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IN DEFENSE OF EXPLANATORY ECUMENISM

FRANK JACKSON
PHILIP PETTIT
Australian National University

Many of the things that we try to explain, in both our common sense and our scientific engagement with the world, are capable of being explained more or less finely: that is, with greater or lesser attention to the detail of the producing mechanism. A natural assumption, pervasive if not always explicit, is that other things being equal, the more fine-grained an explanation, the better. Thus, Jon Elster, who also thinks there are instrumental reasons for wanting a more fine-grained explanation, assumes that in any case the mere fact of getting nearer the detail of production makes such an explanation intrinsically superior: "a more detailed explanation is also an end in itself" (Elster 1985, p. 5). Michael Taylor (1988, p. 96) agrees: "A good explanation should be, amongst other things, as *fine-grained* as possible."[1]

This assumption, which we may describe as the fine-grain preference, is relevant in a wide range of areas but is deployed by Elster and Taylor with a view to social theory in particular. They use the preference to provide an argument in favor of methodological or explanatory individualism: in favor of the doctrine that social phenomena are better explained in ways that involve only individuals – though, of course,

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1. See also Veyne (1984, p. 109): "For a historical explanation to be admissible, it must not present any interruption of continuity in causal relations that connect the agents involved in the plot."

individuals in physical and social context – than they are in ways that involve supraindividual entities, whether those entities be institutions, groups, norms, aggregate statistics, or whatever.[2]

We reject the fine-grain preference and we reject the explanatory individualism that it is used to support.[3] Our view is that explanations of different levels of grain may be interesting in different ways, so that individual-level explanations in social theory, for example, may serve to complement rather than replace structural accounts. This view can be described as a sort of explanatory ecumenism or pluralism.[4]

In this article, we concentrate on criticism of the fine-grain preference, and defense of explanatory ecumenism, and comment only in passing on the individualist doctrine that the preference is used to support. There may be other grounds for embracing explanatory individualism, for example, but we ignore these. The only claim made in regard to such individualism is that we ought not to be driven toward the doctrine by the fine-grain preference.[5] The preference is misconceived.

The discussion is in five sections. We give a fuller account of the fine-grain preference in Section 1, distinguishing between two distinct forms: the "close-grain" preference and the "small-grain" preference. We show that the small-grain preference is extremely counter-intuitive in Section 2, and we show how we can resist it in Section 3. In Section 4, we defend parallel claims for the close-grain preference. And finally in Section 5, we summarize the propositions defended.

1. FINE GRAIN, CLOSE GRAIN, AND SMALL GRAIN

Jon Elster presents the fine-grain preference as a desire to get at greater and greater causal detail in the explanation of any condition or event. Like almost everyone else, ourselves included, he assumes that causality is local in structure: that a cause always acts on what is contiguous in space and time, that there is no causal action at a spatial or temporal

2. See, for example, Elster (1985, p. 5, and following).
3. For the rejection of explanatory individualism, see Jackson and Pettit (1992). Macdonald and Pettit (1981) defend a doctrine described as methodological individualism, but what is in question there bears on laws rather than explanations: the position is that there are unlikely to be social-structural laws that are inexplicable in psychological terms. On those and related matters, see Pettit (1992).
4. There are different sorts of individual-level explanations: some appeal to the rational interests of agents, for example, others to the contents of their thoughts and deliberations, contents that will not always mirror their interests. We abstract from such differences here. For an ecumenical view of the claims of those different sorts of individual-level accounts, see Pettit (1992), chap. 5.
5. One ground that might be adduced is that we cannot give countenance to a social-structural explanation unless we can understand what it is like to be in the position of the individuals involved; this is a sort of *Verstehen* defense. For a sympathetic but still negative assessment of that defense, see Pettit (1992), chap. 5.

distance (Elster, 1983, p. 28).[6] He sees the fine-grain preference as a desire to identify those mechanisms that vindicate the locality of causal influence in any explanation: those mechanisms that involve more or less contiguous causal connections. "It is the belief that the world is governed by local causality that compels us to search for mechanisms of ever-finer grain" (Elster, 1983, p. 29).

How might the causal explanation of something fail to be ideally fine grained? One way mentioned by Elster is through its involving an explanatory factor that is at a temporal remove from the event or condition explained. If there is a temporal gap of this kind, the explanation is silent on the intervening mechanisms that mediate the causal influence across time. To that extent it is deficient in the fineness of grain it reveals. Closer grained, as we may put it, means finer grained. "The goal of research should be to substitute for past causes the traces left in the present by the operation of those causes, but this we are not always able to achieve" (Elster, 1983, p. 33).

