Immanuel Kant
(1724–1804)

Analytic vs. Synthetic Truths

On pgs. 78-80, Shapiro discusses Kant’s views on conceptual analysis and analytic truths. I’m having trouble understanding why conceptual analysis by itself doesn’t help us determine why 7+5=12. Why doesn’t 7+5=12 tell as anything new about the world? Furthermore, on pg.80, Kant says that sums like 7+5=12 are always synthetic. I don’t understand Kant’s explanation for why sums are always synthetic. I’m particularly confused by Kant’s discussion of why the union of two numbers through addition makes sums synthetic. Also, what does Kant mean by “dissect my concept of such a possible sum”? —Aanisah

And when regarding the question of 5+7, is he saying the 12 we acknowledge as the sum is different than the concept of the number 12 on it's own? —Brendan

I found Kant's division between analytic and synthetic intuition difficult to follow… —Matt

Analytic vs. Synthetic Truths

All bachelors are unmarried.

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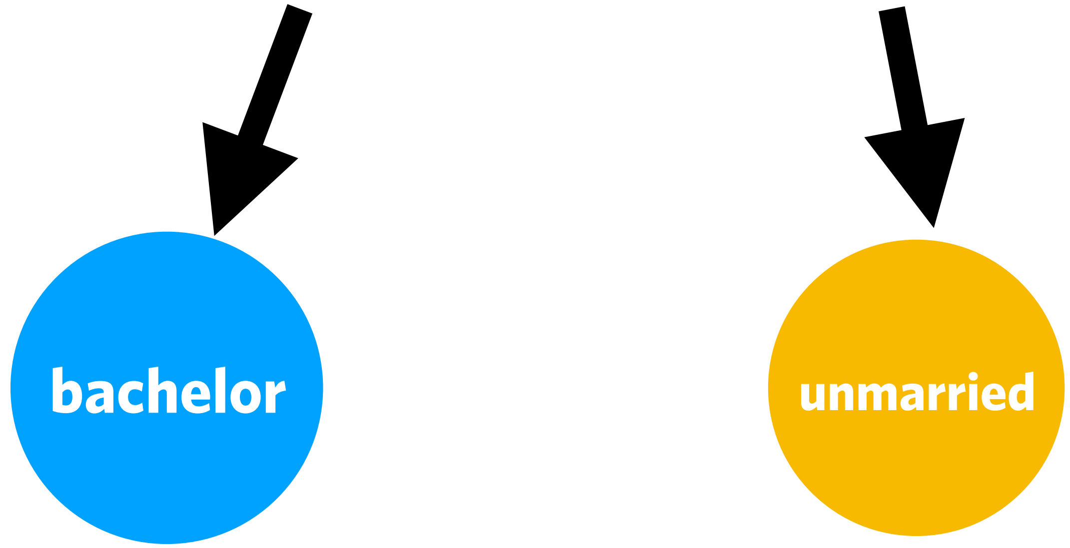

