The incompleteness of dispositional predicates

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Abstract   Elizabeth Prior claims that dispositional predicates are incomplete in the sense that they have more than one argument place. To back up this claim, she offers a number of arguments that involve such ordinary dispositional predicates as 'fragile', 'soluble', and so on. In this paper, I will first demonstrate that one of Prior's arguments that 'is fragile' is an incomplete predicate is mistaken. This, however, does not immediately mean that Prior is wrong that 'fragile' is an incomplete predicate. On the contrary, I maintain that she has offered another valid argument that does indeed establish the claim that 'fragile' is an incomplete predicate. I will argue further that Prior is right that 'soluble' is an incomplete predicate. Then does this mean that all dispositional predicates are incomplete? I don't think so. I will suggest that there are complete dispositional predicates that have no more than one argument place. Finally, by relying on my discussion of the incompleteness of dispositional predicates, I will attempt to provide a better understanding of the context-dependence and intrinsic nature of dispositional ascriptions.

Keywords   Dispositional predicates · Argument places · Elizabeth Prior · David Lewis
Events · Realizers

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[1] For example, (Mumford 1996, p. 90; 1998, pp. 88–89; Cross 2005, p. 324; Scaratino 2003, p. 956).

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1 Prior's mistaken argument

Prior, in the first chapter of her influential book *Dispositions*, argues that dispositional predicates like 'fragile' are incomplete predicates, which has enjoyed a great deal of popularity among contemporary philosophers of dispositions.[1] *Prima facie* the sentence 'The glass on my desk is fragile' takes a definite truth-value. However, Prior claims that this appearance is deceiving. On Prior's view, the sentence 'x is fragile' does not take any definite truth-value. This is partly because what is fragile under some properly specified background conditions may not be fragile under other properly specified background conditions. For instance, a piece of steel is fragile at a low enough temperature, yet it is not fragile at an ordinary temperature. In addition, Prior maintains, what is fragile under a very hard blow may not be fragile under a medium-sized blow, which gives another reason to believe that the sentence 'x is fragile' does not take any definite truth-value. For example, a television set is fragile under a very hard blow, yet it is not fragile under a medium-sized blow. In this sense, Prior says, the dispositional predicate 'fragile' is incomplete.

It will be useful to clarify what it means to say that a predicate is incomplete. Let us consider the predicate 'identical'. The sentence 'x is identical' does not take any definite truth-value; and, what is identical to an object may not be identical to another object. This is due to the simple fact that 'identical' has more than one argument place. In view of this, we can say that Prior's thesis that 'fragile' is an incomplete predicate boils down to the claim that, though 'fragile' appears to have one argument place, in fact it has more than one. On Prior's view, there are at least two hidden argument places one of which must be filled by properly specified background conditions and the other by the strength of a striking force.

Let us now take a close look at one of Prior's arguments for the incompleteness of 'fragile'—call this argument '*Temp*':

> Many objects which will not shatter if struck with force F (a medium size force), when they are at a temperature of $20°C$, will shatter if struck with a force F when they are at a temperature of $-260°C$. There is no conceptual difficulty in saying that an object is not fragile at one temperature but is fragile at another temperature. For example, under ordinary conditions and blows of a medium magnitude a piece of steel will not shatter when struck. Under such conditions the piece of steel is not fragile. However, lower its temperature to $-260°C$, strike it with a medium size blow and it will shatter. Under these conditions it is fragile.[2]

From this Prior (1985, p. 5) infers that 'fragile' is an incomplete predicate.

It will be useful to formulate *Temp* as exactly as possible: When H is a piece of steel,

A_1. H will shatter if struck with force F, when it is under the condition of low enough temperatures. [premise]

A_2. H will not shatter if struck with force F, when it is under the condition of ordinary temperatures. [premise]

A_3. For every temperature T, an object x is fragile under the condition of temperature T iff x will shatter if struck with force F when it is at T. [premise][3]

A_4. H is fragile under the condition of low enough temperatures. [from (A_1) and (A_3)]

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[2] Similar ideas can be found in Mumford (1996, p. 90), Malzkorn (2000, p. 458), McKitrick (2003, p. 164), Scaratino (2003, p. 956), and Cross (2005, p. 324).

[3] Needless to say, the counterfactual conditional of (A_3) must be sophisticated to get round the tricky cases of dispositional finks and antidotes (Martin 1994; Bird 1998). But I think the central feature of Prior's argument will remain when we substitute the more sophisticated counterfactual conditional.

A$_5$. H is not fragile under the condition of ordinary temperatures. [from (A$_2$) and (A$_3$)]

A$_6$. S_1 is true, where S_1 is the sentence 'H is fragile under the condition of low enough temperatures'. [from (A$_4$)]

A$_7$. S_2 is false, where S_2 is the sentence 'H is fragile under the condition of ordinary temperatures'. [from (A$_5$)]

A$_8$. The predicate 'fragile' has a hidden argument place that must be filled by properly specified background conditions. [from (A$_6$) and (A$_7$)]

A$_9$. The predicate 'fragile' is an incomplete predicate. [from (A$_8$)]

Prior does not make explicit all the inferences that I stated above. But I believe that she has something like this formulation in mind.

A clarification is in order. (A$_1$) says that H will shatter if struck with force F when it is under the condition of low enough temperatures. Here the sentence 'H is under the condition of low enough temperatures' can be read in two different ways: (1) the temperature of H itself is low enough or (2) the ambient temperature of the environment of H is low enough. Note that, even if the ambient temperature is extremely low, H would not shatter if struck as long as its own temperature is not extremely low; and that even if the ambient temperature is not extremely low, H would shatter if struck as long as its own temperature is extremely low. Hence I propose to interpret (A$_1$) as meaning that H will shatter if struck with force F when H's own temperature is low enough. By the same token, (A$_2$) should be interpreted as meaning that H will shatter if struck with force F when the temperature of H itself is ordinary. Taken this way, (A$_3$) means that x is fragile under the condition of temperature T iff x will shatter if struck with force F when x's own temperature is T. So conceived, when we say that H is fragile under the condition of temperature T, what we mean is that H is fragile under the condition where its own temperature is T.

The critical step in *Temp* is the one from (A$_6$) and (A$_7$) to (A$_8$). On the following ground, however, one might wonder why we should believe that this step is valid at all. It is true that H is fragile under the condition where it is fragile; but it is false that H is fragile under the condition where it is not fragile. Does this entail that 'is fragile' has more than one argument place? Definitely no. It seems, though, that this reasoning is exactly in parallel with the reasoning from (A$_6$) and (A$_7$) to (A$_8$). This seems to bring us to the conclusion that the crucial step in *Temp* is obviously mistaken.

