

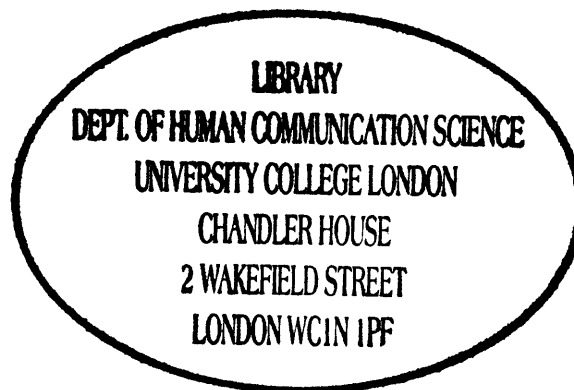
KIDGER



**AN INVESTIGATION OF SPOKEN AND WRITTEN VERB  
MORPHOLOGY PRODUCTION IN AN INDIVIDUAL WITH  
ACQUIRED APHASIA**

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**FOR  
REFERENCE ONLY**



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Sciences

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## ABSTRACT

Noun-verb dissociation is well-reported in the literature. However, verb morphology in aphasic production is not so widely reported.. The current theories regarding noun-verb dissociation centre on semantic-conceptual representation of grammatical category and processing of grammatical category. This is distinct from the semantic level. This study investigates how verb morphology is affected in an individual with acquired aphasia. Noun morphology is analysed to ascertain whether the client's morphology deficit is grammatical-class specific. Verb and noun morphology are compared in the spoken and written modalities to ascertain the presence of a modality-specific effect.

Verb errors are categorised as omission or substitution of agreement or tense/aspect. All possible factors, which may influence correct marker production are investigated.

Data for this study was gathered from the subject's clinical file and comprised comparable picture and procedural description tasks. Non-comparable tasks were also used to supplement this data.

The subject was found to have a greater difficulty with verb than noun morphology and more morphological errors were observed to occur in the written than spoken modalities. Most morphological errors in the spoken modality and dictation tasks comprised marker substitutions, whereas marker omissions were most apparent in the written modality. ,These results are discussed in relation to the theoretical models of processing.

## 1. INTRODUCTION

There appear to be many manifestations of morphological impairments in aphasia. This section discusses morphological impairment with regards to verbs and nouns, written and spoken modalities, tense and agreement and regular and irregular past tense forms. Theoretical models associated with these issues are also discussed.

Aphasic 'syndrome' classification is not necessarily predictive of the linguistic impairment. The literature reports that, typically, anomic (fluent) aphasia leads to a greater impairment in object naming, such as for EA in Laiacona & Caramazza, (2004) and Broca's aphasia results in an impairment in action naming, (see Kim & Thompson, 2000). As with every trend, there are exceptions. Berndt, Mitchum, Haendiges, & Sandson, (1997) point out that participants with fluent aphasia can have selective verb impairments. KB, the subject in this study, presents with impaired verb production compared to noun production, while having a classification of fluent, anomic aphasia.

The occurrence of a noun/verb dissociation in aphasic output is well documented in the literature (see Druks 2002, for a review). However, the majority of literature focuses on actual production of nouns and verbs rather than morphology. The two dominant theories regarding noun/verb dissociations are discussed below.

Laiacona & Caramazza (2004) succinctly categorise the two major theories into deficits involving 'semantic-conceptual' processing, (Bird, Howard & Franklin, 2003) and 'grammatical' processing, (Rapp & Caramazza, 2002; Bastiaanse & Zonneveld, 2004). The former account argues that grammatical class deficits, such as the ability to name nouns but not verbs, is a semantic problem. Nouns, typically represent highly imageable, concrete objects or animate beings and damage to the semantic store of objects (often claimed to be localised in the temporal lobe), results in impaired noun retrieval. Verbs typically represent less imageable actions and movements. Damage to the semantic store of actions, often claimed to be localised in the frontal and posterior temporal lobes, results in impaired verb

retrieval. This theory has been brought into question by researchers who have objected to the claim made by Bird, Howard & Franklin (2000) that, when imageability is controlled, there are no true 'verb deficits'. Berndt, Haendiges, Burton & Mitchum (2002), for example, found that grammatical class and imageability were independent of each other; both are important in noun/verb retrieval but grammatical class is not governed by imageability.

Furthermore, double dissociations in noun/verb naming in the written and spoken modalities also undermines the "semantic-conceptual" theory of grammatical processing. Rapp & Caramazza (2002) present the case of KSR who has greater difficulty producing nouns than verbs in the spoken modality yet greater difficulty in writing verbs than nouns. They argue that, if noun/verb distinctions were purely semantic, then output in spoken and written modalities should be equal. KSR's noun and verb output is clearly not equal across the modalities and this implies that grammatical category distinctions occur at a post-semantic level of representation.

There are many models which try to explain what and where this post-semantic level occurs. Two of these models are discussed here; Levelt's model of lexeme and lemma representation, summarised in Marshall (2003), and Caramazza's Independent Network (IN) model (summarised in Druks 2002).

Levelt and his colleagues proposed a lemma/lexeme processing level, whereby the lemma stores amodal, grammatical information about a verb (as opposed to the semantic system) and the lexeme contains the phonological/orthographic form. Bastiaanse & van Zonnefeld (2004) suggest that verb lemmas carry more grammatical information than noun lemmas and this information requires encoding. The processing load required for encoding may be too much for those with Broca's aphasia and result in impaired verb production but intact noun production. Morphological impairments can also be explained this way: impaired access to the lemma may result in limited access to or retrieval of grammatical information. Verbs may be produced in the root form, thus lack inflections or possess the wrong



morphological marker. Modality-specific verb deficits may be explained by impaired access to or retrieval from the appropriate lexeme. Arguments against this theory highlights the fact that there all grammatical category information must be inefficiently represented in each output lexicon.

The IN model, proposed by Caramazza, supposes that grammatical information is available at the level of phonological or orthographic lexical representation. The existence of two separate lexical representations therefore accounts for modality-specific verb deficits, whether in terms of actual verb production or morphological impairment.

The 'semantic-conceptual' account can be used to explain why, for example, an individual with aphasia produces more nouns than verbs per se, but it does not explain why dissociations in noun and verb morphology exist. If it is to be assumed that grammatical information is stored at the semantic level, then all access to verbs should be impaired, not just those with or without a morphological inflection.

In two of the few studies to examine morphology in patients, Shapiro, Shelton & Caramazza (2000) present the case of JR, a man with fluent aphasia, who has selective difficulty with noun morphology. He is able to mark the 3<sup>rd</sup> person present on verbs but not plural nouns. They argue that these grammatical class effects are due to syntactic processes and not general semantic impairments.

Tsapkini, Jarema & Kehayia (2002) present the case of SK, a non-fluent aphasic patient with a selective impairment in verb morphology but intact noun morphology. They also conclude that grammatical class cannot be reduced to semantic factors.

A more general inability to use any markers in any modality may indicate a morphosyntactic impairment. For example, Druks & Carroll (2005) and Tsapkini et al (2002), both postulate that omissions of tense features in both spoken and written modalities, whether regular or irregular, reflects a morphosyntactic impairment with tense. A dissociation in favour of irregular over regular past tense forms may be indicative of morphophonological or orthographic impairment.

The ability to recognise and mark tense is intact as demonstrated in the production of irregular tense forms. However, it is the phonological unit /d/ or orthographic unit 'ed' which is unavailable. Omission of the verbal third person present marker and nominal plural marker would also be due to morphophonological/morphorthographic deficits.

It is widely supported that there is a dual-route model of morphological processing. This distinguishes between a rule-based system for regular items, such as the regular past tense suffix '-ed', and an associative system for irregular items, such as 'caught' and 'went' (Lavric, Pizzagalli, Forstmeier & Rippon, 2001) This model is also applicable to the processing of regular and irregular plural nouns. Regular forms are purported to be processed faster and more accurately than irregular forms. The phenomenon of regularised irregular forms (i.e. 'drived' instead of 'drove') suggests that the process of taking the verb stem and adding the regular past suffix is more automatic or easily accessed than retrieving the particular irregular form.

