Never Mind Synthetic A Priori, Here's Analytic A Posteriori

Kant thought synthetic truths could be knowable a priori, and drew some surprising conclusions from that. I want to talk about the opposite possibility, that of analytic (or conceptual) truths which are knowable only a posteriori.

You might think the combination can be found already in Kripke. But that wasn't how he saw it. He has his a posteriori *metaphysical* necessities, to be sure → → → → But these are not analytic in Kripke's view. He understands analyticity more or less as *a priori* metaphysical necessity. And the statements are not meant to be a a priori.

Hesperus = Phosphorus
Water contains hydrogen
JS Mill is descended from James Mill.
Whales are mammals
Gold is an element.

Well, but that's a bad conception of analyticity, you may say. Why should an analytic truth have to hold in *all* worlds by virtue of meaning? $P \supset @P$ seems no less analytic for being metaphysically contingent; metaphysical necessity is not required. And yet a priority alone is not enough, given statements like *Not everything is both true and false* and *A conjunction is prima facie supported by its conjuncts.* I'll be suggesting indeed that a priority is not required either.

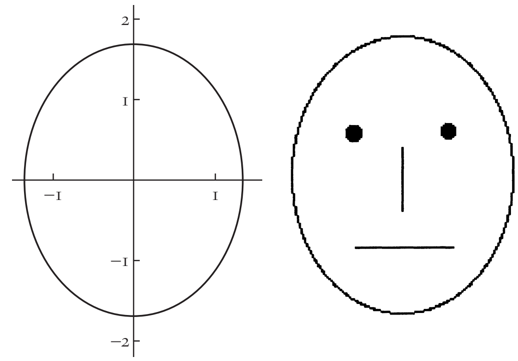
"[A]n analytic statement is, in some sense, true by virtue of its meaning and true in all possible worlds by virtue of its meaning. Then something which is analytically true will be both necessary and a priori" *Naming and Necessity*.

ANALYTICITY How *should* analyticity be defined, then? Why not just say that *S* is analytic if its meaning guarantees its truth? If meaning is the proposition expressed, then *Hesperus = Phosphorus* comes out analytic, for an identity proposition has to be true. But the notion of meaning here is too cut off from understanding. If *S*'s conceptual content in a idiolect is what a speaker must know to count as understanding *S*.

S is analytic iff its conceptual content guarantees its truth.

An analytic a posteriori truth on this approach would be an *S* whose truth is guaranteed by its conceptual content, but not in a way that is evident to the speaker just by grasping that conceptual content. Can there be truths like this? A number of examples have been suggested.

"The plane figures defined by such & such an equation" could be cassinis, defined by $(x^2 + y^2)^2$ - $(x^2$ - $y^2) = 5$.



1. The plane figures defined by such & such an equation are oval (facical) (Yablo 2002)
2. Lower case D and P are congruent; they differ only orientationally. (Shepard 1971)
3. A chord made up of notes a semitone apart is dissonant. (Yablo 2005)
4. 10 degrees Centigrade is around 50 degrees Farenheit. (Rochford 2013)
5. If two marks are 25 cm apart, they are less than 10 inches apart. (Williamson 2007)

Imagine inches and centimeters learned independently by the direct method.

These examples may seem just curiosities. Even if they work. are they relevant to anything we care about? (Kant is a hard act to follow here.) A second question, if relevance can be established, is: *do* they work? Are 1-5 really conceptually necessary? Are they really a posteriori? I tend to think the answers are Yes and Yes. But my aim is more to air some of the issues involved.

RELEVANCE A key plank of Kripke's platform is that a posteriority carries with it at least an *illusion* of possibility. If impossible *S seems* possible, there is a genuine possibility in the neighborhood, the possibility of its "having turned out" that *S*. For *S* to be *really* possible, its strict content $|S|$ must be possible. The possibility of its turning *out* that *S* is linked rather to the possibility of its conceptual content $|S|$*.

And some two-dimensionalist descendants.