How can Prior get out of this predicament? Prior, I think, can best responds by noting that such sentences as 'H is fragile under the condition where it is fragile' and 'H is fragile under the condition where it is not fragile' are trivially true or false, independently of the meaning of 'fragile'. Given that the truth values of the sentences do not depend on the meaning of 'fragile', they do not tell us how 'fragile' applies to individuals. Indeed, even if we are not sure how many argument places 'fragile' has, we are pretty sure about the truth values of the afore-mentioned sentences. Meanwhile, the sentences, S_1 and S_2, are not trivially true or false. That is, the truth values of the sentences depend on the meaning of 'fragile'. If so, they are relevant to how 'fragile' applies to individuals and how many argument places 'fragile' has. With this in mind, I suggest that Prior is likely to respond that (A$_6$) and (A$_7$), only together with one implicit assumption, entail (A$_8$), where the implicit assumption is that S_1 and S2 are not trivially true or false, namely, that their truth values depend on the meaning of 'fragile'.

Still, however, I believe that there is something wrong about the step from (A$_6$) and (A$_7$) to (A$_8$). Consider a piece of steel that has been at an ordinary temperature for a sufficient time—call it *Stan*. *Stan* does not actually have a distinctive micro-structural feature that would join with striking to cause shattering. However, if it has been cooled down to an extremely

low temperature then it will acquire that micro-structural feature; thereby it would shatter if struck.[4] It follows from this, Prior will claim, that, according to (A$_3$), *Stan* is fragile at a low enough temperature. Here my proposal is that the above description of *Stan*'s behavior can be best understood to mean that *Stan* is disposed to acquire a distinctive micro-structural feature that would join with striking to cause shattering in response to being cooled down to a low enough temperature. Note that that micro-structural feature would serve as a causal basis for *Stan*'s fragility.[5] If so, my proposal amounts to the claim that we can best understand the above description of *Stan*'s behavior by saying that *Stan*, which is not actually fragile, has the compound disposition to be fragile if cooled down to a low enough temperature. This leads us to the idea that the sentence '*Stan* is fragile at a low enough temperature' ascribes to *Stan* the disposition to be fragile if cooled down to a low enough temperature.

We can draw a similar conclusion for a piece of steel that has been at a low enough temperature for a sufficient time—call it *Chilly*. *Chilly* actually has a distinctive micro-structural feature that would join with striking to cause shattering. However, heat it up to an ordinary temperature and it will lose that micro-structural feature soon; thereby it would not shatter if struck. From this Prior will infer that, according to (A$_3$), *Chilly* is not fragile at an ordinary temperature. But we can best understand *Chilly*'s behavior by saying that *Chilly*, which is actually fragile, has the disposition not to be fragile in response to being heated up to an ordinary temperature. This suggests that the sentence '*Chilly* is not fragile at an ordinary temperature' ascribes to *Chilly* the disposition not to be fragile if heated up to an ordinary temperature.

Having said that, S_1 means that H has the compound disposition to be fragile if placed under the condition of low enough temperatures. It is to be realized that an object that is actually not fragile may have the compound disposition to be fragile if placed under the condition of low enough temperatures, and vice versa. Then it follows that the compound disposition in question must be distinguished from fragility. Similarly, I submit that S_2 means that H has the compound disposition to be fragile if placed under the condition of ordinary temperatures, which, too, should be distinguished from fragility.

It is noticeable that my interpretation of S_1 and S_2 implies that two apparently distinct dispositions are identical. According to (A$_3$), H is fragile under the condition of low enough temperatures iff H will shatter if struck when its own temperature is low enough. This indicates that S_1 ascribes to H the disposition to shatter if it is struck when its own temperature is low enough. As stated above, however, I interpret S_1 as ascribing to H the disposition to be fragile if it is placed under the condition of low temperatures. This means that my interpretation of S_1 has the consequence that *the disposition to shatter if H is struck when its own temperature is low enough* is identical to *the disposition to be fragile if H is placed under the condition of low enough temperatures*, which I think innocuous. We can get the same result for S_2: on my interpretation, *the disposition to shatter if H is struck when its own temperature is ordinary* is identical to *the disposition to be fragile if H is placed under the condition of ordinary temperatures*, which is acceptable as well.

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[4] The physical explanation of why a piece of steel gets the distinctive micro-structural feature when cooled down to an extremely low temperature roughly goes as follows: as an object is cooled down to an extremely low temperature, its thermal energy approaches to zero; consequently, its yield stress or slip stress drastically increases. We can say that the object has acquired a distinctive micro-structural feature that would join with striking to cause shattering when the yield stress very much exceeds the cleavage stress that has a relatively weak temperature-dependence. This phenomenon is illustrated by Davidenkov Diagram (McClintock and Argon 1966, p. 565). For details, see Read-Hill (1973, Chapter 19) and Leslie (1981, Chapter 1, pp. 297–299).

[5] For a detailed discussion on the relationship between dispositions and causal bases, see Prior et al. (1982) and Lewis (1997).

Given my interpretation of S_1 and S_2, we can see what is wrong with *Temp*. We can infer that 'identical' has more than one argument place from the fact that the sentence 'x is identical to y' is true and the fact that the sentence 'x is identical to z' is false. This is because the latter two sentences attribute to x the same relational property, i.e. identity. That being said, we can infer (A_8) from (A_6) and (A_7) only if both S_1 and S_2 attribute the same property, i.e., fragility to H. On my interpretation, however, S_1 and S_2 attribute compound dispositions to be fragile that are entirely different from fragility. If so, we cannot infer (A_8) from (A_6) and (A_7). This means that *Temp* is a *non sequitur*.

2 Prior's possible response

My objection to *Temp* relies on my interpretation of S_1 and S_2. Prior might respond, however, that it is not the most natural interpretation of them and that it is much more natural to interpret them as ascribing fragility to H. In fact, on the level of the surface grammar of the sentences, it indeed seems that S_1 and S_2 attribute fragility to H. This has led Prior to infer (A_8) from (A_6) and (A_7).

I believe, however, that this response is not feasible at all since there are good reasons to favor my interpretation of S_1 and S_2. It is reasonable to assume that, whatever the predicate 'fragile under the condition of low enough temperatures' may mean exactly, it is necessarily coextensive with the predicate 'disposed to be fragile if placed under the condition of low enough temperatures'. On the one hand, an (actual or merely possible) object that is disposed to be fragile if placed under the condition of low enough temperatures would shatter if struck when it is at a low enough temperature; thereby, it is fragile under the condition of low enough temperatures according to (A_3). On the other hand, it is plausible enough to assume that an (actual or merely possible) object that is fragile under the condition of low enough temperatures is disposed to be fragile if placed under the condition of low enough temperatures since it becomes fragile when it is at a low enough temperature. For example, such a piece of steel as *Stan* and *Chilly* that is fragile under the condition of low enough temperatures is disposed to be fragile if placed under the condition of low enough temperatures. Therefore, I reasonably assume that the two predicates, 'fragile under the condition of low enough temperatures' and 'disposed to be fragile if placed under the condition of low enough temperatures' are necessarily coextensive. Then we need to answer the question of exactly what is the relationship between the two predicates that makes them necessarily coextensive. That is, we need to explain why the two apparently distinct predicates are necessarily coextensive. For me there is a simple and straightforward explanation: in fact, the two predicates express one and the same property and any such predicates are necessarily coextensive.