Analytic vs. Synthetic Truths

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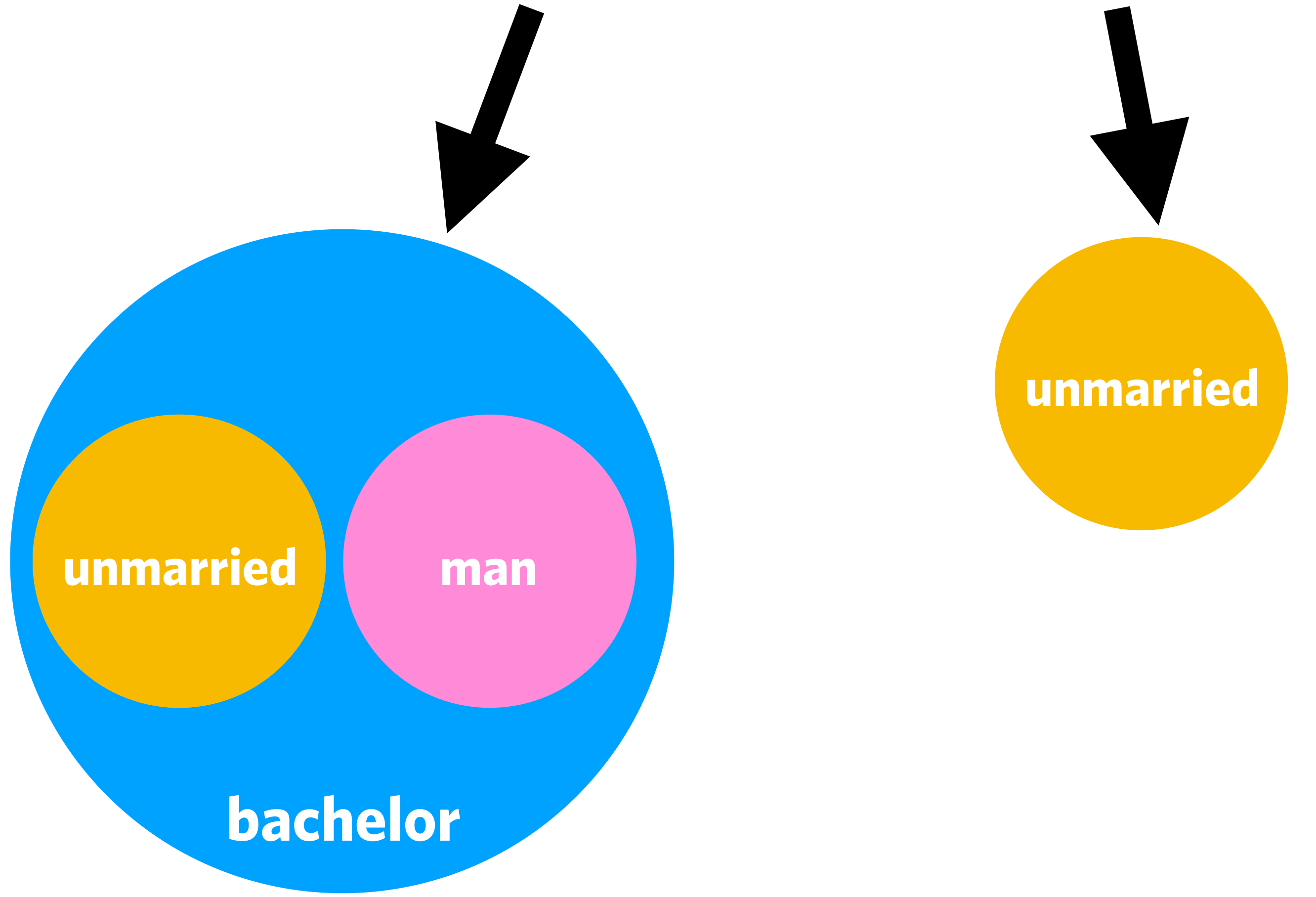
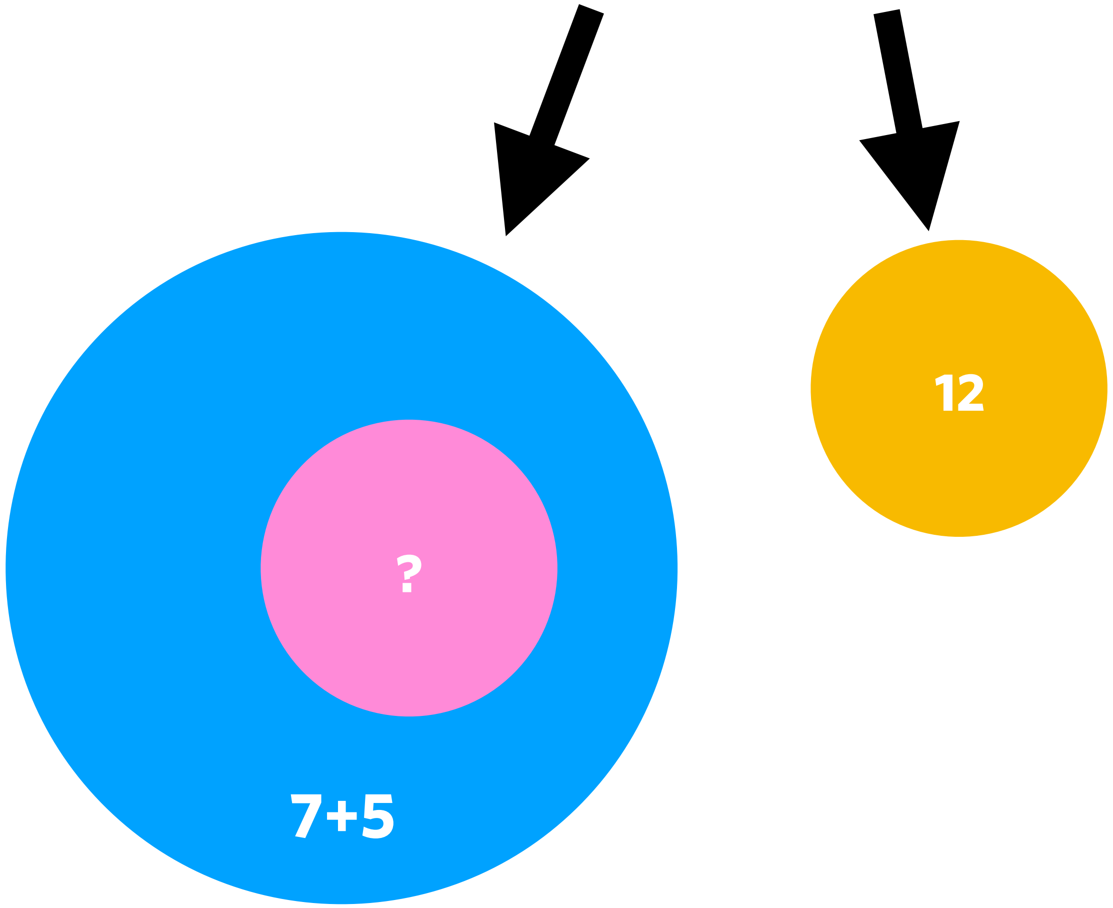


