 5.3).

Figure 5.3 The Portuguese empire in the History Curriculum

SIXTH GRADE

TOPIC	CONTENT	CONCEPTS
Portuguese Expansion, Atlantic Islands and Northwestern Africa	- Portuguese population movements during 15th century	Expansion
		Discoveries
	- Technical and naval equipment, scientific advance	Colonization
		Captaincy
	- Economic exploration of the new areas	Trade route
		Factory
	- Royal power increasing	Fortress
		Technical invention
		Astronomical navigation
		Monopoly
From Europe to Africa and America	- Trade axis between Europe, Asia, Africa and America	Trade axis
	- Spice trade - the Cape route	Empire
	- Commercial organization - Factories - the Indian House	Social migrations
	- Flander's factory	Slavery
	- Settling policy - India	Decadence
	- Social and political organization	
	- Influence of explorations and different cultures on the Portuguese way of life and on art.	

EIGHTH GRADE

TOPIC	CONCEPTUAL FRAMEWORK	CURRICULUM UNIT
The Expansion of European States	Since the 13th century, following the dynamics of development started during the medieval ages and after the 14th-century crisis, Europe will tend to a complex process of progressive communication between the several areas in the world. The access to new sources of metal during the 16th century leads to new ways of economic life; in that process, the new national states have a crucial role.	Conditions and steps of Portuguese Expansion
		The colonization of the Atlantic Islands and the factories in Arguim the and Mina.
		The Portuguese-Spanish rivalry on the sea and the treaty of Tordesilhas.
		The discovery of the maritime route to India.
	Parallel to the development of new economic and political frames and of the access to new knowledge, a shift in mentalities and in art, and a rupture at the level of religious values occur.	The Portuguese state and society during the Expansion period.
		The Oriental Empire. The colonization of Brazil.
		The Spanish Empire and the import of metals to Europe.

TENTH GRADE

A new geographical space at planetary scale

CONTENT	LEARNING-ORIENTED GOALS
Antecedents: the first movements in the European expansion	- Describing the geographic, scientific and technical conditions favouring the Portuguese maritime commercial expansion.
Rhythms and routes of Portuguese expansion	
Conditions of Portuguese expansion	
Factors in expansion at its starting point	- Explaining the socio-economic and politico-religious motivations leading to the Portuguese expansionist movement. - Relating the routes of the Portuguese Expansion to the position of different social forces.
The construction of the Empire: discovery, conquest and colonization	- Characterizing the several steps in the construction of the empire, stressing kinds of settlement and colonization. - Evaluating the importance of the Portuguese expansionist movement to Europe at that time.

It was assumed that confronting pupils with a familiar and probably exciting past experience might be a stimulating feature for their thinking, provided it could be presented through a fresh approach. Attention was focused on an historical question which was likely to raise a problem not previously explored by the pupils:

> Why did the Portuguese manage to establish a maritime empire in the Indian Ocean during the sixteenth century?

This assumption derived from the knowledge of usual information discussed in history classrooms, which consists of tracing the main characteristics, motives and conditions of the Portuguese maritime explorations and expansion, as Figure 5.3. suggests. The contextualization offered in history classrooms for this historical process focuses especially on Europe (e.g., the European interest in oriental goods, the difficulties posed to Europe by the Moslem control of the land routes, the consequent scarcity and high price of those goods.) The subject of military problems encountered by the Portuguese in Asia is usually reduced to the failure of the Moslems in their competition with Portuguese naval power (one example in a textbook is shown in Appendix C).

The historical question was "detonated" by considering (thanks to Lee's suggestion, 1992), Needham's perspective (1971) presented by Pacey in 1990, about the Chinese role in relation to the Portuguese control of the Indian Ocean. A survey of some historical views providing diversified explanations of the question was then undertaken. Two versions, besides Pacey's, were selected, bearing in mind that they should present different, and in some ways, conflicting explanations about the issue. Thus, the first design for the main empirical study came to include three specific historical perspectives related to the question posed. Original historical versions were slightly modified to make them easier for the students to grasp. These versions were:

Explanation A, produced by a Portuguese recent historian, Marques (1976, English ed., 1980, Portuguese ed.), a well-known researcher frequently quoted in textbooks, was taken from his account of the "Rise of the empire" under the subtitle "Warfare":

EXPLANATION A

The so-envied spices ... ivory, precious stones, all these were provided by Asia. [...]

Openly defying the Moslem domain and combating the Islamic faith, the Portuguese had to meet as their main enemies in Asia the Egyptians and the Turks ... It helped the Portuguese considerably that none of the major Moslem countries was openly turned towards the sea or based its power upon the sea.

This excerpt was intended to convey an implicit rational explanation ("the Portuguese wanted spices... openly defying the Moslem domain and combating the Islamic faith") tied to an external factor, this one shown in terms of a short-term condition elaborated in a negative form ("none of the major Moslem countries...".)

Explanation B, given by Pacey (1990), a recent English researcher mainly in the field of the history of technology, was drawn up from the chapter "Conquest in the Americas, and Asian trade", under the subtitle "The Mongols of the seas":

EXPLANATION B

The Chinese fleets had visited these ports sixty years before but had now been totally withdrawn, and the Islamic naval challenge to the Portuguese, when it came, was ineffective. [...]

Had the Chinese still been patrolling the Indian Ocean when the Portuguese arrived, one can only speculate what might have happened. The decision to withdraw the Chinese fleet (60 years before) was a momentous one, not only for what it portended with regard to China's own development, but also for what it meant in world affairs to have the "door left open" (to the Europeans) into the Indian Ocean.

This explanation is not a rationale of Portuguese action, or a causal set belonging to the Portuguese effort in itself. It implies rather an external factor presented as a counterfactual hypothesis ("one can only speculate what might have happened") related to the Chinese role in the Portuguese control of the Indian ocean. This factor is intertwined with another external factor elicited in the former explanation, now expressed with greater clarity ("the Islamic naval challenge to the Portuguese, when it came, was ineffective".)

Explanation C was given by a Portuguese author, Matoso (1946), who oriented the historical view of several generations taking the secondary school course in the 1940s, 1950s and 1960s through his history textbook, which was the only manual authorized in grammar schools during those times; the passage quoted was taken from the section "The maritime route to India and Vasco da Gama", included in the chapter on "Maritime Discoveries":

EXPLANATION C

The discovery of the maritime route to India was the most glorious enterprise in this century.

[...] After verifying the communication between the Atlantic and the Indian Ocean ... concluding the task which the Portuguese had been working for so hard was just a matter of tenacity and time.

This passage consists of two paragraphs not answering the question under discussion, a rather nationalistic apologia directing attention towards an antecedent step necessary to the arrival of the Portuguese in India; the factors stressed in connection with the arrival in India (tenacity and time) omit any mention of the existing material conditions for the effective control of the maritime trade, thus showing a less objective approach than preceding versions.

The three versions were isolated from their wider context, aiming to represent explanations differing in the factors stressed, explanations A and B being considered more objective than explanation C, as was discussed in chapter 3 (p. 83). The assumption was made that these versions included some reasons familiar to the pupils, such as economic and/or religious motives (in explanation A) and the advanced naval techniques developed by the Portuguese (implicit in all the three versions). The speculation on the Chinese fleet operating in the Indian Ocean at the beginning of the sixteenth century (explanation B) was chosen to present a completely new perspective to the pupils and the explicit reference to Moslem land power versus their naval inefficiency (conveyed by explanations A and B) was likely to constitute a fresh approach to the strengths and weaknesses of the Islamic societies in the region.

A set of historical sources providing a basis of evidence for evaluating the three versions was organized (see Appendix D), including:

1. A primary source from a contemporary Portuguese chronicler (João de Barros, 1552);

2. Two contemporary maps of Africa, one used by the Portuguese sailors and the other taken from a Chinese atlas, following a secondary source (Needham et al, 1971);

3. A secondary source, composed of a written excerpt and a figure justifying the Chinese counterfactual hypothesis (ibid.);

4. Photographed relics relating to Turkish military power, presented by a secondary source (Cipolla, 1965).

These diversified sources were thought to provide some evidential support for explanations A and B, concerning the military correlation in the Indian Ocean and Portuguese motivations (which would give some support to version C, too). This historical content was introduced by a world map on a transparency showing the Portuguese maritime route to and from India and a short chronology situating three main

events: the rounding of the Cape of Good Hope, the reaching of India by Vasco da Gama and the subsequent Portuguese control of the Indian Ocean.

The early version of the historical material used in the main study was progressively modified during the four piloting phases until the final version was reached (discussed later in this chapter, pp. 129-31, and given in Appendix E).

(b) The questionnaire: searching for sensitive questions

The creation of valid and accessible written questions involved a difficult process. The questionnaire had been improved through several tentative versions progressively reconstructed on the basis of data gathered. In the early version, a set of questions based on the analysis of the interviewees' responses during the exploratory work was designed and included three tasks:

Task 1 focused on the historical question to be scrutinized:

> Item 1. *Why did the Portuguese manage to establish a maritime empire in the Indian Ocean during the sixteenth century?*

This item asked for a self-constructed explanation in an open response, based upon the analysis of the historical material (explanations A, B and C; sources A to F). This task would generate information on the explanatory structure construed by each pupil.

Task 2 asked for an evaluation of the different versions, including the explanation that they themselves had afforded:

> Item 2. *Rank in a decreasing order of preference the historical explanations presented on the issue (including yours, which will count as Explanation D):*
> First   _____ Why?
> Second _____
> Third   _____
> Fourth _____ Why?

This task, with a justification to be given in an unstructured response mode, was intended to shed some light on the main criteria used by students when assessing explanations. It was hoped that the justification of the first and the last choice would provide the required indicators.

Task 3 asked for a selection of some statements inspired by the former videotaped protocols:

Item 3. *Select one statement (at least) which you most agree with, in each group.*

Group A

1. The three explanations practically equate because they deal with the same events..

2. Each explanation presents a different interpretation of the same events because history is always influenced by the author's personal opinion.

3. The three explanations vary because only one is strictly based on the real facts: in the other two their authors interpret the events, according to their own point of view .

4. The three explanations vary because historical interpretations are always influenced by the time, culture and society in which an author lives.

Group B

5. All the explanations given are good: they were produced by respectable authors.

6. Only one of the explanations is good because its author based it on the real facts; the others are not so good because they present some distortion of the past.

7. All the historical explanations given can be accepted as good but we prefer one or another according to our own point of view.

8. One of the explanations is the best because it is more balanced in using and comparing different sources.

Group C

9. Only one of the explanations is truly historical: it is the sum of the correct information contained in texts and documents.

10. The only truly historical explanation is the one that is similar to what we have learnt in history books.

11. Different historical explanations on the same issue can be accepted; but some can be viewed as better when the author revises the facts, including those exaggerated or omitted in previous explanations.

12. A witness from that time would explain the situation better than today's authors.

Task 3 used a multiple-choice form, to function as a brief survey of some features of provisionality, namely on objectivity in historical explanation. Both tasks 2 and 3 employed ideas produced by students in the exploratory studies (see chapter 4). These tasks were intended to allow a first individual approach to a second-order reasoning.

After the construction of the first written draft, the interviewing was planned: it was decided to base it on the questions previously answered, asking pupils to clarify, justify or deepen their responses. A loose intervention by the interviewer was seen as most

desirable, inspired by the phenomenological interview technique used by Shemilt (1987) and discussed by several authors including Seidman (1991); but some intervention from the interviewer's side in order to provoke a response was assumed too, as there were grounds for thinking that students were probably not used to being asked about this type of issue. Guidelines for the interview were designed, closely related to the written questions. The following lists the main questions to be posed, each of them followed by some sub-questions in order to specify or justify written answers:

1. About Task 1: *State your own explanation.*

2. About Task 2: *Explain your ranking further. Clarify* [when response is vague or contradictory] / *justify your ranking* [when relevant notions are suggested].

3. About Task 3: *Justify your choices* [when these were made clear]; *Clarify your choices* [when contradictions appear).

4. About Task 3, again: *Explain why you didn't select the other statements given.*

Question 1 was devised to draw the pupil's attention to the explanation given and to clarify the underlying Explanatory structure; question 2, to give indicators of ideas about explanatory consistency; questions 3 and 4, to give indicators of ideas about explanatory consistency, and objectivity and truth.

Therefore, the written tasks and corresponding interviewing guidelines were intended to provide indicators about three main conceptual clusters related to provisional explanation:

- Explanatory structure
- Explanatory consistency
- Objectivity and truth

These conceptual clusters were progressively clarified and densified as the instruments were revised and refined according to the analysis of data in each piloting phase. The final version of the task-set is discussed later in this chapter (pp. 136-9) and given in Appendix F.

Administration and decisions during the pilots

The task-set designed was first applied (P1) in a school to 90 pupils in three classrooms - 7th, 8th, and 9th grade. The administration period occurred during October and November 1992: the written task was administered to each intact classroom in October; the follow-up interviews were individually conducted, during October and November.

Pilot 2 (P2) was applied to 30 pupils, in two classrooms of two schools - 7th and 8th grade. The written task and the follow-up interviews were administered during January and February 1993.

Pilot 3 (P3) was applied to 11 pupils from two classrooms - 11th grade - in two schools, and to four undergraduate students - 4th year - in the History and Social Sciences course. This phase ran from January to May 1993, and it included a written task only.

Pilot 4 (P4) was applied in two schools to 21 pupils in the 7th, 9th and 11th grades, during May 1993, and it included a written task and individual interviews.

(a) P1 administration

It was hypothesized that the written task might appear too distant from the previous experience of the pupils, given that it is not usual in the context of a Portuguese history classroom to discuss or compare different historical versions of an issue. It was therefore decided to plan a unit using an approach that conveyed at least two different accounts of the topic which students were dealing with at the time. This was agreed and carried out by the teachers in the classes selected for the study, prior to the administration of this early written task. It was assumed that such a procedure would provide some acquaintance with a new approach to history work, thus aiming to control in some way problems raised by a distinct difference between teaching approaches and the research task. To reduce these differences further, it was thought to be desirable to begin the administration of the task with an introduction in a familiar style, using an oral question-and-answer approach. Thus, after the general purpose had been stated (to explore pupils' ideas on history) the introductory material presented on a transparency constituted a basis for a brief conversation. The topic was introduced and pupils were asked to identify or locate some of the main places concerned (Portugal, Africa, Indian Ocean, India and China.) This continuing for 15 minutes, the written material was then distributed to the pupils. It was read aloud to the class and pupils were asked to raise any doubts about unknown words. The written task was then individually completed, during a period of 45 minutes. Twelve pupils were selected for the follow-up interview, lasting from half to one hour each. The procedures for the interviewing followed the criteria formerly described, and the interviews were carried out in what was intended to be a relaxed, friendly manner.

(b) Decisions after P1: revising the historical material

The main preoccupation during the pilot studies was to improve the task-set for the final study in order to provide valid and reliable empirical indicators.

The results obtained from the pilot 1 suggested that the content material had enough potential to provoke pupils' thinking about the concept of provisional explanation.[3] A refinement of the historical material was then undertaken in the light of the theoretical aims and taking into account the empirical data obtained.

The three explanations were revised and a descriptive text was added. The four texts were now labelled *versions* so that students had no clues as to a distinction between description and explanation.

Version A maintained the thesis that the Moslems were powerful on land but not at sea, the first paragraph adducing a motive (the search for spices and other goods) being eliminated. In this way, it intended to convey one cause for the question, "why did the Portuguese manage to establish a maritime empire in the Indian Ocean during the sixteenth century?", using a fresh approach from what is usually taught in school.[4] The final version was the following.

> VERSION A
>
> Openly defying the Moslem domain and combating the Moslem faith, the Portuguese had to meet as their main enemies in Asia the Egyptians and the Turks. It helped the Portuguese considerably that none of these major Moslem countries based its power upon the sea.

Version B kept its original approach, only simplifying the first statement in order to concentrate it exclusively on the factor involved (the ineffectiveness of the Moslem fleet). The second statement (on the possible consequences if the Chinese had not withdrawn from the Indian Ocean) was maintained. This version presented two causal factors, the latter probably being completely new information for the pupils, which was stated in a counterfactual mode:

---

[3] The analysis of data collected in the several piloting phases is discussed next in chapter 6.
[4] Appendix C shows an example of how the Moslem factor is normally presented in history class by textbooks.

VERSION B

The Islamic naval challenge to the Portuguese, when it came, was ineffective...

Had the Chinese still been present in the Indian Ocean when the Portuguese arrived, one can only speculate what might have happened. The decision to withdraw the Chinese fleet 60 years before was a momentous one, leaving the "door left open" [to the Europeans] into the Indian Ocean.

Version C was replaced by another passage from the same textbook, which answered more directly the question under discussion (the control of the Indian Ocean) instead of emphasising a different issue (the Portuguese arrival in India). But it conveyed the same nationalistic ideology:

VERSION C

This large domain quickly conquered with a few human and financial resources can only be explained by the moral correctness of the Portuguese great leaders, by the sacrifices for the country made by all the people.

This version was given to be an example of a less valid explanation since it was refuted by some of the evidence available (Portuguese superiority in naval equipment and military power in the Indian Ocean at the time) and it was rooted in the obvious interest of justifying nationalism.

A fourth version - version D - was intended to be descriptive and longer (conveying more information) than the first three. For that purpose, a narrative based on two English books written for young people (Kramer and Adams, 1990; Everett and Reid, 1991) was constructed. The final version was the following:

VERSION D

The sailors of Prince Henry were those who took the first and most difficult steps into the unknown lands for the Europeans ...

The western African coast was progressively explored. The Portuguese caravels brought back gold, spices, furs, ivory and slaves from those regions.

Meanwhile, between 1405 and 1433, the emperors of China sent seven expeditions to explore the Indian Ocean, commanded by Cheng Ho, bringing back to China spices and unusual animals, including lions and giraffes.

Upon Bartolomeu Dias having rounded the Cape of Good Hope, a new expedition, commanded by Vasco da Gama, arrived in India, in 1498. After that, the Portuguese quickly took control of the lucrative spice trade, for almost a century by forbidding other people to trade in the Indian Ocean and seizing the main ports through which the spice route passed.

The historical sources were also reformulated:

1. The primary source from a contemporary Portuguese chronicler was maintained;

2. The two maps of Africa were eliminated as they proved to be difficult to understand by pupils - they were replaced by a map showing the Cape route and the goods traded along it (this source would convey the information removed from Version A);

3. The two sources (one written, one pictorial) corroborating the Chinese counterfactual hypothesis were kept, but the written source was simplified in its form;

4. Another pictorial and secondary source was added, suggesting a naval battle between European and Arab ships, with a caption taken from Boxer (1969) reinforcing the naval superiority of the Portuguese ships. This source would corroborate Version A.

5. The relics of Turkish power were now presented together with a written source (Cipolla, 1965) conveying similar information, for a clear presentation of the intended message. This would corroborate Version A in explaining the contradiction between Turkish land power and its naval inefficiency.

It was decided to integrate the introductory information - a short chronology and a world map with relevant places marked (Portugal, Cape, India, China), functioning as the initial source to be given to the pupils in the material kit. This was intended to be less time-consuming and easier to use at any moment during the written task than the former strategy (a collective activity in class to locate the relevant places on a transparency map).

c) Decisions after P1: rewriting the questionnaire

The analysis of the data revealed that the written instrument shed some light on the understanding of the concept of provisionality in historical explanation by adolescents, but it did not contain enough breadth to generate a clear picture of the target population. It was felt to be a priority to improve and extend the number of questions to be included in the written task.

The first question ("Why did the Portuguese manage to establish a maritime empire in the Indian Ocean during the sixteenth century?") directly focusing on the issue under concern, and appealing for a non-structured response, was kept. Giving valuable information on the students' level in terms of explanatory structure, it would function as a "launch pad" for second-order reasoning. The second and third set of questions (ranking of versions and justification for the first and last rank, and selection of three statements about the nature of provisional explanation, in a multiple-choice format) were not powerful enough to generate the intended indicators. They provided answers offering

what still appeared to be rather vague constructs, only clarified through the individual interviews.

Task 2 was reformulated, and took the following form (not yet the final one):

> *Select from the four explanations given (A, B, C and D) the one that you consider:*
> a) the best explanation _____
> -what does it explain about the Portuguese domination of the Indian Ocean?
> -what does it not explain about that ?
> b) the worst explanation _____
> -why?

This reformulation was done because (a) the former task proposing the ranking of versions appeared sometimes to produce a tendency to rank versions according to personal taste rather than to value them under historical criteria (see analysis of Renato's responses, pp. 149, 155), and (b) it intended to make more explicit the criteria of explanatory assessment ("What does it explain/what does it not explain".) This task was later progressively revised and extended to several items, corresponding to Tasks 3 and 4 in the final version.

The responses to the third question (Task 3) constituted one of the sources for extending the written questionnaire: the analysis of frequency of responses provided a broad, but still hazy picture about some trends in students' ideas; some apparent contradictions in responses appeared frequently (e.g., statement 3, "the three explanations vary because only one is strictly based on the real facts", was selected together with statement 5, "all the explanations read are good: they were produced by respectable authors".) Thus, data obtained were not sufficiently illuminating. Open questions encouraging students to produce similar ideas in their own words were found to be a more reliable instrument in preventing random responses and in allowing fuller answers. A survey of examples of questions related to ideas of provisionality used in history teaching books was undertaken, as another source of inspiration in the construction of the questionnaire (e.g., Mantin and Pulley, 1989; Shuter and Lewis, 1988). Questions for assessing some features concerning the provisional nature of historical explanation were then designed on the basis of the theoretical framework as systematized in chapter 7. The interviewing guidelines from the former approach were maintained: each main question would invite the pupil to clarify, justify and explain further each written response given. Once the instruments were redesigned, a second-phase (P2) in this process of piloting was undertaken.

(d) P2 administration and decisions

The second phase in the piloting process was conducted in two urban schools (in Oporto), with a small sample not belonging to the target population (adolescents ranging from 12 to 20 years old attending stage 3 (7th-8th-9th grades) at secondary schools involved in teacher-training with the University of Minho). The schools selected take pupils with a low socio-economic background, although with a quite different geographical environment: one school is located in a central, crowded zone in the city; the other is in a peripheral, quiet area.

At this stage of the work, the main goal for the testing was to see how younger, less mature adolescents could cope with the restructured task-set. These tasks were given to a sample of 30 subjects: 12 young students (13 year-olds selected from two 7th grade classes in the peripheral school) and 18 students from a "difficult" class (eighth-graders with ages ranging from 13 to 16 years-old, in the central area school). Six follow-up interviews selected under the same criteria as in P1 (responses suggesting different levels of ideas, or some ambiguous answers) were conducted. This whole second period of testing ran during January and February 1993.

The procedures for administering the written task followed the broad pattern of previous testing except for one change concerning the pre-conditions for administration: it was decided not to plan a pre-teaching unit intended to facilitate performance in the written task. It was supposed that confronting pupils with a quite new task without using a facilitating strategy would provide some evidence about how students could handle the specific task-set, independently of the pre-teaching unit. The individual interview followed broadly the same structure as in the first pilot, that is, pupils were asked to explain further, clarify or justify their own answers; it also included some questions about the interpretation of items which appeared to have been misunderstood in the light of their written responses. Each interview lasted from half to one hour.

Students appeared to react positively to the latest version of the task-set, in its broad lines. The early hypothesis that the proposed tasks would appear too unfamiliar to the pupils' previous experience (since they were not much accustomed to discussing or comparing different historical versions), which led to the planning of a pre-teaching unit, was challenged. Questions about the validity of the pre-teaching unit were then raised, since it appeared to be either useless, or to eventually become a source of leading students to respond in a given direction - if some teachers were tempted to give specific instructions to the pupils beyond what had been planned. In the light of this analysis, the

plan to prepare a unit before the written task was abandoned. Also, the content material and the questionnaire were reshaped in the light of the developing empirical process to enhance clarity and validity.

(e) P3 administration and decisions

In order to pursue the goal of getting some information from the extremes of the age-range to be studied, the enquiry now focused on a sample of more mature students, separate from the population formerly defined. Two groups of 11th-graders (aged 16/17, and good students, according to their teachers) attending history courses (N=11) constituted a volunteer sample to whom the written task was applied. These groups were studying in two urban schools in different settings (Oporto, the second Portuguese city; Vila Real, a hinterland centre, surrounded by a rural area). The first group (N=5), in Oporto, was investigated in January 1993, using the same written task applied in the former testing, prior to its revision. The procedures for its administration followed the former design. The second group (N=6), in Vila Real, was tested in April, using the reformulated written task. It was administered in class by the history teacher.

As the results suggested some surprising features (see chapter 6, pp.158-61), another small sample (N=4) of volunteer undergraduate students attending the History and Social Sciences course at University of Minho, in their 4th year of study (prior to the in-service teacher training year) was investigated too. The administration of this phase finished in May 1993.

Decisions for administering the final study were then taken. That implied solving problems concerning (a) a redefinition of the target population and sampling selection, (b) writing up the final draft of the task-set, (c) carrying out a last piloting phase for testing the reformulated task-set and, and (d) developing administration procedures prior to the final administration.

(f) Decisions after P3: redefining the population and sampling

Some difficulty in discriminating perspectiveless from perspectiveful neutrality (see chapter 6, pp. 160-1) appeared to be a common feature, even among more mature and historically literate students, when thinking about PHE. Such a hypothesis suggested a redefinition of the population and the consequent sample to be investigated in the final administration. The target population was therefore redefined:

> Students ranging from 12 to 20 years old, attending the 7th to 11th grades, in secondary schools involved in teacher training under supervision of the University of Minho.

It was decided to draw a stratified sample, by grade, from two schools with a heterogeneous population as far as socio-economic status was concerned, and with different cultural environments: one would be located in the city, one in a town functioning mainly as a rural centre. Within each school, three classrooms would be selected for reasons of practical availability. In order to get some control over the degree of familiarity with the historical topic, 7th, 9th and 11th-graders were selected as most of them would have studied the same content during the academic year prior to the testing (6th, 8th and 10th grades - see Figure 5.3, pp. 119-21). Only those retained in the same grade would have studied the topic less recently. Thus, the sampling design was:

> 2 schools X 3 intact classes from grades 7, 9, 11 = 6 classes

The sample drawn included two classes per grade, one in each school. As was stated earlier, Portuguese schools are basically organized by grade and it was convenient to take this into account in the sample design. Thus, within each school, one intact classroom was randomly selected among classes of each grade (grade representing a stratum). As classroom size usually ranges from 20 to 30 students, the sample size was estimated between 120 and 150 subjects, which was considered reasonable for the purposes of statistical analysis.

According to the criteria expressed above, two schools were selected: one in Braga (Alberto Sampaio School); the other in Vila Verde (Vila Verde School). The sample stratified by grade and ages ranging from 12+ to 20+ is summarized in Table 5.3.

Table 5.3 Main sample by age and grade[5]

GRADE	12	13	14	15	AGE 16	17	18	19	20	TOTAL N
7th	23	14	9	2	2	-	-	-	-	50
9th	-	1	17	12	5	5			1	41
11th	-	-	-	-	6	11	6	1	4	28
TOTAL	23	15	26	14	13	16	6	1	5	119

(g) Decisions after P3: revising the task-set

The presentation of the historical material was refined through the several phases in the pilot testing, as well as the written items, which were continuously reshaped, added to or excluded, taking into consideration concerns about internal validity and formal clarity. Data collected in the final trial were mainly analysed with the specific objective of checking the written task adequacy. Some refinements were thus made in the wording of the written items.

The final version of the task-set comprised (a) a set of historical materials to be analysed, following versions presented in pp. 129-31, and (b) a set of five written tasks to be achieved (see Appendices E and F).

Task 1 intended to explore ideas about explanatory structure (specifically, explanatory modes implicit in the historical explanation) by leading each student to construct her/his own explanation through a non-structured response:

Item 1.1. *Explain in your own words why the Portuguese managed to establish a maritime empire in the Indian Ocean during the sixteenth century.*

[5] Age 12 = 12y. 4m. to 13y.; age 13 = 13y. 1m. to 14y.; age 14 = 14y.1m. to 15y.; age 15 = 15y. 1m. to 16y.; age 16 = 16 y. 1m. to 17 y.; age 17 = 17y. 1m. to 18y.; age 18 = 18y. 1m. to 19y.; age 19 = 19y. 1m. to 20y.; age 20 = 20y. 1m. to 20y. 6 months.

This first task also proposed a justification for each personal explanation by using a second item in a multiple-choice format. It intended briefly to explore ideas about evidential confirmation, which might be stated in terms of positive factors (e.g., Portuguese ships were well-armed) or appear as evidence related to potential factors in a more complex way (e.g., the Moslem armies were strong or, the Chinese ships were bigger and stronger):

> Item 1.2. *The statements below are based on the materials you have been given:*
>
>> The Portuguese wished to fight the Moslems
>>
>> The Moslem armies were strong
>>
>> King John had some information about the Indian Ocean
>>
>> The Portuguese had moral superiority
>>
>> The spice trade was very profitable
>>
>> The Chinese ships were bigger and stronger
>>
>> The Portuguese ships were well-armed
>
> *Check which of them can justify your own explanation (link the statements chosen and your version with an arrow).*

Task 2 intended, firstly, to establish a "bridge" between substantive and second-order reasoning: by drawing attention to the different factors elicited by the four versions, pupils could more easily think *about* different explanations for one historical question:

> Item 2.1. *Read versions A, B, C and D carefully. What differences do you notice:*
>> * between versions A and C?
>> * between versions B and D?
>
> Item 2.2. *Versions B and C disagree on what?*

These items also provided indicators about ideas on explanatory structure, namely, about factorial weight.

Task 2 intended to elicit reasoning directly dealing with some features of provisionality of explanation - questions of objectivity and truth, and explanatory consistency. These items used a non-structured format for responses and were inspired by some history textbooks:

> Item 2 3. *Why are there different explanations about the Portuguese domination of the Indian Ocean?*
>
> Item 2.4. *Do you think that one of the explanations can be considered better than any other? Justify your answer.*

Task 3 included items combining structured and non-structured responses to explore further criteria of explanatory consistency, especially notions of evidential and logical consistency:

Item 3.1. *Rank the four versions given in order of importance as an historical explanation*:

1st: Version _____

2nd: Version _____

3rd: Version _____

4th: Version _____

Item 3.2. *In what respects do you consider the first better than the second in explaining why the Portuguese managed to control the Indian Ocean?*

Item 3.3. *Do you consider the first version better justified by the sources?*

Why?

Item 3.4. *Justify your last two choices* (versions ranked 3 and 4).

Task 4 focused on the nature of explanatory completeness, yet related to explanatory consistency, and objectivity and truth:

(a) the limits of an explanation:

Item 4.1. *The best historical explanation of the Portuguese domination of the Indian Ocean must include the following versions (circle those you choose):*

Versions   A - B - C - D - E

Item 4.2. *What does the best historical explanation not manage to explain about the Portuguese domination of the Indian Ocean?*

(b) the meaning and possibilities of a complete and a good explanation:

Item 4.3. *It is clear that nowadays a complete explanation about the question discussed here already exists:*

I Agree - Maybe - I Disagree

Justify your choice.

Item 4.4. *A good historical explanation always is ... (underline a word in each line):*

Total - Incomplete

True - Valid

Certain - Probable - Possible -   Impossible to know

Task 5 intended to trace a general picture of the nature of explanation, through:

a) a structured item (a True, False and Don't know option about general statements):

Item 5.1. *Past events happened only once. However, there are several explanations of them. Why?*

Write T (true); DK (don't know); F (false) following each statement:

1. They only vary in the way of telling

2. It always depends on the author's personal opinion

3. It's necessary to discover and sum up the real facts

4. Only some authors manage to be totally neutral

5. Each author finds out different real facts

6. Each time and place explains in its own way

7. The author establishes relations among facts and justifies those relations

8. No one can give the certain explanation

b) a multiple-choice answer followed by an open-ended justification to generate an indicator of the notion of historical objectivity tied to methodological criteria:

Item 5.2. *Who would explain the Portuguese domination in the Indian Ocean better?*

a) A recent author, because she/he can compare different points of view,

b) An important author, because she/he has a neutral point of view?

c) A witness at that time because she/he saw what really happened?

d) A Portuguese participating in those events, because she/he lived them

Justify your answer.

A follow-up interview, initially planned for probing, clarifying and deepening the meaning of the answers given by some students, was intended to contribute to a clearer picture. It was assumed too, as initially decided, that some intervening questions, especially to see the consistency of specific ideas, such as neutrality and perspective, could be formulated. The interview guide was adapted to the final version of the written task. It consisted of some main questions, each of them being followed by some sub-questions so as to explore responses further (see Figure 5.4).

Figure 5.4 Interview guide

1. About 1.1.: Restate your own explanation.

2. About 1.2.: Why didn't you choose the other statements?

3. About 2.3./4.: Explain your answers further [to explore, in particular, specific words suggesting relevant notions or eventual contradictions].

4. About 3.2./3.4.: Explain your ideas further.

5. About 4.1./2.: Explain further.

6. About 4.3. Explain further. Compare with your answer in 2.4. [to discuss possible contradictions].

5. About 4.4. Explain further, including some relationships among the different ideas selected.

6. About 5.1.: Clarify some statements seen as true or false; consider contradictions between no1, no2....no8.

7. About 5.2.: Explain your answer further. Why not the other options?

The instruments now appeared capable of providing some useful indicators of students' constructs about provisional historical explanation, which would be explored within three main conceptual clusters, now densified through the distinction of some subcategories:[6]

- Explanatory structure:
  - Explanatory mode
  - Explanatory weight
- Explanatory consistency:
  - Consistency with evidence
  - Logical consistency
- Objectivity and truth
  - Methodological detachment
  - Truth

The correspondence between the several items of the task-set and these constructs, is discussed in the light of the theoretical framework, in chapter 7.

(h) P4 administration

Once the population was redefined and the sample identified, a final trial of the task-set was administered to a small number of students matching those of the sample selected for the final study: N=21 students attending the 7th , 9th and 11th grade, in 2 schools similar

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[6]These three conceptual clusters were generated through a qualitative analysis, and had no relation to the cluster analysis used in the statistic field.

to those selected for the final administration (one within a rural setting, one in the city, both with a heterogeneous population in terms of socio-economic status). The interview was conducted with six students, two in each grade. The results were specially analysed, to focus on improvement of the task-set, although they contributed to the refinement of the theoretical categorization as well.

The final study

The time for collecting the final data had arrived. The final administration involved (a) previous arrangements prior to implementing the administration, and (b) the administration itself.

Arrangements for the final administration

Formal contacts with the two schools selected were established through a covering letter addressed to the President of each Directing Board. This covering letter was supported by the President of the Institute of Education of the University of Minho (see Appendix H). This procedure was adopted in order to get permission for collecting data taking into account specific requirements derived from methodological concerns:

- a random selection of classrooms undertaken by the researcher herself;

- arrangements for special permission for a two-hour period for the written task in each classroom (each subject is usually taught for a 45-minute period, followed by a break of 5 to 20 minutes).

Final administration

Once the required arrangements were completed, a schedule for the administration of the written task was established for the first of June 1993. The follow-up interviews were individually arranged after a first approach to data analysis.

The written task was administered in each classroom by the researcher herself. It started with a brief presentation of the broad goal of the study: "to explore pupils' ideas on history", thus contributing to teachers' better understanding of students and to better teaching. The initial instructions were stated as follows:

The goal of this study is to investigate students' ideas about historical explanation - constructed by historians or even given by yourselves. For that, you will be given a set of historical materials about a concrete issue some of which may be familiar to you. You may use your previous knowledge, but it is important to read and use the material available too. The topic is: "The Portuguese Oriental Empire".

The written task-set was then given to each student. It was emphasised to the students that:

You are going to work on these four versions: A, B, C and D. The historical sources are materials important to help in your answers, but you must concentrate mainly on the four versions given.

The historical material was read aloud by the administrator and pupils were asked to raise questions about the meaning of unknown or ambiguous passages. The instructions were given in the same way; however, the youngest students - those attending the 7th grade - had some substantive information about some specific words: "the Moslems are the people following the religion of Allah", "India is located here [shown on the map] and Calicut is there". After the reading of the historical material, the five tasks to be achieved were enunciated. Finally, attention was deliberately drawn to the difference between two different questions:

The main question which you must concentrate on is: "Why did the Portuguese manage to control the Indian Ocean?" rather than: "Why did the Portuguese manage to arrive in India?"

This was done on the assumption (reinforced through the former data analysis) that pupils might tend to focus on a more familiar question rather than on a new approach.

This period of instructions was videotaped in each classroom and observed before administration to the next class in order to maintain stability in instruction format. The written items were individually completed at the students' own pace, during the two-hour period. The interviews were also individually conducted and audio-taped, following the guidelines and procedures devised a priori, and lasted between half and one hour. This process of interviewing was carried out during the second half of June of 1993, the administration period then being concluded.

Summary

This chapter presented the method applied in the Main study. This involved a pilot carried out through four phases (P1, P2, P3 and P4) and a final collection of data (F). (pilot 1, pilot 2 and pilot 3 provided data for a progressive generation of a model of students' ideas, and F provided data for the main analysis). Population and samples, research techniques, instruments and administration of the several pilots and F, were described.

6 Reflections and decisions during the pilots

This chapter discusses the main lines of the data analysis carried out during the pilot process. It presents the corresponding decisions on the generation of categories of pupils' ideas about PHE and on a redefinition of the target population. The methodological framework applied in the analysis is given before reflection on data obtained in the several piloting phases.

Framework for data analysis

Following the administration of the task-set (a written task and some follow-up interviews) in each piloting phase, according to the methodological criteria discussed in chapter 5, a qualitative analysis was carried out. It intended to make sense of data in terms of the concept of provisional historical explanation. It was thought that the model of grounded theory, developed by Glaser and Strauss (1967), Strauss (1987), Strauss and Corbin (1991) could provide the tools (analytic procedures) for inspiring a set of "rules of thumb" so that data could be interpreted in a systematic fashion. The definition of grounded theory as a style of qualitative research "that is inductively derived from the study of the phenomenon it represents ... it is discovered, developed, and provisionally verified through systematic data collection and analysis of data" (Strauss and Corbin, 1991, p. 23) was considered to fit the aim of this study.

In grounded theory, the basic operations start with the generation of concepts directing data collection, and inspired in previous literature, followed by an *open coding* of data, that is, by the "breaking down, examining, comparing, conceptualizing, and categorizing data" (Strauss and Corbin, 1991, p. 61) to validate and develop those concepts identified. The a priori categorization presented in Figure 4.1 (see p. 89) assumed a set of levels of progression and was revised in the light of data from the exploratory studies by means of a holistic approach, giving rise to a reformulated model (see p. 108). Each level integrated a set of ideas which were still not fully clarified in terms of the different constructs entangled in them. During the piloting phases, data began to be analysed in a more systematic fashion. Firstly, they were treated in an open coding approach: pupils' statements and options were examined and coded as possible indicators of different constructs identified (on the basis of the theoretical survey presented in chapters 2 and 3

as related to provisional explanation.) The operation of open coding provided the basic information for selecting from the whole sample some subjects to be interviewed, in Pilot 1, 2, 3 and 4. After the written task, a set of answers which appeared to give indicators of different levels or promised to be interesting for analysis (some creative, some ambiguous answers) were selected to be explored further in an interview, according to the interview guide as shown in Figure 5.4 (p. 140).

Pupils' ideas were progressively clarified and categorized after the pilot into three main conceptual clusters (as enunciated in chapter 5, and analysed in chapter 7):

1. Explanatory structure (cluster S) in terms of explanatory mode (construct M) and factorial weight (W);

2. Explanatory consistency (cluster C) in terms of evidential consistency (E) and logical consistency (L);

3. Objectivity and truth (cluster O) in terms of methodological detachment (D) and truth (T).

Each cluster was tentatively analysed in its properties, which were dimensionalized according to the responses given by pupils. This operation may be considered an application of *axial coding*, the second type of coding in grounded theory, consisting of "a set of procedures whereby data are put back together in new ways after open coding, by making connections between categories" (Strauss and Corbin, 1991, p. 96). Through P1, only cluster O was clarified and dimensionalized, constituting at this stage the main focus of enquiry; within cluster S, a clear distinction between a descriptive and an explanatory mode (construct M) began to be made explicit, but factorial weight (W) was only hazily considered; cluster C was clarified during the Pilot in one of its subcategories - evidential consistency (E) - but another subcategory - logical consistency (L), in terms of internal coherence and plausibility - was only fully considered in the final study.[1]

The operation of integrating constructs to form a theory was loosely undertaken *ab initio*. This task may be seen as related to *selective coding*, that is, "the process of selecting the core category, systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development" (Strauss and Corbin, 1991, p. 116). During the piloting phases there was no intention to achieve a close core categorization around the three clusters (S, C, O), but merely to improve the conceptual framework as a working hypothesis. Nonetheless, data were coded as empirical indicators of ideas implying different levels of thinking to integrate a model progressively rearranged according to new data.

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[1] P1 data are analysed in pp. 146-55.

Reformulating the categorization

The initial categorization constructed during the exploratory studies stressed a logical progression about ideas of objectivity in historical explanation. This progression ranged from an authoritative pattern (acceptance of explanations given, thinking being centred on substantive information) towards awareness of methodological neutrality and perspective, understood in a context of social production. The former model was given in Figure 4.4, p. 108. It was progressively reformulated in the light of the fresh data obtained in an individual basis, during the several piloting phases. Its version after the pilots is given in Figure 6.3, p. 164.

Categorization after P1

The analysis of data collected in P1 permitted some insight into pupils' ideas about the three conceptual clusters presented above.

A restricted explanatory pattern displaying some fragmented information was discriminated from a more elaborately constructed explanation. Marisa, for example, constructed an account made up of fragments from version B.

Marisa, 16 years old, 8th grade:

> The Chinese fleet was withdrawn, it was just a very short time before [sic], but it was not only in relation to the development [sic], but in terms of world economy, thus leaving the door to the Indian Ocean open. The Portuguese followed.

Marisa's version may implicitly contain some explanatory intention (the Chinese permitted the Portuguese to enter the Indian ocean); nonetheless, its construction might be seen as predominantly descriptive, integrating excerpts in an apparently meaningless way from Pacey's explanation ("in relation to the development ... in terms of world economy").

Other responses conveyed clear explanatory patterns with different gradations as it will be discussed. Three examples are given below. Explicit explanatory words are underlined and substantive factors mentioned are in italics.

Patrícia, 15 years old, 9th grade:

> The Portuguese could establish a maritime empire in the Indian Ocean as a result of the discovery of the maritime route to India. With this discovery, the Portuguese began to transport large amounts of the famous oriental spices to Europe.

Vítor, 15 years old, 7th grade.

> The Portuguese could establish a maritime empire in the Indian ocean during the sixteenth century, because the Chinese visiting the same ports 60 years before withdrew to other places, while the Portuguese arrived and did not encounter an efficient challenge from the Moslem fleet. If the Chinese were there, the case for the Portuguese exploration of establishing a maritime empire would be complicated.

Renato, 13 years old, 8th grade:

> The Portuguese could establish a maritime empire because the powerful Chinese fleet withdrew, because in Asia the equally powerful Egyptians and Turks had no sea power, that is, they were not turned to the sea; also, the Moslem fleet was not an efficient challenge.

Patrícia gave an explanation relying on a temporal step (the maritime route to India), as a (or the?) necessary condition. The spice factor appeared as a consequence of the discovery, without consideration of other factors directly related to the control of the Indian Ocean. Vítor presented two interlinked factors - the Chinese and the Moslem factors, but stressing the former in a counterfactual statement ("if the Chinese..."). Renato mentioned the Chinese and the Egyptians/Turks factors, discriminating this factor from that related to Moslem naval inefficiency - the latter appearing as a facilitating condition, as the word "also" might suggest.

Responses on task 2 ("rank explanations A, B, C, and D - version D being your own version") were treated as indicators of evidential consistency (construct E). Explanations A, B and C were:

EXPLANATION A

The so-envied spices ... ivory, precious stones, all these were provided by Asia ...

Openly defying the Moslem domain and combating the Islamic faith, the Portuguese had to meet as their main enemies in Asia the Egyptians and the Turks ... It helped the Portuguese considerably that none of the major Moslem countries was openly turned towards the sea or based its power upon the sea.

EXPLANATION B

The Chinese fleets had visited these ports sixty years before but had now been totally withdrawn, and the Islamic naval challenge to the Portuguese, when it came, was ineffective ...

Had the Chinese still been patrolling the Indian Ocean when the Portuguese arrived, one can only speculate what might have happened. The decision to withdraw the Chinese fleet (60 years before) was a momentous one, not only for what it portended with regard to China's own development, but also for what it meant in world affairs to have the 'door left open ' (to the Europeans) into the Indian Ocean.

EXPLANATION C

The discovery of the maritime route to India was the most glorious enterprise in this century...

After verifying the communication between the Atlantic and the Indian Ocean ..., concluding the task which the Portuguese had been working for so hard was just a matter of tenacity and time.

Patrícia:

> C [version ranked first] because it is the most illuminating for justifying Portuguese domination in the Indian Ocean.
>
> A-B-D [versions ranked second to fourth] - Because following explanation C, this is the sequence which pleases me most and is justified [by the question?].

Vítor:

> B [version ranked first] because explanation B is more detailed and refers to the Chinese issue and the others do not.
>
> D-A-C [versions ranked second to fourth]- Because D, A, C complete B, which I find the most complete.

Renato:

> A [version ranked first] because we needed spices (or ivory and precious stones, etc.) and we had no enemies.
>
> D [version ranked second]
>
> C [version ranked third]
>
> B [version ranked fourth] because the hypothesis of us (Portuguese) meeting the Chinese fleet on the maritime route was put.

Patrícia's words "the most illuminating ... pleases me most and justifies" seemed to be worthy of clarification (see comments about her interview on p. 154). Vítor seemed to give clear indicators of a *summing-up* pattern, stressing quantity of facts, the notion of factor not seeming to be clearly distinguished from mere facts. Renato selected two factors - a motive and an external condition - using versions given as evidence ("we had no enemies"), but his justification for the last rank (if "we meet the Chinese fleet...") seemed to be based on emotional criteria. Renato's interview showed that it was the phrasing of the question (rank in a decreasing order of *preference*) that led him to reason in terms of personal interests in the written task; later in the interview (see his responses on p. 155), he was able to produce more elaborate ideas than those expressed in this excerpt.

Task 3, which had been designed on the basis of statements produced by students in the exploratory study, was seen as providing indicators of objectivity and truth (cluster O). It was analysed in terms of frequency of responses to the following statements:

1. The three explanations are practically the same because they deal with the same events.

2. Each explanation presents a different interpretation of the same events because history is always influenced by the author's personal opinion.

3. The three explanations vary because only one is strictly based on the real facts: in the other two their authors interpret the events according to their own point of view .

4. The three explanations vary because historical interpretations are always influenced by the time, culture and society in which an author lives.

5. All the explanations given are good: they were produced by respectable authors.

6. Only one of the explanations is good because its author based it on the the real facts; the others are not so good because they present some distortion of the past.

7. All the historical explanations given can be accepted as good but we prefer one or another according to our own point of view.

8. One of the explanations is the best because it is more balanced in using and comparing different sources.

9. Only one of the explanations is truly historical: it is a sum of the correct information contained in texts and documents.

10. The only truly historical explanation is the one that is similar to what we have learnt in history books.

11. Different historical explanations of the same issue can be accepted; but some can be viewed as better when the author revises the facts, including those exaggerated or omitted in previous explanations.

12. A witness from that time would explain the situation better than today's authors.

Table 6.1 shows the frequency of these statements chosen by pupils of different ages.

Table 6.1 Frequency of statements chosen in P1, by age

STATEMENT   AGE

	12 (N24)	13 (N20)	14 (N17)	15 (N19)	16 (N7)	17 (N2)	19 (N1)	TOTAL (N90)
1	2	1	1	-	-	-	-	4
2	10	7	10	9	4	1	1	42
3	10	5	6	1	1	1	-	24
4	6	8	3	8	4	1	-	30
5	8	7	3	2	-	-	-	20
6	5	2	4	6	3	1	-	21
7	11	8	11	7	4	1	1	43
8	7	3	-	2	1	-	-	13
9	4	-	1	3	-	1	-	9
10	2	-	2	-	-	1	-	5
11	9	12	10	7	3	-	1	42
12	12	9	5	8	5	-	-	39

The most frequent occurrences (42-43 responses) concerned statements dealing with:

(a) simplistic notions of personal opinion (statements 2 and 7);

(b) a more elaborate notion of explanatory evaluation (statement 11).

The statement emphasising the value of the witness as an explanation producer (statement 12) was the next most frequent option (N=39).

The three pupils whose answers on task 2 were quoted above chose the following statements (as enunciated on the previous page):

Patrícia: statements 2 (personal opinion), 7 (preference according to a point of view), 11 (objectivity);

Vítor: statements 3 (truth), 6 (neutrality), 9 (the correct explanation);

Renato: statements 2, 4 (contingency), 7, 8 (balance), 11 (objectivity).

Patrícia seemed to enhance personal principles instead of historical criteria, although she had also selected statement 11, which was thought a more elaborate choice - or she might have reacted to ideas like "exaggeration" or "omission". The selection made by Vítor appeared to consistently reinforce the idea of summing-up the right facts. Renato included some personal principles in his selection (statements 2, 7) but showed a more elaborate choice while pointing to some historical criteria represented by statements 4, 8 and 11.

After the written task, thirteen pupils were chosen for being interviewed. The analysis of this first whole set of data gathered on an individual basis permitted a tentative redefinition of the theoretical categories of adolescent thinking about PHE - although the

main preoccupation, at this point, was to improve the written task in order to provide valid and reliable empirical indicators.[2]

A picture of each level was constructed, mainly based on ideas clarified during the interviews. After P1, the former categorization drawn up on the basis of the exploratory studies was revised and an attempt was made to make more explicit the concepts considered to be essential characteristics of each pattern of thinking.

Level 1, now labelled "Inconsistency", was drawn up focusing on two ideas: explanatory structure (S), and a second-order thinking on evidential consistency and objectivity (E and O). Each response, as a whole, would be categorized in level 1 if in construct S its mode were predominantly descriptive or an incoherent explanation. Perplexity or logical incoherence in second-order reasoning (E and O) were seen as typical of this level. Corresponding to the former "Authority: Information", a distinction between predominantly descriptive and explanatory reasoning began to be made explicit , the latter being typical of the next levels.[3]

The intermediate levels (2 and 3) were seen as already conveying an explanatory mode (M) and simultaneously showing both some awareness of evidential consistency (E) and of objectivity (O). Giving substance to the interpretation of data, it was felt necessary to discriminate between these two patterns (levels 2 and 3).

Level 2, now labelled "Stereotypes", was seen as tied to a concern for the authority of what was previously known (formerly, "Authority: Dogmatism"), tending to ignore or undervalue new information, as in the following examples:

Helena, 16 years old, 9th grade:

> Explanation A is more explanatory, it refers to spices ... Explanation B is very vague, it's only about the Chinese ... I don't see any relation to the question ... China had a powerful fleet, but they didn't go to know new people, I never learnt it. On discoveries they were very poor.