There seems to be one, though ultimately unsuccessful, alternative explanation of the necessary coextensiveness one might offer while denying that the two predicates express the same property. Arguably, some logically or mathematically equivalent predicates that are necessarily coextensive do not express one and the same property. For example, the two predicates, 'triangular' and 'trilateral', are necessarily coextensive; yet there is a strong inclination to hold that they do not express the same property. In this case, the necessary coextensiveness is explained by the fact that though they do not express the same property, they are logically or mathematically equivalent. Unfortunately, however, this kind of explanation is not suitable for the case under consideration. In the case of 'triangular' and 'trilateral', it is perfectly clear what is the difference between saying that x is triangular and saying that x is trilateral: the former means that x has three angles, whereas the latter means that x has three sides. This being the case, it is clear how to show that they are logically or

mathematically equivalent in spite of expressing different properties. By contrast, it is hard to tell what is the exact difference between saying that x is fragile under the condition of low enough temperatures and saying that x is disposed to be fragile if placed under the condition of low enough temperatures. Therefore, when we suppose that the two predicates, 'fragile under the condition of low enough temperatures' and 'disposed to be fragile if placed under the condition of low enough temperatures', express different properties, it is not clear at all how to show that they are logically or mathematically equivalent. If so, it is not a viable option to explain the necessary coextensiveness of the two predicates at issue in terms of their logical or mathematical equivalence while maintaining that they don't express the same property. Once this is recognized, it is fair to say that there is no viable way of explaining why the two predicates are necessarily coextensive except by assuming that they express the same property.

As noted earlier, the surface grammar of S_1 tells us that it attributes fragility to H. Then what about the sentence 'H is disposed to be fragile if placed under the condition of low enough temperatures'—call it S^*? Obviously, the surface grammar of S^* tells us that S^* attributes to H the disposition to be fragile if placed under the condition of low enough temperatures, not fragility. The surface grammar thus indicates that the two sentences, S_1 and S^*, don't attribute the same property to H. But it has been revealed that the predicates occurring in the two sentences, S_1 and S^*, express the same property. As a consequence, we can derive a contradiction from the surface-grammatical interpretations of the two sentences, S_1 and S^*.

It will be instructive to give a more formal presentation of this reasoning in the following way:

B_1. The surface grammar of S_1 tells us the proper meaning of S_1. [premise]

B_2. S_1 attributes fragility to H. [from (B_1)]

B_3. The surface grammar of S^* tells us the proper meaning of S^*. [premise]

B_4. S^* attributes to H the disposition to be fragile if placed under the condition of low enough temperatures. [from (B_2)]

B_5. But fragility isn't the same property as the disposition to be fragile if placed under the condition of low enough temperatures. [premise]

B_6. Therefore, S_1 and S^* don't attribute the same property to H. [from (B_2), (B_4), and (B_5)]

B_7. But we have seen above that the two predicates, 'fragile under the condition of low enough temperatures' and 'disposed to be fragile if placed under the condition of low enough temperatures', express the same property. [premise]

B_8. Therefore, S_1 and S^* attribute the same property to H. [from (B_7)]

B_9. Contradiction. [from (B_6) and (B_8)]

Given that this argument is valid, we are forced to jettison at least one of the premises, namely, one of (B_1), (B_3), (B_5), and (B_7). But (B_5) and (B_7) are not to be rejected. This means that we have to reject at least one of (B_1) and (B_3). I think that the surface grammar of S_1 is far less reliable than that of S^*, and therefore that we need to throw away (B_1).

Moreover, (B_1) has another unacceptable consequence. The key question is which property S_1, i.e., the sentence 'H is fragile under the condition of low enough temperatures' attributes to H. The surface grammar indicates that it is fragility, whereas I urge that it is the disposition to be fragile if placed under the condition of low enough temperatures. It is to be noted that we may ask similar questions for all (dispositional or categorical, intrinsic or not) predicates. For instance, which property does the sentence 'x is round under background conditions C' attribute to x? Here it is important to realize that this question is asking exactly the same thing as the one concerning S_1, as can be seen from the fact that, say, a rubber

ball is round under the ordinary conditions but is not round under the conditions where it is indented with the thumb.

For the sake of argument, suppose that the surface grammar of S_1 should be trusted. Then we would have no reason to deny that the surface grammar of sentences like 'x is round under the ordinary conditions' should also be trusted. This is because, given the syntactic and semantic analogy between S_1 and 'x is round under the ordinary conditions', it is not sensible to hold that, while S_1 attributes fragility to H, 'x is round under the ordinary conditions' does not attribute roundness to x. Likewise, given that S_1 is supposed to attribute fragility to H, it is reasonable to think that 'x is round under the conditions where it is indented with the thumb' attributes roundness to x. If so, it is easy to construct an analogue to *Temp* that would lead to the conclusion that 'round' has at least one hidden argument place that must be filled by properly specified background conditions. Thus, one of the immediate consequences of the supposition that the surface grammar of S_1 is reliable is that 'round' is an incomplete predicate.

This can be naturally extended to all predicates that refer to properties that come and go as background conditions change. Suppose that x is currently under background conditions C and is not P; and that if x were under different background conditions C^*x would become P. Then we are inclined to say that the sentence 'x is P under C' is false but the sentence 'x is P under C^*' is true. On the supposition that S_1 attributes fragility to H, however, we seem to be forced to accept that both of the sentences attribute the property P-ness to x. Then it takes little effort to reach the conclusion that the predicate 'P' is an incomplete predicate in the sense that it has a hidden argument place that must be filled by background conditions. As a result, on the assumption that the surface grammar of S_1 is trustworthy, we are naturally led to the idea that every (categorical or dispositional, intrinsic or not) predicate that refers to a property that comes and goes depending on background conditions is incomplete.

I believe, however, that this is obnoxious. It is absurd to say that whenever a property P-ness comes or goes depending on background conditions, the corresponding predicate 'P' has a hidden argument place that must be filled by background conditions, and therefore the sentence 'x is P' lacks a definite truth-value. The sentence 'A particular object is round' has a definite truth-value even if the object is round under background conditions C and is not under different background conditions C^*. For example, the sentence 'This basketball is round' is definitely true despite the fact that it wouldn't be round under the condition of high temperatures. By the same token, although what is one meter long under background conditions C may not be one meter long under different background conditions C^*, 'one meter long' has only one argument place. Therefore, the sentence 'A particular object is one meter long' has a definite truth-value. For example, the sentence 'This metal rod is one meter long' is definitely true in spite of the fact that the metal rod would expand at a high enough temperature.