Druks & Carroll (2005), present the case of DOR who used very few lexical verbs in his spoken output. In sentence generation tasks, DOR was assisted by the provision of infinitive and verbs with the progressive '-ing' marker, but not by the provision of verbs in the past tense. DOR had great difficulty in producing finite verbs in sentence completion tasks, especially the past tense and third person singular forms. Druks & Carroll postulate that DOR's inability to produce past tense verbs is because he has no tense features available to him. His deficit is not morphosyntactic because he is able to produce plural nouns, and it is not morphophonological because he is able to attach suffixes to nouns and verbs (progressive '-ing' marker).

Finally, it must be noted that some researchers (such as Druks & Carroll, 2005; Burchert, Swoboda-Moll & de Bleser, 2005) postulate that tense is more vulnerable than agreement in English. However, it must be considered that in English, the boundaries between tense and agreement overlap: the only instance in

which main verbs show agreement is to mark the third person present. Therefore, where an agreement marker is omitted, the present tense marker is also omitted.

The accounts described in this section to resolve noun-verb dissociations, modality-specific deficits and morphological impairments will be considered for their validity in analysis of KB's verb production. Absolute compliance with any one theory would not be expected: arguments for and against each one are numerous and many researchers reason that the cause is as individual as the impairment itself (see Berndt, Burton et al, 2002; Laiacona & Caramazza, 2004; Marshall, 2003; Black & Chiat, 2003; Crepaldi, Aggujaro, Arduino, Zonca, Ghirardi, Inzaghi, Colombo, Chierchia, & Luzzatti, 2004).

## 2. METHODOLOGY

### 2.1 Design

The study is a qualitative, single case study investigating the verb morphology in the written and spoken modalities of an individual with acquired aphasia. No new experimental data was collected for this study; all the data was taken from the subject's clinical file at an Acquired Communication Disorders Clinic in London.

The subject of this study has also participated in other investigations into event processing (Edwards, 2004), event description (Hughson, 2004) and response to Voice Recognition Technology (Bendre, 2004). A noun-verb dissociation had been reported in the written modality (see Section 2.3), though this dissociation had not been systematically documented. Kilburn's study (2005), focuses on KB's semantic, phonological, and syntactic errors in relation to main and auxiliary verbs, whereas this study concentrates on his morphological errors with respect to main verbs. Because of the noun/verb dissociation in the written modality, it was predicted that verb morphology would also be more affected in the written than spoken modality.

### 2.2 Participant

The subject of this case study is KB, a 58 year old man who suffered a left-sided CVA in April 2001; resulting in mild-moderate anomia and mild dysarthria (Bendre, 2004). At the time of commencing this study, KB had good comprehension and spoken output, yet impaired written output and reading aloud difficulties. Pre-morbidly KB was a radio journalist and worked mostly on science and arts programmes. KB's first language is English and he has a knowledge of other languages including French, German, Greek and Latin.

The data used in this study was collected between September 2002 and September 2004. It was originally envisaged that further tasks would be administered, however, KB suffered a further right-sided stroke in December 2004 and further testing was not possible.

### 2.3 Psycholinguistic profile

Previous studies such as Bendre (2004) and Hughson (2004), have shown that KB has a marked difficulty producing verbs in the written modality compared to the spoken. Bendre and Hughson conclude that where access to nouns is equal to that of verbs in the spoken modality, access to verbs becomes far more impaired in the written modality. KB scored 30/30 on a visual version of the Pyramids and Palm Trees assessment (Howard & Patterson, 1992), which shows that his representation of object meaning is intact. Performance on the Event Perception Test (EPT) (Marshall, Pring & Chiat, 1999) suggest that KB has difficulty selecting the correct semantic representation or activating the correct phonological form of verbs (Bendre, Black & Bruce, in preparation), despite having unimpaired semantic representations of verbs. He scored outside normal limits (53/60) on the EPT indicating a difficulty in focusing on the most relevant features of the picture. However, his retrieval was not assisted when he was provided with the target verb (54/60 correct, Edwards, 2004).

He correctly named 16/20 nouns taken from the Object and Action Naming Battery (OANB) (Druks & Masterson, 2000). Most errors were semantically related to the target. KB correctly named 16/20 verbs from the OANB, again making mostly semantic errors. This suggests that he has a mild lexical retrieval deficit which is not specific to nouns or verbs.

In single word and sentence writing to dictation tasks, KB produced significantly more nouns than verbs correctly (Bendre, 2004). KB's access to orthographic representations of verbs therefore appears to be impaired despite good semantic representations. This is supported by noun and verb production in this study; far more nouns than verbs were produced and far more verbs than nouns contained a morphological error in the written modality.

Performance on the Reversible Sentence Comprehension Test (RSCT) (Byng & Black, 1999) confirms that KB has intact access to verb meaning. He scored within normal limits (20/20 on sentences with action verbs and 18/20 on sentences with

non-action verbs) and demonstrated that he is able to access thematic roles of verbs from auditory information.

Comparison of spoken and written picture descriptions shows that where spoken sentences are largely well-formed and syntactically complex with many verb phrases, written sentences are fewer in number, largely ill-formed, less syntactically complex and contain far fewer verb phrases.

KB can read for meaning as demonstrated by his ability to match single words to pictures, provide an oral summary of a short story and respond to written questions. Difficulties on the Reading Comprehension Battery for Aphasia (LaPointe & Horner, 1979) involved reading numbers, understanding morphosyntactic distinctions and responding correctly to questions directly relating to the content of paragraphs (Bendre et al, in preparation).

KB has great difficulty reading aloud, suggesting that he has poor ability to convert graphemes into phonemes. Single words and sentences are affected and omission, semantic, morphological and function word errors are produced.

To summarise, KB has good semantic representations of nouns and verbs though selection of the correct semantic representation or activating the correct phonological form from semantics is likely to be impaired, particularly in the written modality. KB is able to access thematic roles of verbs from meaning but has specific difficulty producing verbs in the written modality.

#### 2.4 Tasks and materials

The data selected comprises comparable and non-comparable spoken and written tasks completed between September 2002 and September 2004.

##### Comparable tasks

KB was presented with four different stimulus pictures: 'The Dinner Party', 'The Robbery', 'The Cat' and 'Jogging' (See Appendix 3), which were used to elicit spoken and written narrative accounts. KB produced one written and one spoken

description of the 'Jogging' picture and two written and two spoken accounts of the 'Dinner Party', 'Robbery' and 'Cat' pictures. KB's first spoken output for the latter three pictures was used to form target utterances for the writing to dictation tasks. There were three dictation tasks for the 'Robbery' and 'Cat' pictures and four for the 'Dinner Party'.

KB was asked to provide a procedural account of "how to make a cup of coffee." There was no picture stimulus for this, just the oral prompt. KB's spoken account was recorded and transcribed and analysis is based on this transcription.

These comparable tasks form the foundation of the comparison between written and spoken verbs and nouns.

#### Non-comparable tasks

The majority of KB's verbs produced in the picture description tasks were in the present tense. In order to thoroughly investigate KB's competence with past tense forms, data from various sentence generation tasks, which specifically targeted irregular and regular past tense production, were analysed. These comprised:

- (1) Sentence generation tasks in response to spoken a scenario targeting irregular past tense forms, for example; 'Why is John wearing a cast on his leg'; eliciting a response such as, 'He broke it'.
- (2) Sentence generation tasks in response to a picture stimulus targeting regular and irregular forms, for example a picture of a woman yawning, elicited the response: 'He yawned'.
- (3) Providing the past tense of a given verb stem; requiring either regular or irregular forms.
- (4) Gap fill tasks. One of the gap fill tasks required KB to use picture prompts to produce the target verbs in a passage. Two of the tasks required KB to complete sets of sentences, which were 'blocked' according to whether the target verb form was regular or irregular past. A third task mixed regular and irregular past tense to investigate whether blocking had any effect on KB's production of the past tense.
- (5) Writing sentences to dictation targeting regular and irregular past tense verbs. There were no picture prompts for this task.