---

[2]The reformulation of the task-set after P1 is discussed in chapter 5, pp. 131-2.

[3] This distinction between descriptive and explanatory reasoning was inspired by Peel's work (1967a, b, 1971).

Patrícia:

> The discovery of the maritime route to India, in explanation C] struck me ... It [the question]
> was concerned with that ... I knew that before, I had some ideas on that. I have never heard of
> the others ... or I never developed a great interest in them...
>
> Int.: Which is the strangest, least familiar explanation for you?
>
> Patrícia: Version B ... if I have ever heard of it, it never struck me...

At this level, the explanatory mode is grasped, but the use of a tight common sense (an emotional rather than an historical criterion) seemed to be the basis for assessing competing explanations, no matter what evidence might exist. An authoritative pattern centred on tacit knowledge as in the examples above ("I never studied them" or, "If I have ever heard of it, it never struck me") or on patriotism, in other cases, might be apparent here. The latter was suggested, for example, by Luísa's response.

Luísa, 13 years old, 7th grade:

> Version B shows that the Chinese had no means for fighting against us, because we were strong (due to
> a better knowledge, friendship and military equipment provided by the discoveries). Version A shows
> that we were so strong that even the Moslems were jealous of us. Version C shows how the colonies
> were useful to us.
>
> Version A has most in its favour because it shows that the Portuguese were so great that even the
> Moslems were jealous of us.

Level 3, a more critical level now labelled "Conventional positivism", implied a special preoccupation with evidence on which to base the explanation. The real facts conveyed by the existing sources should be summed up in order to get the real explanation. Vítor's response might serve as an example of this pattern:

Vítor:

> Authors go to the witnesses to seek explanations, for giving their own explanation, they sum
> up them all and they do their own explanation.

Within such patterns (levels 2 and 3), a tendency to value direct observation seemed to be present, as Vítor stated.[4]

> ...witnesses are better ... watching everything would allow one to explain better.

---

[4]In P1, the task-set did not yet allow for a distinction between *witness* and *agent*.

A frequent occurrence of the notion of personal opinion coexisting with notions of *real facts* was observed in the patterns indicated above. Patrícia, for example, concentrated her attention on familiar factors only.

Patrícia:

> I chose statement 2 [Each explanation presents a different interpretation on the same events because history is always influenced by the author's personal opinion] because one has always an idea that leads to the development of something more and more. Even when authors want to base themselves on facts only - maybe because they have curiosity - they will try to develop and give their opinions, they won't base themselves only on what they know, they will develop their creativity ...
>
> ... it would be very monotonous if one based oneself on real facts only!

Patrícia produced emerging ideas about the historian's role in historical conclusions: her criterion seems to come from everyday assumptions and it can be applied to fiction as well as to history if it is a vague criterion of creativity as opposed to monotony - she often stressed that she chose version C because she was a person with plenty of curiosity; or, it might convey a tentative notion about human perspective in historical interpretation, stated at the level of personal opinion added to real facts ("even when authors want to base themselves on facts only ... they will try to develop and give their opinions").

Concerns about neutrality were expressed more or less explicitly in the most elaborate of these two intermediate patterns.

Hugo, 14 years old, 9th grade:

> I think that some explanations have a neutral point of view, when historians limit themselves to show the facts without assuming their own points of view.

At this intermediate level ideas of neutrality and point of view apparently contradict each other: must personal opinion be avoided in a valid explanation (to show facts without assuming a point of view) or is it integrated in the idea of methodological neutrality ("a neutral point of view")? Since in this phase of the enquiry a major focus was put on observing indicators of awareness of *perspective* in historical production, the idea of perspectiveless neutrality was integrated in level 3, named "Conventional positivism".[5] The former distinction within level 2 (positivism) of two sub-levels (sum and consensus), such as was categorized in the model after the exploratory studies (p. 108), was

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[5]A positivist pattern revealing a concern for an "absolute" neutrality, that is, a perspectiveless neutrality, was subsequently discriminated from that suggesting a mere notion of concern for quantity of factors.

provisionally abandoned, since both sub-patterns were seen as not yet discriminating awareness of perspective.

Level 4, labelled "Restricted perspective" and centred on the development of the idea of existing different historical perspectives included in cluster O, did not register a profound shift from the exploratory studies to P1. Some responses seemed to indicate an emerging pattern recognising that each historical explanation is *more* or *less* consistently constructed on the basis of evidence, from a specific point of view. The notion of point of view is tentatively discriminated from the notion of bias.

Renato:

> Well, I think that they all [explanations] were a bit influenced by personal opinion ... but I think that only these two explain better ... [Explanation] C practically doesn't say anything about it, it only says that it was a question of time and that is nothing ...
>
> My personal opinion is interfering with the interpretation I have given ... and personal opinion influences all historians' interpretations as well.

Renato recognised perspective as a genuine historical feature ("personal opinion influences all historians' interpretations") and he discriminated valid explanations (explanations A and B) from a less powerful version (explanation C).

Level 5, named "Contextual perspective" was hypothesized as revealing awareness of such concepts as author's perspective entangled in the notion of methodological detachment related to cultural background. It was considered as an elaborate pattern of the conceptual cluster objectivity, and of existing historical standards for assessing explanations (still a vague conceptualization of explanatory consistency). This level was kept as an ideal grounded on theoretical assumptions, not found in the empirical data obtained, but which could eventually occur in subsequent data.[6]

Summing-up, the recategorization after data analysis of P1 took the form shown in Figure 6.1.

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[6]This level was withdrawn during the analysis of the final study (F) since no indicators of it were observed.

Figure 6.1 The model after P1

LEVEL 1 INCONSISTENCY

Descriptive mode

Second order reasoning related to information, or perplexity

LEVEL 2 STEREOTYPES

Explanatory mode

Tight common-sense criteria in explanatory assessment

Personal opinion plainly accepted

Explanations from primary sources often valued

LEVEL 3 CONVENTIONAL POSITIVISM

Explanatory mode

Historical explanations accepted if based on reliable evidence, to be summed-up

Personal opinion accepted or rejected

Perspectiveless neutrality valued

Explanations from primary sources often valued

LEVEL 4 RESTRICTED PERSPECTIVE

Explanatory mode

Point of view tentatively recognised as legitimate

Concern for neutrality as a tentative balance

LEVEL 5 CONTEXTUAL PERSPECTIVE

Explanatory mode

Point of view recognised as part of an objective explanation and within its context of production

Concern for neutrality as a tentative balance

Thus, the model about pupils' ideas about PHE evolved from the exploratory studies to pilot 1 as shown in Figure 6.2.

Figure 6.2 The model from explorations to P1

After explorations   **After P1**

LEVEL 1 Authority
       A Information ---------------------> LEVEL 1 Inconsistency
       B Dogmatism ---------------------> LEVEL 2 Stereotypes
LEVEL 2 Positivism --------------------> LEVEL 3 Conventional positivism
       A Sum
       B Consensus
LEVEL 3 Perspective -------------------> LEVEL 4 Restricted perspective
LEVEL 4 Contextual perspective ----------> LEVEL 5 Contextual perspective
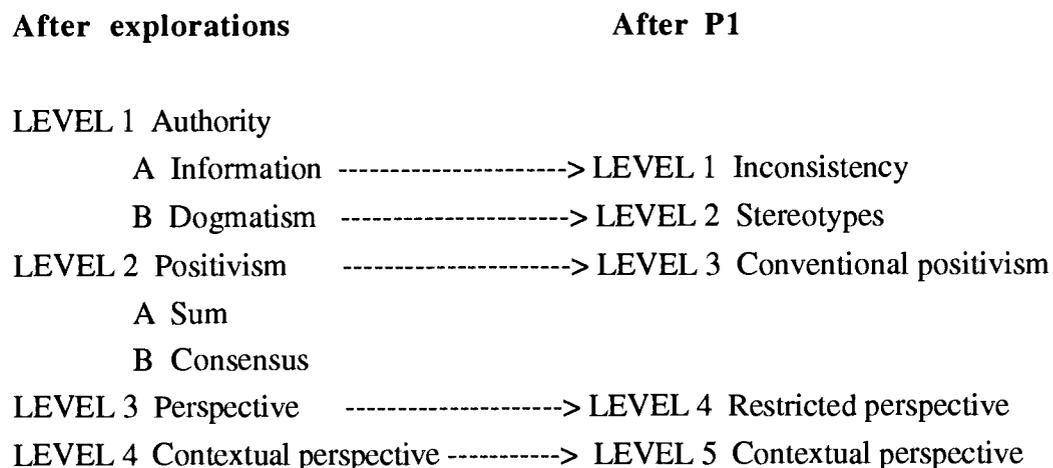
Reflections after P2

Pilot 2 was carried out in order to see how the youngest subjects of the target population could cope with the task-set. The aim was to improve the task-set in the light of the performance observed in these young pupils (13-14 year-olds, mainly). Beyond this concrete objective, this phase also provided some clarification of pupils' ideas about PHE.

If some of these adolescents showed perplexity or difficulties in reasoning on the issues proposed, relying on substantive pieces of information, others revealed a more elaborate reasoning about provisional explanation.

Elisabete, 13 years old, 7th grade:

> I think that each one [explanation] has its own value, but not all of them are right. If someone gives her/his opinion, it is because she/he studied, verified and collected data...
>
> Int.: And how did she/he verify it?
>
> Elisabete: Through documents, relics.....
>
> Int.: And can you explain in what sense you said that "each one has its own value"?
>
> Elisabete: All opinions must be valid... if those authors were alive they should discuss the issue and see whether it was possible to join the hypotheses, or only one was true... because, surely, there must exist not only these hypotheses, but many more...

Elisabete seemed to look at explanations as hypotheses which might be "verified" according to evidence; this might already reveal an idea of provisionality far away from a less critical assertion of a mere sum of different versions. The ideal of a consensual

explanation - or the right explanation as a solution to the existence of different opinions - is expressed, suggesting some overlapping between interpretation and explanation, or a realist assumption about the existence of the *true* real factors of the occurrence.

Thus, data collected in this phase suggested that among the youngest pupils of the target population ideas ranging from a descriptive mode to explanatory patterns might be found. Some pupils revealed elaborate ideas of methodological neutrality and expressed the need for a consensus in historical explanation.

Reflections during P3

Pilot 3 was carried out in order to get some information at the highest level of ideas about PHE that could be found among adolescents attending school in the Northern regions of Portugal.[7] Among the sample surveyed in P1 and P2, pupils attending the last stage of compulsory school (7th to 9th grade) seemed to move from an information-centred, descriptive level towards explanatory levels, in which ideas about the provisional nature of explanation might begin with contradictory and stereotyped constructs, and progress towards an assumed acceptance of an underlying author's perspective entangled in historical criteria (see Renato's response, p. 155). The hypothesis of observing possible ideas of level 4, contextual perspective, as pictured in the model after P1, led to an attempt to find indicators of this level in more historically literate pupils. Thus, a sample of students beyond the target population (which was, until this phase, 12 to 20-year-olds attending the 7th, 8th and 9th grades) was surveyed, as described in chapter 5, p. 134 (11 eleventh-graders and 4 university students).

An open coding of the eleventh-graders' data revealed some non-expected features of the progression of students' ideas about PHE during the schooling process. This analysis suggested the hypothesis that the pattern of ideas about PHE, among the most historically literate students, might imply the following four features:

1. A concern for *intertwined factors* in a constructed narrative, valuing the quantity of information as necessary to the aim of attaining a total explanation.

Susana, 16 years old, 11th grade (Oporto school):

> It was during the reign of King John that the dream of getting to India (as it was conceived at the time, a grandiose and remote dream) began to be prepared with full consciousness of being a successful project. For that purpose, information about those distant fortified cities began to

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[7]This sample was constituted by 11th-graders from two Northern places: Oporto (the second Portuguese city) and Vila Real (an hinterland town), and students at the University of Minho.

be assembled ... what was expected was not strange at all, nor were the expected goals (gathering and buying products). This is one of the many important "steps" that contributed to the Portuguese control of the Orient [...]

... [Also] new techniques in the naval area (maps, new types of ships as well as equipment) which would take the Portuguese dream further forward, now that it had materialized in action, ... the former expeditions along the African coast paving the way to a greater knowledge of the Atlantic Ocean [...]

Portuguese reception by oriental people was not very suitable for a long, peaceful stay. That was easily dealt with by the Portuguese artillery, which was superior to that of the Moslems. But army power was not enough and mental strength was required. And then opinions diverged: should the empire be consolidated ... by controlling the sea ... or by conquering the land? [...]

If unity makes strength we may conclude that another essential cause was the lack of Arabian unity, which made their great power weaker. The Portuguese were left alone, after the dismantling of the Moslem routes; (for the moment) they could easily establish their empire since it brought good profits for all [the Europeans].

....

I chose explanation D [her own explanation] because I think once more that it is fundamental to look at the destruction of the Moslems as well as the conquest of fortified cities.

Susana's explanation traced long-term conditions (a goal, a careful plan, progressive naval advance) and short-term conditions (Portuguese military and will power, Arabian political division). Some of these conditions appear as necessary, some as facilitating of the Portuguese success in the Orient. This might suggest a consonance with the structural approach.[8]

2. *Explanatory consistency*, not only in terms of evidential corroboration and refutation but also in terms of plausibility, seems to be grasped. It appeared to be a criterion applied by Susana to the assessment of explanations A and B, which she distinguished from a mere description conveyed by version C (early version, p. 148).

In my personal opinion those explanations [A, B and C] don't present the fundamental causes of the event. Explanation A bases its major point on the sea and war, which for me is only part of the events, but not the most important at issue; without absolute control on land through the establishment of Portuguese fortresses, the durability of the Portuguese maritime empire would be a matter of some fragile years and wouldn't justify the solid monopoly installed. Explanation B looks only at the hypothetical side of the question. Explanation C

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[8] A structural and a poststructural approach in history, influenced by the Annales school, has been common in the teaching of history at secondary and university level, in Portugal. This approach is discussed in chapter 2, pp. 50-3.

doesn't give causes but, on the contrary, presents what really happened; if we want to list what gave the Portuguese consolidation in the East, supposing or telling it is not enough, but we must preferably enunciate the factors which contributed to achieve it.

3. Some tendency to minimize the counterfactual condition (Chinese withdrawal) - just because it did not really happen, or as a strategy to undervalue new or not-favoured information - might be present. This is a realist approach, on critical grounds.[9]

Susana:

> Explanation B [...] focuses on something that could really have happened and that perhaps could have changed the course of history, but it did not happen in reality, thus it didn't interfere with Portuguese domination.

4. Some awareness of *objectivity* in explanations seems apparent. All students in the Oporto school (N=5), working on the early version of the task-set, selected statement 11 ("different historical explanations on the same issue can be accepted, but some can be viewed as better when the author revises the facts, including those exaggerated or omitted in previous explanations"); in the Vila Real school, where a written task already revised in the light of preceding responses was given, two in six subjects chose a recent author for better explaining the historical issue.

Sofia, 17 years old (Vila Real school):

> [A recent author would explain the situation better] because obviously she/he would have more recent and truer data (at least she/he would have techniques in order to assess impartiality) for achieving the best research according to the time in which her/his study is done and according to the sources at the time. The chance for getting more historical documents about a true, and richer in information, would increase.

However, data also appear to suggest that:

4. Together with these critical notions about historical standards, a *positivist* notion of perspectiveless neutrality persists. Susana, for example, who produced an elaborate argument about evidential consistency, selected statements 3 and 6, (the three explanations vary because only one is strictly based on the real facts; only one of the explanations is good because its author based himself on the real facts). Conflicting notions on point of view and neutral explanation appears to be a frequent pattern of ideas among Portuguese historically literate students. A similar attitude, but coexisting with a

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[9]A realist approach may assume different levels of ideas - from a naive assumption to a more critical position implying awareness of some methodological standards for assessing an historical explanation. A discussion of the concept of critical realism is given in chapter 3, pp. 73-4.

subjectivist (and, sometimes, overtly nationalistic) trend, was suggested by some students' responses in Vila Real. Some examples are given below.

Luís, 17 years old:

> Maybe [one of the explanations might be considered the best], because although all of them had contributed to the maritime domination, I believe that those who exalt the great will power, courage, knowledge and, of course, military force, explain the causes of this domination better , because above all I believe, and I shall always do, in the great value of our ancestors.

Ana, 16 years old:

> Maybe [one of the explanations might be considered the best]. In my opinion, as a Portuguese, version D [the fourth version given], of course, is that which is most identified with my point of view, trying to emphasise the heroes, my compatriots. But all the explanations indeed must be accepted without distinguishing whether one is better or not than the other.

As these responses revealed contradictory ideas about objectivity - awareness of methodological criteria for assessing explanations, but a practical evaluation not taking those criteria into account - another small sample of volunteer undergraduate students attending the History and Social Sciences course at University of Minho, in their 4th year of study (prior to the in-service teacher training year) was investigated too. This restricted sample of university students showed, as main characteristics:

1. Awareness that a recent author might give a better explanation than agents and eyewitnesses (the four students selected such an option, in a multiple-choice format question);
2. The valuing of versions D (more overtly descriptive) and C (nationalistic) over the other two versions. Versions D and C were chosen in first and second rank by three students, one student ranked version C first, followed by version D; version A (emphasising the Turkish interest on land power in detriment to naval power) was ranked 4th by three students;[10]
3. The refusal to value, theoretically, one of the explanations as the best, as students stressed some validity in all of them. The four students gave the following justification:

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[10]This preference for versions D, or C, occurred in the final study too. It is discussed in chapter 9, pp. 259-64.

Isabel (university student):

> Each explanation given must not be put aside but it must be put into question. All of them must be interlinked and we should take into account the reliability of sources. The final explanation, if it exists, must be complemented, that is, an interdisciplinarity of sources must be made so that facts can reach a greater veracity.

Diva:

> All of them [explanations] give us facts which are important so as to know the events as a whole. All of them have their own importance and the meaning given to them depends on the reader's subjectivity.

Glória:

> All explanations contain some truth. However, there are more complete explanations than others.

Ana:

> I think that what leads to a more complete vision of a complex phenomenon like the Portuguese Oriental empire is the combination of several factors. But from such a combination of factors, and according to each kind of research, each author gives more importance to one aspect. The several versions will contribute to the construction of a more and more correct picture.

Such responses suggested, again, some ideas typical of a structural pattern, characterized by an ideal of a total explanation to be reached through a critical examination of several sources and through the assessment of several factors, all of them being considered as part of a complex reality. Provisionality seems to be accepted in the sense that explanations are progressively construed in a process of trying to grasp the total reality. Nonetheless, when subjects were asked to arbitrate concretely among the four versions given, they showed a preference for more familiar or longer versions (versions C and D). This choice suggested that criteria for discriminating more and less valid explanations might not be appropriately applied by subjects when version D (more descriptive) and version C (more biased) were preferred. In these cases, a distinction between description and explanation and/or between a more corroborated and a more refuted version was not apparent. This analysis was useful for subsequent decisions in this study concerning the definition of the population, which was extended to higher grades.

Decisions and categorization after P3

Although the early findings during P1, P2 and P3 were still very tentative, the whole analysis of data gathered suggested a hypothetical trend to explore:

    - Some pupils ranging from 12 to 20 years old, attending the last three grades in compulsory school, reveal ideas concerning provisional explanation based on a conception of perspective more or less distinct from bias, coexisting together with a notion of methodological neutrality; they also may show a concern for evidential consistency (see Elisabete's responses, p. 157);

    - Students following postcompulsory history courses may construct elaborate, well-grounded ideas about explanatory consistency, (1) usually, within a positivist approach, that is, showing concern for a critical interpretation of sources but not integrating the concept of author's perspective into genuine historical standards, as Susana's responses (see pp. 159-60) may suggest; or, (2) within a subjectivist trend, they avoid the application of those historical standards theoretically accepted in order to defend a position based on emotional criteria, as appeared to be the case in Luís and Ana's responses (see p. 161). Some difficulty in discriminating perspectiveless from perspectiveful neutrality when thinking about provisionality of historical explanation seems to be a common pattern among these students.

Such a hypothesis provoked an interest in exploring progression in pupils' ideas about PHE through secondary schooling beyond the compulsory stages. This interest led to a need to redefine the population to be investigated in the final administration. The target population was then defined as the following:

Students ranging from 12 to 20 years old, attending the 7th to 11th grades, in secondary schools involved in teacher-training under supervision of the University of Minho.

Evolution of the early model

Taking into account and reflecting on the empirical data as a whole, a provisional recategorization of pupils' ideas was tried after P3. (In P4, the central preoccupation was to refine the task-set to be applied in the final study). Figure 6.3 shows the model generated after the pilots.

Figure 6.3 The model after P4

LEVEL 1   INCONSISTENCY

           Descriptive or restricted explanatory mode

           Second-order reasoning related to information, or perplexity

LEVEL 2   STEREOTYPES

           Explanatory mode

           Common-sense criteria in explanatory assessment

           Right/wrong explanations

           Explanations from primary sources often valued

LEVEL 3   CONVENTIONAL POSITIVISM

           Explanatory mode

           Historical explanations accepted if based on reliable evidence

           Sum of factors

           Personal opinion plainly accepted

           Explanations from primary sources often valued

LEVEL 4   SCIENTIFIC DOGMATISM

           Explanatory mode, often an historical narrative

           Historical explanations accepted if based on reliable evidence

           Aggregationist criteria in explanatory assessment

           Perspectiveless neutrality valued

LEVEL 5   PERSPECTIVE

           Explanatory mode

           Concern for neutrality as a tentative balance

           Perspective (tentatively) recognised as legitimate

Thus, the model of categorization evolved from the exploratory studies and through the piloting phases as charted in Figure 6.4.

Figure 6.4 Evolution of the model from explorations to P4

The model

After explorations   **After P1**   **After P4**

LEVEL 1 Authority

        A Information -----> 1 Inconsistency --------------> 1 Inconsistency

        B Dogmatism -----> 2 Stereotypes ----------------> 2 Stereotypes

LEVEL 2 Positivism

        A Sum -------------> 3 Conventional positivism ----> 3 Conventional

                                                    positivism

        B Consensus   _____ -----> 4 Scientific

                                                    dogmatism

LEVEL 3 Perspective --------------> 4 Restricted perspective -----> 5 Perspective

LEVEL 4 Contextual perspective -> 5 Contextual perspective   _____

This model functioned as a working hypothesis for initiating the analysis of the main data (F), and this analysis, in turn, generated a reformulation of the model. The model presupposed a progression through levels of ideas related to three main conceptual clusters. In the final stage of the work, these were divided into the following subcategories:

Explanatory structure (S)

                          Explanatory mode (M)

                          Factorial weight (W)

Explanatory consistency (C)

                          Evidential consistency (E)

                          Logical consistency (L)

Objectivity and truth (O)   Methodological detachment (D)

                          Truth (T)

About each construct, several degrees of sophistication were tentatively discriminated in the light of students' responses. At this phase of the empirical work, only constructs M, E and D were made distinct.[11] These constructs were as shown in Figure 6.5.

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[11] A full discrimination of degrees within the several constructs is given in chapter 7.

Figure 6.5 Constructs about PHE after P4

Explanatory mode (construct M):

1. description

2. restricted explanation

3. explanation - rational/causal

4.- explanatory narrative

Evidential consistency (construct E):

1. information

2. a few familiar facts/factors

3. several facts - more factors

4. more data to total reality

5. data to select factors

Methodological detachment (construct D):

1. perplexity

2. right/wrong, direct observation

3. several real facts and opinions; sum, direct observation

4. absolute neutrality; positivism/subjectivism

5. perspectiveful neutrality, balance

Therefore, the model given above implied the following degrees of sophistication of each construct:

	Construct M	Construct E	Construct D
Level 1	1 - 2	1	1
Level 2	2	2	2
Level 3	2-3-4	3	3
Level 4:	3-4	4	4
Level 5:	3-4	5	5

This *tentative* chart was the first step for a conceptual map devised to trace the several levels at which pupils constructed ideas about PHE, to be discussed next chapter.

Summary

This chapter presented the main reflections and decisions on the generation of the model of students' ideas about PHE, during the pilot studies. It gave a first approach on the methodological framework for data analysis and the progressive reformulation of the model, as well as the redefinition of the target population grounded on reflections made upon pilot 3.

7 A conceptual model of students' ideas about provisional historical explanation

This chapter discusses the model of students' ideas about PHE. It gives (a) a conceptual map constituting the theoretical framework for data analysis, as discussed in chapters 2 and 3, (b) a description of the methodological framework used for the analysis of the main data, (c) a conceptual map of students' ideas about PHE through logical levels of progression, and (d) a summary and a conceptual map of the main characteristics of each level of progression.

Theoretical framework for data analysis

In chapter 2, a working definition of the concept of historical explanation was given:

Historical explanation is supposed here to be an answer to a why-type question about past human actions, events, and states of affairs. It may include questions of a how-possible type. Each explanation presupposes a selection of factors - reasons, motives, dispositions, external conditions, structural, conjunctural conditions, along the lines of the different explanatory models. Each author may assign a different relative importance to factors selected and, among a range of factors (the standing conditions), some might be considered necessary or mere contributory/facilitating conditions to the *explanandum*. Conditions which make the difference to whether a situation occurred or not may be considered as *the* cause.

It is understood that the very sense of provisionality attributed to an explanation is entangled with and varies according to each kind of explanation. Each explanatory mode is the "natural environment" where the notion of provisional explanation gains some specific meaning, which is directly suggested by a variety of factorial weighting among competing historical explanations. Therefore, the analysis of students' ideas about provisional historical explanation took into account the following constructs related to *explanatory structure*: (a) *explanatory mode* (which kinds of factors are implicitly or explicitly selected: conditions, causes, reasons, motives, dispositions, long/short-term conditions), and (b) *factorial weight* (what weight is attributed to factors selected: sufficient, necessary or facilitating conditions).

A variety of modes and factorial weighting does not imply a denial of objectivity. It is assumed that competing explanations to the same historical question can be examined on evidential and logical grounds and thus, their relative explanatory scope and power may be assessed. Therefore, the analysis of students' ideas about PHE explored the following constructs concerning *explanatory consistency*: (a) *evidential consistency*, and (b) *logical consistency* in terms of coherence and plausibility.

The criteria above give room to consider a critical objectivism in historical explanation. Such an assumption is controversial, however: a tension between emphasising the contingency of knowledge or some kind of methodological objectivity must be considered, as discussed in chapter 3. Concerning the conceptual cluster *objectivity and truth*, the following constructs were explored: (a) *methodological detachment*, and (b) *truth*.

The whole conceptualization forming the theoretical framework of the empirical study will be charted in a schematic representation similar to systemic networks used to handle data. Such systemic networks, as proposed by Bliss, Monk and Ogborn (1983) use three main notations to indicate subdivisions from categories: one consists of a Bar [representing mutually exclusive subcategories, one consists of a Bracket { representing non-exclusive categories, and one consists of a Reversed Bracket } representing restrictive entry conditions to be applied to some subcategories only. The last of these notations is entered after the subcategories to which it refers.

Explanatory structure: explanatory modes and factorial weight

It is hypothesized that a range of explanatory modes might underlie students' ideas about provisional explanation. Those modes can be charted in a conceptual map as in Figure 7.1.

Figure 7.1 Explanatory modes

$$\text{Explanation} \begin{cases} \text{rational} \\ \text{causal} \\ \text{narrative} \begin{cases} \text{explanatory account} \\ \text{structural} \end{cases} \end{cases}$$
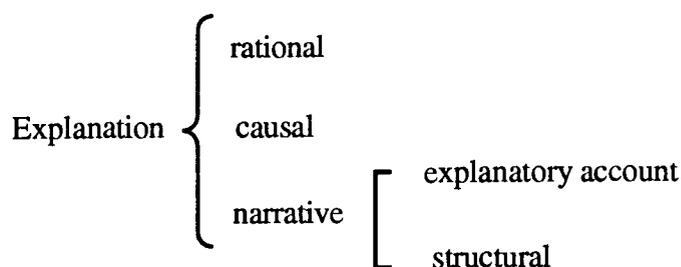
Explanatory modes were discussed in chapter 2. It is assumed that the *narrative mode - explanatory narrative* as defined by Gallie and Atkinson, or a *structural narrative* in the tradition of structuralism - is historically the prevailing practised mode of explanation. *Rational and causal modes* may be implied and intertwined in the narrative. The type of historical question will provide the clue for a rational or a causal oriented answer: why questions focusing upon the individual will tend to produce an explanation of a rational type; why questions - how-possibly type included - concerning broad events or states of affairs will tend to include external causes in the explanation.[1]

Why questions usually entail a factorial weighting: (a) a selection of conditions functioning as *contributory* (necessary or facilitating) factors of the occurrence, (b) among those conditions, a distinction of the *decisive* cause - that factor which makes the difference - by recourse to a comparison-situation (according to Martin's analysis), or due to specific value-judgements (according to Dray), and (c) an idea of interlinked factors.[2] The structural mode, while considering causal relationships through different durations of time, tends to consider *long-term* conditions (the structure) and *short-term* conditions (the conjuncture) as interacting with the surface events and actions.[3]

---

[1] For the meaning of external cause, see a definition based on Von Wright's conceptualization, in chapter 2, p. 48. The historical question employed in the main study, "why did the Portuguese manage to establish an empire in the Indian Ocean?", might be considered a how-possibly question. It suggests some perplexity about this occurrence, like the title given by Braudel (1985) in chapter 2, "The unexpected rise of Portugal - from Venice to Antwerp", pp. 138-57. For a philosophical discussion of a how-possibly question, see Dray and Von Wright's position, chapter 2 of this study, pp. 46-8.

[2] Notions of condition/cause will be employed according to Dray and Martin's analysis, as given in chapter 2, pp. 45-6, and in chapter 3, p. 78, respectively.

[3] See Lloyd's position in chapter 2, pp. 50-2. Structurists value the concept of social structure as a reality and advocate an interaction between structure and events/actions, while structuralists tend to view events/actions as conditioned by long-term factors.

Counterfactuals are often employed as arguments about the relative importance of causes, as McClelland, among others, claimed (see chapter 2, pp. 42-3).[4] They will be considered here as arguments to the best explanation and, particularly, as a relevant absent factor given in Pacey's explanation, and used in the main empirical study (see chapter 5, pp. 129-30).

A conceptual map of factorial weight in historical explanation is charted in Figure 7.2.

Figure 7.2 Factorial weight

```
                    ┌  ┌  decisive
                    │  └  contributory
                    │
                    │  ┌  positive
         Conditions ┤  └  negative (counterfactual)
                    │
                    │  ┌  short-term    }  structural
                    └  └  long-term     }  mode
```
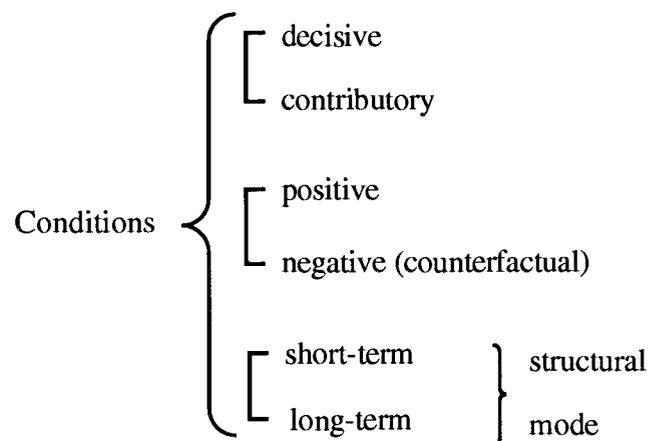
Assessing competing explanations

It is hypothesized that, nowadays, explanations are given and accepted as provisional answers to an historical question. That assumption does not entail that explanations cannot be discussed and assessed: historians usually apply some specific criteria about explanatory scope and power to justify their own, or favoured, explanations against other competing ones. The proposed conceptual network to chart the corresponding ideas is shown in Figure 7.3.

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[4] An overt use of counterfactuals in arguments about explanatory power is sometimes criticized as being pure speculation. Hawthorn (1991), among others, alluded to this criticism, remembering Carr's reference to "parlour-games with might-have-beens" (p. 1).

Figure 7.3 Explanatory scope and power

```
                                    ┌ Confirmation
                    ┌ Evidential ──┤
                    │               └ Non refutation
Explanatory        ┤
Consistency         │               ┌ Coherence
                    └ Logical ─────┤
                                    └ Plausibility
```
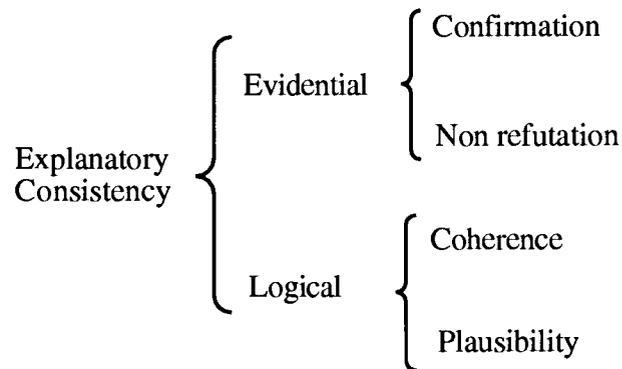
According to the assumption on ideas of provisionality in historical explanation (see chapter 3, pp. 79-81) the operational concept of criteria for assessment of explanatory scope and power applied in this study discriminates:

1. Evidential consistency, concerning the extent to which an explanation is accepted in the light of - or as consistent with - the evidence, through *confirmation* and *non-refutation*.

2. Logical consistency in terms of internal and external consistency: internal consistency or *coherence*, concerning the extent to which an explanation does not contain internal contradictions, and external consistency or *plausibility*, concerning the extent to which an explanation is consistent with knowledge of real or imagined events in the real world.

Concepts of *scope and power* may be related to ideas about the relative consistency (in terms of evidence and logic) of competing explanations. An explanation of a greater scope and power, involving a wider range and depth of questions which can be answered in the light of existing evidence might bring out new and fruitful perspectives on an historical issue. In relation to evidential consistency, not only can we try to "demonstrate" that a favoured explanation is well-supported, and not yet refuted by evidence, but we can also argue for the greater scope of that explanation due to its consistency with a greater variety of corroborating evidence. In relation to logical consistency, we can assess that a favoured explanation is coherent and plausible, but we can also argue for a greater logical power of that explanation because (a) it is of a greater scope; and (b) the causes emphasised appear to make the *explanandum* more probable.[5] It must be noticed that notions of evidential and logical consistency are interlocked with factorial weighting: arguments for and against competing explanations in the light of criteria of evidential and logical consistency (thus, at an epistemological level) necessarily

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[5] As it was pointed out in chapter 3, these two assumptions (a, b) entail two different views about explanatory assessment. McCullagh defended the view that explanatory adequacy can be assessed in terms of logically comparing their relative scope, only. Martin claimed that there are factual grounds for explanatory assessment: this is done by recourse to a comparison-situation which can show how a given *explanans* made the *explanandum* occur. Both approaches are kept as grounds for the empirical analysis.

imply a discussion about the relative causal weighting in those explanations (thus, at a substantive level). Also the notion of a *complete* explanation can be tied to explanatory power and scope. When an explanation entails the idea of logical adequacy, the most powerful can be seen as a complete explanation. When that explanation entails the idea of consistency with a greater variety of evidence (suggesting a larger explanatory scope), it may be seen as relatively more complete, although in this sense a genuine incompleteness must be recognised.

On objectivity and truth

The assumption that there are methodological criteria to assess objectivity in historical explanation does not entail a notion of absolute neutrality in the sense attributed by early positivists. The notion of methodological detachment - or *perspectiveful neutrality* - is distinguished from that of *perspectiveless neutrality*, the former entailing the recognition of perspective as a genuine feature of human knowledge. Concerning views about truth in historical knowledge, subjectivists and relativists tend to assume a *sceptical attitude* about the possibility of an epistemic access to reality; positivists and objectivists tend to assume a realist position presupposing that the real world can be known in some way. Critical realism presents several nuances: under that view, historical explanations can be seen as partial, probable or proximate to truth, according to different authors (see chapter 3, pp. 63-5). A system of those notions can be mapped as shown in Figure 7.4.

Figure 7.4 Objectivity and truth

Methodological Detachment
⌈ Perspectiveless Neutrality
⌊ Perspectiveful Neutrality

Truth
⌈ Scepticism
⌊ Realism ⌈ Partial
⊦ Probable
⌊ Proximate
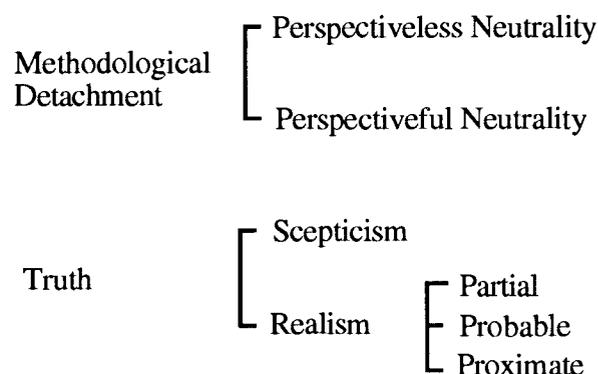
According to the system of ideas traced in chapter 3 and functioning as the theoretical framework on provisional historical explanation (see p. 81), connections between ideas about neutrality and about historical truth were mapped as shown in Figure 7.5.

Figure 7.5 Approaches to historical knowledge

perspectiveless neutrality

+   = Positivism

realism

perspectiveless neutrality

+   = Subjectivism

scepticism

perspectiveful neutrality

+   = Relativism

scepticism

perspectiveful neutrality

+   = Objectivism

realism

Methodological framework for data analysis

<u>About the validity of the questionnaire</u>

The questionnaire used in the main study - written items as well as the guidelines for the interview - was devised in order to map students' ideas about provisional historical explanation. Each question was designed to provide indicators of constructs in different contexts.[6] A range of questions allowed the study to trace students' ideas through:

1. Substantive constructions concerning: explanation (item 1.1), discrimination among versions (items 2.1, 2.2), selection of evidence and explanations (items 1.2, 3.1, 4.1);

2. Arguments about their substantive constructions: to clarify their own explanation (about 1.1, in the interview), to support their concrete choices (items 3.2, 3.3, 3.4), to find a limit to their choices (item 4.2);

3. A second-order reasoning about the production of historical explanations: reasons for differences among explanations (items 2.3, 2.4), the notion of completeness in explanation (item 4.3), notions of objectivity, truth and knowledge (items 4.4, 5.1, 5.2). The use of oral interviews (N=32) also permitted clarification of the meaning of those ambiguities which more overtly appeared in the written answers. However, this does not justify the assertion that a control of different competencies in written/oral language was made. It was assumed that adolescent pupils from their 7th year of schooling would show basic competencies in written/oral mother tongue in order broadly to communicate their ideas.

Each written and corresponding oral item was then assumed to provide indicators of specific constructs as shown in Figure 7.6.

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[6] As was discussed in chapter 1, pp. 19-20, the degree of abstractness of a task may influence the performance of both children and adults. As stressed by Donaldson (1978), when a situation makes human sense can be easily apprehended by children.

Figure 7.6 Written items as indicators of constructs

ITEM CONSTRUCT CONCEPTUAL CLUSTER
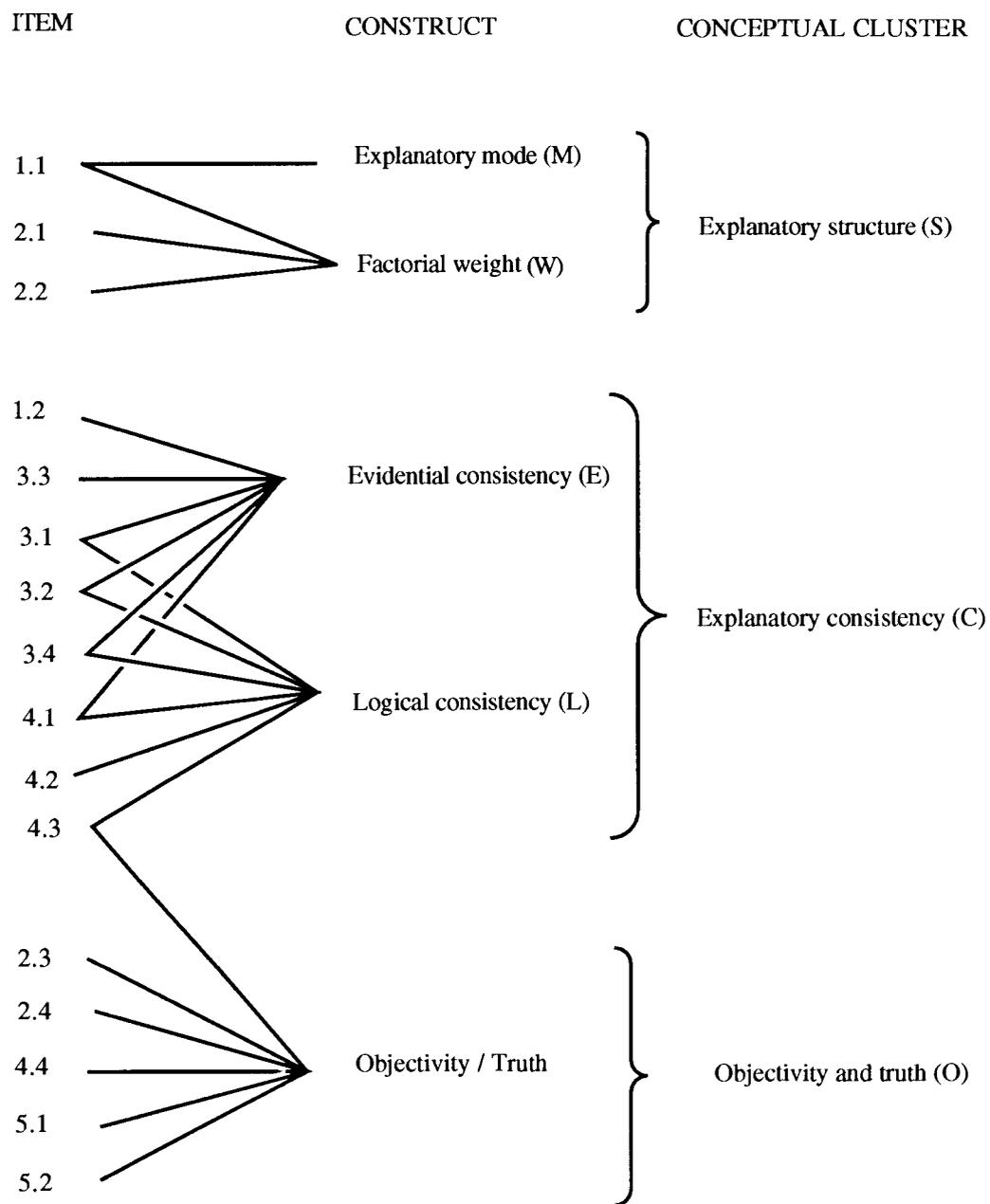
This correspondence was considered in a loose way, as it was observed that a student could produce ideas related to different constructs when answering a given item. As an example, answers to items 2.4 and 4.3 were in some cases considered as indicators of conceptual cluster C, other cases as indicators of conceptual cluster O. As a qualitative approach implying a cross-analysis for the interpretation of data was assumed *ab initio*, such an occurrence was not considered a threat for data analysis.

Data coding

The analysis of the main data began by coding responses following a systematic approach inspired in grounded theory, such as was made in the analysis of the pilot data (see chapter 6). The three types of coding (open, axial and selective, as defined in pp. 144-6) were covered through three main phases in the process of analysis. The coding of responses was systematically discussed with an experienced researcher (Peter Lee) in the field engaged on a project about pupils' ideas of historical understanding and explanation.[7]

(a) First-phase: scanning the written responses

In a first phase of analysis, responses to the written task (N=119) were scanned to look for significant passages related to ideas relevant to the study, in an open coding approach. Some individuals producing clear or creative answers, appearing to fall into different patterns of ideas, or appearing to be intriguing, were selected to be interviewed. Examples of those responses which were seen to be of interest to explore in the interview are given in the extensive discussion of single cases by level of progression (chapter 8). A few subjects among those which were selected could not be interviewed due to their absence from school while the interviews were conducted. The interviewed sample was N=32.

(b) Second-phase: in-depth analysis of responses

After the interviewing process, written and oral responses of the students interviewed were closely examined in the light of the conceptual framework in construction which was, then:

> Explanatory structure (S):
>> Explanatory mode (M)
>> Factorial weight (W)
> Explanatory consistency (C):
>> Evidential consistency (E)
>> Logical consistency (L)
> Objectivity and truth (O): Methodological detachment (D)

---

[7]As these ideas are new in the Portuguese educational setting, training people to do a reliability study would have been very arduous and time-consuming.

Firstly, for each subject, the 18 items (in the written task and in the corresponding passage of the interview) were analysed one by one, and significant ideas were transcribed into individual files. Those ideas took into account three kinds of verbal construction:

1. Linking words were registered in terms of indicators of explanatory structure (S) in related items. Expressions like *because, due to, thanks to* linked to facts, as opposed to a sequence of facts without those links, or clauses beginning by *since, then* were considered in the assessment of the explanatory structure.

2. Expressions appearing to indicate the main ideas about explanation and provisionality related to the framework in construction were registered. This was carried out still in a loose way, not exclusively tied to the constructs already defined.

3. Non-verbal expressions observed in the taped interviews were registered: some revealing hesitation (hmm..., long pause), perplexity (long pause, oral intonation), firmness (oral intonation), or satisfaction for answering a triggering question (laugh) were also registered.

A cross-analysis of the several ideas suggested by each student was then undertaken, trying to interpret the main concepts and attributes ascribed to them by testing some hypotheses about their responses. Main ideas were then summarized in order to find the major trends in responses given by each pupil. This prompted a process of reflection on the data which entailed asking questions about the meaning of each response and making comparisons among responses from different students. The "density" of the original conceptual framework was increased. The final version of this conceptual framework appeared as follows:

Explanatory structure: (cluster S)

        Explanatory mode (construct M)

        Factorial weight (construct W)

Explanatory consistency (relative scope and power) (cluster C)

        Evidential consistency (construct E)

            Use of information

            Evidence and explanation

      Logical consistency (construct L)

            Coherence

            Plausibility

Objectivity and truth (cluster O)

        Methodological detachment (construct D)

        Truth (construct T)

It must be noticed that, within the construct evidential consistency, two sub-constructs, use of information, and evidence and explanation, were clarified as described in pp. 183-4. Several levels in each construct were tentatively traced. In order to avoid confusion between these levels in constructs and broad logical levels of progression, the former were named *degrees* of sophistication. This type of analysis combining open and axial coding was carried out in order to get informal reliability of degrees suggested in the light of the observed data. The final version of the whole conceptual map of students' ideas, showing the conceptual clusters and their main constructs analysed in several degrees, is shown and discussed later in this chapter (pp. 181-6).

(c) Third-phase of analysis: categorization by level

A selective coding was undertaken together with the open/axial coding described above. Responses showing a similar pattern, so far as conceptual clusters are concerned, were grouped within the same level; when responses showed proximate patterns to a given level they were classified in that level, and new attributes suggested by those examples were integrated in that level. Chapter 8 and Appendix I may exemplify this procedure in the following way: students' responses appearing close to the ones extensively discussed in each level were categorized in the same level and constituted a basis for the reformulation of the model generated after the pilot. When considering a range of patterns which did not fall immediately within the levels constructed, the model was then modified to integrate the several proximate patterns, as in the examples which are briefly discussed following the extensive analysis of one case in each level. Thus, the conceptualization of each level gained a wider scope.

During this process, the selection of some constructs like those concerning explanatory consistency (E), thought of as relevant for purposes of building a logical progression in ideas about PHE, overshadowed other concepts initially emphasised, such as trends towards objectivism or relativism. Trends towards either objectivism or relativism appeared to run in parallel through a progression in ideas about PHE. The construction of levels, therefore, did not take into account an oscillation between these two trends.

After a categorization based upon the analysis of the 32 responses, a categorization of the whole sample was tried by analysing the 119 written tasks. Some responses appeared to be easily categorized; others obliged slight adjustment in the formulation of dimensions in the constructs and thus, in the model of levels of progression. A few responses remained objects of perplexity due to paucity (scarcity of ideas produced) or ambiguity (a great oscillation in concepts) of the data. They were finally integrated in the level to

which they appeared most closely to approximate. An example which provoked some perplexity is discussed in Appendix 1, pp. 374-7.

A conceptual map of students' ideas about PHE

Students' ideas were thus analysed in the light of the theoretical framework formerly discussed. This analysis also took into account the previous research about children and adolescents' ideas of history and on personal constructs as discussed in chapter 1.

From the pilot analysis (P1 to P4) to the analysis of the main data (F), a conceptual map on students' ideas was progressively elaborated, aiming to highlight specific levels and patterns of thinking. Level here means logical level of progression as discussed in chapter 1. Pattern means a type of thinking implying a set of constructs - it might equate a level, but it may exemplify some variation within each level. Degree (of sophistication) means level within each construct.

The final conceptual map of students' ideas about PHE is given in Figure 7.7.

Figure 7.7 Conceptual map of students' ideas about PHE

Explanatory structure (S)

```
                            ┌─ Fragmented statements
              ┌─ Description │
              │             └─ Complete story
Explanatory mode (M)
              │             ┌─ Restricted
              │             │
              └─ Explanation ├─ Causal / Rational
                            │
                            └─ Narrative (Account/Structurist)


              ┌─ Facts       ┌─ Isolated facts
              │             │
              │             └─ Antecedent steps
Factorial weight (W)
              │             ┌─ Implicit
              │             │
              └─ Conditions │           ┌─ Sum        ┌─ Decisive/Contributory
                            └─ Explicit  │            │
                                        └─ Hierarchy └─ Interlinked
```

Explanatory consistency (scope and power) (C)

Evidential (E)
- Use of information
  - Fragmented
  - Familiar knowledge
    - Emphasised
    - Articulated
  - New information
    - Quoted
    - Ignored
    - Integrated
- Evidence/Explanation
  - Facts
  - Proofs/Facts
  - More facts, sources/Factors
  - Data/Factorial verification
  - Factorial confirmation, Refutation

Logical (L)
- Coherence
  - Restricted
  - Implicit
  - Asserted
- Plausibility
  - Perplexity
  - Preempted
  - Everyday
  - Historical context
  - Comparison-situation

Objectivity and truth (O)

Detachment (D)
- Absence
- Truth
- Aggregationism
- Neutrality
- Perspective

Truth (T)
- Realism
  - Naive
  - Critical
    - Positivism
    - Objectivism
- Scepticism
  - Naive
  - Critical
    - Subjectivism
    - Relativism

The first network set, related to S, was analysed in two main interrelated constructs: (a) the explanatory mode (construct M) underlying students' ideas, and (b) factorial weight (construct W) concerning the relative importance of factors assigned by students. Several degrees within those two constructs are suggested.

Construct M may appear with different degrees expressed by the Bar: degree (1) involves a mere collection of fragmented statements lacking coherence; degree (2) relates to an account composed of a succession of steps, and to an implicit notion of a factor occasionally appearing as intentions in actions described;[8] degree (3) conveys an incipient rational/causal explanation oscillating with description; degree (4) implies a clear explanatory level (the rational and causal modes appear combined); degree (5) involves a more elaborate explanation, a narrative with interlinked motives and external conditions being given (it might express long-term and short-term conditions).

