Revisiting Synthetic a priori Judgements

'Judgements of experience are always synthetic' (4:268). This follows from the fact that all analytical statement are *a priori*. In an analytical statement, such as 'every body is extended', the conceptual analysis of the subject term yields the predicate term: that *x* is extended is already contained in *x*'s being a body ('merely explicative', 4:266). It is part of the concept of a body that it is extended.

This is why the *principle of contradiction* can show whether a statement is analytic or not: if we claim that bodies are *not* extended, we get a contradiction; 'unextended body' is an incoherent concept, just like the concept of 'married bachelor'. In contrast, experiential or empirical judgements go beyond the mere analysis of the concepts involved: insofar as they involve perception or intuition (*Anschauung*), they are synthetic.

Yet, crucially, not all synthetic judgements are empirical, or *a posteriori*. That is, there are synthetic *a priori* judgements, e.g., in mathematics (4:268). Such statements contain a predicate term that tell us *more* than subject term, and they are thus 'ampliative' (4:266); yet our cognition does not depend on, and is not derived from, experience. Kant's example is '7 + 5 = 12'. The reason why this is *a priori* is that it is a necessary statement, and as such could not be *a posteriori* (4:268). Why? Experience is always particular, rather than universal; moreover, when we see an apple falling from the tree, we see *that* it falls, but not that it *must* fall.

But why are statements of mathematics *synthetic*, rather than analytic? The reason is that the concepts '7', '5', '+' and '=' do not contain the concept '12'. It goes beyond those. This is what the difficult passage on 4:272 shows: mathematical concepts are such that they do not just 'contain' further concepts that could be teased out by analysis; and so we cannot 'proceed from concepts', but have to *construct* concepts from others. More precisely, the predicate terms (that stand for certain concepts) are constructs out of subject terms (that stand for certain other concepts). For instance, the statement that the base angles in an equilateral triangle are equal can be justified by the construction of a figure (perhaps, but not necessarily, on paper), which shows that the concept of 'equality of base angles' is *not* contained in the concept 'equilateral triangle'. (Also: 'the sum of all angles in a triangle equals 180º', whose truth can be demonstrated by, or read off, a triangle, its extended sides and a parallel line to its base.)

Kant's key assumption seems to be that mathematical statements are synthetic only if they involve *intuition* (4: 268). That is, only intuition is capable to 'amplify' mathematical concepts. It is as if expanded cognition requires a reference to possible (sensible) intuitions (cf. extracts Hatfield edition, pp. 156, 161–2). This necessary condition is absent in metaphysical cognition. Without this distinction between mathematics and metaphysics, Kant's project would be strange: given that mathematics is such a success, and metaphysics such a failure, how could one be a model for the other (given the analytical method)? The point: although the 'matter' of their respective judgements, or the kind of cognition, is synthetic and *a priori*; but the 'manner' of proof and justification is different.