A non-comparable oral repetition task was used to support the hypothesis that KB's difficulty with verb morphology, lies in the written rather than spoken modality and is not an input-processing problem. The target utterances were not related to those of the writing to dictation tasks, yet were used in the comparison because there was no other such data available.

### 2.5 Procedure

KB was presented with a picture and asked to write or say what it depicted. His spoken output was recorded and transcribed and it was this transcription which was analysed in this study. Copies of KB's written output were made and analysed. In two of the 'Robbery' and 'Cat' writing to dictation tasks, KB was presented with the stimulus picture and asked to write down each utterance read to him. KB was able to use the picture to assist his production if he wished. However, on the third occasion there was no pictorial support. For the 'Dinner Party' dictation tasks, KB had the picture on three occasions and on one occasion was not given the picture.. The third occasion, with the picture, KB employed a finger-memory strategy to help him recall the words of each utterance. This was discontinued after four utterances.

Copies of KB's written output from the dictation tasks were made and analysed, along with the target utterances for each picture. Data from the dictation tasks was used to compare performance in the spoken versus written modalities and also to investigate whether KB was able to reproduce correctly target verbs and their morphology.

The written and spoken transcriptions were divided into utterances based on punctuation, maintenance of topic and picture content. There was no recording of the spoken picture descriptions to assist division of KB's utterances.

For the oral repetition task, KB was required to listen to a sentence, read by the administrator, from a list and repeat it. His performance was marked as correct or incorrect and errors were noted by the target utterance.



In the gap-fill tasks, KB was required to read a short passage or sentences and write his response. In the past-tense generation task, KB had to write the past tense form of a given root verb. In the writing to dictation tasks, KB produced an oral and written response and these were both transcribed. If KB had difficulty producing the target verb, he was given the first and subsequent letters until either it was completed or KB produced it. Each cue was recorded on the transcription. KB performed a further task in which he had to produce a written response to a spoken scenario.

All output from the non-comparable tasks was copied, collated and analysed.

## 2.6 Method of analysis

### Comparable tasks

Noun morphology was compared to verb morphology in order to ascertain whether KB's morphology impairment was general or specific to verbs. The percentages of morphologically correct and incorrect nouns in each of the comparable tasks, was compared to those of morphologically correct and incorrect verbs.

Comparison between plural nouns and verbs in the third person was made to investigate whether the KB's difficulty with morphology was phonological or syntactic in origin.

In analysis of main verbs, only those with morphological errors were considered incorrect. Verbs with semantic errors were considered correct if they contained no additional morphological error. A morphological error constitutes any omission or substitution of a tense/aspect or agreement marker. Examples of these four error types are given below.

### Agreement omissions

Verbs which required agreement but remained in the infinitive were classed as agreement omissions. Most verbs in the written and spoken tasks were produced in the present tense. For this reason, it was assumed that verbs lacking a

morphological marker were also intended to be in the present tense, unless there were other features in the utterance which indicated otherwise.

Example:

(KB) '*um* he **put** on a suit and a tie *and and a tie*'

Compared to:

(KB) 'The woman and he ~~her~~ husband in bedroom is **dress**'.

The presence of the preceding auxiliary indicates that the main verb was intended to be in the present progressive aspect. This therefore constitutes tense/aspect omission rather than agreement omission.

### Agreement substitutions

Verbs, which were incorrectly agreed to the subject, were classed as agreement substitution errors.

Example:

(Target) 'Then they sit down...and **have** a good time'.

(KB) 'The any sits ... & and comfortable ~~d~~ **sits**'.

'Sits' perseverated from first target verb 'sit' and does not agree with subject, therefore agreement substitution

Compared to:

(KB) 'Then the sit in the d. room...and **drink** the it'.

'Drink' is semantically unrelated to the target verb, yet it maintains correct agreement and tense so is counted as correct.

### Tense/ aspect omissions

Where it was clear that a verb should be marked for tense (rather than agreement) but lacked a marker a tense/aspect omission error was recorded.

Example:

(Target) 'He **said** Would you like to come for dinner?'

(KB) 'He **ask** a my the dinner for'.

The verb produced is a semantic substitution for the target verb and it does not possess a tense marker so is counted as a tense omission error.

Compared to:

(KB) 'He **told** his then old dinner'

The verb produced is a semantic substitution of the target verb. However, it is produced in the irregular past tense and so is counted as correct.

#### Tense/ aspect substitutions

Where it was clear that non-finite verbs were formed in the incorrect tense or aspect, these errors were recorded as tense/ aspect marker substitutions.

Example:

(KB) '...where the guests have just **arrives** and they shake hands'.

The preceding auxiliary requires the main verb to be formed in the past tense rather than the present. (N.B. This was a spoken utterance and the error may be one of transcription and the past tense form may have been produced. However, recordings of the output were not available whilst compiling the data and so the error must remain as a tense error).

(Target) 'They **go** downstairs'

(KB) 'They **were** in hall'

The target verb is substituted and produced in the past rather than present tense.

#### Unclear

It was not always possible to discern how some verb productions in the writing to dictation tasks related to their targets. For this reason these are marked as 'unclear' errors and are not included in the agreement/tense omission/substitution errors.

Example:

(Target) 'He **said**: Would you like to **come** for dinner?'

(KB) 'He **have** to couple to \_\_\_\_\_'.

#### Excluded from analysis

Items were excluded from analysis if they were a repetition or perseveration of an idea, personal comment or word-finding.

Examples:

(KB) 'and they've got bottles of wine and *um um (traces /k/)*... candles, *they've got candles*'.

Italic section is repetition of idea so excluded from analysis.

(KB) '*I don't like ties very much*'

This is considered to be personal comment and irrelevant to the picture description task so was excluded from analysis.

(KB) 'and she's got a lovely dress *um* a dress which is on to the floor *um* you know a big one a *um* an evening *um um* what *ah* an *yeah* evening dress *yes*'

The italic section was excluded because it was assumed to be additional word-finding.

### Non-comparable tasks

Responses on the oral repetition task were collated and compared to the target utterances. Nouns and verbs were analysed for the presence of any morphological errors with which to compare against results from spoken picture description and writing to dictation tasks.

Verbs produced in past tense production tasks were analysed to investigate whether KB had any difficulty marking the past tense. It was examined whether KB could produce the past tense in general, whether there was any difficulty with irregular over regular past tense production and whether any irregular forms were regularised, such as 'drinked' instead of 'drank', or over-extended, such as 'caughted' for 'caught' where the irregular past tense is produced with the superfluous regular past marker -ed.

### Task type

As only one spoken and one written procedural task had been administered, as compared to seven picture description tasks in each modality, the total number verbs and errors produced in the narrative tasks was divided by seven to produce

**an average with which to compare the verb and error production in the procedural tasks.**

### 3. RESULTS

#### 3.1 Is there a difficulty with verb morphology?

Table 1 presents the total number of main verbs KB produced in all comparable spoken, written and writing to dictation tasks<sup>1</sup>, along with the number and percentage of incorrect main verbs.

It can be seen that 20% of all verbs produced were incorrect, which indicates that KB does have some difficulty with verb morphology. His difficulty, however, is primarily in the written modality with 41% of verbs containing a morphological error.

TABLE 1

	WRITTEN	SPOKEN	DICTIONATION	TOTAL
VERBS PRODUCED	37	204	77	318
VERBS INCORRECT	15	4	46	65
% MORPH. ERRORS	41%	2%	60%	20%

KB's difficulty with morphology is more pronounced in the production of verbs than nouns. Table 2 presents the number of nouns and incorrect nouns produced in the same data set as Table 1. By comparing the figures in Tables 1 and 2 it can be seen that there is a higher percentage of incorrect verbs than incorrect nouns - 20% compared to 5%. The difficulty with nouns is again, primarily in the written modality, with 7% possessing a morphological error. Six noun errors (one in the spoken and five in the dictation tasks) comprised over-regularisation of irregular plurals. These were: 'fishes', (x4), 'goldfisks', and 'feets' and account for 21% of all noun errors. It may be that both regular plural processing and the irregular representations are simultaneously activated and KB is unable to select the correct form so includes both. All other irregular plurals are produced correctly and so KB has access to stored irregular forms.