Accordingly, construct W may be categorized at different degrees too: degree (1) consists of the notion of facts seen *per se*, without a logical connection; degree (2) involves a focus on antecedent facts in a complete story; degree (3) implies an oscillation between fact and factor, factor being often incoherently stated; degree (4) relates to a set of conditions considered together, in a sum; degree (5) considers factors in a hierarchical scale between decisive and contributory conditions; degree (6) relates to a hierarchy of interlinked factors.

The students' approaches to assessment of competing explanations, so far as relative scope and power is concerned, was analysed in two main constructs: evidential consistency (E) considered in terms of use of information, and evidence and explanation; logical consistency (L) considered in terms of notions of coherence, and plausibility. Notions of evidential and logical consistency are used in the sense discussed in this chapter (pp. 172-3). Evidential consistency (E) is the extent to which an explanation is accepted in the light of *the* evidence. Coherence is the extent to which an explanation does not contain internal contradictions. Plausibility is the extent to which an explanation is consistent with knowledge of real or imagined events in the real world.

---

[8]This level suggests the model of the continuous series discussed by Dray (1964a), when "the course of events by which the occurrence came about" is traced (p. 68). A reference about this model was made in chapter 2, p. 46.

Within construct E, the notion *use of information* was generated as a result of a need to consider the general attitude towards the evidential scope on which explanatory hypotheses are based. An open-minded attitude leading to consider various information, the less familiar material included, is required to make adequate decisions about historical explanations. It is suggested that students may show such an attitude at different degrees of sophistication. Degree (1) involves a fragmented use of information revealing logical inconsistency, a meaningful discussion of hypotheses being not apparent; degree (2) implies the use of familiar information in a stereotyped or emphasised way (i.e., new information may be quoted, but is largely ignored in argumentative discussion); degree (3) involves the articulation of familiar information with fresh data, the latter being rejected or accepted as a consequence of some logical argumentation.[9]

A crucial notion related to construct E (evidential consistency), that of *evidence and explanation*, may be considered along the following degrees: degree (1) when the referent *fact* is related to descriptions with no signs of being a basis for an explanation, or a preempted assertion is produced (i.e., statements concerning explanatory justification are tautological or meaningless); degree (2) when attention is concentrated on the distinction between proved/non-proved facts, yet tied to true descriptions; degree (3) when a discrimination between fact and factor, source and explanation, is apparent (although factors are still seen as the true factors); degree (4) when sources are seen as providing data for verifying explanations; degree (5) when emergent notions of confirmation and refutation occur, although remaining in conflict with the notion of a tight verification.

Logical consistency may be discussed in terms of coherence and plausibility. The notion of coherence must be analysed through implicit assumptions in arguments rather than through overt expressions, which are rarely produced: (1) a restricted coherence is postulated when most of the arguments appear illogical in terms of explanatory connections; (2) an implicit coherence is postulated when a logical argumentation is assumed and, in some cases, argumentation explicitly makes use of a comparison of factors, in terms of the logic of actions.[10]

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[9] The main constructs analysed in *use of information* were taken from the theory of personal constructs as discussed in chapter 1, pp. 32-4.

[10] Such an assumption about students' ideas coheres with Martin's analysis of historical arguments on logical grounds about competing explanations. See Martin, (1989), pp. 42-43.

Plausibility may appear at different degrees of sophistication: (1) tied to an attitude of perplexity about issues proposed; (2) in a preempted way, when factors seem to be selected in terms of a broad logic but not justified;[11] (3) as everyday assumptions, if factors selected are justified in the light of common-sense statements; (4) in the historical context, if factors are discussed by recourse to concrete features of the past situation in which they are integrated; (5) by a comparison-situation, if argumentative discussion refers to other historical situations.[12] Responses from the level of common-sense assumptions up to more sophisticated ideas may all integrate some forms of counterfactual reasoning.

Notions of completeness may refer to evidential or logical consistency, and thus are also related to notions of relative scope and power in historical explanation (see theoretical discussion in chapter 3, and examples in chapter 8).

Ideas concerning the issue of objectivity in historical explanation and access to truth in history are suggested by students in different degrees. This conceptual cluster was discriminated in two main constructs: methodological detachment, which was considered a crucial indicator of ideas about the validity of historical conclusions, and truth, seen as providing markers of objectivist versus relativist trends concerning historical knowledge.

Methodological detachment was categorized along several degrees: (1) absence, when ideas are centred on description of substantive facts, often in a fragmented way and the issue of objectivity does not appear; (2) truth, when a concern for the truth begins to be related to explanation (a good explanation is the true explanation) and the notion of personal opinion may appear in a preempted form; (3) aggregationism, when the existence of different facts and different opinions is asserted and the sum of factors or explanations is advocated - a good explanation is a large explanation; (4) neutrality, when the major concern appears to be a neutral attitude in historical production, controlling for personal assumptions seen as negative interferences - a good explanation (if it exists) is a neutral or consensual explanation; (5) perspectiveful neutrality, when the notion of point of view is recognised within the idea of neutrality - although with oscillations between this idea and that of a perspectiveless neutrality. A good explanation tends to be more coherently a valid explanation.

---

[11] These degrees were inspired in the literature on pupils' ideas in history and in construct theory (see chapter 1).

[12] This factual criterion defended by Martin and based on what he claims to be the basic idea of a "consensus account" (1989, p. 59) seemed to emerge in Filipa' s responses (see chapter 8, p. 243).

The construct *truth* is related to how the access to knowledge of the past is viewed. Two opposed trends are considered: (a) realism, which accepts an epistemic access to past reality; (b) scepticism, which tends to deny the possibility of knowing the past. Different degrees of sophistication may occur in each of these two trends: (1) naive, when both trends are simultaneously affirmed, but contradicting each other (e.g., "facts existed and they can be discovered", "past facts are gone forever, and only those who saw or lived them can know them"); critical, when a position is coherently defended on grounds of (2) a perspectiveless neutrality (positivism or subjectivism), or of (3) an emergent perspectiveful neutrality (objectivism or relativism).

The conceptual map discussed above provided a basis for tracing a progression through five levels of clustered ideas in the light of students' responses. These will be given next.

Levels of progression

The interrelationship of specific degrees of the several constructs suggested by data analysis led to a main categorization of students' ideas about PHE by levels of progression. A straightforward summary of each level is given, followed by the conceptual map applied to that level. The relations between these levels of progression and previous research on pupils' ideas, are made explicit in the "Final reflections" on the main working hypothesis (see chapter 10).

Level 1 - THE STORY

Explanations are mainly construed as the story to be narrated according to what happened, but a restricted explanatory mode may be apparent as well. A major concern for *substantive information* is suggested and any second-order reasoning, when it emerges, is related to description rather than to explanation.

The overall pattern of responses in general is related to a descriptive mode, thinking being oriented towards what happened and how it happened. Antecedent steps are integrated in a story which can have a beginning, a development and a conclusion, and the logic of the why-type answer, when it emerges, is diluted; some tautologies and an absence of discrimination between cause and consequence may be observed. At one extreme pole of the responses, pieces of information are quoted as facts without a correspondence to causal relations, within a meaningless account. At the other pole, a restricted explanatory structure emerges implying an occasional and implicit notion of factor entangled in the story.

Assessment of "explanations" in terms of consistency and objectivity may take two forms: when the explanation is understood as just a story, it is the factual description which is assessed - the focus for argumentation is on what happened, and only formal differences between them may be considered; when a restricted explanatory structure is suggested, explanations are assessed in a preempted way, and arguments about objectivity remain related to description.[13]

A conceptual map corresponding to this level of ideas may be traced as follows in Figure 7.8.

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[13]The meaning of a *preempted* notion is borrowed from the theory of personal constructs, as described in chapter 1.

Figure 7.8 Conceptual map of Level 1

Explanatory structure

M
- Description
  - Fragmented statements
  - Complete story
- Restricted explanation

W
- Isolated facts
- Antecedent steps
- Implicit factors
} Description

Explanatory consistency

E
- Use of information
  - Fragmented
  - Familiar knowledge
  - New Information quoted
    - Emphasised
    - Articulated
- Evidence/explanation
  - Facts
  - Proofs/Facts   -> Description

L
- Coherence
  - Restricted
  - Implicit
- Plausibility
  - Perplexity
  - Preempted

Objectivity

D
- Absence   -> Restricted explanation
- Truth   -> Description

T
- Naive Realism
- Naive Scepticism

M = Explanatory mode
W = Factorial weight
E = Evidential consistency

L = Logical consistency
D = Methodological detachment
T = Truth

Level 2 - THE RIGHT EXPLANATION

Explanations - or descriptions, as these concepts may be not clearly distinct - are considered right if proved by real facts. The major concern is about *the most correct explanation* instead of description of the story as in the previous level. Different historical explanations tend to be considered non-proved explanations by contrast with those produced by witnesses/agents, since the former are based on facts not directly experienced (by observation or memory).[14]

The idea of explanation may be tentatively grasped, that is, with oscillations between a descriptive and an explanatory structure. Explanation may be constructed through a temporal step-by-step story (a continuous-series explanation) in which dispositions and motives are given, or through a set of a few, usually familiar factors, under a rational and/or a causal mode. Factors tend to be weighed in a tight mode, the discussion about them being centred on some specific condition.[15] Thus, competing explanations are assessed according to the preference manifested towards some factors. Consistency with evidence is appealed to at the level of common-sense assumptions of "true facts" functioning as proofs, and some specific historical terms related to evidence are employed. Criteria of plausibility begin to be used in everyday terms.

An oscillation between realism (there is a truth to be attained, thus there is a correct answer) and scepticism (the past is gone, a witness or agent would give the right explanation) is often observed. Competing historical explanations tend to be considered unproved explanations as they are based on facts not directly perceived.

Figure 7.9 shows a conceptual map corresponding to these ideas.

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[14]Preliminary work of the "Chata Project" also suggests that many children test explanations by reference to the truth/falsity of components.

[15]The meaning of tight versus loose is borrowed from the theory of personal constructs (see chapter 1, p. 32).

Figure 7.9 Conceptual map of Level 2

Explanatory structure

M
- Restricted Explanation
- Explanation -> Causal/Rational

W
- Antecedent steps
- Implicit factors } Restricted explanation
- Single
- Set
  - Sum
  - Hierarchy (Decisive/contributory) } Explanation

Explanatory consistency

E
- Use of information
  - Familiar knowledge -> Emphasised
  - New information
    - Ignored
    - Articulated
- Evidence/explanation   ->   Proofs/Facts

L
- Coherence
  - Restricted
  - Implicit
- Plausibility
  - Preempted
  - Everyday

Objectivity

D   ->   Truth

T
- Naive Realism
- Naive Scepticism

M = Explanatory mode	L = Logical consistency
W = Factorial weight	D = Methodological detachment
E = Evidential consistency	T = Truth

Level 3 - THE MORE FACTORS THE BETTER

Students operate with the concept of explanation. Ideas of evidential consistency and plausibility are discussed as related to explanation, and the provisional nature of explanation emerges, mainly related to the notion of *quantity of factors*.

Explanation may be construed under several modes (rational and causal, or narrative). Historical explanation integrates available evidence and previous knowledge by adding together various connections, which might correspond to a meaningful set of conditions, including counterfactuals, organized in a hierarchical order of importance. Antecedent steps may be added, and sometimes preferred to those conditions for explaining the occurrence. Although some confusion between fact and factor may appear, "real facts" are considered as factors of the occurrence. All factors are seen as necessary to explain the situation, as a mere sum, or as an interrelationship.[16] In the assessment of several explanations criteria of consistency with evidence (sources are viewed as evidence for explanations) and plausibility (at everyday level) are applied. There is a tendency to overlap the notion of evidence for an explanation with different facts/factors to be discovered, or to be selected according to each point of view. Hence there can exist more or less complete explanations.

Under this broad pattern, students' constructs oscillate between two trends, expressing a realist image of history growing up in quantity by adding all contributions but, at the same time, suggesting a sceptical concern for uncertainty about the past gone forever. The agent's perspective tends to be over-valued, revealing a persistence of the memory paradigm.

Figure 7.10 shows a conceptual map corresponding to these ideas.

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[16]As the major focus of this model is provisionality in historical explanation, two different degrees of factorial weight - a sum or an interlinking of factors - may be observed within this level of progression.

Figure 7.10 Conceptual map of Level 3

Explanatory structure

M -> Explanation ⌈ Restricted
                  ⊢ Causal/Rational
                  ⌊ Narrative

W
    { Antecedent steps } Restricted explanation
    { Implicit factors }

    Set ⌈ Sum
        ⌊ Hierarchy { Decisive/contributory
                         { Interlinked

Explanatory consistency

E
   Use of information { Familiar knowledge -> Integrated
                      { New information { Quoted
                                        { Integrated

   Evidence/Explanation ⌈ More facts/Factors
                          ⌊ More sources/Factors

L
   Coherence ⌈ Implicit
               ⌊ Asserted

   Plausibility ⌈ Preempted
                ⌊ Everyday

Objectivity

                                        ⌈ Naive realism
D   -> Aggregationism   T {
                                        ⌊ Naive scepticism

M = Explanatory mode	L = Logical consistency
W = Factorial weight	D = Methodological detachment
E = Evidential consistency	T = Truth

Level 4 - A CONSENSUAL EXPLANATION?

The concept of provisional explanation remains linked to the ideal of a multi-causal explanation to grasp the total past, and more elaborate ideas are developed in relation to the concept of *neutrality*.

Historical explanation is construed in a causal or a narrative pattern integrating the familiar knowledge and evidence available. The understanding of a complex reality is concerned with bringing out several, interlinked causes: this approach emphasises the criterion of interlinked factors, and sometimes a distinction between quantity of mere facts (related to description) and factors (related to explanation) is not made clear. Factors can be selected under a causal hierarchy but their conjunction is preferred. Explanations are assessed under criteria of evidential consistency and plausibility. Consistency with evidence tends to be understood at the level of verification, that is, in terms of proofs. The existence of different explanations from different points of view is clearly recognised, but a perspectiveless neutrality is also emphasised as an ideal which can be fulfilled or not.

Two trends emerge:

1. Through a confident positivism, some students claim that factors must be discovered by applying an absolute neutrality. They tend to ignore or reject counterfactuals as mere hypotheses which did not really occur. The existing documentation explored by the addition of new techniques and new tools makes the historian's craft a worthy task when trying to explain (fully?) the past. With this assumption, memory and direct observation cease to be valued over recent historical work. Perspective is recognised but not admitted as a valid criterion for an historical explanation. As a consequence of this view, the search for a consensus is considered as a necessary and reachable aspiration in history. At the tightest pole of this spectrum, a definitive and final conclusion is defended as *the explanation.*

2. Following a subjectivist line, some students stress that all the true factors cannot be reachable, since *a point of view is inescapable*, and limits ways of looking at reality. As historical explanations are relative to personal or cultural presuppositions, the direct observation paradigm may offer a better means of partially controlling for neutrality, and reducing subjective interference.[17] Figure 7.11 shows the corresponding conceptual map.

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[17]The view of a consensual explanation appears in the line of a position assumed by some philosophers of history. Rubinoff (1991) advocated a point of view convergence as an ideal for historical objectivity, while Dray (1991), defended perspectivism. See chapter 3 in this study, p. 69.

Figure 7.11 Conceptual map of Level 4

Explanatory structure

M -> Explanation   ⎡ Causal/Rational
                     ⎣ Narrative

W -> Set   ⎡ Sum
             ⎣ Hierarchy   ⎧ Decisive/contributory
                           ⎩ Interlinked

Explanatory consistency

E   ⎧ Use of information   ⎧ Familiar knowledge -> Integrated
    ⎨   ⎨ New information   ⎧ Ignored
    ⎩ Evidence/Explanation ⎩   ⎩ Integrated
                           ⎧ Data/explanation
                           ⎩ Verification/explanation

L   ⎧ Coherence   ⎡ Implicit
    ⎨   ⎣ Asserted
    ⎩ Plausibility   ⎡ Everyday
                     ⎣ Historical context

Objectivity

D   -> Neutrality -> Perspectiveless   T   ⎡ Positivism
                                                 ⎣ Subjectivism

M = Explanatory mode   L = Logical consistency

W = Factorial weight   D = Methodological detachment

E = Evidential consistency   T = Truth

Level 5 - PERSPECTIVE

Historical explanations are considered under specific methodological criteria pointing to ideas connected with confirmation and refutation as well as plausibility in relation to the historical context. Such criteria are applied to assess the explanatory consistency of competing explanations. The idea of *perspectiveful neutrality* tentatively emerges, still conflicting with the idea of a perspectiveless neutrality.

Historical explanation is coherently constructed in a causal or a narrative pattern, and grounded on a selection of previous knowledge and available evidence. Causal connections are hierarchically established but all conditions are frequently considered as necessary to explain the occurrence. Ideas of valuing more and interlinked factors remain. Explanations can be assessed by using criteria of evidential consistency and plausibility. Evidential consistency can be discussed under notions of confirmation and refutation, although a move to a tighter idea of verification occurs.[18] By applying such methodological criteria, the idea of perspective begins to be recognised as an historical feature, although alternating with the ideal of perspectiveless neutrality. Perspective can also be related to ideas of contingency of knowledge. Those criteria bring a more critical and grounded view to the notion of objectivity than in previous levels, even when an oscillation between objectivism and relativism appears.

Figure 7.12 shows a conceptual map corresponding to these ideas.

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[18]As Figure 7.7 (p. 182) shows, it is assumed that notions of confirmation/refutation linked to explanatory consistency are of a higher degree than those of verification connected with an idea of evidential proof.

Figure 7.12 Conceptual map of Level 5

Explanatory structure
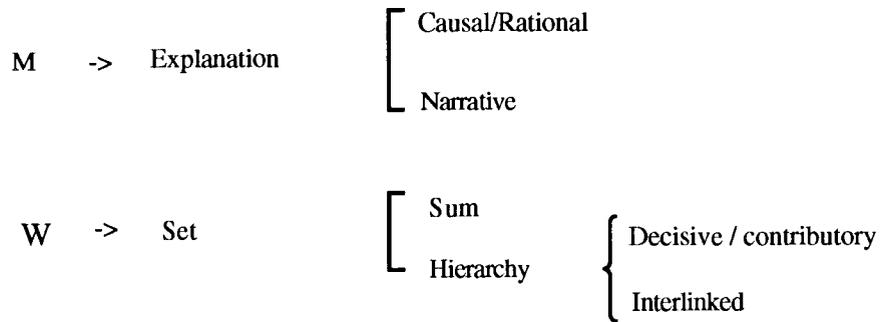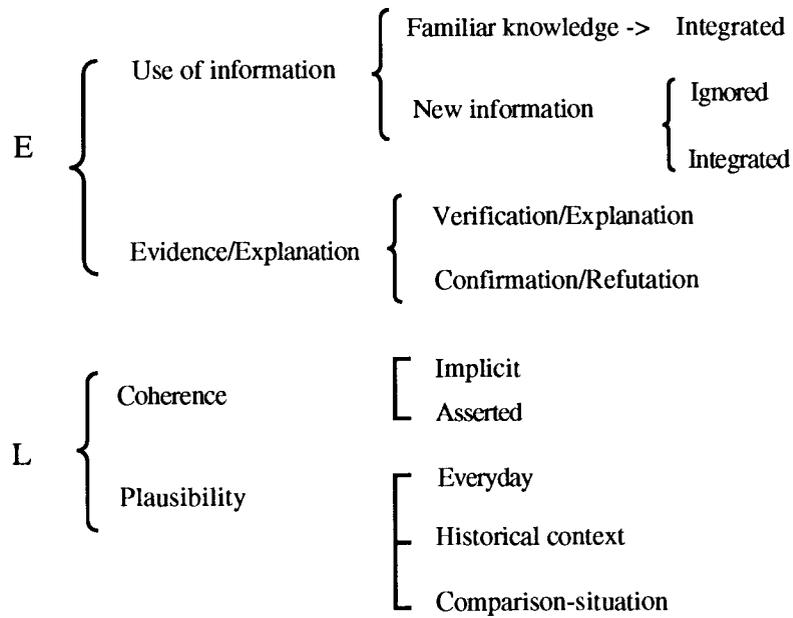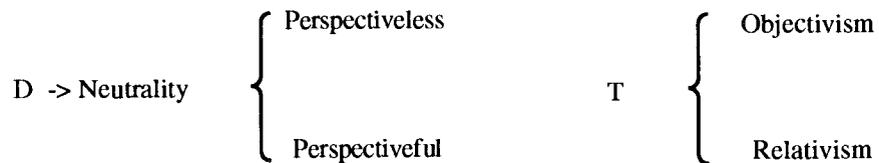
M   ->   Explanation
⎡ Causal/Rational
⎣ Narrative

W   ->   Set
⎡ Sum
⎣ Hierarchy ⎰ Decisive / contributory
            ⎱ Interlinked

Explanatory consistency

E ⎰
  ⎱
Use of information ⎰ Familiar knowledge -> Integrated
                   ⎱ New information ⎰ Ignored
                                     ⎱ Integrated

Evidence/Explanation ⎰ Verification/Explanation
                     ⎱ Confirmation/Refutation

L ⎰
  ⎱
Coherence ⎡ Implicit
          ⎣ Asserted

Plausibility ⎡ Everyday
             ⊢ Historical context
             ⎣ Comparison-situation

Objectivity

D -> Neutrality ⎰ Perspectiveless
                ⎱ Perspectiveful

T ⎰ Objectivism
  ⎱ Relativism

M = Explanatory mode   L = Logical consistency

W = Factorial weight   D = Methodological detachment

E = Evidential consistency   T = Truth

Summary

This chapter presented the model used in the analysis of students' ideas of provisional historical explanation. It functions as the main working hypothesis in this empirical study. Firstly, the main theoretical concepts were mapped in a system of conceptual clusters and constructs within them, in the light of a philosophical background discussed in chapters 2 and 3. Those concepts were: explanatory structure, in terms of explanatory mode and factorial weight; explanatory assessment, in terms of evidential and logical consistency (this conceptual cluster being tied to ideas of explanatory scope, power and completeness); and, objectivity and truth, in terms of methodological detachment and access to truth. Secondly, this chapter described the methodological framework used in the process of making sense of students' ideas about the constructs defined. Thirdly, students' ideas were traced in a conceptual map showing different degrees of sophistication within each construct. And, last, five levels of progression, (1) the story, (2) the right explanation, (3) the more factors the better, (4) a consensual explanation?, and (5) perspective, were presented in a descriptive summary, each one followed by a corresponding conceptual map of ideas.

8 Students' ideas about provisional historical explanation

This chapter presents a qualitative analysis of data by illustrating each level of progression in ideas about PHE. For each level, an example of students' responses is discussed in detail. Following this analysis, the evolution of the model of students' ideas about PHE, from the pilots to the final study, is schematically presented. This model constitutes the main working hypothesis of the empirical study.

Presentation of students' responses

Students' responses were categorized through five levels of ideas about the concept of provisional historical explanation, according to the model described in the previous chapter. The conceptual map of students' ideas about PHE (see Figure 7.7, pp. 181-2), and the conceptual maps by level (see Figures 7.8 - 7.12, pp. 188-96) respectively, are intended to synthesize students' ideas in general, and to portray students' ideas about PHE, by level. A synthesis of the main characteristics of each level is given before the extensive analysis of one example illustrating each level of progression. Other examples, suggesting a range of patterns within each level of progression, are given in Appendix I. All the examples were taken from the subsample interviewed after the written task. The written responses and oral interviews were thus analysed in order to provide indicators of the following conceptual clusters and related constructs:

Explanatory structure: (cluster S)

      Explanatory mode (M)

      Factorial weight (W)

Explanatory consistency (scope and power) (cluster C)

      Evidential consistency (E): Use of information

                      Evidence and explanation

      Logical consistency (L): Coherence

                      Plausibility

Objectivity and truth (cluster O)

      Methodological detachment (D)

      Truth (T)

The rules below were followed in the discussion of students' responses:

1. The first item quoted from the written responses of each student corresponds to her or his own explanation to the question, "why did the Portuguese manage to establish a maritime empire in the Indian Ocean during the sixteenth century?". All the other quotations from written responses are given after the item number of the written task.

2. Expressions underlined in students' work give indicators of the explanatory mode. Expressions in italics convey either (a) substantive factors or facts, when the explanatory structure (S) is under discussion, or (b) indicators of the degree of sophistication of constructs related to explanatory consistency (C), or objectivity and truth (O). A brief utterance considered highly significant as a whole is given in plain text.

3. Passages of interviews begin by an abbreviated letter indicating the speaker: *I* means interviewer; any other letter corresponds to the subject interviewed. Complete protocols of two interviews whose excerpts were selected for the extensive analysis in this chapter may be read in full in Appendix H.

4. Quotations from students' interviews are given in a simplified form. The symbol ... denotes a period of silence from the speaker. Repetitions and expressions showing hesitation (like *hmm...*) were eliminated in order to make them easier to read. When exceptions to this rule occur, they mean a longer moment of hesitation. The symbol [...] denotes that a sequence of speech has been removed.

Analysis of one example illustrating Level 1[1]

Level 1 - THE STORY

Explanations are mainly construed as the story to be narrated according to what happened, but a restricted explanatory mode may be apparent as well. A major concern for *substantive information* is suggested and any second-order reasoning, when it emerges, is related to description rather than to explanation.

The overall pattern of responses in general is related to a descriptive mode, thinking being oriented towards what happened and how it happened. Antecedent steps are integrated in a story which can have a beginning, a development and a conclusion, and the logic of the why-type answer, when it emerges, is diluted; some tautologies and an absence of discrimination between cause and consequence may be observed. At one extreme pole of the responses, pieces of information are quoted as facts without a correspondence to causal relations, within a meaningless account. At the other pole, a restricted explanatory structure emerges implying an occasional and implicit notion of factor entangled in the story.

Assessment of "explanations" in terms of consistency and objectivity may take two forms: when the explanation is understood as just a story, it is the factual description which is assessed - the focus for argumentation is on what happened, and only formal differences between them may be considered; when a restricted explanatory structure is suggested, explanations are assessed in a preempted way, and arguments about objectivity remain related to description.

Cláudia, 12 years old, 7th grade:

Explanatory structure

(a) Explanatory mode

Cláudia constructs a story about the Portuguese domination of the Indian Ocean:

> In 1488 Bartolomeu Dias rounded *the Cape of Good Hope* giving the chance to Vasco da Gama to reach *India* through the Indian Ocean, they settled there *controlling all the people* who were their worst enemies, *managing to settle* there and *conquering* other people *to trade* in the Indian Ocean *and also conquering the main ports* where *the spice trade* was done thus leaving the *"door open"* (to the Europeans) in the Indian Ocean.

---

[1]The rules followed in the presentation of this analysis are given on the previous page.

She narrates rather than explains the occurrence by selecting some antecedent steps (the rounding of the Cape, the Vasco da Gama trip to India) and by describing some features of that event (settlement, conquest of people and ports related to the spice trade) in a coherent whole. The story can be seen as logically complete in the sense that it has a beginning (the rounding of the Cape), a development (actions linked to the domination) and a conclusion (thus leaving the "door open" to the Europeans).[2] However, some tautological phrasing is used in connection with the idea of domination ("they settled there controlling all the people who were their worst enemies, managing to settle there and conquering other people"). Some elements of the versions given - conveying consequences of the occurrence too - are directly transferred to her story ("controlling the other people...conquering the main ports", from version D; "leaving the 'door open' to the Europeans", from version B). In the interview, she begins to narrate the same story, quoting her written response. At some point she is interrupted by the interviewer in order to clarify the meaning of "controlling the other people" and to assess whether that quotation was understood, or was just a preempted assertion taken from version D:

> I: You mentioned that they managed to control the other people who were their main enemies. Who were those people?
>
> C: They were the Moslems and the Turks and the Egyptians and the Indians... Then they settled there and they conquered the main ports where the spice trade was done and afterwards the Moslems "opened the doors" to the Europeans.

The main features of the occurrence of the Portuguese domination seem to be grasped, although evidence about relations among different people in Asia appear to be misunderstood. Cláudia's account of what happened and how it happened indicates a descriptive mode, showing logical coherence within that mode.

---

[2]The construction of a story as an explanation can be considered as the model of the continuous series (discussed by Dray, and referred to in this study in chapter 2, p. 46) if it has a coherent set of antecedent steps (see also footnote 8 in chapter 7, p. 183). Shemilt (1983) also inspired this specific categorization (see chapter 1, pp. 25-6, in this study). At this level of progression, antecedent facts may present a restricted logical coherence with the *explanandum*.

(b) Factorial weight

Cláudia seems to operate at the level of description. She selects and reasons about facts rather than factors. Her written answers on differences between versions may illustrate this descriptive structure:

> 2.1. In [version] A the Portuguese met their worst enemies and C describes the conquest of the Indian Empire in a short time.
>
> Version B describes the decision of the "open door" to the whole Indian Ocean and D [describes] the Portuguese arrival to India under the command of Vasco da Gama and the Portuguese controlling the spice route and forbidding the other people to trade.
>
> 2.2. In B they are enemies and in C they agree about the settlement of the Portuguese in their lands.

Facts are picked up from versions available, their correspondence to meaningful factors not being made apparent. The central idea of description, quoting some facts from the different versions, appears again when she gives her preferred choice from the set of explanations offered:

> 3.1. [Versions ranking] D - A - C: B
>
> 3.2. [Version ranked 1st explains more than 2nd] Firstly, it describes the challenge openly [against?] the Moslem domain and fighting the Moslem faith. And secondly, the opening of lands to the Portuguese by people.

Her reasoning is centred on facts selected from the versions given and isolated from the whole context. The notion of factor is not apparent.

Explanatory consistency

(a) Evidential consistency
> Use of information

Cláudia uses familiar knowledge and fresh evidence to give an account of the occurrence. Pieces of information are quoted with a coherent meaning, but sometimes those statements seem to be misinterpreted and picked up in a fragmented way, for example, when in her written answer she compares versions D and A, ranked first and second, respectively (see her previous responses to 3.2). Such vague or even meaningless

statements might be due to difficulties in written expression, since she managed to clarify this idea a little better in the interview, although continuing to apply a descriptive logic:

> I: In what respects do you consider version D better than A? Can you explain it better, because I didn't understand it very well...
>
> C: Version D says that *the Portuguese were discovering the maritime route to India, conquering ...* and in version A it was *the Moslem challenge against the Portuguese,* that is, against their main enemies, the Moslems.

In this excerpt, she can summarize version D according to familiar knowledge (the maritime trip to India) but she reduces version A to an expression taken from version B (the Moslem challenge). Her several answers suggest that she inconsistently uses fresh information, sometimes logically quoted, sometimes in a fragmented way.

Evidence and explanation:

When Cláudia is asked to justify her own version by reference to a set of statements related to the sources given (item 1.2), she selects the following:[3]

OWN STORY	STATEMENTS SELECTED
Rounding of the Cape	1. The Portuguese wished to fight the Moslems
Trip to India	4. The Portuguese were morally superior
Settlement/control of I. Ocean	5. The spice trade was very profitable
Conquest of spice ports	7. Portuguese ships were well-armed
"Door open" to the Europeans	

The selected statements were those fitting her own version. A concern about the logic of her story seems to make her select a set of statements which might function as a justification in terms of dispositions and motives (statements 1, 4, 5), and an external condition of the events she described (statement 7). An incipient explanatory pattern might be implicit here, in terms of reasons for actions. In the interview, she justifies her selection with the traditional motives (Christians and spices) and conditions (equipment) of those actions which she integrates to produce her version, from the Cape to the control of the Indian Ocean:

---

[3]Facts given in this scheme of Cláudia's story were taken from her account.

C: [I chose these statements] because the Portuguese *wished Christians* to go there, to conquer *spices* because India was very rich, and they went *well-armed* because they had to do a long voyage, and the Portuguese were usually *superior...*

I: And in what sense were the Portuguese superior to others?

C: They liked to ... the kings liked to ... I can't explain this well ... they liked ... they liked .... hmm ...

I: To dominate?

C: Yes, they do ...

I: And why didn't you choose the other statements?

C: Because they are also interesting but I found these *more interesting*.

I: More interesting concerning what?

C: Concerning my response.

Here, in order to progress through the dialogue, the interviewer intervened in the clarification of ideas about the Portuguese superiority, perhaps invalidating the student's subsequent answer "yes, they do". The relationship that Cláudia establishes between some statements and her story is classified as "interesting" - which appears as a vague notion.

When asked if her favoured explanation (version D) is better justified, Cláudia's answer suggests an idea of equating versions and sources given as if they were several accounts:

> 3.3. No, because *the sources narrate better* how those historical events happened.

She seems to grasp the notion of evidence as *proof* of an historical occurrence given by written books, when she deals with the question about the possibility of the existence of a complete explanation:

> 4.3. I agree, because there are *written books which prove* this conquest of India by the Portuguese.

A concern for evidence is shown again when she argues about her agreement with the statement "the author establishes relations among facts and justifies those relations":

> C: The author saw the reasons, what the event was [sic] and then she/he justified it with things proving those relations.

This idea of justifying relations would suggest an elaborate piece of reasoning (a relation between reasons and actions?) if it were not just a quotation of a given statement, to be

analysed by her. Her justification is still vague ("things" proving), but not totally preempted. She seems to reason about evidence in terms of proofs for a factual description.

(a) Logical consistency
    Coherence

There is an inner coherence in the story given by Cláudia about the Portuguese domination of the Indian Ocean, although some minor inconsistencies appear. A restricted logical coherence is suggested in other items, such as in 2.1 and 2.2 (see p. 202) when in the former she seems simply to give isolated pieces of information taken from the versions given, and in the latter she tries a descriptive and inaccurate summary of versions B and C. The logic of different factors conveyed by different versions seems not to be perceived. Logical contradictions between some of her responses occur. For example, in 4.3 (see previous page) she considers that a complete explanation already exists, since there are written proofs, but in 4.4 she selects the following words about a good explanation: "Impossible to know - Certain". In the interview, she notes that she did not understand that question very well and she changes her response for: "Possible - Total - True". Such an oscillation may suggest that these ideas of second-order reasoning are still not firm enough, although it might mean that she has some verbal difficulties as well. In the interview she admits her perplexity when dealing with some statements given in question 5.1, as for example:

> C: I wrote "False" [some authors are not totally neutral]. I didn't manage to understand that
> question very well!

Inconsistency in several responses suggests a restricted coherence.

    Plausibility

The relative plausibility of different explanations appears difficult to tackle since her reasoning is centred on description. Her discussion about ranking explanations is not always conducted with the aim of assessing the logical consistency of versions, rather she prefers to reason directly on substantive grounds. When justifying the two versions ranked last (versions C and B) she focuses on the morality of past actions, blaming the Portuguese for their attitude instead of discussing the potential importance of such actions for the formation of the empire:

3.4. Versions B and C [were worst] because *it was the Portuguese arrival* to Indian lands.

....

I: Why did you find B and C worst?

C: They are worst because *the Portuguese were somehow bad to the Moslems* when these were good since they let the Portuguese settle there.

When in the interview she is challenged to explain her answer in favour of version D (ranked first) against version A (ranked second), she avoids discussing it in terms of plausibility, and, again, she argues on substantive grounds, in terms of preference for the Portuguese success against Moslem intentions:

I: You think that the issue of Moslems [in version A] is not so important; in what sense is it worse than version D?

C: The Moslems wanted those lands, India, because it brought lots of profit due to spices and *they did not want the Portuguese to go there* to explore those lands, *they wanted to keep India to sell those spices* to Europe and other countries...

I: And did they succeed or not?

C: No, they didn't because *the Portuguese managed to settle* there.

I: So you don't find that so important as version D?

C: No, I don't, because *D showed that the Portuguese were strong to settle* there...

By the end of this passage, under pressure from the interviewer, it seems that she is assessing the purposes of different agents (Moslems and Portuguese): she favours those which proved to be efficient ("D showed that the Portuguese were strong to settle down").[4] These arguments in terms of efficiency of particular motives for actions which really occurred seem to follow a criterion more elaborate than that applied in the assessment of versions B and C, which were discussed in terms of moral judgement of the Portuguese action. Plausibility appears discussed so far as particular actions are concerned; a broader comparison of different versions is systematically avoided.

---

[4]Cláudia's arguments remind stage 1, dry bones and a sense of superiority, of Shemilt's categorization (1984), when focusing on a simple description of what happened, and avoiding to consider motives for actions.

<u>Objectivity and truth</u>

Questions about objectivity are related to the story to be narrated. They are considered at the level of truth of facts which must be proven, according to her answer "there are written books which prove that conquest".[5]

Differences among versions tend to be seen as *different ways* of telling *the same thing*. She states:

> 2.3. [Different explanations exist] Because they are different writers and each one tells her/his own story about how they were told but *everything leads to the same*.
>
> 2.4. No [no explanation can be considered better than others], because all of them said *different things but after all they all refer to the same*.

In the interview she maintains and clarifies the idea about different ways of telling the same story:

> C: Writers have different ways of explaining an event, they told [sic] in different ways but everything was leading to the same...
>
> I: But do explanations differ from each other or are they the same?
>
> C: *They are the same but they are told in different ways, by other words...*

Her last written statement suggests the ideal of direct observation in order to reach all the facts:

> 5.2. *c* [a *witness* would explain better] because that man (or woman) would *write all she/he saw* at the time, how the Portuguese conquered that empire, how they dominated it, etc.

A concern for giving a full account emerges here, within a naive realist approach. The direct observation paradigm is appealed to again when she argues in the interview:

> C: ... I liked *c* best because she/he as *an eyewitness saw what happened*; a Portuguese too because she/he lived it, but a witness who wrote on that is better grounded because *a Portuguese who participated can add something* when telling what happened, so I find *c* better.
>
> I: And why not a present-day author?

---

[5]This answer seems to have some reminiscence of the authority stage analysed by Collingwood as an early pattern of thinking in history. It may be considered a preempted way of accepting important books or persons as the source of truth.

C: Because [an author] from that time knew what happened, while an author now sees, takes something from c but she/he does not tell so well as a witness from the time.

Direct observation and memory are valued over the recent historical explanation, suggesting an attitude of naive realism. Direct observation is preferred over memory due to a concern for truth applied to historical description (a participant can add some fiction). This coheres with her concern for proofs, expressed in several passages of her work.

Analysis of one example illustrating Level 2

Level 2 - THE RIGHT EXPLANATION

Explanations - or descriptions, as these concepts may be not clearly distinct - are considered right if proved by real facts. The major concern is about *the most correct explanation* instead of description of the story as in the previous level. Different historical explanations tend to be considered non-proved explanations by contrast with those produced by witnesses/agents, since the former are based on facts not directly experienced (by observation or memory).

The idea of explanation may be tentatively grasped, that is, with oscillations between a descriptive and an explanatory structure. Explanation may be constructed through a temporal step-by-step story (a continuous-series explanation) in which dispositions and motives are given, or through a set of a few, usually familiar factors, under a rational and/or a causal mode. Factors tend to be weighed in a tight mode, the discussion about them being centred on some specific condition. Thus, competing explanations are assessed according to the preference manifested towards some factors. Consistency with evidence is appealed to at the level of common-sense assumptions of "true facts" functioning as proofs, and some specific historical terms related to evidence are employed. Criteria of plausibility begin to be used in everyday terms.

An oscillation between realism (there is a truth to be attained, thus there is a correct answer) and scepticism (the past is gone, a witness or agent would give the right explanation) is often observed. Competing historical explanations tend to be considered unproved explanations as they are based on facts not directly perceived.

Hermínio, 13 years old, 7th grade:

<u>Explanatory structure</u>
(a) Explanatory mode

Hermínio focuses on one explicit, but manifold factor in his own explanation :

> <u>Because</u> King John had *information* about the Indian Ocean and about a strong *spice trade* existing there, which would give <u>much help to</u> *the economy*.

The *information* factor seems logically to imply a causal and a rational mode: it suggests a planned action as the cause of the occurrence, that plan being an outcome of a purpose (the search for spices), almost made explicit in his assertion on the economic meaning of that search. Throughout his work, however, Hermínio practically forgets this "information" - he cites it just once more, at the beginning of his interview - and he puts a major emphasis on an economic reason. In the interview, he starts by asserting:

> H: The Portuguese needed *money, or spices* ... for their economy! Because *their economy was not good enough*, it was half-way...,

and reasserts it several times, both in the written task and the interview:

> 3.2. I chose Version D, because the Portuguese wouldn't go only fighting due to their great leaders' morale only, but also due to the *spice route and trade*.
>
> ....
>
> I: About questions 3.1 and 3.2: Do you want to say anything else?
>
> H: The Portuguese didn't go fighting without getting anything back, *they needed to get profits.*

> 3.4. Because *the Portuguese would not spend lots of money* in challenging other more powerful people and in fighting them *without taking anything back* with them.

Such answers seem to be related to the question "why did the Portuguese *go* to conquer the Indian Ocean?" instead of focusing on "why did the Portuguese *manage* to conquer the Indian Ocean?". This move towards a simpler why question produced an easier form of explanation with which he could cope.[6]

(b) Factorial weight

Hermínio operates with the notion of factor when he constructs and discusses his own explanation and when he assesses the importance of competing versions (see the quotations above). However, notions of fact and factor seem not to be clearly discriminated when he tries to interpret the main differences among the four versions given (in items 2.1 and 2.2). Here, Hermínio oscillates between a descriptive summary and a selection of factors:

---

[6] Compare Lee (1995) about similar strategies of conversion employed by pupils studied in the "Chata Project". As it was pointed out in chapter 7 (footnote 1, p. 170), the main historical question used in this study can be considered a kind of a why question, of a how-possible type. In this concrete case, it may involve a more complex reasoning than just a direct why question.

2.1. The difference between A and C is that in A the Portuguese fight people from another religion and in C it explains that the Portuguese would only manage to conquer with weak resources. They won due to their great leaders' moral correctness.

In version B it indicates or explains the why of the Chinese withdrawal and the naval challenge against the Moslems...

2.2. Version B clashes with C when it says that the Portuguese defeated the weak Moslems.

A descriptive mode is indicated in statements like "in A the Portuguese fight people from another religion" and "Version B clashes with C when it says that the Portuguese defeated the weak Moslems"; an explanatory mode is indicated in passages like "they won due to ...", or "it explains the why of the Chinese withdrawal". Explanatory answers like "it explains that the Portuguese would only manage to conquer with weak resources", or "it explains the why of the Chinese withdrawal", or the unexplained version D, suggest a restricted understanding of those factors conveyed by versions or some difficulty in clearly expressing them.

Throughout his discussion of the relative importance of different factors, Hermínio concentrates his selection especially on the economic purpose: in the written task, in answer 3.2 when he argues for his favoured explanation ("due to the spice route and trade"), and in answer 3.4 when he argues against versions A and B (see previous page). In the interview, this kind of reason is reasserted four times (see two of these occurrences on previous page) tending to function as the decisive cause of the Portuguese domination in the Indian Ocean.

Although emphasising the economic reason, he concedes some room for two other factors: the information condition and the moral disposition, the former being asserted at the beginning of his written and oral answers and then forgotten, the latter being accepted with less weight than the economic reason. This is shown in answer 3.2 and in this passage of the interview:

I: Thus, you think that this explanation: "fighting because of the moral correctness of the great leaders"...

H: *It was not sufficient!*

It appears that Hermínio argues against the moral disposition in terms of its non-sufficiency in order to stress the relevance of the economic motivation.[7] This suggests a hierarchy of factors, discriminating between decisive and contributory conditions.

Explanatory consistency

(a) Evidential consistency
        Use of information

Hermínio's explanation might be constructed on grounds of familiar knowledge (with an emphasis on the economic purpose) or mainly inspired by some of the evidence given (information about the Indian Ocean and the spice trade, in item 1.2 and in source A). In his favoured explanations (versions D and C) he focuses on two factors traditionally cited: the search for spices and moral disposition. Less familiar facts (Moslem power and the Chinese withdrawal) seem to be broadly understood ("the Portuguese would not spend lots of money in challenging other more powerful people", "version D does not manage to explain why the Chinese withdrew from the Indian Ocean"), but such facts are ignored as possible factors worthy of being analysed. He assesses different explanations around a favoured factor (economic motive) against another (moral disposition) without considering several possibilities proposed by different versions.

        Evidence and explanation

Statements chosen by Hermínio as a justification for his explanation directly equate with the factors he had already selected.

HIS EXPLANATION	STATEMENTS SELECTED
Information on the Indian Ocean	King John had information
Spice route/ help to the economy	The spice trade was very profitable

---

[7] Martin (1989, pp. 42-43) pointed out that this claim of non-sufficiency of factors might lead to an argumentative strategy common among historians showing that such factors are only partially explanatory and that another factor - the favoured explanation - must be added (see chapter 3, pp. 77-8, in this study).

This quotation raises the question whether explanation and evidence are discriminated or not. But evidence ("facts") and explanation are discriminated by Hermínio in other passages of his work, for example:

> 2.3. [There are different explanations] Because *there are facts which prove* those different explanations.
>
> ....
>
> I: Now [quoting question 3.3]: Is version D [ranked first] better justified by the sources given?
>
> H: Yes, it is. *By records* of those who navigated and who used to write about them.

Thus, explanations are proved by different facts that existed out there and were recorded. Although no distinction between facts, sources or records appears, the last term indicates the recognition of a technical vocabulary concerning historical evidence. Evidential consistency is understood at the level of proofs provided by records for factors selected and tied to the direct observation paradigm. But the concept of proof sometimes suggests a more fruitful way of thinking, appealing to the historian's autonomy:

> I: How can we manage to get a history with proofs for one explanation and other proofs for another?...
>
> H: We'll know... *we have to base ourselves on some facts and choose those which fit better into that time...*

An explanation implies a selection of facts which must "fit" that time. This fitness suggests some awareness about contextual evidence which might be also related to logical consistency.

(b) Logical consistency
     Coherence

The need for internal coherence in an historical explanation is not discussed by Hermínio. But that coherence is evident (implicitly) in most of his constructions, and throughout his arguments for or against the different versions.

Plausibility

Hermínio reveals a concern for a plausible explanation through several answers (some of them already quoted) and he uses counterfactual argument to discuss the plausibility of competing explanations and to argue for his favoured factor: "the Portuguese wouldn't go to fight due to their great leaders' morale only", "the Portuguese would not spend lots of money in challenging...". This argument appears to centre on a specific idea, a common-sense belief that people usually are motivated for money. The clarification of his idea, "some explanations are related to the way of life of that time", suggests that it is a strategy to emphasise his favoured factor:

> I: Do you want to explain this [idea] better?
>
> H: When the Portuguese went there, *it was because they needed money*, otherwise they wouldn't go there ... and because at the time they were turned towards the sea for ... conquering.

Ideas expressed about the past way of life do not permit enlargement of the concept of "fitness" within time; we might hypothesize that this fitness is a concept related to everyday assumptions about the plausibility of need for money, but also implies some basic understanding of the specific historical context, made explicit once in his assertion "they were turned towards the sea".

Objectivity and truth

Criteria for choosing between several explanations emerge on the basis of the idea of factual proofs for explanations: "there are facts which prove those different explanations". Recent explanations are incomplete "because it is not known yet if explanations given are true" (item 4.3). This concern for truth coexists with a direct observation and memory ideal - to live and to see something is to know it:

> 5.2. *Only an eyewitness* from that time *and a Portuguese* who participated in those events could explain them better, because they *lived* them and they *saw* what would really have happened.

Memory is valued against historical knowledge:

> H: An author from this time?
>
> I: From nowadays.

H: They *could be wrong on facts because she/he didn't live on that epoch and she/he doesn't know how it really was.*

I: Thus you think that the important thing in order to manage to explain well something is?

H: *It is to live it.*

Hermínio makes a distinction between *direct observation* and *memory*, a witness being more trustworthy than an agent:

I: In question 5.2 you chose *c* and *d* [a Portuguese participant and a witness]. Do you see any differences between an explanation given by a Portuguese and by a witness?

H: *A witness gives a more truthful explanation because she/he saw*; the Portuguese could have *lied* or enlarged the story more.

I: And why?

H: Because they could have lied...

I: And why?

H: I don't know (smiling).

I: What do you think or what reasons would lead them to lie?

H: They used to tell stories when navigating in the caravels, but when they told stories they used to put more facts in those stories!

Hermínio makes that distinction on the basis of more or less access to truth, one of his key ideas. Direct observation, more than memory, would guarantee the required reliability, which can be considered a notion implying neutrality. This notion is emerging in everyday terms and Hermínio recognises the word, when he equates it to truth:

I: Why did you write true in statement 4 [only some authors manage to be *neutral*]?

H: Some authors are more ... are more ... *they tell more the truth.*

As a consequence of subscription to the ideal of direct observation and memory, a naive historical scepticism (historians could be wrong about facts) coexists with a realist attitude. The sceptical attitude is reasserted in another passage of the interview, but here promising a more elaborate construct, with less tight contours:

H: *Those who wrote the sources could have lied* about the facts they wrote.

I: And is there any way of knowing that?

H: No, I don't think there is.

I: No? In that case, can we never know what is certain?

H: *It is more or less...*

I: More or less... is this related to what you said in 4.4: [a good explanation] is incomplete, valid and probable? Why didn't you choose the others?

H: Because if I did , *we'd have to say that history is for sure, all history!*

"History is not for sure", historians cannot reach certainty, their knowledge is proximate, ("more or less") and probable, but it is valid - in his selection of the words "Incomplete - Valid - Probable", a sense of provisionality coexisting with realism is affirmed.

Analysis of one example illustrating Level 3

Level 3 - THE MORE FACTORS THE BETTER

Students operate with the concept of explanation. Ideas of evidential consistency and plausibility are discussed as related to explanation, and the provisional nature of explanation emerges, mainly related to the notion of *quantity of factors.*

Explanation may be construed under several modes (rational and causal, or narrative). Historical explanation integrates available evidence and previous knowledge by adding together various connections, which might correspond to a meaningful set of conditions, including counterfactuals, organized in a hierarchical order of importance. Antecedent steps may be added, and sometimes preferred to those conditions for explaining the occurrence. Although some confusion between fact and factor may appear, "real facts" are considered as factors of the occurrence. All factors are seen as necessary to explain the situation, as a mere sum, or as an interrelationship. In the assessment of several explanations criteria of consistency with evidence (sources are viewed as evidence for explanations) and plausibility (at everyday level) are applied. There is a tendency to overlap the notion of evidence for an explanation with different facts/factors to be discovered, or to be selected according to each point of view. Hence there can exist more or less complete explanations.

Under this broad pattern, students' constructs oscillate between two trends, expressing a realist image of history growing up in quantity by adding all contributions but, at the same time, suggesting a sceptical concern for uncertainty about the past gone forever. The agent's perspective tends to be over-valued, revealing a persistence of the memory paradigm.

Carla, 13 years old, 7th grade:

Explanatory structure
(a) Explanatory mode

Carla selects two main sets of factors in a short explanatory narrative:

> *Great sacrifices* were made by everyone participating in the action of *confidently confronting the Moslems* who were not a big obstacle to be overcome, after all.
>
> As the Chinese "*gave up*" the control of the Indian Ocean, it was even easy for the Portuguese to get control of the *spice trade* and to conquer the main essential ports.