Elster also mentions a second way in which a causal explanation may fail to be ideally fine grained. The explanation may introduce a macro-variable rather than a micro-variable as the causal antecedent of the event or condition to be explained (Elster, 1983, p. 29). We always reveal a finer grain when we move from identifying macro-antecedents of something we want to explain to the identification of the micro-antecedents underpinning the macro-relation. Smaller grained, to parallel the other lesson, also means finer grained. "The *search for micro-foundations,* to use a fashionable term from recent controversies in economics, is in reality a pervasive and omnipresent feature of science. It corresponds to William Blake's insistence that 'Art and science cannot exist but in minutely organised Particulars.' To explain is to provide a mechanism, to open up the black box and show the nuts and bolts, the cogs and wheels of the internal machinery" (Elster, 1983, pp. 24–25).[7]

We agree that explanation attains a finer grain as it eliminates time gaps and as it seeks out micro-foundations: as it becomes closer grained and smaller grained. These are the two salient ways in which explanation can attain a finer grain. Thus, the fine-grain preference breaks down, in effect, into two distinct principles: the close-grain preference and the

6. For some earlier reflections of Elster on relevant topics, see Elster, 1976, pp. 371–91. In endorsing the locality of causal structure, we abstract from any difficulties or complications that quantum mechanics may force us to admit.
7. It is certainly a pervasive feature of science to try to understand relatively coarse-grained constancies in ever more fundamental terms. But this is not surprising, even if the small-grain preference is rejected. The only way to explain macro-laws is in more micro-terms. And one can try to provide micro-explanations of macro-laws without thinking that, ideally, macro-explanation should be replaced by micro-explanation.

small-grain preference. In the next two sections, we discuss the small-grain preference and then in the section after that, we show that the claims defended with regard to that principle apply also to the close-grain preference. But before leaving this section, we will discuss the rationale for the small-grain preference. It is clear why going closer grained means going more fine grained. But why does the move to smaller grain involve a move to finer grain, as we agree with Elster in thinking?

The answer is not presented by Elster in any detail; he simply takes it for granted that a micro-account of something will reveal more contiguous causal influences at work than will a macro-story. He says that "the twin concepts of local causality in space and local causality in time are related to the two aspects of mechanisms which I referred to as the substitution of micro-variables for macro-variables and of short time lags for longer lags" (Elster, 1983, p. 29). One might have expected him then to present a rationale for going micro – for going smaller grained – along the lines that the story with micro-variables introduces spatially more contiguous influences. But, in fact, there does not seem to be such a rationale in the offing.

Take the macro-explanation of a rise in crime that traces it to an increase in unemployment. The explanatory factor is certainly not spatially removed from the phenomenon explained here; they occur in the same society. And neither, indeed, is it removed much in time: the phenomena involved may be more or less simultaneous. Similar points apply with many macro-explanatory factors. So, what rationale can be offered for the view that going micro always means getting at a finer level of grain?

The rationale becomes apparent once we begin to reflect on what is involved in believing that going smaller grained always means revealing more about the fine structure of causality, the fine structure of the wheels that move things. If we believe this, then we have to believe that the causal relations at more micro levels – given, no doubt, that other micro-conditions obtain – fix the causal relations that obtain at levels higher up, and that the causal relations at the lowest level of all, assuming there is one, fix the causal happenings at every level. Why so? Well, imagine that we thought, in opposition to this line, that at a certain macro-level, causal relations were independent of relations at the micro: that at this level, as we might put it, autonomous causal forces came into operation – "emerged" – closing possibilities that otherwise would have remained open. In that case, we could not believe that by going smaller grained in our explanations, we would be revealing more about the fine structure of causality. On the contrary, we would have to admit that going micro would mean losing sight of the effects of the autonomous macro-forces.

The doctrine to which we are committed if we connect going smaller grained with going more fine grained can be described as causal fun-

damentalism. It involves a doctrine of supervenient determination by the micro of the macro and we fully endorse it.[8] Fix the way things are at the micro-level, including the relevant causal relations and causal regularities that obtain there, and you will also have fixed the macro-linkages; take any two possible worlds that are indiscernible in regard to the micro-level – in regard to particulars, regularities, and the like – and, provided that they are worlds akin to ours in ontology, the two worlds will also be indiscernible in regard to the macro-level. To put the matter in semitechnical language: the macro-properties, including the causal-relational properties at the macro-level, supervene on the micro-properties.[9] There can be no difference at the macro-level without a difference at the micro; in particular, there can be no difference in the causal relations at the macro-level without a difference at the micro.[10] Causal fundamentalism asserts this sort of supervenience connection between the micro- and macro-level and adds, if that is something extra, that the micro determines the macro: that the macro is the way it is in virtue of how things are at the micro.

We have seen that causal fundamentalism is implicit in believing that going smaller grained means going finer grained. This fundamentalism serves to reveal the rationale for that belief. For not only are we committed to causal fundamentalism if we connect smaller grained with finer grained, we are committed to making that connection if we endorse the fundamentalist doctrine. Not only is a belief in causal fundamentalism logically necessary for making that connection, it is also sufficient. If we believe that the causal relations at more micro-levels superveniently determine the causal relations that obtain at more macro-levels, then we must believe that by going to the relevant micro-relations, we will be revealing a finer level of detail in causal genesis of any event or condition at the macro-level.

Consider a physical analogy. The water in a closed flask boils – the molecules involved reach a certain level of mean motion – and the flask cracks. Causal fundamentalism means that the elements in the causal

8. For further background, see Jackson and Pettit (1988, 1990).
9. The notion of supervenience is introduced in discussion of the social case in Macdonald and Pettit (1981). For a more sophisticated presentation, see Currie (1984).
10. It should be noted that causal fundamentalism may be shared by people with very different views of the causal relationship: views ranging from analyses of the relationship in terms of necessary, sufficient, or probabilifying conditions, to analyses in terms of laws, to "realist" accounts that take the relationship, at least at the fundamental level, to be *sui generis*. All that the fundamentalist need believe is that all causally relevant higher level properties superveniently depend on lower level properties for their relevance: that what happens causally at any higher level is fixed by the causal relations that obtain at lower levels. The fundamentalist need not even believe that there is a lowest level. An aggregate object has its spatial position in virtue of the position of its parts, and that remains true even if parts go on indefinitely downward, so to speak. And, similarly, the fact that macro-properties are causally relevant in virtue of the causal relevance of micro-properties remains true even if there is no last, most micro-level.

macro-structure, the boiling and the cracking, are causally related in a way dictated by the causal relations and regularities at the micro-level. We will get a smaller grained account of the cracking when we find which among the vibrating molecules of water – the molecules whose mean motion is what the boiling consists in – was responsible for first cracking a molecular bond in the surface of the container. And under causal fundamentalism, to get at such a micro-story will be to satisfy the fine-grain preference. It will be to get finer detail on the relevant causal structure.

