

# RESEMBLANCE, EXEMPLIFICATION, AND ONTOLOGY

Paolo Valore

*ABSTRACT: According to the quantificational (neo-)Quinean model in meta-ontology, the question of ontology boils down to the question of whether a sortal property is exemplified. I address some complications that arise when we try to build a philosophical reconstruction of the link between individuals and kinds displayed in the exemplification relation from the point of view of conceptualism about kinds and having in mind this stand in ontology. I distinguish two notions of resemblance, object-to-object and object-to-kind, and show the problems with both of them. Finally, I argue for a better awareness of the implicit "bias" involved in the very notion of "resemblance", without indulging in Quine's veto towards this notion.*

## I.

Notwithstanding the recent neo-Aristotelian renaissance (Schaffer 2009; Tahko 2012; Tahko 2012; Correia & Schnieder 2012; Hoeltje, Schnieder and Steinberg 2013; Novotný and Novák 2014) and the deflationist neo-Carnapian view that never really went away (Hirsch 2011; Price 2009; Thomasson 2015), contemporary literature in meta-ontology seems to confirm that the quantificational approach is still the "normal paradigm".<sup>1</sup> According to the classic, (neo-)Quinean quantificational approach to ontology, the question of what exists is to be solved through a paraphrase into canonical notation of our theory  $T$ , assigning the ontological commitment of  $T$  to the values of the quantified variables of the (true) sentences of  $T$ . From this point of view, the form of the ontological commitment of a sentence such as " $F$ s exist" is "There are  $F$ s", understood as "There is at least one  $x$  such that  $Fx$ ". Consequently, existence is *not* a property of individuals; according to this model, it is indeed incoherent to state an additional property of existence to  $x$ s in case of a predication about  $x$ s: existence is prior to predication.<sup>2</sup>

In conformity with this perspective, the ontological commitment of a predication about individuals does not inform us about what individuals exist (all of them do), but rather about what sortal properties are exemplified. In fact, unlike other meta-ontological models such as Lowe's,<sup>3</sup> a Quinean approach does not distinguish between exemplification and instantiation. In other words, assuming the classical Principle of Instantiation, according to which we need to acknowledge all and only the kinds that are instantiated, the quantificational approach answers the

question of ontology specifying the non-empty kinds. Subsequently, the question whether *F*s exist can be reduced to that of whether *F* is exemplified, where *F* is a sortal property.

Since the question of ontology in the quantificational form relies essentially on exemplification, the transparency of this latter concept seems to be crucial to defend the (neo-)Quinean approach. In this paper, I want to draw attention to some complications that arise when we try to specify how we should actually proceed in correlating individuals and kinds that those individuals exemplify, from the point of view of conceptualism about kinds and having in mind this stand in ontology. The choice of conceptualism is justified as, apparently, the least “metaphysical” alternative to a strong realism about universals and properties, without assuming necessarily a strict nominalistic stance.<sup>4</sup> The advantage is that, if we please, we may interpret the kinds we build as conceptual tools without ontological counterparts, but we are not forced to do so. Therefore, the strategy seems more powerful than demanding. In addition, conceptualism seems to fit the Principle of Instantiation at its best, since it does not acknowledge kinds that are not exemplified. With this restriction in mind, my attempt can be also be read as a way to test if conceptualism is actually the most viable strategy to account for exemplification with the purpose of defending the quantificational approach in meta-ontology. Being, in my opinion, this strategy crucial for the quantification approach, this test may be nonetheless interesting *per se*, even if we do not share the standard (neo-)Quinean ontological commitment criterion, as it can also be read as a test of conceptualism as such. One of the conclusions of this conceptual analysis will be that the kinds involved in the exemplification required by this ontological model are best considered as “quasi-natural”.

## II.

From a conceptualist point of view, in building a philosophical reconstruction of the link between individuals and kinds displayed in the exemplification relation, one may take advantage of the notions of “similarity” or “resemblance”. On closer inspection, it seems better to distinguish (at least) two types of “resemblance”: we can grasp, or build, kinds thanks to an object-to-object resemblance (OOR) or link individuals to kinds thanks to an object-to-kind resemblance (OKR). Overlooking their irrelevant differences, we focus on resemblances among individuals to grasp, or build, general cases, which result from selective acts of grouping for the sake of our representation, or conceptualization (OOR). By relying on the general cases thus built, we are able to associate other individuals with kinds, to which they are similar (OKR). Unfortunately, in the analysis of the theoretical knowledge embedded in human representation of kinds, types and categories, it is commonly assumed that, while playing a crucial

role in our capability to extend limited samples to general paradigms of “typical cases”, the concepts of “resemblance” and “similarity” are notions worthy of further philosophical and conceptual clarification. Therefore, the previous picture is in need of further clarification, for it recalls notions known to be puzzling.