The first set is itself an interconnection of dispositions (a disposition to "great sacrifices" and self-confidence) and an external condition (the Moslem issue, which was "not a big obstacle"). The second set points to another condition (the Chinese withdrawal) and to a purpose for conquest (control of the spice trade). In the interview, Carla clarifies the importance of these dispositions and external conditions - first, will-power (to confront obstacles, according to her written answer); and, in addition, some other conditions:

> C: They had a *strong will-power*. I think that it was *very important*. And also ... it was even easier for them because, as it is said here, the *Moslems* did not base their power on the sea and the *Chinese* gave up the Indian Ocean!
>
> I: "The Chinese gave up": what do you mean by that?
>
> C: They gave their turn to others. When they arrived there...
>
> I: They: who?
>
> C: The Portuguese. When they arrived there, as the *Moslems* did not fight at sea, it was quite easy to conquer that domain of the spice trade. And, according to what is said here too, the king had got some *information* about what was going on there!
>
> I: And how does this fact - the king having some information on the Indian Ocean - influence the issue?
>
> C: Well, I think that it does, because if not it would have been more difficult. So, if *they knew something, they could be better prepared* for what could happen.

In this passage, Carla confirms her former explanatory mode. She rephrases dispositions as "will-power", emphasises the Moslem and the Chinese factors and she adds another factor, the previous information about the Indian Ocean (which is suggested by source 1 and by question 1.2, in the written material).

(b) Factorial weight

In her explanation (in the written task and the interview) Carla operates with a clear notion of factor. When she compares differences between explanations (items 2.1 and 2.2) she discriminates between most of the main factors conveyed by the rival versions:

> 2.1. In version A [...] it is due to *Moslems* not considering the sea as a means to power, while in version C, the *moral correctness* of the Portuguese leaders and the *sacrifices* made by all the people are the answers to that question.
>
> In version B it is very explicit that the *Chinese had withdrawn* their fleets from the Indian Ocean, but in version D it does not give such a certainty.

2.2. In version B the *Chinese withdrawal* was an important factor in the Portuguese domination of the Indian Ocean. In version C such domination is only explained by the *moral correctness* of the great leaders, by the *sacrifices* made by all for the country.

Conflicting factors between versions A and C, B and C are perceived, but versions B and D are treated as related to factual certainty. When comparing versions B and C, she refers to the Chinese withdrawal in factual terms; about version C, she seems to interpret its factors as if they were considered sufficient conditions by its author, as her expression "it is only explained by ..." allows to suggest. This negative attribution (she ranked version C last) might mean: (a) her disagreement with the sufficiency of such conditions tied to a paradigm of addition of factors, or (b) a devaluing of such conditions in terms of necessity against other more relevant conditions (like the Moslem and Chinese factors). Further responses suggest that the former idea (addition of factors) might underlie her implicitly negative evaluation of conditions given in version C. For example, an idea of valuing quantity of factors emerges more clearly in this answer:

3.4. Version A is *too summarized* and *it only narrates* the enemies encountered by the Portuguese. Version C *speaks only* of the moral correctness and the sacrifices made.

The relative weight among conditions seems to be somehow ambiguous. The apparent contradiction between "great sacrifices" explicitly valued as important, and an easy conquest suggested by expressions such as "Moslems were not a big obstacle ... after all" or "the conquest was even easier", suggests that despite the strong Portuguese motivation, the conquest did not require such exceptional efforts - "after all" - due to Moslem inefficiency and Chinese withdrawal. This seems to imply a hierarchy between background conditions (will-power and sacrifices) and an immediate condition (absence of great obstacles) which might be considered as the decisive cause. All these contradictory signs about the relative importance of dispositions and external conditions (will-power is "very important", but other factors like Moslem power and Chinese withdrawal are also necessary) may point to an idea of considering several (inter-related?) factors. In fact, the summing of several conditions along the lines already suggested, seems to be the central idea:

I: Why did you write "only" in what concerns version C?

C: I think that it is not enough: because they made sacrifices - that is not enough for explaining, *more things are necessary.*

I: Like what?

C: Like what is said in version D, for example: the Chinese gave up, the Moslems were not powerful at sea - *this has to be taken into account, not only the former* [statement].

Her ranking of versions given (D-B-C-A) might cohere with the same idea of valuing a quantity of factors. Information in version D is considered with explanatory power, since it gives the "conditions" of the occurrence. Also antecedent steps are valued together with conditions:

> 3.2. Version D explains better because it explains better the steps done by the Portuguese *and conditions* [...].

Thus, Carla seems to operate with the concept of causation understood as a set of steps and conditions in a hierarchy, to be added together, or maybe interlinked.

Explanatory consistency

(a) Evidential consistency
    Use of information

Carla shows an open attitude towards considering a range of data, fresh information included, discussing them and proposing other possibilities, as when she observes that "how the other people reacted" was not explained by versions given (item 4.2). She can articulate familiar knowledge (like the search for spices) with new evidence represented by the Moslem and the Chinese factors, as is shown in several quotations from her work (see above). Also her second favourite explanation (B) deals with those two new factors valued as necessary conditions to be considered.

Evidence and explanation

In justifying her own explanation Carla appears to establish close links between some factors of her own version and the statements she selects:

HER EXPLANATION	STATEMENTS SELECTED
Great sacrifices	The Portuguese wished to fight the Moslems
Self-confidence	The Portuguese were morally superior
Search for spices	The spice trade was very profitable
Moslem naval weakness	Portuguese ships were well-armed
Chinese withdrawal	

The statements she selects were mainly those which directly cohere with dispositions and motives she had already given. A wider range of statements whose selection would require a more sophisticated distinction between evidence and explanation - like the statements related to Moslem land power and Chinese sea power, not presented as direct factors - are left aside; however, these statements are implied when, in the interview, she points to Moslem naval weakness and the Chinese withdrawal as conditions "to be taken into account". In another passage of the interview, the same position is defended, suggesting that such information is considered in terms of positive factors (Moslem naval weakness and Chinese withdrawal) of the *explanandum* (the conquest):

C: I didn't mention them because - if it was easy for the Portuguese *it was not because the Moslems or the Chinese had strong armies - that would be not so easy for them* [the Portuguese].

I: But, in spite of that the Portuguese managed it. Why?

C: Why?! Why? ... Because they had no strong armies [fleets]!

I: The Moslems?

C: Yes!

I: But they had armies!

C: But armies! They were on land, not at sea!

Awareness of consistency with evidence is shown at the level of a direct correspondence of facts to factors, but such notions appear to be clearly discriminated. About the explanation she had ranked first by her (version D), she writes:

3.3. Yes [it is better justified by sources]. Because I think that it [version D] *fits better* with them.

....

C: [The historians] try to fit things together and justify...

I: How?

C: By documents she/he finds...

A good explanation - it seems - must be justified by the information conveyed by documents. A recognition of the interpretative role of the historian might be suggested by her assertion that the historians "try to fit things together and justify". This might be related to a notion of data for an explanation, a less simplistic construct than "facts proving explanations", which is an idea typical of the previous level.

Evidence supporting an explanation seems to be valued not only in terms of its correspondence to factors, but also in terms of quantity, since a better explanation must contain more information. When arguing about the possibility of considering an explanation better than others, she writes:

> 2.4. I think that it can [a better explanation can exist], *because it might include more information*, be *more complete*, or explain facts in a clearer or more logical way.

These questions suggest a concern about evidence (more evidence is needed) to make the explanation more complete. But this idea appears also to be connected with a criterion of logical completeness.

(b) Logical consistency
   Coherence

In the excerpt quoted above, Carla seems to be aware of a need for logical coherence in an explanation. She points out that a better explanation can exist "because it might ... explain facts in a clearer and more logical way". In the interview, she tries to disentangle her idea of "logic" by giving concrete examples of coherence between actions as effective conditions of the occurrence, and reasons for them:

> C: It has to be more logical because it can have more... *it has to deal with logic, with what they did, with attitudes they took, if they were doing right and they did not take silly attitudes*, so that they could not lead to something else than the domination of the Indian Ocean.

These ideas appear mainly related to a required internal coherence between purposes and action (the logic of actions).

Plausibility

Concerns for plausibility seem to be also at stake when, for example, she discusses the validity of versions C and A in her written answer:

> C: That is not enough: that the Portuguese had to be superior to the others and that they made sacrifices! - it is not enough for explaining, more things are necessary ...

Positive actions and motives were required, but other conditions, such as the Moslem naval weakness and the Chinese withdrawal, were also necessary to make possible the Portuguese domination of the Indian Ocean, as she claimed several times. Similar concerns about plausibility based on assumptions at everyday level, but also considering the specific historical context, might also be detected, for example, about item 4.2, when she tackles the difficult question on what has remained unexplained by the versions she selected for the best explanation (versions D and C). In the interview, she discusses the need for considering other powers at the time in order to explain fully the Portuguese control:

> C: I think that *there were other people wanting to dominate* the Indian Ocean. That is not well explained here, *how the other people reacted, whether they kept quiet or tried to conquer* the Portuguese domain.

This concern for plausibility of the broad past situation may indicate that she is going beyond a common-sense approach.

Notions of completeness seem to equate her notion of logical adequacy when she values a complete explanation in her written answer and in the interview:

> 4.3. Maybe [a complete explanation already exists]. I think that some aspects can be missing but *the main reason is already explained.*
>
> ....
>
> C: I think that it is already explained because it is like that, they arrived there and they managed it. *Something can be missing*, like ... aspects that happened there ... of sailors' life...., but that does not influence much ... *the main reason is known.*

This idea of complete explanation is here clearly distinct from the notion of incompleteness of mere information. That is consistent with her assertion:

C: We never know everything, everything.

People will never manage to get it.

Carla seems to propose that a good explanation can be logically complete although factual knowledge about the situation can never be complete.

Objectivity and truth

The notion of perspective is initially stated beyond a preempted level since she does not limit her answer about different existing explanations to a question of personal opinions and facts:

> 2.3. I think that there are [different explanations] because several people can have *different opinions based on facts* which *those people* might *find important* and others find them not important at all.

She relates notions of fact and opinion in a realist pattern ("opinions based on facts") simultaneously showing some notion of perspective, although still vague, stated at a common-sense level (facts which "people might find important"). But, although in the written task her conception of author's perspective is stated in everyday terms, in the interview she clarifies it by reference to a notion of empathetic reconstruction:

> C: There are facts which seem to be very important to some authors and not to others...
>
> I: And why does this importance vary among different authors?
>
> C: Because I think that *they must put themselves into the sailors' position* and think of how they would take certain attitudes...

Empathy seems to work as a strategy required to get the "real" explanation. This might be tied to the idea that the agent would have more explanatory power since she/he could know all the facts: if this is so, the concept might still be based only on the notion of the quantity of real facts. The same notion may be implied in her assertion about a "total opinion" (see her oral answer next). Or it is perhaps related to an idea of reconstruction of the situation, reasons for action included, which can only be entirely fulfilled by the agents themselves, as her later responses suggest: "a Portuguese living the situation could easily explain...".

In neither case do her responses take clearly into account notions of neutrality. This is shown in her tentative clarification of the statement given in the written task: "only some authors manage to be neutral":

C: I don't know indeed...a neutral person? ... One who has *a total opinion* on facts ... which is total! I don't know... some are *totally neutral*, those who manage to have an opinion which is not ... *I can't explain!*

Carla tries to get out of a mere preempted mode in her construct of *neutral* - a "totally neutral" author has a "total opinion" "which is not..." - here she gives up trying to produce a full meaning of neutrality. Her response seems to go in a direction of denying the subjective element underlying the very idea of opinion, which would contradict its tacit recognition in her earlier answers. But the hypothesis of no clear concern shown about problems of detachment is consistent with her last words, in the written task and in the interview. In these responses, memory is valued over direct observation and historical knowledge:

5.2. I think that *d* [an agent could explain better], because *a Portuguese who lived those events would be much more able to describe those events* than anybody else.

....

C: *A witness could not be well inside the issue,* but a Portuguese living the situation could easily explain why things happened like that. A historian might give an explanation because she/he thinks that it was like that, but the Portuguese might not, *they know because they lived through it.*

Concerns about an empathetic reconstruction might imply the need for understanding reasons for action and an overlapping of description and explanation. This overlapping of description and explanation appears related to the memory ideal - the agent, who experienced the *inside* of the situation, will be "more able to describe" it.

As shown in several passages, notions of several historical perspectives are not totally absent. When discussing the statement "each time and place explains in its own way" she points out a source of presuppositions through an example:

C: Traditions have influence. For example, if there are some traditions in a place, if they are Christians, they will explain in a certain way...

Such an assumption could be developed in a relativist trend - but there are no signs of contradiction between this sophisticated idea of the social production of knowledge, and

the realist position she also assumes. Notions of realism ("the main reason is known") and of perspective ("to put into the sailors' position", "traditions have influence") could provoke a cognitive conflict if she was disposed to deepen these two notions. She prefers rather to go on asserting that the truth can be known by historians, but partially ("we never know everything"). Her arguments for the attributes of a good explanation suggest this unconscious contradiction between real but somehow uncertain explanations. In the interview, in relation to her choices about a set of assumptions concerning objectivity and truth, Carla points out:

> C: Here it says [an explanation is] probable - but I know that it really happened. So I didn't write probable because it is already known. *I preferred possible because certain would be more rigid*, possible is not so rigid.
>
> [On true - valid explanations] I chose valid ... *I could choose true, but I didn't do it, I don't know why*, but I could put it ... *I wrote valid because people accept it* [the explanation] like that.

Carla seems not to be aware of her oscillation in arguments - for a naive realism when she overlaps events and causal links ("I know that it really happened") and for a more sophisticated position about the possibility of historical explanation ("certain would be more rigid", "valid because people accept it like that").

Analysis of one example illustrating Level 4

Level 4 - A CONSENSUAL EXPLANATION?

The concept of provisional explanation remains linked to the ideal of a multi-causal explanation to grasp the total past, and more elaborate ideas are developed in relation to the concept of *neutrality*.

Historical explanation is construed in a causal or a narrative pattern integrating the familiar knowledge and evidence available. The understanding of a complex reality is concerned with bringing out several, interlinked causes: this approach emphasises the criterion of interlinked factors, and sometimes a distinction between quantity of mere facts (related to description) and factors (related to explanation) is not made clear. Factors can be selected under a causal hierarchy but their conjunction is preferred. Explanations are assessed under criteria of evidential consistency and plausibility. Consistency with evidence tends to be understood at the level of verification, that is, in terms of proofs. The existence of different explanations from different points of view is clearly recognised, but a perspectiveless neutrality is also emphasised as an ideal which can be fulfilled or not.

Two trends emerge:

1. Through a confident positivism, some students claim that factors must be discovered by applying an absolute neutrality. They tend to ignore or reject counterfactuals as mere hypotheses which did not really occur. The existing documentation explored by the addition of new techniques and new tools makes the historian's craft a worthy task when trying to explain (fully?) the past. With this assumption, memory and direct observation cease to be valued over recent historical work. Perspective is recognised but not admitted as a valid criterion for an historical explanation. As a consequence of this view, the search for a consensus is considered as a necessary and reachable aspiration in history. At the tightest pole of this spectrum, a definitive and final conclusion is defended as *the explanation*.

2. Following a subjectivist line, some students stress that all the true factors cannot be reachable, since *a point of view is inescapable*, and limits ways of looking at reality. As historical explanations are relative to personal or cultural presuppositions, the direct observation paradigm may offer a better means of partially controlling for neutrality, and reducing subjective interference.

Rui, 17 years old, 9th grade:

<u>Explanatory structure</u>
(a) Explanatory mode

Rui constructs his written explanation by giving a list of factors:

> <u>One of the reasons</u> is due to the fact of the Portuguese not having met *any resistance* from people who used to trade on spices before.
>
> <u>Another reason</u> was that the Portuguese were *technically advanced* at the time, as far as their naval equipment is concerned.
>
> I also think that *their morale* <u>was boosted due to</u> that very *profitable trade*.

Rui includes external conditions (non-resistance of other people and technical advance) and the economic motivation linked to the spice trade in a whole set. In the interview he lists the same conditions in a hierarchical order:

> R: I think that <u>the main reason</u> was that they [the Portuguese] did not have *any resistance from the people trading* with spices. I think that those people would have all the motives for keeping that trade! Secondly, I think that the *Portuguese were advanced*, that is, <u>it would be easier</u> for the Portuguese, it would be cheaper, it would be profitable for the Portuguese to get that trade. And that boosted their *morale* a lot! I find that <u>these are the major reasons</u> ...

Rui applies a causal mode in his explanation, calling all conditions mentioned "reasons".

(b) Factorial weight

The notion of factor appears clearly grasped through his work. When comparing versions given, he asserts:

> 2.1. [Differences between versions A and C are due to] The existence of <u>different factors.</u>
>
> 2.2. The explanation given by B asserts that such a domination was <u>due to</u> *the Moslems not having efficient naval equipment* while version C points to the fact that such a domination was <u>due to</u> *the Portuguese moral correctness and their spirit of sacrifice.*

Rui can deal with different factors although ignoring the main factor conveyed by version B (the Chinese withdrawal.) He constructs his own explanation by selecting a set of conditions and can argue about them as factors. In spite of using a factorial ranking in his oral explanation ("the main reason", "secondly") he values reasons in a sum more than in a hierarchy; he apparently contradicts his former ranking when he chooses version D and argues for it:

> 3.2. [Version D] narrates a whole set of facts better such as the rounding of the *Cape* of Good Hope and the *systematic discovery* of lands providing a launch pad for the expeditions which brought about this domination.

Version D is here valued for featuring a set of antecedent facts which would provide an explanation of a continuous-series type. In this decision Rui makes an occasional regression from a causal mode underlying most of his answers to a sum of antecedent steps not discriminated from "reasons". But, the interlinking of factors seems to function as the explanatory paradigm defended by Rui. In the interview he claims:

> R: We aren't immediately allowed to think: that's because of those people there; first we have to see what made possible the creation of such an empire. The Portuguese had a really advanced technology, will-power, *so all these factors contributed to the empire* which we possessed in the Indian Ocean.

This response seems to follow a structurist approach, valuing several conditions. The same pattern of valuing a set of conditions in conjunction, rather than one single cause, is shown when he explains why he ranked versions A and B last:

> 3.4. *They always deal with the same issue,* the fact of the formation of this domain being due to the Moslems not having an efficient naval capacity, among other factors.
>
> ....
>
> R: The explanation they give is always the same, they are always playing the same key, the reason is this and this... but I think that *there were many other reasons ... it was not only due to the Moslems not having capacity enough but a set of factors ...*

His arguments for several factors is accompanied by an emphasis on the "morale" factor. This might be a strategy to stress his favoured condition. Rui explicitly asserts:

> R: At the time *the Portuguese got a will-power which was admirable!* So, all those deeds of maritime discoveries were an admirable thing ... to dominate all that trade was something which interested them, *so they went forward, they achieved it!*

It may be worth noting that Rui, like some other students (see Carla, p. 218), attributes the meaning *morale* to the "moral correctness" of Portuguese leaders stressed in version C. This specific conversion appears as a strategy of attributing a familiar meaning (morale in terms of will-power) to an alien value (a nationalistic morality).

Explanatory consistency

(a) Evidential consistency
    Use of information:

Rui can articulate familiar knowledge with fresh evidence, as his concern about discussing Moslem non-resistance suggests. Nonetheless he values the traditional moral factor conveyed by version C, and the relevant factor elicited by version B is systematically ignored even when he is challenged by the interviewer:

> I: And about this statement "the Chinese ships were bigger and stronger"?
>
> R: Also *it isn't a thing with a ground for my explanation.*

New information - especially the Moslem factor - is discussed narrowly, based on the idea that a good explanation should be constituted by a sum of factors which should offer certainty.

Evidence and explanation

Rui justifies his own explanation by means of these statements which cohered with the factors he had selected:

HIS EXPLANATION	STATEMENTS SELECTED
Moslem non-resistance	The Portuguese were morally superior
Technical advance	Portuguese ships were well-armed
Search for spices	The spice trade was very profitable

Statements which were supposed to be summaries of sources given are considered as better or worse explanations, some of them being broadly criticized on evidential grounds:

R: And on the armies [Moslem armies were superior] I think that it doesn't have a ground, it is not a grounded explanation.

Statements are sometimes seen as explanations but they are also seen as a potential basis for his explanation, as when he rejected the statement about the Chinese naval power (see previous page).

The notion of consistency with evidence appears clear in his written work when he justifies his favoured explanation, distinguishing sources from explanation:

3.3. Yes they *[the sources] support in some way* what is written in version D.

As has already been suggested, he values an explanation which takes into account the total past ("all facts"):

R: Some explanations are more credible because they are *based on all facts.*

Thus, an explanation which must be consistent with evidence about the total past (an explanation of a wider scope?) seems to be a central preoccupation to Rui. Since there is a scarcity of sources, different opinions on the real past might appear, thus the real facts/factors must be discovered ("dug up") in order to turn explanatory hypotheses into final conclusions:

R: I think that it [the question raised] should deserve more thorough study from those authors, they don't "dig up" [gestures indicate quotation marks] enough as they should ... I admit that it is difficult because I think that there are not many documents on which those authors could base themselves to shape an opinion, so that's why different authors give different explanations, they pay more attention to one fact than to another, then one thinks that this happened because of this, and not that...

...I think that such a study should be done *to teach real things, not mere hypotheses ... a more serious thing!*

Evidential consistency is conceptualized at the level of verification, assuming tight contours since it must give rise to a final explanation. This tight attitude is coherently maintained through his responses:

4.3. I disagree [that a complete explanation already exists] because I think that a study has not yet been made with the objective of giving *a definitive explanation*. Because as we can see there are several explanations differing from each other in a certain way.

I think that all these explanations should be joined together and after being conveniently analysed and proven *a final explanation* would be formulated.

A complete explanation seems to equate to a definitive answer in the sense that it must include all proved facts.

(b) Logical consistency
      Coherence and plausibility

Coherence and plausibility seem to be criteria implicitly used to assess explanations, as in this passage of the interview:

I: So, you have considered versions A and B worst. Why?

R: I think there were *many more reasons than these* for managing to form that empire ... it was not only the fact of Moslems not having capacity enough, but a set of factors to which I have referred ... as technological tools enough for making an empire, so I find that they are both *unsatisfactory explanations* for me.

The superiority of the Portuguese - itself represented by a set of factors (technological tools, made explicit here, will-power or morale, stressed in other passages) is viewed as essential to get a satisfactory (plausible) explanation. Also, when discussing statements which could be used to justify his own explanation, he explicitly uses the concept of plausibility:

R: [The Portuguese wished to fight the Moslems] I find that *it is not a very plausible explanation* ... I find that I don't know of any people enjoying to be at war by mere ... hmm

...

I: Wish?

R: Wish to fight! I find that it is not a *plausible reason*.

Plausibility is overtly discussed at the level of everyday - and emotional - assumptions ("wish to fight").

Objectivity and truth

Rui seems to equate objectivity with certainty. He assumes a tight attitude towards reaching a true explanation, devaluing different explanatory hypotheses, since they do not attain certainty. Truth or certainty in historical explanation can be reached through the collection of all factors under a strict neutrality, by "authorities" whose skills are appreciated, so far as knowledge and impartiality are concerned. He claims:

> R: I think that a study should be done that would join *authoritative people* with sufficient knowledge for analysing *existing facts* thus having the possibility of finding a *complete opinion*, something that is *impartial*, some who could be *neutral*, and after analysing the facts they really would reach a *conclusion - the reasons are these!*
>
> ....
>
> A real, serious study should be done - I'm not saying that these studies are not serious, they are hard - but now, let us think of including *all the existing facts*, even the smallest things, *to reach the truth*, something which is true ...

> 4.4. [A good explanation must be] Total - True - Certain.

The notion of perspectiveless neutrality tends to be defended as an ideal required to get a definitive explanation, which should be "total, true, certain"; but at some point the recognition of a "complete opinion" seems to mean rather a convergence of perspectives. This is overtly suggested in another passage of the interview:

> R: It would be interesting to join authoritative, real teachers ...
>
> I: Historians?
>
> R: Historians from different cultures to really get *a consensus:* "the real explanation to the empire formation is *this*, because ..." and to justify that with enough ... ...

Perspective is most of the time seen negatively as personal interference preventing the author from searching for the "the real explanation" to be discovered:

> 2.3. Each person thinks in his/her own way forming his/her *own opinions*, thus *different explanations* appear.

> R: Well, it is not exactly the opinion - or it is - ... *there aren't so many documents* on which those authors can base themselves, so that's why they can give *different explanations*, because they pay more attention to one fact than to another.

A naive realism seems to imply an overlapping of description of "all the existing facts" and an explanation about why the situation occurred. Historians form divergent opinions because they think in different ways or because there is a scarcity of documents. His negative attribution to perspective, does not appear in a preempted mode. He can attribute a context to the notion of personal assumptions - nationalism is one source of them:

> R: There should be a serious research, for example: a short time ago there was a discussion, not in this case, but it shows what I mean: the Spanish said that it was them who reached America first, the Portuguese said it was them. I think that it should be done by *some people who could keep neutrality*, that is, neither Spanish nor Portuguese ... for grasping some conclusion: *look, it was this and not that!*

However, the notion of opinion is formulated under two different meanings: as personal assumptions leading to divergent answers, thus devalued (as above); or as formed on the basis of evidence, thus being objective (as below):

> 2.4. Yes [one explanation can be considered better] because there are opinions of people who always have dealt with this kind of issue thus being more able to formulate more reasonable and concrete explanations.

A concern for methodological neutrality appears as a central preoccupation. This leads Rui to choose a neutral person, equated with an authority in the matter, as the best author for an historical explanation:

> 5.2. I think that the best person for explaining this domain would be *an important author* because I find that he would analyse a whole set of factors which others certainly would leave aside, because they are not able enough to explain them or because they don't give the importance that those facts deserve.

In a positivist approach, perspectiveless neutrality and complete information appear to be the central ideas valued by Rui as criteria for a good explanation.

Analysis of one example illustrating Level 5

Level 5 - PERSPECTIVE

Historical explanations are considered under specific methodological criteria pointing to ideas connected with confirmation and refutation as well as plausibility in relation to the historical context. Such criteria are applied to assess the explanatory consistency of competing explanations. The idea of *perspectiveful neutrality* tentatively emerges, still conflicting with the idea of a perspectiveless neutrality.

Historical explanation is coherently constructed in a causal or a narrative pattern, and grounded on a selection of previous knowledge and available evidence. Causal connections are hierarchically established, but all conditions are frequently considered as necessary to explain the occurrence. Ideas of valuing more and interlinked factors remain. Explanations can be assessed by using criteria of evidential consistency and plausibility. Evidential consistency can be discussed under notions of confirmation and refutation, although a move to a tighter idea of verification occurs. By applying such methodological criteria, the idea of perspective begins to be recognised as an historical feature, although alternating with the ideal of perspectiveless neutrality. Perspective can also be related to ideas of contingency of knowledge. Those criteria bring a more critical and grounded view to the notion of objectivity than in previous levels, even when an oscillation between objectivism and relativism appears.

Filipa, 16 years old, 11th grade:

Explanatory structure
(a) Explanatory mode

Filipa construes her explanation under a narrative pattern, in the sense that causes are intertwined within an account, instead of being merely listed:

> Since the fifteenth century *naval techniques and equipment* had been improved which permitted a *better knowledge and development* for the country. Thus during the sixteenth century the Portuguese set *sail into unknown lands* which supplied a wide and *profitable trade* that would enrich the country, enlarging the Portuguese domains.
> We can conclude that with the help of the Portuguese *strong resources (with strong fleets)* the unknown lands were dominated.

A web of long-term conditions are presented in first place - "naval techniques", permitting "knowledge and development" leading to trips "into unknown lands" (an antecedent step), in order to get "a wide and profitable trade" - the last of these factors implicitly appearing as a purpose ("that would enrich the country"). Such an account seems to function as the context for the factor featured in her last statement - "strong resources" - an immediate factor being itself the logical consequence of those long-term conditions already stated. In the interview, the same conditions are given but they are rephrased and rearranged in two different causal sets - the former, integrating new techniques and a better knowledge, the latter, listing the resources factor and the trade purpose:

> Because of the *new techniques and equipment* they used, which permitted them ...*a better knowledge and development*, and thus they managed ... to conquer the lands in India, also because *those people were weak in those resources* and also ... the Portuguese were interested in the *trade* because it was *rather profitable* and ... that is why it was easier to get into the conquest.

The whole pattern might suggest that the student construes an explanatory narrative close to the structural model: although short-term conditions are considered, the long-term ones seem to be considered as decisive to the occurrence.

(b) Factorial weight

Filipa operates with the notion of factor in her own explanation. This notion appears fully established although a few inconsistencies can sometimes be found. In her written task she states:

> 2.1. While version A argues that the Portuguese people were gifted with *great naval power and resources*, version C, on the contrary, gives us the idea that the Portuguese had *no power or resources at sea*.
>
> In version B the *Moslems were those who challenged the Portuguese* by sea, version D in turn is *opposed to this explanation* arguing that *who "attacked" first were the Portuguese* against the Moslems.
>
> 2.2. They [versions B and C] disagree concerning *the way the Portuguese conquered* the Indian Ocean.

Different factors are selected here, there being some contradictions detected among the several versions. However, if the notion of factor seems to be implicit in her first

comparison (naval power versus no power on sea), in the second comparison, between versions B and D, she asserts only differences about a descriptive fact (who attacked first: the Moslems or the Portuguese?) and avoids the Chinese factor. In her last comparison (between versions B and C) she also avoids speaking of the Chinese, considering disagreements in terms only of a vague "way of conquest". Here, it is not explicit, again, whether she is thinking in an explanatory mode or just in terms of a descriptive pattern, as the expression "way of conquest" suggests. As the Chinese factor is never quoted through her written and oral responses, such ambiguities related to version B might mean (a) a difficulty of interpreting - or expressing - the information given by Pacey, or (b) a non-discrimination of the notion of factor or, (c) an unwillingness to cope with a counterfactual statement . The first hypothesis seems to be consistent with most passages of her work, since in the interview Filipa refers to the Chinese as "being weak in resources", and explicitly refers to "factors" (which contradicts hypothesis b). She implicitly uses counterfactual reasoning in connection with the Moslem factor, which contradicts hypothesis c:

> I: And don't you think that version A partially shows something about that [why did the other people fail]?
>
> F: Yes, I do, because it speaks of *the Moslem people ... not having their power based on the sea*, which really helped the Portuguese to conquer those lands ...

The resources factor, originally stated in a positive mode (the Portuguese had strong resources), is later presented by comparison with other people - those people (in India) who "were weak in those resources", Moslems without "power based on the sea". In all these accounts it appears as a facilitating condition ("with the help", "why it was easier", "which really helped"). Throughout her work, Filipa selects some long-term conditions and motives and values them as in this passage of the interview:

> F: In version D they give us *a goal* ... - the goal of the Portuguese - and *several situations* which really explain that Portugal was *well-armed* and that she had an *interest in the trade* in the Indian Ocean ... there are data that really are logical ...

A single-factor explanation is not given high value. Factors must be linked to each other in order to form a complete, good explanation, such an idea being expressed several times. For example, she claims in the interview:

> F: I think that *one factor* must be also *linked to others*, because there is not just one factor only, several factors must exist complementing each other!

I: And confronted with one explanation with several factors seen as not very important, and another with only one, but a strong factor, which of them would you consider to have more weight, how would you decide on the importance of those explanations?

F: Maybe for the stronger factor ... because in general if ... well, I don't know, *maybe several factors, even in their simplicity, can give a better explanation than only one!* Because I think that, in this case, only one factor - that the Portuguese were well-armed - there are also other data, for example, the Portuguese spice trade, I think that it is quite important, while other data, or versions, don't give that, they speak of fleets, that's' all. I really think that a *complementarity* must exist!

Complementary factors are thus stressed by Filipa as an ingredient of a good explanation. But her argument also suggests a common strategy: to criticize a non-favoured factor (about "fleets") in order to give room to her favoured long-term conditions and motives.

Explanatory consistency

(a) Evidential consistency
        Use of information

Her explanation appears mainly grounded on familiar knowledge (naval techniques and the search for spices). Some fresh data taken from the given versions and sources are integrated in her account, when she refers to military resources ("Portuguese strong fleets" or other people's naval weakness - "Moslem, African or Chinese". Her assertion about the Chinese naval weakness contradicts the evidence given in version B and the sources. With regard to version B (ranked second by Filipa) only the Moslem factor is discussed, and its relevant information about the Chinese is ignored ("the *Moslems* were those who challenged the Portuguese at sea"). Also, in the interview, when discussing the different versions, only the Moslems seem to be referred to:

I: You wrote: "while version B explains only the conquest". This "only" means that version B lacks ...

F: Yes, it lacks something. It just gives us *one datum* [on the Moslems?], while the others don't, they give us more data which we can use for understanding!

The Chinese factor is completely left aside in all her responses. The interviewer should have explored this ambiguity, but failed to do this. Whatever reasons Filipa might have, data suggest, at least, some difficulty in coping with this evidence, which does not

facilitate an open attitude to the various evidence available required for giving an historical explanation.

Evidence and explanation

Filipa expresses a concern for basing explanations on data on several occasions. For example:

> I: And what is the reason for that, for different presuppositions? Do they base themselves on something, or not?
>
> F: Yes! *They must base themselves on data*, mustn't they?

However, when asked to justify her own explanation she makes a restricted selection of evidential statements taken from the list given:

HER EXPLANATION   STATEMENTS SELECTED

Naval equipment   The spice trade was very profitable

Better knowledge   Portuguese ships were well-armed

Naval trips

Profitable trade

Strong fleets

In the interview, she justifies her choice, showing a concern for evidential confirmation by applying the expression "verification" as a requirement not only to a material factor (Portuguese resources), but also to a purpose (the goal of conquest):

> I: Why didn't you choose the others [statements]?
>
> F: These two statements explain better because the Portuguese superiority in relation to the other people and the goal of the conquest *can be verified*.

In her written response on the evidential justification of the best explanation (she chooses version D), she agrees on a similar justification, showing a concern to relate several factual statements too:

> 3.3. Yes, it [version D] *confirms all sources*, telling us about the Portuguese strong fleets, their superiority over the Moslem trade ships and their goals - the trade, essentially, which was very profitable at the time.

Version D seems to be selected for reasons of providing more and relevant data for a better explanation. *Confirmation*, which might be regarded as a more elaborate referent for evidential consistency than verification, is beginning to be applied, although some confusion on explanations confirming or being confirmed by sources is apparent - and this should be clarified in the interview. That confusion might be due just to language problems since the assumption that explanations must be grounded on data is clearly asserted several times. Evidential statements are valued - and emphasised throughout the interview - as grounds for an explanation, which should be confirmed by "data" or "proofs". "Data" is the most frequent word related to evidence, which suggests a clear differentiation between an unobservable past and observable sources in order to construct an explanation. But the meaning for data oscillates - sometimes meaning factual proofs, sometimes in a looser form, covering facts and opinions. Used in the latter sense, they are considered as not explanatory:

> F: There are different versions and different authors' opinions and so they present a given *explanation but like...opinions*, those are data which don't help us to explain what happened!

The term proof begins to be used at the moment of discussing the idea of a complete explanation:

> 4.3. Maybe. Nowadays, with *the proofs found* and with the several studies and research, a complete explanation of the issue exists already.

In these responses there is a tendency to see the completeness of explanations as tied to a sense of exact data to be searched. In the interview, she claims:

> F: I think that nowadays with the *several existing proofs, with data*, historians are already able to explain a question.

She seems to point to explanatory power, either in terms of evidential and logical adequacy. She tries a distinction between a hypothesis and a certain explanation:

> I: So explanations are not always...
>
> F: They are *not always quite correct*, there are data which give some indicators on something, but *they are only indicators, now, a proof! These proofs really give a certain explanation ...*

Such a response can be seen as falling into a positivist pattern: an explanation is true when it is "proved" by noncontroversial data, not just indicators of the past. It must also

be "universally valid" according to the same view, but her arguments might also suggest some more sophisticated reasoning related to an idea of *non-refutation*:

> I: Why didn't you select total or incomplete as attributes of a good explanation?
>
> F: I think that it is valid because - if it is *universally valid* - when something is explained in history we are not capable of doubting it, since there are really some data there are explanations and as I mention here, *a good historical explanation will be put under research...*
>
> I: And do you think that it is never put into question?
>
> F: *It can be put into question by other historical authors!*

This implicit idea of a possible refutation has still some positivist contours (non refuted explanations are certain) and the idea of confirmation continues to be expressed at the level of exact proof:

> I: So, does it [historical explanation] continue to be "universally valid"?
>
> F: [Smiling] ... it depends on whether it really happens or not - if it does, it is not so valid as *a good explanation which is really certain*; in the case where some doubts exist, and when some authors - as in this case - put *some uncertainties, I think that it is not valid*, is it?
>
> I: Thus, does that mean that you consider two kinds of historical explanations: those being certain...
>
> F: Certain!
>
> I: And accepted by everyone...
>
> F: Exactly, but they are those on which there are *exact proofs*, now the others without proofs, with some uncertainty, maybe ...

Although ideas of refutation seem to emerge, she attributes certainty to an explanation based on non-refuted facts, leaping over a distinction between confirmed facts and an explanation consistent with evidence.

In the light of these responses, Filipa seems to try to reconcile notions of verification ("with the several existing proofs, with data", "They are already able to explain a question") and of explanations open to refutation ("It can be put into question by other historical authors!").

(b) Logical consistency
    Coherence and plausibility

Different data conveying different factors are selected in terms of their logic. In the written task, when agreeing in considering an explanation better than others, she points out:

> 2.4. Yes, because *some data are more important and more logical* in order to explain why the Portuguese came to dominate the Indian Ocean.

In the interview, she tries to tackle the meaning conveyed by the referent logical. She seeks to come out of a preempted mode by giving substantive examples of logical data:

> I: So, what makes some data more important and more logical than others?
>
> F: I think that ... those data are perhaps more logical ... for example, in *version D*, which I chose, they give us *a goal*, the goal of the Portuguese *and several situations which really explain* ...

A logic of data seems to imply a coherent explanatory link (intelligible in terms of practical reason) between some statements conveying evidence for an *explanans* ("they give us a goal") and the *explanandum* ("which really explain..."). Here, explanatory power seems to be entangled with evidential grounds; explanatory power might suggest a concern for internal coherence (in terms of rationality of actions), and plausibility, when asserting that several conditions would make Portuguese resources and purposes more "logical". The relevance of a rational explanation is also implied when she argues for the explanatory power of version D, in terms of making reasons explicit:

> 3.2. The version ranked first - *version D* - *explains better the reasons* that led the Portuguese to explore and to dominate Oriental lands, while *version B only explains the Portuguese conquest* in India *without transmitting to us any Portuguese goal* concerning the Indian seas.

The contextual situation of the conquest is considered when, in her written answer about what remains unexplained in versions chosen, Filipa argues:

> 4.2. That historical explanation [versions A and D] doesn't manage to explain the why of *the other people's failure* ....

This idea might express concerns for either (a) coherence: considering what reasons did those people have to let the Portuguese dominate, or/and (b) plausibility: considering why

other people let the Portuguese dominate that area would permit us to understand more clearly the plausibility of the resources factor. The interviewer tried to explore this idea:

> I: And do you think this explanation [A] quite satisfactory in relation to the "why" of others people's failure?
>
> F: No, I don't, because they might have no power at sea, but when the Portuguese reached the land, they [the Portuguese] surely had power on land ... if they [the Portuguese] had power at sea it's probable that they had it on land too!

Moslem land power seems to be assessed here so far as its importance as a negative factor to the Portuguese empire is concerned: if the Moslems were so powerful on land why could the Portuguese establish their control in some lands, too? As Filipa refers to the Portuguese conquest of some Indian lands, she seems to take into account the specific historical context of the situation. She might have given here an argument at the level of a comparison-situation, concerning a comparison between what had occurred in the Indian ocean and on the Indian land.[8]

Objectivity and truth

Filipa shows an explicit concern for an objective explanation under criteria of evidential consistency, thus making possible a distinction between a better and a worse explanation. She recognises bias in version C:

> F: I think that the author *Matoso is more subjective. The others give more proofs, more data,* this one doesn't, he speaks more of subjective aspects, the *mentality varies,* of course ...

Filipa's ideas express a need for a detached attitude and she can relate this criterion of objectivity - as contrasted with subjectivity - to criteria of evidential consistency ("more proofs, more data") for discriminating what counts as an objective explanation. But this contrast of objective versus subjective seems to be still related to the old paradigm of the natural sciences. There are two kinds of explanation: objective explanations must be value-free and thus "universally valid"; subjective explanations are value-laden, due to "different interests existing in some of them" or "mentalities". Filipa tends to include a good historical explanation in the former set.

---

[8] The two opposing policies concerning the Portuguese oriental empire - naval supremacy versus land domination - are currently taught in school. Appendix C shows such an approach.

A positivist approach underlying her ideas about methodological detachment provokes an oscillation in the kind of attribution she assigns to personal assumptions: sometimes she seems to give a negative attribution to authors' opinions, sometimes she seems to accept it as a natural feature in an historical explanation: "there are authors who explain in one way, others in another". Such an oscillation may also be seen when she reconsiders her response about the contingency of knowledge and she discusses that in the interview:

> I: So far as the statement ... "Each time and place explains in its own way" is concerned, why did you consider it as false?
>
> F: I think that if there are data ... oh, but here it speaks of time as well, and each time has its own mentality, and the place as well ... Here, maybe it is *true*, because in a place people can have a mentality which they wouldn't have in another place, they are capable of accepting something that the others are not.

She exposes an idea about the social production of knowledge by relating authors' presuppositions to different mentalities. She exemplifies those different mentalities by identifying the context in which the nationalistic version C was produced. It must be emphasised that Filipa discusses the moral factor in its genuine context, that is, she manages to think of it in terms of morality:

> F: For example, here in version C [quoting]: I think that *this is an explanation precisely based on the nationalistic mentality of a Portuguese author*. And here it speaks of the great Portuguese leaders' morality. So this can exemplify well the differences in place and time.
>
> I: And to which time and place does this version refer?
>
> F: I think that it really speaks of those who conquered, that mentality of love for the country, that morality which the leaders had! To conquer for enlarging the country!
>
> I: But the others don't speak of that, why? Why don't the other versions speak of that issue?
>
> F: I think that *the others want to be more objective*, maybe, this is somewhat subjective.

This idea of contingency of knowledge is far from being constructed under a relativist view: it conveys contrasted notions of a biased (equated to subjective) versus a detached (equated to objective) attitude. ("The author Matoso is more subjective. The others give more proofs, more data"). Such a pattern (a biased versus a detached attitude) at some point seems to coexist with the recognition of a perspectiveful objectivity:

> I: And in relation to statement 4 ["only some authors manage to be totally neutral"] you put this statement as *false*, why?
>
> F: I think that *each author can draw a good explanation*, it can vary, but I think that they have always a ... well, *they are critical* ...

Conflicting with the positivist model, some distinction between notions of perspectiveless and perspectiveful neutrality seems to emerge. She tries to disentangle these notions, under pressure from the interviewer:

> I: And how can neutrality cope with the personal point of view?
>
> F: ... She/he is neutral, she/he is going... [smiling] This is difficult! I think that *after her/his own point of view and the others, she/he can go to neutrality* ...
>
> I: So you consider that neutrality is an arrival point and not a starting point.
>
> F: Or maybe a starting point, because *she/he can start with neutrality too and go to an objective explanation.* I think that we can see two ways there, she/he can be neutral and go to the explanation, to the study, but she/he can also move away from neutrality, because really with so many opinions, she/he can't draw a neutral opinion!

Here she clarifies her notion of methodological neutrality, meaning a detached ("she/he can be neutral and go to the study") and a balanced ("after her/his own point of view and others") attitude. She tries to distinguish the notion of personal perspective ("really with so many opinions, she/he can't draw a neutral opinion"). She goes on trying to disentangle these ideas of neutrality with and without perspective and argues, although in not very clear terms:

> F: Each author can have her/his *own opinion, but neutrality is not exactly that,* because *neutrality is not tied to her/his opinion,* but well, she/he is not neutral about the other opinions ...

These assumptions (on the way of distinguishing a perspectiveless from a perspectiveful neutrality) might strengthen her objectivist view. In this position, she discusses her last written answer:

> 5.2. For me, a recent author would be the person who could explain the Portuguese domination of the Indian Ocean better, because *she/he can compare facts, having a larger number of proofs, better resources, with deeper studies* on the several issues.

Such an answer may suggest that a recent author can produce a more powerful explanation, with a greater scope. An idea of provisional explanation under an objectivist approach seems to be expressed here.

Truth equates both certainty and validity of knowledge: in her written task, she attributes the adjectives "true" and "valid" to a good explanation. In the interview, she considers an historical explanation as "universally valid" but also agrees that it can be refuted ("a good historical explanation will be put under research"). Also, she prefers to reason on "certain data", (equated with "proofs") rather than speaking, as many subjects do, of "true facts". These ideas might imply a more elaborate notion about truth in an explanation than just assertions about the truth of facts, in the ontological sense. We might see a realist position here, going beyond a naive level. But awareness in discriminating certainty from explanatory validity, with regard to data, is too hard a task for Filipa, at the moment of the interview. She tries to assess certainty in terms of consistency with existing more or less (observable) data:

I: And to what is this due? Some explanations with exact proofs and others less certain?

F: I think that *with some of them there are less relics* ...

I: Now, we are talking about explanations, about *why*. Is it possible to find relics about *why*?

F: No, but ...

I: Do the reasons have relics?

F: No! I think that it is *when no doubts are offered! Those data, those sources ... Now, when doubts are offered there we must doubt* ...

An explanation well-confirmed by evidence ("those data, those sources") is worthy of being trusted - so Filipa seems to suggest. Thus a confident attitude - sometimes a bit dogmatic ("when no doubts are offered!") towards scientific knowledge is reasserted, under an objectivist approach.

The model of students' ideas about PHE

An empirical model of students' ideas about PHE constitutes the main working hypothesis in the present study. The model was progressively constructed through the analysis of several sets of data, that is, from the first explorations (see chapter 4) and the pilots (see chapter 6), to the final study as it was described along this chapter. Figure 8.1 shows the evolution of the model, from the last pilot (P4) to the final study (F), in its main features.

Figure 8.1 Evolution of the model of students' ideas about PHE[9]

AFTER P4	AFTER F
LEVEL 1 - INCONSISTENCY	**THE STORY**
Descriptive or restricted expl. mode	Descriptive or restricted expl. mode
Second-order reasoning related to inf.,	Second-order reasoning related to inf.,
or perplexity	or preempted explanation
LEVEL 2 - STEREOTYPES	**THE RIGHT EXPLANATION**
Explanatory mode	Restricted/full, rational/causal expl. mode
Common-sense criteria in expl. assessment	Common-sense criteria in expl. assessment
Right/wrong explanations	Right/wrong explanations
Exp. from primary sources often valued	Direct observation valued
	Naive realism and scepticism
LEVEL 3 - CONVENTIONAL POSITIVISM	**THE MORE FACTORS THE BETTER**
Explanatory mode	Restricted/full expl. mode
Hist. exp. accepted if based on reliable evidence	Evidence considered as sources for exp.
Sum of factors	Aggregation (sum or interlinked factors)
Personal opinion plainly accepted	Common-sense criteria in expl. assessment
Exp. from primary sources often valued	Memory and understanding valued
	Naive realism and scepticism

(To be continued)

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[9]Abbreviations: expl. = explanatory; inf. = information; exp. = explanation; hist. = historical; d. obs. = direct observation.

LEVEL 4 - SCIENTIFIC DOGMATISM	A CONSENSUAL EXPLANATION?
Expl. mode, often an historical narrative	Causal/rational or narrative mode
Hist. exp. accepted if based on reliable evidence	Interlinking of factors valued
Aggregationist criteria in expl. assessment	Evidence as verification for exp.
Perspectiveless neutrality valued	Perspectiveless neutrality valued
	Consensus or d. obs. ideal
	Objectivism or relativism

LEVEL 5 - PERSPECTIVE	PERSPECTIVE
Explanatory mode	Causal/rational or narrative mode
Concern for neutrality as a tentative balance	Interlinking of factors valued
Perspective (tentatively) recognised as legitimate	Evidence as confirmation/refutation of exp.
	Emergence of perspectiveful neutrality
	Objectivism or relativism

In Level 1 the focus moved from a pattern related to fragmented information (inconsistency) towards one centred on the story. In Level 2, a concern for stereotypes moved to an emphasis put on the right explanation. A discrimination of direct observation from memory, both formerly treated as primary sources, was then done, and trends about access to truth began to be considered. Level 3 (formerly, conventional positivism) was rethought in terms of aggregation of factors (the more factors the better). Criteria for explanatory consistency - in terms of evidence, coherence and plausibility - were better discriminated. Memory was identified as distinct from a direct observation paradigm. Level 4 evolved from a scientific dogmatism concerning the ideal of perspectiveless neutrality, towards "a consensual explanation?" pointing to different attitudes towards knowledge and truth. A positivist consensus, or a subjectivist view valuing direct observation, were suggested as outcomes of such an ideal of neutrality. An interlinking of factors, and more elaborate degrees of explanatory consistency, were features discriminated at this level. Level 5 maintained the same focus on perspective, but identified different degrees of explanatory modes and factorial weight, within explanatory structure; it also clarified degrees of explanatory consistency. Trends in attitudes about knowledge and truth were better explored.

Summary

This chapter presented a qualitative analysis of students' ideas, suggesting a model of levels of progression about PHE. One example of each level was extensively discussed. These examples were analysed according to the main constructs concerning the conceptual framework discussed in chapter 7. In Level 1, students' ideas appear mainly related to the story; in Level 2, there is a special focus on the right explanation; in Level 3, students' concerns appear to be aggregation of factors (the more factors the better); in Level 4, there is a special preoccupation about a perspectiveless neutrality, leading students to wonder if a consensual explanation is possible; in Level 5, perspective in explanation begins to be recognised as legitimate, although in oscillation with ideas of a perspectiveless neutrality. The evolution of the model, from the last pilot to the final study, was schematically analysed.

9 Statistical analysis of students' ideas about provisional historical explanation

An in-depth, qualitative analysis in order to generate the empirical grounds for a model of students' ideas about provisional historical explanation was carried out. After this, a statistical analysis of the whole sample was viewed as desirable to illuminate some possible major trends in the population studied. Responses to the written task were coded in order to analyse: (a) frequency distribution of levels and differences in levels by grade, age and sex, (b) main tendencies in responses to some subtasks which were thought to be partial indicators of the conceptual clusters explored,[1] (c) relationships between levels of progression and grade, age, sex, and some subtasks related to objectivity and truth, and (d) attitudes towards the possibility of deciding on a better explanation, that is, trends towards objectivism versus relativism entangled in the notion of provisionality. These trends were considered to parallel the levels of progression in ideas related to explanatory structure, explanatory consistency, and objectivity and truth. A comment on the major findings of the statistical analysis is given.