It appears then that Elster is required to endorse the supervenience rationale for his claim that to go small grained in explanation – to go micro – is always to get at a finer level of causal structure. He is required to endorse causal fundamentalism. The rationale should appeal to him independently, for two reasons. First, he never shows himself sympathetic to the notion of autonomous macro-level forces that fundamentalism denies; on the contrary, the language of micro-foundations that he uses suggests that the micro is foundational: that is, superveniently determinant of what happens at the macro. And second, the fundamentalist rationale connects, although only indirectly, with the causal locality in space that Elster mentions. It is true that the factors invoked in macro-explanation are not often spatially distant: the increase in unemployment is not distant from the rise in crime and neither, to take the physical example, is the boiling of the water distant from the cracking of the flask. But what is true is that as we go more micro, we identify factors that are more precisely located in space, and with respect to such factors, we identify spatially more contiguous influences. The social macro-explanation leaves us in the dark about the spatially contiguous influences at the individual level, and the physical macro-explanation leaves us in the dark about the spatially contiguous influences at the molecular level; in each case the micro-explanation does better, pointing us toward more or less local connections.

2. THE SMALL-GRAIN PREFERENCE IS COUNTER-INTUITIVE

We distinguished between two forms of the fine-grain preference in the previous section: the close-grain preference and the small-grain preference. In the next two sections we shall concentrate on the small-grain preference, arguing that it is counter-intuitive and misconceived, and then in the section following we shall show that similar claims go through for the close-grain preference.

The small-grain preference is a preference for micro-explanation over macro-explanation. But there is a certain vagueness about the notion of micro and macro: sometimes micro-information means information about parts, sometimes it means more concrete information, sometimes it means information from a more basic science. We need to get rid of this vagueness, if we are to understand the small-grain preference. But

our discussion in the previous section makes it clear how the vagueness should be resolved. The crucial feature about the relation between a macro-level and a micro-level, so far as the small-grain preference goes, is that causal relations at the first are superveniently dependent on how things stand at the second. Thus, we may use the notion of supervenient dependence to fix the application of the micro-macro distinction. We will take any two levels such that the first superveniently depends in the relevant way on the second to be related as macro to micro. The macro-micro distinction is simply the distinction between higher and lower levels. This approach is faithful to Elster's intentions, given our account of the rationale for his belief that going smaller grained means going finer grained.

There are two ways of showing that the small-grain preference is counter-intuitive. One is to show that it has general implications of a counter-intuitive kind; the other is to show that, applied to particular examples, it leads to counter-intuitive results. We shall explore these paths in turn.

Social entities are composed of psychological units; psychological units are made up of biological, specifically of neurophysiological, components; biological components are constituted out of chemical bits; and, ultimately, everything is built up out of microphysical particles. Or so at least most of us assume. This being the case, it is natural to think of causal relations at higher scientific levels as superveniently dependent on the causal relations and regularities that obtain at lower levels. The causal relations that obtain at the psychological level supervene on those that hold at the biological, those that obtain at the biological supervene on those that hold at the chemical, and those that obtain at the chemical supervene on those that hold at the physical (Jackson and Pettit, 1990). Thus, as we progress down through the familiar hierarchy of the sciences, we are getting at levels of ever smaller grain; we are going progressively more micro.

But given that scientific levels take us to more and more micro or small-grained structures, it should be clear that the small-grained preference will have a general implication of a dramatic and controversial kind. It will lead us to prefer any lower level of scientific explanation to any higher level, and to prefer micro-physical explanation to all else. We shall be led to adopt a form of methodological or explanatory fundamentalism as distinct from merely causal fundamentalism.[11]

Does Elster recognize that the small-grained preference entails explanatory or methodological fundamentalism? He certainly recognizes that it entails giving up structural explanations in social theory in favor of explanations that refer only to the properties of individuals, since he uses it to support that strategy (Elster, 1985). He recognizes a connection

11. This line of argument, as we learned after the event, is an instance of what Ned Block (1990) describes as the Reductionist Cruncher!

between the small-grain preference and explanatory individualism. But doe he ever connect the small-grain preference with the doctrine that generalizes such individualism: with explanatory fundamentalism?

Not explicitly. Thus, he never suggests that individualistic or psychological explanations are unsatisfactory in relation to the possibility of biological explanations, in the way in which he finds structural explanations unsatisfactory in relation to the possibility of individualistic ones. True, he comes close at one point to admitting the methodologically fundamentalist thrust of his idea. "Generally speaking," he says, "the scientific practice is to seek an explanation at a lower level than the explanandum" (Elster, 1983). But he stops short of the radical lesson; he goes on, *diminuendo*: "If we want to understand the pathology of the liver, we look to cellular biology for explanation. If we want to understand chemical bonding, quantum mechanics provides the explanation. If we want to understand social revolutions, we seek an explanation in individual actions and motivations."