And now the kicker. $|S|$ and $|S|$* can come apart only if the terms in *S* are "Twin-Earthable," meaning in Kripke's framework that the associated reference-fixing descriptions are not rigid. Conversely they *can't* come apart if the reference-fixing descriptions pick out their referents by properties necessary and sufficient for them. This has a number of applications, of which let me mention three.

Mind The concept of pain is not Twin-Earthable. Zombie intuitions—the apparent metaphysicsal possibility of a physical duplicate of our world in which no one feels pain—therefore cannot be explained away in the approved manner, as conceptual possibilities misconstrued. An intuition that can't be explained away should be accepted. So zombies are really possible and the mental does not supervene on the physical. This argument is called into doubt if conceptual truths can be a posteriori. If there can be erroneous modal intuitions not backed by genuinely possible conceptual contents, then who is to say the zombie intuition is not among them?

Morality Moral properties, if any, have got to supervene on natural properties; this we supposedly know a priori. *How* they supervene is not an priori matter. It might be for all we know a priori that killing the one to save the five is permissible, and it might be that it isn't. Moral concepts are widely held not to be Twin-Earthable, however. As in the pain case, then, the seeming possibility of either outcome attests to the real possibility of worlds agreeing in their natural facts but not their moral facts. This is ruled out a priori; so we must reject moral facts.

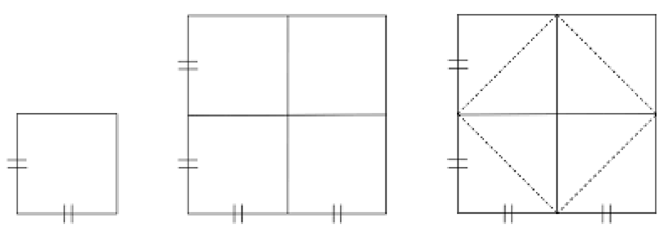
Horgan and Timmons on moral twin earth.

Ontology Numbers are necessary or impossible; this we are said to know a priori. It might be for all we know a priori that they necessarily do exist, and it might be that they necessarily don't. Mathematical concepts are not Twin-Earthable, however. As in the pain case, then, the seeming possibility of either outcome attests to the real possibility of worlds with numbers and worlds without. This is meant to be ruled out a priori, however; so there is no genuine fact of the matter as to whether numbers exist.

Chalmers, "Ontological Anti-Realism"

APOSTERIORITY Are *Cassinis are oval* and the rest really a posteriori? The argument for YES is that you have to draw one and look at it to find the answer. And the experience is justifying, not enabling; we already knew what cassinis were from their defining equation, and we knew what ovals were from way back. The looking tells us how one antecedently understood notion lines up with another such notion.

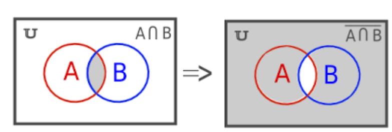
But matters are not so clear-cut. Someone skilled enough at mental modelling might be able to construct a cassini in their head. They then survey it in their mind's eye and "see" that it was oval. This individual can determine that cassinis are oval without actually laying eyes on one. Their justification does not involve any real experience, only simulated experience, so they know a priori that cassinis are oval.



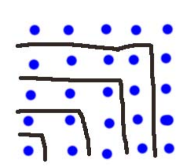
Meno's "proof" of (a simplified form of) the Pythagorean Theorem. He is shown a square with sides of length A and asked to construct another twice as big. His first thought is to double the length of each side, but that quadruples the area rather than doubling it. Ah, but we can quadruple *half* the area by putting in diagonals (let them be of length C) as indicated. That the diamond is twice the area means that $C^2 = 2A^2 = A^2 + B^2$ when $A = B$.

