Because the self is such a familiar part of everyday experience, it is easy to take its existence for granted. However, upon reflection it becomes apparent just what a puzzle this aspect of human psychology is. From a series of fleeting moments of consciousness individuals construct a notion of the self as a distinct entity that persists across time from the past to the present and into the future. How and why do people do this? Such questions have intrigued psychologists since the beginning of the discipline (James, 1890/1950; Locke, 1690/1979; Hume, 1739/1975; Kant, 1798/1974). Modern psychology has used a range of theoretical approaches and a variety of methodologies in an attempt to understand the self. For example, relevant to the question of how the self comes to be defined as a distinct entity, research has investigated the neural systems involved in distinguishing one’s own actions from others’ (Farrer et al., 2003), the development of the ability to differentiate one’s own thoughts and feelings from others’ (Austingon et al., 1988), and the social psychological processes in attributing traits and causes to the self vs others (Nisbett et al., 1973; Storms, 1973). Relevant to understanding the temporally extended dimension of the self, research has investigated the neural and cognitive systems that allow for mental time travel into the past and future (Wheeler et al., 1997), the cognitive organization of autobiographical memory (Conway, 2005) and the social psychological causes and consequences of judgments about past and future selves (Conway and Ross, 1984; Liberman and Trope, 1998).

While there is much to be learned by focusing on these two aspects of the self separately, a growing body of work suggests the importance of also considering how they may be connected. In particular, it appears that processes involved in distinguishing self from others are also used in the construction of the self across time (Ross and Wilson, 2000; Libby et al., 2005; Pronin and Ross, 2006). D’Argembeau et al. (2008, this issue) adopt this theoretical approach, making a unique contribution by introducing neuroimaging methods. Part of creating a coherent identity across time involves organizing the self into life periods and social contexts and creating an overarching understanding of how they all relate (McAdams, 2001; Conway, 2005). D’Argembeau et al. (2008) focus on the question of how people distinguish selves from different life periods and investigate whether the brain regions involved in representing this distinction share any similarity to the brain regions that are involved in representing the distinction between self and other in the present. Indeed, results suggest striking similarities.

Previous research had shown greater activation in cortical midline structures (CMS) when people made trait judgments about themselves as opposed to others (e.g. Kelley et al., 2002; D’Argembeau et al., 2007). In the new research, D’Argembeau et al. (2008) added a temporal dimension to the comparison, asking participants to make judgments about the self and a friend in the present and in a previous stage of life. Activation in CMS when making judgments about the present replicated previous findings showing greater activation for self than friend, but when making judgments about the past there was no difference in CMS activation for self versus friend. In fact, activation in CMS when thinking about the past self was indistinguishable from activation when thinking about the friend in either time period.

Thus, it appears that rather than serving as a crude marker of self vs other, activation in CMS more distinctly marks the current self. D’Argembeau et al. (2008) make the point that the boundary defining the ‘current’ self is likely to be subjective. In their research the past selves that participants considered were from a different life period, and D’Argembeau et al. argue that this is likely crucial in producing the effects they observed. If other individuals thought about selves that were equally distant in the past but part of their current life period, CMS activity presumably would not be reduced for the past self. It will be important to test this prediction, but there is good reason to believe it is accurate. Just as D’Argembeau et al. (2008) have identified an area of the brain in which activation for past selves resembles that for other people, research using social psychological methods has identified ways in which people experience and judge past selves as they do other people. Further, these effects appear to depend not on the objective temporal position of the past self but rather on subjective and contextual factors.

For example, people’s evaluations of themselves in the present tend to be more positive than their evaluations of others, but people’s evaluations of their own past selves vary. If the past self is part of the current time period people
evaluate that self as positively as they do the present self, but if the past self is part of a past time period people derogate that self relative to the present (Wilson and Ross, 2001). People’s judgments of their past selves reveal that the boundaries between time periods can be marked by developmental transitions (e.g. graduating from high school), as in D’Argembeau et al. (2008). The boundaries can also be influenced by motivational factors. For example, people are more likely to consider the past to be part of the current time period when recalling events that represent personal accomplishments and achievements than when recalling events that represent personal faults and failures (Ross and Wilson, 2002). Thus, if CMS activation does mark the current self, CMS activation may vary not only according to developmental transitions but also according to whether a life event reflects positively or negatively on the self.