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<sup>1</sup> These are the: 'Dinner Party', 'Robbery', 'Cat' and 'Jogging' picture descriptions and procedural account for making a cup of coffee

TABLE 2

	WRITTEN	SPOKEN	DICTATION	TOTAL
NOUNS PRODUCED	152	235	158	545
NOUNS INCORRECT	10	2	16	28
% MORPH. ERRORS	7%	1%	10%	5%

There are far more morphologically incorrect verbs than nouns, however, the fact that nouns are affected implies that the morphology difficulty is not specific to verbs.

KB uses and omits the same phonological and orthographic units, irrespective of whether they are applied to nouns or verbs. Table 3a shows that KB correctly includes 15% and 12.5% of all third person present markers in the written and writing to dictation modalities and 94% in the spoken modality.

Table 3b shows that 68% and 73% of all plural markers in the written and writing to dictation modalities are also included, compared with 98% in the spoken modality.

It can be seen that there are more correct marker inclusions for nouns than verbs, however, the phonological and orthographic composition of the two markers is identical. If phonology or orthography represented the areas of KB's difficulties then comparable figures of marker omissions would be expected. Tables 3a and 3b show that this is not the case but that KB has greater difficulty including the grapheme 's' and its allophones on verbs than nouns in all modalities.

TABLE 3a

VERBS	WRITTEN		SPOKEN		DICTATION	
	TOTAL	%	TOTAL	%	TOTAL	%
SHOULD BE MARKED	13		18		8	
MARKER CORRECT	2	15%	17	94%	1	12.5%
MARKER OMITTED	11	73%	1	6%	3	37.5%
MARKER SUBSTITUTED					4	50%

TABLE 3b

NOUNS	WRITTEN		SPOKEN		DICTATION	
	TOTAL	%	TOTAL	%	TOTAL	%
SHOULD BE PLURAL	25		41		30	
PLURAL CORRECT	17	68%	40	98%	22	73%
PLURAL OMITTED	8	32%	1	2%	8	27%

### 3.2 Modality-specificity

Kilburn (2005), shows that KB has greater difficulty producing correct verbs in the written than in the spoken modality. Table 1 reveals that many more verbs are produced in the spoken than written modality (37 compared to 204) and that the percentages of morphologically incorrect verbs are also very different, 41% written compared to 2% spoken. This concurs with Kilburn's finding, that written verbs are more impaired than spoken.

Twenty percent of all KB's verbs are morphologically incorrect. This is mostly because of incorrect verbs produced in the written, (41%) and writing to dictation tasks, (60%); only 2% of all verbs in the spoken modality were morphologically incorrect and this indicates that KB's difficulty with verb morphology is specific to the written modality.

There is also a higher percentage of morphologically incorrect nouns produced in the written and writing to dictation tasks than in the spoken tasks, (7%, 10% and 1% respectively). The difference between these percentages of incorrect nouns is not as great as for verbs, yet there still appears to be a written modality-specific difficulty with morphology.

Fifty-nine percent of verbs produced in the writing to dictation tasks are morphologically incorrect; in this respect performance in dictation is closer to that in written than spoken tasks; thus it supports the claim that the written modality is the weakest for KB with regards to producing morphologically correct verbs. It is likely that the percentage of morphologically incorrect verbs is so great in the



writing to dictation tasks because the target verbs are known, unlike in the spoken and written tasks.

Performance in an oral repetition task<sup>2</sup> revealed that, out of 59 target sentences, KB repeated all verbs in the sentences correctly - maintaining target verb morphology in 100% of his repetitions, despite making a semantic substitution and three verb omissions. This confirms that KB's difficulty with verb morphology is specific to the written modality and is not an input-processing problem. He is able to maintain the verb morphology of a given target if he repeats it orally, yet has difficulty doing so if he writes his repetition. This also supports the hypothesis that KB's difficulty lies in the written rather than spoken modality, as the number of morphological errors made in the repetition task is closer to that in the spoken tasks than the written or writing to dictation tasks. Although it was not administered, it is assumed that if KB were to repeat the target utterances from the writing to dictation tasks (instead of writing them), he would have no difficulty in maintaining accurate verb morphology and the number of morphological errors made would again correspond with those in the spoken tasks.

### 3.3 Task specificity

The figures in Table 4 suggest that the difficulty with verb morphology is modality-specific rather than task-dependant.

More verbs are produced in the spoken than written modality in either the narrative or procedural tasks. The number of incorrect verbs produced in the narrative tasks is lower in the spoken modality than written and the same (0) in the procedural tasks. Although only one procedural task was carried out in each modality, and only preliminary conclusions can be drawn, task type does not appear to have a great influence on verb morphology in either modality.

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<sup>2</sup> Repetition/monitoring task completed 16.09.03. The target sentences were not related to those used in the dinner party, robbery and cat picture descriptions.

TABLE 4<sup>3</sup>

	WRITTEN		SPOKEN	
	NARRATIVE	PROCEDURE	NARRATIVE	PROCEDURE
(AVERAGE) VERBS PRODUCED	5.1	1	26	24
(AVERAGE) INCORRECT VERBS	2.1	0	0.6	0

### 3.4 Error types

In the written modality more verbs lack a morphological marker than include an incorrect marker (87% compared with 13%). In contrast, there are more marker substitutions than omissions in the writing to dictation tasks, (65% compared with 24%). The phonological input from the dictation target seems to help KB retrieve markers but does not enable him always to retrieve the correct marker.

More markers are also substituted in the spoken modality than omitted (75% compared with 25%). However, as there are only four morphological errors in total in the spoken modality, these differences in error types must be treated with caution. Table 5 shows the errors occurring in the use of verbs in the written, spoken and dictation modality.

TABLE 5

	WRITTEN		SPOKEN		DICTATION	
	TOTAL	%	TOTAL	%	TOTAL	%
VERBS	37		204		78	
INCORRECT	15	41%	4	2%	46	59%
OMISSION	13	87%	1	25%	6	13%
SUBSTITUTION	1	6.5%	2	50%	13	28%
UNCLEAR					5	11%
MIX OMISSION					5	11%
MIX SUBSTITUTION	1	6.5%	1	25%	14	37%

The evidence shows that far more of KB's verbs involve morphological errors in the written modality than the spoken. For this reason, the written and dictation

<sup>3</sup> Figures from the narrative tasks were averaged so as to be compared fairly to the single procedural account.

verb errors will now be discussed in detail in terms of agreement and tense omissions and substitutions.

### 3.5 Agreement

Sections 3.5.1 and 3.5.2 discuss all possible factors influencing agreement omissions and substitutions respectively (all examples of agreement errors are listed in Appendix 1).

#### 3.5.1 Agreement omissions

Table 6 shows that 73% of morphological errors in the written tasks are agreement marker omissions. This contrasts with the agreement omissions in the dictation tasks of which there were only 7%. This shows that agreement omissions are greatly reduced in KB's written output when a target is provided, compared to when he has to generate the verb himself. There is only one agreement marker omission in the spoken modality and this supports the claim that KB's verb morphology difficulty is specific to the written modality.

TABLE 6

AGREEMENT ERRORS	WRITTEN # INCORRECT V	% INCORRECT V	DICTION # INCORRECT V	% INCORRECT V
OMISSIONS	11	73%	3	7%
SUBSTITUTIONS	1	7%	4	9%

Table 3a shows that KB is able to produce the correct agreement marker in the written and dictation tasks. He also produces the same verbs with and without the agreement marker on different occasions, for example 'go' is produced incorrectly in the infinitive and correctly in the 3<sup>rd</sup> person present. It therefore seems unlikely that either the verb itself or the phonological structure of an agreement marker determines whether KB includes the marker or not.

### SYLLABICITY

It is unlikely that agreement marker syllabicity influences marker inclusion. KB omits 2/2 (100%) syllabic markers and 83% of non-syllabic markers in the written

tasks. 37.5% of non-syllabic markers in the dictation tasks are omitted though there are no syllabic markers with which to compare this figure.