The easy way to do the job seems to be the reduction of the notion of resemblance to more manageable notions such as set membership. The basic idea is that, assuming the set of individuals  $I:\{I_1, I_2, \dots, I_n\}$  and the set of predicates  $P:\{P_1, P_2, \dots, P_n\}$ , we should be able, for any  $I_i$ , to pair the appropriate  $P_i$  or  $\neg P_i$ , in the easiest case in which properties do not come in degree. In order to accomplish this task, we assume to be always possible, for any  $I_i$ , to determine whether  $P_i$  holds, but we can grant this point for the sake of simplicity. According to this picture, we should be able to select the subset  $S_i$  of  $I$  such that all the members of  $S_i$  are the members of  $I$  for which the property expressed by the predicate  $P_i$  holds and the complement of  $S_i$  is the set of all the members of  $I$  for which the property expressed by the predicate  $\neg P_i$  holds. The subsets of  $I$  may or may not overlap, partially or completely, since we are not imposing any restriction to the combination of properties. We can now define two or more individuals “object-to-object similar” relatively to the property  $P_i$  if they are members of the same subset  $S_i$  of  $I$  selected according to the property  $P_i$ .

A first provisional conclusion seems to be that OOR requires the choice of a property that selects the intended way to generate the subset. Visibly, this stratagem works in theory only. Complications arise when we consider both that the individuals we need to classify do not come with a list of favored properties for the sake of our conceptual work, and that, at least theoretically, all choices are of equal value. Everything is, in fact, “similar” to everything else in some respect.<sup>5</sup>

### III.

An attempt to improve this strategy is notably discussed in Quine 1969, which develops it by means of a comparison such as “ $I_1$  is more similar to  $I_2$  than  $I_3$ ” if  $I_1$  and  $I_2$  are jointly members to more sets than  $I_1$  and  $I_3$ . However, since sets are generated by the exhaustion of combinations, the number of sets to which any two elements jointly belong is not determined by the features shown by those elements, i.e. their similarity, but rather by the total number of elements.<sup>6</sup> The recent literature tries to avoid the issues raised by theory of sets, trying to adopt a more restricted notion of kind with different strategies, although it is not clear how successfully.<sup>7</sup> This may not be a problem if we are merely considering the possible combination of properties, but it seems to be relevant if our interest is not formal but rather *ontological*.

There might be choices that we consider unwanted or unfitting, but, clearly, we need first to set our aims and the context, according to which we build our sense of what is appropriate or fitting – that is, we need a generating principle that we can trust in producing the correct, or suitable, grouping for our aims. The big problem being, at this point, that aims are chosen from an evaluative perspective, which spins data in a certain direction with reference to a preferred perspective among the many possible.

This difficulty was remarkably observed by Kant in a quick note of the *Critique of Judgment*: “[mere logic] teaches how one can compare a given representation with others, and, by extracting what it has in common with others, as a characteristic for general use, form a concept. But about whether for each object nature has many others to put forth as objects of comparison, which have much in common with the first in their form, it teaches us nothing; rather, this condition of the possibility of the application of logic to nature is a principle of the representation of nature as a system for our power of judgment, in which the manifold, divided into genera and species, makes it possible to bring all the natural forms that are forthcoming to concepts (of greater or lesser generality) through comparison”.<sup>8</sup>

If, on the one hand, it seems puzzling to find a red thread that guides us through the different ways of grouping a variety of objects of a given domain in absence of an a priori strategy of intended relevant properties and a hierarchy of preferences (OOR), on the other hand we expect it to be easier to find the right association between a new case and one of the kinds once the correct grouping is given (OKR). Unfortunately, if we are not able to specify the strategy of the intended relevant properties and the hierarchy of preferences, empirical data as such do not help us do the job. The grouping, even when correct, does not come with a label specifying the reason why the individuals are gathered. In this case, we need to specify an additional object-to-kind similarity that allows us to choose among several properties of a given object in order to match it to the right kind.

It should then be clear that, when we take in consideration proprieties that come in degrees, and the greatest part of our properties do, the complications ramify exponentially and the interference among alternative ordering strategies requires further decisions in giving sense to the data under investigation. Therefore, the previous arguments might apply once again, multiplied in number. However, we may ignore these further ramifications, since we are considering here sortal properties, which are not assumed to come in degree.

