

The Irrelevance of Essence

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The past twenty years or so have seen a surge of interest in the notions of grounding, essence and metaphysical explanation. Most of the work has focused on whether metaphysical explanation is a well-demarcated phenomenon, how many grounding relations there are, and what general principles (if any) govern grounding relations. Surveying this ever-expanding literature, you might start to worry that the we metaphysicians have lost touch—that all of this theorizing on essence, ground and explanation won't offer us any new or significant help in resolving the "first order" puzzles that drive our field. It would be a great advance for the grounding debate if we could find a test case—a well-recognized puzzle that the grounder's tools are uniquely suited to solve.

Thus far work on applications has lagged, but that is changing, and Boris Kment's *Modality and Explanatory Reasoning* is arguably one of the most promising such application-driven projects. Kment hopes to improve upon the popular modal similarity accounts of counterfactuals. According to the modal similarity accounts, a counterfactual of the form "If A were to happen/had happened, then C would happen/would've happened" is true at a world *w* iff some A-world at which C occurs is closer to *w*—more similar to *w*—than any A-world at which C does not occur. One challenge for similarity accounts is offering an adequate theory of the similarity relation. Should it be taken as an absolute primitive? Determined pragmatically? Defined in terms of causal histories and natural laws? All of these strategies have been developed and defended. Kment's novel suggestion is that we determine similarity based on match with respect to *explanatory histories* and *laws of metaphysics*—laws that (in part) capture essential truths and underwrite grounding relations.

If Kment's project succeeds, it will be a great advance for the grounders. As my title reveals, I'm unconvinced. In this paper, I'll survey the cases that Kment uses to motivate his explanatory criterion of relevance. Then I'll

offer my doubts. First, I think that Kment's main cases can be handled by a causal theory. Second, I think the sense of "explanatory relation" that Kment appeals to in his theory is quite removed from our everyday sense of explanation. Kment thinks a litmus test for a modal and counterfactual theory should be its ability to justify our everyday explanatory practices. So I don't Kment's developed theory passes his own litmus test.

1. From a Causal Criterion to an Explanatory Criterion

First lets review the key moves in Kment's project. He thinks the best starting point for an account of modal similarity is a causal account—C is one of the worlds most similar to A if C achieves best match (or is tied for best match) with respect to its causal history and natural laws. There are well-known questions for causal match approaches. One is deciding in a determinist setting whether we are going to count worlds perfectly matched with respect to the laws as closer than worlds perfectly matched with pre-antecedent facts, or vice versa, or whether we should aim for some compromise. Another issue concerns the extent to which *post-antecedent* similarities should matter for determining closeness. Suppose we are holding an indeterministic lottery. In the actual world, I decline to buy a ticket and ticket 79 wins. The counterfactual "If I'd bought ticket 79, I would have won." seems true. But the counterfactual "If they'd switched the drawing machines, 79 would still have won." seems false. Why does the outcome seem to count towards similarity in the first case but not the second?

Working on this case, Kment agrees that post-antecedent facts should sometimes count. Modeling his view on a theory suggested in Edgington (2003), he supports a causal criterion of relevance:

CCR: If some (potentially post-antecedent) matter of particular fact *f* obtains both at the actual world and at another world *w*, then that similarity matters to the degree of closeness between the two worlds iff all factors that actually form part of *f*'s causal history obtain at *w*. (206)

CCR explains the differences in the lottery cases. In the first case, ticket 79 winning is relevant because the causal history is the same at a world where I elect to buy the ticket. But if the machine is changed, the causal history is changed too, so 79 winning is deemed an irrelevant post-antecedent fact.

Kment endorses the CCR, but ultimately finds it insufficient. The first cases that Kment thinks pose a problem for CCR concern certain kinds of radically indeterministic counterfactuals. For instance:

MAGICIAN ARTIST: A magician develops a new form of art. In the morning she sketches out three different possible ways— m_1 , m_2 , and m_3 —in which the little wooden building blocks that clutter up her study can be arranged on the floor. If arranged in the m_1 -or m_2 -way the blocks form a square, if arranged in the m_3 -way they form a more complex pattern. In the afternoon, the magician casts a spell that ensures the blocks will be spread out over the floor at midnight in one of the ways sketched. The spreading of the blocks will be instantaneous and there will be no causal intermediaries between the spell and the blocks being arranged on the floor. Moreover, the spell is indeterministic, giving a 1/3 chance to each of the three possible arrangements... As it turns out, the blocks arrange themselves in the m_1 -way. (210)

Now consider the following counterfactual:

(B) If the blocks hadn't arranged themselves in the m_1 -way, then they would have arranged themselves in the m_2 -way, so that they would still have formed a square.

