**Bergamo/Pavia Masters seminars**

May 29 - June 7 2024

"Epistemology and Mathematics", Module 2 00

*The Basic A Priori — Logic and Arithmetic*

Preliminaries— *Setting the Scene; the Problem of Characterising A Priori justification and knowledge; Quine on analyticity; Quinean “anti-exceptionalism”*

**What is the phenomenon? Some examples**

(i) Fathers, vixens, propositions derivable from logical laws by intersubstitution of synonyms (“Frege analyticity”—note the implicit privileging of logic.)

(ii) “Everything red is coloured”, “Nothing is simultaneously red and green all over”

(iii) Certain propositions expressing spatio-temporal relations, e.g. “If a is earlier than b, but later than c, then c is earlier than b”

(iv) “Chudnoff’s circles”

(v) Similarity of angles resulting from section on a pair of parallel lines

(vi) How can a finite mind show that all the infinitely many integers have a given property?

(vii) “If either A or B, then whatever follows either way is true”

(viii) || |||

(ix) 4+3=7 performed “in the auditory imagination”

(x) How many edges has a cube?

**What is striking about these examples? Two aspects**

*The cognitive process*: Verifiability “in the head”. Not always “immediate”. But where there is some kind of relevant processing, it doesn’t seem to be straightforwardly deductive. Natural to talk in terms of elements of “just seeing”. A sense of intellectual compulsion (W: *die Harte*) “You must accept . . .”. But also:

*The results* are prima facie:

*Knowledgeable*

*Certain*

*Necessary— two aspects:*

“Hardness” and counterfactual generality

Traditional (up to mid- C20) thinking tended to include the a priori as one of an undifferentiated syndrome of characteristics of thee kinds, along with necessity, analyticity, certainty, indefeasibility, compulsion (Wittgenstein’s "hardness" —*die härte*), and even after Kripke's influential separations in *Naming and Necessity*, it is still tempting to think of these notions as very much in alignment as far as basic logic and maths are concerned. It would be good to understand that temptation better and determine whether it is well-founded.

Our interest is in the *basic a priori* as illustrated by these examples— seemingly a priori knowledge/justification that is not achieved —or not purely achieved — by explicitly formulable inference from already a priori established premises. Kant’s two varieties? Not very clear. Are two anyway (more than) enough?

**A stock characterisation of the a priori** runs along these lines:

X knows P a priori if X (knows P and) has acquired the belief that P in a fashion *independent of experience*

X's belief that P is justified a priori if the justification on which they base their belief that P is *independent of experience*

"Independent of experience" is mud-clear. The critics tend to fasten on this

(i) What for these purposes counts as *experience*? The intention of the traditional thought is independence of *sense*-experience. Explaining that would no doubt require something better than a 'listiform' account of "the senses". That may not be straightforward.

(ii) Another problem: is *inner* experience (awareness of aspects of one's own stream of consciousness) to count? If not—if reliance on inner experience is consistent with a priority—then much ordinary contingent self-knowledge is liable to count as “independent of experience”, hence a priori, and that seems intuitively wrong: knowledge of one's own mental life does not belong with knowledge of logic, maths (and philosophy?) But if reliance on inner experience is not consistent with a priority, we face the opposite risk: surely the ordinary thoughtful ratification of proofs and thought-experiments relies on inner experience— on awareness of the phenomenology of one's thinking.

(iii) And what is the allowable role of *memory*? Does memory count as experience? If so, then mid-length proof cannot give a priori justification. If not, then remembered contingencies may count as a priori.

(iii) What, anyway, for these purposes counts as i*ndependence* of experience? Some suggestions about this that are 'out there':

Environment-independence (Hawthorne),

The sensory insulation tank model,

The 'hallucination doesn’t matter' idea, and

The idea that experience shouldn't feature as a provider of *evidence*.

These will all surface in later seminars; and all have their difficulties.

The significance of these worries— what if “independent of experience” resists all clarification? What follows?

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**Quine on Analyticity**

Q, following the Positivists (“The linguistic theory of the a priori”) writes as though the phenomenon is typified by case (i) above, so that to debunk that is to blow away what he regards as the whole superstition.

Two parts to “Two Dogmas”

§§ I-IV — critiques the ‘meaning’ component in “True in virtue of meaning”, whereas

§§V-VI — develop

**Quine’s ‘Anti-exceptionalist’ challenge**: all accessible knowledge is (only?) accessible via empirical inductive/abductive methods of science; justification is *never* independent of experience:—

“The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field. Truth values have to be redistributed over some of our statements. Re-evaluation of some statements entails re-evaluation of others, because of their logical interconnections - *the logical laws being in turn simply certain further statements of the system*, [my italics, CW] certain further elements of the field. Having re-evaluated one statement we must re-evaluate some others, whether they be statements logically connected with the first or whether they be the statements of logical connections themselves. But the total field is so undetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to re- evaluate in the light of any single contrary experience . . .. .

“ Furthermore it becomes folly to seek a boundary between synthetic statements, which hold contingently on experience, and analytic statements which hold come what may. Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or by amending certain statements of the kind called logical laws. Conversely, by the same token, no statement is immune to revision. Revision even of the logical law of the excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle?” (*Two Dogmas*, p. 31)

This encapsulates the global empiricism of "Two Dogmas" — empirical dis/confirmation is not a single proposition <-> experience dyadic relation—the "whole of empirical science" is in play in any situation of potential "recalcitrance". Justification is a matter of relative entrenchment in the “web of belief”

**Some Questions**: (i) Quine's thought in V and VI is meant to challenge the notion of analyticity – how exactly does it do so?— and

(ii) How if it does so, does that become a challenge to the a priori (as Quine seems also to have intended)?

Suggestion on (i): how can experience be rationally held against a statement whose truth is settled by meanings, ergo by factors outside the realm of experience? Discussion point.

Suggestion on (ii) — successfully challenging analyticity would be a challenge to the a priori only if the only way a priori warrants might be accomplished would be via tracking of the requirements of meaning.

**Boghossian’s distinction.** (“Analyticity Revisited”)