To wrap up, (B_1), that is, the assumption that the surface grammar of S_1 is trustworthy has a repugnant consequence to our common sense opinion. If so, the best way to resolve the contradiction derived from the surface-grammatical interpretations of S_1 and S^* is to discredit the surface grammar of S_1, namely, to throw away (B_1). In a number of philosophical areas, we have witnessed that the surface grammar does not always tell us what exactly are the proper meanings of sentences. Here, I think, we have another case where the surface grammar is misleading.

Now that the surface grammar of S_1 is discredited, one question naturally arises: what property does S_1 attribute to H? First of all, unlike the surface grammar of S_1, there is no reason whatsoever to disparage the surface grammar of S^*. Having said this, we can best understand S^* to attribute to H the disposition to be fragile if placed under the condition

of low enough temperatures. We have demonstrated though that the two predicates, 'fragile under the condition of low enough temperatures' and 'disposed to be fragile if placed under the condition of low enough temperatures', express the same property, that is, the two sentences, S_1 and S^*, attribute the same property to H. If so, it is plausible to interpret S_1 as ascribing to H the disposition to be fragile if placed under the condition of low enough temperatures. But this is exactly my interpretation of S_1 upon which my objection to *Temp* relies. The same thing could be said about S_2. As a consequence, I have established the interpretation of S_1 and S_2 that underpins my criticism of *Temp*.

It is noteworthy that my interpretation of S_1 and S_2 has no unacceptable consequences. Let us consider two sentences, 'x is round under the ordinary conditions' and 'x is round under the conditions where it is indented with the thumb'. Given their semantic and syntactic analogy with S_1 and S_2, my interpretation of S_1 and S_2 demands that they should be interpreted as attributing to x the disposition to be round if placed under the ordinary conditions and the disposition to be round if indented with the thumb, respectively. It is important to recognize that these dispositions could/should be distinguished from roundness. An object that is actually round may lack them, and vice versa. For instance, a hard rubber ball that is actually round is lacking the disposition to be round if indented with the thumb. It follows from this that neither of the two sentences in question attributes roundness to x. But, from the fact that x is round under the ordinary conditions but is not under the conditions where it is indented with the thumb, we can derive that 'round' has a hidden argument place that must be filled by background conditions only if those two sentences both attribute roundness to x. This brings us to the conclusion that the incompleteness of 'round' is not derivable from the fact that x is round under the ordinary conditions but is not under the conditions where it is indented with the thumb, which is a gratifying result.

In general, the sentence 'x is P under background conditions C' means that x is disposed to be P if placed under C. Therefore, it attributes to x a completely different property from P-ness. Then it does not follow from the fact that x is P under background conditions but is not under different background conditions, that 'P' has a hidden argument place that must be filled by background conditions. As a result, my interpretation enables us to block the unwanted consequence that every predicate that refers to a property that comes and goes depending on background conditions is incomplete.

3 Prior's valid arguments

So far I have argued that one of Prior's arguments for the incompleteness of 'is fragile', namely, *Temp* is flawed. This does not immediately mean that Prior is wrong that 'is fragile' is an incomplete predicate. On the contrary, I believe that she puts forward another valid argument for the incompleteness of 'is fragile', and therefore that 'is fragile' is indeed an incomplete predicate. In what follows, I will examine this valid argument and explain why, unlike *Temp*, I believe it to be valid. Further, I think, by comparing it with *Temp*, we will be able to see a more important reason why we should not take S_1 and S_2 to attribute fragility to H, and therefore why *Temp* is not successful.

A television set Q would not shatter if struck with a medium-sized blow. However, it would shatter if struck with a very hard blow. Therefore, the sentence S_3 'Q is fragile under a medium-sized blow' is not true but, at the same time, the sentence S_4 'Q is fragile under a very hard blow' is true. Does it follow from this that 'fragile' has a hidden argument place that must be filled by the strength of a striking force, and therefore that it is an incomplete

predicate? I think it does since the two sentences both attribute fragility to Q. Thus, I agree with Prior that the sentence 'x is fragile' lacks a definite truth-value on its own.[6]

Then what is the reason for thinking that, unlike S_1 and S_2, S_3 and S_4 attribute fragility to Q? First of all, unlike the case of S_1 and S_2, we have no alternative interpretation of S_3 and S_4 to the surface-grammatical interpretation of them. It is not tenable to interpret S_3 or S_4 as ascribing to Q a compound disposition to be fragile. For example, it does not stand to reason to take S_3 to impute to Q the disposition to be fragile if struck with a medium-sized blow. Therefore, it seems that we have no alternative but to accept the surface-grammatical interpretation of S_3 and S_4 and say that both S_3 and S_4 attribute fragility to x. But we have a deeper reason to think that, unlike S_1 and S_2, S_3 and S_4 attribute fragility to Q, which I will discuss in what follows.

Consider a piece of rubber, say, a tyre, at a time t. If it were to be rendered fragile (by changing its intrinsic nature) and then struck at t, it would shatter. Therefore, the tyre is arguably disposed at t to shatter if rendered fragile and then struck. But, obviously, it does not follow from this that the tyre is fragile at t. Why? The answer should not be simply that fragility has a different characteristic stimulus from the disposition to shatter if rendered fragile and then struck because, as we will see, for some dispositional property P whose characteristic stimulus differs from the characteristic stimulus of fragility, x's having P entails x's being fragile. My answer to the above question relies on the observation that the characteristic stimulus of the disposition to shatter if rendered fragile and then struck, namely, the event of being rendered fragile and then struck, not only differs from the characteristic stimulus of fragility, but also it is 'realized' by a different 'concrete event' than the characteristic stimulus of fragility is. To flesh out this observation, however, we first need to have a close look at the philosophy of events.

Lewis (1986, pp. 244–249) holds that an event has a built-in necessary and sufficient condition—for short, occurrence condition—that, necessarily, a spatio-temporal region must satisfy iff that event is to occur there. For example, to say that the occurrence condition for an event is John's saying "Hello" loudly in a spatio-temporal region R is to say that, necessarily, that event occurs iff John says "Hello" loudly in R. Thus characterized, we can understand the characteristic stimulus and manifestation of a dispositional property in terms of occurrence condition. For instance, the characteristic stimulus and manifestation of water-solubility are the event whose occurrence condition is being submerged into water and the event whose occurrence condition is dissolving, respectively. Similarly, the characteristic stimulus and manifestation of fragility are the event whose occurrence condition is being struck and the event whose occurrence condition is shattering, respectively.