Indeed it is not clear their justification turns on experience even if it's a real figure they're looking at. Remember Meno, the slave boy in Plato's dialogue. He supposedly acquires a priori knowledge of the Pythagorean Theorem by looking at actual diagrams, not just imagined ones. Doubts about priority have traditionally focussed on the leading questions; but he could have framed the questions himself. No one complains, to my knowledge, about Meno's experience of the diagram. A priori visual knowledge has also been thought possible (rightly or wrongly) of

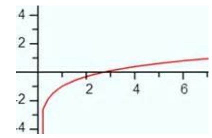
de Morgan's Laws—
e.g., the complement of $A \cup B$ is the intersection of A's complement with that of B



the Sum of Odd Numbers Theorem—
the sum of the first n odd numbers $(1 + 3 + 5 + \ldots.. + (2n\text{-}1))$ is n^2.



the Intermediate Value Theorem—
a continuous f must hit 0 between a and b if $f(a) < 0$ and $f(b) > 0$



If we want to call *Cassinis are oval* a posteriori, because we use our eyes, then an explanation will be needed of how it differs from the Meno example, in which we also use our eyes but is supposedly a priori nonethless. I think they do differ; but it is not so easy to say why. A few considerations that seem possibly relevant.

RECOGNITION Our knowledge that cassinis are oval is based in an act of seeing them to be oval. Meno's knowledge is not based in an act of seeing the square of the hypotenuse to be the sum of the squares of the other two sides. Meno *reasons* his way to this conclusion, rather than seeing it in the diagram. A different diagram could have served just as well, even a poorly drawn one misrepresenting the sizes.

SKILL Shape recognition is a perceptual *skill*. So is estimating length, as in the Williamson example. Perceptual skills are acquired through trial and error learning. Some get the knack better than others. Whether you can tell from their looks that two inches is more than five centimeters depends on your visual skills. Whether one can tell Meno-style that $C^2 = A^2+B^2$, however, does not much depend on one's visual skills. Failure to grasp the argument is a logical failure, not a sign of bad eyes.

If the oval recognition task seems too easy, substitute hearts, happy faces, fleurs de lis, or what have you.

ABOUTNESS Meno and I (qua shape-recognizer) both take information in empirically. Why is it that only he comes out with a priori knowledge? The proposition that I come to know by seeing how my figures look is *about* how they look—they look to be oval. The proposition that Meno comes to know by seeing how Socrates's figures look is *not* about how they look;, it is not about whether the hypotenuse looks to be a length whose square is the sum of the squares of the apparent lengths of the other two sides.

Meno's *premises* do not seem to be known by sight either. He needs that the inscribed figure is a *square*, but that is deducible from the set-up; perfect square-hood is not the kind of thing one can see anyway. He reasons from facts that are stipulated to hold of a visually presented figure, not facts for which he relies on the testimony of his senses.

ANALYTICITY Is it analytic that five centimeters is less than two inches? Does the conceptual content of *Five centimeters is less than two inches* ensure its truth? We will propose a test to help us sort out which conceptual contents have the truth-ensuring feature and which don't.

Meno's reasoning might be this: Bisect a square twice to form four smaller squares. Connect adjacent intersection points to obtain eight right isosceles triangles; the inner four form a further square inscribed in the first. If A and C are the the triangles' shorter and longer sides respectively, then the inscribed square is (i) of area C^2, because its sides are C, and also (ii) of area $2A^2$, because it is made up of four triangles of area $A^2/2$. QED

Imagine it isn't yet known whether gold is an element. I conjecture it is, and you conjecture it isn't. There is the possibility at least of your being vindicated; or else why the suspense? Granted, *Gold is an element* would have to have had a different strict content for you to be vindicated, one that was necessary rather than impossible. But that's to be expected in cases of disagreement on empirical, non-contingent matters. The alternative is to say that we can never really disagree on such matters, since the proposition I take myself to be defending is not the one you take yourself to be denying.

What does it mean to say that you could have been vindicated? It is not just that *Gold is an element* could have turned out to express a falsehood. That much can be said of *Squares have four sides*, since *four* could have turned out to mean five.

