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Psychology of Cleansing through the Prism of Intersecting Object Histories

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Abstract

We link cleansing effects to contemporary cognitive theories via an account of event representation (Intersecting Object Histories) that provides an explicit, neurally plausible mechanism for encoding objects (e.g. the self) and their associations (to other entities) across time. It explains separation as resulting from weakening associations between the self in the present and the self in the past.

Main Text

Lee and Schwarz present a compelling case for a grounded account of the connection between cleansing and separation of experiences. As the authors point out, separation is not possible without prior association between the self and the thing to be separated. The Intersecting Object Histories account of object and event representation (Altmann & Ekves, 2019) provides an explicit, neurally plausible mechanism for explaining the relationship between association and separation. Under this account, which is predicated on contemporary approaches to semantics (e.g. Yee & Thompson-Schill, 2016) and to the neurobiology of memory (e.g. Moscovitch et al., 2016), the representation of an object is more than a region in a semantic space abstracted

across episodic experience; it is a "history" – a trajectory through time and space across which an object (animate or inanimate) may change state (its intrinsic and/or extrinsic properties). Each trajectory is grounded, through associations between the object and others with which it co-occurred, in the episodic contexts specific to different points along the trajectory. Finally (for present purposes), objects are associated with their past selves through space and time – the increased overlap between an object and itself (relative to that between the object and another) creates strong associations through time such that the object in the here-and-now cues retrieval of itself in the past and, crucially, past episode-specific associations with that past self.

Consider the following example. For Bill, the representation of his wedding ring may include its current state as well as knowledge about its past state (it needed to be enlarged) and history (it was his grandfather's). The ring's history intersects with Bill's history, creating an association that strengthens with time as the ring and its wearer (Bill) co-occur. The ring has strong associations to Bill's grandfather and to his wedding. Removing the ring changes Bill's current self so that his current self no longer evokes the same strength of association with things from the past that the ring was associated with (in effect, the overlap between current Bill and previous Bill has been lessened by removing the ring, so *everything* associated with previous Bill is a bit more weakly activated). In contrast, the association between Bill and, e.g., one of his shirts is weaker – they co-occur less frequently. Thus, while removing Bill's shirt also causes less overlap with previous states of (shirt-wearing) Bill, the separation between past Bill and present Bill is weaker than the one produced by removing the ring.

We now have the ingredients necessary to reinterpret the separation effects discussed by Lee & Schwarz. For example, in a gambling scenario, hand washing eliminated participants' perception of the perseverance of a losing or winning streak, as if they had washed away their bad or good luck (Xu et al., 2012, Experiment 2). In the context of object histories, this can be explained as follows: removing one component of the current self (e.g., dirt on one's hands) weakens association with the past self and in turn with objects and events associated with that past self (e.g., luck). One might argue that the association between the self and the dirt that accumulates on the hands is insignificant because it co-occurs for only a short period of time (i.e., between hand washing events). However, hand washing is highly intentional and indeed, often ritualized, signaling a desire for decontamination, elimination of social hazard, and the removal of unwanted substances (c.f. Boyer & Liénard, 2006). It is a highly salient separation from the self.

As discussed by Lee & Schwarz, the manifestation of grounded separation can take many forms, e.g. burning a photograph or walking into a different room (a phenomenon that has been studied in the context of event cognition; e.g., Radvansky & Copeland, 2006; see also Zacks et al., 2007). In the context of intersecting object histories, we would predict that any event which reduces the overlap between the current and the prior self will have consequences for one's perception of objects and events associated with that past self: Even moving into a different room in the gambling experiment should reduce the influence of a losing/winning streak.

Notably, the graded nature of association strength means that, on our account, more dramatic and intentional acts of separation should have greater impact on mental states: Graded association strength explains why, e.g., destroying an object associated with an episode of loss is more effective at limiting the perceived perseverance of losing streaks than is enclosing the object (separating it from oneself; see Lee and Schwarz for discussion). Equally, the intersecting object histories account predicts that breaking stronger associations between the current and previous self that took part in those episodes (e.g. removing a wedding ring) should be more effective at eliminating the sense of a streak than breaking weaker associations (e.g. removing a shirt). Our account also explains why washing one's own hands can produce larger separation effects than watching another person wash their hands, and importantly, it predicts that the effect of watching someone else will be graded: The more history the person you are watching shares with you (is it your partner, your friend, or a stranger?), the stronger the effect should be on you. And while watching a stranger does not separate anything directly from the self, it will not be totally ineffective: It can cue one's own proprioceptive experiences of hand washing (see Lee & Schwarz's discussion of pretend separation).

We have claimed that cleansing and other physical actions of separation perturb the representational space comprising the self by weakening the associations between its different components. The strength of associations between different components as well as the type and degree of separation predict the strength of the cleansing effect. Viewing the effects of cleansing on mental states through the prism of intersecting object histories offers a mechanistic account of such effects and brings them into the immediate domain of interest of cognitive scientists studying event cognition and concept representation.

Conflicts of Interest and Funding Statement

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