Let us now define a concrete event to be an event whose occurrence condition consists of all the intrinsic and spatio-temporal properties satisfied by the spatio-temporal region in which it occurs (Hempel 1965, pp. 421–423).[7] Then concrete events are individuated by every one of the intrinsic and spatio-temporal properties satisfied by the regions in which they occur. For instance, suppose that John says "Hello" to Billy loudly and abruptly in a region R and

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then Billy replies to John. The concrete event of John's greeting has the occurrence condition that consists of all the intrinsic and spatio-temporal properties satisfied by R.[8]

Consider the following definition (Lewis 1986, p. 255): event C implies event E iff, necessarily, if C occurs in a spatio-temporal region then also E occurs in that region. The event whose occurrence condition is John's saying "Hello" loudly and abruptly implies the event whose occurrence condition is John's saying "Hello" loudly since the second event occurs in every region where the first event occurs. Let a realizer of an event C be a concrete event that implies C. The actual concrete event of John's greeting is a realizer of the event whose occurrence condition is John's saying "Hello" loudly. This is because, given that the occurrence condition for the first event consists of all the intrinsic and spatio-temporal properties satisfied by R, if the first event occurs in a region, the second event also occurs in that region. Imagine an event that is a mereological sum of the actual concrete event of John's greeting and the actual concrete event of Billy's response. It does not serve as a realizer of the event whose occurrence condition is John's saying "Hello" loudly since if the first event occurs in a region, the second event does not occur in that region but in a proper part of that region.[9]

Some comments are in order. It is clear that a concrete event realizes more than one event. The actual concrete event of John's greeting implies, and therefore realizes the event whose occurrence condition is John's saying "Hello" abruptly as well as the event whose occurrence condition is John's saying "Hello" loudly. On the other hand, an event has more than one (actual or merely possible) realizer. For example, a number of merely possible concrete events of John's greeting as well as the actual concrete event of John's greeting imply, and therefore realize the event whose occurrence condition is John's saying "Hello" loudly. Finally, when an event C occurs in a region, the concrete event whose occurrence condition consists of all the intrinsic and spatio-temporal properties satisfied by that region serves as the actual realizer of C. For instance, the actual realizer of the event whose occurrence condition is John's saying "Hello" loudly has the occurrence condition that consists of all the intrinsic and spatio-temporal properties satisfied by R.

Keeping this in mind, let us go back to the tyre's disposition to shatter if rendered fragile and then struck. Suppose that, in a spatio-temporal region R, the tyre undergoes the characteristic stimulus of the disposition to shatter if rendered fragile and then struck. Then, obviously, the event E_1 whose occurrence condition is being rendered fragile and then struck occurs in R. If so, the characteristic stimulus of fragility, i.e., the event E_2 whose occurrence condition is being struck occurs as well. Here, however, it is important to realize that E_2 does not occur in R but in a subregion that is properly included in R. Therefore, when we let e_1 and e_2 be the actual realizers of E_1 and E_2, respectively, e_1's occurrence condition consists of all the intrinsic and spatio-temporal properties satisfied by R, whereas e_2's occurrence condition consists of all the intrinsic and spatio-temporal properties satisfied by a subregion properly included in R. This being the case, e_2 is a proper mereological part of e_1. In general, whenever E_1 occurs, E_2 also occurs; but the actual realizer of E_1 is a more inclusive concrete event than the actual realizer of E_2.[10] If so, to say that the tyre is disposed to shatter if rendered fragile and then struck is to say that it is disposed to shatter if it undergoes a concrete event that is more inclusive than a realizer of the characteristic stimulus of fragility. This, however,

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[8] A 'non-concrete' or 'high-level' event is defined to be an event whose occurrence condition consists of only some of the intrinsic and spatio-temporal properties satisfied by the spatio-temporal region in which it occurs. Here I rule out what Lewis (1986, p. 263) calls extrinsic events, which he thinks disagreeable.

[9] Here I accept Lewis's (1986, p. 244) distinction between occurring in a region and occurring within a region: 'An event occurs within every region that includes the region in which it occurs; and it occurs in the region that is the intersection of all regions within which it occurs'.

[10] A concrete event e_1 is more inclusive than a concrete event e_2 iff e_2 is a proper mereological part of e_1.

does not ensure that the tyre is disposed to shatter if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of fragility.

It is unquestionable that something like the following biconditional holds good: 'x is fragile at a time t iff x is disposed at t to shatter if it undergoes the characteristic stimulus of fragility'. This, however, needs a refinement. A glass's being fragile not only implies that it is disposed to shatter if we strike it but also that all we have to do to shatter it is to strike it. For instance, in order to shatter it, we do not have to change its intrinsic nature before striking it. We can incorporate this idea by modifying the above biconditional such that x is fragile at a time t iff x is disposed at t to shatter if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of fragility.[11] We have found above that even if the tyre under consideration is disposed to shatter if rendered fragile and then struck, this does not entail that it is disposed to shatter if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of fragility. This offers us an explanation of why the tyre's being fragile at a time t does not follow from the fact that the tyre is disposed at t to shatter if rendered fragile and then struck.

We are now well informed enough to embark on the case of S_3 and S_4. The characteristic stimulus of *fragility under a medium-sized blow* is the event E_3 whose occurrence condition is being struck with a medium-sized blow. Suppose that E_3 occurs. Then E_2, i.e., the event whose occurrence condition is simply being struck occurs as well. Furthermore, E_2 occurs in exactly the same spatio-temporal region as E_3: given that x is struck with a medium-sized blow in a region R, it is struck exactly in the same region R. If so, the actual realizers of E_2 and E_3 have the same occurrence condition consisting of all the intrinsic and spatio-temporal properties satisfied by R, and therefore they are the same concrete event. Thus, every event that serves to realize E_3 also serves to realize E_2. Suppose now that x is fragile under a medium-sized blow at a time t. Then x is disposed at t to shatter if it undergoes a concrete event that is exactly as inclusive as a realizer of E_3. But, as we have seen, every realizer of E_3 is also a realizer of E_2, i.e., the characteristic stimulus of fragility. Therefore, x is disposed at t to shatter if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of fragility, which suggests that x is fragile at t. As a result, x's being fragile under a medium-sized blow at t implies that it is fragile at t. This leads to the conclusion that S_3, namely, the sentence that Q is fragile under a medium-sized blow attributes fragility to Q. The same could be said about S_4.