It is unclear whether the number of syllables of the verb stem influences marker omission. All but one verb stems are monosyllabic and these both lack and possess non-syllabic and syllabic markers. The polysyllabic verb stem lacks a non-syllabic marker. However, because there is only one such example it cannot be concluded that this is a typical performance

### VERB-TYPE

It cannot be determined whether the type of situation expressed influences agreement marker omission. Only 5% verbs in the written and 4% in the dictation tasks express states. None of these lack an agreement marker. However the percentage of state verbs is too small to assume that only verbs expressing dynamic situations are involved in agreement marker omissions.

### SYNTAX

The examples below show that there appears to be no relationship between the syntactic position of the verb and correct marker inclusions. The syntactic context in which verb markers are incorrect is identical to that in which verb markers are correct. In all instances the verb phrase is preceded by a noun phrase. In all but three utterances (two with a correct marker and one lacking a marker) the verb is followed by either a noun phrase or a prepositional phrase. In the three exceptions the verb is in phrase final position. Examples of syntactic structures are below:

NP <sub>VP</sub> [V PP]	NP <sub>VP</sub> [V NP]	NP <sub>VP</sub> [V]
the fat man look at the mirror*	Husband go fish and chips*	A husband telephone*
he says to a my small dinner	A young man calls a young thieves	They are

### FLUENCY

Incorrect verbs are not produced as a result of hesitations in the spoken or written modalities. There is only one example of a false start in a written task where a verb

is produced without an agreement marker. Other false starts result in the correct verb or noun being produced.

### 3.5.2 Agreement substitutions

There are far fewer agreement marker substitutions than omissions in the written tasks (7% compared with 73%, see Table 6) and slightly more substitutions than omissions in the dictation tasks (9% compared with 7%). This suggests that having the target verb form in the dictation tasks has no influence on whether KB substitutes the agreement marker or not. KB makes one agreement substitution in his spoken output and this accounts for 25% of all morphological errors in the spoken modality.

Syllabicity does not influence agreement marker substitution in the dictation output. All verbs where agreement marker substitutions occur, require and have non-syllabic markers and monosyllabic stems.

Situation-type also has no impact on agreement marker substitution. There are two event and two state verbs where agreement markers are substituted, and one where the target event verb is substituted for a state verb.

Deviation in syntactic structure cannot explain agreement substitutions in the writing to dictation tasks alone; 81/84 utterances produced in the dictation tasks deviate from the target syntactic structure so other error types must be produced as a result of this deviations, as well as correct verb production.

There is no apparent preceding hesitation to agreement marker substitutions so fluency bears no influence on this.

### 3.6 Tense and aspect errors

Table 7 shows that tense and aspect are most affected in the dictation than written tasks - 74% compared with 14% of all morphological errors. This contrasts with agreement errors, of which there are far more in the written than dictation tasks (see Section 3.5). All examples of tense and aspect errors are listed in Appendix 2.

### 3.6.1 Tense and aspect omissions

There are more tense and aspect omissions in the dictation than written tasks - 17% compared with 7% of all morphological errors. There are also more tense and aspect omissions than agreement omissions in the dictation tasks - again 17% compared with 7% all morphological errors.

TABLE 7 Tense errors

TENSE ERRORS	WRITTEN # INCORRECT V	% INCORRECT V	DICTATION # INCORRECT V	% INCORRECT V
OMISSIONS	1	7%	8	17%
SUBSTITUTIONS	1	7%	26	57%

KB demonstrates that he has access to both regular and irregular past tense forms and correctly uses these in his written and writing to dictation output. Therefore, it seems unlikely that verb regularity influences whether KB produces tense markers or not.

The '-ing' aspect marker is most vulnerable in the dictation tasks where it is substituted in 30% and omitted from 20% of all verbs. In the written output it is correctly included in 83% verbs and omitted from 17% verbs.

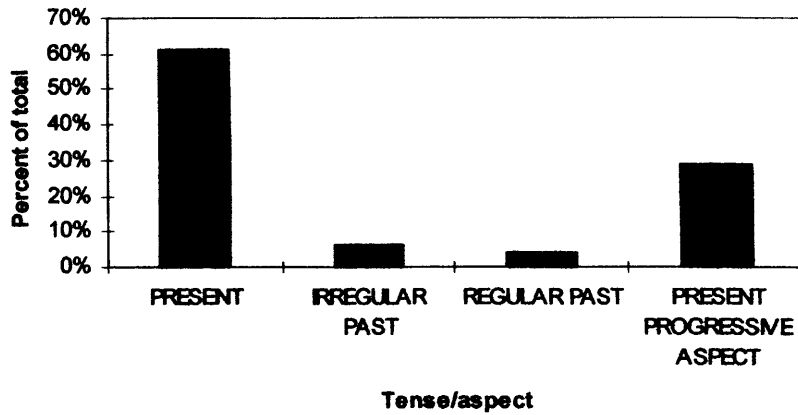
### 3.6.2 Tense and aspect substitutions

Since only one tense substitution was made in the written output, the tense and aspect substitutions made in the dictation tasks are considered here. There were two tense substitutions made in KB's spoken output and these account for 50% of all morphological errors in the spoken modality.

Seventy-seven verbs were produced in the dictation tasks. The distribution of tense and aspect in these verbs is shown in Figure 1. It can be seen that there were far more verbs targeted in the present tense than the regular/ irregular past tense or present progressive aspect.

Figure 1

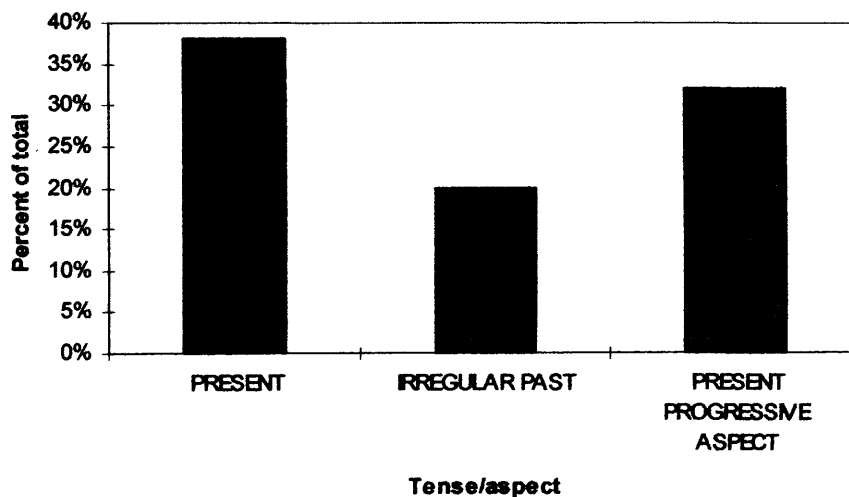
**Distribution of present and past tense in target verbs**



There were 26 tense/ aspect substitutions in the dictation tasks in total. Figure 2 shows the percentage incidence of substitutions according to tense and aspect. There are more present tense substitutions than progressive aspect or irregular past tense. This is to be expected as there were more present tense verbs than any other in the dictation targets. Only five irregular past tense verbs were targeted and one of these involved a tense substitution. The sample size is too small to draw any conclusions.

**Figure 2**

**Distribution of tense/aspect substitution in target verbs**



KB maintains the regularity/irregularity of the verb stem on all but three verbs despite substituting the tense and aspect marker in the written and dictation output, for example:

‘go’ (irregular) is produced as ‘went’ and ‘were’ (both irregular), and ‘phones’ (regular) is produced as ‘telephoned’ (regular).

Both verbs in the spoken modality, which substituted a tense/aspect marker, also maintained regularity. There was no regularisation of any irregular verb in the past tense, nor is there any evidence to show that KB consistently does this in the non-comparable, specific verb generation tasks (see Section 2 for further details). KB regularised 4/11, (36%) (‘buyed’ for ‘bought’, ‘catched’ for ‘caught’, ‘sleped’ for ‘slept’, ‘holded’ for ‘held’). When asked to try these again, he was able to correct three. ‘Catched’ was over-extended to ‘caughted’. Only 7/109, (6%) irregular forms targeted in these tasks are regularised and five of these occurred within the same gap-fill task (‘drinked’ for ‘drank’, (x3), ‘drived’ for ‘drove’, ‘speaked’ for ‘spoke’, ‘meeted’ for ‘met’, ‘sleped’ for ‘slept’). There was just one over-extension of an irregular past tense form produced: ‘caughted’ for ‘caught’.

