Table 1.

Four dimensions of mentalizing: Distinguishing features and hypothesized underlying neural circuits

Polarity	Features	Neural circuits
Automatic	Unconscious, parallel, fast processing of social information that is reflexive and requires little effort, focused attention, or intention; therefore prone to bias and distortions, particularly in complex interpersonal interactions (i.e. when arousal is high)	amygdala basal ganglia ventromedial prefrontal cortex (VMPFC) lateral temporal cortex (LTC) dorsal anterior cingulate cortex (dACC)
Controlled	Conscious, verbal, and reflective processing of social information that requires the capacity to reflect consciously and deliberately on and make accurate attributions about the emotions, thoughts, and intentions of self and others. Relies	lateral prefrontal cortex (LPFC) medial prefrontal cortex (MPFC) lateral parietal cortex (LPAC) medial parietal cortex (MPAC) medial temporal lobe (MTL) rostral anterior cingulate cortex (rACC)

	heavily on effortful control and language	
Internal	Understanding one's own mind and that of others through a direct focus on the mental interiors of both the self and others	Medial frontoparietal network (more controlled)
External	Understanding one's own mind and that of others based on external features (such as facial expressions, posture, and prosody)	Lateral frontotemporoparietal (more automatic)
Self-Other	Shared networks underpin the capacity to mentalize about the self and others	Shared Representation system (more automatic) versus Mental State Attribution system (more controlled)
Cognitive-Affective	Mentalizing may focus on more cognitive features (more controlled), such as belief-desire reasoning and perspective-taking versus more affective features (more automatic), including affective empathy and mentalized affectivity (the feeling and	Cognitive mentalizing involves several areas in prefrontal cortex, affectively-oriented mentalizing seems particularly related to the VMPFC

thinking-about-the-feeling)

Table 2. Automatic, non-mentalizing modes that re-emerge with the loss of controlled mentalizing

Psychic equivalence mode

- Individuals equate inner (mental) reality with outer reality ("mind–world isomorphism"). Because of this, the internal has the same power as the external
- Intolerance of alternative perspectives – leads to "concrete" understanding

Teleological mode

- Extreme exterior focus
- Only observable change or action is considered a true indicator of the intentions of the other

Pretend mode

- Ideas form no bridge between inner and outer reality; thoughts and feelings are decoupled from external reality
- In extreme, may manifest as "dissociation" of thought (hypermentalizing or pseudomentalizing)