We have no complaint about causal fundamentalism, even as extended to scientific levels; indeed, we have already indicated that we endorse it. But we think that explanatory fundamentalism is an extremely uncongenial doctrine. Thus, the fact that the small-grain preference entails it casts serious doubts on that preference. Or so at least we shall claim.

The explanatory fundamentalism to which the small-grain preference leads suggests that the best we can do in social explanation and, more generally, in the special sciences – the best we can do indeed in common sense accounting, too – is to offer *pro tempore* accounts. The best explanations we provide in these areas fail to reveal anything distinctive about the causal structure of reality: anything that would remain of interest in the event of developing micro-physical – or indeed any lower level – explanations of things. This vision is iconoclastic and incredible. Chemists have nothing to teach physicists about the explanation of things? Biologists have nothing to teach chemists? Micro-physics is the discipline to which all should look for enlightenment of their problems?

So much for showing that the small-grain preference has a general implication – wholesale explanatory fundamentalism – of a counter-intuitive kind. But the best way to see how counter-intuitive the small-grain preference is may be to apply it to some examples rather than just rehearsing our incredulity about this general implication. We have seen one social-structural and one physical example of a higher level explanation. The social-structural example explains the rise in crime by the increase in unemployment, the physical explains the cracking of the flask by the boiling temperature of the water it contains.

Parallels to the physical example are easy to imagine but it may be useful to say a word on parallels to the social. To count as genuinely

higher level, the social parallels must resist paraphrase as covertly individual-level explanations. The volatility of the stockmarket, we are told, explains the shift of funds toward housing; but that is just shorthand for saying that a general perception that the stockmarket is volatile explains the shift. The change in the relative prices of wool and cotton, so the story goes, explains the increase in woolen products; but, again, that is just shorthand for saying that a recognition by textile producers of the relative prices of the two materials does the required explaining. For good examples of higher level social explanations, we need to go to explanations that are not continuous with individual psychological accounts or even with statistical versions of such accounts.[12] Here are some candidates. Urbanization explains the decline in religious practice. The restructuring of manufacturing industry explains the fall in trade union power. The increase in the numbers employed explains the rise in inflation. The decline in relative economic capacity explains the fall in the military and political influence of Great Britain. These are the sorts of accounts that we think of as higher level social accounts: as social-structural explanations.

It is implausible to think that the boiling-water explanation of the cracking flask should ideally be replaced by one that points us to the precise molecule responsible. And, equally, it is implausible to hold that social-structural explanations should be replaced by ones that direct us to the responsible individuals. Or so we say. How then to sheet the point home? We think that it becomes salient when we put the examples side by side with more simple cases: with cases that are so simple that our intuitions are quite firm.

Here are some elementary examples to guide discussion.

1. Someone's coughing irritated the conductor and explains why he looked around.
2. The fact that that sand castle was nearer the water explains why it got wet first.
3. The squareness of the peg explains why it did not go through the round hole, given that its side equals the diameter of the hole.

The small-grain preference suggests that while these explanations may be valuable in the absence of more basic accounts, we should give them up in the event of identifying the relevant causal process at a smaller level of grain. In all three examples, we have a macro or higher level property that is causally associated with a certain result. In each case, our causal fundamentalism reveals that that property is causally related to the result only in virtue of causal relations at a lower, smaller grained level: a level that is not causally effected, of course, by what

12. On the exact discontinuity required, see Pettit (1992), chap. 3.

happens higher up. Thus, in each case the small-grain preference would have us give up the explanation on offer in favor of a lower level account.

We should, that is, give up the someone-coughed explanation of why the conductor looked around if we know that John coughed and can invoke his coughing to account for the conductor's behavior. We should give up the reference to nearness to the water in explanation of why that sand castle got wet first, if we can identify the precise times of the waves that wet each of the castles in question. And we should give up the squareness explanation of why the peg did not go in the hole if we can pick out the precise part of the peg that obstructed its passage. In parallel, returning to the other examples, we should give up the boiling-water explanation in the event of being able to identify the precise, vibrating molecule that set off the cracking; and, to pick the original social case, we should give up the increase-in-unemployment explanation if we can itemize the exact changes in motivation and opportunity that led to more people committing crime.

There are higher level explanations where it is certainly reasonable to hold that we should give them up in the event of discovering a certain lower order account. A glass is struck and breaks. Why did it break? A familiar higher level account will say: because it is fragile. Such an account is better than nothing, for it tells us that it is the nature of the glass that explains its breaking under the sort of impact in question; the breaking is not the product of some weird extraterrestrial influence or some extraordinary coincidence of forces. But suppose we find a lower order account of why the glass breaks, specifically an account that traces the breaking to the particular molecular structure of the glass. It is plausible in such a case to say that we should throw away the fragility explanation in favor of this molecular one. Explanatory fundamentalism looks like a reasonable strategy.

Why is explanatory fundamentalism reasonable in a case like this? Our conjecture is that it may be because there is no information put at one's disposal by the fragility account that is not available from the molecular one alone. If you know that the glass cracked because of its particular molecular structure, then you are in a position to recognize that it cracked because it was fragile: something is fragile, after all, if and only if it is such – specifically, it is of such a molecular structure – that it breaks under an impact of the kind in question. The higher order explanation is dispensable in favor of the lower order one, because it does not offer any distinctive information on the causal history of the thing to be explained.