Blocking regular and irregular verbs in gap-fill tasks has a slight effect in the production of the irregular form; 7/12 (58%) irregular and 8/12 (75%) regular past tense verbs were produced correctly in the blocked gap fill tasks, compared to 10/13 (77%) and 9/11 (82%) correct irregular and regular past tense production in the mixed sentences.



## 4. DISCUSSION

### 4.1 Results

From Section 3.1 it can be seen that KB has a greater impairment in the production of verbs than nouns and this is in accord with findings from a previous investigation (Bendre, 2004). The dissociation extends to morphology as well, with more morphologically correct nouns than verbs. This advantage of nouns over verbs is atypical for someone with a fluent anomic profile. There are many references to subjects whose performance is also atypical in relation to their classification, for example Marshall, Pring & Chiat, 1998; Berndt et al 1997a. This has clinical implications in that it cannot be assumed that an individual with a certain aphasia classification necessarily has the same processing abilities or impairments as another individual, sharing the same classification.

KB presents with impaired verb production which is better in the spoken than written modality. Verb morphology is also more affected in the written than spoken modality. More nouns than verbs are morphologically correct, and noun errors are also more prolific in the written than spoken modality.

In the written modality more morphological verb markers are omitted, whereas in the writing to dictation tasks KB makes more morphological marker substitutions.

This profile cannot be explained by the “semantic-conceptual” theory of processing which claims that all grammatical class information is processed at the semantic level. A difficulty in conceptualising less-imageable actions results in impaired verb production. KB has a noun-verb dissociation, but this is modality-specific and the semantic-conceptual theory fails to recognise this. Morphological impairment is also modality-specific with more morphologically incorrect nouns and verbs occurring in the written than spoken modality. The model also fails to explain morphological impairment and, as a result, has only limited application to KB’s processing impairments.

Theories which assume grammatical processing occurs at a post-semantic level appear to be more relevant to KB's processing profile. Levelt's model may be applied to KB's processing: access to verb and noun lemmas appears to be intact as demonstrated by his ability to produce morphologically correct nouns and verbs in the spoken modality. KB, with regards to this model, is therefore able to access all grammatical information from the nouns and verb lemmas, but may be impaired in accessing the orthographic verb lexemes. This would explain omissions in the written modality where KB appears unable to access any orthographic inflection. Substitutions in the writing to dictation tasks are likely to occur because the target inflected form enables KB to access the orthographic lexeme but he is unable to select the right inflection. KB therefore has tense features available to him at both the level of phonological and orthographic output, but he has difficulty accessing the orthographic forms which is improved with the provision of an inflected form. This contrasts to DOR (Druks & Carroll, 2005) who was unable to access any tense features, even with the provision of an inflected form.

Although KB's processing profile can be explained in terms of the Levelt modal, it does assume that all grammatical information is represented in each output lexicon and this seems to be excessive.

Caramazza's Independent Network (IN) model is more efficient in its application to KB's processing profile. The lemma level is removed thus making grammatical information available at the phonological or orthographic lexical representations. This provides a direct explanation of modality-specific morphological deficits. KB's spoken production of nouns and verbs is relatively unimpaired which indicates good access to phonological representations. The noun/verb dissociation in the written modality may be due to KB having better access to orthographical representations of nouns than verbs. Bastiaanse & Zonneveld (2004), suggest that there are more grammatical features for nouns than verbs. If this is the case, then it is easier to retrieve the correct noun representation than verb representation. KB's morphological difficulty with verbs could be explained by a deficit in retrieving the correct orthographic representation. Where KB has to generate a verb himself in

written picture description, he struggles to access any grammatical feature and so omits morphological markers. The provision of a target inflected form in the writing to dictation tasks gives KB access to the grammatical features, but he has difficulty selecting the appropriate orthographic form so produces verbs with substituted morphological markers.

It is unlikely that KB has a difficulty at the more general morphosyntactic level of processing. He is able to produce nouns with plural markers and verbs with agreement and tense/aspect markers correctly. KB is more able to do this in the spoken than written modalities, yet if the deficit was at the morphosyntactic level, then equally impaired performance in both modalities would be expected.

Neither is it likely that KB's morphological impairment occurs as a result of morphophonological or morphorthographic difficulties. If this were the case then an equally impaired ability at marking the third person present on verbs and the regular plural on nouns would be apparent. Similarly, syllabicity of morphological markers would be seen to influence marker omission. An inability to produce verbs in the regular past tense would be expected. It can be seen in Section 3.1 that KB has more difficulty with the third person present marker than the plural noun marker, even though the phonological and orthographic representations are the same. Section 3.5.1 concluded that syllabicity has little influence on agreement marker omission and Section 3.6 showed that KB had no difficulty producing the regular past tense form. It can therefore be concluded that the morphophonological and morphorthographic levels of processing are intact.

KB's dual-route processing of regular and irregular forms is intact. Because regular processing is reported to occur faster and more accurately than retrieval of stored, irregular forms, this may explain why some of KB's nouns and verbs are regularised and even over-extended. Six (21%) of KB's noun errors were over-regularisations which suggests that activation of regular noun processing occurred simultaneously to retrieval of irregular plural form and KB was unable to

differentiate between them. All other irregular plurals were produced correctly which indicates that KB is able to access and implement stored irregular forms in his output.

#### 4.2 Limitations

The data was collected from tasks not originally designed for this study and compiled by different researchers with different research aims. Transcription errors made by previous researchers of KB's spoken output may have been reproduced in this study and presented as errors produced by KB. This was avoided as far as possible, but there are obvious disadvantages in analysing data this way without having the recordings to match the transcription or personally completing the transcription.

The use of non-comparable tasks to supplement the data from comparable tasks means that the validity of comparisons is questionable.

There is a shortfall in data for agreement errors compared to tense errors. There were no tasks specifically targeting agreement production in verbs, so only tentative conclusions can be drawn from the data available.

The study was enhanced by the fact that there were specific tasks aimed at the production of past tense forms. One major potential short-coming of this study was the availability of only a small data sample. Statistical practice warns against using such small data samples as this can distort the actual picture. For example, one omission error in the spoken modality out of a total of four morphological errors accounted for 25% of all errors. Therefore this data must be treated with caution.

The study's design is qualitative rather than quantitative, however larger data samples are essential if a reliable assessment is to be made. It was originally envisaged that further testing would be administered in order to overcome some of these limitations – for example tasks devised for the purposes of this study. Due to a further decline in the client's well-being, this was unavoidably not possible

### 4.3 Conclusions

KB's profile did not fit a typical fluent aphasic characteristic in that his verb production was markedly worse than his noun production. This indicates that assessment and therapy should be targeted towards individual requirements rather than one dictated by a rigid impairment classification.

The 'semantic-conceptual' theory of noun-verb dissociation cannot be seen to apply to KB's processing profile. Rather, the grammatical accounts, such as the Levelt and Independent Network models provide a more satisfactory explanation of the real situation. General deficits in morphosyntactic, morphophonological or morphorthographic processing could not be identified. It must be considered that different models are suitable for different profiles.

