Habituation of involuntary conscious processes

New research is beginning to reveal that, though action inclinations can be suppressed behaviorally, they often cannot be suppressed mentally (see Passive Frame Theory). Consider that, when presented with an enticing stimulus such as a cupcake, one may suppress the act of reaching for it and eating it (because that is what the doctor tells us to do), but the inclination to do these things cannot be diminished by sheer will, at least not without difficulty. Similarly, when holding one's breath or when in some other 'pain for gain' scenario (e.g., carrying a hot dish of food), one can suppress overt behavior (e.g., inhaling or dropping a hot dish) but one cannot suppress the urges associated with these action tendencies (e.g., the urge to inhale or to drop the dish, respectively).

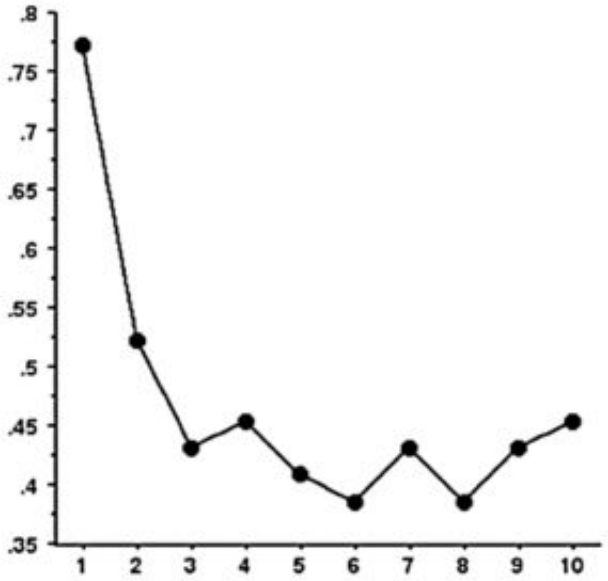

Fig. 1. The likelihood of an RIT effect (involuntary subvocalization) as a function of the number of presentation (1-10) of the same stimulus (e.g., triangle).

This observation is consistent with the theorizing by the great Hermann von Helmholtz, who proposed that conscious contents (that which one is aware of) arise from the workings of sophisticated, 'unconscious inferences.' These inferences are not under one's control. He held that these inferences are not at play just in the creation of 'low-level' perceptual contents (e.g., of depth perception), but also during complicated processes such as automatic word reading, in which a visual stimulus (e.g., the word HOUSE) automatically activates a conscious, sound-based phonological representation (e.g., /haus/) in one's mind. Helmholtz thought it was curious that such an incidental stimulus could have such an influence on the conscious mind, unintentionally.

There is a new paradigm, the Reflexive Imagery Task, that builds on these observations and also on the pioneering research by Daniel Wegner and others (e.g., Peter Gollwitzer). In this experimental paradigm, it is demonstrated that urges and other action options enter consciousness in a predictable, systematic, and surprisingly unintentional manner. (There are currently sixteen variants of the paradigm, each with striking effects.) For the purposes of illustration, you will be presented with a simplified demonstration of the curious RIT phenomenon. Momentarily, you will be presented with an object enclosed within parentheses. Your task is to (a) not name the object aloud (easy to do) and (b) not subvocalize the name of the object (not so easy to do). (Subvocalizing is when one 'talks in one's head.') Well, here is the object (?). It is interesting that, though you probably succeeded at not uttering the object name aloud ("triangle"), you most likely could not silence your inner voice.

Thus, it has been hypothesized that these conscious contents are activated involuntarily and in a reflex-like manner. If such is the case, then these activations should possess a well known property of the reflex: habituation. When a reflex is activated repeatedly within a certain period of time, its strength and likelihood of expression decreases. This is known as habituation. Accordingly, in this research report, we found that the RIT phenomenon habituates (i.e., was less likely to arise) after repeated presentation of the same object. As in the case of the habituation of a reflex, this novel effect was stimulus-specific (Fig. 1.): When presenting the stimulus of a triangle for ten trials, the RIT effect for triangle decreases; however, once a new object is presented, the RIT effect returns at full strength. Helmholtz and others thought long and hard about such a curious and unintentional effect, one which reveals much about action, imagery, and consciousness.

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