Abstract
The aim of this paper is to defend a naturalistic approach to instantiation and the Principle of Instantiation. I argue that the instantiation of an ordinary property \( F \) consists of two coordinated relationships at the levels of the manifest and scientific images, namely, constituency and entailment. Also, I offer an account of the Principle of Instantiation related to this conception of instantiation based on the notion of scientific prediction.

Key words: Instantiation, Naturalism, Factualism, Armstrong, Moreland

1. Introduction: Two Central Issues in the Ontology of Instantiation

Consider two ordinary objects, for example, two red tomatoes: \( A \), this tomato’s being red, and \( B \), that tomato’s being red. An ontological analysis of \( A \) and \( B \) has to answer at least two questions: (1) what is the ontological ground of this tomato’s having the property of being red?, and (2) what is the ontological ground of this tomato’s and that tomato’s sharing the property of being red?\(^1\) Contemporary metaphysicians raise further ontological and logical issues about instantiation closely related to (1) and (2), such as: (3) what is the ontological category of this tomato’s being red?, (4) is instantiation a transitive or a non-transitive relation?, (5) is instantiation a symmetrical or a non-symmetrical relation?, (6) is instantiation a cross-categorial relation?, (7) is instantiation an internal or an external relation?, (8) is instantiation an essential or an accidental relation?, (9) is instantiation a necessary or a contingent relation?, (10) does the instantiation relation have instances?, (11) is instantiation a universal or a particular relation?\(^2\),

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\(^1\) I address this question in Cumpa (Forthcoming).

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(12) is instantiation a concrete or an abstract relation?, and (13) does a principle of instantiation exist? In this paper I will focus on two related questions: (1) and (13). I will ignore the others. First, I will discuss Armstrong’s answer to (1). Second, I will critically examine Moreland’s answer to (13). Finally I will propose naturalistic answers to (1) and (13).

2. The Nature of Instantiation

David Armstrong has proposed one of the most sophisticated ontologies of instantiation. However, it seems to be unsatisfactory for two reasons. First, it leads to a categorial problem about instantiation. Second, his reduction of instantiation to constituency creates an ontological gap between particulars and properties. As I shall attempt to show, my view of instantiation as a complex relation consisting of ‘constituency’ and ‘entailment” can avoid both the problem and the gap.

Armstrong’s ontology of instantiation is designed to explain two facts about properties:

(I) Facts about having properties: $a$ instantiates $F$ (or $a$ is $F$, or $a$ has $F$).

(II) Facts about sharing properties: $a$ instantiates $F$ and $b$ instantiates $F$ (or $a$ shares $F$ with $b$).

Let’s consider again our two red tomatoes. According to Armstrong, an ontology of instantiation has to account for single predications such as this tomato’s being red, and also for multiple predications like this tomato’s being red and that tomato’s being red or equivalently, this tomato’s and that tomato’s sharing the property of being red.

The categorial problem arises because Armstrong does not realize that instantiation in (I) and (II) are of different categories. On the one hand, if we speak of this tomato as having the property of being red, then instantiation is conceived as a bringing together of this tomato and the property of being red:

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3 For a detailed presentation of Armstrong’s ontology of instantiation, see Cumpa (2014).

4 Here I offer an analysis of instantiation only of ordinary properties like colors. In Cumpa (Forthcoming) I extend this analysis to scientific properties such as negative charges and fundamental forces.

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In speaking of a particular-having-certain-properties I am, of course, simply trying to emphasize the inseparability of particularity and universality. (…) Obviously, we can and must distinguish between the particularity of a particular, on the one hand, and its properties (and relations), on the other. But it is a distinction without relation. (1978: 111)

On the other hand, if we speak of this tomato and that tomato as sharing the property of being red, then instantiation is a matter of the property of being red being a constituent ‘in’ the two facts of this tomato’s being red and that tomato’s being red:

If two things have the very same property, then that property is, in some sense, “in” each of them. (1978: 108)

And Armstrong adds:

Universals are constituents of states of affairs. (1989: 99).