Analytic vs. Synthetic Truths

$7 + 5 = 12$



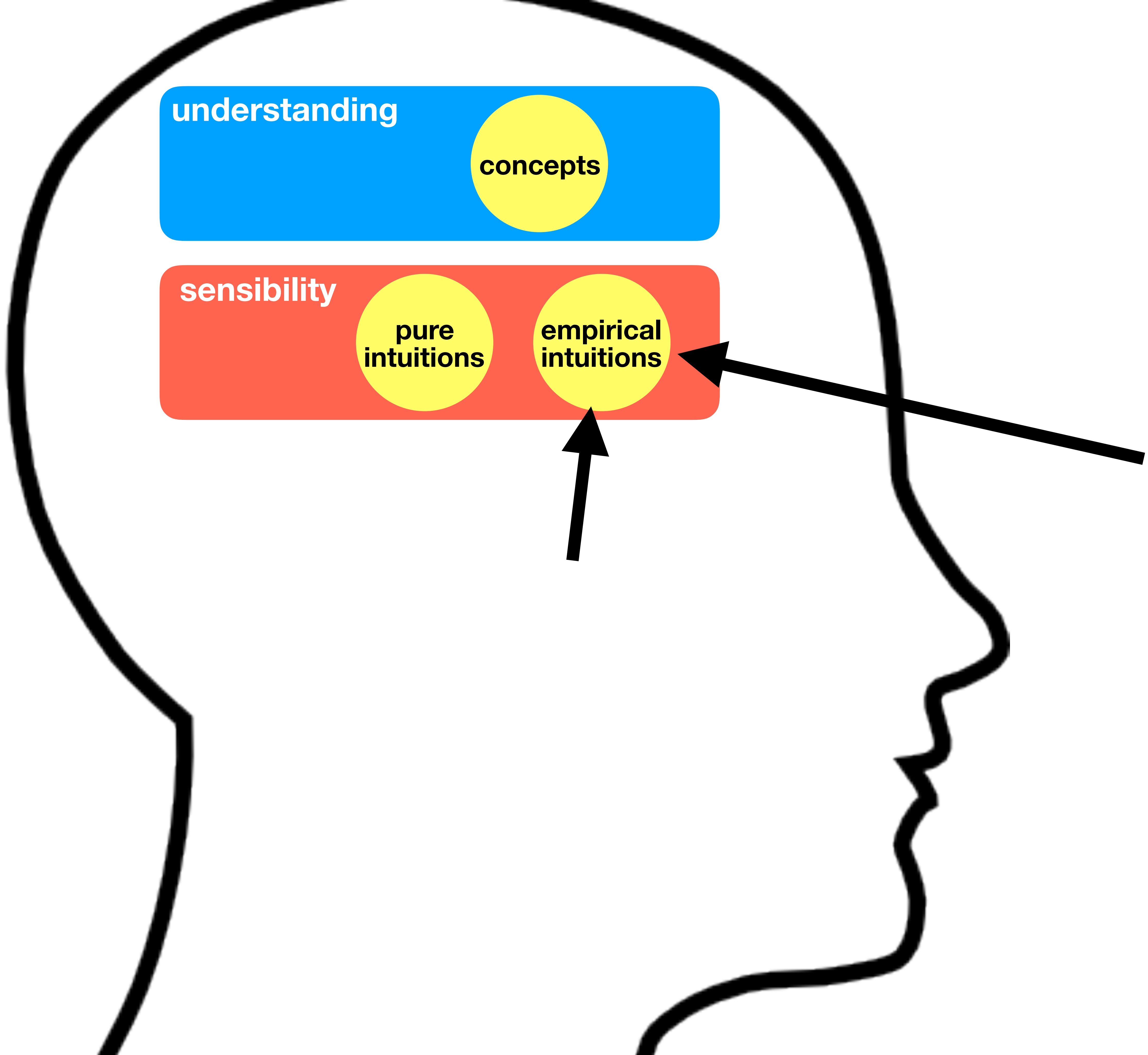
Kant's conception of intuition

Kant's Concept of Intuition

What is Kantian intuition? ... What is the difference between intuition and knowledge based on mathematical experience? —Misa

I'm having a hard time trying to understand what Kant's view point on intuition is. Does he believe intuition is empirical or does he believe it is rational. He seems to be claiming both when he talks about different types of intuition. But isn't the very concept of intuition rational rather than empirical? —Brendan

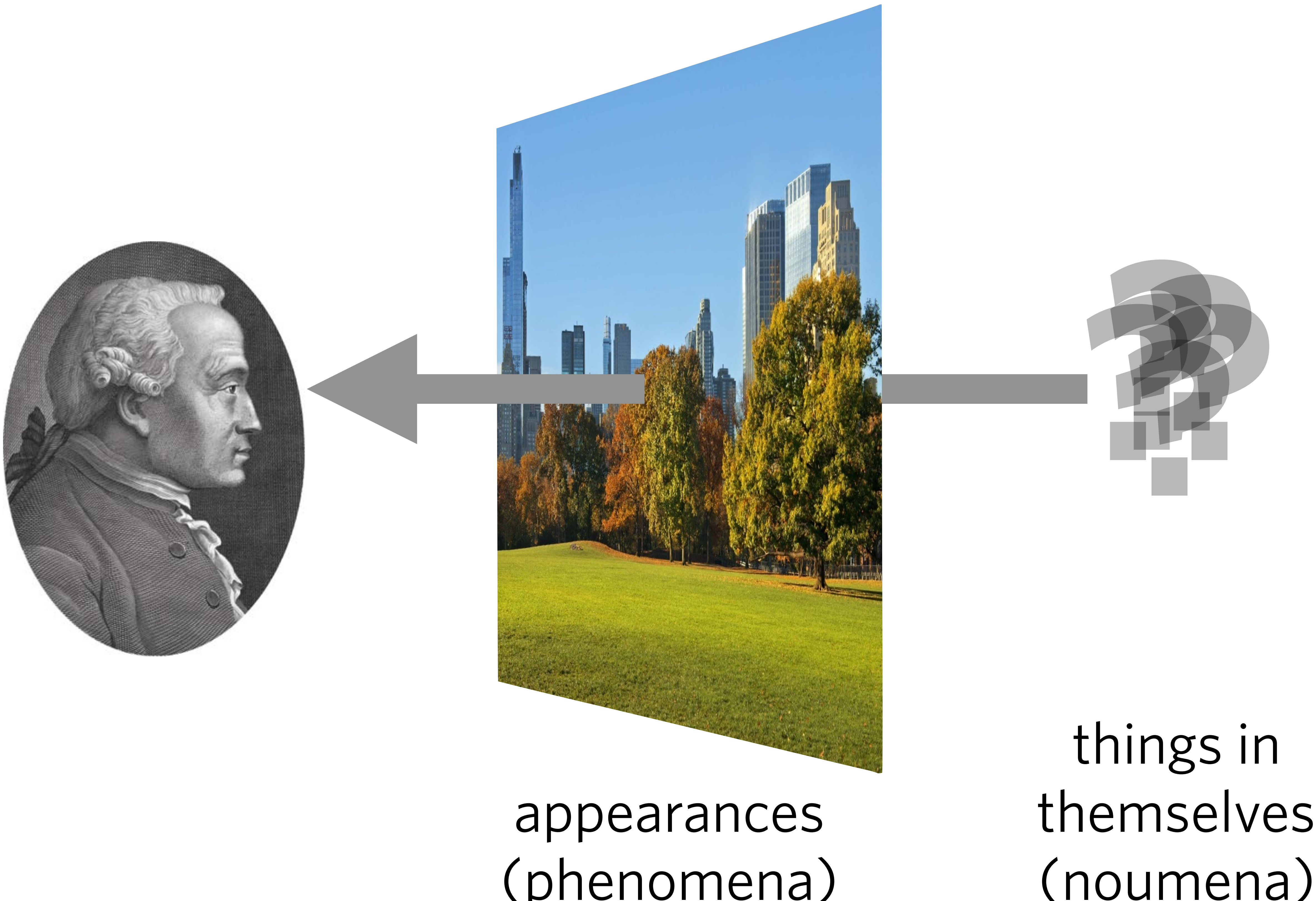
Kant says "synthetic propositions are knowable only via intuition''.. at another one I see 'intuitions are singular..'' and 'intuition has two features". I'm just wondering, is there a difference in what the word intuition brings in our minds based on how it is being used here? I mean, 'via intuition' makes me think of it as a way, a route -- a very, very abstract one. But 'Intuition has two features', 'intuitions are singular' don't. I can't think of a -way of doing something- (grasping knowledge in this case) having features or being a mode of something. It just sort of seems like something in the categorization or the connections Kant makes is off. —Loreta


