ABSTRACT

Neural correlates of conscious and unconscious perception of self-faces

Alessia Pannese

Priority of the "Self" is thought to be evolutionarily advantageous. However, evidence for this priority has been sparse. Capitalizing on a recently developed experimental tool (masked priming), able to reveal unconscious processes, I present new empirical data supporting, and further characterizing, the notion of self-specificity.

Subjects performed a gender categorization task on visible self- and non-self target faces preceded by periliminal (33 ms) or subliminal (17 ms) prime faces. The relationship between prime and target was manipulated in order to obtain task-incongruent (when prime and target belonged to a different gender) and task-congruent (when prime and target belonged to the same gender) pairs. Additionally, within the task-congruent pairs, prime and target faces belonged either to different individuals (non-repeated) or to the same individual (repeated). This design allowed testing the modulatory effect of the self-face on two types of subliminal processing: response-related, and semantic.

In a first section, I show psychophysical evidence (under the form of a self-face specific priming effect) consistent with the notion of self-face early processing onset (Chapter 2). In the following two chapters, I show behavioral and neural evidence suggesting that viewing one's own face enhances the processing of task-relevant (response priming, Chapter 3), and task-irrelevant (semantic priming, Chapter 4) information. Possible implications of this study's results are discussed in relation to models of perception and theories of self-recognition's evolutionary advantage (Chapter 7).

The discovery of self-specific unconscious priming effects extends previous knowledge about self-face priority to the domain of unconscious processing, and suggests that functional specificity for faces may include timing, as well as spatial adaptations. These results contribute to the literature about the "self" by extending its scope of enquiry to include a previously unexplored aspect of self-specificity, namely that of self-face induced modulation of unconscious processing.

Existing literature indicates that conscious goals (such as those arising from task instructions) and unconscious goals (such as those induced by subliminal priming) have similar effects on tasks relying on executive control. Taken together, our findings of self-specific priming effects suggest that the self-face may be involved in a cognitive control mechanism whose activation results in enhanced processing of unconscious stimuli.