The same does not apply to the case of S_1 and S_2. What are the characteristic stimulus and manifestation of *fragility under the condition of low enough temperatures*? It should be noticed that, as stated in Sect. 1, (A$_3$) suggests that S_1 ascribes to H the disposition to shatter if struck when its own temperature is low enough. Given that Prior adopts (A$_3$) as one of the premises in *Temp*, she is likely to propose that the characteristic stimulus of *fragility under the condition of low enough temperatures* is the event whose occurrence condition is being struck when x's own temperature is low enough, whereas its characteristic manifestation is the event whose occurrence condition is shattering, which I think plausible.[12]

As we have seen in Sect. 1, on Prior's view, *Stan* that has been at an ordinary temperature for a sufficient time is fragile under the condition of low enough temperatures. However, as

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[11] In general, x has a disposition D at a time t iff x is disposed at t to exhibit the characteristic manifestation of D if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of D.

[12] There is another way of looking at the matter, according to which the characteristic stimulus and manifestation of *fragility under the condition of low enough temperatures* are the event whose occurrence condition is being cooled down to a low enough temperature and the event whose occurrence condition is being fragile, respectively. It is obvious that, on this construal, S_1 does not entail that H is fragile.

will become clear, this does not entail that it is fragile. Suppose that, in a spatio-temporal region R, *Stan* undergoes the characteristic stimulus of *fragility under the condition of low enough temperatures*. Then, in R, *Stan*'s own temperature becomes extremely low and then it is struck. If so, the event E_4 whose occurrence condition is being cooled down to an extremely low temperature and then struck occurs in R. This being the case, obviously, E_2, i.e., the event whose occurrence condition is being struck occurs as well. However, E_2 does not occur in R but in a subregion properly included in R. Hence the actual realizer of E_2 occurs in a subregion properly included in the region R in which the actual realizer of E_4 occurs. Therefore, while the actual realizer of E_4 has the occurrence condition consisting of all the intrinsic and spatio-temporal properties satisfied by R, the actual realizer of E_2 has the occurrence condition consisting of all the intrinsic and spatio-temporal properties satisfied by a subregion properly included in R. Consequently, the actual realizer of E_2 is a proper mereological part of the actual realizer of E_4. In general, E_4's realizer is a more inclusive concrete event than a realizer of the characteristic stimulus of fragility. If so, to say that *Stan* is fragile under the condition of low enough temperatures is to say that it is disposed to shatter if it undergoes a concrete event that is more inclusive than a realizer of the characteristic stimulus of fragility, which does not entail that *Stan* is disposed to shatter if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of fragility. This indicates that S_1 does not entail that H is fragile. Once this is recognized, we are inclined to say that S_1 does not ascribe fragility to H.

In short, given that Prior accepts (A_3), she will plausibly maintain that the characteristic stimulus of *fragility under the condition of low enough temperatures* is the event whose occurrence condition is being struck when x's own temperature is low enough, whereas its characteristic manifestation is the event whose occurrence condition is shattering; on this construal, however, we can justifiably deny that S_1 ascribes fragility to H. The same can be said about S_2. This gives us a deep reason for thinking that neither of S_1 and S_2 ascribes fragility to H. Then it does not follow from the fact that S_1 is true but S_2 is not, that 'fragile' has a hidden argument place that must be filled by properly specified background conditions. As a result, *Temp* fails to establish that 'fragile' is an incomplete predicate. But this does not mean that 'fragile' is not an incomplete predicate. Since S_3 and S_4 both ascribe fragility to x, it is deducible from the fact that S_3 is not true but S_4 is, that 'fragile' has a hidden argument place that must be filled by the strength of a striking force, and therefore that it is an incomplete predicate.

Here is a simple and brief version of my argument. When an object is cooled down, is struck and then breaks, the cooling is not part of the characteristic stimulus of fragility. That is, a cooling-and-then-striking isn't itself a striking. Therefore, S_1 doesn't entail that H is fragile, which leads to the conclusion that the case of S_1 and S_2 fails to demonstrate that 'fragile' is incomplete. Conversely, when an object is struck with a very hard blow and then breaks, the hard striking is itself a kind of striking. I put this by saying that it realizes the characteristic stimulus of fragility. From this it is derivable that S_3 does entail that H is fragile, which brings us to the conclusion that the case of S_3 and S_4 demonstrates that 'fragile' is complete. This is the basic intuition that I have attempted to capture by relying on Lewis's theory of events in this section.

4 Solubility

Let us now see how to apply the reasoning I went through to other dispositional predicates, for instance, 'soluble'. Prior maintains that 'soluble' is incomplete since a drop of nail-polish

N is not soluble in water but soluble in acetone. I think that she is right about that. The characteristic stimulus of solubility is the event whose occurrence condition is being submerged, while the characteristic stimulus of *solubility in water*—for short, water-solubility—is the event whose occurrence condition is being submerged in water. It is to be observed that if x is submerged in water in a spatio-temporal region, then it is submerged in that region. Therefore, if the characteristic stimulus of water-solubility occurs in a region, the characteristic stimulus of solubility occurs exactly in the same region. This means that every concrete event that serves to realize the characteristic stimulus of water-solubility also serves to realize the characteristic stimulus of solubility.

Suppose that x is water-soluble at a time t. If so, it is disposed at t to dissolve if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of water-solubility. Given that such a realizer also serves as a realizer of the characteristic stimulus of solubility, x is disposed at t to dissolve if it undergoes a concrete event that is exactly as inclusive as a realizer of the characteristic stimulus of solubility. Then we are led to the conclusion that x's being water-soluble at t implies that it is soluble at t. Once this is seen, it is reasonable to suppose that the sentence 'N is water-soluble' attributes solubility to N. By the same token, it is reasonable to suppose that the sentence 'N is soluble in acetone' attributes solubility to N as well. But, as already noted, the first sentence is false but the second is true. As a result, 'soluble' has a hidden argument place that must be filled by a putative solvent, and therefore it is an incomplete predicate.

Given that 'whilst nail-polish is insoluble in water at STP – 20 C and 1 atm—it will go into solution if the temperature and pressure are raised sufficiently' (Prior 1985, p. 5), the predicate 'water-soluble', too, is an incomplete predicate. Let us first make clear what entity the temperature and pressure pertain to. Note that if a drop of nail-polish N were to be submerged in hot water at a time t, it would dissolve regardless of its own temperature or the ambient temperature at t. Similarly, if N were to be submerged in cold water at t, it would not dissolve regardless of its own temperature or the ambient temperature at t. This reveals that when we say that N is not water-soluble at an ordinary temperature but is water-soluble at a high enough temperature, the temperatures pertain to water. The same goes for pressure. That is, when we say that N is not water-soluble under an ordinary pressure but water-soluble under a high enough pressure, the pressures are attributed to water.

