"A Lewisean Theory for Special Science Laws"

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David Lewis has offered an acclaimed analysis of laws of nature: suppose you knew everything and organised it as simply as possible in various competing deductive systems that mention perfectly natural properties only. A contingent generalisation is a law of nature if and only if it appears as an axiom or theorem in the one true deductive system that achieves a best combination of simplicity, strength, and fit (cf. Lewis 1973: 73; 1983: 41-43, 1994: 233-44). Although Lewis allows both axioms and also theorems of that system to be laws it is not clear whether his definition comprises the laws of special sciences or whether it covers the most fundamental laws only.

In any case, I will show in this talk how Lewis‚s theory can be applied to the laws of special sciences separately. Clearly, several hurdles have to be taken but I claim that valuable insights can be gained.

First the hurdles: (H1) in order to run a best system competition for, say, chemistry or biology a criterion of demarcation between those sciences has to be established. (H2) Furthermore, the laws of special sciences tend to have exceptions, i.e., to be ceteris paribus laws. Lewis's theory has to be adjusted in order to allow for this phenomenon.

Now the benefits: (B1) Actually, ceteris paribus clauses in laws are notoriously difficult to interpret. This issue will be solved en passant when we make Lewis‚s interpretation fit for special science laws. (B2) The resulting theory is in itself neutral when it comes to reductionisms: special science laws might or might not turn out to be reducible to the laws of more fundamental sciences. (B3) Per se, the theory is also neutral concerning Humean or anti-Humean metaphysics. Special science laws will be nomologically or metaphysically necessary or not, depending on whether their fundamental siblings are and whether reduction to them is possible. (B4) Finally, even if the new theory should turn out to have its own difficulties, at several stages of its definition it offers valuable tests for our intuitions about lawhood, exceptions to laws, subjective aspects, reduction, and the autonomy of special sciences.