But if it is reasonable to think of dispensing with the fragility explanation in the event of having a molecular explanation, the counterpart claim does not go through smoothly for the other cases. We will certainly balk at throwing away the boiling-water explanation in favor of the vibrating-molecule account and the increase-in-unemployment expla-

nation in favor of that which cites particular changes in motivation and opportunity. And, equally, it would be rational to balk at throwing away the someone-coughed explanation, the nearer-the-water explanation, or the peg-is-square explanation. Why is a different attitude indicated in such cases? Because in each of these cases the higher level account offers information relevant to the causal history of the thing to be explained, information that is not available from the more detailed account alone.

The point can be brought out by looking briefly at the different cases. If I have only the detailed account of why the conductor turned around – that John coughed – I may lack important information about the event: namely, the information that it would not have mattered if the person coughing had not been John, for the conductor would still have turned around in irritation. This extra information is available from the higher level explanation, given that that is taken as an independently interesting account.[13]

The parallels in the other cases are straightforward. In each case, there is information available from the higher level account that is not necessarily accessible to someone in possession of the lower. I can know that the sand castle was swamped by an earlier wave than the wave(s) that swamped the other(s), without knowing that, being nearer the water's edge, it was more or less bound to be swamped by an earlier wave. I can know that the peg was obstructed in its passage by this or that protruding part, without knowing that if it had not been thus obstructed, its square shape ensures that it would have been obstructed by some other protruding part. I can know that the flask cracked under the impact of this or that vibrating molecule, without knowing that given the water was boiling, the flask was more or less bound to crack under the impact of some such molecule. And, finally, I can know that the changed motivations and opportunities of such and such individuals led to a rise in crime, without knowing that there was an increase in unemployment or that given there was an increase, it was more or less inevitable that there would be a rise in crime; had the motivations and opportunities of those particular individuals not changed, the motivations and opportunities of others would have done so. This latter example stands in for all the social-structural explanations mentioned. I can know that the paucity of churches and the reduction in peer pressure

13. Here, there is something important to notice. The higher level explanation may be taken as lacking independent interest: say, if we know it was important to the irritation of the conductor that it was a particular individual who coughed – one known to him as a pest – and we offer the explanation "someone coughed" rather than "John coughed" only because of ignorance as to the identity of the individual in question. In such a case, as in the fragility-explanation, we will be happy to dispense with the higher level explanation once we have the lower level one. This fits our story, for in the case as described there is no information available from having the higher level account that is not available from having the lower level one.

led to a religious decline without knowing that there was urbanization or that urbanization affects motives and opportunities so as to make a religious decline more or less inevitable. And so on in the other cases.

We hope that our reflection on these examples will have bolstered the claim that the small-grain preference is counter-intuitive and will have helped to suggest why the preference is counter-intuitive. Higher level explanations can provide information not included in the lower level accounts. Why follow an explanatory strategy that gives no weight to that information?

3. THE SMALL-GRAIN PREFERENCE IS MISCONCEIVED

How can we avoid the counter-intuitive results described in the previous section? How can we undermine the small-grain preference? In this section, we try to identify what we see as the main pressure behind that preference and attempt to show that we can absorb this pressure – we can acknowledge the force of the argument – without being pushed toward the small-grain preference. In addition, we suggest that the considerations that deflect this argument can be marshalled to provide a positive case for rejecting the preference: specifically, for adopting an easy-going view under which explanations of different causal grain are complementary. This view amounts to a methodological or explanatory ecumenism. On matters of causality our attitude is fundamentalist, on matters of explanation it is ecumenical.

According to causal fundamentalism, going smaller grained provides more detail on causal structure and this doctrine we have already endorsed. But why would that claim motivate the view that we should therefore go as small grained as possible in our explanations of things? Presumably, because explanations are assumed to be attempts to provide information on causal structure. It appears that an argument like the following is envisaged. First premise: to explain is to provide information on the causal history of what is to be explained. Second premise: we provide better information on causal history as we identify smaller grain and therefore greater detail in the relevant causal structure. Conclusion: as we identify smaller degrees of grain in the relevant causal structure, we provide better explanations.

The first premise in this argument amounts to a causal-information theory of explanation. As David Lewis puts it, "to explain an event is to provide some information about its causal history."[14] Elster has to rely on that sort of theory to support the small-grain preference. Indeed, he does more or less explicitly endorse such a view of explanation. He refers to the job of explanation as depicting causal structure (Elster, 1983, p. 34). And while he makes a distinction between causal and other forms

14. Lewis, 1986, p. 217. See also Alan Ryan, 1970.

of explanation – for example, intentional – he makes clear that all explanations direct us to causal history; the distinction invoked is really one between merely causal explanation on the one side and causal-intentional on the other (Elster, 1983, pp. 70–71).

We endorse the view that the job of explanation is to provide information on causal history.[15] Thus, if we are to deflect the argument just sketched, that must be through challenging the second premise: the proposition that we provide better information on causal history as we identify smaller grain, and therefore greater detail, in the relevant causal structure. So what have we to say against the proposition?