Kment thinks (B) is false and an adequate theory of counterfactuals must account for this.(211) Presumably a world where the blocks spread out the m_2 -way is no closer than one in which they spread out the m_3 -way. But all the worlds have identical indeterministic pre-antecedent causal histories and indeterministic laws. All of the actual causes of the fact that the blocks form a square are also present at the m_2 world. So by CCR, shouldn't the fact that there is a square at the end of m_2 count as relevant?

To properly evaluate counterfactuals like (B), Kment proposes replacing CCR with a broader *explanatory* criterion of relevance:

ECR: If some fact f obtains both at the actual world and at world w , then this similarity is relevant to the closeness ordering iff every fact g that forms part of f 's actual *explanatory history* obtains at w . (211)

ECR is meant to be a further generalization of CCR, since for Kment causal facts are part of (but do not exhaust) explanatory facts. ECR rules out counting the m_2 -way world as closer, because the fact that there is a square at the end of the process is grounded in a fact *not* present in the actual world, namely the fact that the blocks arranged themselves in the m_2 -way.

The second set of cases Kment uses to motivate the ECR are counterfactual and counterfactual statements like:

GRAVITATION: If the law of gravitation hadn't been a law, events would have still conformed to it. (209)¹

And

GOLD ATOMHOOD: If gold-atomhood had existed but what it is to be a gold atom hadn't been to be an atom with atomic number 79, it would still have been the case that all and only the atoms with atomic number 79 are gold atoms. (186)

In these cases, the worlds relevant to determining relative closeness to actuality are worlds that differ with respect to non-causal features like whether a certain generalization is a law of nature or whether a property of a certain class of atoms counts as its essence. ECR is meant to guide us in taking such non-causal facts into account.

The notions of causal relevance and causal history have been matters of controversy in old versions of the modal-similarity account. We have even less of a settled theory of explanatory relevance and explanatory history. Kment spends much of the second half of the book developing this account. The two most important features of his theory for our purposes are his account of metaphysical laws and his absolutism about metaphysical explanation.

For Kment, explanatory histories are determined partly by match with respect to metaphysical laws. Kment tells us that these are laws that “connect facts about less fundamental entities to facts about the more fundamental entities in which they are grounded.” (147) An important subset of the metaphysical laws are essence facts: facts about what it is to be some entity (or to instantiate some property or structure). Combined with particular facts, essence facts ground other facts about objects, properties and structures. Kment's standby example of an essence fact is that all gold atoms have atomic number 79. This essence fact, combined with the fact that a particular atom *g* has atomic number 79, grounds the fact that *g* is gold. Kment uses this notion of a metaphysical law to define metaphysical possibility—metaphysically possible worlds match actuality with respect to the metaphysical laws. (155) More strongly, Kment thinks that facts about metaphysical modality are determined by facts about the metaphysical laws. (184)

Kment also thinks there is a single correct, complete account of the explanatory history of any given explanandum. (229) Kment's absolutism about metaphysical explanation is perhaps unsurprising given that the worlds that count as metaphysical possibilities are determined by the

¹ See also Kment's explosive particles case, (210).

metaphysical laws, which are in turn identified by their explanatory status. If explanations or metaphysical laws were non-absolute, then the sphere of metaphysical modality would be non-absolute as well.

To apply the ECR to a particular fact, we check that the actual, absolute explanatory history of that fact matches the absolute explanatory history of the fact in the world under consideration. Causal facts feature in explanatory histories, so causal relevance is preserved. But non-causal explanatory facts are relevant as well—i.e. the fact that some universal generalization is a law. If Kment's right, we have found an important application for grounding. Now to the doubts.