This special “in” represents ‘constituency’ and is the proper mode of composition of facts. The non-mereological mode of composition of facts is Armstrong’s positive solution to the problem of the multiple location of property universals, because it allows for the property of being red to be capable of being shared by the two facts of this tomato’s being red and that tomato’s being red:

States of affairs hold their constituents together in a non-mereological form of composition, a form of composition that even allows the possibility of having different states of affairs with identical constituents. (1997: 118)

Now, Armstrong has considered (I) and (II) as two façons de parler about one and the same thing, instantiation:

In talking about states of affairs and talking about instantiation, we are talking about the same phenomenon. (1989: 110).

3. The Categorial Problem: Instantiation as Constituency

Are (I) and (II) two mere façons de parler about instantiation? It seems obvious to me that
The property of being red is had by this tomato, and The property of being red is ‘in’ the fact of this tomato’s being red.

represent two wholly distinct relationships, namely: predication and constituency. First, the relationship in (III) represents that the property of being red is predicated of this tomato; and second, the relationship in (IV) represents that the property of being red is a constituent of the fact of this tomato’s being red. Armstrong’s ontology of instantiation, therefore, adopts predication to account for this tomato’s being red, and constituency to account for this tomato’s and that tomato’s sharing the property of being red. However, Armstrong has ultimately considered that (III) is reducible to (IV):

Talking about states of affairs is a simpler and more perspicuous way of talking about instantiation. (1989: 110).

As I shall attempt to show, Armstrong’s view of instantiation leads his ontology of instantiation to face the problem that I have called “the categorial problem,” namely, the problem of the categorial indeterminacy of instantiation. This problem can be described in the following ontological terms.

First, if instantiation is, following Armstrong’s first position, equivocally understood as (III) and (IV), then it fails to account univocally for single and multiple instantiations of the property of being red. Thus relations of two distinct categories, predication and constituency, are needed to explain instantiation. Second, if instantiation is, according to Armstrong’s second position, univocally conceived as being (IV), then it can account for facts of type (II), but unfortunately it cannot account for facts of category (I). The reason is that “being-a-constituent-of” represents a relationship between the property of being red and the fact of this tomato’s being red, rather than between the property of being red and this tomato. Still there remains a third possibility in accordance with Armstrong’s recent proposal in his latest book. If instantiation is univocally regarded as being (III) like Armstrong now defends, then it can account for facts of sort (I), but it cannot

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5 Grossmann (1992: 35) has acknowledged the existence of this problem by pointing out the same problem with respect to Armstrong’s view of ‘thin’- and ‘thick’ particulars.

6 This is Armstrong’s latest view, according to which instantiation is a tie of necessary predication. See in Armstrong (2010).
account for facts of type (II). The idea here is that the relation of “being-predicated-of” does not represent a non-mereological relationship of composition of facts, which is required, for Armstrong, for the two facts of this tomato’s being red and that tomato’s being red to be capable of sharing the property of being red. How can we avoid these dramatic conclusions about instantiation? We can avoid such conclusions by giving a one-category account of instantiation of facts of type (I) and (II).

4. The Ontological Gap: A Naturalistic Approach to Constituency

In agreement with Factualism, I think that the category of instantiation is that of ‘constituency’ or ‘being a constituent of’ a fact. Indeed, I think that to say of this tomato which has the property of being red is just to say that the property of being red is a constituent ‘in’ the fact of this tomato’s being red. My trouble with Armstrong’s view is that it creates an ontological gap between the tomatoe and its color, since the property of being red is not had by the tomato, but rather by the fact of this tomato’s being red. Can we fill the ontological gap between our tomato and its color in a one-category account of instantiation as constituency? I think so. I want to propose a naturalistic understanding of constituency as grounded in empirical (scientific) entailments. For it would seem possible to connect the tomato and its property by way of an explanation of why the property of being red is a constituent ‘in’ the fact of this tomato’s being red framed in terms of facts of the following form:

(Property Entailment) If and only if there is an arrangement of photons behaving in a certain way or wavelengths of determinate electromagnetic radiation, then there is a red color.