understanding
concepts
sensibility
pure intuitions
empirical intuitions

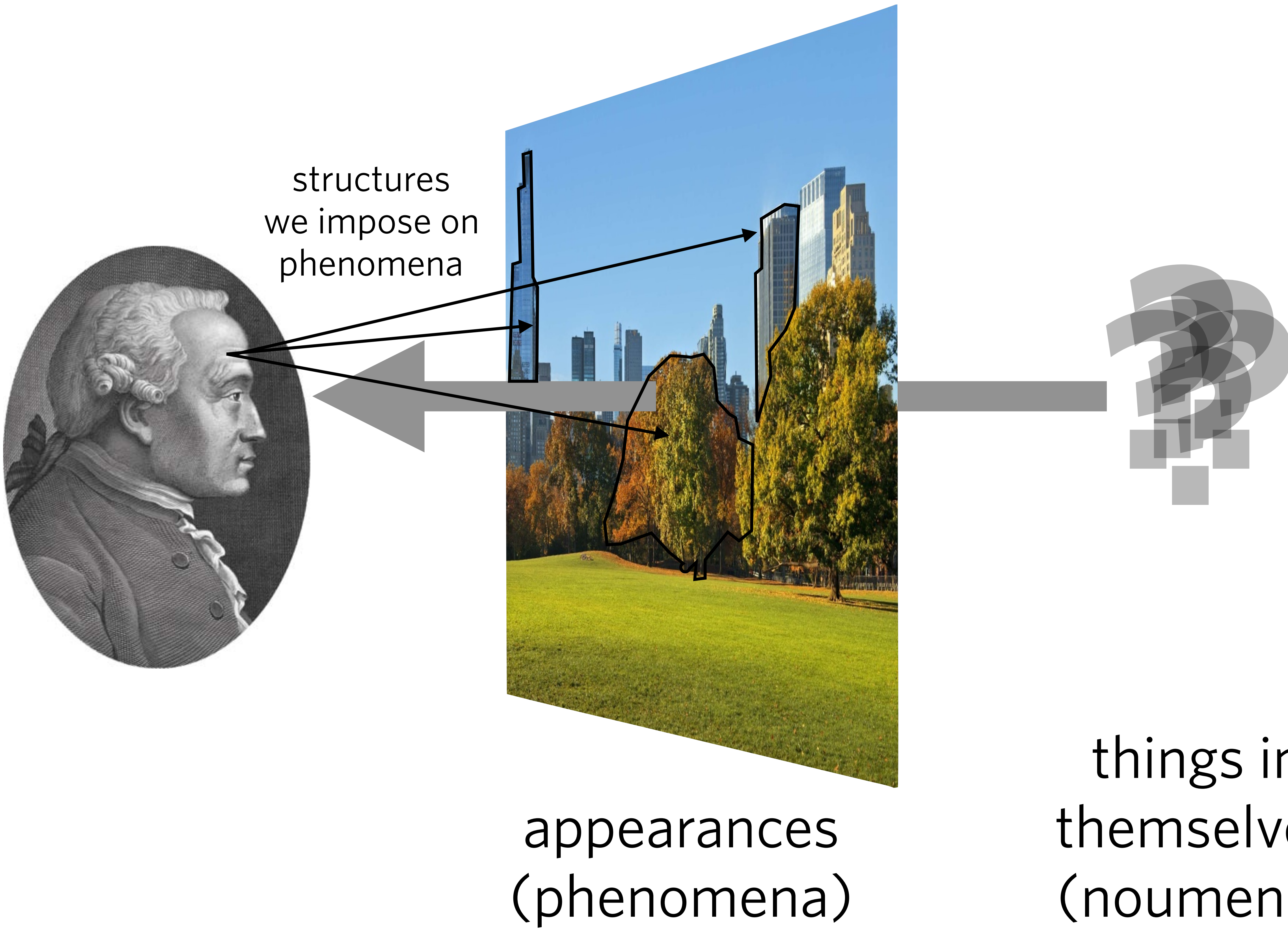
Transcendental idealism

things in
themselves
(noumena)