2. Is a Causal Criterion Insufficient?

Is there really a problem with indeterministic counterfactuals? In the MAGICIAN ARTIST case, we should ask why the m_1 - and m_2 -ways are distinct ways of arranging the blocks. They cannot be individuated based on the processes that produce m_1 and m_2 , since the processes are radically indeterministic. We might think that indeterministic processes ought to be individuated by their outcomes—by the fact that m_1 and m_2 produce different squares. (Maybe in one the blocks are arranged ABCD and in the other they are arranged ACBD.) But if this is the case, then it seems wrong from the get-go to count the fact that they form a square as potentially relevant to similarity. CCR should only apply to properly specified particular facts, like that the blocks form *an ABCD* square. So defenders of the adequacy of CCR should contend that either the case is misformulated (since there is no way to individuate m_1 and m_2) or it isn't a genuine counterexample to CCR, since the facts that are relevant to similarity should be properly specified.

Kment might object that this notion of "proper specification" smuggles in assumptions about fundamentality. But I don't think we require a theory of relative fundamentality in order to apply CCR. Rather, we should apply CCR only to facts that include a description of the local matters of particular fact. This can include even gruesomely non-fundamental facts, like the complex fact that ABCD form a square, and block A is touching block B, and $2 + 7 = 9$. And it need not force any assumptions about whether local matters of fact are more or less fundamental than global facts.

What about GRAVITATION and GOLD ATOMHOOD? Unlike Kment, I doubt we have clear intuitions about how these counterfactuals should be evaluated. GRAVITATION is certainly the more felicitous of the two statements. Why might it pose a problem for the adequacy of CCR? We might suppose there is a world where $F=G(m_1 m_2/r_2)$ is not a law and where the causal history of every massive object matches the actual causal history. Then by CCR we seem committed to counting this world as closer than any world where $F=G(m_1 m_2/r_2)$ does not describe the behavior of some object—and so

counting GRAVITATION as true. But is the defender of CCR so committed? She might doubt—as a Humean would—that this world is in fact distinct from the actual world—in this case the counterfactual is false. But more generally, I think counterfactuals like GRAVITATION and GOLD ATOMHOOD strain the limits of the modal-similarity analysis. When we judge these kinds of statements as false, it simply isn't illuminating to consider the similarity of "worlds" where the antecedent is true and the consequent false. Rather, I think once we've considered whether it is analytic that only laws govern and only essences account for de re modal connections, then we have all of the information we need to evaluate the statements. At least, this is how I get the false readings of the counterfactuals.

3. Is the Explanatory Criterion Well-Motivated?

I don't think the prospects for a merely causal criterion are as dim as Kment supposes. And as the foregoing discussion indicates, I think there are ways to explain our judgments about the counterfactuals Kment uses to motivate ECR without appealing to facts about metaphysical laws. This brings us to a bigger question about Kment's project—does he give good reasons for believing in absolute essences, grounding relations and metaphysical laws?

Kment has a methodological agenda throughout the book. He maintains that the best source of justification for a given modal or counterfactual theory is the role that modal and counterfactual reasoning plays in our everyday explanatory practices. So Kment writes in Chapter 1, "An account of the nature of modality can take inspiration from a hypothesis about the cognitive and linguistic practices of everyday life in which modal thinking originated, while ideas about the nature of modality can in turn suggest an account of the purpose of modal thinking. That is the strategy pursued in this book." (1) And one key source of support for the modal-similarity theory he develops is a principle he calls *the determination idea*—the idea that in everyday thinking we assume that causes under determinism determine their effect. (251) ECR is held up as a good way to link modal and counterfactual concepts with these explanatory practices.

I agree that there is an intimate connection between modal and counterfactual thought and explanatory practices. But it is another matter entirely to think that our explanatory practices entail that there are *absolute* laws of metaphysics, grounding relations, or essence facts.² First, our explanatory practices seem highly context sensitive. Second, rarely do the sorts of explanations we engage in in everyday life concern what metaphysicians like Kment would think of as the fundamental.

² See Sullivan forthcoming.