Word count 8052

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## APPENDICES

### Appendix 1. Examples of all agreement errors within written and writing to dictation tasks

#### **Written jogging 21/11/2 utterance #1, 5, 7, 9**

1. The fat man **look** at the mirror

Verb in infinitive instead of 3<sup>rd</sup> person present, /-s/ omitted (**Agreement omission**)

5. The man **fall** across the path under the dogs

Verb in infinitive instead of 3<sup>rd</sup> person present, /-z/ omitted (**Agreement omission**)

7. The man **walk un** under the rain

Verb in infinitive instead of 3<sup>rd</sup> person present, /-s/ omitted (**Agreement omission**)

9. The man **go** the home and dries

Verb in infinitive instead of 3<sup>rd</sup> person present, /-z/ omitted (**Agreement omission**)

#### **Written dinner party 27/2/3 utterance #9**

The men and two women **is** thankily

Main verb 'be' in 3<sup>rd</sup> person present instead of plural present

(**Agreement substitution**)

#### **Written cat 3/7/3, utterance #2, 6**

2. ~~his~~-he **catch up**-got a-the goldfish

Verb in infinitive instead of 3<sup>rd</sup> person present, /-iz/ omitted (**Agreement omission**)

6. On the floor, the young child **play** a car

Verb in infinitive instead of 3<sup>rd</sup> person present, /-z/ omitted (**Agreement omission**)

#### **Written dinner party 8/1/4 utterance #1, 5, 12, 16, 18**

1. A husband **telephone**

Verb in infinitive, not in 3<sup>rd</sup> person present, omission of /-z/ (**Agreement omission**)

5. She **cook** in stove.

Verb in infinitive, not in 3<sup>rd</sup> person present, omission of /-s/ (**Agreement omission**)

12. Husband † **dress** suit.

Verb in infinitive, not in 3<sup>rd</sup> person present, omission of /-iz/ (**Agreement omission**)

16. Husband **go** fish and chips.

Verb in infinitive, not in 3<sup>rd</sup> person present, omission of /-z/ (**Agreement omission**)

18. A cat **eat** only the fish.

Verb in infinitive, not in 3<sup>rd</sup> person present, omission of /-s/ (**Agreement omission**)

### **Dictation dinner party 3/7/3 utterance # 12**

(Target) Then they **sit** down in the dining room, eat the fish and chips and **have** a good time

(KB) The any **sits** in the dinner room. They eat the fish & chips & comfortable & **sits**.

Target 'sit' produced in 3<sup>rd</sup> person present instead of plural present.

(**Agreement substitution**)

Target 'have' produced as 'sits' - perseveration form 1<sup>st</sup> verb and produced in 3<sup>rd</sup> person present instead of plural present.

(**Mixed agreement substitution**)

### **Dictation robbery 11/9/3, utterance #1**

1. (Target) There's a street with three shops

(KB) The street had **have** three shops

Main verb 'be' substituted with 'have' and transposed into past, then plural present tense

(**Agreement substitution**)

### **Dictation dinner party 14/1/4, 4/2/4 and 29/4/4, utterance #11**

(Target) The husband **goes** to the fish and chip shop

(KB) A husband **go** the fish n clips shop

Verb in infinitive, not in 3<sup>rd</sup> person present, omission of /-z/ (**Agreement omission**)

(NB this was reproduced correctly in dictation 3/7/3)

### **Dictation dinner party 4/2/4, utterance #5**

(Target) Then they **go** in the dining room where they set the table for dinner

(KB) The they **has** in the dining room and they \_\_\_ table and dined.

Verb substitution and in 3<sup>rd</sup> person present instead of plural present.

**(Mixed agreement substitution)**

Appendix 2. Examples of all tense errors within written and writing to dictation tasks

**Written dinner party 27/2/3, utterance #4**

The woman and he ~~her~~ husband is dress

Present progressive marker -ing omitted from verb stem. **(-ing omission)**

**Written dinner party 8/1/4, utterance #3**

He talks a husband ~~eat~~ had dinner 8pm Friday.

Verb should be in plural present (infinitive) instead of past tense (correct irregular past tense form) **(infinitive→past tense)**

**Written cat 8/1/4, utterance #4**

The books on the top shelf fall on a man, **sleep** on armchair

Present progressive marker -ing omitted from verb stem. **(-ing omission)**

**Dictation dinner party 3/7/3, utterance #1, 4, 6**

1. (Target) The husband **phones** a friend

(KB) The man **telophoned** towards another man.

Verb transposed from present to past tense. (Correct regular past tense form) **(present→past tense)**

4. (Target) He's **washing** the dishes and she's cooking.

(KB) The man **washes** a dishes; the woman \_\_\_ meal.

Present progressive aspect transposed into present. **(aspect substitution)**

(NB this correctly formed in dinner party dictation 29/4/4)

6. (Target) They **go** to their bedroom and they put on their clothes.

(KB) They **went** the either bedroom. They dress the clothes.

Plural present transposed into past tense. (Correct irregular past tense form)

**(present→past tense)**

**Dictation robbery 11/9/3, utterance #5**

5. (Target) I think they've **nicked** something and they're running away

(KB) "I believe" a-they **do** enough, they've ~~m~~-if going back.

Verb substitution and transposed from past to present tense.

**(irregular past tense omission)**

**Dictation dinner party 14/1/4, utterance #1, 4, 5, 6, 7, 9**

1. (Target) The husband **phones** a friend

(KB) A husband **telephoned** of couple

Verb transposed from present to past tense. (Correct regular past tense form)

**(present→past tense)**

4. (Target) He's **washing** the dishes and she's **cooking**.

(KB) He **washes** the plates and she **cook**.

Washing→washes. Present progressive aspect transposed into present.

**(aspect substitution)**

(NB this correctly formed in dinner party dictation 29/4/4)

cooking→cook. Present progressive aspect omitted from verb stem.**(-ing omission)**

5. (Target) Then they **go** in the dining room where they set the table for dinner.

(KB) They **were** the \_\_\_ and they settle the table the.

Verb substitution and transposed from present to past tense (irregular past correctly formed)

**(present→past)**

6. (Target) They **go** to their bedroom and they put on their clothes.

(KB) They **were** a bedroom and they put on their clothes.

Verb substitution and transposed into past tense. (irregular past correctly formed)

**(present→past)**

7. (Target) They **go** downstairs.

(KB) They **were** in hall.

Verb substitution and transposed into past tense (irregular past correctly formed)

**(present→past)**

9. (Target) Then they all **go** into the dining room.

(KB) They simple **were** in the room

Verb substitution and transposed into past tense (irregular tense correctly formed)

**(present→past)**

**Dictation cat 14/1/4, utterance #6, 7**

6. (Target) The cat's **trying** to **get** one of them

(KB) The cat is **got** her **got** they their

trying→got. Perseveration from 2<sup>nd</sup> target verb, also transposed from present

progressive to past tense (irregular past correctly formed) **(aspect substitution)**

get→got present tense transposed into past tense (irregular past correctly formed)

**(present→past)**

7. (Target) There are some books that are **going** to fall on the man's head.

(KB) An you \_\_\_ books, they **go** uset the father's head.

Present progressive -ing suffix omitted

**(-ing omission)**

**Dictation robbery 14/1/4, utterance #3, 4**

3. (Target) There's a man **talking** to two robbers

(KB) The outside man **say** a couple thieves

Verb substitution and progressive suffix -ing omitted

**(-ing omission)**

4. (Target) There are two guys **saying stop** that to the robbers

(KB) The double guys **call** you're **said** the two thieves

saying→call. Verb substitution and progressive suffix omitted

**(-ing omission)**

saying→said, present progressive transposed into past tense (irregular past

correctly formed)

**(aspect**

**substitution)**

**Dictation robbery 22/1/4, utterance #3, 4, 5**

3. (Target) There's a man **talking** to two robbers

(KB) A \_\_ young man **calls** a young thieves.

Verb substitution and present progressive aspect transposed into present.

**(Aspect  
substitution)**

4. (Target) There are two guys **saying stop** that to the robbers

(KB) A new men **calleds** the robbery \_\_ and the thieves

Verb substitution and present progressive aspect transposed into present.

**(Aspect substitution)**

5. (Target) I think they've **nicked** something and they're running away

(KB) I'm their \_\_ **rob** \_\_ and they're going out.

Verb omits past tense marker

**(-ed omission)**

**Dictation dinner party 4/2/4, utterance #1, 2, 4, 6, 12**

1. (Target) The husband **phones** a friend

(KB) A husband **telephoned** a friend

Verb transposed from present to past tense. (Correct regular past tense form)

**(present→past)**

2. (Target) He **said**: "Would you like to come for dinner?"

(KB) He **says** to a my small my dinner.

Verb transposed from past to present tense.