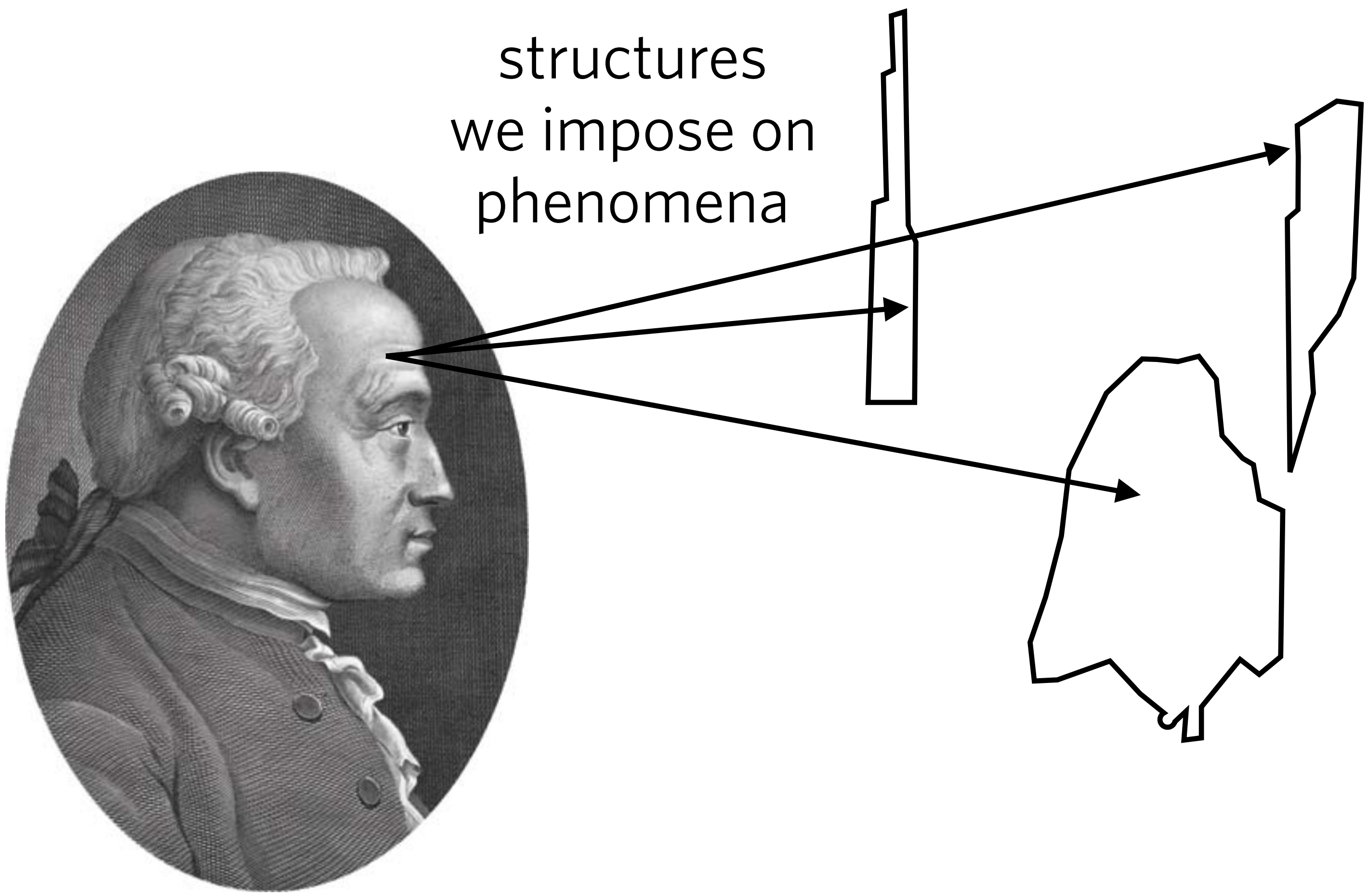
Transcendental idealism



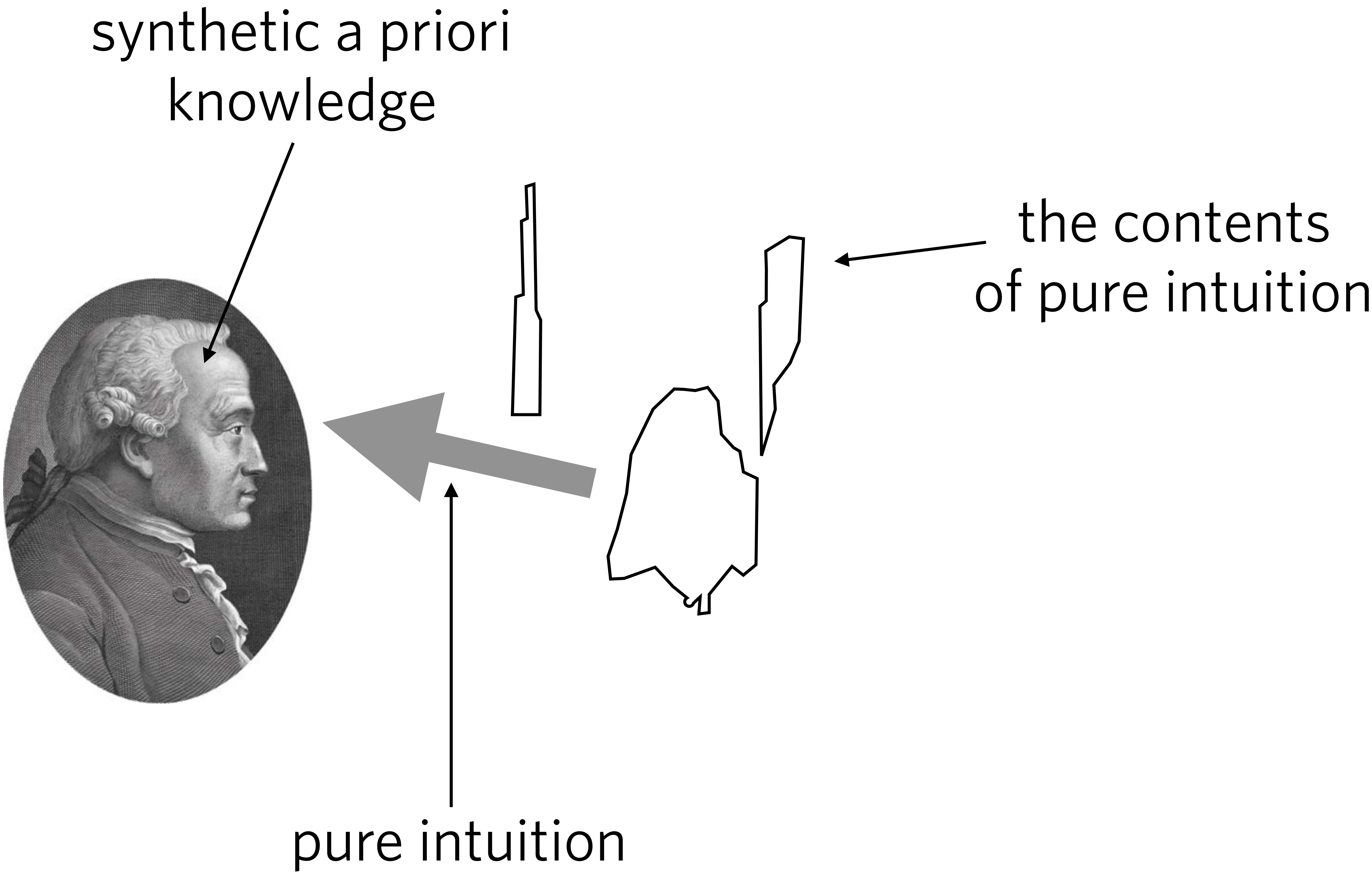
Transcendental idealism



Transcendental idealism



Transcendental idealism



Synthetic a priori knowledge

Does our ability to understand the concept of numbers in our heads, like 5 and 7, and be able to synthesize those concepts and generate a new one, 12, without necessary sensory experience make it synthetic apriori? While I think that Kant's definition of synthetic apriori intuitions make a lot of sense, I'm not sure if it accounts for all human beings and perhaps, their first encounter with mathematics. Perhaps there are animals that might be able demonstrate that they understand mathematical concepts, but don't have a language to organize information systematically (as far as we know), would we assume that they have synthetic a priori intuitions? Or people that have some kind of disorder, and are able to perform certain types of synthetic apriori judgments but not other types? —Cynthia

Synthetic a priori knowledge

I found the portrayal of Kant's view of mathematics difficult to swallow. Mainly because I didn't find his examples compelling. I would say that it is inherent in the concepts of 5, 7, 12, +, and = that 5+7=12. Similarly the explanation that we can't use analytic reasoning to say "there exists a prime number greater than 100" is not compelling to me. ... —Miriam