Taken this way, to say that N is water-soluble under the condition of high temperatures and pressures is, to a first approximation, to say that N is disposed to dissolve if submerged in water of high temperatures and pressures. Here it is to be noted that if N is submerged in water of high temperature and pressure in a spatio-temporal region, then N is submerged in water exactly in the same region. Therefore, every concrete event that serves to realize the characteristic stimulus of *water-solubility under the condition of high temperatures and pressures* also serves to realize the characteristic stimulus of water-solubility. Then it is an easy step to show that if N is water-soluble under the condition of high temperatures and pressures, it is water-soluble. This indicates that the sentence 'N is water-soluble under the condition of high temperatures and pressures' ascribes water-solubility to N. The same could be said about the sentence 'N is water-soluble under the condition of STP'. Hence, from the fact that N is water-soluble under the condition of high temperatures and pressures but not under the condition of STP, we can legitimately draw the conclusion that 'water-soluble' has a hidden argument place that must be filled by properly specified physical conditions of water. In conclusion, 'water-soluble', like 'soluble', is an incomplete predicate. Of course, we can get the same result for 'acetone-soluble', 'benzene-soluble' and so on.

It will be useful to generalize what I have claimed so far. Suppose that 'P' is a dispositional predicate. Just as we can form such predicates as 'fragile under a medium-sized blow'

and 'fragile under a very hard blow' by adding more details to the characteristic stimulus of fragility, we can form predicates 'P_1', 'P_2', ... by adding more details to the characteristic stimulus of P-ness. I have argued above that the incompleteness of 'P' does not immediately follow from the fact that x is P_1 but not P_2. The incompleteness of 'P' follows only on the assumption that the two sentences, 'x is P_1' and 'x is P_2', both attribute P-ness to x. And this assumption is true when, for each of P_1-ness and P_2-ness, every concrete event that serves to realize its characteristic stimulus also serves to realize the characteristic stimulus of P-ness. While Prior is right that many ordinary dispositional predicates are incomplete, she fails to make this assumption explicit with the result that some of her arguments do not work.

Are all dispositional predicates incomplete? Prior thinks they are. As already noted, she subscribes to the view that all dispositional predicates are incomplete. But I disagree. I do believe that there are complete dispositional predicates that have no hidden argument places. This is so despite the fact that it is hard to exactly state what complete dispositional predicates are like. To form complete dispositional predicates from 'fragile', we need to take account of all aspects of a striking that would affect x's breaking—for instance, the strength of a striking force, the angle of the force, the time for which the force is applied, and the area on x's surface to which the force is applied, and so on. That being so, those complete dispositional predicates will be mouthful. But to say that it is a pain to complete dispositional predicates is quite different from saying that there are no complete dispositional predicates at all. Contra Prior, I stress, there are complete dispositional predicates.

5 The context-dependence and intrinsic nature of dispositions

I take it that the findings in this paper should be of major interest to the metaphysicians of dispositional properties. *Inter alia*, they shed a new light on the context-dependence of dispositional ascriptions. It is broadly agreed that the semantic value of a dispositional ascription depends upon the context in which the ascription is made, which a majority of philosophers think we need to take into account to provide an adequate account of dispositions.[13] On this view, it is important to make clear the degree and nature of the context-dependence of dispositional ascriptions. Very roughly, I believe, the context-dependence of dispositional ascriptions lies in the fact that the hidden argument places of incomplete dispositional predicates have their values determined by the contexts of dispositional ascriptions. For instance, given that 'fragile' has hidden argument places that must be filled by the strength of a striking force, the angle of the force, etc., the ascription of fragility is context-dependent insofar as the context of ascription fixes the values of those hidden argument places. This is vindicated by the fact that when we say that something is fragile, we envisage its being struck with different strengths of a striking force, depending on pragmatic contexts. When homemakers say that a glass is fragile, they have in mind its being fragile under a medium-sized blow; and, when construction workers say that a television set is fragile, they have in mind its being fragile under a very hard blow.

Malzkorn (2000, p. 458) maintains that the ascription of fragility is context-dependent on the grounds that a red rose is fragile at an extremely low temperature but not at an ordinary temperature.[14] However, this is incorrect because, as we have seen, 'fragile' does not have a hidden argument place that must be filled by background conditions. When we say that a

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red rose is fragile at an extremely low temperature but not at an ordinary temperature, what we mean is that it is disposed to be fragile if its temperature is extremely low but is not disposed to be fragile if its temperature is ordinary, which has nothing to do with the context-dependence of the ascription of fragility. This demonstrates that, based on my account of the incompleteness of dispositional predicates, we can rule out Malzkorn's apparently plausible claim about the context-dependence of fragility.

So far I have argued that my account of the incompleteness of dispositional predicates makes it possible to have a proper understanding of the context-dependence of dispositional ascriptions. I suggest that it also makes it possible to have a clear idea of intrinsic dispositions. Until recently there was a strong tendency in the philosophy of dispositions to think that dispositions supervene on intrinsic properties and laws of nature, that is, that dispositions are nomically intrinsic to their bearers.[15] Later, however, it proved that this tendency is wrong because there are full-fledged extrinsic dispositions (McKitrick 2003). Indeed, the incompleteness of dispositional predicates may be thought to entail an even stronger claim that most ordinary dispositions are extrinsic dispositions. For instance, given that 'fragile' has a hidden argument place that must be filled by the strength of a striking force, the truth-value of the sentence 'x is fragile' does not supervene on x's intrinsic properties and the laws of nature. This is because even if we have fixed x's intrinsic properties and the laws of nature, the sentence 'x is fragile' does not take any definite truth-value. If so, we seem to be forced to say that fragility is not a nomically intrinsic disposition. The same could be said about all dispositional properties that are expressed by incomplete dispositional predicates. Hence it may be claimed that all incomplete dispositional predicates designate extrinsic dispositions and therefore that, given that most ordinary dispositional predicates are incomplete, most ordinary dispositional properties are extrinsic dispositions.

But this reasoning is not quite right since it doesn't give due consideration to the role played by the contexts of dispositional ascription. As noted earlier, incomplete dispositional predicates are 'completed' by the contexts of dispositional ascription in the sense that their hidden argument places have the values determined by the contexts of dispositional ascription. For instance, the context of dispositional ascription determines the relevant strength of a striking force, the relevant angle of the force, and so forth such that 'x is fragile' takes a definite truth-value in a specific context of use. In this sense, in a specific context, we can treat incomplete dispositional predicates as if they were complete dispositional predicates. Obviously, however, this doesn't mean that, with the contexts of dispositional ascription taken into account, all incomplete dispositional predicates designate nomically intrinsic dispositions. For, not all complete dispositional predicates designate nomically intrinsic dispositions. Yablo (1999, p. 611) proposes that x's having weight n can be roughly defined to be the disposition to depress a properly constructed scale so as to elicit a reading of n pounds in x's gravitational field. So conceived, I take it, the predicate 'having weight n' is a complete dispositional predicate as it has no hidden argument places. But I agree with McKitrick that it is not a nomically intrinsic disposition: if I move from the earth to the moon, my weight would change. This being said, not all complete dispositional predicates designate nomically intrinsic dispositions. As a consequence, even if we put the contexts of dispositional ascription in place, there is no guarantee that dispositional predicates express nomically intrinsic dispositions.

