Past and Present Uses of Concepts as Tools for Investigating Mental Phenomena: Mental Imagery and Hallucinations

By: Eden Smith

In neuroimaging experiments, the scientific concepts of mental imagery and hallucinations are each used as tools that are independent of the other; uses that simultaneously reflect and obscure the enduring historical connections between these concepts. Examining one of these connections suggests that these independent uses share interdependent associations about the role of appropriately-regulated sensory-like mental phenomena (SLMP) in thought. In this paper, I will argue that identifying historical connections such as this is a crucial step in understanding how these concepts are each used as goal-directed tools that can contribute to neuroimaging experiments.

My approach to analysing mental imagery and hallucinations draws upon a range of historical and philosophical studies that each examine how scientific concepts are used as tools that can enable scientific practices (e.g., Boon 2012; Feest 2010; Steinle 2012). Many of these approaches examine the historical development of scientific concepts in ways that can help to understand how the types of questions pursued by experiments cohere with specific epistemic situations (Steinle 2002, 410). In line with this, I seek to build on scholarship that demonstrates that concepts are used for pursuing historically situated epistemic goals (e.g., Brigandt 2010, 2012; Steinle 2012).

To this end, I will focus on highlighting how enduring connections between the historical uses of these two concepts might contribute to understanding their current uses as independent experimental tools. The separate developmental trajectories of the concepts of mental imagery and hallucinations concepts have been detailed elsewhere and are beyond the present scope (e.g., Berrios and Marková 2012; MacKisack et al. 2016).} I will begin by outlining how the concepts of mental imagery and hallucinations can both be understood as tools that enable the investigation of discrete types of SLMP in relation to separate epistemic goals. On the one hand, mental imagery is used as a concept for investigating those ordinary SLMP experiences that resemble perception in ways that can aid in various neurocognitive functions. On the other hand, hallucinations provide the dominant concept for investigating abnormal SLMPs – specifically, those SLMP that are so compellingly like perception that they indicate dysfunctional neurocognition. The goal of using each concept is to find a unique mechanism explaining the discrete type to SLMP being investigated. That the concepts of mental imagery and hallucinations can be used independently of each other in this way is usually taken for granted. However, this obscures that each concept stabilised as a tool for individuating discrete types of SLMP through unresolved attempts to characterise the inverse relationship between functional and dysfunctional SLMP. While my focus is on historical connections that helped stabilise these 'phenomenal' concepts, both continue to be refined in novel ways that warrant further examination.

Examining this connection between how mental imagery and hallucinations each came to be characterised draws attention to the shared set of associations about functional and dysfunctional SLMP evident in their respective historical developments. This shared set of associations can be traced back to an old philosophical tradition that positions ordinary SLMP as a required mediator between perception and thought. During the nineteenth century, this mediator-view of SLMP provided the available knowledge within which the concept of mental imagery began to be used to investigate the role of ordinary SLMP in memory and imagination; as well as for the proposed concept of hallucinations as a description of how memories and imaginations could become 'over-excited' and lead to failures in

reason or judgement. In the following debates, inverse sets of 'typical' characteristics of functional and dysfunctional SLMP were proposed to explain how something required for thought (mental imagery) could lead to a failure to correctly reason or judge perception (hallucinations). Despite unresolved questions about their validity, these inverse characterisations became routine; carrying-along the interdependent associations connecting ordinary and dysfunctional SLMP even after the mediator-view of SLMP itself was abandoned during the early twentieth century.

Drawing on recent historical and philosophical accounts of concept-use, these interdependent associations can be described as sediment – implicit associations persisting long after the initial available knowledge justifying them has been abandoned – that operates as a base for the dynamic uses of these concepts as goal-directed tool in current neuroimaging practices. In offering examples to illustrate this final point, I aim to demonstrate how examining these enduring historical connections is an important step in understanding how the uses of these two concepts contribute to neuroimaging experiments.

References:

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