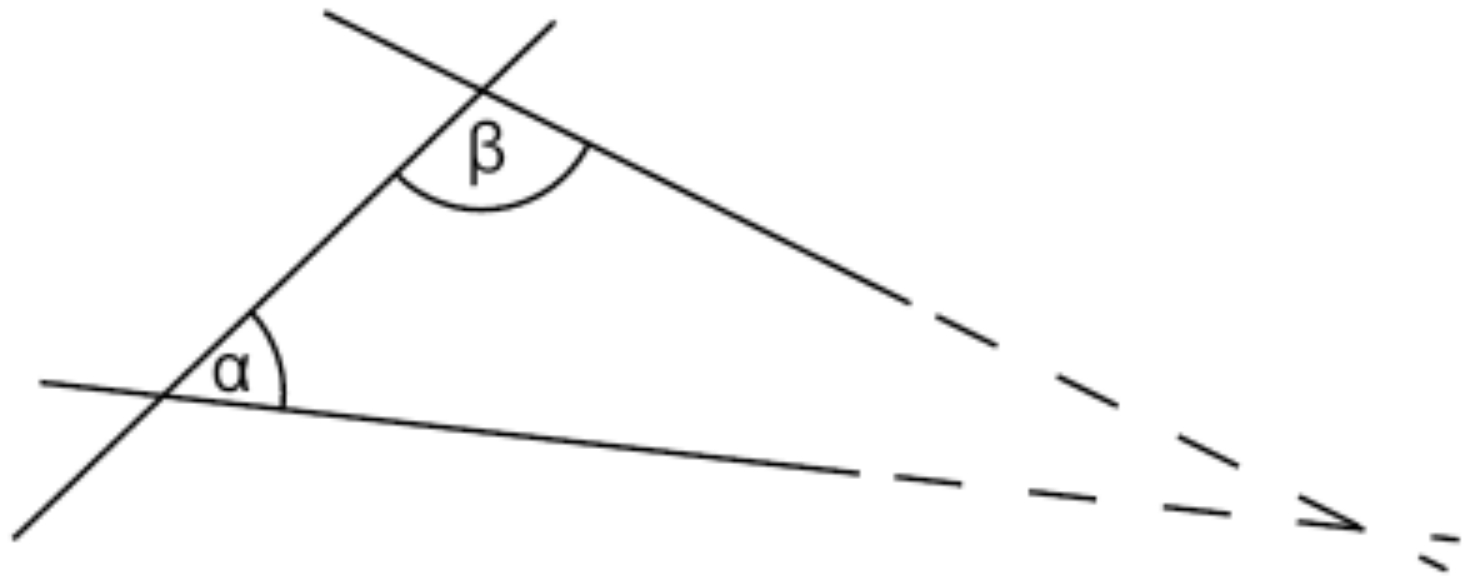
"Constructions of Pure Intuition"

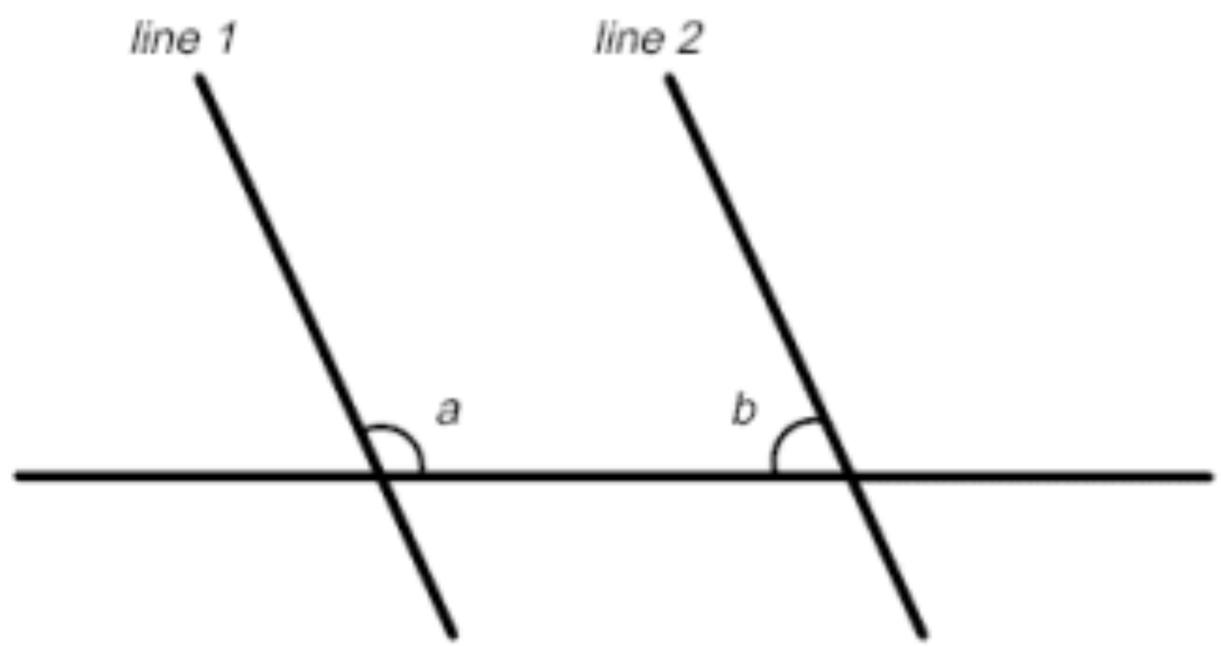
I'd like to go over that last full paragraph on page 88, because I feel like there's more to pack out of it, especially with the line of "performing constructions in pure intuition". I also don't know too much of what Euclidean geometry is supposed to entail, and why Kant rejects non-Euclidean geometry. —Ariel

Kant's conceptual analysis seems to be about dissecting / breaking of concepts. it tells us no new information and nothing new. However, his construction theory reveals new knowledge thru a priori mental process. I am confused when to apply conceptual analysis and when to use construction theory. Please explain both. —Syeda

Euclid's parallel postulate states that:

If a line segment intersects two straight lines forming two interior angles on the same side that sum to less than two right angles, then the two lines, if extended indefinitely, meet on that side on which the angles sum to less than two right angles.