What we have to say may already be obvious from our earlier complaint that in the normal case, there is information available from a higher level explanation of something that will not be available from the lower level account by itself. The boiling-water explanation of the flask's cracking provides the distinctive information that even if the actual causal history had failed to materialize, even if this particular vibrating molecule had failed to break a molecular bond in the surface, there still was more or less bound to be some molecule that would have done so. What we have to say against the second premise in the argument for the small-grain preference is that, given that such information is lost in going micro, the premise wrongly neglects it.

Someone defending the premise, then, must assert either that the sort of information lost in going micro does not concern the relevant causal history or that if it does, it is not worth having. But the information is worth having on any plausible metric of informational value. So, the defense will have to be that such information does not concern causal history.[16] But it turns out that that defense will not stand up.

The information in question would not concern actual causal history if the reason that the event would have occurred even in the absence of the actual etiology has nothing to do with the nature of that etiology. An event *E* results from actual cause *C*. Someone dies in 1990, say,

15. A strong version of this view would say that this is all that explanation does, so that explanations are to be assessed solely in terms of the quality of information they provide. A weaker version would admit other functions and other dimensions of assessment as well. We follow Lewis in taking the stronger view, and we think that Elster takes the stronger view as well. But the argument given here applies even if Elster adopts only the weaker stance.

16. This is in fact the defense that we expect Elster would try to provide (Elster, 1983, p. 26; 1985, p. 5; 1989, pp. 6–7). He uses the type of case we go on to describe – the cancer example is his – to distinguish between necessitation and explanation; the cancer necessitates the person's dying within the year without explaining it. And he draws a general lesson that, on the face of it, might be applied against higher level explanation. "To explain an event is to give an account of why it happened *as* it happened. The fact that it might also have happened in some other way, and would have happened in some other way if it had not happened in the way it did, is neither here nor there"(Elster, 1989, p. 6).

because of a car accident. Suppose we are told that as it happens, had *C* not occurred or been effective then a standby factor, *D*, would have produced the *E*-type event. Suppose we are told, for example, that had the person not been killed in the car accident, he would have died within the year of cancer. That information is not information on the actual causal history, since it is quite incidental to that history that *D* was in standby position: that the person had cancer.[17]

The information that the *E*-type event would have occurred anyhow will concern actual causal history if and only if the counterfactual is grounded in the nature of the actual history. This is, in fact, what happens with the case of the cracking flask, and, indeed, also with the other cases. The flask cracks under the causal impact of a particular vibrating molecule; we assume that this is the relevant causal history. But one nonincidental feature of that causal process is that the water is boiling: the molecule is one of a boiling mass of molecules. And that feature underpins the counterfactual that had the responsible molecule not impacted appropriately, then another would almost certainly have done so. Thus, we see that the boiling-water explanation not only gives us useful information, it provides information on the actual causal process itself.

We say that the fact that the water is boiling is a nonincidental feature of the actual causal process in the flask case but that the fact that there is a standby factor, *D* is incidental to the process whereby *C* leads to *E*. What is the difference between the two cases? Consider a possible world where *D* is not present as a standby factor but *C* does produce *E*: a world where the person does not have cancer but is killed in the car accident. Here, there is no relevant difference in the process in the actual and in the possible world. The fact that the person has cancer in the one world but not in the other is not relevant in any way to his dying in a car crash. But consider now a possible world where the molecule vibrates and cracks the flask but where the water is not boiling. Here, there is a relevant difference between the process in the actual and in the possible world. In the actual world, the particular collision whereby the molecule cracks the flask is less improbable than it is in the possible world. The probability of that collision is raised – however little – by the fact that the water is boiling; the probability of the collision conditional on the boiling is higher than its probability otherwise. It is because of this difference in statistical relevance that we take the information provided in the boiling-water explanation to be information about the actual

17. Notice that even in a case like this, there is room for speaking of explanation. The presence of the cancer does not explain the person's dying but it does explain the relative inevitability of his dying. Often we are interested in this sort of explanation, for example, when we try to explain in rational choice terms why a particular phenomenon – say, the presence of certain norms – is resilient (see Pettit, 1990).

causal process, while we regard the information available in the other case as information about the general setup.

We admit that with a causal process such as that which leads to the cracking of the flask, we get more information as we learn the molecular detail of what happened. But we hold that we also get more information about that process as we learn at the macro-level that the water was boiling. This should not be surprising. There are two grossly different sorts of information that can be provided about something like a causal process or, more generally, about the actual world that involves that process. One sort of information helps us to differentiate the actual world from other ways the world might have been: other possible worlds. The second sort helps us, not to differentiate the actual world from other possible worlds, but to relate it to them: to show how the actual world runs on patterns found in a variety of possible worlds. The first sort of information is modally contrastive, the second modally comparative. The first focuses on differences between the actual world and other possible worlds; it homes in on the particularities of the actual case. The second focuses on similarities between the actual world and other possible worlds; it takes us to a distance at which we can discern constancies across the actual way things are and the ways they might have been.

Learning the explanation of the cracking in terms of this or that molecule increases our contrastive information on the causal process involved; it helps us to differentiate the actual-world cracking from more and more other possible-world counterparts. Learning the boiling-water explanation increases our comparative information on the causal process. We may already be in possession of the molecular account and be sensitive to what differentiates the actual process at this level. But still, in being made aware of the boiling-water explanation, we learn something new: we learn that in more or less all possible worlds where the relevant causal process is characterized by involving boiling water, the process will lead to the flask cracking.