Indeed, it seems that the facts that count as more fundamental than others in explanations can and do vary, at least in ordinary contexts. In Chapter 6, Kment offers examples of how we seem to appeal to absolute essence facts to ground explanations. He offers the following case as a datum for his theory:

GOLD SORTING: You and I study a number of atoms that are arranged on the desk. . . We weigh them, determine their atomic numbers, and take other measures. You write ‘gold’ on some atoms but not on others. . . I point to one of the atoms labeled as gold, and ask: “So, that one’s a gold atom? What makes it so?” It seems natural and correct for you to answer; “It is a gold atom because its an atom with atomic number 79 and that’s what it is to be a gold atom.” (160)

The answer seems fitting. If you asked for further explanation—“but why is it that what it is to be a gold atom is to have atomic number 79?”—your request is misguided. (161) Likewise Kment says that if someone asks you why it is that all gold atoms have atomic number 79, it is correct to reply that that’s what it is to be a gold atom—an essential truth about gold.

The style of argument is similar to an open question argument. Facts about essences are “question closers”—once an essence fact has been identified, it is meant to strike us as inane to ask for further explanation of that fact. To the extent that Kment is right about the “question closing” intuition in GOLD SORTING, this is evidence for his assumptions about essence and ground.

But why think it is fixed across explanations which facts close the question? Consider another example:

PROTON MANUFACTURING: Three physicists—Alison, Beatrice, and Carrie—are in the nuclear physics lab, discussing the state of the universe minutes after the Big Bang. Alison wonders, “All helium atoms had atomic number 2. Why is that?” Beatrice replies, “That’s *what it is* to be a helium atom—to have atomic number 2.” Carrie chimes in: “Well, also, we know quarks and gluons join to form protons and neutrons, and in the early moments of the Big Bang, pairs of these protons combined with neutrons to form the nuclei of those atoms. So, simple math—two protons per nucleus—that’s why helium atoms have atomic number 2.”

Both answers seem acceptable. I don’t have the intuition in this case that only Beatrice closes the question with her answer. Sometimes there is a perfectly sensible causal answer to what in other contexts appears to be a

question of metaphysical essence. And again, while the fact that helium atoms have atomic number 2 might close the issue for a chemist, the nuclear physicist who knows how the atoms generated has more to say. The physicist is happy to agree that helium atoms always have atomic number 2. She may even admit it is impossible for helium to have another atomic number. It's just that that chemical fact about helium itself cries out for explanation in this context.

In everyday explanatory contexts the same question form—"Why does E have F?"—can be more or less closed by citing the same purported essence fact. Whether we judge a fact as a question closer depends on our explanatory interests. If our aim is to justify ordinary explanatory practices, it is far from obvious that we should be absolutists about essence facts. Of course, some philosophers are happy to assume there is a distinct phenomenon as metaphysical explanation and that grounding relations are relations that are discovered when we discover facts about metaphysical explanation.³ Others doubt that there is any need for a single, unified grounding relation.⁴ I tend to agree with the concerns critics raise about a single, unified grounding relation. I'd even go further—I do not think "metaphysics" is a unified enough subject matter to have a characteristic explanatory relation.

And *even if* we grant that there is a special context of metaphysical explanation with characteristic explanatory relations (perhaps limited to explanation in ontology), it is pretty clear that this is not a context of explanation that we find ourselves in often or that plays any prominent role in our day-to-day reasoning about the world. Indeed, the notion of metaphysical explanation is *recherché* enough that philosophers have entrenched disputes about its most basic features.

So Kment faces a dilemma. Either the metaphysician's sense of explanation maps closely with our everyday sense of explanation or it doesn't. If the sense of explanation is meant to be close our everyday sense, then Kment needs more argument to show that everyday practice is absolutist. These arguments, I have suggested, are thin on the ground. If the sense of explanation is a technical sense, not derived from everyday explanatory practices, then we cannot motivate the explanatory criterion of relevance by appeal to its ability to justify our everyday modal and counterfactual thought. In either case, I think the ECR is unmotivated.

None of this is to say that committed grounders shouldn't welcome Kment's framework. And anyone can appreciate the detail and originality of his system. But for those of us hoping for a clear application to motivate the surge of work on metaphysical explanation, we must continue to wait.⁵

³ See Schaffer forthcoming and Fine 2012.

⁴ See Wilson 2014 or Koslicki 2015.

⁵ Thanks to Preston Greene, Boris Kment, and Lina Jansson for helpful discussion.

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