Levels of progression in ideas about PHE

Responses from the whole sample (N=119) on the written task were categorized by levels of progression in ideas about PHE, according to the model devised. The frequency distribution of PHE levels of progression and differences by grade, age and sex were then analysed.

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[1] These three conceptual clusters (explanatory structure, explanatory consistency, and objectivity and truth) formed the theoretical framework for the empirical analysis, and had no relations to the cluster analysis used in statistics.

Frequency distribution of PHE levels of progression

Table 9.1 shows the frequency distribution of levels of progression in the sample analysed.

Table 9.1 Frequency distribution of levels of progression

Level	Frequency	Percent
1	23	19.3
2	25	21.0
3	55	46.2
4	12	10.1
5	4	3.4
	119	100.0

The mode (N=55) was Level 3, which means that about 46% of responses followed a pattern of ideas characterized by a major concern about quantity of factors. Patterns conveying less elaborate ideas (levels 2 and 1) were the next most frequent, with about 21% and 19%, respectively. The most elaborate levels (levels 4 and 5) were the least frequent, with about 10% and 4%, respectively. The low frequency of responses in Level 5 suggests that only a restricted number of students showed a paradigm challenging the idea of perspectiveless neutrality, by oscillating between this notion and the recognition of a genuine point of view entangled in the notion of methodological neutrality. The overall ranking of patterns of ideas about provisional historical explanation was as follows:

Rank 1	Level 3 - The more factors the better
Rank 2	Level 2 - The right explanation
Rank 3	Level 1 - The story
Rank 4	Level 4 - A consensual explanation?
Rank 5	Level 5 - Perspective

PHE levels of progression by grade

The sample was drawn up from two schools, stratified by grade (7th, 9th and 11th grade), and classrooms were randomly selected within each grade, in each school. The distribution of levels of progression by the three grades is shown in Table 9.2.

Table 9.2 PHE levels of progression by grade

| Level | Grade | | | |
	7	9	11	Total
1	20	3	-	23 (19.3)
2	12	10	3	25 (21.0)
3	17	23	15	55 (46.2)
4	1	5	6	12 (10.1)
5			4	4 (3.4)
	50	41	28	119

chi-square = 44.18, df = 8, * p < 0.05

A chi-square was used to statistically test for differences in levels by grade and a significant difference was found at the 5% level. The general pattern suggests that there is a progression from the 7th to the 11th grade. Level 1 (related to a descriptive pattern) was observed in the 7th and 9th grades, only. Level 2 (suggesting a concern for the right explanation) was observed in the three grades with only a few pupils in the 11th grade. Level 3 (related to a concern about quantity of factors) was the most observed level in the three grades, but at different rates (7th, 34%; 9th, 56%; and 11th, 54%). About half of the 9th-graders and 11th-graders suggested ideas typical of Level 3. Level 4 (concerning a perspectiveless neutrality and an ideal of consensus) was more frequently achieved by the 11th-graders (11th, 21%; 9th, 12%; 7th, 2 %). Level 5 (related to emergent ideas of a perspectiveful neutrality) was achieved by the 11th-graders only, at a low rate (14%).

The mode of frequency and rates observed in grades 9 and 11 indicate that ideas about provisional explanation linked to a major concern for a quantity of factors remains the most popular pattern across the last two grades, that is, from the 9th grade (the last year in compulsory schooling, with history included in the core curriculum) to the 11th grade

(which is now part of post-compulsory schooling, with pupils studying history as one of their choices).

PHE levels of progression by age

The sample ranged from 12 years, 1 month to 20 years, 8 months, and was grouped by months, in six categories. The distribution of levels of progression by age is shown in Table 9.3 in four categories. The initial categories 4, 5 and 6 were regrouped in a single one, category 4, due to its small frequency.[2] These four categories are:

- category 1 = 145 to 168 months (12 years, 1 month to 14 years)
- category 2 = 169 to 198 months (14 years, 1 month to 16 years, 6 months)
- category 3 = 199 to 228 months (16 years, 7 months to 19 years)
- category 4 = 229 to 250 months (19 years, 1 month to 20 years, 8 months)

Table 9.3 PHE levels of progression by age

Level	Age				
	12-14	14-16	16-19	19-20	Total
1	12	11	-	-	23 (19.3)
2	10	10	4	1	25 (21.0)
3	14	24	14	3	55 (46.2)
4	2	2	6	2	12 (10.1)
5	-	-	4	-	4 (3.4)
	38	47	28	6	119

chi-square = 31.46, df = 15, * p < 0.05

The chi-square test revealed that there were significant differences among the age-groups at the 5% level. An overall progression from the 12-14 to the 16-19 age-group may be suggested. The number in the 19-20 age-group might be too restricted to be considered in a major trend about progression. The 12-14 age-group mainly suggested

[2] This age-group (19+ to 20+) may be seen as a consequence of retention which has been practised in Portuguese schools. Its initial three categories presented the following boundaries and frequencies:
category 4 = 229 to 234 months (19y. 1m. to 19y. 6m) - 0 students
category 5 = 235 to 240 months (19y. 7m. to 20y.) -1 student
category 6 = 241 to 250 months (20y. 1m. to 20y. 8m.) - 5 students.

ideas typical of levels 1, 2, 3, that is, their responses ranged from a descriptive pattern to a concern for the right explanation and for a quantity of factors; two pupils of this age-group suggested more elaborate ideas related to neutrality (Level 4). The 14-16 age-group also ranged mainly through levels 1, 2 and 3, but their responses were concentrated (15%) around Level 3. As in the former age-group, two pupils suggested more elaborate ideas at Level 4. The 16-19 age-group appeared to show the most sophisticated ideas: no overall responses were categorized at Level 1, only a few pupils suggested Level 2, some (the highest frequency, by age-group) suggested ideas of Level 4, and it provided the only responses (N=4) at Level 5. Fifty per cent of this age-group appeared to give responses at Level 3. The small 19-20 group ranged between Level 2 and Level 4.

As progression of age and grade appear broadly to mirror one another, a closer analysis of distribution of levels by grade in each age-group might illuminate some interactions of age and grade. All students except one within the youngest age-group (12 to 14-year-olds) attended the 7th grade. Table 9.4 shows that among the youngest students, attending the lowest grade of schooling surveyed, a distribution of levels of progression from Level 1 to Level 4 may be observed.

Table 9.4 Levels of progression by grade in the 12-14 age-group

Level	Grade		
	7	9	Total
1	12	-	12 (31.6)
2	10	-	10 (26.3)
3	14	-	14 (36.8)
4	1	1	2 (5.3)
5	-	-	-
	37	1	38 (100.0)

The 14-16 age-group presents more heterogeneity as far as grade is concerned. The majority of students (51%) attended the 9th grade and appears to follow the pattern of quantity of factors (Level 3). A sizeable minority suggested ideas of levels 1 and 2, and a few fell into Level 4 (see Table 9.5).

Table 9.5 Levels of progression by grade in the 14-16 age-group

| Level | Grade | | | |
	7	9	11	Total
1	8	3	-	11 (23.4)
2	2	8	-	10 (21.3)
3	3	20	1	24 (51.1)
4	-	2	-	2 (4.3)
5	-	-	-	
	13	33	1	47 (100.0)

The table above suggests that, in this age range, there is a positive correlation of grade and level since the 7th-graders appear to cluster around a descriptive pattern whilst the 9th-graders appear to progress towards an explanatory level. A few suggested more sophisticated ideas of perspectiveless neutrality (Level 4). Within this age-group, grade seems to be related to level of progression.[3]

The majority of the 16-19 age-group attended the 11th grade and appeared to cluster around the most popular pattern of ideas, related to quantity of factors. Elaborate ideas of perspectiveless neutrality (Level 4) and perspectiveful neutrality (Level 5) were suggested within this age-group and grade (see Table 9.6).

[3] Grade and level may be both hypothesized as effects of other factors related to cultural and individual conditions.

Table 9.6 Levels of progression by grade in the 16-19 age-group

Level	Grade		
	9	11	Total
1	-	-	
2	2	2	4 (14.3)
3	2	12	14 (50.0)
4	2	4	6 (21.4)
5	-	4	4 (14.3)
	6	22	28 (100.0)

The 19-20 age-group included a small number of students and all except one attended the 11th grade. They suggested ideas of the intermediate levels (2, 3 and 4) as shown in Table 9.7).

Table 9.7 Levels of progression by grade in the 19-20 age-group

Level	Grade		
	9	11	Total
1	-	-	-
2		1	1 (16.6)
3	1	2	3(50.0)
4		2	2 (21.4)
5	-	-	- (33.3)
	1	5	6 (100.0)

The analysis above suggests that in the 14-16 and 16-19 age-groups higher grades would correlate with a progression towards more elaborate patterns. Nonetheless, the majority of ideas, even at higher grades, seem to remain related to an aggregationist concept of explanation (the more factors the better).

PHE levels of progression by sex

The sample included 54 boys (45.4%) and 65 girls (54.6%). Table 9.8 shows the distribution of boys and girls by the three grades of schooling.

Table 9.8. Frequency distribution of boys and girls by grade

Sex		Grade		Total
	7	9	11	
Boy	23	20	11	
Girl	27	21	17	
Total	50	41	28	119

chi-square = 0.62, df = 2, n.s..

The sample was not initially stratified by sex since the null hypothesis, as far as levels of progression are concerned, was put. The a posteriori analysis of data by using the chi-square test confirmed that no significant differences between boys and girls exist among grades. Therefore, for statistical purposes, the sample can be considered randomly selected. Table 9.9 shows levels of progression categorized by sex:

Table 9.9 Levels of progression by sex

Level	Sex		
	B	G	N
1	6	17	
2	16	9	
3	25	30	
4	5	7	
5	2	2	
Total	54	65	119

chi-square = 7.05, df = 4, n.s.

A chi-square test showed that no statistically significant differences in levels of progression were found between boys and girls. Nonetheless, as far as the two lower levels are concerned, it was observed that girls tended to show a descriptive pattern whilst boys clustered at the level of the right explanation.

Statistical analysis of some subtasks

The written task questionnaire (given in Appendix F) permitted the highlighting of ideas relevant to the overall concept of PHE in a qualitative approach as described in chapter 8. However, the majority of items appeared difficult to treat statistically in isolation: they should be combined in order to clarify and deepen their meaning, and the same answers to specific items could be related to different constructs. The main concrete features of such variability were:

- Item 1.1 provided indicators of factorial weight, but this was inferred through a cross analysis with other items (such as 2.1, 2.2, 3.2 to 3.4).[4]

- Items 2.3, 2.4, which were devised to suggest notions of objectivity and truth, could provide indicators of explanatory consistency, and the same ambivalence appeared further in item 4.3.[5]

- Items 3.1, 4.1 indicated concrete decisions about explanations, but the cross analysis suggested several interpretations for the same choices.[6]

- Items 3.2, 3.3, 3.4 provided indicators of explanatory consistency in terms of evidence and/or internal/external logic.[7]

- Item 4.2 appeared to be difficult to grasp, and only part of the sample gave coherent answers.

- Items 4.1 and 5.1 appeared to provide ambiguous answers in the written task and in the interview since the meaning of statements given seemed grasped in different ways.[8]

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[4] Example: Carla in her explanation gave two sets of factors (Portuguese sacrifices and Chinese withdrawal) perhaps implying a hierarchy between them. In her subsequent work, e.g., in 3.2 and 3.4, she appeared to value a sum of factors and minimize those versions conveying the factors selected for her own explanation (see pp. 217-20)

[5] As examples, on 2.4 (about the possibility of one explanation being considered better) see Sofia's answer in Appendix I, p. 385. It implies an aggregationist pattern as far as evidential consistency is concerned; a subjectivist approach is more explicit in 4.3, 5.2 (ibid.). On 4.3 (about the existence of a complete explanation, today) see Rui's response in p. 232. It suggests an aggregationist-verificationist pattern in terms of evidential consistency, and implies a concern for absolute neutrality, also defended in other passages.

[6] Examples of different meanings (made explicit in item 3.2) of ranking version D first, may be observed in answers given by Cláudia, Hermínio and Rui (see pp. 202, 210, 229, respectively).

[7] Answers to 3.2, cited in the previous footnote, suggest notions mainly related to logical consistency, in Hermínio's response, and to evidential consistency, in Rui's response.

[8] Responses to item 4.1 were not considered in the analysis. Responses to item 5.1 were statistically treated in a factorial analysis (see pp. 274-6).

- Item 5.2 indicated notions of objectivity and truth (and in some cases of explanatory consistency too) but it should be combined with other items providing indicators of the same kind (items 2.3, 2.4, 4.3)[9]

Deciding among historical versions

A few items could be directly counted in terms of frequency of responses, having the limitations stated above in mind. Item 3.1, which asked the pupils to rank the four historical versions given, was one of them. It was considered a relevant question since it propelled the arguments about reasons in terms of explanatory consistency for concrete decisions (conceptual cluster C). However, the ranking attributed by students to the four versions (table 9.10) does not reveal the variation in ideas suggested in the arguments for their choices.

Table 9.10 Frequency distribution of historical versions ranking

	First rank	Second rank	Third rank	Fourth rank
Version A	8	28	51	32
Version B	7	46	24	41
Version C	9	33	36	40
Version D	94	11	7	5

Kendall's Coefficient of Concordance W=0.345, n.s.

Kendall's coefficient of concordance (Siegel, 1951) was used to see whether the students ranked the versions as having the same popularity. The coefficient obtained showed that there was not a significant concordance about the ranking of the four versions: Version D was ranked quite differently from the other three, and no two versions were given the same ranking. The major consistency was that versions A, B and C were consistently all ranked fourth. [10] For convenience of analysis, the four versions may be seen in two groups: the most popular (chosen as first and second choice) and the least popular (the two ranked last). The descriptive version D proved to be clearly the most popular (79% of pupils ranked it first), whilst all the other three versions obtained small acceptance as a first choice. Moreover, version D was placed

[9] For example, Cidália chose a recent author as the best able to explain the situation, but that appears to be related to an idea of total information, and conflicts with a sceptical attitude revealed in responses to other items (see Appendix I, p. 372.)

[10] Through the qualitative analysis, levels of progression were generated by taking into account the several arguments given by students about their practical choices in these particular items.

last by five pupils only. The most popular second choice was version B, an explanatory hypothesis, which might be seen as innovative (as far as the speculation about the Chinese is concerned), and critical about the Portuguese naval supremacy. However, it was much less enthusiastically accepted than version D: versions C and A together exceeded it, and it was ranked last practically *ex aequo* with version C. The third rank, which might mean one of the least popular versions, was most frequently given to version A. It was hypothesized that this version would convey information about the Moslem factor not completely new to the students, but stated in a fresh approach (stressing Moslem land power against its naval inefficiency). Although versions C and B, together, exceeded it in the third rank, it consistently took the third place for the first, second and fourth choice. That suggests an attribution of a mild negative sign to it. The last rank, representing the least popular version among pupils, was attributed to version C, conveying a nationalistic view about the Portuguese empire, and to version B which might be seen as an innovative, but also critical approach about Portuguese naval supremacy. These two opposed views seemed to be those against which pupils reacted most.

The ranking of the four historical versions was analysed by grade and level. Tables 9.11 and 9.12 show the distribution of the most popular versions (first rank), by grade and level, respectively.

Table 9.11 The most popular version by grade

| Version | Grade | | | |
	7	9	11	Total
A	3	3	2	8 (6.7%)
B	4	1	2	7 (5.9)
C	1	5	3	9 (7.6)
D	41	32	21	94 (79.0)
NR.	1	-	-	1 (0.8)
	50	41	28	119 (100)

Chi-square = 6.23, df = 6, n.s.

The chi-square test revealed that no significant differences among grades were found. Version D clearly appeared the most popular version across grades, the other versions

being quite distant from the former. This version was massively chosen first: 82% of the 7th-graders, 78% of the 9th-graders and 75% of the 11th-graders selected it.

The frequency distribution of the first rank for historical versions through PHE levels of progression revealed a similar consistency, as shown in table 9.12.

Table 9.12 The most popular version by level

Version	Level					
	1	2	3	4	5	Total
A	1	1	5	-	1	8 (6.7)
B	2	1	3	1	-	7 (5.9)
C	1	1	4	3	-	9 (7.6)
D	18	22	43	8	3	94 (79.0)
NR.	1	-	-	-	-	1 (0.8)
	23	25	55	12	4	119 (100)

Chi-square = 7.86, df = 9, n.s.[11]

The chi-square test showed no significant differences in choice across levels. Frequency of version D as first choice corresponds to high percentages in all levels. Through the qualitative analysis, version D appeared treated as a story, or as an explanatory account, and its information was frequently selected in terms of factors, namely, technological advance (naval equipment and knowledge), economic motivation (the trade spice), organized explorations (systematic trips through the African coast).[12] A strategy of converting information into factors was observed.[13] Accordingly, this ranking might reveal an overall aggregationist pattern of ideas concerned about quantity of information in a good story, or about a valid "total" explanation of a past situation. These ideas may coexist with elaborate notions of consistency with evidence (asserting that sources given corroborate, and do not refute, factors implicitly selected in version D) and with historical objectivity (related to a concern about neutrality, with or without recognition of perspective).

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[11] Levels 4 and 5 were collapsed for the chi-square test and the single no-response was ignored.

[12] The qualitative analysis in chapter 8 provides some examples of how students viewed information in version D.

[13] The same strategy of conversion may be found in the "Chata Project" (Lee, 1995)

For the second choice, a distribution across versions A, B, C, D by PHE levels of progression appeared as shown in Table 9.13.

Table 9.13 The second most popular version by level

Version	Level					
	1	2	3	4	5	Total
A	6	6	11	4	1	28 (23.5)
B	11	9	21	3	2	46 (38.7)
C	4	7	18	3	1	33 (27.7)
D	1	3	5	2	3	11 (9.2)
NR.	1	-	-	-	-	1 (0.8)
	23	25	55	12	4	119 (100)

Chi-square = 3.97, df = 9, n.s.[14]

The chi-square test revealed that no significant differences in this choice exist across levels. Since 48% of responses categorized in Level 1 (story-based and relying mostly on substantive information) opted for version B, it appears (from the qualitative analysis) that this second option was probably due to pick-up information for a story rather than being seen in terms of explanatory fruitfulness. At Level 3, version B followed by version C were the most chosen. At other levels, students distributed their preferences through the different versions. Thus, the different versions might be favoured as a second-choice according to more or less critical criteria.

The last choice across grades and levels of progression is shown in tables 9.14 and 9.15 and, in a similar way to the choices made for the most favoured explanations, raises the same paradox.

[14] Levels 4 and 5 were collapsed for the chi-square test.

Table 9.14 The least popular version by grade

Version	Grade			
	7	9	11	Total
A	12	10	10	32 (26.9)
B	14	17	10	41 (34.5)
C	22	11	7	40 (33.6)
D	4	3	1	5 (4.2)
NR.	1	-	-	1 (0.8)
	50	41	28	119 (100)

Chi-square test = 1.29, df = 6, n.s.

The chi-square test revealed that no significant differences across grades were found. Nonetheless, the frequency mode across grades shows some variation concerning the least favoured version. It corresponds to version C at the 7th grade, version B at the 9th grade, and versions A and B, *ex aequo*, at the 11th grade. Clustering the most valid versions with respect to historical grounds (versions A and B) against the less valid (versions C and D), the frequency distribution shows that 50% of the 7th-graders, 66% of the 9th-graders and 71% of the 11th-graders reacted against the most valid explanations. A negative correlation between an historically-valid decision and grade seems apparent. In order to reflect further on this contradiction, the frequency distribution of the last choice by level is discussed next (Table 9.15).

Table 9.15. The least popular version by level

Version	Level					
	1	2	3	4	5	Total
A	7	7	13	3	2	32 (26.9)
B	8	8	19	6	-	41 (34.5)
C	7	10	18	3	2	40 (33.6)
D	-	-	5	-	-	5 (4.2)
NR.	1	-	-	-	-	1 (0.8)
	23	25	55	12	4	119 (100)

Chi-square = 1.20, df = 6, n.s.[15]

The chi-square test showed that there were no significant differences across levels for the last choice. Clustering, again, the more valid versions (A and B) against the less valid (C and D), the frequency distribution shows that 65% of students at Level 1, 60% at Level 2, 58% at Level 3, 75% at Level 4, and 50% at Level 5 reacted against the most valid explanations. This finding conflicts, again, with the hypothesis of a progression through levels according to the model generated. Although a progression in historical criteria for the assessment of explanations was suggested (and that constituted some of the indicators for a categorization by levels) students' practical choices did not appear to be made accordingly.

We might hypothesize either that:

1. Students are not much used to applying critical criteria to their practical choices, even when they can thoroughly reason about them. Choices made by students at higher levels seemed to follow standards, such as clarity of information, description of antecedent steps, quantity of factors, or in terms of personal assumptions such as the positive image of the Portuguese, rather than criteria suggested by their arguments. Or,

2. Other historically-valid criteria might be in action when the students make concrete decisions: the relative weight attributed to different conditions (and discussed in terms of plausibility and/or consistency with prior evidence, as explanations) might be relevant to decide among versions.[16] In connection with version D, some conditions were inferred by students, turning a descriptive version into an explanatory one; in version C, the original morality factor was interpreted in terms of values from today (the morale factor) and its nationalistic context rarely seemed to be grasped. The phenomenon of conversion already mentioned appears to be a common strategy for coping with historical information.

Selecting historical conditions

Students were asked to construct their own explanations (item 1.1) on the question "why did the Portuguese manage to establish an empire in the Indian Ocean during the sixteenth-century?". This task provided a major basis for assessing the explanatory structure underlying students' ideas (conceptual cluster S) in terms of explanatory mode and factorial weight, but this was complemented with responses to some other items

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[15] Levels 4 and 5 were collapsed for the chi-square test.

[16] Both hypotheses are raised in the qualitative analysis. See one example of the first in Sofia's responses, and of the second in Carolina's responses (Appendix I, pp. 381-2).

(namely, 2.1, 2.2, 3.2, 3.4). Six students gave a completely fragmented response or did not respond at all. In all the other cases, from a story to a narrative, motives, dispositions and external conditions were coded in the categories as follows, in order to see what type of factors were selected by students:

(a) Temporal priority: the first (European) people to arrive in India

(b) Steps: antecedent Portuguese trips (African coast, Cape, India)

(c) Morale: dispositions such as will power, sacrifice, patriotism

(d) Religion - motivation to fight for faith

(e) Economy - motivation to trade spices

(f) Technology - naval equipment

(g) Organization - planned trips and prior information about India

(h) Military correlation: naval correlation with Turks, Egyptians, Arabs and Chinese

(i) Long-term conditions - geographical, economic, socio-political

Category 2 corresponds to a series of facts treated as steps of a story, in a model which might be seen as proximate to the continuous-series explanation. Categories 3 to 5 corresponds to internal motives and dispositions (reasons for action). Category 1 and categories 6 to 9 correspond to external factors of the occurrence (causes).

The majority of students (N=93) gave more than one condition of the occurrence. The first condition given in the explanation constructed by each student will be considered to shed some light on the type of factors selected. However, that must be understood in the following context: as several students showed a story pattern (at lower levels) or a narrative pattern (at higher levels), in these cases the first condition might not signify explanatory weight, rather a chronological priority; moreover, some students suggesting a causal mode presented a first condition in their explanation and later argued against its relevancy, favouring another condition.[17]

Table 9.16 shows the frequency distribution of types of conditions given *first* by students in their own explanations.

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[17] See Hermínio and Rui's responses, pp. 209-12 and 228-9, respectively.

Table 9.16 Frequency distribution of the *first* historical condition given

Condition	Frequency	Percent
Temporal	2	1.7
Steps	20	16.8
Moral	22	18.5
Religious	4	3.4
Economic	11	9.2
Tech	20	16.8
Organizational	2	1.7
Military	28	23.5
Long-term	4	3.4
NR (no response)	6	5.0
	119	100.0

Military correlation followed by morale, antecedent steps and technological advance were the conditions most students mentioned in the first position. These conditions had been launched for discussion through the material available. The most cited condition was a causal factor - military correlation - and it had been pointed out in versions A and B, sources B to G, implicitly accepted by version D, and negated by version C. The second most cited condition was a reason - moral motivation - and it was conveyed by version C (although originally in terms of morality rather than of morale), and suggested by version D and sources A and C. Antecedent steps were given in version D, which also gave information about technological advance; item 1.2 also provided a summary related to these and other conditions.[18] Table 9.17 shows the frequency distribution of types of conditions cited first, by grade.

[18] This item gave the following statements:

The Portuguese wished to fight the Moslems   The spice trade was very profitable
The Moslem armies were strong   The Chinese ships were bigger and stronger
King John had some information about the I. Ocean   The Portuguese ships were well-armed
The Portuguese had moral superiority

Table 9.17 The first historical condition given, by grade

Condition	Grade			
	7	9	11	N (%)
Temporal	-	2	-	2 (1.7)
Steps	10	4	6	20 (16.8)
Moral	6	10	6	22 (18.5)
Religious	2	-	2	4 (3.4)
Economic	6	3	2	11 (9.2)
Tech	8	9	3	20 (16.8)
Organizational	1	-	1	2 (1.7)
Military	13	9	6	28 (23.5)
Long-term	-	2	2	4 (3.4)
NR	4	2	-	6 (5.0)
	50	41	28	119

Seventh-graders focused on military correlation (a cause) followed by antecedent steps, 9th-graders focused on morale, and technological advance/military correlation next (a reason and causes), 11th-graders focused on antecedent steps, morale and military correlation (the two latter being a reason and a cause). The military cause presented a relative focus in all grades, and the moral motive was stressed from the 9th to 11th grade only. Antecedent steps were favoured at the 7th and 11th grades, and long-term conditions were mentioned at the 9th and 11th grades only. If a focus on antecedent steps in the 7th grade might suggest a descriptive pattern, the apparent regression to antecedent steps in the 11th grade might signify a concern about a complete explanation, thus starting to explain by giving the historical context in a chronological order (a narrativist pattern) rather than the maintenance of the continuous-series model of explanation.[19] To illuminate these features further, types of conditions cited first, by level, are shown in Table 9.18.

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[19] The model of a continuous-series explanation was discussed in chapter 2, p. 46, and several examples of students' responses were given in chapter 8.

Table 9.18 The first historical condition given, by level

Condition	Level					
	1	2	3	4	5	Total
Temporal	-	-	2	-	-	2 (1.7)
Steps	5	6	8	1	-	20 (16.8)
Moral	3	3	15	1	-	22 (18.5)
Religious	1	-	3	-	-	4 (3.4)
Economic	5	2	2	2	-	11 (9.2)
Tech	1	5	12	1	1	20 (16.8)
Organizational	-	1	-	1	-	2 (1.7)
Military	2	8	13	3	2	28 (23.5)
Long-term	-	-	-	3	1	4 (3.4)
NR	6	-	-	-	-	6 (5.0)
	23	25	55	12	4	119 (100)

Seventeen percent of students gave antecedent steps first, at Level 1 up to Level 3 mainly (one occurrence in Level 4). A structural narrativist pattern may be suggested in responses referring to long-term conditions (geographical, economic or socio-political) given by a few students whose tasks were categorized at levels 4 and 5. The variety of conditions cited in levels 1, 2 and 4, and the restricted number of responses at Level 5, give a low frequency to the mode in these levels. At Level 1, reasons (the spices motive, mainly) were given more frequently than causes - according to the building-up of the categorization itself; at Level 2, an emphasis on causal factors appeared and was maintained through up to Level 5. At Level 3, responses clustered around three factors: the moral motivation and "military - tech" causes (corresponding to the main factors discussed in the competing versions given).

A priority of selection does not necessarily entail explanatory weight, rather it might contribute to trace some distinctive features between descriptive/causal/narrativist patterns. An antecedent step or a long-term condition cited first might mean just a chronological order, and other conditions coming next might appear as more important. Thus, in order to highlight those conditions other than steps or long-term factors, the whole set of conditions given by each student was analysed. Table 9.19 shows the historical conditions given, by level of progression, and aims to highlight three clusters:

(a) steps, (b) reasons, and (c) causes.[20] The no-response and temporal categories are residual.

Table 9.19 Historical conditions by level

Condition	Level					
	1	2	3	4	5	
	(23)	(25)	(55)	(12)	(4)	N
NR	6	-	-	-	-	6
Temporal	-	-	3	1	-	4
a) Steps	9	9	15	1	-	34
b) Reasons/motives						
Moral	4	12	36	9	2	63
Religious	1	2	8	2	-	13
Economic	7	8	20	6	3	44
c) Causes/conditions						
Tech	3	12	24	10	3	52
Organizational	-	2	8	1	1	12
Military	4	11	36	9	2	62
Long-term	-	-	1	3	1	5

Reasons and causes were considered in all levels. Causes were most frequent in all levels but for Level 1, where antecedent steps were still the mode, although restricted in frequency. From Level 2 up to Level 5, causes (tech and military) and reasons (moral and economic motives) were the most cited conditions. Long-term conditions, which were supposed to be taught in class, were only cited from levels 3 up to 5, but with a restricted frequency.

It appears that students at different levels integrated in their own explanations conditions of different kinds and inspired by different sources. Despite their high preference for version D (see Table 9.12, p. 261) they pointed out conditions favoured by other versions, included those against which they reacted most (versions A and B).

[20] Steps, reasons and causes were implied in the model of levels of progression. A discrimination between them in a statistical analysis was inspired by Lee (in press).

Their arguments about the weight of those different conditions (moral, military, technological and economic) permitted discrimination of different degrees of constructs related to explanatory structure and explanatory consistency. Moreover, the high frequency of conditions as morale (conveyed mainly by version C), technological advance and economic motivation (conveyed mainly by version D) give some support to the hypothesis *b* put in p. 264, concerning criteria used by students in deciding among competing historical versions (the *relative weight* attributed to different substantive conditions, and discussed in terms of plausibility and/or consistency with prior evidence, might be one criterion relevant for the selection of one version among others).

A concern for assigning several conditions to an historical situation may also be suggested, by observing the number of conditions given by level of progression (Table 9.20).

Table 9.20 Number of conditions given, by level

Conditions	Level				
	1	2	3	4	5
N	(23)	(25)	(55)	(12)	(4)
0	6	-	-	-	-
1	10	7	3	-	-
2	4	6	19	4	1
3	1	11	26	1	1
4	2	1	7	7	2

From Level 3 to Level 5, the majority of students gave two or more conditions in the explanations they constructed. Linking different factors together in order to give a good explanation, appears to be a major criterion underlying students' ideas, and that is suggested across levels, as it was already stated. This criterion coheres with the aim of a total history.

The best author for an explanation

The last written subtask was devised to indicate some students' ideas about historical objectivity (conceptual cluster **O**) by proposing the selection of *the best author* for an explanation among the following categories:

(a) a witness

(b) an agent

(c) an important and neutral author

(d) a recent author

The "witness" choice was thought of as an indicator of the direct observation paradigm; the "agent" was intended to stress memory, connected with a rational reconstruction of direct experience; "an important and neutral author" would convey the image of the perspectiveless neutral historian; "a recent author" was thought as related to a perspectiveful neutrality and being able to give an answer of a wider scope. These attributes were suggested in justificatory statements following the presentation of each option (see Appendix F). Table 9.21 shows the frequency distribution of responses to the best author question. The second category shown in this table clustered answers stating "witness" "witness or agent", or "agent" when the justification given put a focus on direct observation.

Table 9.21 Frequency distribution of the best author

Level	Frequency	Percent
NR	7	5.9
Witness/agent	29	24.4
Agent	72	60.5
Neutral	3	2.5
Recent	8	6.7
	119	100.0

A preference for the agent as being able to give the best explanation is clear. The preference for a witness or an agent as direct observers comes next, although quite distant in frequency from the former. Here, a phenomenon similar to what occurred with the ranking of several versions appears: students' responses overtly clustered

around the idea of an agent as a major choice, such as happened with the selection of version D. The recent author option, which could be a more elaborate choice as far as a fruitful explanation is concerned, obtained little support. Table 9.22 shows responses on the best author by grade.

Table 9.22 The best author by grade

Author	Grade			
	7	9	11	Total
NR.	6	1	-	7 (5.9)
Witness/Agent	13	8	8	29 (24.4)
Agent	28	29	15	72 (60.5)
Neutral.	1	2	-	3 (2.5)
Recent	2	1	5	8 (6.7)
	50	41	28	119 (100)

Kendall's Coefficient of Concordance W=0.806, * p < 0.05

The W value obtained in Kendall's test shows that a consensual pattern persisted through grades. In all grades the mode was agent and the witness/agent option consistently took the second rank. The recent author choice, even though residual in frequency, was distributed across the three grades. Table 9.23 shows the frequency distribution of the best author by age.

Table 9.23 The best author by age

Author	Age				
	12-14	14-16	16-19	19-20	Total
NR	4	3	-	-	7 (5.9)
Witness/Agent.	9	12	7	1	29 (24.4)
Agent	21	32	16	3	72 (60.5)
Neutral	1	-	1	1	3 (2.5)
Recent	3	-	4	1	8 (6.7)
	38	47	28	6	119

chi-square = 14.80, df = 9, n.s.

The chi-square test showed no statistical differences in choices about the best author through age-groups. The mode was agent across ages, followed by witness/agent. The most elaborate categories were not chosen by the 14-16 age-group. The distribution of responses by level might be more illuminating. Table 9.24 shows the frequency of the best author by level of progression.

Table 9.24. The best author by level

Author	Level					
	1	2	3	4	5	Total
NR	5	1	1	-	-	7 (5.9)
Witness/Agent	7	14	4	3	1	-	29 (24.4)
Agent	11	9	48	4	-	72 (60.5)
Neutral	-	-	1	2	-	3 (2.5)
Recent	-	1	1	3	3	8 (6.7)
	23	25	55	12	4	119 (100)

chi-square = 76.11, df = 9, * p < 0.05

The chi-square test revealed significant differences at 5%, in the choice of the best author by level. Some different trends may be stressed. At Level 1, students who responded focused on ideas of memory/understanding (agent) and direct observation (witness/agent, "because she/he saw"). At Level 2, students revealed a higher preference for the direct observation paradigm. At Level 3, the highest focus was put on memory and direct experience (agent, "because she/he lived it"). At Level 4, students oscillated among the several categories, and they might suggest trends of either subjectivism (attributing to witnesses or agents the best position to explain) or positivism (attributing to a neutral or a recent author the possibility of reaching a neutral, or consensual explanation). At Level 5, students tended to consider a recent author as the best author for an explanation.

Levels and objectivity and truth (a factor analysis)

A factor analysis was used to explore relationships between the overall levels of progression of ideas about provisional historical explanation (PHE) and two item-scores from the written task (items 5.1 and 5.2) which were both devised to give indicators of objectivity and truth (conceptual cluster **O**). Item 5.1 presented a categorical response mode, a set of eight true/false statements with a residual "don't know" category, about the reasons of variance among explanations. These statements are given below (each one being labelled in tables as indicated in round brackets).

1. They [versions given] only vary in the way of telling (Form)

2. It always depends on the author's personal opinion (Opinion)

3. It is necessary to discover and sum up the real facts (Sum)

4. Only some authors manage to be totally neutral (Neutrality)

5. Each author finds out different real facts (Factual difference)

6. Each time and place explains in its own way (Contingency)

7. The author establishes some relations among facts and justifies those relations. (Perspective)

8. No one can give the certain explanation (Uncertainty)

This item was not fully explored in the qualitative analysis of data due to its complexity.[21] Item 5.2 analysed in the former section, on the contrary, was considered a valuable indicator of the cluster **O** in the qualitative approach, and the statistical differences found across levels are consistent with such an approach.

The factorial analysis would also permit a better description of the group studied by looking for correlation between variables representing characteristics of the sample (age, grade, sex) and some task scores (levels of progression and sub-tasks 5.1 and 5.2). After an initial Principle Components analysis, the factor matrix was rotated by using the Varimax method of Kaiser. Table 9.25 shows the Varimax analysis of the derived matrix.

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[21] A variance in the meaning of some statements was suggested in students' responses. For example, an affirmative response to statement 1 might cohere with ideas of level 1, or be justified as being referred to the same historical event, but allowing for different explanations of it.

Table 9.25 Varimax matrix for level and O subtasks

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Sex	.02738	-.16268	-.00743	**.69163**	.07841
Age	**.88737**	.01401	-.02033	.07207	-.05464
Grade	**.92724**	-.01981	.06502	.05064	-.05922
Level	**.61903**	.05273	.24498	-.13255	**.44582**

O subtasks:

Best author	.13202	.02313	**.59224**	.01271	**.61632**

Reasons for differences in explanations:

Form	-.17800	**-.43726**	-.30080	.05203	**.49971**
Opinion	.11149	.32258	-.10712	.06349	**.64022**
Sum	.01635	**.48687**	.32409	**.43839**	-.06201
Neutrality	.00864	-.13215	**.78048**	.04940	-.10069
Factual dif.	-.00239	**.72950**	-.15476	-.06039	.13182
Contingency	.00641	**.50642**	.01386	-.01520	.04724
Perspective	.29964	.17340	**.35834**	-.19299	.01871
Uncertainty	-.00603	.14974	-.04633	**.76119**	-.01703

Significant loadings in bold ($\geq$0.35)

After rotation, the first common factor is essentially identified with grade, age and level of progression. This shows that there is a strong correlation between those variables. Factor 2 loads on ideas about factual difference, contingency and sum of real facts, and correlates negatively with formal difference. Thus this factor appears as a bi-polar factor which might be thought of as conveying the recognition of explanatory diversity due to a diversity of facts, their sum, and the contingency of knowledge, and simultaneously denying ideas of merely formal differences between explanations. Factor 3 loads on neutrality, the best author and perspective, which is consonant with the association of these three ideas entangled in the categorization (the best author is also significant under Factor 5). Factor 4 loads significantly on sex, sum of facts and uncertainty about historical explanation. Although the associated chi-square tests show no significant difference between boys and girls on the single variables, the overall analysis indicates some association between these variables. This may be indicated in that sum of facts occurred with a greater frequency for girls at Level 1, and uncertainty or concern for a right explanation was more prevalent among boys at Level 2. Factor 5 associates level of progression with ideas on the best author, the existence of just formal

differences in explanations and the role of personal opinion, although level loads on the first factor more heavily. The positive correlation between author and opinion may be thought as indicator of naive scepticism (since the historical agent was mostly considered as the best author). However, an association of these two notions with form brings out some questions about the meanings which might have been assigned to this statement, as has already been discussed during the qualitative analysis of data.

Therefore, from the derived analysis on the common factors for PHE levels of progression, sample characteristics and objectivity subtasks, grade and age appear significantly associated with levels of progression. Other group factors indicating ideas related to objectivity and truth (conveyed by items 5.1 and 5.2) are not associated with the former group, except for a fifth factor (which accounts for 9% of variance). This is consistent with the hypothesis that item 5.1 was not reliable enough to contribute to assigning a level to written responses. Item 5.2 might be useful provided the meaning of choices made about the best author were illuminated by the analysis of justifications given.

Can we decide if one explanation is better than another?

Answers to the question "can one explanation be considered better than the others?" (item 2.4) were analysed as one of the indicators of different degrees of the constructs about objectivity and truth. These constructs might appear within two conflicting trends: a realist/objectivist approach, affirming the possibility of deciding for one explanation and a sceptical/relativist approach denying that possibility, with several degrees (levels) in each one. As the question demanded a yes/no categorical response, answers were first coded in the following categories: yes, no, not sure, yes and no, no response. Table 9.26 shows the frequency distribution concerning "a better explanation".

Table 9.26 Frequency distribution of a better explanation

Category	Frequency	Percent	
NR	14	11.8	
No	40	33.6	
Yes	55	6.2	
Not Sure	9	7.6	
Yes+No	1	.8	
	119	100.0	Table continued

The major percentage of students affirmed the possibility of deciding for one explanation, although all of them had assigned a rank to the four versions given (in item 3.1), and only a few argued that one might be preferred without being better than the others.[22] Table 9.27 shows the frequency of these responses by age. The chi-square test showed that there were significant differences across the age-groups at the 5% level.

Table 9.27 A better explanation by age

Category	Age				
	12-14	14-16	16-19	19-20	Total
NR	8	5	1	-	14 (11.8)
No	9	18	9	4	40 (33.6)
Yes	14	22	17	2	55 (46.2)
Not Sure	7	2	-	-	9 (7.6)
Yes+No	-	-	1	-	1 (.8)
	38	47	28	6	119

chi-square = 14.85, df = 6, * p < 0.05

[22] Sofia's response in Appendix I, p. 381, is an example of this position.

Students tended to appear more assertive (*Yes* or *No*) across age. Proportionally, the 16-19 age-group seemed the most confident in affirming the possibility of a better explanation: about 60% in this group against about 36% in each of the two younger groups. The analysis of these responses by level also reveals a difference amongst levels (Table 9.28).

Table 9.28 A better explanation by level

Category	Level				
	1	2	3	4a)	Total
NR	8	3	2	1	14
No	1	10	22	7	40
Yes	10	10	28	7	55
Others	4	2	3	1	10
	23	25	55	16	119 (100)

a) Levels 4/5 were collapsed.

chi-square = 27.03, df = 9, n.s.

The chi-square test showed no statistical differences between affirmative and negative statements (and two neutral categories, i.e., no-response and others), about the possibility of finding a better historical explanation. However, it is possible to observe that responses (versus no response) increased across levels, and that the variance between the affirmative and negative responses occurred mainly in Level 1: at this level, students who responded were more positive than negative, whilst in the other levels affirmative and negative answers were evenly divided. This trend might mean a move from a less to a more critical attitude to assessing explanations.

Students gave different reasons for their assertions. The analysis of these reasons leads to a slight move between positive and negative answers, since some negative answers such as "No, the sum of them is better" or, "No, they must be interlinked" may be seen as positive (in an objectivist trend, while answers such as "Yes, within each point of view" may be seen as negative (in a relativist trend). Table 9.29 shows the distribution of reasons for the negative answer. Within this category, the reasons given were coded according to the following ideas:

1 = Explanations are all the same (Same)

2 = We don't know which is true (Doubt)

3 = There is not enough data (No data)

4 = All explanations are important (All important)

5 = The sum/interlinking of them is better (Sum/interlinking)

6 = It depends on the point of view (Point of view)

Table 9.29 Frequency distribution of reasons *against* a better explanation

Category	Frequency	Percent
1. Same	2	5.0
2. Doubt	14	35.0
3. No data	3	7.5
4. All important	12	30.0
5. Sum/interlinking	6	15.0
6. Point of view	3	7.5
	40	100.0

Reasons coded in category 1 and 5 appear in an objectivist direction, in different degrees: the former plainly accepting all versions, the latter concerned with the interlinking of factors. Together, these responses represent 20% of the negative answer. The other four categories may suggest signs of relativism. Table 9.30 shows the distribution of reasons for the positive answer. The reasons given for it were coded as follows:

1 = One explanation is more concrete (Concrete)

2 = One explanation is more correct (Correct)

3 = One explanation has more data (Data)

4 = One explanation is more logical/more confirmed (Consistent)

5 = But the sum of them would be better (Sum)

6 = The most recent, the most skilled author is better (Recent)

7 = Within each point of view (Point of view)

Table 9.30. Frequency distribution of reasons for a better explanation

Category	Frequency	Percent
0	2	3.6
1. Concrete	11	20.0
2. Correct	1	1.8
3. Data	13	23.6
4. Consistent	14	25.5
5. Sum	4	7.3
6. Recent	5	9.1
7. Point of view	5	9.1
	55	100.0

Most of the reasons given appear to express confidence about the possibility of finding an explanation better than others, on more or less elaborate grounds. The last category, however, seems relativist.

In order to get a brief insight into objectivist versus relativist trends, objectivist reasons for the negative answer (sub-categories 1 and 5) may join the positive answer, as relativist reasons for the "Yes" (category 7) may join the "No" answer. The final result will lean slightly more towards objectivism: 37 negative against 58 positive answers. Thus, ideas favouring objectivism or favouring relativism emerged in these responses, the objectivist view appearing more popular than the relativist. Nonetheless, these signs must not be taken for granted as students might give some contradicting arguments in other items, appearing to convey some oscillation between realism/objectivism and scepticism/relativism.

Major findings

The most popular pattern of ideas about provisional historical explanation, amongst a population of students between the age of 12 and 20, attending the 7th, 9th and 11th grades, was related to a concern for quantity of factors. PHE levels of progression were distributed in the following ranking:

Rank 1	Level 3 - The more factors the better
Rank 2	Level 2 - The right explanation
Rank 3	Level 1 - The story
Rank 4	Level 4 - A consensual explanation?
Rank 5	Level 5 - Perspective

The chi-square test revealed significant differences in PHE levels across grade and age: students' responses tended to progress in levels along grades and age-groups. The factor analysis confirmed this trend by showing a relationship among PHE levels, grade and age. Level 1, focusing on description, was observed in the responses of the 7th and 9th-graders aged between 12 and 16. Level 2, suggesting a concern for the right explanation, was mainly observed in the responses from the same range of students. Level 3, related to a concern for quantity of factors, appeared to be the mode in all grades and age-groups. Level 4, involving an idea of perspectiveless neutrality, was mainly suggested in responses of the 9th and 11th-graders, in all age-groups, and at a small rate. Level 5, involving some ideas of perspectiveful neutrality, appeared only in the responses of 11th-graders aged between 16 and 19. Taking into account the distribution by grade and age of levels 4 and 5, focusing on ideas of a perspectiveless or a perspectiveful neutrality, the former notion seems to emerge earlier, and more frequently, amongst Portuguese students.

Concerning the assessment of the four historical versions given, the descriptive version D appeared as the most popular. Version B, speculating about the Chinese power in the Indian Ocean, appeared as the most popular second choice, although versions A and C together had exceeded it in frequency. Version B and version C (a nationalistic appeal to morality - or morale) took more frequently the last rank. Version A (an innovative approach about the Moslem power) seemed to have a mild negative sign. This raises the hypothesis that different criteria may underlie similar practical choices. These criteria might reveal a more critical view when taking into account: (a) the relative plausibility of a substantive factor conveyed by versions chosen, or/and (b) the consistency with evidence recognised in versions chosen. They might mean a less critical view when the

focus is put on (c) formal clarity of versions independent of their content or, (d) emotional preference for a given factor, independently of the historical validity assigned to the corresponding version.

Therefore, especially in cases (a), (c), (d) above, a preference for particular substantive conditions might have been one main criterion for choosing the versions which emphasised such conditions. The substantive conditions selected by students were analysed in terms of frequency. As some students presented as a first condition a chronological step in a story, or a long-term condition in a narrative, this choice indicates the underlying explanatory structure rather than the most relevant condition (the cause) of the Portuguese empire. For this reason, all conditions given by students in their written explanations were counted. The moral and military factors, followed by the technological factor, were the most frequently cited conditions. Which versions might constitute evidential basis for this factorial selection? The most popular version, version D, in spite of being intended as a description, seemed to implicitly provide clues for conditions such as morality/morale, military correlation, technological advance and economic motivation. A strategy of conversion, as was already noticed, appeared associated with the choice of version D, when integrated in an explanatory pattern. The other three versions also seemed to inspire the explanations constructed by students: versions A and B focused on a military correlation between the Portuguese, on the one hand, and the Moslems, the Turks or the Chinese, on the other; version C emphasised the Portuguese morality, often re-elaborated by students as morale.

Most students elected an historical agent (related to an ideal of memory/understanding) as the best author to explain the past situation. The second most popular choice was a witness or agent tied to an ideal of direct observation. The chi-square test revealed a significant difference in choices amongst levels, which points to reliability of this item as one indicator of the overall categorization.

General trends towards objectivism or relativism were also analysed, and the chi-square test revealed significant differences by age. The youngest students showed more frequently hesitation about the possibility of finding an explanation better than others, whilst the more mature students affirmed or denied that possibility. Affirmative answers, viewed as indicating an objectivist trend, appeared to be slightly more frequent than the negative ones, these seen as an indicator of a relativist trend. However, an oscillation in these signs must be taken into account, since conflicting ideas in the arguments of some students across the several tasks were observed.

Summary

This chapter presented the statistical analysis of the main empirical data (F). It discussed the frequency distribution of levels of progression and differences in levels by grade, age and sex. It analysed responses to some tasks treated as partial indicators of the conceptual clusters built into the model of categorization. These tasks were: (1) deciding among historical versions (cluster C); (2) selecting historical conditions (cluster S); and (3) the best author for an explanation (cluster O). Relationships between levels of progression, grade, age, sex, and some subtasks related to objectivity and truth were interpreted through a factor analysis. Attitudes towards objectivism or relativism were also analysed. The major findings of each section were given in a brief synthesis.

10 Final reflections

This final chapter reflects on (a) the main working hypothesis (its theoretical background, the model constructed, dilemmas and decisions during its construction), (b) some perplexities felt about specific meanings of students' answers and the corresponding steps to resolve these perplexities (particular findings), (c) the main limitations of the study, and (d) a provisional answer to the initial question stated, and its implications for history education in Portugal and further research.

The main working hypothesis

The aim of this study was to explore the meanings that adolescent students assign to provisional historical explanation. The a priori hypothesis formulated in terms of a model of categorization of students' ideas envisaged a progression through three main levels, from a focus on the truth of the explanation to the recognition of a balanced and perspectiveful explanation. The analysis of the empirical data, collected through several phases, suggested a much more complex and rather different set of patterns of thinking, in the light of a theoretical framework progressively clarified.

The theoretical framework

The philosophical reflection on concepts of historical explanation and provisionality highlighted, first of all, the complexity of these ideas. Four main explanatory models (nomological-deductive, rational, narrative, structural) were identified. The working definition of historical explanation, in encompassing different kinds of answers to a why question, took into account those different views. Beyond a discussion of approaches about objectivity in history, criteria for explanatory assessment (explanatory consistency in terms of evidence and plausibility) were identified on the basis of current philosophy of history. These criteria integrated the working definition of provisional historical explanation, which functioned as a theoretical hypothesis.

The philosophical background provided a framework for analysing students' ideas about provisional historical explanation in terms of three main notions, named *conceptual clusters* in this study:

Explanatory structure (S) - explanatory mode and factorial weight

Explanatory consistency (C) - evidential and logical consistency

Objectivity and truth (O) - methodological detachment and truth

Accordingly, the major purpose was rethought in the following terms:

- What explanatory models underlie adolescent students' explanations?
- To what extent do they operate with a notion of provisionality in historical explanation and, when they employ a notion of this kind, what meanings do they assign to it?
- What specific criteria do they use for deciding among different possible explanations?

The empirical model

An empirically-based model of students' ideas about provisional historical explanation was progressively generated. The "final" version gives a categorization of students' ideas about the three conceptual clusters (S, C, O) through five levels of progression.

Level 1 (*the story*) is a descriptive level progressively constructed during the work following the exploratory studies, in order to integrate ideas focusing on information. It includes a descriptive mode and second-order ideas about facts, or a restricted explanatory mode and preempted second-order ideas. This category was formulated in accordance with relevant aspects of the work of Peel (1971), Booth (1978), Shemilt (1983), Cooper (1991), and an early paper from the "Chata Project" (Lee, Dickinson and Ashby, 1992).

