Microstructural Multiple Realization

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In the last decade the question of reductionism has reappeared as one of the central questions in Philosophy of Mind and Philosophy of Science. In the debate I enter, the motivation for reductionism is not as much the idea of a “unified science” but is based on causal exclusion arguments. These arguments have been developed and heavily discussed in the debate on mental causation. Local reductionism is by some philosophers (e.g. Jaegwon Kim) thought to be the only way of embedding both mental properties and special science properties with causal powers. These philosophers reject Nagelian reductionism and propose local functional reductionism instead. On this view, genuine mental and special science properties are subject to identification with so-called microbased macro-properties. The reductionism is local because this is believed to answer the multiple realization argument as it is traditionally stated. In this way property identifications will be possible, but relative to certain organisms or structures.

I will present an argument that shows how this approach fails its motivations. The argument is based on the observation that most special science properties are widely multiply realizable on the microphysical level. This observation makes identity claims between special science properties and micro-based macro-properties highly implausible. The argument forces one either to accept an extreme fragmentation of the macrolevels, or to respond to the causal exclusion problem in some other way than by local functional reductionism.

The structure of my line of reasoning can be summarized by the following three points. I will (1) explain how local functional reductionism is motivated, namely as an answer to both the causal exclusion problem and to the multiple realization argument, (2) argue that microstructural multiple realization poses serious problems for this view, by showing that it leads to an extreme fragmentation of the macrolevels, and (3) indicate how an extreme fragmentation coheres badly with common assumptions regarding causation, and therefore that central parts of the motivation for local functional reductionism is undermined.