

A Short Argument From Modal Rationalism to Fundamental Scrutability*

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Abstract: I argue that those who accept *Modal Rationalism*, the idea that all of modal space is accessible to a priori reflection, must also accept a seemingly much more ambitious thesis: *Fundamental Scrutability*, which says that from a description of the world's fundamental layer, one can reason a priori to all truths.

Modal rationalism states that there are important links between metaphysical modality and the a priori. All the ways the worlds could be are accessible to a priori reflection. One can flesh this out using the following principle:

(A Priori Access): An idealized reasoner could, in principle, completely describe each and every possible world down the finest detail.

Fundamental Scrutability says that, from a description of a world's fundamental level, a priori reflection will reveal all truths. More precisely:

(Fundamental Scrutability): For each world w a conditional $F_w \rightarrow T_w$ is knowable a priori, where F_w is a complete description of w 's fundamental level and T_w is the set of all truths at w .

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On first impression, A Priori Access and Fundamental Scrutability look quite different. Fundamental Scrutability is more ambitious. The description of a world's fundamentalia is likely to be written in a very restricted vocabulary. In the actual world, this might be the vocabulary of microphysics. This description makes no mention of coffees, computers, or koalas. The complete description in A Priori Access includes all the coffees, computers, and koalas, plus a whole lot more. It would be quite an accomplishment to reason one's way from that impoverished description to a much fuller account. This accomplishment might not be attainable even for an idealized reasoner who could, using a richer vocabulary, describe every way a world could be.

But first impressions often mislead. With the help of a very plausible claim about fundamentality, A Priori Access entails Fundamental Scrutability.

(Supervenience on the Fundamental): No two worlds differ without differing at the fundamental level.

Supervenience on the Fundamental connects metaphysical modality to fundamentality. I take this claim to be nearly analytic, or perhaps constitutive of the notion of fundamentality. It is widely accepted, even by those who reject a necessitation principle connecting phenomena to the fundamentalia that ground them (Leuenberger [2014]).¹

Let Athena be our idealized reasoner. We give her Fw , and ask her to a priori reason her way to Tw . Here's how she can do so. By A Priori Access,

¹Supervenience on the fundamental is a global, not local, supervenience thesis. It is compatible with the denial of the necessitation principle on ground: If P grounds Q , then, necessarily, if P then Q . Supervenience on the fundamental is entailed by the widely accepted necessitation principle. But the converse entailment does not hold. Those who deny necessitation (Leuenberger [2014], Skiles [2015]), can accept supervenience on the fundamental. Leuenberger explicitly denies necessitation and accepts supervenience on the fundamental.

she can describe all the ways the possible worlds could be. Therefore, she knows that there is a world, call it v , at which $Fw \ \& \ Tw$. But to deduce Tw from Fw she needs to figure out that v is the only world at which Fw . Might it be that $Fw \ \& \ Tx$, for some $x \neq w$? Absolutely not, by Supervenience on the Fundamental. $Fw \ \& \ Tx$ is impossible. Athena can rule it out. She can similarly rule out $Fw \ \& \ Ty$ for every $y \neq w$. Eventually, there's only one option left: Tw . So Athena can reason from Fw to Tw . The selection of w was completely general. Fundamental Scrutability follows.

Two assumptions of the argument, in addition to the principles above, should be highlighted. The first is that A Priori Access and Supervenience on the Fundamental must themselves be knowable a priori. But if they are true, and knowable at all, they are likely to be a priori principles of metaphysics. The second is that Athena must be told that Fw is the complete story of w 's fundamentalia. Without that knowledge, from Athena's viewpoint, Fw might be only a partial description of the fundamental level of some other world $w+$. It is a difficult question whether Fw already includes some clause along the lines of “ Fw is a complete description of the fundamental”.² If the fact that these are all the fundamentals is itself a fundamental fact, then Fw will contain such a clause. If such a fact is not fundamental, then Fw won't. If Fw does not include any such clause, then fundamental scrutability will need to be slightly tweaked. ‘ Fw is a complete description of the fundamental’ must be added to the antecedent of the conditional that Fundamental Scrutability claims is a priori.

Modal rationalists, conceived of as those who believe in A Priori Access, might have thought they did not need to buy into the very ambitious fun-

²Armstrong [2004] argues that a totality states of affairs, which is analogous to the claim that Fw is a complete description of the fundamental, is itself fundamental. Cf. Chalmers & Jackson [2001] and Chalmers [2012]: Excursis 6 for further discussion.

damental scrutability project (Chalmers [2012]). But if they endorse the ideology of fundamentality, and its connection to modality via supervenience on the fundamental, then there's no avoiding a commitment to Fundamental Scrutability.

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