What it means is that it could have turned out that gold was a compound. It could not in that sense have turned out that squares had three sides. It was never an empirically open question how many sides they had. The most that could have happened is that we misunderstood or misremembered what it *meant* for squares to have four sides—what it meant is something we would have agreed all along is false. *Four* turning out to mean five would not have been a vindication of those who bet against squares having four sides. *Four* is not Twin-Earthable in the way that interpretation would require.

Imagine that nobody has ever asked themselves whether two inches is more than five centimeters. You maintain, correctly as it turns out, that it *is* more, I say it isn't. Here too we *might* want to speak of the possibility that I would turn out to be right. But that would mean not that two inches could have turned out to be longer than it is, or five centimeters shorter, but that *two inches* could have expressed a different concept. It's a subtle distinction, but I think a real one. It's the distinction that Kripke is getting at when he says,

Kant (someone just pointed out to me) gives as an example [of analyticity] *Gold is a* *yellow metal*; [this] seems to me an extraordinary one, because it's something I think that can turn out to be false [that is, gold could have turned out not to be a yellow metal]

Kripke's objection to Kant suggests a

TEST: It is conceptually/analytically possible that *S* iff someone conjecturing that *S* could have been vindicated; it could have turned out, not just that the conjecture was true, but that *S*.

Where does this test put *Two inches exceeds five centimeters* and *Cassinis are oval*? On the same side of the line as *Squares have four sides*, I think—if they had turned out to be wrong it would not be because four had turned out to be larger, or that shape non-oval because ovals are on further reflection hexagonal.

Even if I am wrong about that, there should be *something* in the category we're thinking of, tthe category of *S*'s such that had they turned out to be right, this would not be a case of its turning out that *S*.

STABILITY Am I saying that *oval*, *inch*, and *dissonant* resemble *pain* in not being Twin-Earthable? That ovality stands to geometric patterns, inches to length, and dissonance to pitch patterns as pain stands to patterns of neuron firing?

Yes ... but there is a disanalogy to be noted. Pain as Kripke thinks of it has no backside. Whatever feels like pain, is pain; the physical underpinnings have nothing to do with it. Being oval, or an inch long, or dissonant are all about underpinnings. Inchiness is meant to supervene on distance. To look an inch long is not necessarily to be an inch long, because the distances could be wrong. Dissonance is meant to supervene on pitch patterns. To be experienced as dissonant is not necessarily to be dissonant. If a major chord strikes me as dissonant on some occasion, I am just mistaken.

This is a disanalogy. But a relevant one? *Pain* as one naively conceives it is "given" in *two* ways. (Stability) Its truth-conditional content is given— what counts as pain doesn't vary with context of acquisition the way what counts as water does. (Luminosity) Also given is whether that content is *satisfied* on a given occasion. It may be that *inch* and *oval* are not luminous. But the issue that concerns us here is stability, or neutrality, or primary-rigidity. It's stability that closes the gap between truth-conditional and conceptual content. It's stability that prevents appearances of possibility from being explained away in standard Kripkean fashion.

A paradigm unstable concept is *the thing, I know not what, with such and such an appearance*. To suppose that all concepts arr like this is the analogue for referential thought of veil-of-ideas skepticism. Commonsense shapes and lengths don't feel like *I-know-not-what*s. They feel like like *Here they are in full glory*s.

PARTING DILEMMA Let *S* be *Marks so far apart are at least an inch apart*. We know it I assume. Either it known posteriori or it isn't.

Suppose first aposteriori. That undermines the standard argument for zombies The a posteriority of *S* doesn't testify to the metaphysical possibility of marks agreeing in the distance between them but not in whether they're an inch apart; right? So why should the a posteriority of *Z*—*Creatures physically like so are in pain*—be thought to testify to the metaphysical possibility of zombies?

Suppose on the other hand that we know *S* a priori. Then what is supposed to show that we don't know *Z* a priori? It is true we can't establish *Z* by reflecting on concepts. But we can't establish *S* that way either. We need in both cases to empirically *deploy* the concepts. The only difference is that we are better at applying *inch* to imagined distances than *pain* to imagined brain states. Give us a better minds nose (or etc) and philosophy of mind might have taken a different course.