Level 2 (*the right explanation*) is an explanatory level concerned mainly with the truth of the explanation. It is a refinement of the first level in the a priori model, and theoretically grounded on the three conceptual clusters referred to above (S, C, O). Students at this level tend to discuss and select factors in terms of everyday assumptions. They argue for "the most correct explanation", but a strict right/wrong dichotomy, initially hypothesized, was not observed. This category was inspired by Shemilt (1983, 1984), Byrnes and Overton (1986), Ashby and Lee (1987), Lee, Dickinson and Ashby (1992).

Level 3 (*the more factors the better*) is an explanatory level with a focus on quantity of factors. Like Level 1, it was a category progressively constructed following the exploratory studies to integrate empirically observed ideas of aggregation. In this pattern, a sense of provisionality emerges tied to the idea that explanatory power may increase with addition of new factors; or, in a more sophisticated way, the aim of a total explanation is assumed, and pursued through the interlinking of explanations. This last pattern appears related to the structural paradigm of total history. The construct of accumulation of information as defined by Kelly (1980), the work of Shemilt (1980, 1983), Samson (1987), Lee (1994), as well as presuppositions related to structural approaches, helped in the formulation of this category.

Level 4 (*a consensual explanation?*) conveys a more elaborate pattern related to the paradigm of a perspectiveless neutrality - seen as a necessary criterion to reach a consensual explanation, or as an unreachable ideal which makes the historical explanation always relative. The aggregationist pattern is maintained as far as the interlinking of explanations is valued, and the historical context may be taken into account. This category was progressively refined following the exploratory studies. The work of Shemilt (1980, 1983), Booth (1978) Ashby and Lee (1987) contributed to its formulation.

Level 5 (*perspective*) is an explanatory level where the notion of perspectiveful neutrality seems to emerge. Notions of confirmation and refutation appear associated but they may conflict with a "verificationist" pattern simultaneously observed. This category is a progressively refined version of level 2 in the a priori model, and discriminates ideas related to the conceptual clusters S, C and O. Its construction (as opposed to the previous level) was inspired by several studies described in chapter 1, namely Peel (1967a, 1971), Rees (1986), Dickinson and Lee (1978b, 1984), Shemilt (1980, 1983, 1987), Booth (1978), Medley (1986), Wineburg (1991). It integrates philosophical assumptions on perspective and objectivism mainly derived from Dray (1964a, 1991), Popper (1972, 1980), McCullagh (1984), Martin (1989).

Dilemmas and decisions

During the construction of the model, several dilemmas were posed. They were, mainly, about (a) which conceptual strands to select and emphasise, and (b) which representations might underlie ambiguous responses of adolescents. Resolutions of the former were crucial to the model itself, and are described below. Dilemmas of the latter kind were specifically discussed alongside the qualitative analysis (chapter 8).

(a) On categorization

One decision made during the process of categorization of ideas about PHE concerned the focus of analysis. Three conceptual clusters were considered in the construction of the model. It was observed that the degree of sophistication within the cluster *explanatory structure* could differ considerably from the other two (*explanatory consistency* and *objectivity and truth*), that is, two students operating at a similar explanatory level might show different degrees of explanatory consistency and methodological detachment. Moreover, some students operated within a descriptive pattern. It was therefore decided that explanatory consistency and objectivity and truth, thought of as related to the idea of provisionality in historical explanation, would be the two conceptual clusters under focus, whilst explanatory structure was seen as the "natural environment" where such ideas were apparent. This decision provided the resolution of some dilemmas about the categorization of some constructs, the two most problematic being, specifically:

1. How to categorize (by level) two different patterns of explanatory mode: one showing a clear descriptive mode, revealing concerns about justification of the story, one showing a restricted explanatory mode, with preempted notions about provisionality?
The decision was to consider both patterns running in parallel at Level 1, related to a focus on information.

2. How to categorize (by level) two different degrees of factorial weight - one valuing a sum of factors, one valuing the interlinking of factors - and in neither case showing a concern about methodological detachment?
Although the latter appears of a higher degree of sophistication (resembling an elaborate scissors and paste model) as far as explanatory structure is concerned, the decision was to consider both patterns under the major idea of aggregation (Level 3), if no other criterion of methodological detachment was made explicit.

(b) On trends about truth

The early version of the empirical model presupposed a progression of ideas from noncriticism toward an informed doubt. Relativism and objectivism were not theoretically discriminated, and concrete criteria applied to explanatory assessment were not made explicit. The progressive reformulation of the model grounded on two

main conceptual clusters (viz., explanatory consistency and objectivity and truth) highlighted a different picture of progression of ideas. Trends towards objectivism or relativism appeared to run in parallel through several degrees of ideas about explanatory consistency and methodological detachment. An oscillation was observed between patterns (*realism/scepticism*) across several responses of each subject. Nonetheless, a greater stability of ideas (relativism or objectivism) seemed to emerge in the two most elaborate levels. These notions of oscillation or stability as applied to the construct *truth* were inspired by Ashby and Lee (1987) and Lee (1994).

Perplexities and particular findings

During the process of data analysis some unexpected observations provoked perplexities which led to the formulation of several hypotheses. One of these perplexities concerned the popularity among all the sample studied, of version D, thought of as being non-explanatory. It was observed that such a choice occurred within patterns suggesting various levels of ideas. Moreover, version C, conveying a biased explanation, was ranked second by several subjects revealing *more* or *less* elaborate ideas. Therefore, the categorization by level did not take into account the ranking of the four versions. But the perplexity remained: why did students with different levels of ideas about PHE show a consensus on the versions given? Several hypotheses about these reasons were raised. Students might:

(a) follow a criterion of selection based on substantive grounds;

(b) make uncritical practical choices even within an elaborate reasoning about PHE;

(c) employ a strategy of conversion of information, that is, assign different meanings to the messages given by the historical material.

The three hypotheses seem to be partially confirmed. This is consistent with the research of Donaldson (1978) and subsequent studies like Butterworth (1992), who pointed out a word of caution about the meanings to be assigned to pupils' outcomes. There are grounds for arguing that all three hypotheses stand up:

1. Students may decide among versions on *substantive* grounds for and against a given factor (hypothesis a). The factorial selection seems to be made on the basis of personal preferences, or the plausibility of the concrete situation. For example, will-power (or morality), military power and technology were the most cited factors: the first and the third of these factors were probably suggested by versions D and/or C, which proved to be popular in all levels of ideas, in spite of their weaknesses as explanations. The several versions were mainly discussed on the basis of their relative factorial weight.

2. Students may eventually assume *practical choices* less critical than their arguments about PHE (hypothesis b), which may be seen as a consequence of the previous criterion. This particular observation is not consonant with the suggestion that concrete decisions usually are made at a more sophisticated level than in an abstract reasoning context (e.g., Johnson-Laird and Wason, 1977; Booth, 1978; Shemilt, 1980; Butterworth and Light, 1992). In the current study, some signs of elaborate arguments about PHE appear together with practical choices taken independently of critical standards. A strategy of "hostility" (Bannister and Fransella, 1986, described in chapter 1, p. 33) may be operating here. Or it might be worth comparing this observation about elaborate criteria versus uncritical decisions with a Kohlberg's quotation concerning moral judgement versus moral action (1975), (although not accepting his defence of cognitive stages in an invariant sequence):

> One can reason in terms of principles and not live up to these principles. As an example... only 15% of students showing some principled thinking cheated as compared to 55% of conventional subjects and 70% of preconventional subjects. Nevertheless, 15% of the principled subjects did cheat, suggesting that factors additional to moral judgement are necessary for principled moral reasoning to be translated into "moral action". (p. 672)

We might hypothesize that factors other than a stable set of ideas about PHE might contribute to this oscillation between theoretical criteria and practical decisions. The emotional commitment to the past, as Booth (1978) noticed, the value-laden nature of historical knowledge, as Dray has claimed, or the material interests and social relations on which people's views are largely based (rather than rational alternatives), as Ashby and Lee (1987) pointed out, provide some sources for understanding these inconsistencies.

3. Students frequently make sense of data by *converting* them into an operational structure (hypothesis c). Conversion was specifically observed in two situations: (a) Students attributed explanatory power to descriptive facts which they selected as factors (e.g., when converting information in version D), and (b) they assigned a familiar meaning to what might be alien values (e.g., the nationalistic morality conveyed by version C was converted into morale or will-power). This phenomenon of conversion appears to be a common strategy for dealing with historical material, and was also suggested by the "Chata Project" (Lee, in press).

Limitations of this study

The model described constitutes simultaneously the main working hypothesis and the central "theory" built up in this study. This theory - about ideas of Portuguese adolescent students concerning the provisional nature of historical explanation - must be regarded as still itself provisional. Cognition remains an unknown "world". Its complexities make research in this domain a hard, however fascinating, task. It involves qualitative approaches in data analysis, with no definitive rules to guarantee similar conclusions from different studies. Nevertheless, it is hoped that the methods of this study are sufficiently delineated to allow others to follow up the findings in further research. Furthermore, the reliability of coding data would be strengthened by agreement among Portuguese judges. Once there is a tradition of research methodology of this kind in Portugal, extra reliability studies concerning the model proposed in this study will become possible, and are clearly desirable.

A provisional answer and new questions

The initial question about the handling of the concept of provisional explanation by adolescent students asked whether some of these students reveal a critical, balanced attitude beyond everyday assumptions. This question evolved into the formulation of the central problem focusing on the tacit meanings of PHE. The research instruments were designed so as to provoke student reasoning around particular historical questions of substantive and second-order types, through the analysis of several versions and a variety of sources.

The model of categorization of students' responses is a tentative answer to the problem formulated. The frequency distribution by level suggests that a positive, but cautious answer may be given to that question. A majority of adolescents might have an idea of provisionality of explanations tied to aggregation of information. Some other students, however, seem still to concentrate their attention on the information, or the logic, of the story; or on the right explanation tied to a major concern with the truth of facts. A few (in the 9th and 11th grade mainly, and in all age-groups) appear to defend more elaborate views and apply criteria concerning notions of verification, plausibility within historical context and perspectiveless neutrality. The frequency of responses at this level was less than expected a priori. Notions of confirmation/nonrefutation, comparison-situation, and perspectiveful neutrality were observed among a restricted number of responses, in the 16-19 year, 11th-graders.

Implications for history education in Portugal

The findings of the current study may have thrown some light on ideas of Portuguese adolescent students about provisional historical explanation. In coherence with them, the following suggestions for history education in Portugal may be useful.

1. Adolescents may be encouraged to think about several explanations of the past rather than following a question-and-answer routine about *the* historical explanation provided by their textbook. The informal process of education in a pluralist society, where controversial issues are publicly discussed (e.g., on tv), probably makes the handling of alternative views not very alien from experience of young people. Only students focusing on information may find it too confusing. A gradual implementation of this approach is therefore required.

2. The previous argument concerning specific cases of students focusing on information provides a basis for caution: teachers may be tempted to ask pupils for an explanation irrespective of their conceptual levels. To diagnose how they resolve why-type questions must be the first step before launching "explanation" tasks. Pupils' assessment must be developed in coherence with this process.

3. Students can argue for and against different versions or competing explanations, on grounds of criteria such as explanatory consistency, and objectivity and truth. However, it is important to emphasise that any approach to the development of a critical reasoning must be progressively carried out in accordance with the conceptual levels observed:

(a) With students at Level 1, the teacher should foster a shift from a focus on *facts* (what and how it happened) towards *factors* (why it happened). Sophisticated arguments about explanations will be meaningless at this level of ideas.

(b) With students at Level 2, teachers should stress a distinction between *true facts* and *factors justified* by sources. To ask these students for elaborate notions such as neutrality might be useless or even a source of the idea that "it all depends on one's point of view" (which appears as common-sense based as the search for the true explanation).

(c) With students at Level 3, teachers should concentrate attention on comparing different explanations in the light of varied evidence, so that students can assess them by employing criteria of *neutrality* and explanatory *consistency* (evidential justification and plausibility within the historical context).

(d) With students at levels 4 and 5, teachers should foster a progressive distinction between *perspectiveless and perspectiveful neutrality*, evidential *verification and confirmation/refutation* (since the most elaborate degrees of these notions seem not

to occur at Level 4, and to tentatively emerge at Level 5). Arguments concerning plausibility should be developed either in terms of historical context or by recourse to comparison-situations.

This programme involves not only a careful selection of sources (textbooks often give relevant material which must be employed, but that may be not sufficient) as well as specifically designed activities.

4. Adolescent students tend to reason in history - it appears - on substantive grounds, according to everyday assumptions, and they convert substantive information in an operational scheme which is often misunderstood by the teacher. As examples taken from this study:

(a) Nationalistic ideas (such as "the moral correctness of the Portuguese leaders" in Antonio Matoso's version) may at a first glance appear popular among young people; an in-depth analysis showed that such values were re-elaborated by several students in terms of mere everyday assumptions (morale or will-power).

(b) Students may take concrete decisions which appear to indicate a not very elaborate reasoning in history (at all levels they ranked first a descriptive version, as an explanation); the in-depth analysis revealed that there were different reasons, and *more* or *less* sophisticated arguments, for this ranking. To explore - even informally - the students' tacit meanings of whatever is at issue in class may be crucial to understanding how they reason and to help them progress beyond their initial conceptual levels.

5. It is worthwhile to point out that, at university, history and social sciences students should develop some skills and attitudes in connection with historical enquiry, and a philosophical reflection concerning the nature of historical and social knowledge, to facilitate their future role as teachers.

Questions for further research

The hypotheses raised in this study are pertinent to the understanding of students' ideas in history, and to general research concerning cognition and situated learning. Specifically related to the problem of provisionality of historical explanation, further studies to explore ideas about explanatory assessment might be relevant, at a time when critical relativism and objectivism appear at the core of philosophical debates. In respect to ideas in history, we might imagine that when an adolescent gives a concrete answer, different criteria for practical decisions, different strategies for making sense of data, different meanings assigned to words, are at work. To progress on the understanding of

these criteria, strategies and concrete meanings employed by students might be a crucial path to explore. Comparison studies across different cultural settings and countries in this field of research are required. And developing our understanding in this area will be an important contribution not only to history education, but to the general field of research on cognition.

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Appendix A
First exploratory study

Group-task

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES
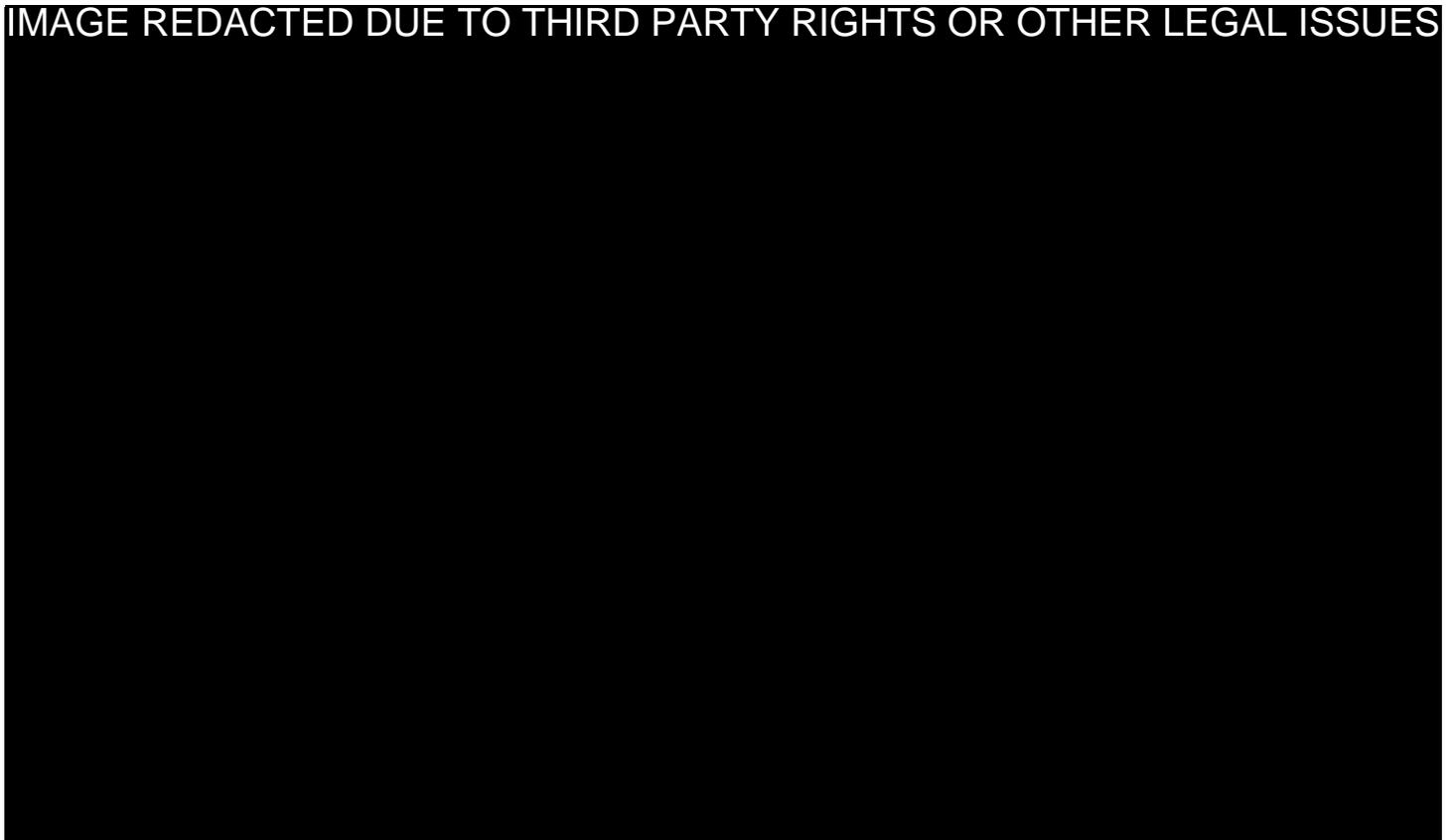
A inclusão de Israel na actual Guerra do Golfo (atacada pelo Iraque mas não devendo atacar) tem razões históricas.

PROPÕE-SE QUE O VOSSO GRUPO :
DISCUTA OS MATERIAIS QUE FORAM SELECCIONADOS E APRESENTE UMA EXPLICAÇÃO DO CONFLITO ISRAELO-ÀRABE.

Para chegarem às vossas conclusões, podem tentar responder a questões como estas:

. Quem foram os habitantes da região ao longo dos tempos?

. Quando - e porquê - se iniciaram os conflitos entre os Árabes e Judeus ?

. Que razões haverá para o estabelecimento do estado de Israel em 1948?

. O que aconteceu à população palestiniana com a criação de Israel?

. Como se têm processado as relações entre Israelitas e Árabes?

Historical kit (first exploratory study)

CRONOLOGIA

70 - Fim do estado judeu da Palestina
após a revolta contra os Romanos

637 - Início da religião de Maomé.
Formação do império árabe

1480-1492 - Perseguição dos judeus na
Peninsula Ibérica

1881 - Pogroms (ataques contra os
Judeus) na Rússia czarista

1881-1914 - 3 milhões de Judeus fogem
da Europa Oriental devido às
perseguições

1917 - Declaração Balfour

1933-1945 - Perseguição dos Judeus na
Alemanha

1948 - Fundação do estado de Israel

1967 - Guerra israelo-árabe dos Seis
Dias (Israel ataca o Egipto). Resolução
242 das Nações Unidas sobre os
territórios ocupados por Israel.

1973 - Guerra israelo-árabe de Yom
Kippur (Egipto e Síria atacam Israel)

1974 - Reconhecimento da O.L.P. como
representante do povo palestiniano, por
todos os estados árabes.
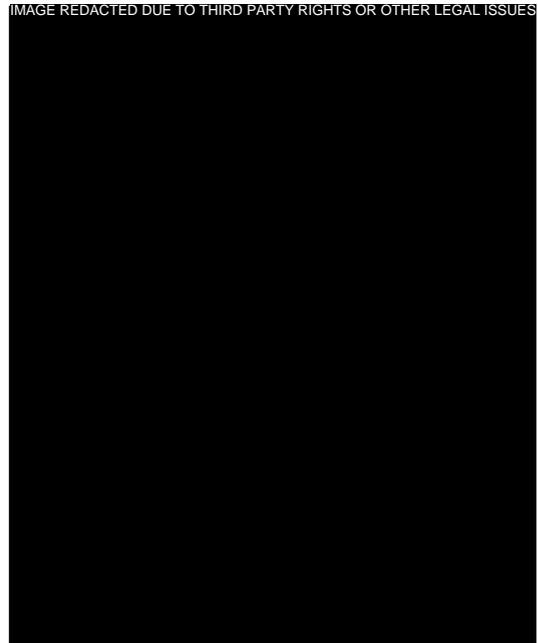
IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES
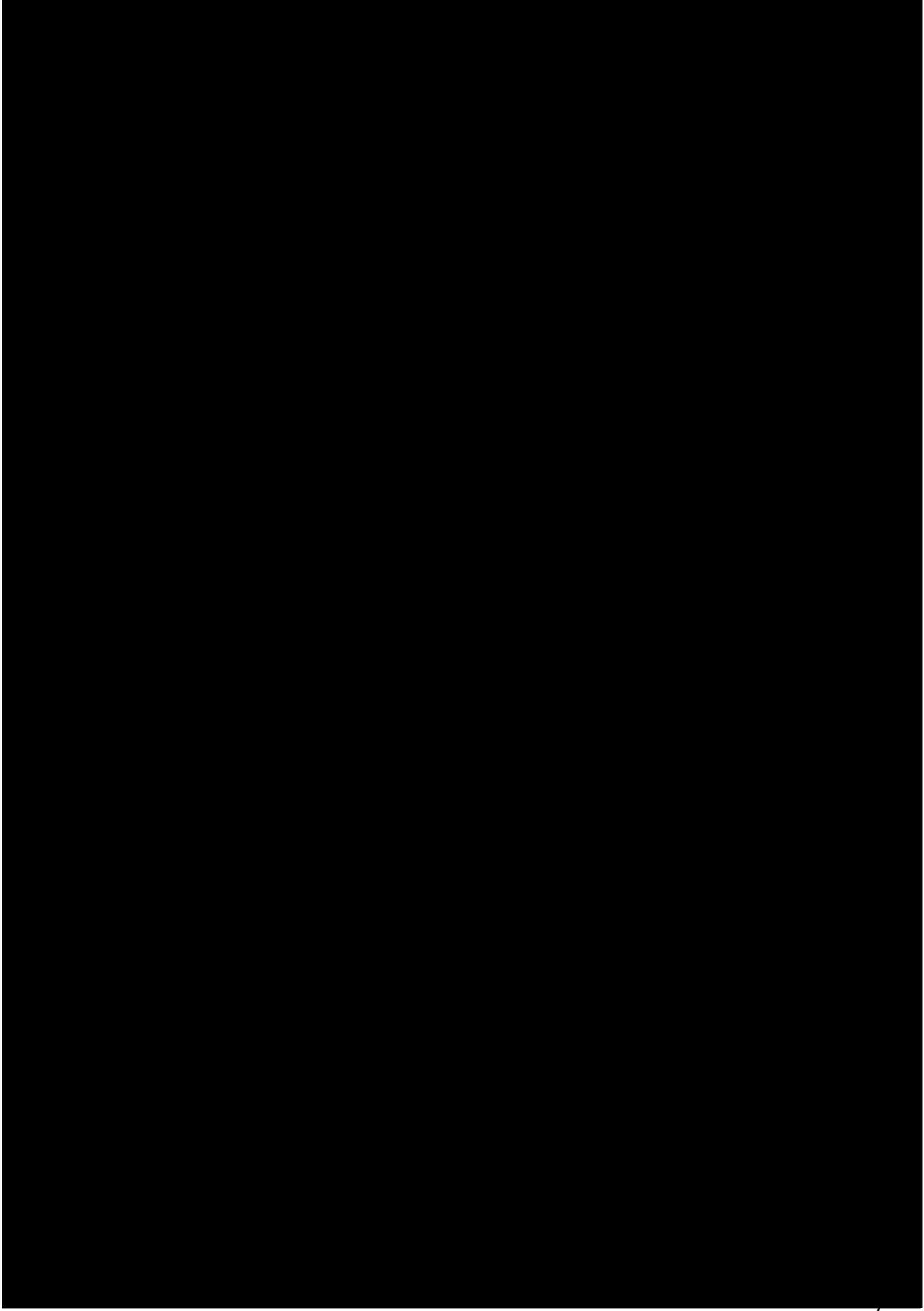
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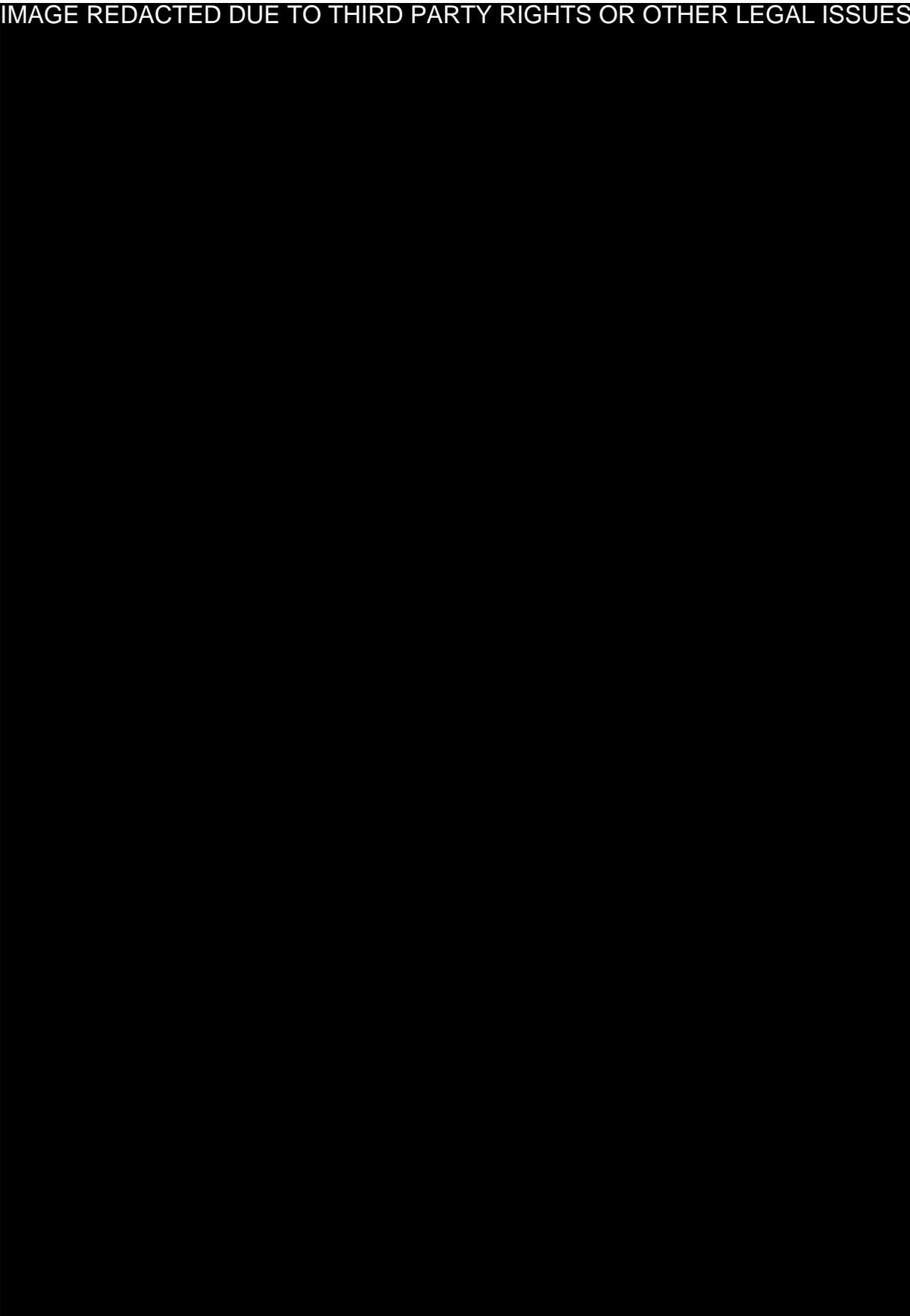
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NOTE: The appendix contains the first page of the four-page account which was given to the students.

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IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES
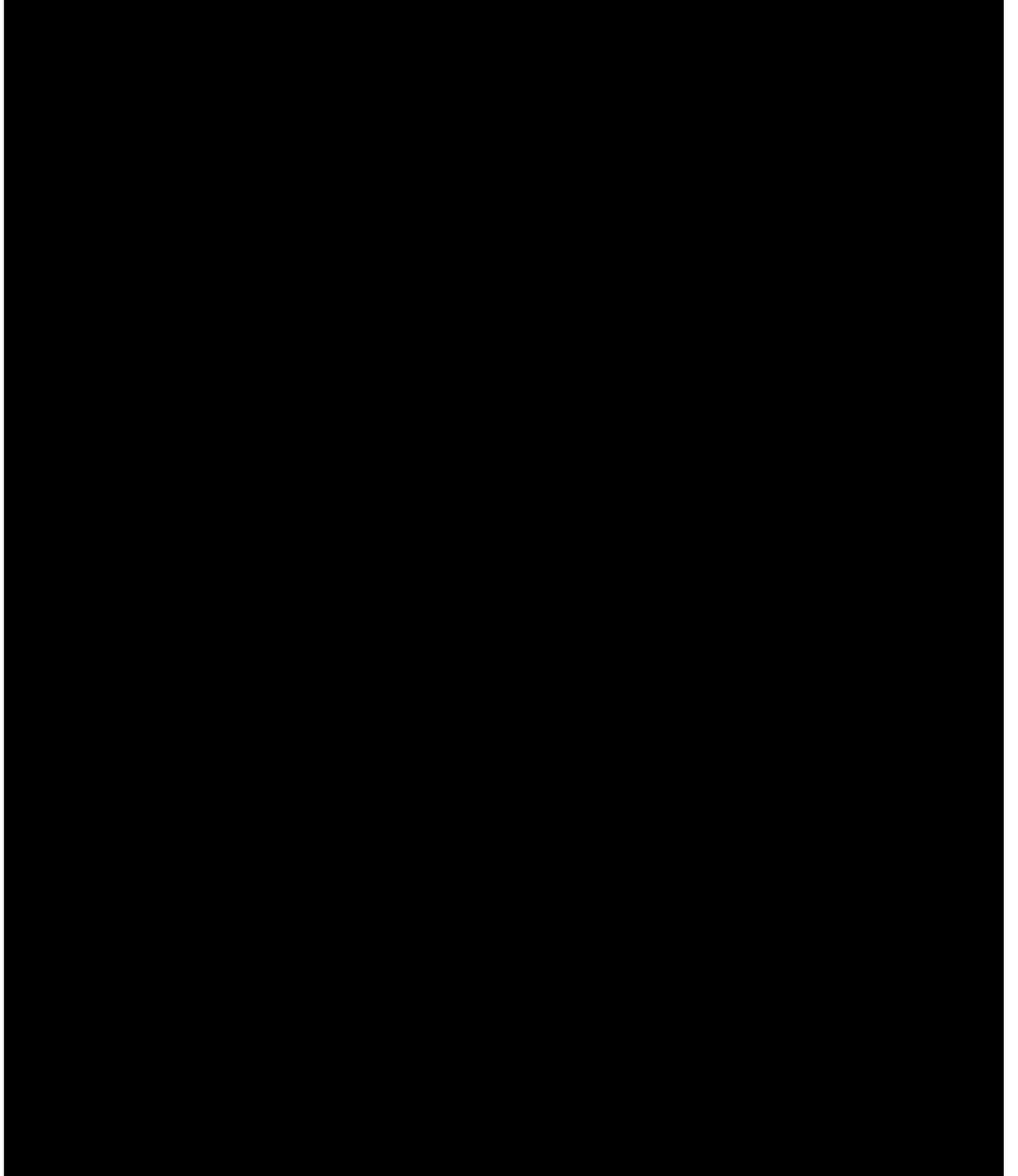
NOTE: These explanations (given by Jews and Palestinians) are two of six examples which were presented to the students.

Students' file

FICHA TÉCNICA

NOME:...ANO.............TURMA..........

DATA DE NASCIMENTO........../........../...........

PROFISSÃO DO PAI..

PROFISSÃO DA MÃE..

FICHA TÉCNICA

NOME:...ANO.............TURMA..........

DATA DE NASCIMENTO........../........../...........

PROFISSÃO DO PAI..

PROFISSÃO DA MÃE..

FICHA TÉCNICA

NOME:...ANO.............TURMA..........

DATA DE NASCIMENTO........../........../...........

PROFISSÃO DO PAI..

PROFISSÃO DA MÃE..

Appendix B
Second exploratory study

Group-task

Os actuais acontecimentos da Jugoslávia fazem-nos recordar alguns aspectos do início da I Guerra Mundial. Nessa altura, havia grande polémica em torno da seguinte questão:

Recorrendo ao vosso livro de História e aos materiais apresentados, procurem explicar:
- como começou a I Guerra?
- porque ocorreu esse conflito mundial?

Historical kit (second exploratory study)

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES
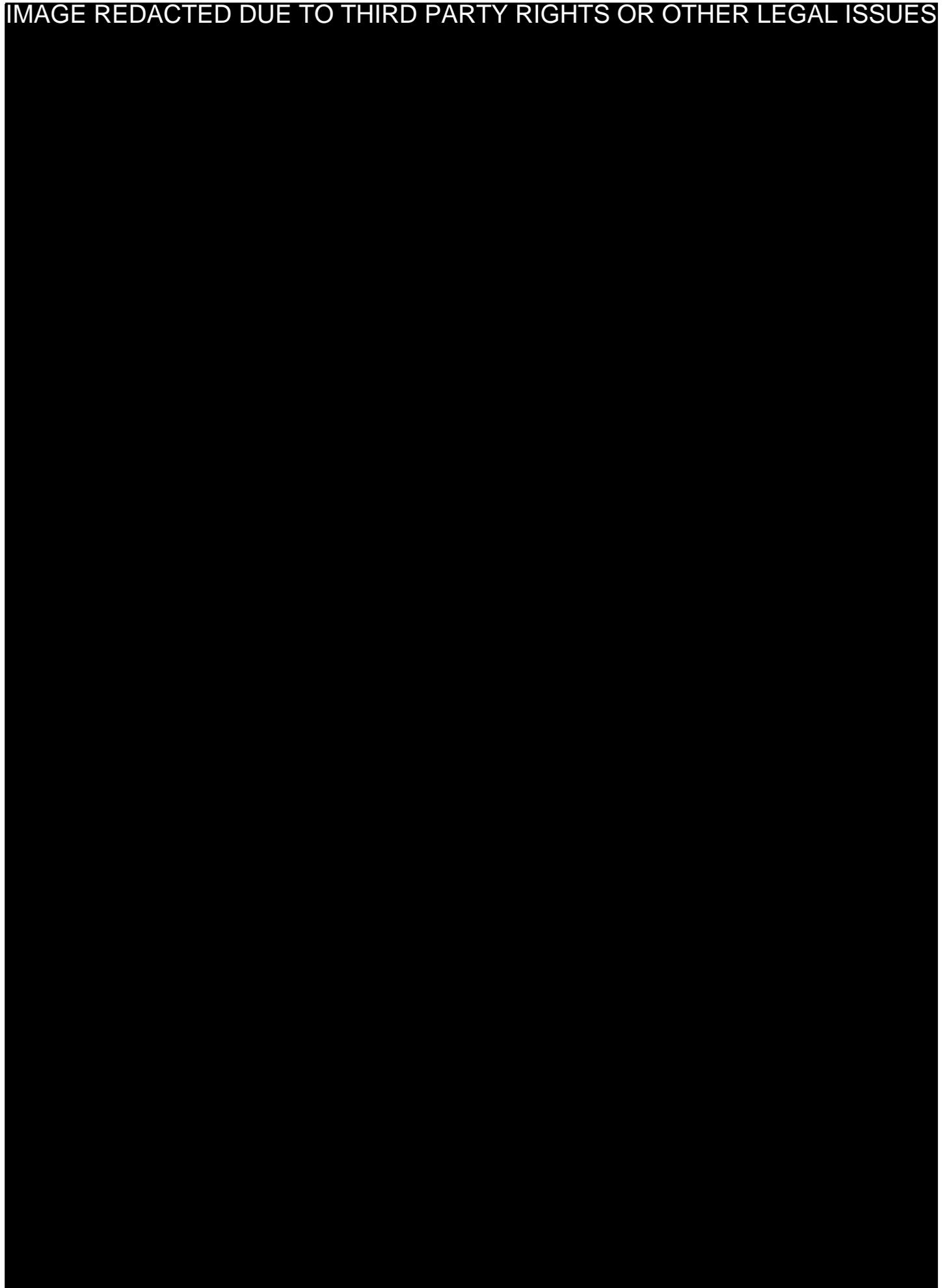
APELO ÀS NAÇÕES CIVILIZADAS!

Na qualidade de representantes da ciência e da arte alemãs, nós, abaixo assinados, protestamos solenemente perante o mundo civilizado contra as mentiras e calúnias com que os nossos inimigos tentam denegrir a justa e boa causa da Alemanha na terrível luta que nos foi imposta e que ameaça a nossa existência....
É contra estas maquinações que nós protestamos em voz alta: e esta voz é a voz da verdade.

Não é verdade que a Alemanha tenha provocado esta guerra. Nem o povo, nem o governo, nem o imperador alemão a quiseram.Até ao último momento, até aos limites do possível, a Alemanha lutou pela manutenção da paz....

Não é verdade que nós façamos a guerra com desprezo pelos direitos dos povos. Os nossos soldados não cometem nem actos de indisciplina nem de crueldade.... Os que se aliam aos Russos e aos Sérvios, e que não receiam excitar os mongóis e os negros contra a raça branca, oferecendo assim ao mundo civilizado o espectáculo mais vergonhoso que se possa imaginar, são certamente os últimos com direito ao papel de defensores da civilização europeia.

Não é verdade que a luta contra o que se chama nosso militarismo seja dirigido contra a nossa cultura....Sem o nosso militarismo, a nossa civilização teria sido aniquilada há muito tempo... O exército alemão e o povo alemão fundem-se num só corpo....

DOCUMENTOS DO QUARTEL GENERAL ALEMÃO
Memória de Dezembro de 1912

O conflito armado entre duas das grandes potências militares da Europa desencadeará uma guerra europeia geral: tal será a consequência forçada dos tratados entre as diferentes partes....
Tal como a Tríplice, a Tripla Entente apresenta-se sob a forma de um acordo defensivo. Mas enquanto que a ideia defensiva domina expressamente o tratado da Tripla Aliança, o da Tripla Entente apresenta fortes tendências ofensivas...
A Rússia tem o desejo compreensível de esmagar a Áustria para impor a hegemonia eslava na Europa e, por meio da Sérvia, chegar ao Adriático. a Áustria tem apenas um interesse defensivo em opor-se....

A Inglaterra tenta desembaraçar-se, com a ajuda dos Aliados, do problema do poderio marítimo alemão. A Alemanha não pensa na destruição da frota inglesa: aí também apenas pretende defender-se.

DOCUMENTO DO CORPO DE COMANDO AUSTRO-HÚNGARO

Direcções para a conduta face à população sérvia
A guerra leva-nos a um país com uma população animada por um ódio fanáticocontra nós, num país onde o assassinato, como o demonstrou a catástrofe de Sarajevo, é admitido como lícito pelas classes superiores, que o glorificam como acto de heroismo.

RESPOSTA AO APELO FEITO AO MUNDO CIVILIZADO PELOS HOMENS DE LETRAS
ALEMÃES
Por
S. H. Church
Presidente do Carnegie Institute   (U.S.A.)

Meu caro Doutor Schapper:
Com suas saudações e autógrafo recebi uma carta impressa dirigida "Ao
mundo civilizado", e assinada por noventa e três dos nomes mais distintos nas
artes, ciência e literatura da Alemanha e entre eles o de V. Ex¹....
Diz V. Ex¹.em sua carta que seus inimigos com mentiras e calúnias "estão
procurando macular a honra da Alemanha em sua árdua luta ..."
Creio, meu caro Dr. Schapper, que o juízo sobre esta questão suprema acha-se
formado.Esse juízo não é baseado sobre as mentiras e calúnias dos inimigos da
Alemanha, nem sobre as publicações levianas dos jornais,. mas sim sobre um
estudo profundo da correspondência oficial acerca da questão....
Foi esta guerra imposta sobre a Alemanha?O que é que provam os documentos
oficiais?...
A Áustria imediatamente tomou a si o tornar a Sérvia responsável por este
assassinato....Apesar disso,a Sérvia cedeu a tudo excepto, em parte, quanto ao
artigo nº 6...
Nestas condições a Sérvia manifestou uma disposição para a reparação e para
a paz que o mundo civilizado há anos vem procurado incutir nas relações
estrangeiras de todas as potências....
Durante todo este tempo a França, a Rússia e Itália estavam fazendo ingentes
esforços para dissuadir a Áustriade dar começo a um conflito que todos
sabiam.como o sabia a Alemanhaviria destruir a paz mundial. Todas instaram
por novas conferências mas a Áustria mostrou-se obstinada apoiada como se
achava na sua atitude irreconcili pela Alemanha e em 28 de Julho começou a
guerra contra a Sérvia....

QUEM QUIS A GUERRA?
  No prefácio do Livro Branco, o Governo Alemão reconhecia as intenções
pacíficas da Inglaterra......
A atitude da Rússia não foi menos pacífica que a da Inglaterra e da França...
Pesad, ao contrário, foi a responsabilidade da Áustria. Foi ela que desencadeou
o cataclismo...
Mas tudo o que diminua a responsabilidade da Áustria faz aumentare a da
Alemanha.. Foi a Alemanhe que prometendo à sua aliada um apoio integral a
encorajou a provocar a Sérvia...
E. Durkheim, 1915

3º REGIMENTO DE INFANTARIA DA BÓSNIA
Quando o regimento chegou a zvornik havia prisioneiros civis sérvios,
mulheres e crianças.X deu-lhes pão e um chefe viu-o e amarrou-o a uma
árvore.Quando as mulheres chegavam à povoação, os solaados croatas batiam-
lhes....

Reiss.R.A. .1915 (suíço)
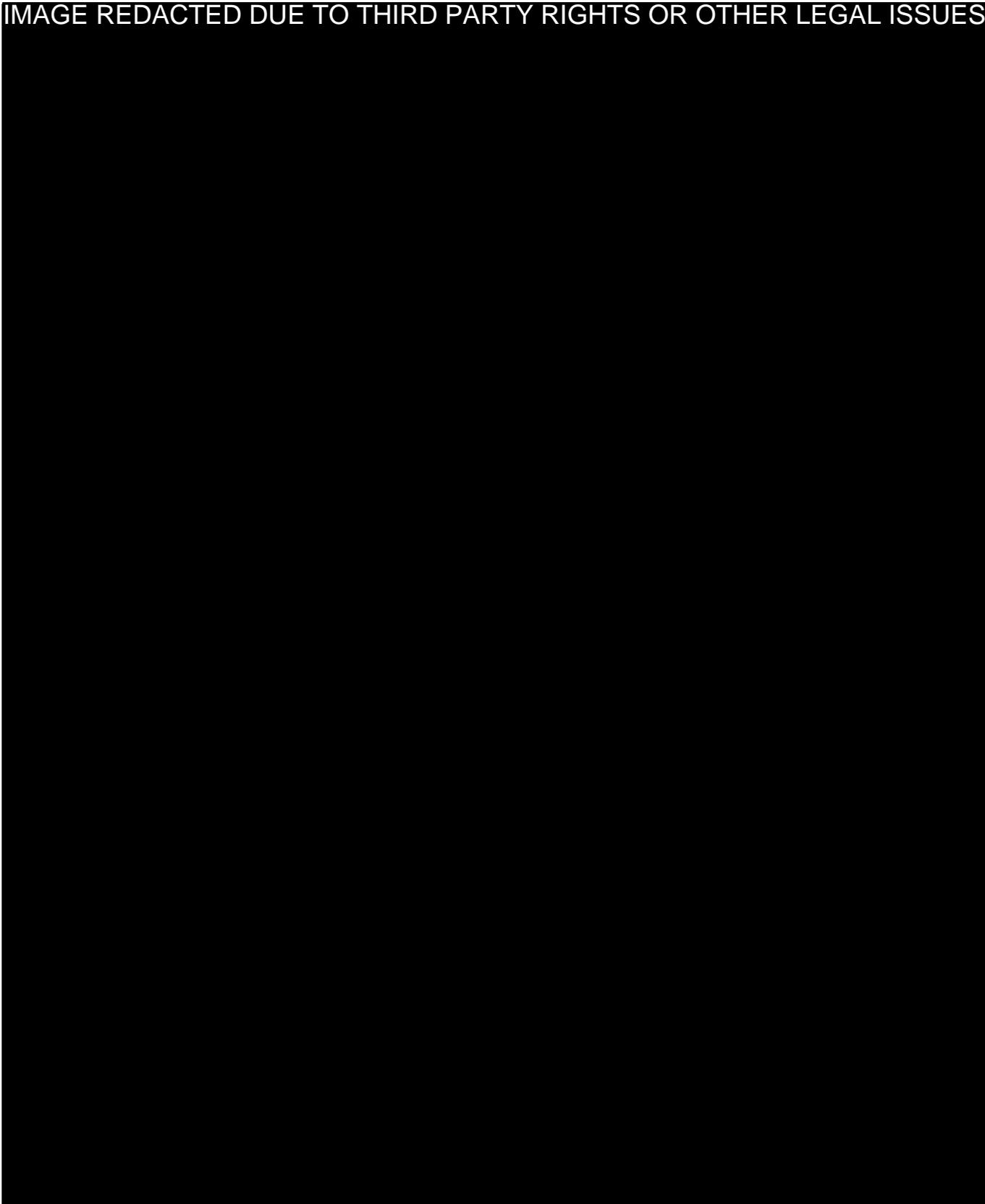
Launay, J. de (1966). As grandes controvérsias da História Moderna.

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES

Note: The appendix contains the first of the seven pages of the account, which were given to the students.

Appendix C
The Portuguese oriental empire in a textbook
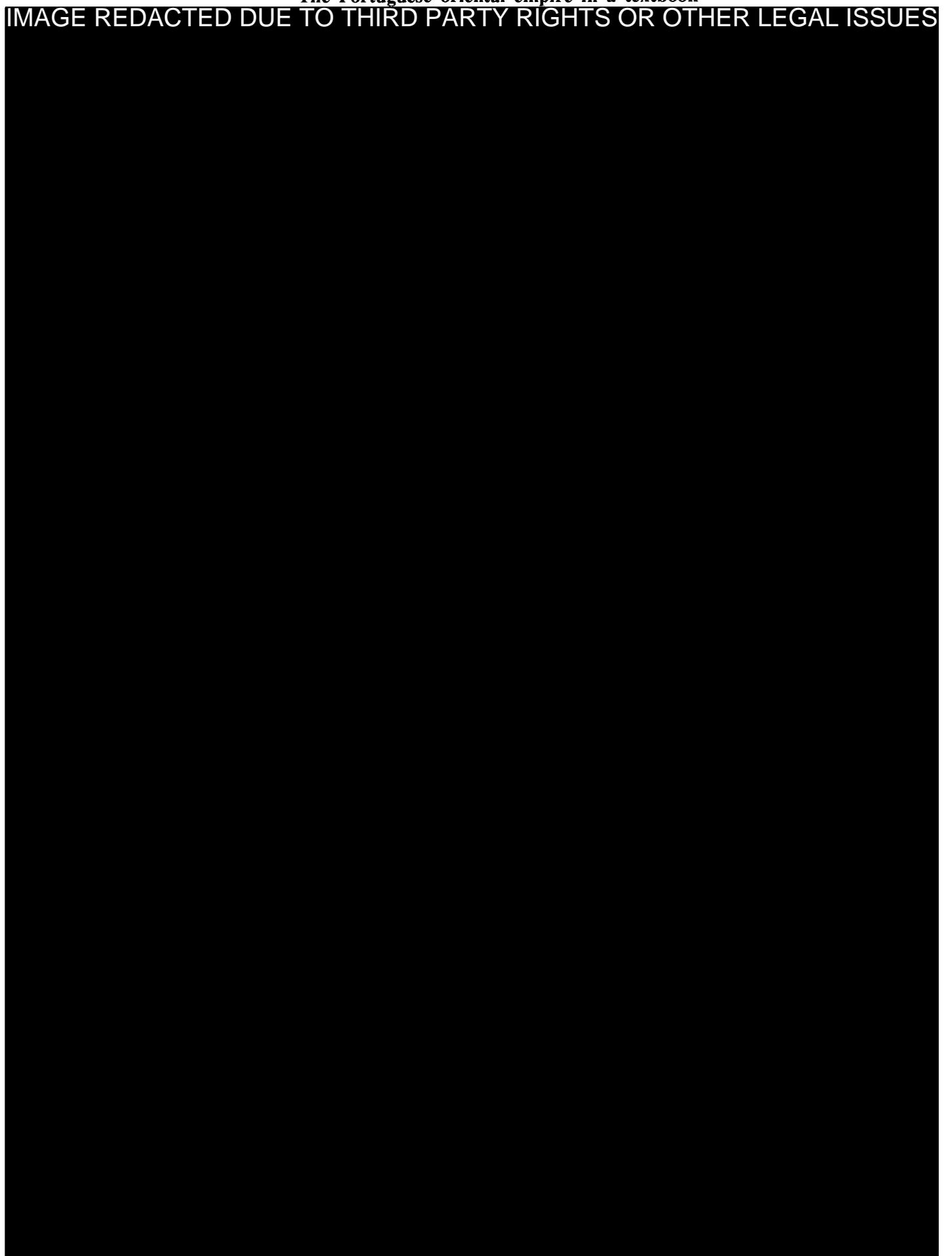
Appendix D
Pilot study 1

Written task-set

FICHA DE TRABALHO Nº 1

Explica por palavras tuas **porque é que os Portugueses conseguiram estabelecer um império marítimo <u>no Oceano Índico</u>, ao longo do séc. XVI**.

FICHA DE TRABALHO Nº 2

Coloca por **ordem decrescente de preferência as explicações históricas** apresentadas para a questão em análise (incluindo a que foi escrita por ti, que será considerada Explicação D):

1ª _____

　　　Porquê?

2ª _____

3ª _____

4ª _____

　　　Porquê?

FICHA DE TRABALHO Nº 3

Escolhe, entre estas frases, uma (pelo menos), em cada grupo, com que mais concordes (rodeando o nº respectivo com um círculo):

GRUPO A
1. As três explicações são praticamente iguais porque todas contam o que aconteceu no séc. XVI.

2. Cada uma das explicações é diferente das outras porque a História é uma interpretaçao do passado: ela é sempre influenciada pela opinião pessoal do historiador.

3. Algumas das explicações são diferentes só porque não se baseiam nos factos reais: distorcem-nos.

4. Cada uma das explicações é diferente das outras porque o historiador é sempre influenciado pela própria época, cultura e país em que vive.