In addition to changing over time, the self also changes across social contexts. For example, moving to a new country can lead people to take on a new self consistent with the new culture, but the self associated with the old culture is not lost. People switch back and forth between selves depending on linguistic and cultural cues in the present environment (Marian and Neisser, 2000; Ross et al., 2002). People also take on different identities in the context of different relationships (Baldwin, 1992). If CMS plays a role in representing the ‘current’ self, then activation in CMS may vary according to the match between the immediate social or cultural context and the self a person thinks about. For example, bicultural individuals may experience greater CMS activation when thinking about the self that corresponds with the cultural environment they are currently immersed in than when thinking about the self that corresponds to their other culture. A similar effect could occur when individuals think about themselves in social roles that either match or conflict with their current relational context.

Finally, the self extends into the future as well as the past, and people sometimes experience and judge future selves as they do other people (D’Argembeau and Van der Linden, 2004; Pronin and Ross, 2006). Given that a common neural system is believed to underlie mental time travel into the past and into the future (Schacter et al., 2007), D’Argembeau et al.’s (2008) findings may be relevant to understanding the way people construct the self when looking into the future as well as the past.

D’Argembeau et al.’s (2008) discovery of unique activation in CMS associated with thinking about the current self is clearly intriguing and thought provoking. It represents an important contribution to our understanding of the human sense of self. However, in the excitement generated by this result, there is a danger of overlooking another aspect of D’Argembeau et al.’s (2008) findings that may prove equally important. Some areas of the brain were similarly active when thinking about past and current selves, and activation in these areas distinguished self from other regardless of the time period. Forming a coherent temporally extended self-concept involves not only differentiating self-knowledge according to life periods and social contexts, but also developing an overarching understanding of how these disparate elements link together and thus how the self is a coherent entity across time and place (McAdams, 2001; Conway, 2005). Indeed, a defining feature of the phenomena cited here in which people experience or judge past selves as if they were other people is an accompanying awareness that these past selves are in fact not other people. Even when people derogate their past selves or picture them from an outsider’s third-person perspective, people still admit that those past selves are in fact ‘them’. To fully account for such discrepancies between subjective and objective understandings of the self, it may be necessary to consider not just what is different when people think about past vs current selves but also what is the same.

Consider an example from the realm of face recognition. Capgras delusion is the belief that one’s close friends and relatives have been replaced by imposters. Observation of individuals with this delusion revealed that they have an impaired autonomic response to familiar faces. But, the role of this deficit in accounting for the delusion is not fully apparent without considering that the deficit in autonomic response occurs along with an intact ability to visually recognize faces. Capgras delusion appears to result from people attempting to make sense out of the fact that they do not experience the feeling of familiarity that they should given that they recognize their friends’ and relatives’ facial features (Ellis and Lewis, 2001). Analogously, the role of the ‘deficit’ that D’Argembeau et al. (2008) discovered in CMS activity for past selves may not be fully apparent without considering that it occurs along with ‘intact’ activation in other areas that differentiate self from other. Framed in this way, it could be said that when people think about selves from outside the current period they do not experience the activity in CMS that they should, given activation in other areas of the brain that uniquely mark the self. This disjunction may help to account for mismatches in subjective and objective understandings of the self, and may play a role in the construction of the temporally extended self more generally.

In the end, D’Argembeau et al.’s results (2008) do not solve the puzzle of the self, but they do open up novel ways of understanding how some of the pieces fit together. Given the scale of the puzzle, this is an exciting and important contribution—one that holds the potential to significantly advance our understanding one of the most basic aspects of human experience.

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REFERENCES