## IV.

The philosophical worry about the notion of OOR in generating categories and OKR in associating an individual to the proper kind seems reinforced by experimental psychology. With reference to saliency parameters, empirical results confirm that participants in experiments in categorization and similarity rating produce different patterns of classification guided by theoretical assumptions about the properties they handle, and show that the configuration of features plays a crucial role in category classification. Rehder & Hastie 2001 and Ahn & Kim 2000, for instance, show how theoretical knowledge, and in particular causal knowledge, imposes a structure to our beliefs about categories and “supports projections that enable people to ‘go beyond the information given’”.<sup>9</sup> The impact of this factor is so relevant that Rehder & Hastie 2001 concludes: “Although the old saying goes that ‘Experience is only half of experience’, in the present research we found that ‘Experience is much less than half of experience’”.<sup>10</sup>

The bottom line, endorsed by Quine himself, might be that we should be suspicious of the very idea of a single taxonomy of kinds or of a unique correct grouping of individuals established independently of any consideration about what should count as a relevant or perspicuous property. For instance, LaPorte 2004 suggests that “naturalness” is a matter of degree and proposes a tolerant and pluralistic view: “the taxa recognized by different systems of classification may be natural in different respects”.<sup>11</sup> “Relevant” and “perspicuous” are indeed pragmatic and evaluative qualities. If we are suspicious of any pragmatic and evaluative injection in our science, we may well conclude that the very notion of similarity and kind are to be dispensed with and even that “we can take it as a very special mark of the maturity of a branch of science that it no longer needs an irreducible notion of the similarity and kind”.<sup>12</sup>

Nevertheless, this conclusion is far from being mandatory, or appealing. If we are justified in mistrusting the necessity of any particular structure of ideal types based on similarity, it does not follow that our ontology can do without a scheme or hierarchical taxonomy. Some strategy for ordering in perspicuous kinds seems to be in need, even though this might take us to determine the ordering case by case, according to our theoretical concerns and by evaluating the consequences of each choice, taking in consideration our field of interest and the practical nature of our aims. In this case, we speak in terms of “conceptual schemes” or “categorical frameworks” as the guiding background of our grouping options, which determine the acknowledgment of a certain structure of kinds instead of another.

## V.

The notion of kind is essentially involved in the background assumption that makes sense of the ontological commitment criterion. We may well debate if there is a thing *per se* such as a natural kind or if that is merely a theoretical strategy we implement in order to give our various, different data a more functional manageability. However, it seems out of doubt that we assume at least a concept of kind in asking, through the ontological commitment, whether a kind is exemplified. Also, the metaphysical intricacy of this very notion has further ramifications in the application phase of this ontological model, which requires our “best theories” as a basis for ontology. However the idea of our “best theories” may be understood, it needs to include the theories which best account for our empirical observations.

The very idea of “kinds” suggests that the individual cases we test in controlled experiments result in the same outcome, given the same conditions, since they exhibit the same *sortal property (nature, disposition, essence)*.<sup>13</sup> We may be tempted to identify this “common nature” with an ideal entity, which turns to be our real object of study of natural sciences. In a first-stage research phase, such a kind is gained through an act of empirical abstraction, with a rather thin inductive base and a thick metaphysical assumption: we observe a (relatively small) amount of individual cases in controlled experiments, looking for what the individual cases share, with the aim of grasping the pertinent sortal property they exhibit, *via* OOR. In a second-stage phase, researchers need to determine, *via* OKR, which kind the individual cases exemplify.

These ideal kinds may be either stipulated (a) or real (b).

(a) If they are fictitious models stipulated in order to give sense to experimental data, they may work with the conjectural research or the theoretical assessment of experiments although their ontological import is less clear. At least if ontology has to save its connection with our best scientific theories, which this ontological model requires.

(b) Apparently, when ontology is concerned, we are interested in real kinds, rather than in kinds resulting from acts of grouping built artificially on the interests and decisions of human beings. Or, paradoxically, our particular interest in this case is the discovery of taxonomies and classifications that correspond to real kinds in nature and not our particular interests and decisions. Therefore, a simple reply to the previous concerns could be that some similarities are less relevant than others, from an objective point of view, without bringing any evaluation or particular preferences in. We could select, for instance, only those factors that usually play a role in “our best theories” and, once we have restricted the variations to this limited field of factors, or in case of multiple alternative classifications according to those factors, we might introduce a hierarchy of preference according to their likely relevance.