If: *a + b = 180°*

Then: *line 1 and line 2 are parallel*

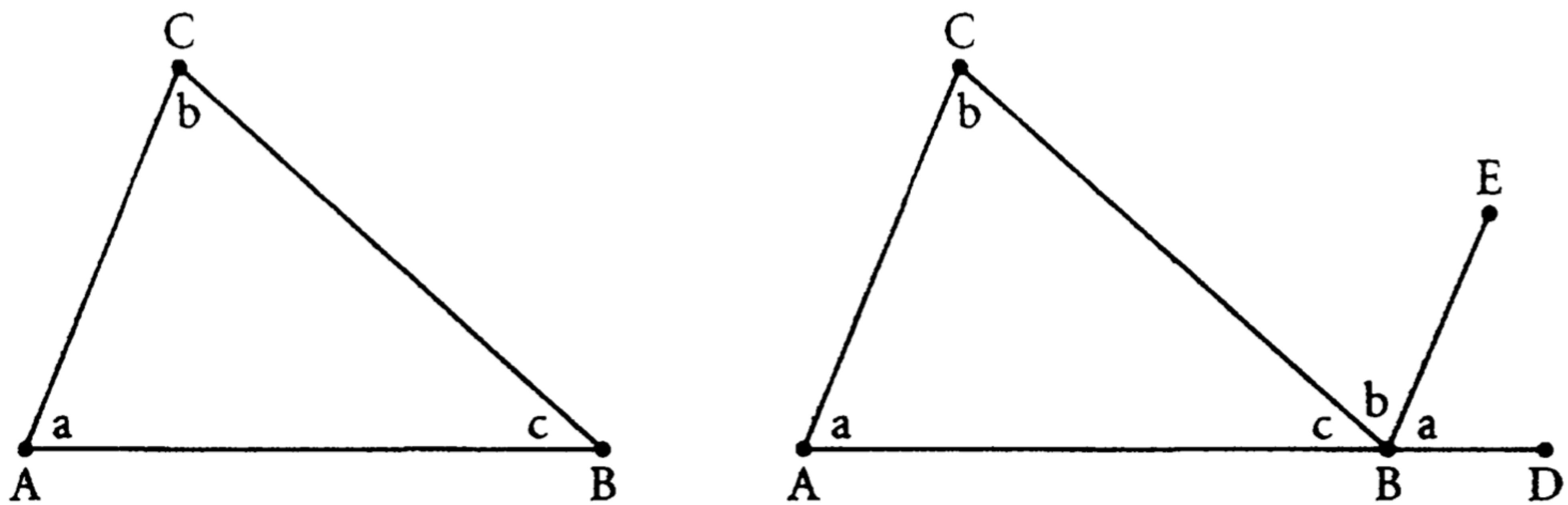


Fig. 4.1. Proof that the sum of the angles in a triangle is two right angles

Contemporary Kantians and non-Euclidian Geometry

Can you elaborate on the advancements in mathematics, specifically the development of Non-Euclidean Geometry that supposedly invalidated kants understanding of space and time, and how contemporary neo kantian philosophers get around this when arguing for transcendental idealism? —Robert

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The statements of pure geometry hold logically, but they deal only with abstract structures and they say nothing about physical space. Physical geometry describes the structures of physical space; it is a part of physics. The validity of its statements is to be established empirically – as it has to be in any other part of physics – after rules of measuring the magnitudes involved, especially length, have been stated […]. In neither of the two branches of science which are called "geometry" do synthetic judgements *a priori* occur. Thus Kant's doctrine must be abandoned.

—Rudolf Carnap

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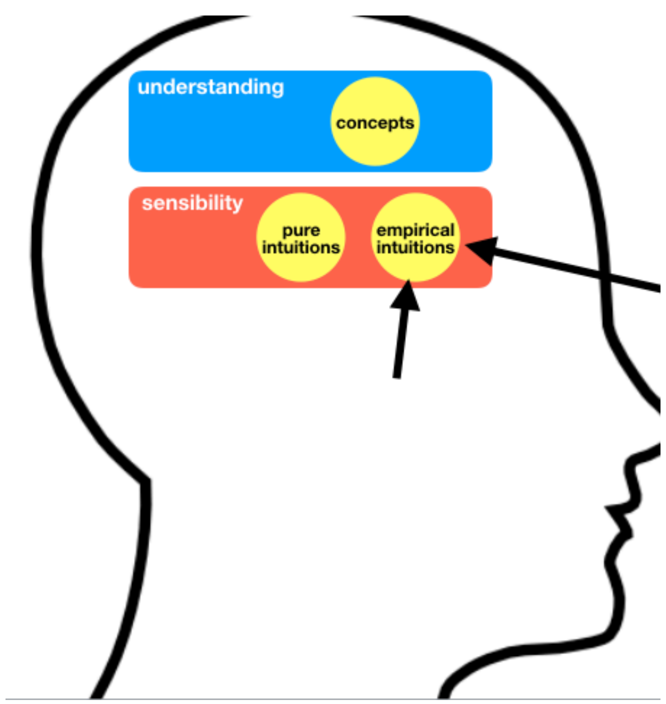
Nothing says that our spatial intuition has to be "right," either in the metaphysical thing-in-itself sense, or in the Kantian sense of always being confirmed by higher level theoretical judgments of the understanding, as in physics. And the following remains a fact: from the standpoint of cognitive science, we perceive the world in Euclidean terms.

—Wesley Alwan



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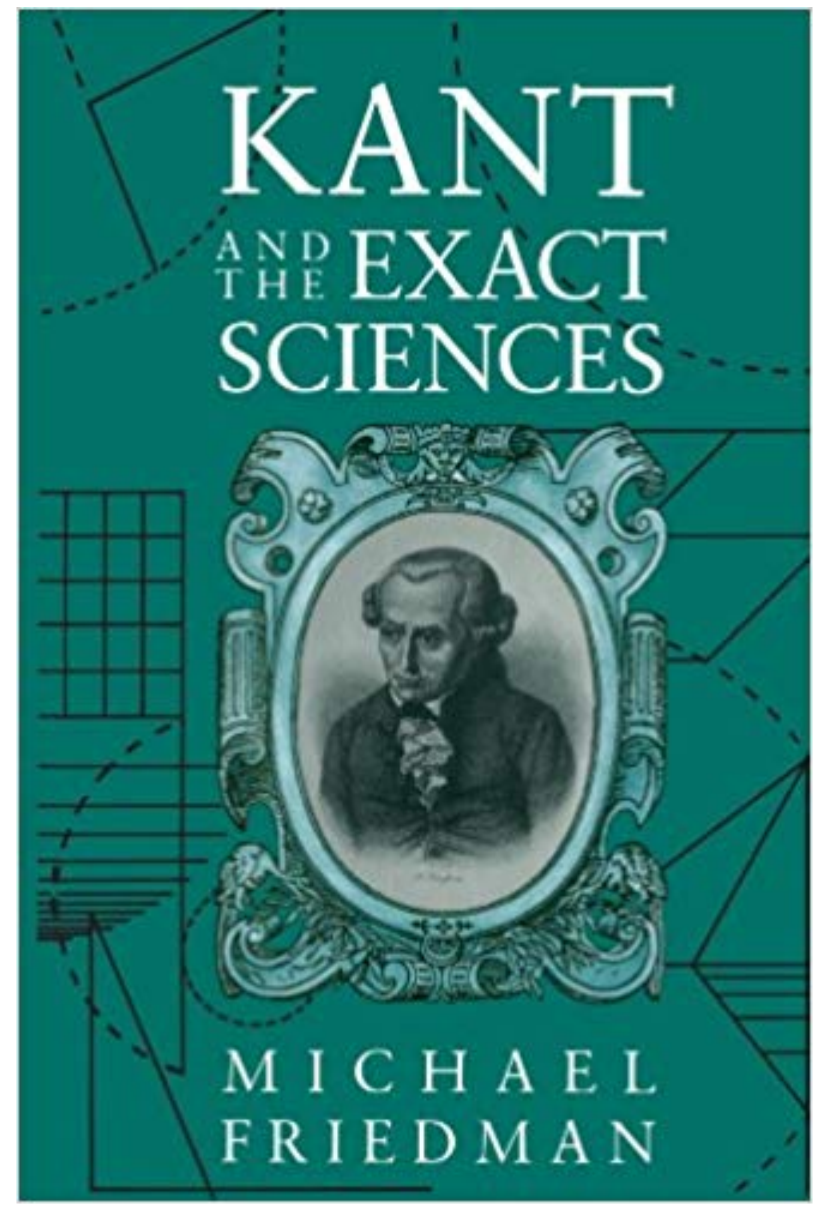