Figure 1. The role of marked mirroring in the development of mentalizing

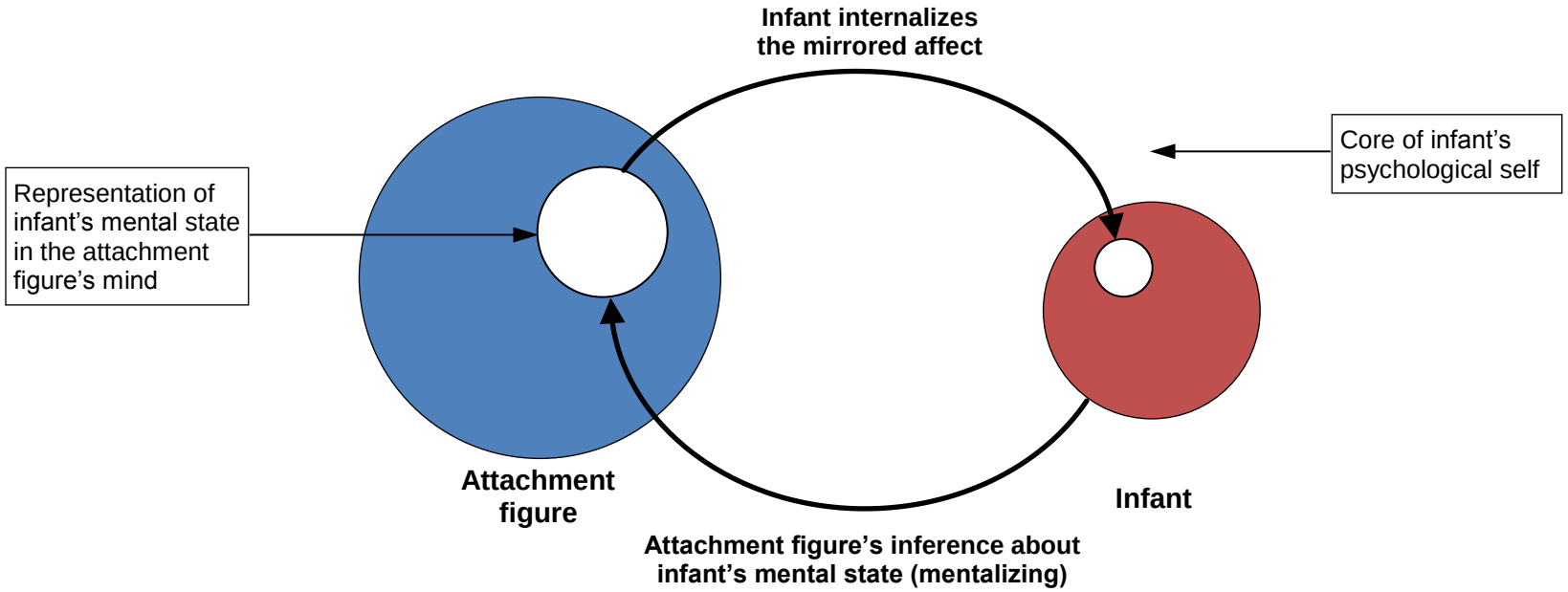
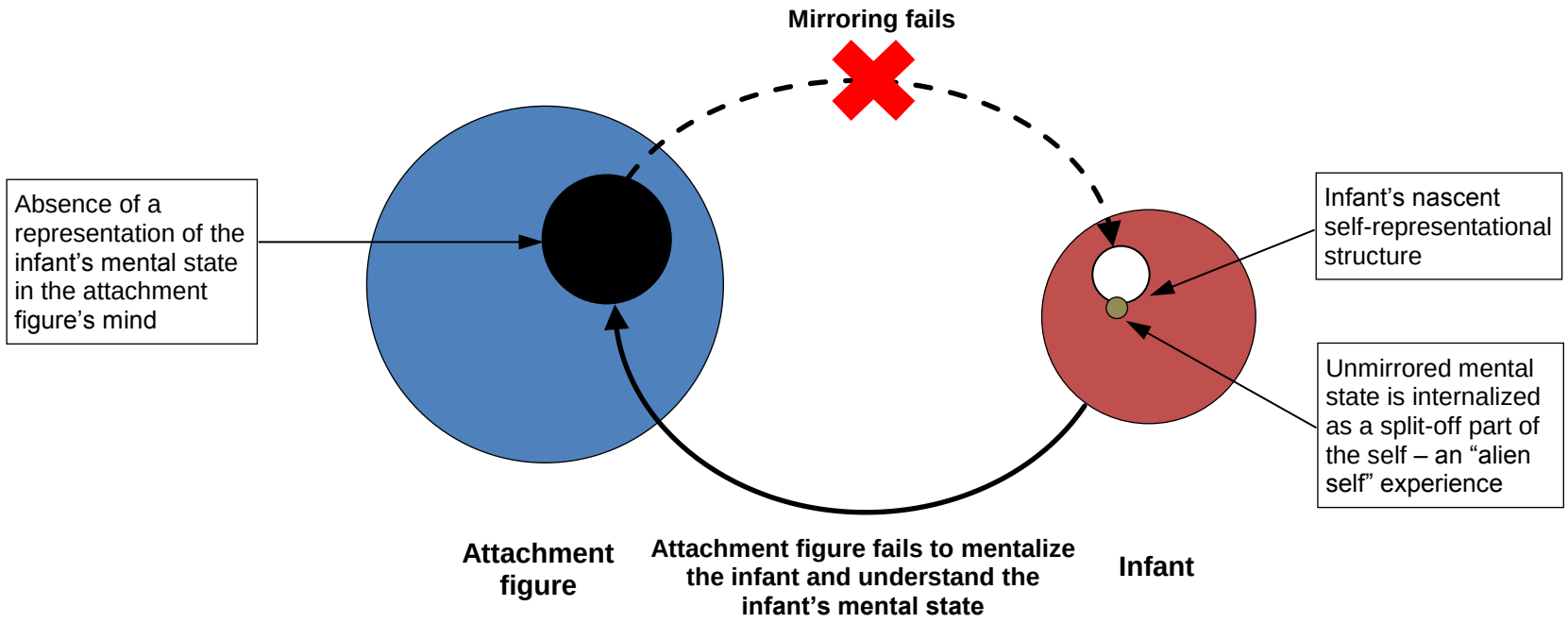