We may return to the second premise of the argument for the small-grain preference: the proposition that we provide better information on causal history as we identify smaller grain, and therefore greater detail, in the relevant causal structure. We can now see that it goes wrong in assuming that the only information relevant in explanation is contrastive information. It is true that going micro and getting at smaller levels of causal grain involves getting better and better contrastive information – greater and greater detail – on causal history. But it does not follow that it involves getting better and better information *tout court*. On the contrary, the obvious thing to say is that while it means getting better and better contrastive information, it means losing information of a comparative kind. Thus, there is no reason to think that finding smaller and smaller levels of causal grain means getting better and better explanations.

Our charge then is that the small-grain preference is misconceived, that while it is motivated by a sound theory of explanation – the causal-information theory – it is vitiated by the assumption that the only relevant information on causal history is contrastive. There is no argument provided for why we should not be concerned as much with comparative as with contrastive information in our exploration of causal structure.

Strictly speaking, these observations show how we can resist the argument for the small-grain preference – they knock out the second premise in that argument – without establishing that we should actually reject that preference. But our observations can be readily marshaled to achieve this further effect. We saw in the previous section that the intuitive thing to say about higher level explanations, at least in the normal case, is that they are interesting in their own right, that they have a significance that is not undermined just by the availability of lower level accounts. We now see how it is possible to vindicate that intuition. We adopt the causal-information theory of explanation, and we say that whereas the higher level explanations do better in providing comparative information, the lower level ones do better in providing information of a contrastive kind. Thus, we can be ecumenical about explanations at different levels of grain. We can say that whether one is to prefer a smaller grain or coarser grain explanation in a given case depends on what one's perspective or purpose is. Explanations of different levels provide complementary bodies of information on one and the same topic; we do not throw any explanation away just because we have access to another.

4. THE CLOSE-GRAIN PREFERENCE IS ALSO UNCOMPELLING

In Section 1, we saw that the fine-grain preference comes in two forms, the close-grain preference and the small-grain preference. We saw in Section 2 that the small-grain preference is counter-intuitive, supporting an explanatory fundamentalism, and we saw in Section 3 that it is misconceived, being driven by the assumption that the only information worth having about a causal process is contrastive as distinct from comparative information. In this section, we would like to show briefly that the charge of being counter-intuitive and misconceived also carries against the close-grain preference.

Suppose that we can explain an event E by reference to a temporally remote cause Cn and by reference to a proximate cause Cl. If both Cn and Cl figure in causal ancestry of E, then it must be that Cn is the cause of something that is the cause of something . . . which is the cause of Cl. At least it must be that Cn and Cl belong to larger causal wholes that are related in this causally connected fashion, and for present purposes we may assume that they constitute such wholes. But recognition of this fact may suggest the following: that since the only contribution Cn makes

to the occurrence of *E* is mediated by the occurrence of *Cl*, anything that mention of *Cn* contributes by way of explaining *E* – explaining *E* as distinct from explaining the antecedents of *E* – is already available in the reference to *Cl*. The lesson suggested amounts to nothing more or less than the close-grain preference. In Elster's words, already quoted earlier, "the goal of research should be to substitute for past causes the traces left in the present by the operation of those causes" (Elster 1983, p. 29).

We will see that the close-grain preference is counter-intuitive, and, indeed, misconceived as soon as we recognize that this line of thought ignores an important possibility. Suppose that *Cn* is such that it reduced the causal possibilities in a significant way, without actually ensuring that we would have precisely the train of effects that ensued in fact and that led via *Cl* to *E*. Suppose, furthermore, that on most of the possibilities that it left open, the eventual upshot would be the *E*-type event under explanation. In this sort of case, we can see that the contribution made by mention of *Cn* in explanation of *E* will not be exhausted by the mention of *Cl*. Mention of *Cl* will inform us on how as a matter of fact *E* came about, whereas mention of *Cn* will inform us that *E* would probably have come about even in the absence of *Cl*, provided that *Cn* had occurred at the earlier time (Miller, 1978, pp. 387–414; James, 1984; Papineau, 1978).

Once we see that this sort of case is a possibility, we should recognize how implausible it is to be prepared to give up all temporally remote explanations in favor of temporally more proximate accounts. To move to a more proximate explanation might be to lose sight of the extra information contained in the more remote account. This is obviously going to be valuable information, by any metric of value. And equally obviously, it is going to be information about the causal process leading to the event: the more remote factor is part of that process, not an incidental feature. In the terms of the previous section, the information provided is of a comparative rather than a contrastive kind. It is going to tell us, not about what differentiates the actual-world process – that it went via *Cl* – but about what the process has in common with counterparts in various other possible worlds: that starting from *Cn*, they move via different routes, but move always or mostly to *E*.

It was, for instance, generally recognized toward the end of the 1980s that the Soviet Union would not intervene militarily in Eastern Europe to maintain communist orthodoxy. One effect of this recognition, by most accounts, was a departure from orthodoxy in most of those countries, with the collapse of the communist regimes there. Let us assume, as is natural in such a case, that the recognition of the Soviet Union's disposition was more or less bound in time to lead to the departure from communist orthodoxy, whether by the actual route or by some other. If the close-grain preference pushes us to look only at the

most proximate explanation of the phenomenon that we have – to look at the closest grained account available – then it will cause us to lose sight of such information. It will distract us from important comparative information on the genesis of the event.