This particular kind of entailment grounds that the property of being red of this tomato is a constituent ‘in’ the fact of this tomato’s being red. A naturalistic approach to instantiation as constituency can then provide an empirical (scientific) definition of instantiation for ordinary properties:

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7 By “Factualism” here I mean the thesis that the structure of ordinary (and scientific) objects is ‘fact-constituent.’

8 Similarly, Tegtmeier (2013) has argued that the relation among constituents of facts is a mere ‘togetherness,’ i.e., the circumstance of being together.
(Instantiation) $F$ is ‘in’ the fact of $a$’s being $F$ if and only if there is a P-entailment.

5. The Principle of Instantiation: A Naturalistic Account

James P. Moreland has argued that an empiricist defense of the Principle of Instantiation is condemned to failure because our ordinary, perceptual experience cannot provide justification for whether or not a property, say, the property of being red of our tomatoes, will be instantiated in the future. I will explain why this is wrong by showing how Moreland’s objection is based on a naive conception of empiricism, and then reformulating the empiricist defense of the Principle in naturalistic terms. I will explain how to formulate the temporal range of the Principle, and how to understand future instantiations.

Consider the following scenario: $a$ instantiates $F$, and $a$ stands in relation $R$ to $b$. Are $F$ and $R$ instantiated by $a$ and $b$ with contingency or necessity? Is there any sort of dependency involved in the instantiation of $F$ or $R$? Are $F$ and $R$ always instantiated? By asking these questions ontologists are inquiring into the very nature of the Principle of Instantiation. But what is the definition of the Principle of Instantiation? Bergmann (1954: 245) and Hochberg (1984: 231) have provided a definition of what we might call “the categorial range” of the Principle of Instantiation:

If we may judge from what is presented to us, every individual exemplifies at least one character, every character is at least once exemplified. Call this the Principle of Exemplification.
Bergmann 1964: 245

And:

I shall use the phrase “principle of exemplification”, hereafter, PE, for the two part requirement (1) that all undefined descriptive predicates of an improved language, $L$, refer to characters that have been exemplified at least once and (2) that every particular named by a proper name of $L$ has at least a primitive non–relational descriptive property.
Hochberg 1984: 231

Armstrong (1989: 75–76) has contributed to the definition of what might be called “the temporal range” of the Principle:
We certainly should not demand that every universal should be instantiated now. It would be enough if a particular universal was not instantiated now, but was instantiated in the past, or would be instantiated in the future. The Principle of Instantiation should be interpreted as ranging over all time: past, present, and future.

Armstrong 1989: 75–76

Grossmann (1983: 132) has provided a definition of what we can call “the empirical basis” of the Principle of Instantiation:

I have no argument for this position, but must appeal to experience. I am never acquainted, in any sense, with a property which is not the property of something.

Grossmann 1983: 132

In this regard, Moreland (2001) has argued against the empirical basis of the Principle of Instantiation. In particular, he argues that any empirical basis of the Principle on the grounds of our ordinary, perceptual experience seems to be too weak to ground the whole temporal range of the Principle. Moreland’s objection rests on the claim that non-present (past and future) instantiations have a similar ontological status to those of uninstantiated properties.9 As Moreland (2001: 91–92) puts it:

But how can the current existence of some entity depend on the fact that in the future (or past) it will be exemplified (…)?
And how are we to conceive of the current mode of existence of such an entity?