Now, there are at least two main levels of difficulties with this strategy. The first level is more general and concerns the fact-value distinction; the second level is more specific to what counts as our “best theories” in case of empirical observations.

From the general point of view, there is a widespread agreement that the fact-value dichotomy cannot be simply assumed without qualification, since there are good reasons to suspect that a *strict distinction* between factual statements and evaluative statements is nothing short of a philosophical myth. Referring to the standard literature on the topic,<sup>14</sup> it is enough here to mention that requesting an objective, factual point of view with no mention of values and decisions as a way out from the previous troubles with OOR and OKR similarity involves difficulties that are as challenging as the ones we are tackling, if not worse.

From a more specific point of view, requesting a selection of the only factors that objectively play a role in connection with our best theories conflicts with the evidence that we do not know in advance which factors do and which do not play a role in a specific research domain. In order to comply with this request, we should be able to identify significant sets in advance in order to make sense of our data in the first place. In fact, data themselves do not come with a specification of what should count as the relevant property for a certain group in order to account for the results we get.<sup>15</sup> Furthermore, focusing exclusively on the factors that we “know” usually play a role could even make us blind to those variables that we excluded a priori: a selection that trades the feasibility of the inquiry at the expenses of our unbiased freedom of research.

An additional problem, with the second part of the suggestion concerning the hierarchy of preference according to the likely relevance of factors, is that a hierarchy requires further criteria that need to be disclosed. Even if we imagine reaching an agreement on such criteria, there is the additional problem that the likeliness of their relevance relies on previous results and on the way the previous research has been conducted, limiting once again our ability to consider the data from innovative and unforeseen points of view, taking in consideration aspects that have been neglected.

We already know that fictitious models to make sense of empirical data based on our interests and decisions have little use for our applicative aims. A provisional conclusion is that looking for independent taxonomies and classifications without bringing evaluations or preferences into the field does not seem to work as well.

## VI.

This train of considerations does not necessarily conflict with our practical strategy to work with ideal models and kinds. Actually, there is no other way to do the job. In fact, I am not contesting a kinds-based approach to

our scientific research, favoring a yet-to-clarify “alternative” approach. Rather, I am just suggesting that being aware of such complications may be useful in reminding us that any act of modeling through OOR and OKR is “biased”, if you are willing to use such an expression, and that this limit is unavoidable. When I question the “natural” character of kinds reached via resemblance, I do not want to suggest that, since they are, at least partially, human creations, they are arbitrary and no one grouping is more correct than any other. If natural kinds are natural insofar as they lead to groups of natural objects that behave with a regularity independent of conscious human activity, their objectivity rests on the objectivity of natural laws.<sup>16</sup> What I am questioning is the fact that, while not completely dependent on human interests and decisions, they are taken to be completely independent. The mere fact that there are available alternatives, which are equally justified categorizations of the same data, raises doubts about their complete independence. Moreover, that one grouping is more correct than others can be justified only when it is possible to disclose the a priori set of criteria, preferences and choices that generate our ontological categorization of individual cases in general kinds. When we speak of different alternatives in fixing the categorial frameworks of our taxonomy of kinds, each based on different assumptions of preferences and choices – pragmatic and evaluative decisions included – we should avoid the risk of suggesting a relativist approach to our ordering strategies. On the other hand, in order to avoid any form of relativism, kinds must be independent from our decisions and preferences in selecting the pertinent resemblance for the sake of our acts of conceptualization. The problem being, at this point, that the crucial strategy of the conceptualist approach is to reduce kinds to sortal properties and sortal properties to results of an act of abstraction through OOR. However, kinds cannot be wholly dependent on conceptual schemes or categorial frameworks if we take this to mean that concepts and categorizations themselves *generate* kinds as such. This enigmatic act of institution is much more than any of our acts of abstraction can do. Kinds can be said to depend on conceptual schemes or categorial frameworks in the following sense: questions on existence or reality can only be asked relative to some background assumptions that cannot be found, as such, in our data.<sup>17</sup>

For this reason, I prefer to consider these kinds *quasi-natural*, since they are “natural” in the sense that they are not arbitrary and they are intimately connected with natural laws, but they are not “natural” if we intend “natural” as “opposed to kinds resulting from acts of grouping built on the interests and decisions of human beings”.

