

Working Memory-Based Action Control: An Interference Paradigm for Neuroimaging

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Investigators have begun to examine the subjective urges that one may experience when performing tasks involving response interference and working memory. In these kinds of experiments, it is often the case that, (a) subjects know which response to execute prior to being presented with the 'go' cue, (b) subjects know which information from the memoranda will be relevant to the current task at hand, and (c) the task is straightforward and requires little effort in deciphering the association between the retrieval cue and what part of the memoranda must be acted upon. In everyday life, working memory performance is often more challenging, lacking features a, b, and c. With this in mind, we developed a new task that mirrors to a greater extent the complexity of everyday working memory performance. Our primary aim was to measure if participants can do this task. Participants were trained to press one of two buttons when presented with two action-related letters (the memoranda) but to refrain from responding until the cue appeared. To examine a potential methodological limitation, we introduced another condition in which the prompt was not a letter (a dot, Hubbard et al., 2013), but was associated with the spatial location of the target. All subjects underwent both the Letter and Dot conditions.