Figure 2. Failure to adequately mirror mental states, problems with mentalizing and the emergence of alien self-parts



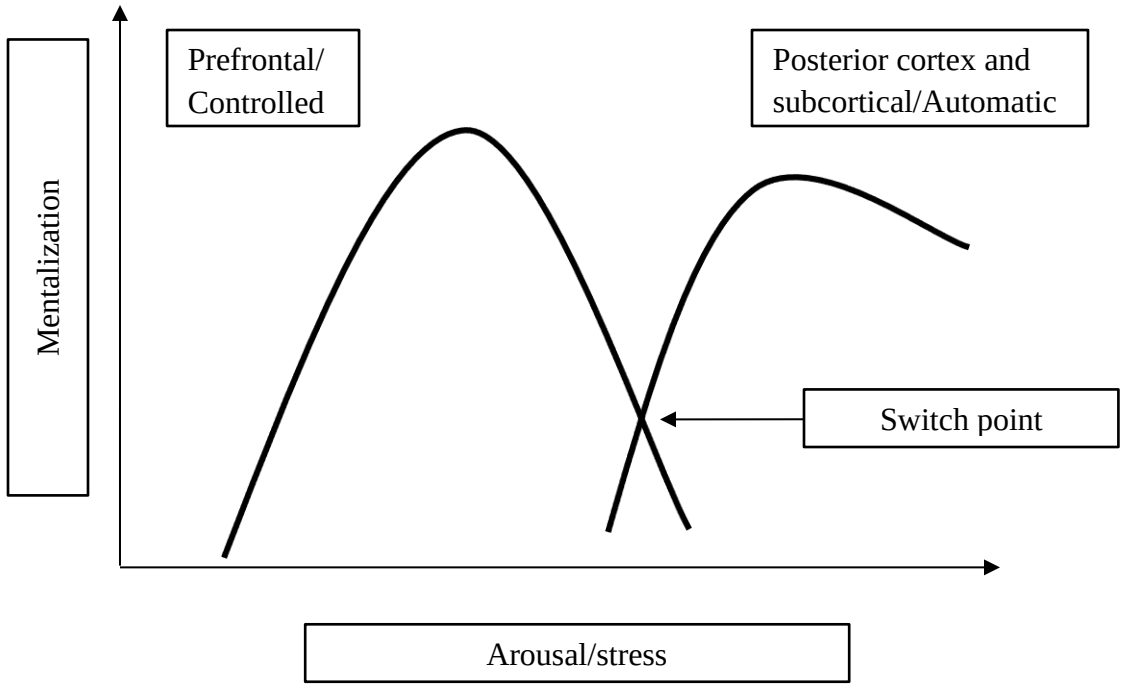


Figure 3. A biobehavioral switch model of the relationship between arousal/stress and controlled versus automatic mentalizing