**(past→present)**

4. (Target) He's **washing** the dishes and she's cooking.

(KB) He **washes** the plate (things) and a wife cooking.

Washing→washes. Present progressive aspect transposed into present.

**(aspect substitution)**

(NB this correctly formed in dinner party dictation 29/4/4)



6. (Target) They go to their bedroom and they **put** on their clothes.

(KB) They put the bedroom and they've *so have had dressed* \_\_\_ clothes.

Verb substitution and transposed into past tense. (regular past correctly formed)

**(present→past)**

12. (Target) Then they sit down in the dining room, eat the fish and chips and **have** a good time.

(KB) They seat in dining room, and eat the chips and fish. They **laughed** the food supper.

Verb substitution have→laughed and transposed from present to past tense

(regular past correctly formed)

**(present→past)**

#### **Dictation cat 5/2/4, utterance #7**

7. (Target) There are some books that are **going** to fall on the man's head.

(KB) The \_\_\_ books **go** along with him a forehead

Present progressive suffix omitted

**(-ing omission)**

#### **Dictation dinner party 29/4/4, utterance #1, 2, 5, 6, 9, 12**

1. (Target) The husband **phones** a friend

(KB) The man **telephoned** a friend.

Verb transposed from present to past tense. (Correct regular past tense form)

**(present→past)**

2. (Target) He **said**: "Would you like to come for dinner?"

(KB) He **ask** a my the dinner for.

Verb substitution and omits regular past tense marker -ed.

**(-ed omission)**

5. (Target) Then they go in the dining room where they **set** the table for dinner.

(KB) They go into the dining room and they is **servng** the table for dinner.

Verb substitution and transposed from present to present progressive.

**(aspect substitution)**

6. (Target) They **go** to their bedroom and they **put** on their clothes.

(KB) They are **dressng** the bedroom and they are **dressng** clothes.

Go→dressing. Possible perseveration from 2<sup>nd</sup> verb, transposed from present to present progressive (aspect substitution)

put→dressing. Verb substitution, transposed from present to progressive (aspect substitution)

9. (Target) Then they all **go** into the dining room.

(KB) and they are **going** the dinner room

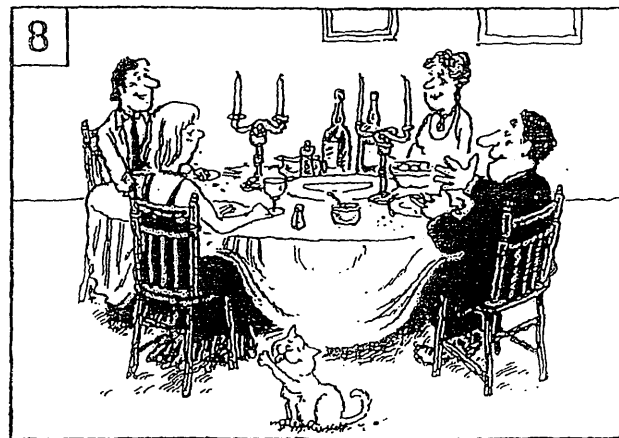
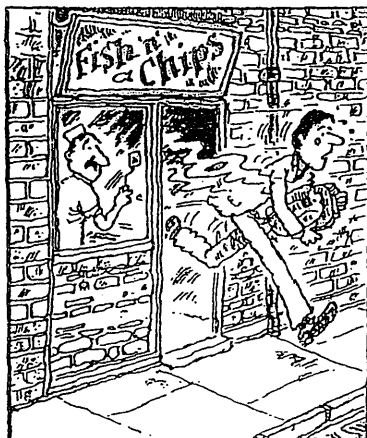
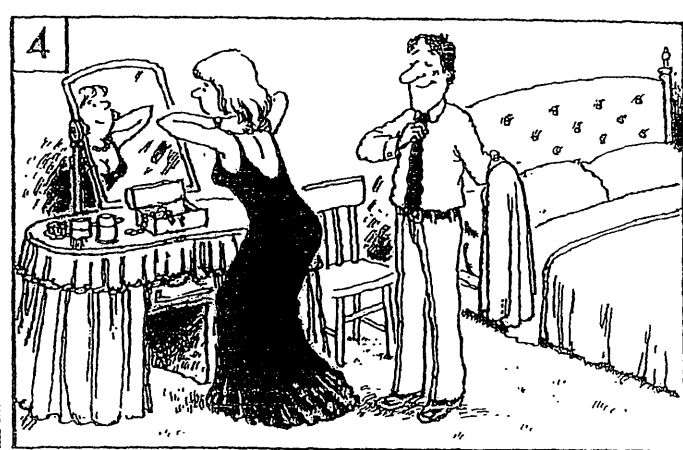
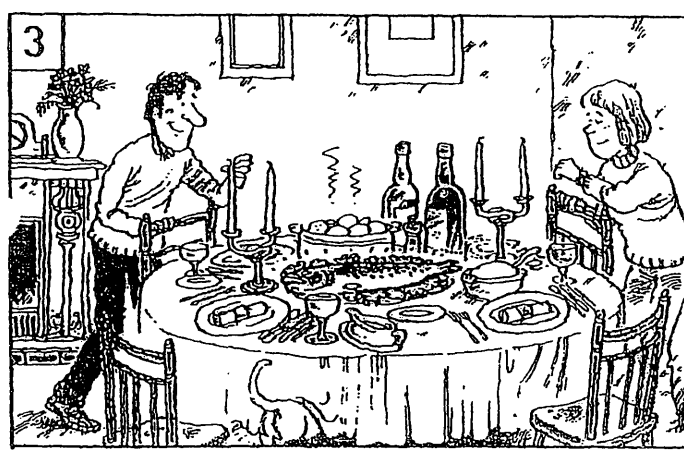
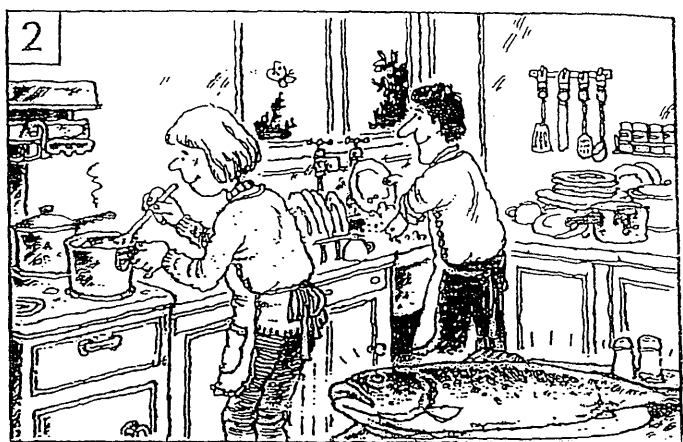
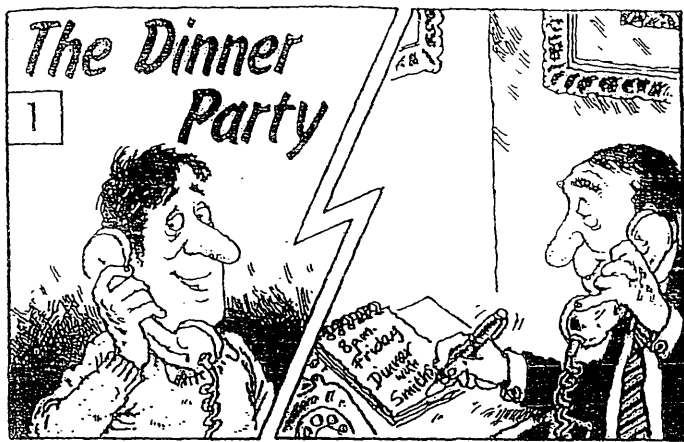
Verb transposed from present→present progressive. (aspect substitution)

12. (Target) Then they **sit** down in the dining room, **eat** the fish and chips and have a good time.

(KB) They are **waiting** in dining room and **ate** chips & fishes. They meal.

Sit→waiting. Verb substitution and transposed from present to progressive (aspect substitution)

eat→ate. Verb transposed from present to past tense (correct irregular past tense form) (present→past)







# Jogging