GRUPO B
5. Todas as explicações históricas lidas são boas: elas contam quase a mesma coisa.

6. Todas as explicações históricas lidas são boas, porque se baseiam em fontes históricas.

7. Uma das explicações lidas é melhor porque é mais equilibrada no uso de fontes históricas variadas.

8. Uma das explicações lidas é melhor porque se limita a transmitir os factos passados; nas outras vê-se que o autor conta as coisas à sua maneira.

GRUPO C

9. Só uma das explicações é que é verdadeiramente histórica: ela é a soma das informações contidas em fontes correctas.

10. Só uma das explicações é que é verdadeiramente histórica: ela está de acordo com o que aprendemos na escola.

11. Podem aceitar-se explicações históricas diferentes sobre a mesma situação, embora uma ou outra seja melhor quando o autor revê os factos, incluindo os que foram exagerados ou omitidos.

12. Podem aceitar-se explicações históricas diferentes sobre a mesma situação, mas preferimos uma ou outra de acordo com a nossa própria opinião.

Historical kit (pilot study 1)

O IMPÉRIO PORTUGUÊS DO ORIENTE

Em 1488 Bartolomeu Dias dobrou o Cabo da Boa Esperança, mostrando a possibilidade de chegar à Índia, rodeando a África por mar.

Em 1498 uma armada comandada por Vasco da Gama chega a Calecut, na Índia.

Durante o séc. XVI, os Portugueses são os senhores de toda a navegação no Oceano Índico, dominando o comércio das especiarias.

328

COMO SE EXPLICA ESTE DOMÍNIO DOS PORTUGUESES NO OCEANO ÍNDICO?

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES
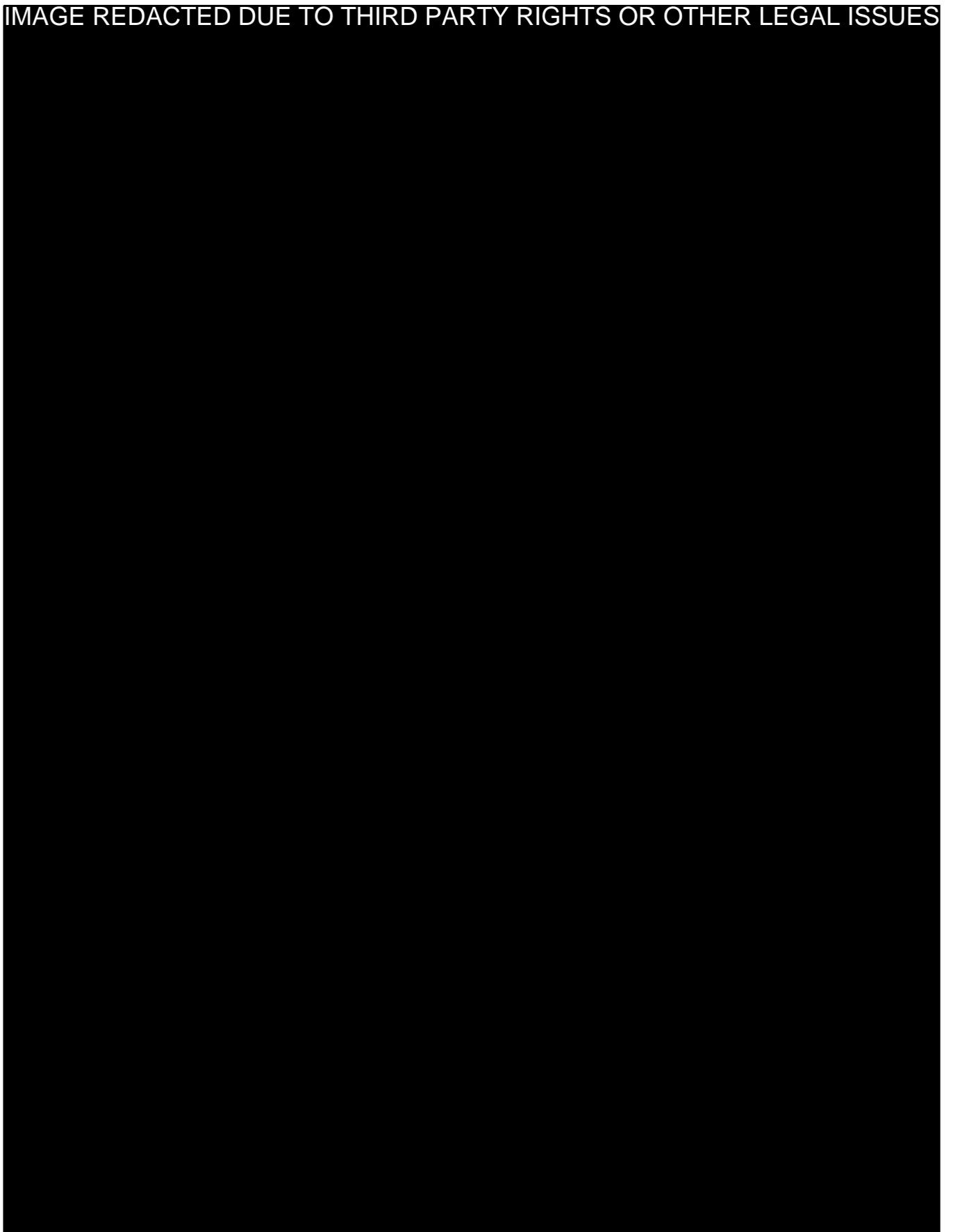
FONTES HISTÓRICAS

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES

VIO
INÈS
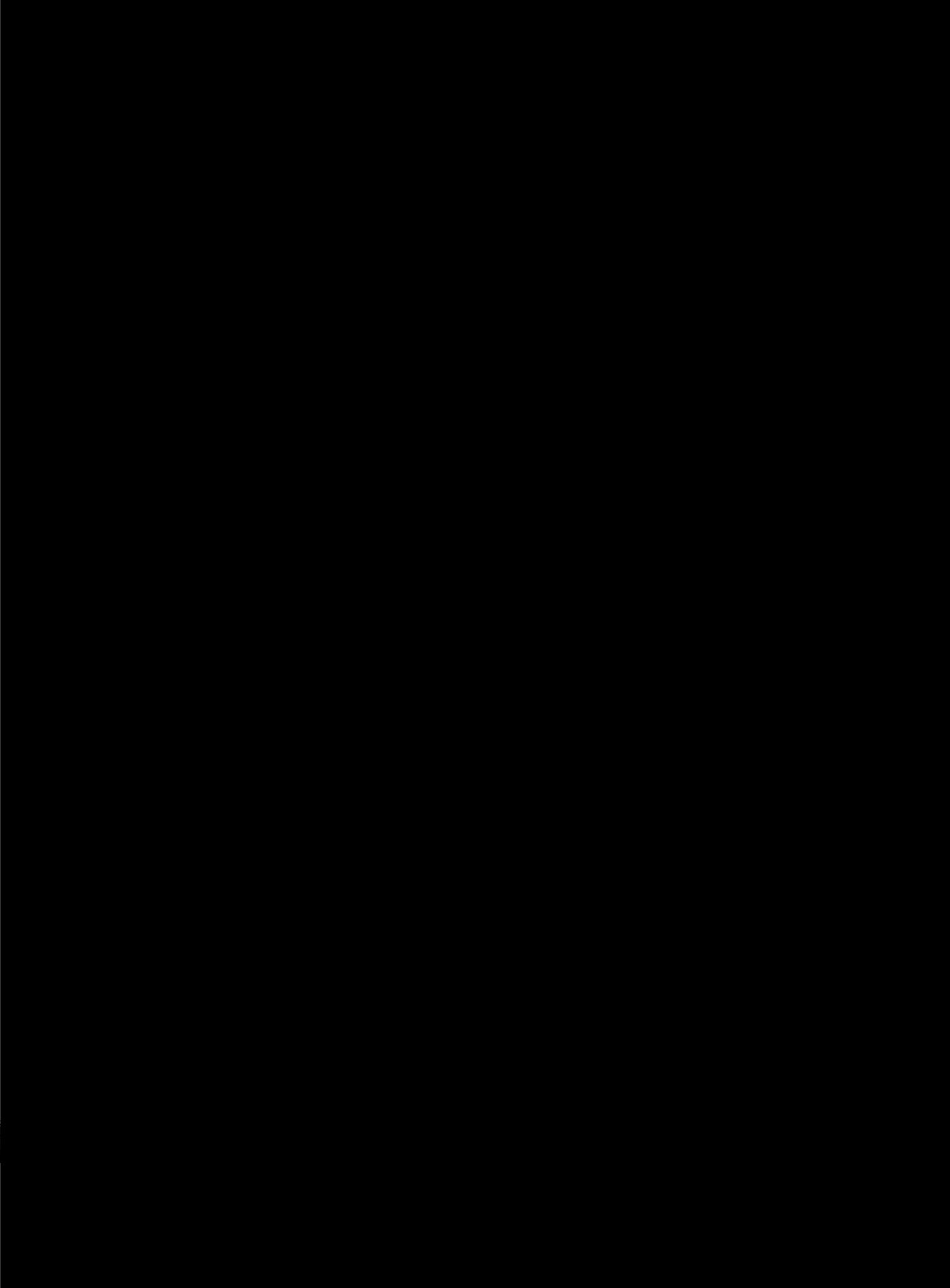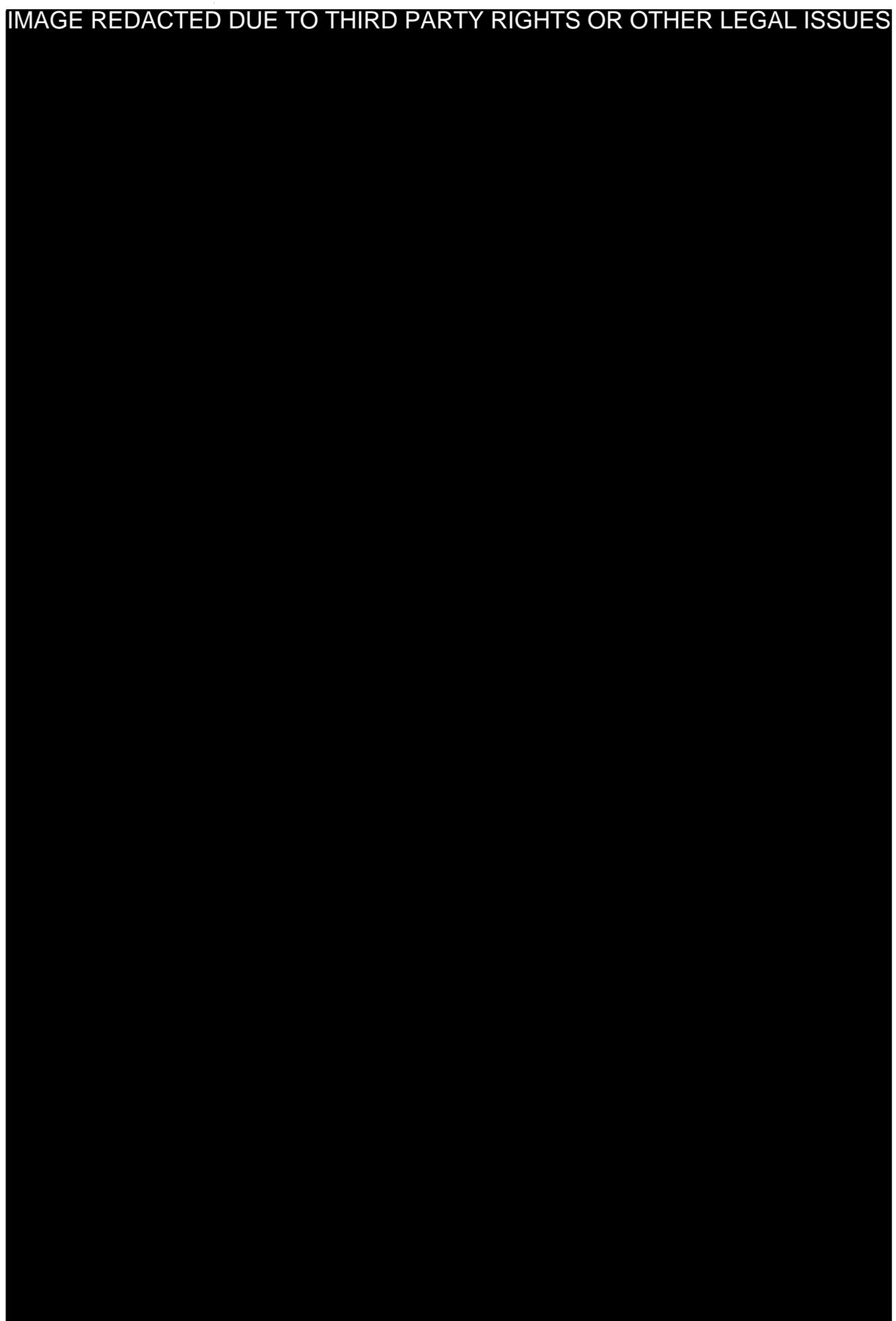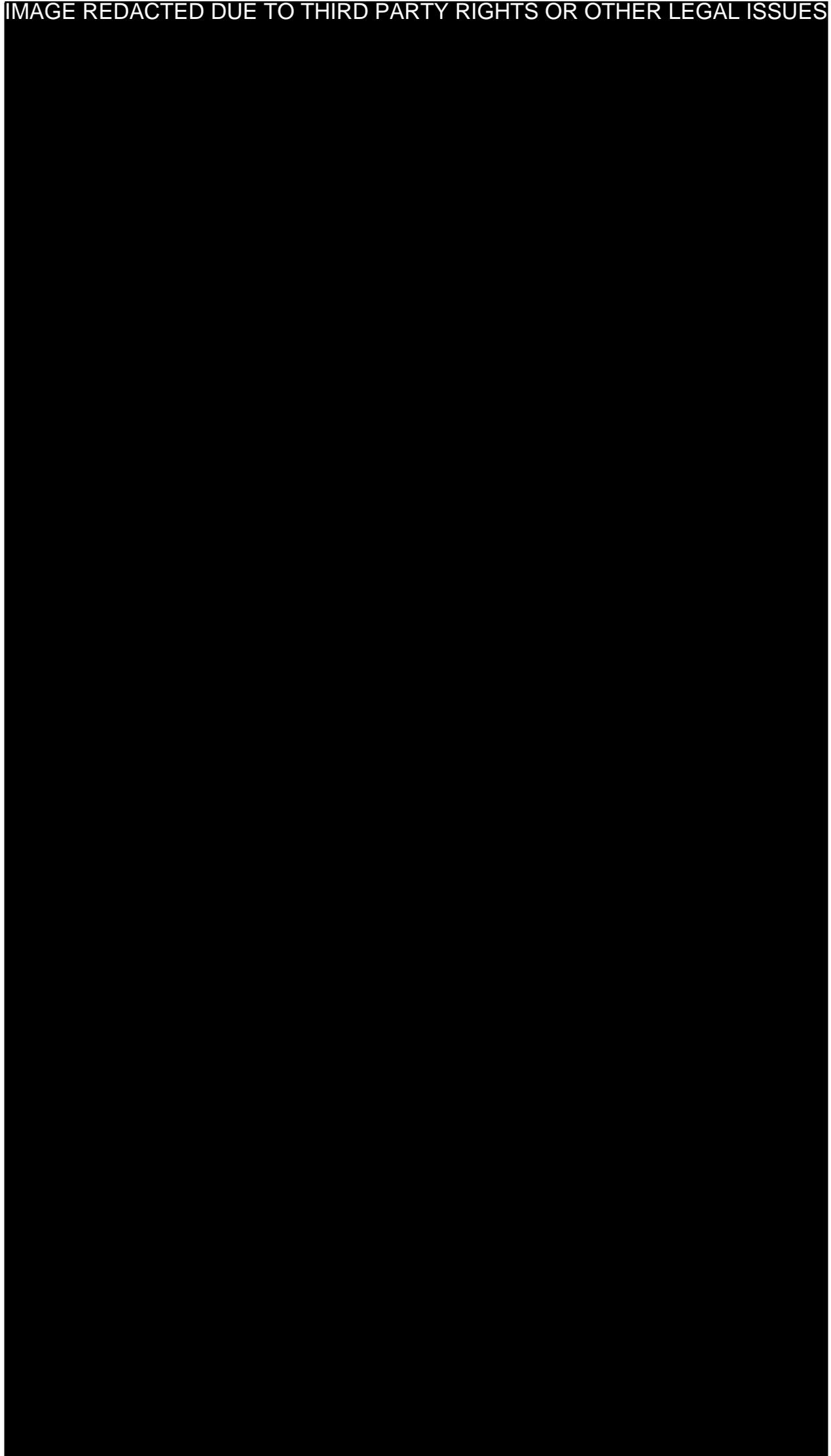
Appendix E
Final study (historical kit)

English translation and original version

THE PORTUGUESE ORIENTAL EMPIRE

MAP 1

CHRONOLOGY

During the first half of the **15th century** the spices trade by land was dominated by the Turks (Moslems).

In **1488** Bartolomeu Dias passed round the Cape of Good Hope, opening the possibility of reaching India through rounding Africa by sea.

In **1498** a fleet commanded by Vasco da Gama reached Calicut, in India.

During the **16th century** the Portuguese controlled all the navigation in the Indian Ocean, and the spices trade.

HOW CAN THE PORTUGUESE DOMINATION IN THE INDIAN OCEAN BE EXPLAINED?

VERSION A

Openly defying the Moslem domain and combating the Moslem faith, the Portuguese had to meet as their main enemies in Asia the Egyptians and the Turks. It helped the Portuguese considerably that none of these major Moslem countries based its power upon the sea."

OLIVEIRA MARQUES (Portuguese historian), *H. de Portugal*, 1980

VERSION B

The Islamic naval challenge to the Portuguese, when it came, was ineffective ...

Had the Chinese still been present in the Indian Ocean when the Portuguese arrived, one can only speculate what might have happened. The decision to withdraw the Chinese fleet 60 years before was a momentous one, leaving the "door left open" (to the Europeans) into the Indian Ocean.

A. PACEY (English researcher), *Technology in World Civilization*, 1990

VERSION C

This large domain quickly conquered with a few human and financial resources can only be explained by the moral correctness of the Portuguese great leaders, by the sacrifices for the country made by all the people.

> A. MATOSO (author of History school books), *Compêndio de História Universal*, 1946

VERSION D

The sailors of Prince Henry were those who took the first and most difficult steps into the unknown lands for the Europeans ... The western African coast was progressively explored. The Portuguese caravels brought back gold, spices, furs, ivory and slaves from those regions.

Meanwhile, between 1405 and 1433, the emperors of China sent seven expeditions to explore the Indian Ocean, commanded by Cheng Ho, bringing back to China spices and unusual animals, including lions and giraffes.

Upon Bartolomeu Dias having rounded the Cape of Good Hope, a new expedition, commanded by Vasco da Gama, arrived in India, in 1498. After that, the Portuguese quickly took control of the lucrative spice trade, for almost a century by forbidding other people to trade in the Indian Ocean and seizing the main ports through which the spice route passed.

> Based on *Explorers*, 1991 and *Exploration & Empire*, 1990

HISTORICAL SOURCES

Source A

"I, called Vasco da Gama, who shall go to discover the seas and lands by Your order, my high and very powerful King, my Lord, I swear by this sign of the Cross where I put my hands, that I shall keep it high and not bent in front of Moors, ... and all kind of people I shall meet..."

This being done, he received the flag and a rule about what to do during the trip, and some letters to princes ... and to the king of Calicut, with all the information that King John had got on those regions...

BARROS, J., *Asia, Década I*, 1552

Source B

Moslem ship according to a Portuguese painting in 16th century

Source C

The recognised superiority of the relatively well armed Portuguese ships over the non-armed Moslem trading ships was reinforced by the strong determination of the European intruders, which was lacking in their Asian enemies.

BOXER, C., *The Portuguese Seaborne Empire*, 1969

Source D

Turkish guns from the 15th century

Source E

The Moslem armies had always revealed an unquestioned superiority in open field to their enemies. Their advantage remained in the great number of their forces, a better discipline and superior tactics based on their light cavalry.

CIPOLLA, C., *Guns and Sails*, 1965

Source F

During the first half of the 15th century the Portuguese were creeping down the west coast of Africa while the Chinese were examining the east coast at least as far as south as Mozambique; during the second half the Portuguese found their way round into the Indian Ocean to meet no one but Arabs and Africans, because rich landowners thought they were a waste of money.

The most obvious difference which would have struck everyone if the vessels of da Gama met those of Cheng Ho lay in the much greater size of the Grand Fleet for many of these were of 1,500 tons if not considerably more, while none of Vasco's were over 300 tons.

J. NEEDHAM, WANG-LING & GWEI-DJEN, *Science and Civilization in China*, 1971

Source G
Fifteenth-century ships from China and Europe

O IMPÉRIO PORTUGUÊS DO ORIENTE

MAPA 1
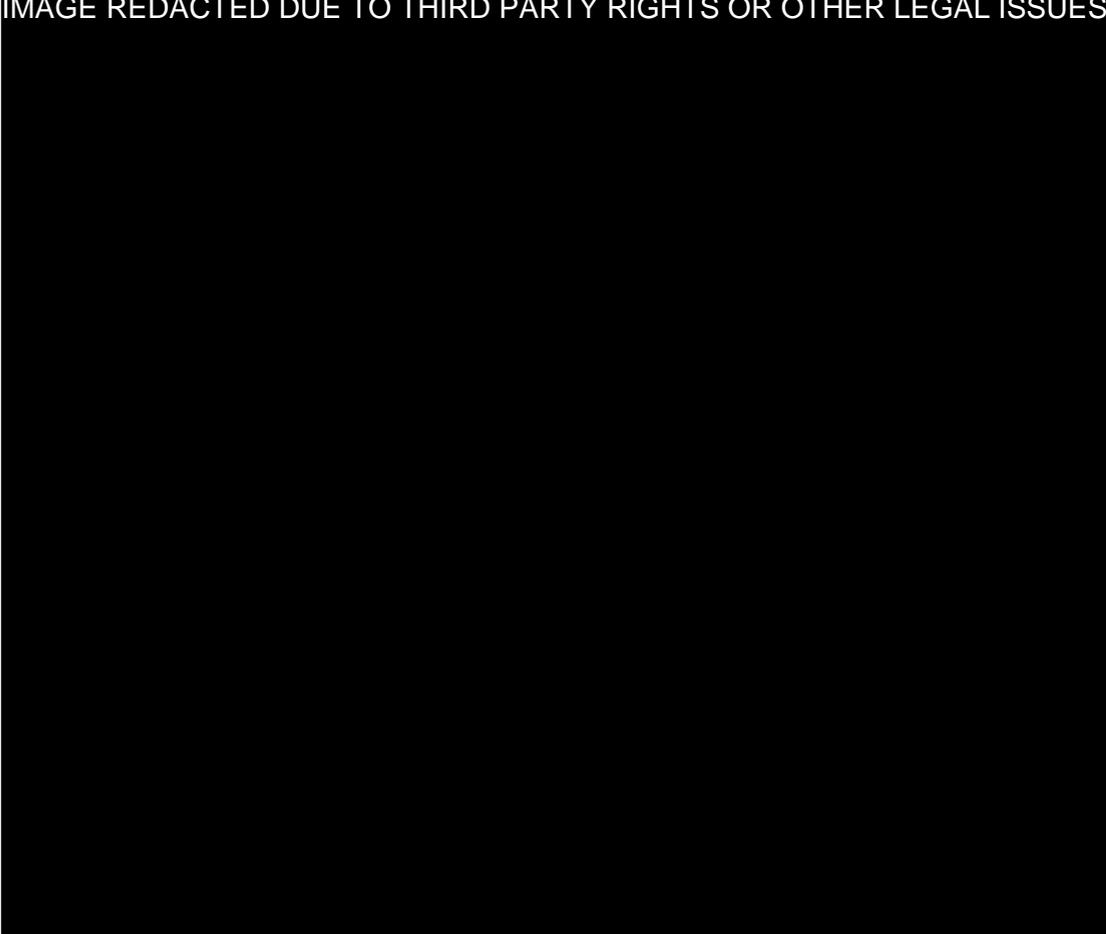
CRONOLOGIA

Em meados do **séc. XV**, a rota terrestre das especiarias era controlada pelos Turcos (Muçulmanos).

Em **1488**, Bartolomeu Dias dobrou o Cabo da Boa Esperança, mostrando a possibilidade de chegar à Índia rodeando a África por mar.

Em **1498**, uma armada comandada por Vasco da Gama chega a Calecut, na Índia.

Durante o **séc. XVI**, os Portugueses controlam toda a navegação no Oceano Índico, dominando o comércio das especiarias.

COMO SE EXPLICA ESTE DOMÍNIO DOS PORTUGUESES NO OCEANO ÍNDICO?

VERSÃO A

Desafiando abertamente o domínio muçulmano e combatendo a fé muçulmana, os Portugueses encontraram, como seus maiores inimigos na Ásia, os Egípcios e os Turcos. Muito ajudou os Portugueses o facto de nenhum destes grandes estados muçulmanos basear a sua força no mar.

> OLIVEIRA MARQUES (historiador português), *H. de Portugal*, 1980

VERSÃO B

O desafio naval dos Muçulmanos contra os Portugueses não se mostrou eficaz...

Poderá perguntar-se o que teria acontecido se os Chineses ainda estivessem presentes no Oceano Índico quando os Portugueses aí chegaram. A decisão de retirar daí a armada chinesa (60 anos antes) fora uma questão de momentos, deixando então (aos Europeus) 'a porta aberta' para o Oceano Índico.

> A. PACEY (investigador inglês), *Technology inWorld Civilization*, 1990

VERSÃO C

Este vastíssimo domínio, conquistado em pouco tempo e com fracos recursos de homens e dinheiro, só se explica pela rectidão moral dos grandes chefes portugueses, pelos sacrifícios em prol da pátria realizados por todos...

A. MATOSO (autor de livros de História para o ensino secundário), *Compêndio de História Universal*, 1946

VERSÃO D

Foram os marinheiros do Infante D. Henrique que deram os primeiros e mais difíceis passos em direcção às terras então desconhecidas para os Europeus...
A costa ocidental africana foi sendo progressivamente explorada. Dessas regiões, as caravelas portuguesas traziam ouro, malagueta, peles, marfim e escravos.

Entretanto, entre 1405 e 1433, os imperadores da China enviaram grandes armadas para explorar o Oceano Índico, comandadas por Cheng Ho, e que regressavam à China com especiarias e animais exóticos, incluindo leões e girafas.

Depois da ultrapassagem do Cabo da Boa Esperança por Bartolomeu Dias, uma nova expedição, comandada por Vasco da Gama, chegou à Índia em 1498.
A partir daí, os Portugueses rapidamente passaram a controlar, durante quase um século, o lucrativo comércio das especiarias, proibindo os outros povos de comerciar no Índico e conquistando os principais portos por onde a rota das especiarias passava.

Com base em *The Usborne Book of Explorers*, 1991 e *Exploration & Empire*, 1990

FONTES HISTÓRICAS
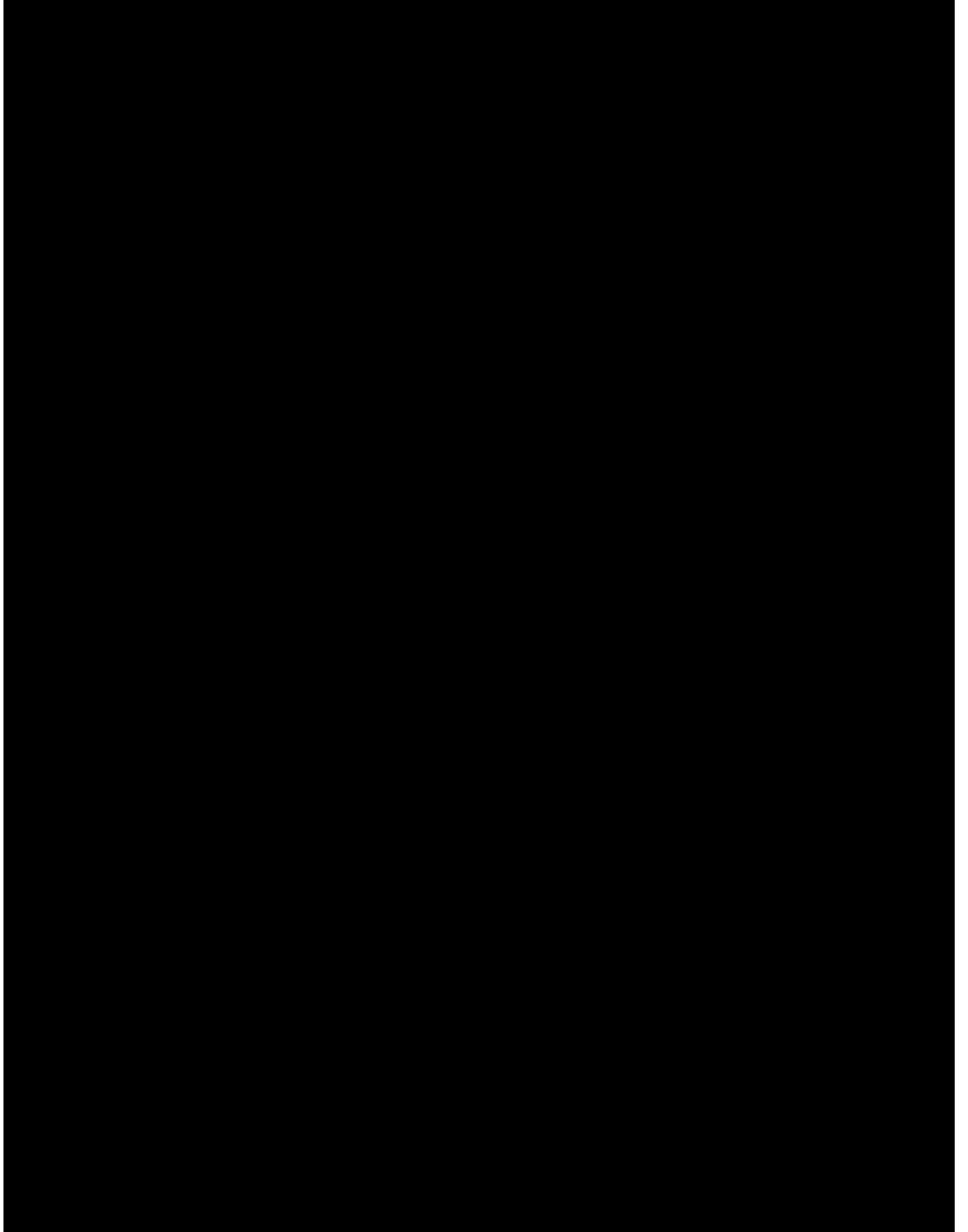
IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES
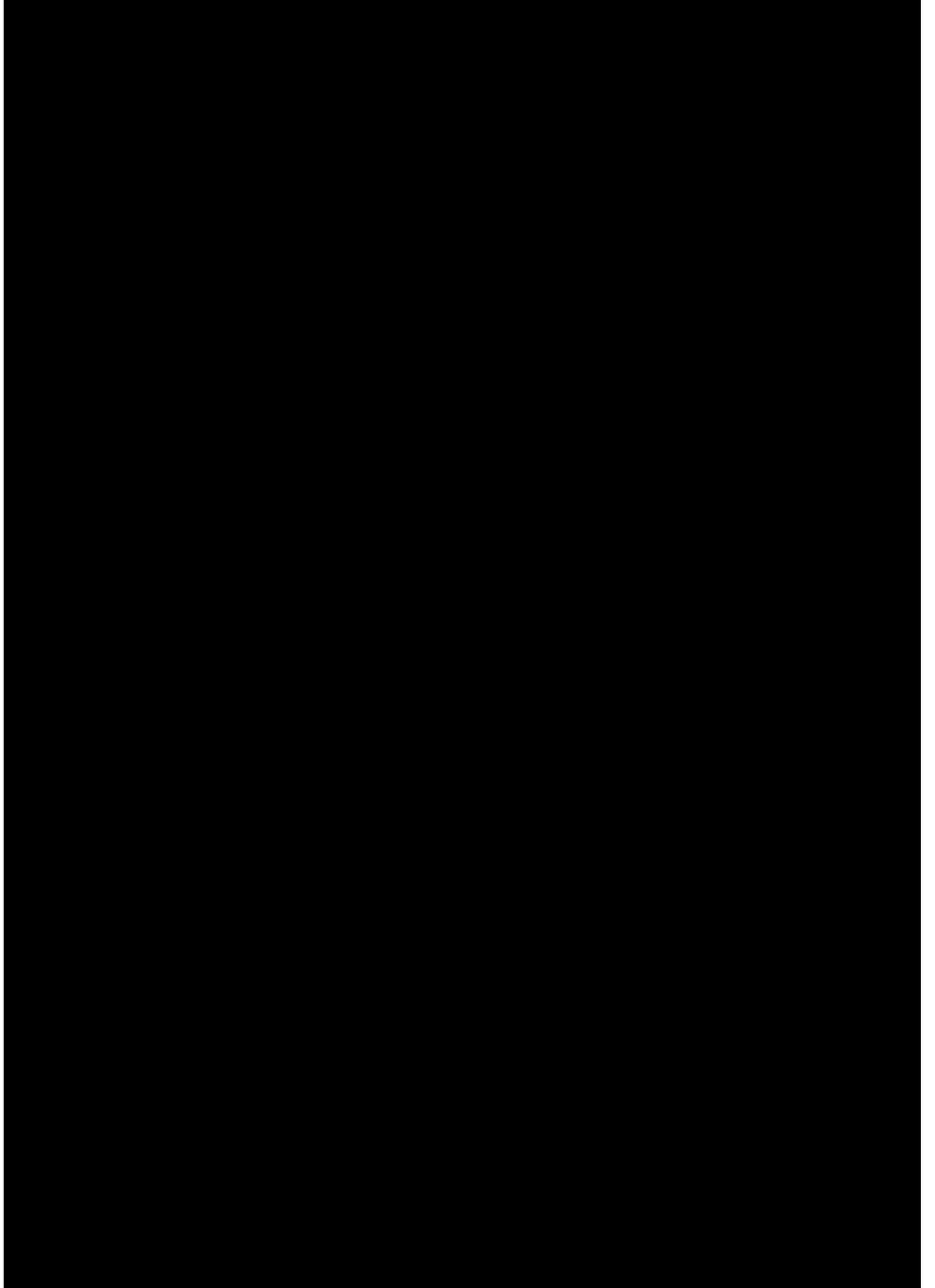
Appendix F
Final study (written task-set)

English translation and original version

TASK 1

1. Explain in your own words **why the Portuguese managed to establish a maritime empire in the Indian Ocean during the sixteenth century.**

2. The statements below are based on the materials you have been given.

Check **which of them can justify your own explanation** (Link the statements chosen and your version with an arrow):

The Portuguese wished to fight the Moslems

The Moslem armies were strong

King John had some information on the Indian Ocean

The Portuguese had moral superiority

The spice trade was very profitable

The Chinese ships were bigger and stronger

The Portuguese ships were well armed

VERSION E

TASK 2

1. Read versions **A, B, C and D** carefully .What differences do you notice:
     * between versions **A and C?**

     * between versions **B and D?**

2. Versions **B and C disagree on what?**

3. Why are there **different explanations** about the Portuguese domination of the Indian Ocean?

4. Do you think that **one of the explanations can be considered better** than any other? Justify your answer.

TASK 3

1. **Rank** the four versions given in order of importance as an **historical explanation:**

        1st: Version _____

        2nd: Version _____

        3rd: Version _____

        4th: Version _____

2. In what respects do you consider **the first better than the second** in explaining why the Portuguese managed to control the Indian Ocean?

3. Do you consider **the first version better justified by the sources?** Why?

4. Justify **your last two choices** (versions ranked 3 and 4):

TASK 4

1. **The best historical explanation** of the Portuguese domination of the Indian Ocean must include the following versions (circle those you choose):

Versions   **A - B - C - D - E**

2. What does **the best historical explanation not manage to explain** about the Portuguese domination of the Indian Ocean?

3. It is clear that **nowadays a complete explanation** about the question discussed here **already exists** (circle your choice):

I AGREE   MAYBE   I DISAGREE

Justify your choice:

4. **A good historical explanation** always is ...
   (underline a word in each line)

        TOTAL   _____   INCOMPLETE

        TRUE   _____   VALID

CERTAIN - PROBABLE - POSSIBLE - IMPOSSIBLE TO KNOW

TASK 5

1. Past events happened only **once**. However, there are **several explanations** of them. Why?

   Write **T** (true); **DK** (don't know); **F** (false) following each statement:

1.They only vary in the way of telling

2. It always depends on the author's personal opinion

3. It's necessary to discover and sum up the real facts

4. Only some authors manage to be totally neutral

5. Each author finds out different real facts

6. Each time and place explains in its own way

7. The author establishes relations among facts and justifies those relations.

8. No one can give the certain explanation

2. Who would **explain** the Portuguese domination in the Indian Ocean **better**?

   a) A **recent author**, because he/she can compare different points of view,

   b) an **important author**, because he/she has a neutral point of view?

   c) A **witness** at that time because he/she saw what really happened?

   d) A Portuguese participating in those events, because s/he lived them

Justify your answer.

NOME_____ ANO____T.____

DATA DE NASCIMENTO_____

MORADA _____

FICHA DE TRABALHO N° 1

1. Explica por palavras tuas **porque é que os Portugueses conseguiram estabelecer um império marítimo no Oceano Índico, ao longo do séc. XVI.**

2. As frases abaixo baseiam-se nos materiais aqui apresentados.
Quais delas servem para justificar a tua explicação? (Liga com uma seta as frases escolhidas e a tua própria versão - a versão E).

Os Portugueses queriam combater os Muçulmanos		Os Portugueses eram moralmente superiores
Os exércitos muçulmanos eram fortes	**VERSÃO**	O comércio das especiarias era muito lucrativo
D. João II tinha informações sobre o Índico	**E**	Os barcos chineses eram maiores e mais fortes

Os barcos portugueses estavam bem armados

FICHA DE TRABALHO Nº 2

Lê com atenção as versões A, B, C e D .
1. Que **diferenças** notas:
        *entre as versões A e C?

        *entre as versões B e D?

2. Em que é que **discordam** as versões B e C?

3. Porque é que há **explicações** **diferentes** sobre o domínio dos Portugueses no Oceano Índico?

4. Achas que **uma das explicações** pode ser considerada melhor do que qualquer outra? Justifica a tua resposta.

FICHA DE TRABALHO Nº 3

1. **Ordena** as versões por ordem de importância como **explicação histórica:**

1ª: Versão _____
2ª: Versão _____
3ª: Versão _____
4ª: Versão _____

2. O que é que a **1ª versão** (a que escreveste em 1º lugar) **explica melhor do que a 2ª** em relação ao domínio do Oceano Índico pelos Portugueses?

3. Consideras a **1ª versão melhor justificada pelas fontes?**

Porquê?

4. Em que é que consideras **pior** do que as outras, as versões que colocaste **nos dois últimos lugares** ?

FICHA DE TRABALHO Nº 4

1. A melhor explicação histórica sobre o domínio português no Índico deve englobar as versões: (circula as que escolheres)

A - B - C - D - E

2. O que é que essa explicação histórica não consegue explicar em relação à questão levantada (porque é que os Portugueses conseguiram dominar o Oceano Índico no séc. XVI)?

3.

Podemos considerar que actualmente já existe explicação completa para a questão levantada.

(Qual a tua opinião sobre esta frase?)

CONCORDO   TALVEZ   DISCORDO

Justifica:

4. Uma boa explicação histórica é sempre...
      (Sublinha uma palavra em cada linha):

      total   _____   incompleta

      verdadeira   _____   válida

      certa - provável - possível - impossível saber

FICHA DE TRABALHO Nº 5

1.

> **Os acontecimentos passados sucederam apenas <u>uma vez</u>. No entanto, existem sobre eles <u>várias explicações</u>.**

Porquê?
Coloca **V** (verdadeiro), **N/S** (não sei) ou **F** (falso) à frente de cada frase

1. Só variam na maneira de contar................................... ☐
2. Depende sempre da opinião pessoal do autor.................. ☐
3. É preciso descobrir e somar os factos reais..................... ☐
4. Só alguns autores conseguem ser totalmente neutros.... ☐
5. Cada autor encontra factos reais diferentes................... ☐
6. Cada época e lugar explica à sua maneira...................... ☐
7. O autor estabelece relações entre factos e justifica........ ☐
8. A explicação certa ninguém a pode dar.......................... ☐

2. Quem poderia **explicar melhor** o domínio do Oceano Índico pelos Portugueses?

a. um **autor recente**, porque pode comparar pontos de vista mais variados?
b. um **autor importante**, porque tem uma visão neutral?
c. uma **testemunha** da época, porque viu o que realmente aconteceu ?
d. um **Português que participou** nesses acontecimentos, porque os viveu?

Justifica a tua escolha:

Appendix G
Final study administration

Example of covering letters

UNIVERSIDADE DO MINHO
INSTITUTO DE EDUCAÇÃO

Exma Senhora

Presidente do Conselho Directivo da Escola Secundária Alberto Sampaio

Av. Porfírio da Silva

4700 BRAGA

Sua referência	Sua Comunicação	Nossa referência	Data
		IE-227/93	1993.Maio.31

Assunto

A Drª. Maria Isabel Gomes Barca de Oliveira é assistente do Instituto de Educação e encontra-se a preparar o seu doutoramento no Instituto de Educação da Universidade de Londres. Nesse contexto necessita da colaboração dessa escola conforme ofício anexo que dirige a V. Exa.

Em nome do Instituto de Educação da Universidade do Minho desde já agradeço toda a colaboração que V. Exa puder dar à referida docente.

Com os melhores cumprimentos.

O Presidente do Instituto de Educação
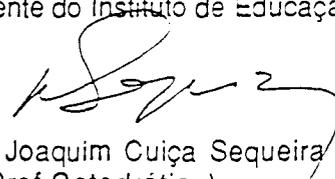
Manuel Joaquim Cuiça Sequeira
(Prof.Catedrático)

Appendix H

Protocols of two interviews

Hermínio (13 years old, 7th grade)

ITEM 1.1

I: Can you explain again, in your own words, why the Portuguese managed to control the Indian ocean?

H: Can I read it?

I: It would be better to speak ...

H: The Portuguese needed money, or spices... ... for their economy! Because their economy was not good enough, it was half-way ...

ITEM 1.2

I: Concerning your explanation: you chose two statements [quoting statement 3 and 5]. Why did you select these statements?

H: Because King John had to get information on the track and how it was in India in order to go there!

I: And why didn't you select the others?

H: Because they didn't fit much into my answer!

I: Right. .. But do you agree or not with them so far as the sources are concerned, that is, their relation with some sources?

H: Yes, I do, but some of them don't fit well ...

I: Like what? Which of them fits less?

H: The Portuguese wouldn't go to the Indian Ocean just for fighting the Moslems! They had to get something to bring back... ... or for fighting ... they wouldn't go fighting without having nothing to conquer!

ITEMS 2.2, 2.3

I: And in relation to items 2.1/2.2, you wrote the differences between the several versions. Why did you write in 2.3 [there are different explanations] Because there are facts which prove those different explanations?

H: ... Through sources ...

I: How can we manage to get a history with proofs for one explanation and other proofs for another? ...

H: We'll know ... we have to base ourselves on some facts and choose those which fit better into that time ...

I: And about the other facts, those which don't fit well: what do we do with them?

H: They don't go to history ... they lay outside!

ITEM 2.4

I: Now, in what concerns 2.4 [quoting his answer] ... that's what you have said now; some explanations are related with the way of life of the time. Do you want to explain this [idea] better?

H: ... When the Portuguese went there, it was because they needed money, otherwise they wouldn't go there ... ... and because at the time they were turned towards the sea for ... conquering.

I: Thus, these explanations are those related with the way of life of that time?

H: Yes, they are.

ITEMS 3.1, 3.2

I: Going forward items 3.1, 3.2 [quoting answers]. Do you want to say anything else?

H: The Portuguese didn't go fighting without getting anything back, they needed to get profits.

I: Thus, you think that this explanation "fighting because of the moral correctness of the great leaders" ...

H: It was not sufficient!

I: It was not sufficient!

ITEM 3.3

I: Now [quoting answer 3.3]. In relation to these sources here, this version - version D - is it justified, is it supported?

H: Yes, it is. By records of those who navigated and who used to write about them.

ITEM 3.4

I: And on 3.4 ... in what aspects do you consider version A worse than B?

H: They wouldn't leave to waste money for fighting, but for getting profits!

ITEMS 4.1, 4.2, 4.3, 4.4

I: Now [quoting item 4.1, 4.2]?

H: The Portuguese wanted but didn't go!

I: They didn't go earlier. So you think this fact as missing in version D. And [quoting answer 4.3]. Why?

H: Because they can; when reading the sources, those who wrote the sources could have lied about the facts they wrote ...

I: And is there any way of knowing that?

H: No, I don't think there is.

I: No? In that case can we never know what is certain?

H: It is more or less ...

I: More or less ... is this related to what you said in 4.4: [a good explanation] is incomplete, valid and probable - is that so? Why didn't you choose the others?

H: Because if we did, we'd have to say that history is for sure, all history ...!

ITEM 5.1

I: And now on 5.1. You said [statement] 3 - true; [statement] 4- true. Why did you write true statement 4 [only some authors manage to be neutral]?

H: Because some authors are more ... are more ... they tell more the truth ...

I: And [statement] 6. - true?

H: Because in each period, they don't give the same explanations!

I: Each period explains in its own way, but some authors are neutral, others are not ... how does this cohere?

H: I don't know!

I: (smiling) - Now: [statement] 8 - true. Why did you consider [statement] 7 as false?

H: There are no right explanations, only some bits of them.

I: And here, about this issue, what do you think?

H: In order to make some parts they have to give explanations.

ITEM 5.2

I: In question 5.2 you chose c and d [quoting]. Do you see any differences between an explanation given by a Portuguese and by a witness?

H: A witness gives a more truthful one because s/he saw; the Portuguese could have lied or enlarged the story more.

I: And why?

H: Because they could have lied ...

I: And why?

H: I don't know (smiling).

I: What do you think or what reasons would lead them to lie?

H: They used to tell stories when navigating in the caravels, but when they told stories they used to put more facts in those stories!

I: And in what an author from today is concerned, why couldn't s/he explain better this question?

H: An author from this time?

I: From nowadays.

H: They could be wrong on facts because she/he didn't live on that epoch and she/he doesn't know how it really was.

I: Thus you think that the important thing in order to manage to explain well something is ...

H: It is to live it.

Filipa, 16 years old, 11 th grade

ITEM 1.1

I: We can start by seing briefly, why the Portuguese [quoting item 1.1]?

F: Because of the new techniques and equipment they used, which permitted them ... hmm ... hmm ... a better knowledge and development, and thus they managed ... hmm ... to conquer the lands in India, also because those ... those people were weak in those resources and ... also ... the Portuguese were interested in the trade because it was rather profitable and ... that is why it was easier to get into the conquest ...

I: And those people ... you said "those people" - who were they?

F: The western, India, the ... hmm ... the ...

I: You have the map here, it can help ...

F: Exactly: Here the Africans, the passage through Africa ... and even the Chinese, Macao and those lands ...

ITEM 1.2

I: You made a link between your version and the following statements about the sources given [quoting answer 1.2]. Why didn't you choose the others [statements]?

F: ... I think that these two explain better because they are ... so, the Portuguese superiority in relation to the other people and the goal of conquest can be verified.

ITEMS 2.1, 2.2, 2.3

I: And now we come to 2.1 [quoting answers 2.1, 2.2]. Let's come to 2.3 [quoting question and answer]. Why?

F: Because ... (smiling) I think that there are different versions and different authors'opinions and so they give us a certain ... a certain explanation, but like ... opinions, those are data which don't help us to explain ... that's it ... what happened! There are different authors, some of them ... pressuppose that we were well-armed and the other

people weren't, but for eg., here, I think that there is a version here, version C, which contradicts it. Thus there are authors who explain in one way, others in another ...

I: And what is the reason for that, for different presuppositions? Do they base themselves on something, or not?

F: Yes! They must base themselves on data, mustn't they?

I: So what: How can be explained that there are different explanations, all of them being based on data?

F: Maybe because they have also different opinions and maybe because they analyse under different ways ... and I find also that there must be different interests in some of them ... I don't know ...

I: So, those are the several reasons you put forward for explanations varying ...

ITEM 2.4

And here: They vary but [quoting answer 2.4]l. So, what makes some data more important and more logical than others?

F: I think that ... those data are perhaps more logical ... there is a certain ... for eg, in version D, which I chose, didn't I?, there is ... hmm ... they give us a goal ... the goal of the Portuguese and ... several ... and several situations which really explain that Portugal was well-armed and that she had interest on the trade in the Indian Ocean ... and I think that's like that ... there are data that really are logical ...

I: And the fact of the authors having different opinions couldn't make some data be more important for some authors and less important for others?

F: Hence, it's that, too: It depends also on the authors' opinions, because some consider a side as more important, they speak of fleets, others of goals and fleets ... I think that ...

ITEM 3.1

I: So, in relation to the ranking of versions, you put D, B, C, A. The first explains better [quoting answer]. So it's something like you've now ...

F: Exactly, what I've just said.

ITEM 3.2

I: Right. But ... "while version B explains only the conquest" [answer 3.2]: Thus ... this "only" means that it lacks ...

F: Yes, it lacks something. It just give us one datum, while the others don't, they give us more data which we can use for understanding!

I: For understanding ...

ITEM 3.3, 3.4

And now, you consider that Version D is more justified because it confirms all sources, it speaks about the strong Portuguses fleets ... ... and in what respects is C worse than A ?

F: They are based on one factor, which is ... the fleets, that's what I have quoted, they only spoke of fleets, while the others didn't, Version D didn't , it spoke of other issues too.

I: So, you think that for an explanation to be good, it must point out more than one factor?

F: Yes, I think that one factor must be also linked to others, because there is not just one factor only, is there? - several factors must exist complementing each other!

I: And confronted with one explanation with several factors seen as not very important, and another with only one, but a strong factor, which of them would you consider to have more weight, how would you decide on the importance of those explanations?

F: Maybe for the stronger factor ... because in general if ... well, I don't know, maybe several factors, even in their simplicity, can give a better explanation than only one! Because I think that ... there! In this case; only one factor - that the Portuguese were well-armed, I think that there are also other data, i. e., the Portuguese spice trade, I think that it is quite important, while other data, or versions, don't give that, they speak of fleets, that's all. I really think that a complementarity must exist!

ITEM 4.1, 4.2

I: You didn't finish answer 4.1 [quoting the question].

F: Version D.

I: You can choose D only, but you can refer to others ...

F: Maybe versions A and D!

I: So, versions A and D. And what this explanation wouldn't manage to explain? [quoting answer 4.2]. You think that it is also important to explain the "why" of the failure ...

F: Yes, I do.

I: And don't you think that version A partially shows something on that?

F: ... Yes, because it speaks of the Moslem people ... hmm ... not having their power based on sea, which really helped the Portuguese to conquer the lands ...