Moreland 2001: 91–92

The real force of Moreland’s objection is epistemological: the empirical basis of the Principle of Instantiation seems to conflict with its (eternal?) temporal range. From now on, I will focus on future instantiations of properties. It would be relatively easy to show why the empirical basis of the Principle of Instantiation is not affected by Moreland’s objection with respect to past instantiations of properties. After all, we certainly have empirical knowledge that properties have been exemplified in the past. However, it is not as easy to show why the empirical basis of the Principle of

9 In a similar vein, Forrest (1993: 51) has argued that ‘non-actual states’ are uninstantiated properties.

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Instantiation would remain unaffected by Moreland’s objection concerning future instantiations of properties. How can our experience of properties in the present justify us in positing their future existence? What can we do? In agreement with Naturalism, we can update the empirical basis and the future temporal range of the Principle of Instantiation so that it includes not only perceptual, occurrent experience, but scientific, predictive theory as well. Thus, while it is impossible for us to know if ordinary property \( F \) will be instantiated or not in the future by appealing to our ordinary, perceptual experience, it would seem empirically possible for fundamental science to know if ordinary property \( F \) will be instantiated or not in the future via scientific predictions.

Now, how can we make predictions of future instantiations of properties?

6. Instantiation and Prediction: A Hypothesis

Let’s assume here that colors are reducible to arrangements of photons or wavelengths of electromagnetic radiation, such that, in accordance with the Property Entailment, there is a general fact which lawfully connects ordinary and physical facts as follows:

(General Fact) For all colors, if and only if there is an arrangement of photons behaving in a certain way or wavelengths of determinate electromagnetic radiation, then there is a color.

Let’s also grant an assumption about the current state of science. Namely, I will assume that in some interpretations of fundamental physics predictions of future events (I will call them “facts”) are empirically possible. These future facts, as I shall attempt to show, may be ordinary facts like the fact of this tomato’s being red. The mentioned assumption, I think, is hardly controversial. Just think of some of the predictions made by the General Theory of Relativity. For example, consider the famous prediction of the deflection of light around the sun, according to which how much the sun bends light could be successfully calculated by Einstein before it was tested. This is just one example of the many interesting predictions in fundamental physics.

So, let’s suppose that one of our tomatoes, \( a \), instantiates the property of being red now, and that a few seconds later \( a \) ceases to instantiate the property of being red. Should we consider the property of being red that our tomato \( a \) had a moment ago to
now be an uninstantiated property? I do not think so. Now I want to propose a hypothesis on the prediction of future instantiations:

(Prediction of Instantiation Hypothesis) If scientific theory $T$ made prediction $P$ about future event $X$, $P$ entailed physical fact $Q$ about photons or wavelengths, and $Q$ were lawfully connected to ordinary fact $S$ about color property $G$, then it would follow that prediction $P$ entails the prediction of ordinary fact $Q$ about color property $G$.

There is, naturally, an interesting, but trivial, form of prediction already present in the mentioned lawful connection. Given our knowledge of colors, we can predict, for example, that there will be a red color if and only if there is an arrangement of photons behaving in a certain way or wavelengths of determinate electromagnetic radiation. Now, I am much more interested in the substantive form of prediction related scientific theories just described. In this connection, my claim is that we can think of future instantiations of properties like the property of being red as being ordinary facts about ordinary properties entailed by scientific predictions. If I am on the right track, we can regard future instantiations of ordinary properties, not as uninstantiated properties, but rather as untested instantiations of properties. In a naturalist ontology of instantiation the empirical basis of the Principle of Instantiation is not merely perceptual, but also scientific, and the future range of the Principle is not simply occurrent time, but also predictable one.

7. Conclusions

In this paper, I have developed a naturalistic approach to instantiation and the Principle of Instantiation. First, I have argued that the instantiation of an ordinary property $F$ such as the property of being red consists of two coordinated relations at the levels of the manifest and scientific images, namely, constituency and scientific entailment. Second, I have argued that this account of instantiation can be epistemologically supplemented by a Principle of Instantiation based on the notion of scientific prediction. I have concluded that the present proposal provides better alternative solutions to pressing ontological problems related to constituency than the account provided by Armstrong, as well as to the epistemological
problem raised by Moreland in regard to the Principle of Instantiation.

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References


— (Forthcoming). Are Properties Universal, Particular, or Neither?. *American Philosophical Quarterly*.