Therefore, when we build categorizations of individuals using quasi-natural kinds, we can keep an eye open to the always-available alternative ordering strategies. The risk, in fact, is to forget that taxonomies and classifications that we have been using for a long time sound “natural”, thus preventing us from exploring new territories. In selecting relevant

properties guiding our taxonomies in kinds, we should not look condescendingly at manifestation of preferences in assessing our aims, as it was the case with an old positivistic attitude towards science in general and taxonomic theories in particular. Even with reference to the most applicative field of the most empirical sciences, the best objective results can be gained when we face frankly the possibility that our preferential evaluative subjective perspective may be our best guide in organizing the data. It may indeed seem too hazardous to give space to a partial creativeness, but the risky face of the subjective qualification of such a perspective may just be neglecting or hiding the relevance of a factor that seems embedded in the very notion of resemblance and it is inescapable anyway.

The problem with implicit bias is that they are implicit. An improved conceptualistic account of kinds based on the two notions of resemblance, OOR and OKR, should consider a more creative and responsible approach, which can be gained when the previous implications are not omitted or kept quiet, as if they were a birthmark that stains the purity of science. These implications have important ramifications on many related questions such as: the investigation of cognitively adequate ontological representations; the problem of the reliability of the source of information and the contribution of interests and preferences in data handling and manipulation; the investigation of the rationales for the selection of the concepts that are relevant for our ontology.

It is desirable that in future research, alongside a disclosure of financial interests, scientific studies and applications find the space to think at the preferences and interests that guided the ontological framework of singular cases in kinds, since there are so many different ways to organize objects in categories and so many different ways to justify the choices we made.

*University of Milan, Italy*

## NOTES

<sup>1</sup> Cf., for instance, Chalmers-Manley-Wasserman 2009 (in particular, Kit Fine on p. 157); Van Inwagen 2001, pp. 13-31; Berto & Plebani 2015; cf. also the presentation given in Tahko 2015, which is written by a neo-Aristotelian but remains neutral on the topic.

<sup>2</sup> For a comprehensive presentation of the ontological commitment as a paradigm for meta-ontology cf. Valore 2016.

<sup>3</sup> Cf. Lowe 2006.

<sup>4</sup> For a contemporary version of conceptualism and formal ontology, cf. Cocchiarella 2007.

<sup>5</sup> Cf. Valore 2016, pp. 185-187.

<sup>6</sup> Cf. Quine 1969, pp. 114-138.

<sup>7</sup> Cf. Bird & Tobin 2016; Beebee & Sabbarton-Leary 2010a; Campbell, O'Rourke, & Slater 2011.

<sup>8</sup> More accurately, it is a note in the so-called "First Introduction" to the *Critique of the Power of Judgment*, i.e. the introduction that Kant decided not to publish and replaced with a completely different text. Cf. Kant 2002, pp. 15-16, note marked by \*. Cf. also Husserl 2001, Investigation Two, §4, pp. 242-243.

<sup>9</sup> Rehder & Hastie 2001, p. 323

<sup>10</sup> Rehder & Hastie 2001, p. 354.

<sup>11</sup> La Porte 2004, p. 27.

<sup>12</sup> Quine 1969, pp. 137-138.

<sup>13</sup> I am not committing to any of these alternatives nor do I want to touch upon the question of the nature of dispositions and essences. Whether the notion of kind implies necessarily an ontology of essences, discovered through scientific investigation and determining the extensions of our natural kind concepts, is a matter of debate. Classical references are Kripke 1980 and Putnam 1975, which focus on the essences of natural kinds of substances, such as water and gold. Bird & Tobin 2016 outlines the fundamental positions for natural kinds in general. The question of essence is an extremely thorny one, since it seems to call metaphysical necessity into discourse, with the need of a further clarification of this kind of necessity. On the other side, it is questionable that any reference to essences need to (or can) be expressed in terms of a prior notion of metaphysical necessity, and we may also consider a stipulative "Kripkean" account, according to which the natural kinds are just those kinds that obey Kripkean semantics. Cf. Fine 1994 and Lowe 2007.

<sup>14</sup> Cf. Putnam 2004; Marchetti & Marchetti 2016.

<sup>15</sup> A case study from biomedical research is provided in Valore 2017. On the nature of natural kinds in biology and medicine, cf. Roy 1998; for a synthetic presentation of the philosophical debate on natural kinds in special sciences, cf. Bird & Tobin 2016, § 2.

<sup>16</sup> Cf. Riggs 1996.

<sup>17</sup> Cf. Valore 2016, pp. 233-235.

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