Here it will be useful to distinguish two different ways in which we can bring the contexts of dispositional ascription to bear on the issue of the intrinsic nature of dispositional properties. The first proposal is that, for instance, the dispositional property designated by

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[15] For a detailed discussion of the intrinsic nature of dispositions, see (Choi forthcoming)

'fragile' in a specific context is not fragility *tout court* but *fragility under the strength of a striking force that is fixed by the present context of dispositional ascription, with the angle of the force that is fixed by the present context of dispositional ascription, and so on*. On this view, in a specific use of the predicate 'fragile', it designates the same dispositional property as the complete predicate 'fragile under the strength of a striking force that is fixed by the present context of dispositional ascription, with the angle of the force that is fixed by the present context of dispositional ascription, and so on'. In this sense, with the context of dispositional ascription put in place, the incomplete dispositional predicate 'fragile' can be treated like a complete predicate.

But there is another way of looking at the role played by the contexts of dispositional ascription. The idea is that when homemakers say that a television set is not fragile, what they mean is not that it is not fragile under the strength of force that is fixed by the present context of ascription but that it is fragile under a medium-sized blow. By the same token, what construction workers mean by saying that a television set is fragile is that it is fragile under a very hard blow. This leads one to think that the predicate 'fragile' designate different properties under different contexts of dispositional ascription.

Suppose that 'P' is an incomplete dispositional predicate. Then we can form complete predicates 'P_1', 'P_2', . . . by filling all the hidden argument places of 'P' with determinate values. Suppose further that, in a particular conversational context C, I say that x is P. Then the proposal advanced here is that the incomplete predicate 'P' designates the property P_i-ness when we can form 'P_i' by filling the hidden argument places of 'P' with the values fixed by the context C of dispositional ascription. For instance, suppose that a construction worker says that a television set is fragile. On the proposal, the incomplete predicate 'fragile' designates *fragility under a very hard blow, with a certain angle of the force, and so on*. For, 'fragile under a very hard blow, with a certain angle of the force, and so on' is the complete predicate that we can form by filling the hidden argument places of 'fragile' with the values determined by the construction worker' context. But 'fragile' designates a different property in a different context of use. When a homemaker says that a television set is not fragile, it designates *fragility under a medium-sized blow, with a certain angle of the force, and so on*, which is distinct from *fragility under a very hard blow, with a certain angle of the force, and so on*. For, the homemaker's context associates the incomplete predicate 'fragile' with the complete predicate 'fragile under a medium-sized blow, with a certain angle of the force, and so on'. Hence, on this second proposal, the same incomplete dispositional predicate 'P' designates different dispositional properties in different contexts of ascription. This is a contrast to the first proposal on how to bring the contexts of dispositional ascription into play according to which the predicate 'fragile' designates a single dispositional property, namely, *fragility under the strength of a striking force that is fixed by the present context of ascription, and so on*, across different contexts of dispositional ascription.

So far I have talked about two distinct ways in which the contexts of dispositional ascription can be brought to bear on the issue of the intrinsic nature of dispositions. But whichever way we understand the contexts of dispositional ascription, we can see that my account of the incompleteness of dispositional predicates can make a seminal contribution to the issue of the intrinsic nature of dispositions. Let us first consider the first proposal about the role of the contexts of dispositional ascription according to which, in a specific context of use, the incomplete predicate 'fragile' designates *fragility under the strength of a striking force that is fixed by the present context of dispositional ascription, and so on*. On this proposal, all incomplete dispositional predicates express extrinsic dispositions. Homemakers truly say that a television set is not fragile, meaning that it is not fragile under the strength of force that is fixed by the present context of ascription. Meanwhile, construction workers truly say that a

television set is fragile, meaning that it is fragile under the strength of force that is fixed by the present context of ascription. Then it follows that two nomic duplicates, namely, two perfect duplicates that are subject to the same laws of nature, may be different with respect to *fragility under the strength of a striking force that is fixed by the present context of ascription, and so on*. In consequence, 'fragile' doesn't designate a nomically intrinsic disposition. That being said, according to the first way of looking at the role of the contexts of dispositional ascription, even if the contexts of dispositional ascription are brought into play, it is still not the case that 'fragile' designates a nomically intrinsic disposition. The same conclusion can be easily drawn for all incomplete dispositional predicates. If so, we can say this much about nomically intrinsic dispositions with assurance: nomically intrinsic dispositions must be expressed by complete dispositional predicates. This means that, to get an adequate account of nomically intrinsic dispositions, we need to make clear what complete dispositional predicates are like.

Meanwhile, on the second proposal about the role of the contexts of dispositional ascription, the incomplete dispositional predicate 'P' designates the property P_i-ness where 'P_i' is the complete predicate that we can obtain by filling the hidden argument places of 'P' with the values fixed by the context of dispositional ascription. To determine whether 'P' expresses a nomically intrinsic disposition or not, we need to know what P_i-ness is like, that is, what property 'P_i' designates. So conceived, whether the incomplete predicate 'P' expresses a nomically intrinsic disposition or not hinges upon whether the contextually determined complete predicate 'P_i' expresses a nomically intrinsic disposition or not. As already noted, however, not all complete predicates designate nomically intrinsic dispositions. If so, how can we determine whether the complete predicate 'P_i' expresses a nomically intrinsic disposition or not? I am afraid it is a tall order to give a detailed answer to this question. I think, though, that we can say at least this much about it. In order to answer the question, we need to examine whether, on the assumption that x is P_i, all nomic duplicates of x under diverse circumstances are P_i or not. But it is obscure how to do this unless we make clear what hidden argument places the original incomplete predicate 'P' has and exactly what the contextually determined complete predicate 'P_i' looks like. For instance, when I say that x is soluble in a particular context, it is hard to tell whether the dispositional predicate 'soluble' designates a nomically intrinsic disposition or not unless I identify its hidden argument places and explicitly specify what complete dispositional predicate is involved in this context of dispositional ascription. This is why I believe that, on the second proposal about the role of the contexts of dispositional ascription, my account of the incompleteness of dispositional predicates can pave the way for developing a satisfactory account of the intrinsic nature of dispositions as well.

To recap, in whichever way the contexts of dispositional ascription are brought to bear on the issue of the intrinsic nature of dispositions, my account of the incompleteness of dispositional predicates can serve as a stepping stone for a better understanding of the intrinsic nature of dispositions. This, along with its relevance to the issue of the context-dependence of dispositional ascriptions, constitutes the main significance of my account of the incompleteness of dispositional predicates.

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