A cognitive science approach to the metaphysics of ordinary objects

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Abstract

Puzzles within the manifest image famously include what van Inwagen (1990) calls the special composition question (SCQ). Given two material objects *A* and *B*, SCQ asks under what circumstances their composition *AB* will exist. While eliminativists reject any composition, typically by arguing that what exists ought to be causally non-redundant (Merricks 2001), universalists take the opposite view that any composition forms a new object, including, for example, the object composed of the nose of Michelangelo's *David* and the Eiffel Tower (Lewis 1986, 1991). Intermediate views, rejecting these two extremes, have also been developed in order to preserve our common sense intuition by which ordinary objects like tables and chairs clearly exist and yet do not jointly form anything in addition.
Before not too long ago, the debate concerning SCQ has generally been conducted on *a priori* grounds. However, general mistrust in the metaphysical methodology (see, e.g., Ladyman & Ross (2007: ch. 1)) has led to some proposals that involve an engagement with the natural sciences. These proposals to a solution of SCQ have largely been limited to a physics perspective (Brenner 2018). Many of these approaches address issues that initially occur on a quantum level, such as the problem of how individuation and separability are to be understood in the light of quantum entanglement.

Nonetheless, standard principles of composition and those inspired by physics still fail to capture our ordinary experiences within the manifest image. An alternative perspective to composition that has so far found less attention lies at the interface to the cognitive sciences where the assumption is made that the brain is involved in fusing objects together (Alvarez 2011; Gobet et al. 2001; Osborne 2016). In a recent article (XXX), I discuss a methodological approach of how computational models in contemporary computational neuroscience could help us make sense of the metaphysical problems we face within the manifest image by explaining how these problems *come about*, given the mechanisms of the human brain. In this presentation I want to present some of these mechanisms and then apply them explicitly to the problem of compositionality.

One of the guiding principles that governs all of computational learning is data compression. Inspired by this, Petersen (2019) recently introduced a new solution to SCQ, suggesting that Kolmogorov Complexity Theory allows us to construct a criterion of composition that is somewhat also related to how the human cognitive system operates. In this presentation, I present a new account of SCQ that is inspired by modern research developments in computational neuroscience. My account extends Petersen's criterion by adding an addition subjective component and giving the cognizing system some additional significance. The

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ontological principle for which I argue is roughly the following: Given a cognizing system, data composes if the representation of the composition most likely allows to make robust predictions about future incoming data. The principle presupposes a representation of the composing object. This seemingly odd assumption will be motivated by contemporary views of the brain, most notably by the Bayesian brain hypothesis and the theory of predictive processing.

A simplest example to illustrate this principle (but maybe not the most persuasive) is the following: In Fig. 1 (reproduced from Clark (2015)), we notice that when our eyes move from top to bottom, the symbol in the center appears to be the letter 'B'. Moving our eyes from left to right will, however, make us see the number '13'. For Clark, this self-analysis exemplifies how our brain operates by making predictions about its sensory input. In the center of the image we can either see two things, a '1' and a '3' or we see only one composing thing, a 'B'. According to the ontological principle I am trying to motivate, the composition takes place when the brain is in a state determined by the context of seeing letters that makes it predict the letter 'B' because of there being a high probability of a 'B' following an 'A'. This, however, also assumes that the cognizer already possess according representations.

Fig. 1: A certain context defines the cognizer's state that effects composition.

My approach follows similar lines as Decock (2018), who suggests that many of the paradoxes in the metaphysical realm-such as those concerning identity-should be addressed from a cognitive science perspective under the label of 'cognitive metaphysics'. Given our best understanding of how the brain processes information, cognitive metaphysics sets itself the task of making sense of the traditional metaphysical puzzles within the manifest image.
One might critically question, whether this descriptive approach can still be justified under the heading of metaphysics instead of epistemology. Decock provides a list of responses addressing this concern. One possibility is to actually admit that the approach of cognitive metaphysics is only concerned with what traditionally has been labelled as problems of metaphysics but have turned out to be 'epistemological questions in disguise' (p. 8). This, nonetheless, does not resolve the problem itself and must still, in the historic tradition of metaphysics be addressed. Another possible response to the concern is to adopt a Neo-Kantian stance by which there is no genuine distinction amongst the disciplines. Some philosophers at the cutting edge of contemporary neuroscience have investigated the latter view (e.g., Fazelpour and Thompson 2015; Swanson 2016; Zahavi 2018) by building bridges between our current cognitive theories and Kantianism.