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Kant and non-euclidean geometry

Amit Hagar

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"In sum, if one insists on a logical relation between Euclidean geometry and the metaphysical and transcendental expositions of space, i.e., that the latter imply the truth of the former, then non-Euclidean geometries lead to the demolition of the Kantian project."

Contemporary Kantians and non-Euclidian Geometry

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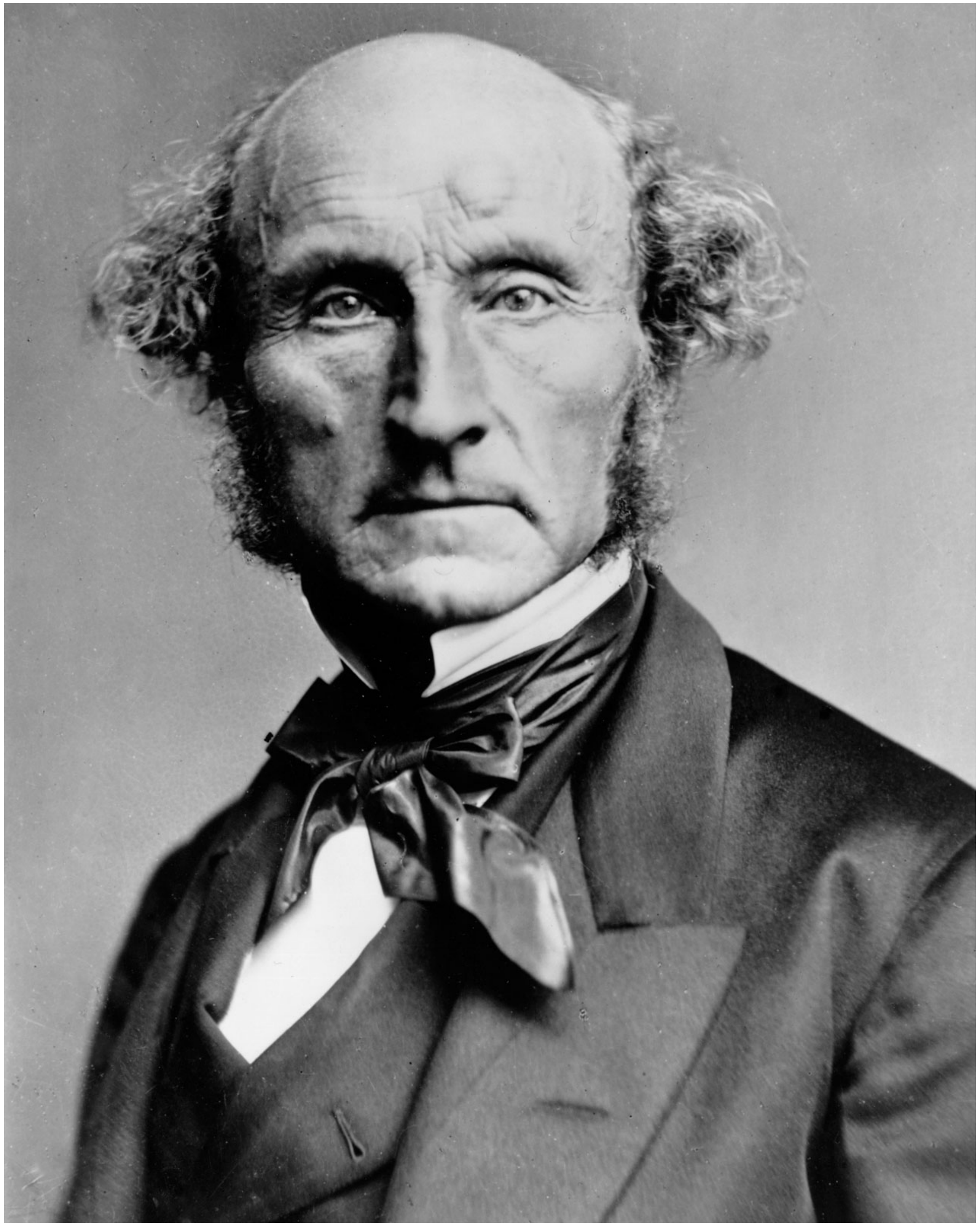

John Stuart Mill
(1806–1873)

Problems with Mill

I struggled … with Mill's view of math as wholly empirical. It seems that Mill is reducing math to a very small tool. It seems that the special characteristics of math and geometry to provide truths that appear to be independent of our abilities to observe them in the world of sense perception more or less sidestepped. —Matt

Problems with Mill

Mill's 'early and constant' experience notion seems a bit irregular mentally and temporally speaking, when we are developing as children, many people can remember to a time before they had a basic notion of mathematics and did not grasp the concept of math. Different types of thinking beings could comprehend math in a different way and still access near identical physical laws at the end. I'm not sure how he would defend this concept from this point. —Joseph

Problems with Mill

I can get what it means for lines to become thinner and thinner and approach some limit, but what does it mean for circles to become more and more perfect? —Miriam

Problems with Mill

When it says that Mill rejects abstract objects, I'm lost at what exactly Shapiro means. What immediately follows is that Mill rejects Euclidean geometry because limits do not exist in the physical world (I think that's what he means, I also never took calculus), but is it just abstract objects as in the line that gets thinner and thinner, or all abstract objects in general? —Ariel