

Although these considerations might not disprove the Domain-Specific hypothesis, they seem at least as problematic for this theory as do many of the facts raised by Caramazza and Mahon for alternative accounts. However, the model is so underspecified that it is possible to develop explanations for most patterns of data. This flexibility significantly undermines the explanatory power of the account and essentially renders it unfalsifiable. The challenge for Caramazza and Mahon, therefore, is to specify what would count as evidence inconsistent with their hypothesis. More generally, we suggest that it is unlikely that any one of the existing theories (including our own) can accommodate all the 'facts', and that a more promising approach would be to develop integrative theories that combine insights from several different accounts (e.g. [10]).

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Letter Response

There are facts...and then there are facts

Reply to Moss and Tyler

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The facts of category-specific semantic deficits are as follows (for review see [1]): (i) the domains living animate, living inanimate and non-living can each be disproportionately impaired; (ii) category-specific semantic deficits are not associated with deficits to a type or modality of knowledge; and (iii) cross sectional studies of patients with degenerative diseases have not documented an interaction between severity of conceptual impairment and direction of category-specific impairment. In their letter, Moss and Tyler [2] reinforce the emerging consensus that the above three facts demonstrate that the Sensory/Functional [3] and Conceptual-Structure theories [4] are inadequate to explain category-specific semantic deficits. We proposed a Domain-Specific framework that is consistent with these uncontested facts [5]. As was noted in that article, there are many ways in which the proposed framework might be elaborated in the context of a broader range of facts. For instance, data from functional neuroimaging and neuropsychology might converge on the assumption that information is organized by modality or type of knowledge *within* object domains.

A strength of the Domain-Specific framework is that it uniquely predicts that the neural organization of conceptual knowledge should be relatively resistant to variation in sensory experience. For instance, the framework

predicts that congenitally blind individuals should present with the same category-specific organization of higher-level visual areas (e.g. fusiform gyri) as is observed in sighted individuals. Another prediction is that category-specific semantic impairments can arise from brain damage that occurs prior to any significant perceptual experience [6].

Despite the explanatory and predictive power of the Domain-Specific framework, Moss and Tyler argue that it cannot account for the fact that the majority of cases of category-specific deficit do not present with normal performance in the 'spared' categories. However, as Moss and Tyler also admit, there *do* exist well-studied cases in which category-specific semantic deficits are accompanied by normal performance in the spared categories (for example, [7]). Given that clear evidence of selective impairments *does* exist, the weaker findings of disproportionate (but not selective) category-specific impairments have an explanation in the source of neuropsychological data: experiments of nature can be messy. Regardless, the proposed Domain-Specific framework is not committed to a simplistic phrenological position in which a specific domain is represented in a single neural region.

Similarly, Moss and Tyler argue that functional neuroimaging results indicating category-*differential* as opposed to category-*selective* patterns of activation cannot be interpreted within a Domain-Specific framework. This

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contention is based on the unnecessary assumption that functionally discrete processes must be realized by non-overlapping neural regions. Nevertheless, Martin and Weisberg [8] have demonstrated category-selective activation in the same areas that are known to show category-differential responses. The observation of category-selective activation is inconsistent with a view (e.g. [4]) that assumes that different categories of objects are processed by the same system.

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All those interested are welcome to attend, but because of limited space, it is essential to register in advance. For further details, please contact Angela Pusey on 020 7969 5264 or E-mail: a.pusey@britac.ac.uk to obtain a registration form. The conference website is at: <http://www.britac.ac.uk/events>