For another example, consider a case mentioned by Richard Miller (1978, p. 410). The availability of stainless steel, in particular its availability at a relatively reduced cost from the 1920s on, led to the replacement of carbon steel as the main material for knives. Now the availability of stainless steel led to this result via a series of particular intentional episodes: episodes involving decisions by the executives of relevant companies. But we may reasonably think that the explanatory relevance of the availability of stainless steel is not exhausted by its contribution to the actual causal history of the replacement of carbon steel in knives. We may hold, with some reason, that the availability of stainless steel made it more or less inevitable that carbon steel would be replaced as the main material in knives: this, because stainless steel keeps an edge better, so that if these particular executives had not noticed, or had not introduced the change, then sooner or later some others would have done so.

There are striking parallels between the temporal case and the situation that we discussed with higher and lower levels. In the one case, a higher level factor predisposes things so that whatever is present at the lower level will probably suffice for a certain effect: the boiling of the water predisposes things so that there will be a molecule to crack the flask, the rise in unemployment predisposes things so that there are changes in opportunities and incentives sufficient to cause a rise in crime. In the other case, the one involving the temporally remote cause, there is a predetermining as distinct from predisposing factor at work; it is predetermining, so far as it is causally linked with the proximate factor. This predetermining factor more or less ensures that the event to be explained does indeed occur: thus, *Cn* ensures that *E* occurs, whether via a route that involves *Cl* or via some other; the recognition about the Soviet Union more or less ensures a departure from communist orthodoxy, whether via the actual train of events that led to that outcome or by some other sequence.

The parallels between the two cases show that as the small-grain preference is counter-intuitive and misconceived, so too is the close-grain preference. There is valuable information, in particular information on causal process, that would be lost if we gave up larger grain explanations for smaller grain accounts or if we gave up longer grain explanations in favor of closer grain stories. Just as it may be beneficial to hold onto accounts of things that invoke high-level macro-factors, so it will often be of explanatory benefit to stick with accounts that refer us to temporally remote conditions.

The position that we are moved to adopt in both forums of explanation is an ecumenical one. Explanations at different removes in time, like explanations at different levels, may provide different sorts of information on the causal process leading to the event or condition that is to be explained. Thus, we should be open to the possibility that they each have their own interest. We may be committed to causal fundamentalism but this is compatible with ecumenism on explanatory matters.

5. CONCLUSION

The upshot of our argument should be clear. A number of thinkers, Jon Elster prominent among them, defend the fine-grain preference in explanation: defend the view that, explanation being a matter of providing information on causal structure, the more fine-grained explanation is the better. We argue that relatively coarse-grained explanations – whether higher level or temporally remote accounts of things – can provide information on causal structure that more fine-grained stories suppress. They can give us comparative, as distinct from contrastive, information on causal process. Thus, we argue for an easy-going, ecumenical view of explanation; in particular, we argue for this without giving up on fundamentalism in regard to causality.

It may be useful to spell out the different claims we have made in a little more detail. The line of argument has not always been straightforward and an inventory of claims may help to get it clear. To mark off our position from that adopted by Elster, we put an asterisk beside those claims that he would have to reject.

1. One way of getting a finer grain of causality, one way of getting greater detail on causal relations in any instance, is to go more close-grained: to identify more and more proximate causes of the effect in question.
2. Another way of getting at a finer degree of grain is to go more small-grained: to identify causes of the effect in question at lower and lower levels.
3. The last claim is tantamount to a doctrine we call causal fundamentalism: this is the doctrine that properties, in particular causal-relational properties, at higher levels are supervenient on properties at lower levels in such a way that what happens at micro-levels determines what happens at macro.
4.* The preference for smaller grain over larger grain explanations is counter-intuitive, because it would lead us to ignore perfectly good information about the events or whatever explained: the information that had things at the smaller level of grain been

different in such and such a way, the event would probably still have taken place.

5.* The small-grain preference in explanation is misconceived. It starts from the attractive view that to explain is to provide information on causal history but is put off track by the assumption that the only information worth having is contrastive as distinct from comparative information: information that distinguishes the history more and more from how it might have been, as distinct from information that identifies constancies across the different ways the history might have gone.

6.* The close-grain preference is counter-intuitive and misconceived for more or less parallel reasons. A causal explanation of something at a certain temporal remove can give us information lost in going for a more proximate account: the information that given what happened at that remove, the event or whatever in question was more or less bound to happen; in particular, it would have happened even if things had happened differently from how they actually did in the intervening period.

7.* Instead of adopting the fine-grain preference in explanation, we should opt for an ecumenical or pluralist attitude. We may be causal fundamentalists and we may believe that to explain is to provide information on causal history. But consistently with those commitments, we should still recognize that explanations at different levels and explanations at different removes may provide complementary sorts of information on causal process.

Tocqueville gives a nice statement of the explanatory ecumenism that we endorse, in the language of general and particular causes that he derived from Montesquieu (1967). "I have come across men of letters who have written history without taking part in public affairs, and politicians who have only concerned themselves with producing events without thinking of describing them. I have observed that the first are always inclined to find general causes, whereas the latter, living in the midst of diconnected daily facts, are prone to imagine that everything is attributable to particular incidents, and the wires which they pull are the same that move the world. Both should be considered mistaken" (de Tocqueville, p. 262).

Just as Tocqueville suggests that there is no need to choose between the two sorts of account he describes, so we believe that in general there is no need to form a preference between accounts of different grain. Certainly there is no reason to commit oneself to a preference for accounts of close or small grain. In matters of explanation, everything goes.

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