I: And do you think this explanation quite satisfactory in relation to the "why" of other people's failure?

F: No, I don't, because they [Moslems] might have no power at sea, but when the Portuguese reached the land, they [the Portuguese] surely, had power on land ... if they [the Portuguese] had power at sea it's probable that they had it on land too!

I: So is this lacking in the explanation?

F: Yes, it is.

ITEM 4.3

I: And in relation to 4.3 [quoting the question]. If a complete explanation already exists, why did you write "maybe" and not "I agree"?

F: (Smiling) Hmm ... I'm not sure, but I think that nowadays with the several existing proofs, with data, I think that historians ... there! They are already able to explain ... a... a question, aren't they? ... I think that ...

I: So explanations are not always ...

F: They are not always quite correct, there are data which give some indicators on some thing, but I think that they are only indicators, now ... a proof! I think that these proofs give indeed a certain explanation ...

ITEM 4.4

I: And [quoting answer] - Why didn't you select total or incomplete as attributes of a good explanation?

F: ... So, I think that it is valid because ... if it is universally valid ... when something is explained in history ... there is always ... we are not capable of doubting it, since there are really some data, there are explanations and as I mentioned here, a good historical explanation will be put under research...

I: And do you think that it is never put into question?

F: It can be put into question by other historical authors!

I: So does it continue to be "universally valid"?

F: (Smiling) - It depends also on ... it depends on whether it really happens [to be questioned] or not ... if it does, it is not so valid as a good explanation which is really certain; in the case where some doubts exist, and when some authors - as in this case - put some uncertainties, I think that it is not valid, is it?

F: Thus, does that mean that you consider two kinds of historical explanations: those being certain ...

F: Certain!

I: And accepted by everyone ...

F: Exactly, but they are those on which there are exact proofs, now the others without proofs, with some uncertainty, I think that maybe ... hmm...

I: And to what is this due? Some explanations with exact proofs and others less certain?

F: I think that with some of them there are some ... there are less relics...

I: Now, we are talking about explanations, about "why". Is it possible to find relics about why?

F: No, but ... ...

I: Do the reasons have relics?

F: No! I think that is when no doubts are offered! Those data, those sources ... Now, when doubts are offered there we must doubt ...

ITEM 5.1

I: Now, concerning 5.1. How do you fit your answer [statement] 8 - true with 5 - true?

F: Well, I think that really, it is possible that an explanation be certain, because if there are real facts the author - there - can give a good explanation, the explanation can be certain. I should put False [in stetement 8] here!

I: And why do you consider 1 False?

F: Because that can not be a basis for considering really different explanations, I really think that the explanations are different because there are different opinions from authors...

I: So, you consider 2 as opposed to 1?

F: Yes, I do.

I: And in relation to statement 4, you put this statement as "False", why?

F: I think that each author can draw a good explanation, it can vary, but I think that they have always a ... well, they are critical, I think ...

I: But do you consider totally neutral some authors only, all of them neutral, or none is neutral? From these three, what do you ...

F: Maybe some!

I: Some? So in 4, it is not False, it should be True ...

F: It should be True ... (smiling)

I: Now, so far as the statement 6 [quoting] is concerned, why did you consider it as false?

F: ... I think that if there are data ... oh, but here it speaks of time as well, and each time has its own mentality ... It can be or not ... And the place as well ... Here, maybe it is "True", because ... in a place people can have a mentality which they wouldn't have in another place, they are capable of accepting something that the others are not.

I: And can that be exemplified with the sources shown here? About time and place?

F: ... For example, here, in version C [quoting]. I think that this is an explanation precisely based on the nationalistic mentality of a Portuguese author. And here it speaks of the great Portuguese leaders' morality. So this can exemplify well the differences in place and time.

I: And to which time and place is this version referred?

F: I think that it really speaks of those who conquered, that mentality of love for the country ... that morality which the leaders had! To conquer for enlarging the country!

I: But the others don't speak of that, why? Why don't the other versions speak of that issue?

F: I think that the others want to be more objective, maybe, this is somewhat subjective.

I: And which one is more objective?

F: I think that the author Matoso is more subjective. The others give more proofs, more data, this one doesn't, he speaks more of subjective aspects, the mentality varies, of course ...

ITEM 5.2

I: And to finish, [quoting answer 5.2]. There were some students who chose the agent ...

F: No, because the Portuguese were capable of ... well, one has her/his own opinion, hasn't he? And he is capable of seeing things as he wants to. I think that we presuppose that he is very subjective, because each of them really will have his own opinion. Now, a recent author has several opinions, several proofs, I think that with those proofs s/he can compare and from there s/he can draw her/his own explanation.

I: And why a recent author can compare different views, and an important author cannot? Why did you choose *a* and not *b*?

F: Maybe, because an important author ... I think that s/he bases himself on her/his individuality and so ... on her/his subjectivity and not on several existing opinions ...

I: So that is in contradiction with this word - neutrality. - and why?

F: Because ... I think that a recent author ... there are several proofs, they might have studied important authors too! And s/he can be neutral too, s/he can study those authors and base himself on his personal point of view!

I: And how can neutrality cope with the personal point of view?

F: Hmm ... I think that... s/he is neutral, she/he is going ... (smiling) This is difficult! I think that after her/his own point of view and the others, she/he can go to neutrality ...I: So you consider that neutrality is an arrival point and not a starting point.

F: Or maybe a starting point, because s/he can start with neutrality too and go to an objective explanation. I think that we can see two ways there, s/he can be neutral and go to the explanation, to the study, but s/he can also move away from neutrality, because really with so many opinions, s/he can't draw her/his own neutral opinion!

I: And does it have any influence on your answer?

F: I think it does, each author can have her/his own opinion, but neutrality is not exactly that, because neutrality is not tied to her/his opinion, but well, s/he is not neutral about the other opinions ...

Appendix I

Examples suggesting a range of patterns within each level of progression[1]

<u>Level 1</u>

(a) Explanatory structure (M and W)

Ana, 13 years old, 7th grade:

> The Portuguese wanted to fight the Moslems.
>
> Cheng Ho consisted of a much larger size [sic] of the great Chinese fleet. The Chinese junks were 1500 tons heavy, at least, while none of Gama's were more than 300 tons heavy.
>
> The Moslem armies had large forces, better discipline and superior tactics based on the great mobility of light cavalry.
>
> Wealthy landlords demanded the end of maritime explorations, viewed as non profitable.

> 2.1. In A the Portuguese wanted to fight the Moslems. In C a vast domain was conquered in a short time with a few human and financial resources.
>
> [Version] B tells the Moslem naval challenge against the Portuguese. D tells the first and most difficult steps towards lands unknown to the Europeans.

Paulo, 14 years old, 9th grade:

> The Portuguese managed to establish a maritime empire in the Indian Ocean, during the sixteenth-century, <u>they had</u> a lot of *will-power* to discover through rounding Africa by sea, it was <u>since then</u> that the Portuguese started to conquer lands, in the middle of the fifteenth century the *land route was controlled by the Moslems*, in 1488 Bartolomeu Dias rounded the *Cape of Good Hope*, in 1498 Vasco da Gama's fleet arrives in *India*, in the sixteenth century the Portuguese *dominated the spice route already* .

> 2.1. [In version A] <u>Openly defying</u> the Moslem domain the Portuguese met their main enemies and in C the author says that [it was] <u>conquered in short time</u>, with a few human and financial resources.
>
> [In version B] <u>The Moslem naval challenge</u> against the Portuguese was not efficient. In D the author <u>explains how</u> the Portuguese conquered African lands.
>
> 2.2. [no response]

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[1]All the pupils whose responses are given here were interviewed but one (Lurdes, 11th-grader), who could not be present. Her written response is briefly discussed on pp. 387-91.

Ana gives a fragmented version constructed from the material available, historical sources mainly. A fragmented descriptive mode seems to be apparent here. A descriptive mode might be also suggested by her responses to item 2.1: she extracts some passages of the material given, presenting some meaningful statements about each version in terms of what they tell rather than of factors they might favour.

Paulo constructs his explanation, firstly, by ascribing to the Portuguese a disposition (will-power) to discoveries leading to the rounding of Africa - this might function as the initial motive for the empire ("it was since then that the Portuguese started to conquer lands"); secondly, by listing a series of factual steps which might have been picked up from information given (in the chronology). Will-power, traditionally quoted as a general factor for conquests and discoveries, is explicit. Antecedent steps are given by chronological order: land route controlled by Moslems - rounding of the Cape - arrival in India - sea route controlled by the Portuguese; a relationship between steps and causes is not apparent. A model of a continuous-series explanation may be suggested here, as in Cláudia's story. His responses might also suggest a restricted explanatory structure emerging ("will-power" is stated as a motive and in item 2.1 the passage quoted from version B might implicitly convey a notion of factor). However, most of the distinctions among the different versions made by Paulo are presented in terms of excerpts conveying descriptive facts.

Responses like those given above may indicate ideas revealing a pattern ranging from a descriptive to a restricted explanatory mode. Factorial weighting is not apparent since reasoning focuses on facts. The notion of implicit factor may emerge.

(b) Explanatory consistency (E and L)

Ana:

3.2. Version D [ranked 1st] explains more *how* discoveries were made.

3.3. [no response]

3.4. Version C [ranked 3rd] only explains that a vast domain was conquered with a few human and financial resources. Version A [ranked 4th] says that the Portuguese fought the Moslems.

Paulo:

Item 3.2. Because the first [version D] explains the domination of the Indian Ocean *better*, while B only explains *a part* of that domination.

3.3. I do [consider] because as I had already stated, the domination of the Indian Ocean is *better* explained [in version D] than in the others.

3.4. Because I think that it [version C] only explains *one part* of that issue.

Ana chooses version D, producing some justification statements relating to description ("how discoveries were") rather than to explanation. Evidence seems to be treated at the level of facts in each version. Information is mainly quoted, which indicates a restricted logical coherence in her constructions. Arguments are given in factual terms and the relative plausibility of versions is not discussed.

Paulo chooses version D first. He argues for it, and against versions B, A and C, with a vague assertion conveying maybe an idea of quantity of facts, or of comprehensiveness of account (better versus a part). As his idea of explanation appears to overlap description, his assessment of the different versions and his vague concern about a better "explanation" may be related to mere information. Logical consistency of explanations (coherence and plausibility) is discussed in a preempted way ("better/worse", "only a part").

Both sets of responses quoted above may indicate a pattern centred on substantive ideas. It ranges from notions tied to fragmented information, with a restricted logical coherence and revealing perplexity in terms of a second-order reasoning, to more coherent ideas about evidence related to description, but still indicating preempted notions of plausibility.

(c) Objectivity and truth (D and T)

Ana:

2.3. [Different explanations exist] Because it depends on the author's personal opinion, and no one can give a certain explanation.

2.4. Yes [an explanation can be considered better], the second [version B], because what happened is not very well known, so there are several versions.

5.2. The Portuguese [would explain the situation better], because if someone lived those events we would know them better.

Paulo:

2.3. Because each one has *a way of explaining* an event.

2.4. I think it does, because each one has a way of explaining *better* he has *more capacity* than the other who explains *worse*.

5.2. A witness from that time because *she/he really saw* what happened; it is *much easier to explain*, while the person who studied it might not understand some aspects.

Ana gives responses suggesting the emergence of ideas about variance of historical descriptions: personal opinion is stated in a preempted way and the basis for this seems to be a lack of certainty about what happened in the past. A naive realism is implicit ("if someone lived the events we would know them better") coexisting with a naive historical scepticism since she prefers an historical agent for "knowing" the situation. She seems to reason about provisional descriptions in terms of uncertain facts (but with a restricted coherence) rather than about explanations.

Paulo appears to concentrate on preempted differences among versions - each "way of explaining" an event may be "better or worse". Explanation, for him, might mean a description, and "a way of explaining better" might be linked to an idea of clarity in that description, tied to knowledge by direct acquaintance - events happened, and the closer we are to them the easier it will be to understand them. In this context, the witness seems to assume a position of *authority* to describe the situation better.[2] This idea suggests a naive scepticism, although Paulo also suggests a naive realism in his concern about what really happened.

The responses above suggest some incipient ideas about objectivity and truth related to description, showing an oscillation between a naive realism and scepticism, while choosing a witness or an agent for knowing the events.

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[2] Hermínio's answers (see p. 215) about the value of direct observation might also remind us of the authority stage, but now clearly related to explanation.

<u>Level 2</u>

(a) Explanatory structure (M and W)

Luís, 14 years old, 9th grade:

<u>Since</u> Bartolomeu Dias rounded the *Cape of Good Hope*, the Portuguese began to envy the *spice trade*. It was then that a fleet commanded by Vasco da Gama arrives in *India* (Calicut) <u>since then</u> the Portuguese started to *dominate this trade*.

2.1. In version A, <u>it refers to</u> the Portuguese enemies and <u>it gives importance to</u> their *non-intervention* in [Portuguese] domination, in C <u>it speaks of</u> the *difficulties felt* by Portugal. They [versions B and D] are the two most correct versions, in my opinion, because <u>they value</u> the meaning of the Portuguese *will*.

Cidália, 12 years old, 7th grade:

The Portuguese managed to establish a maritime empire in the Indian Ocean <u>because</u>: The *Moslems did not manage* to fight against the Portuguese, <u>by</u> the *Portuguese prestige and power* in relation to the other people.

2.1. Because in A <u>it says that</u> the Portuguese had *trouble in defeating* the other people and in C it says the opposite.

<u>It is said</u> in B that the Portuguese *were defeated* by the Moslems [sic] and in D it says that King Afonso Henriques took *the first steps*.

2.2. They [versions B and C] disagree about the power and victory of Portugal.

Luís constructs an account as a continuous-series in which the temporal steps are the Cape and India, interlinked with the trade spice motivation. The Portuguese domination appears as a natural conclusion to the story. Although this version points mainly to a descriptive mode, a broad motive for the maritime explorations (the spice trade) is suggested, thus it can be considered under a restricted explanatory pattern. In 2.1, he also suggests a notion of factor, the importance of the "non intervention" of Portuguese enemies and will-power for the Portuguese empire. Throughout his answers to other items (see 3.3, 3.4, next), he clearly operates with the notion of factor, establishing a hierarchy among them (the economic motive appears as decisive).

Cidália explicitly gives an answer in a causal mode asserting, as a single factor, the Portuguese power compared to other people's. It might be said that she presents an elaborate statement, since it is given in a negative form ("the Moslems did not manage to...") followed by a coherent argument (Portuguese power in relation to other people).

Distinctions among versions (items 2.1, 2.2), although mainly stated in descriptive terms ("it says that..."), convey a notion of factor ("trouble in defeating the other people", "the power [...] of Portugal"). However, this notion appears less clear, or overlapping the idea of fact, when she discusses the several versions given (items 3.2 to 3.4, discussed next) focusing on "the first steps" or disagreeing with version A, maybe on factual grounds only.

These two responses represent explanatory structures ranging from constructions in a restricted to a clearly explanatory mode; the notion of factor, although appearing to oscillate with that of mere fact, implies a hierarchy between decisive and contributory conditions.

(b) Explanatory consistency (E and L)

Luís:

3.2. The importance of the first version [B, ranked 1st] in relation to the second [D] is that, the trade was made by sea and thus a deep knowledge concerning navigation on oceans was necessarily required.

3.3. No [version ranked first is not better justified by sources]. Because I think that the Portuguese domination is not due to the cause of rivalries with other people but is due to the wish to get rich.

3.4. [A and C are worst] In the sense of wishing war with other people.

Cidália:

3.2. Because in B it [the question] is not so clearly explained as in D.

3.3. [Version ranked first is better justified by the sources] Because in that epoch there were almost no resources and even being like that the Prince Afonso Henriques took the most difficult steps.

3.4. Because I think that in A the Portuguese had not so much trouble in defeating Asia [sic], the Egyptians and Turks.

Luís chooses version B first, and an explanatory mode clearly underlies his responses here. He argues for his favoured explanation (B) against his second best (D) in terms of the plausibility of one familiar factor (naval advance), although this factor is more overtly conveyed by version D than by version B, and it is forgotten in other arguments. Item 3.3, which asked for evidential justification, is answered in terms of everyday plausibility - economic motivation is valued over military motives - although it seems that

he is aware that the sources focus on a military power. The same disagreement with military motives is shown against versions A and C. Thus, it appears that he concentrates his arguments on the confrontation of plausibility of two motives - economic versus military.[3] In item 2.1 (further above), he shows the same preference for versions B and D claiming that they are "the two most correct versions because they value the meaning of the Portuguese will". This assertion "the two most correct versions" suggest a concern for evidential consistency in terms of true facts overlapping true factors (but based on an emotional choice, it appears). In item 2.3 (given next) a similar concern about the truth of facts ("only through documents can we prove something") is apparent.

Cidália chooses version D first, preferring it to version B in terms of clarity of explanation - which is still a hazy or preempted idea of explanatory consistency. When asked about evidential justification, she argues in substantive terms for version D by valuing the action of the Portuguese Prince Henry (misunderstood as Afonso Henriques, the first Portuguese king) at the beginning of the discoveries and the morale factor may be implicit here (difficulties were overcome even without resources). She criticizes version A, producing an ambiguous argument about the military correlation between the Portuguese and the Moslems: she undervalues the Egyptian and Turkish power in relation to the Portuguese ("they had not so much trouble in defeating Asia"). It is not explicit whether she is arguing against the importance of that factor in terms of factual evidence or in terms of plausibility. A strategy to give importance to her preferred condition (will-power) by de-valuing other conditions (although in a preempted argument) might be operating here. In items 2.3, 2.4 and 4.3 (discussed next) evidence seems to be treated as proofs ("several proofs", "no concrete proof") for an explanation.

These two sets of responses may indicate emergent ideas about evidential consistency tied to the idea of facts as proofs for an explanation, and based on plausibility at everyday level. A tendency to argue, although still in vague terms or based on everyday (and emotional) assumptions, for one familiar factor against others as the correct answer, is observed at this level.

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[3] This position is similar to that defended by Hermínio about the economic motivation versus moral disposition (see pp. 211 and 214).

(c) Objectivity and truth (D and T)

Luís:

2.3. [There are different explanations] Because those are *facts which happened a long time ago,* therefore *only through documents can we prove* something.

2.4. *No* [An explanation cannot be considered better], because *these versions vary,* it is like Medicine.

5.2. [A Portuguese participant can explain] Because nobody but an *eyewitness,* for example, a *navigator,* is better *to justify* these or other facts.

Cidália:

2.3. Because there are *several proofs* making us think one thing or another.

2.4. *No,* because *they all* have to be considered the best because *we don't know for sure which are true.*

4.4. [An explanation can be considered already complete] I disagree, because there is actually *no concrete proof* demonstrating that *what is said in history is true.*

5.2. Only *a recent author* can compare more valid points of view because *he is better informed* about everything that happened and *can compare* them with others.

Luís is concerned about certainty in explanation. He appears to oscillate between a sceptical idea concerning knowledge of the past ("facts which happened a long time ago", "versions vary") thus opting for direct observation to get a better explanation ("nobody is better to justify ... facts than a witness") and a realist position ("through documents we can prove something"). These ideas might suggest a non-discrimination between description and explanation. His statement "versions vary, it is like Medicine" although quite sceptical, appears more elaborate, if it is personal; it is an analogy which may suggest that he is operating at the level of explanatory hypotheses rather than at a mere interpretation of facts.

Cidália seems also concerned about certainty, the true explanation. She produces two sets of ideas: (a) "several proofs", thus, "no concrete proof" about the past, and consequently, (b) uncertainty in historical knowledge since "we don't know for sure which of them are true". This simple view is challenged, however, when she opts for a recent author to give a better explanation: "he is better informed about everything that happened and can compare them [points of view?] with others". Considering her responses as a whole, the suggestion that her choice means a concern for explanatory scope might be too risky. Her assertion "he is informed of everything" might convey an ideal of total information. In any case, her last argument quoted from the corresponding question ("a recent author can compare more valid points of view") conflicts with a

sceptical attitude revealed in preceding responses, thus suggesting an oscillation between realism and scepticism.

These responses may indicate emerging ideas about provisionality loosely related to historical explanation, that is, an overlapping of ideas of objectivity in explanation or truth in description. An emphasis is put on proofs to get a certain or true explanation. An oscillation between contradicting trends about historical knowledge - realist versus sceptical positions - is observed.

Level 3

(a) Explanatory structure (M and W)

Maria, 12 years old, 7th grade:[4]

The Portuguese began by exploring the western *African coast* and came back full of *spices*. After that, Bartolomeu Dias passed (rounded) the *Cape of Good Hope* thus managing to arrive in China [sic]. The *Moslems did not manage* to defeat the Portuguese and the *Chinese fleet* had already withdrawn, leaving the way open to the Portuguese. These, in turn, quickly got to control that *trade*, forbidding the other people from doing it.

2.1. In version A, the Moslems have lot of *power* and in version C there are a few human and financial *resources*.

In version B, the *Moslems were not efficient, and the Chinese were not present* in the Indian Ocean. In version D the *Chinese were exploring* the Indian Ocean.

2.2. In version B the Portuguese did not have much *difficulty in fighting* the Moslems. And in version C they had *no difficulty in conquering* as a result of the Portuguese great leaders' *moral correctness* and through the *sacrifices* for the country made by all.

Teresa, 17 years old, 11th grade:

We might say that the Portuguese managed to establish a maritime empire because, on the one hand, the *African people had not enough power* to fight the European people (guns). The Portuguese felt a need for getting *spices* and a larger *empire* too, they also wanted to spread their *faith*. On the other hand, they managed as the most powerful groups living there based their *power on the land trade,* the sea was not seen as very important for them and, besides that, their *equipment* was not superior to the Europeans'. This effort in order to get the empire is due to the *morality* of the Portuguese great leaders and to the *sacrifices* made by the people to defend their country.

2.1. Version A says that the Portuguese wanted, mainly, *to fight* the Moslem faith. While version C says that the Portuguese managed to conquer the empire due to their *moral correctness.*

2.2. These versions [B and C] disagree as one (B) says that the Portuguese managed only as the *Chinese* fleet had withdrawn, the other (C) says that they managed due to their leaders' *morality* and to the *people's fight* for the country.

---

[4]Maria's work was considered as an example of responses which provoked some perplexity in arriving at a categorization, as enunciated in chapter 7, pp. 179-80. Thus it represents an extreme example of Level 3.

Maria constructs an account in a continuous-series model, but implicitly conveying a restricted explanatory mode: in her story ("began ... after that"), the spice motive and some external factors (Moslem inefficiency and Chinese withdrawal) are selected. Antecedent steps and conditions appear in chronological order. Distinctions made between versions may suggest a restricted notion of factor: differences between versions A and C, B and D, are stated mainly at a descriptive level, appearing as mere quotations in most cases ("a few human and financial resources", "Moslems were not efficient", "the Chinese ..."), but implicitly functioning as factors. In item 2.2, the notion of factor becomes more explicit ("no difficulty in conquering as a result of their great leaders' moral correctness"). In items 3.2 and 3.4 (given next), she values a plain sum of facts.

Teresa constructs an explanatory narrative pointing out several factors and aligning them in two main sets: (1) Portuguese military power compared to African's, and commercial, political and religious motivation; (2) military correlation between "the most powerful groups" living in India and the Portuguese. Another factor - the morale of Portuguese leaders and people - seems to be added just as if she does not wish to leave any factor aside in her account. The notion of factor seems also to be well grasped when she distinguishes between versions A and C (item 2.1) and versions B and C (item 2.2). She expresses a concern for "various factors" (item 3.3, given next) and discriminates among them a decisive cause ("economic needs", in item 3.2) and merely contributory conditions ("not so important", in item 3.4).

Both responses suggest an explanatory mode ranging from a restricted to a full explanation. Quantity of factors is valued. They may be aggregated as a sum of facts or, in a greater degree of sophistication, they are viewed as interlinked.

(b) Explanatory consistency (E and L)

Maria:

3.2. Because the first version [D, ranked first] explains *how everything happened* from the beginning, thus being *more complete*. It says who managed to round the Cape of Good Hope, and much more. The second version [B] is not complete, not telling dates and everything from the beginning.

3.3. Yes [Version ranked first is better justified by sources], because the *sources complete the first version* even more. Like that, it becomes complete.

3.4. They [versions ranked last] don't tell much *about the people, dates* of many important *historical facts* and they don't speak about those historical facts.

Teresa:

> 3.2. The first version [D] explains better as it shows the *steps* taken by the Portuguese and as it says *what the Portuguese really went to take due to economic needs* at the time.
>
> 3.3. Yes, I think that *it shows well the various factors* in which the Portuguese were superior to the Moslems.
>
> 3.4. In relation to version C, *I don't think that morality and leaders' correctness were important*, and in relation to version B, I think that the question *about the Chinese being or not being in the Ocean is not very important.*

Maria chooses version D first, arguing for it in terms of quantity of information and detail. Although a full description appears to be her ideal of historical knowledge, sometimes she can discuss versions on explanatory grounds (items 2.1, 2.2, e.g. "they had no difficulty in conquering..."). Sources are treated as complementary information to the version selected but in the interview she refers to sources as a justification to version D: "D... speaks about facts which are given in some sources, thus it is better justified". Arguments against versions B, A and C focus on quantity of information and detail, again. There is an internal coherence of her constructions and arguments, but the relative plausibility of versions is not discussed.

Teresa chooses version D, arguing for it in terms of steps and relevant factors. She integrates familiar knowledge and evidence available into her argumentation. She justifies the evidential consistency of version D by referring to the Portuguese superiority in relation to the Moslems (this superiority being ambiguously treated as "various factors") conveyed by several sources. This shows a clear discrimination of sources and explanation. Furthermore, in item 5.2 (given next) she makes a distinction between evidence and facts "they [agents] could give us precise data about the facts". In 3.4, versions B and C, undervalued by her, are discussed by weighing, in terms of everyday plausibility, the relative explanatory power of factors given.

These answers may indicate a pattern of valuing aggregation, specifically, the idea of quantity of factors in an explanation. This pattern might range from less elaborate ideas meaning an overlapping between quantity of facts and factors, when the notion of factor appears to be established in a restricted form, to clear ideas about evidential and logical consistency; in the former case, ideas of consistency with evidence, or of plausibility may not be clarified.

(c) Objectivity and truth (D and T)

Maria:

2.3. [There are different explanations] Because *not all versions are based on the same facts* and the authors are distinct, thinking and having *different opinions*.

2.4. *Yes* [one explanation can be considered better], version D. Because *version D explains how everything happened from the beginning* and the other versions are incomplete.

4.3. [Nowadays, an explanation can be considered as complete] I agree, because today there are *many ways of knowing all of that*. Because there are *several tools and progress*.

5.2. [A *Portuguese* participant would explain better] Because she/he participated, *knowing everything*.

Teresa:

2.3. Firstly, because each author faces questions in a *different way*, and then, there are *diversified factors* which are *more important to one author than to another*.

2.4. *No*, because *each answer has always something, even small, which is right* and means that it cannot be rejected.

4.3. We cannot say yes or no, as *it depends on the way of each one* facing the issue.

5.2. For me, a *Portuguese* who participated could explain better, as only he could give us *precise data about the facts* which really happened.

Maria justifies differences in explanations due to different facts selected according to different opinions ("not all ... based on the same facts"). She discusses completeness in terms of telling the whole story ("how everything happened from the beginning"), which is consistent with a descriptive structure overlapping explanation. She shows contradictory ideas about the possibilities of historical knowledge: on the one hand, she suggests a realist attitude to historical work to know the past ("there are many ways of knowing", "several tools and progress"); on the other hand, she suggests some scepticism when valuing memory for explaining the situation ("she/he participated, knowing everything"). Here, again, there is a concern for quantity related to the idea of total knowledge linked to direct experience.

Teresa produces more elaborate ideas suggesting a selective point of view in explanation ("each author faces questions in a different way") and simultaneously assuming a realist position ("there are diversified factors", "the facts which really happened"). Each version is seen as valid as it always contains some truth: here, a scissors and paste model, with a concern for taking each ("even small") bit of truth from every version, is suggested. She oscillates between a realist view, affirmed in quotations above, and some scepticism

when she puts as a limit to explanatory completeness the existence of different perspectives ("it depends on the way of each one facing the issue"). Possible conflicts between those two clusters of ideas seem to be solved by attributing a better position to agents as explanation-producers, since "they could give us precise data about the facts".

These responses may indicate an aggregationist pattern ranging from ideas considering quantity of facts and different opinions in explanations to a more elaborate notion viewing explanations made up of interlinked factors according to different points of view. In this last pattern the ideal is the grasping of a total past, and concerns for neutrality are not explicit. An oscillation between naive realism and scepticism is observed.

<u>Level 4</u>

(a) Explanatory structure (M and W)

Mário , 13 years old, 7th grade:

<u>Because</u>, although having weaker armies on land, the Portuguese managed to dominate the Indian Ocean because the *Moslems* had no great armed fleets. <u>Another reason</u> was that the Portuguese were *the first Europeans* to arrive in India, and <u>that permitted</u> them to conquer the main ports and to dominate *the spice route* which was very profitable.

2.1. Version A gives <u>a logical and synthetic explanation</u>, while version C gives an explanation made to *convey pride* in the Portuguese by having a lot of *patriotism* and moral correctness.
Version B says that the *Moslems* <u>might not be the biggest problem</u> but *the Chinese*, who had withdrawn from the Indian Ocean 60 years before. D shows that, although the Chinese had been in the Indian Ocean, the Portuguese were not affected by that.
2.2. Version B says that the Portuguese had "<u>luck</u>" because the *Moslems* had no naval power but C says that the domination was got only <u>due to</u> Portuguese *patriotism* and to their *religion* being "better" than the Moslems'.

Sofia, 15 years old, 9th grade

In my point of view, after reading the documents and sources given and based on history classes too, I think that the Portuguese managed to establish a vast maritime empire in the Indian Ocean <u>thanks to</u> their *geographical situation* and <u>also to</u> *will-power, naval equipment and technical knowledge.* <u>In spite of</u> the *Moslems* having won preceding battles, the *Portuguese armies* managed to defeat them; but it was especially in the early middle of the fifteenth-century, when the *Chinese* tried to explore the western African coast, that the Portuguese managed their passage to the Indian Ocean, <u>as</u> it was practically without guard-watch, and they met there *only Arabs and Africans*, who had no sophisticated war or naval equipment.

2.1. In version A, the Portuguese domination in the Indian Ocean is <u>explained as</u> the *Moslems* did not based their power on sea and in version C, A. Matoso <u>explains that</u> the Portuguese managed to overcome all the obstacles <u>due to</u> the great leaders' *moral correctness, and* the *sacrifices* made by all for the country.
Version B shows the author's *lack of confidence in Portuguese power* and says that the fact of the Portuguese domination of the Indian Ocean is <u>due to</u> the *Chinese absence* and Version D considers that the Portuguese domination is <u>due to</u> *Prince Henry.*

Mário gives an explanation in a causal mode, in a hierarchy of conditions: the military balance between the Moslems and the Portuguese is presented in an elaborate form (Moslem land power versus naval weakness) as the first factor to be pointed out; the fact of the Portuguese being the first Europeans to arrive in India (which might suggest the elimination of another source of difficulties) comes next. Factorial distinctions between pairs of versions are, mostly, stated at a sophisticated level: versions A and C are compared in terms of standards met by each of them (a logical versus a biased explanation), and factors favoured in version B are well synthesized in item 2.1. Version D seems to be treated as a description but its information is employed in terms of explanatory logic, by comparison to version B (the Chinese were there but they did not affect the occurrence).[5]

Sofia constructs an overtly explanatory narrative which might suggest a structurist model in combining long and short-term conditions and motives: geographical situation, naval technology and will-power, in the first set; the Moslem inefficiency (stated in a negative mode) and the Chinese withdrawal (misinterpreted in their temporal occurrence), in the second. This might be considered as short-term conditions if compared to the first causal set. When distinguishing between pairs of versions, she overtly applies causal notions by isolating, in explanatory statements, the main factors conveyed by versions A, B and C. But the descriptive version D appears as another explanation - she attributes to its first statement (Prince Henry's explorations) the cause conveyed by that version, although in item 3.4 she argues against its lack of explanatory power.[6] She tends to show a preference for one factor (the Portuguese will, in item 3.2, next page), although admitting that such a preference is made on subjective grounds.

These responses suggest an explanatory mode ranging from a causal hierarchy to an explanatory narrative. The notion of factor appears well grasped, and the relative weight of different factors can be discussed. The descriptive version (D) may be identified as a description, and its information is selected in terms of explanatory power.

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[5]A strategy of converting descriptive facts into factors is observed here. Data from the "Chata Project" suggests the same strategy of conversion.

[6]Here again, the same strategy of conversion is observed.

(b) Explanatory consistency (E and L)

Mário :

3.2. [D is better] Because it speaks of the different steps taken by the Portuguese for the domination of Africa and the Indian Ocean, while version B only speaks about what would have happened if...

3.3. Yes, it gives a more synthetic and brief version of the historical explanation.

3.4. They [A and C] only speak of one fact about the Portuguese domination in the Indian Ocean.

4.2. Why did the Chinese or other European people not try to conquer the spice trade when they realized that it was so profitable to the Portuguese?

Sofia:

3.2. The first version [C] shows the *confidence in the Portuguese* army and the second version [B] shows *another point of view* saying that the *Moslem* naval challenge was not efficient enough against the Portuguese.

3.3. *No*, but it is *the one which presents more confidence* in the Portuguese than any other and as I am a Portuguese, *I don't show impartiality*, I take my side.

3.4. *I don't consider them as worse, but* version A is *very subjective* and version D *doesn't explain the main motives* which led the Portuguese to dominate the Indian Ocean.

Mário chooses version D, appearing to value a set of real factors (the several antecedent steps of the empire) over a counterfactual speculation given by version B; he gives a low value to explanations A and C using the criterion of interlinked factors, which may also underlie his first choice. The notion of evidential consistency might seem still vague, with no explicit distinction between facts and sources for an explanation, but he ranked version C last, criticizing it as a biased explanation (in items 2.1./2.2), thus suggesting that he coherently applies criteria for distinguishing better and worse-grounded explanations. Facts/factors are interlinked, and a logical explanation must reflect such interrelationship, as he claims in the interview: "A neutral author should write the facts intertwined, with logic". Thus, logical consistency appears to be another criterion for assessing explanations, as is suggested above and in his answer 2.1 when he defined in version A as a "logical explanation"). However, his answer about evidential support for the favoured explanation, in item 3.3, appears somehow incoherent: what does he mean by a "more synthetic version", concerning the longer version D? As far as plausibility is concerned, the issue he posed in 4.2 suggests notions focusing on the specific historical context of the Portuguese oriental empire (the Chinese and European powers, at the time).

Sofia seems to grasp elaborate ideas of evidential consistency (she recognises that version C is not justified by sources given), and of logical consistency (she criticizes version D in terms of lack of explanatory power). In spite of that, she does not apply such criteria in the assessment of concrete explanations - she chooses version C first, opting for applying practical principles of nationalism rather than historical criteria, assuming the relativism of human decisions. Her argumentation might suggest that:

- explanations may be plausible, and all valid under different points of view, even if more subjective (item 3.2, 3.4);

- explanations may be well-grounded on evidence, or not, (item 3.3);

- selection among different versions will depend on personal presuppositions rather than on evidential grounds (item 3.3).

Thus, personal and emotional assumptions seem to be the main criterion for her practical decisions about explanations of the past, notwithstanding awareness of specific historical criteria. This might reveal a tight, but conscious attitude, so far as methodological criteria are concerned, seeking in subjectivism a basis for a less critical choice.

Another example of an elaborate pattern suggesting awareness about criteria of evidential and logical consistency, in an objectivist trend, may be observed in Carolina's responses.

Carolina, 15 years old, 9th grade:

> 3.2. The first version D explains better because it considers *all the historical background* of that event.
>
> 3.3. No, because the version I chose includes *a set of sources not possible to give* here.
>
> 3.4. Because the latter two [A and B] are *not so well-grounded in their historical perspective* as the former two.

Carolina expresses awareness of the evidential basis in terms of several sources required for a good explanation, pointing to a wider scope for justifying her favoured explanation. A similar focus is shown in the interview, showing concerns for a large evidential basis ("I would try to give an explanation based on all the facts available"). She appears to value an explanation in terms of totality of facts for the comprehensiveness of the situation ("all the facts available", "all the historical background"). This seems to entail a concern for plausibility in terms of the specific historical context - the most plausible explanation implicitly appears to be that which tries to seize the past in its total context. The same idea appears when she argues against versions A and B, claiming that they are "not so well-grounded in their historical perspective"; in the interview she explains what she means by that:

C: It is *relating all the past*, not just one fact, but seeing all of them *in perspective,* not only some facts but several. To get several sources, *not formulate a reasoning based on just one source*, not just on one fact, but several, to relate all of them.

This statement seems to convey a notion of factors to be interlinked, as in Rui and Mário's responses: all factors must be taken into account in order to actually explain the past.

These responses may indicate notions of evidential consistency at the level of interlinked factors conveyed by several sources; logical consistency in terms of implicit appreciation of internal coherence, and plausibility at everyday level, or considering the specific historical context.

(c) Objectivity and truth (D and T)

Mário:

2.3. Because *each historian only shows the factual side in which she/he is interested,* some wanting to show that the Portuguese were not so good as they looked, some saying the opposite.

2.4. *No,* because *each one* speaks only about what she/he finds more *important,* not speaking about all the facts.

4.3. Maybe [a complete explanation already exists]. Because in the materials available they [explanations] are not complete because *there might exist more explanations* about questions like those I presented above [item 4.2.].

5.2. *A neutral author,* because the text will miss a lot (version C) without being neutral, because the facts are made up in a way showing always that something is superior or inferior to another.

Carolina:

2.3. There are different explanations because there are also *different mentalities.*

2.4. *No,* each historian has her/his own *point of view* and it cannot be said that one is wrong and the other is right.

4.3. I disagree because each man has his own way of thinking and *we cannot generalize* by creating just one explanation.

5.2. I would choose *the chart,* then I would see what was in common and what was different and then *I would work out an explanation.*

Mário shows a special preoccupation about the problem of bias not only related to practical interests (as he indicates in relation to version C) but also in terms of personal assumptions underlying each point of view; in his discussion he "deconstructs" historical production in the light of cultural presuppositions which underlie it, apparently assuming a relativist position. However, maybe due to his main concern about detachment, he chooses a neutral author to give a better explanation, and this might be seen as contradicting his former deconstruction. In the interview, he makes clear how to "control" for neutrality:

> I: So, you think that no historian can...
>
> M: No, I don't! A Portuguese, or a Moslem historian will never write a book with the right story about discoveries! But *some from other countries* not directly influenced by discoveries - neither Spanish nor English - *could do it!*

In his responses, an idea of provisionality due to existing different perspectives ("each one speaks only about what she/he finds more important", "there might exist more explanations about questions like those I presented above") is suggested. However, in a positivist approach, Mário states that an absolute neutrality can be attained by eliminating direct involvement in the situation to be explained, thus denying his arguments about perspective.

Carolina appears to recognise the notion of point of view beyond a stereotyped idea of personal opinion ("different mentalities") and seems to give a positive attribution to it , when she suggests that there are no right/wrong answers, or that there is not a single answer ("we cannot generalize"). These responses might suggest a relativist view, since she avoids assigning a different validity to different explanations. In the interview, Carolina begins by asserting the existing different presuppositions when a selection among different facts is made:

> C: *Each one puts more... more relevance* on what she/he thinks it happened! Like me, I'm speaking of facts that can be totally different to another person!

However, signs of realism progressively appear during the interview. She states some basic criteria for serious research to reach an explanation:

> C: *They* [historians] *have to be inside the real issue*, they cannot speak of one thing and then speak of another issue! They have to know what they are speaking about!
>
> ....

History has been made because new data are found, not because of the way of thinking!
Something considered as right now can be seen as incomplete within a few years. If some new facts are known it can turn this explanation false!

These responses may indicate ideas about perspective beyond a common-sense level, integrating notions of bias and/or different cultural presuppositions. However, these ideas appear in contradiction with principles of an absolute neutrality, seen as essential to a valid explanation. This main pattern may present different views: some more positivist, opt for affirming a perspectiveless neutrality, as in cases above. Within this trend, Rui' s responses suggest the tightest attitude.

Sofia's responses suggest a more subjectivist trend: when facing a logical conflict between perspective and neutrality, some students assume that the real past cannot be grasped due to a lack of a perspectiveless neutrality. Sofia writes:

2.3. It is due to the way each person sees the issue, *the observed "angle" and the different historical sources.*

2.4. No, as for me *the union* of all versions is the best, *but even that is not the most perfect* as it can always be completed by something else, which we don't know.

4.3. No matter how the human being tries to improve the facts, *there is always something slipping, something obvious which is far away from our eyes.*

5.2. The witness would really be the best but even she/he is not totally reliable as *there is always a tendency to opt for a party or a different point of view.*

Sofia shows an awareness of a subjective explanation due to different perspectives and, firstly, she prefers to sum them up to get the best explanation. Simultaneously, it appears that she implicitly affirms a reality out there. She tries to solve this dilemma by attributing to a witness the best position to explain a situation (and she stresses this solution during the interview). The direct observation paradigm might function as an expedient to achieve neutrality and reduce the interference of human perspective, seen as a source of unreliability. However, she appears to realize that a completely reliable explanation is not possible - and finally she opts for the importance of point of view over the possibility of a perspectiveless neutrality when explaining a human situation.

These several responses show a range of notions tied to an ideal of perspectiveless neutrality. They may vary between an objectivist trend considering the possibility of attaining an absolutely neutral explanation whether by an authority or through consensus, and a relativist trend assuming that, as such a neutrality cannot be attained, explanations are relative to a given perspective.

Level 5

(a) Explanatory structure (M and W)

Manuel, 18 years old, 11th grade:

> Essentially, <u>because</u> we were in *half-way through an economic crisis rising from the fourteenth century* which was the Black Death crisis, during which a lot of people had died. We turned away from land domination and *we turned over to maritime expansion, towards the spice trade* which was *more profitable*. These were well-planned, well led trips, with well-armed ships, but inferior to the Chinese ships. It was after *the rounding of the Cape of Good Hope*, with Bartolomeu Dias, that we saw our work made easier. We assumed the maritime empire in the Indian Ocean *pushing away the Chinese from there*. It was all profit.
>
> It was necessary to seize that imperial domination in order to solve our economic problems.

> 2.1. Version A says about the power that the *Asians and Moslems* had on land, that is, on the land conquest issue, and on the contrary, the Portuguese had a great *maritime power*.
>
> Version C states, as in the saying, *the unity makes power*, that what happened was with few resources of men and money - it is better few and good than a lot and bad.

Lurdes, 17 years old, 11th grade:

> The Portuguese established an empire in the Indian Ocean <u>due to some factors or favouring conditions</u> such as: *the withdrawal of a possible great obstacle*, that is, the very powerful (at the time), Chinese fleet; *the confrontation with the Moslems without great difficulties* as these latter based their power on land; *our leaders* were determined and patriotic, as they fought with conviction; this conquest was not immediate, it was *the outcome of a progressive exploration* achieving a civilization *based on trade routes* and a profitable trade. In spite of those conditions *the merit goes to the Portuguese*.

> 2.1. The first [A] is *more realist*, it is *based on concrete facts*, while the second [C] *bears on a spiritual power*, the open and adventurous *Portuguese spirit*.
>
> Version B <u>questions</u> our empire in case of the non-withdrawal of *Chinese* forces, D doesn't give much importance to that, rather <u>it describes the *steps*</u> taken for the conquest as it had been preconceived.
>
> 2.2. Version B asserts that our empire is <u>the result of</u> *coincidence* while C *elevates the Portuguese* capacities.

Manuel presents an explanatory narrative interlinking long-term conditions (the rise of the maritime expansion due to economic problems, and the systematic organization of that expansion) and the Chinese factor (although inaccurately stated - "pushing away the

Chinese from there"), the rounding of the Cape, and the implicit spice motive. He comes to a conclusion in terms of the goal achieved (the control of the spice trade as a solution to economic problems). When distinguishing between two versions, in items 2.1 and 2.2, Manuel implicitly points out their main factors: the military correlation stressed in version A, and the morale factor stressed in version C. During the interview, he outlines the rounding of the Cape as the decisive factor: "I think that no obstacle as this Cape, or similar, appeared", "after rounding the Cape they got such a morale that they would win whatever people they could meet". The Portuguese will (or, morale) was also treated as a decisive factor of the Portuguese empire.[7] Thus, Manuel construes an explanation intertwining steps, dispositions, motives and external conditions, and discusses their relative weight.

Lurdes begins her explanation with a set of factors explicitly recognised as such or as conditions. In a first set, she mentions the Chinese withdrawal (as a counterfactual: "a possible obstacle"), the military correlation with the Moslems, the morale factor, and (maybe) a web of long-term conditions and motives, synthesized in her statement "this conquest was not immediate, it was the outcome of a progressive exploration ... based on trade routes... ". At this point, her explanation assumes some contours of a narrative. She finishes by stressing "the Portuguese merit", which might suggest to point to the morale factor as the decisive condition among others. However, in 3.4 she makes this "merit" more explicit: she argues against the importance of the Portuguese will (not a "tangible reason") as being decisive, and what might have counted was the material resource. In items 2.1 and 2.2, distinctions between versions are made at a sophisticated level: she opposes versions A and C in terms of realism (as "based on concrete facts") versus subjectivism (version C "bears on a spiritual power"); version B is considered as a counterfactual speculation ("it questions our empire in case of ...") and version D is recognised as a description, not as an explanation ("it describes the steps").

These responses suggest an explanatory structure proximate to a narrative mode, which might be considered the mode frequently practised by historians (which is familiar to Portuguese history classes). A hierarchy between decisive and other contributory conditions is applied.

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[7]Manuel interprets the morality factor in terms of morale, as several other students do. This might be seen as a strategy of conversion, as previously referred to. Filipa's discussion of the leaders' morality represents one example of exceptions to this kind of conversion (see p. 244).

(b) Explanatory consistency (E and L)

Manuel:

> 3.2. Because I see that [D, ranked first] is the most *concrete* and it conveys *important points* about this domination.
>
> 3.3. D [Version ranked first is better justified by sources], because the sources picture important and very concrete aspects of this domination.
>
> 3.4. They [A and B, ranked last] are those which, to my view, lead me to *less profitable conclusions*, in their approach.

Lurdes:

> 2.4. Yes, [an explanation can be considered better than others] if it is more explicit in a way to beat the other arguments.
>
> 3.2. Because it [A, ranked 1st] does not speculate, it only refers to why we defeated the Moslems; the second [B] refers to an aspect which might be very important but, in spite of everything, does not really happen.
>
> 3.3. Yes [version D is better justified by sources], because when describing the Moslem fleet they explain our victory as these [Moslems] reinforced their land army at the expense of the maritime army, and thus we took advantage of that.
>
> 3.4. They [C and D] do not present "tangible" reasons, the Portuguese might be very determined but the enemies could defeat us with their material resources; beside that, in the last case, it only describes the events by order and not why and how they happened.
>
> 4.3. Maybe [nowadays, an explanation can be considered as complete], because there are no definitive truths and nothing guarantees that that explanation might not be put into question.

Manuel chooses version D assessing its value in terms of its concreteness and factual importance. This could mean he values a more descriptive, or a more consistent with evidence, or a more plausible version: in the interview he considers version D as better justified by sources and argues for each statement in terms of its explanatory power. Factors are discussed as interrelated in the specific historical context. A distinction between explanation and sources is explicit in 3.1 ("the sources picture important and very concrete aspects"), and in the interview he explicitly cites sources C and E. His metaphor "picture" might suggest a naive idea about evidence, but through the interview he relates evidential consistency to a notion of confirmation, although using the term proof (an explanation may be "discussed in the light of its proofs, its facts". He considers versions ranked last as less fruitful; in the interview, Manuel affirms that all of them are worthy to be considered, and justifies their rank in terms of explanatory power.

Lurdes prefers version A over version B, as the former conveys a factor which "really happened", while the latter presents a mere speculation. Thus, an explanation based on a counterfactual possibility is considered important by Lurdes, but not so much as one based on "real" factors. When arguing for evidential justification of version A, she might be confirming this version by evidence conveyed by sources B, C, D and E when she refers to "describing the Moslem fleet they explain our victory, as these [Moslems] reinforced their land army". An idea of explanations open to refutation appears in 4.3. One explanation can win over others through argumentation ("in a way to beat the other arguments"). This argument, in conjunction with her discussion for and against the several versions given, seems to take into account elaborate criteria of explanatory power, on grounds of evidential and logical consistency.

These responses may indicate some emerging ideas of (a) confirmation and refutation, although these ideas may oscillate to a simpler idea of exact proofs, and/or of (b) plausibility, in terms of everyday assumptions or appealing to the historical context.

(c) Objectivity and truth (D and T)

Manuel:

> 2.3. [There are different explanations because] History is rumoured by the historians.
>
> 2.4. Maybe [an explanation can be considered better than others], *version D because the Cape of Good Hope is the crucial point* in this Portuguese domination of the Indian Ocean.
>
> 4.3. Maybe [nowadays, an explanation can be considered as complete], if there really is a complete explanation it is because they found the real facts for drawing a conclusion.
>
> 5.2. The recent author [would explain better], because he has more points, more facts, more suggestions in order to compare, analyse and see better the facts, because she/he can deal with more material to analyse.

Lurdes:

> 2.3. Because nothing is definitive, there are always several ways of seeing something. Everything is relative when as in this case there are no proofs to clarify and establish a single interpretation.
>
> 2.4. Yes, if it is more explicit in a way to beat the other arguments.
>
> 5.2. [A witness] Because it is not influenced by principles like patriotism and in this case she/he saw what really happened and doesn't make suppositions and speculations about whether it happened or how it could be.

Manuel appears to be aware of a notion of perspective when he states that the existence of different explanations is due to the rumour of historians, that an explanation is constructed and based on facts, and that a recent author "has more suggestions ... see better the facts". This notion appears more explicit in the interview when he claims that "a historian will explain in a personal way... and that doesn't happen on this issue only ... there is never a 100% right explanation". Manuel prefers a recent author to an agent's explanation since this "is good because it is something they leave written and it is true, but the recent author will discuss it and will have more varied points of view". Thus, Manuel expresses an objectivist view and seems to take into account ideas of explanatory scope.

Lurdes makes her ideas about provisionality of knowledge explicit ("there are no definitive truths") and assuming that several points of view lead to several answers. However, she seems to oscillate between this idea of recognition of point of view and that of applying perspective to controversial explanations only, in those cases when no proofs exist "to permit a single interpretation". She opts for a witness as the best explanation-producer, maybe due to a concern for certainty. Thus she seems to oscillate between a belief in certainty opposed to bias ("influenced by principles like patriotism") and a more elaborate objectivism integrating the notion of perspective.

These responses may indicate a pattern in which the notion of perspective already appears entangled in criteria of methodological detachment and explanatory consistency. Although a genuine point of view is beginning to be accepted in an historical explanation, such a notion is still tentative, in the sense that it may coexist with an ideal of a single truth to be attained through a perspectiveless neutrality.