Abstract and Concrete

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Abstract:

Philosophical usage of "abstract" to mean "not located in space and time" is (1) an overextension of the ordinary meaning which encourages conflating platonic realism about universals with conceptualism about universals, since (2) "abstract" in its ordinary use is quite appropriate to the traditional conceptualist theory of universals, in which the "abstract general idea" is a standard item. Applied with its ordinary meaning to the platonic theory, "abstract" is incorrect. As appropriated in philosophical discussion, "abstract" does apply truly. That is not a good reason to persist in the misleading use.

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1.

Some abstraction is performed on images. An image may be "internal" or "external". A photo, painting, sculpture, or sketch is a physical thing which can qualify as a visual image of some other thing. It may be of an actual person or of, say, a centaur, even though there never was such a thing. A sculpture could also qualify as a tactile image. Sounds could be auditory images. The sound of a passing locomotive could serve as an important image, or go unnoticed and not count as an image, being only a potential image. An introspectable memory image may involve a variety of sensory modalities.

One use of "abstraction" names the process of eliminating some features of an image to focus on others, with the result being an abstract of the original. In some cases, the abstract may be said to be, not of the image but of what the image was an image of. This account is sketchy and thus could be called "abstract" in a negative sense. Some sketches may be highly accurate and praised for that, but they are not then called "sketchy". Photoshop techniques could be used to produce an abstract from a photo, but removing, say, an arm, need not count as abstraction.

Removing features from an image is not only not necessary, but not sufficient, for being abstract. Mark Rothko's "Orange over Red" is considered highly abstract without that implying that it was produced by abstraction from an image. I would say it is abstract but not *an* abstract, to grant that something abstract need not be produced by abstraction, but the distinction is tenuous. x may

appear to be, or function well as, an abstraction from y, without y having figured at all in the existence of x.

An abstract painter may remove the clear boundaries in a visual image, making the shapes of things vaguer than they were while drawing attention to colors. This encourages an association between "abstract" and "vague". Other abstracts, say of a building or a garden layout, or a crime scene may result in a much sharper, less vague, image, so that the association between "abstract" and "vague", which can be observed in general use, can be misleading. A skillful caricature of a famous person is an abstract, but it need not be at all vague.

"Abstract" is also connected with "general". By deleting some features, the requirement for an abstract image applying to a thing is less strict, so that it will apply to a wider range of things. Abstraction can thus be seen as a way of generalizing. This is not specific about what it is for an image to apply to a thing. A 500-word description of a literary character by a skilled novelist may make it difficult to find an actor to fit the description in a film version. An abstract of the description, eliminating some features, could make it easier to find an actor who fits. This is not enough to make clear the idea that an abstract of an image is liable to be more generally applicable than the original image. Whether an abstract caricature of Elvis Presley is applicable to the hordes of Presley impersonators involves more than resemblance. That a signature is a forgery is not determined by weakness of resemblance. I will not attempt to give a generally applicable account of what it means to say that an image x applies to an object y. It is a meaningful way of speaking.

In the uses of "abstract" so far, there is, notably, no obvious contrast with "concrete". Some works of art may be called "concrete" in opposition to "abstract". In application, especially to sculpture, this could be quite ambiguous. To call an image "concrete" does not have a ready meaning. Poems in the "Concrete" style were often quite abstract. An abstract, such as a caricature or building diagram, would be a physical thing with a location in space and origin at a time. In this use, being abstract does not conflict with being a physical object.

Another use of "abstract" does not have abstraction working on an image so much as on a more detailed case, perhaps even an actual case. That case may then be called "concrete". For example, the city of Königsberg was divided by a river with two islands. There were seven bridges connecting the two sides and the islands and there was a famous challenge, to walk around all the bridges crossing each bridge only once. This can be described as a concrete, particular problem. Euler gave an abstract description of the problem, eliminating all but the essential features and an abstract solution proving that all problems of that structure are unsolvable. In this use, there is a contrast between "abstract" and "concrete".

An abstract may be a particular physical object, such as a sketch on paper. We can also see that a concrete case need not be physical. Consider the problem of listing in order the prime factors of 2,786. A more abstract problem would be listing the prime factors of any given natural number. It is easy to describe an algorithm for solving the more abstract problem and to make a concrete application of that algorithm to the concrete case of 2,786. That does not mean that 2,786 is a

physical object. Of course, we would not call it a concrete object either. It is a concrete case relative to a more abstract problem. Pure mathematics can move to increasingly abstract studies in this way without ever starting with physical things, though mathematical problems may also come by abstraction from physics problems which started with specific physical arrangements.

Being more abstract need not conflict with being physical. Two sculptures may represent some famous event, with one being much more abstract and the other being a concrete representation of the event. (We can spare ourselves having both done in concrete---make it marble.) The one sculpture being abstract does not involve its being any less a physical object.

This is not to deny that "abstract" may be used in contrast to "concrete" to emphasize that the latter is a specific physical thing and the former, say, exists "only as an idea". While I do not agree that "Justice exists only in the abstract", the saying is a natural use of "abstract". It is not well interpreted to mean that justice does not exist in space and time. It means that justice does not exist at all---except as an ideal. If that is wrong, and there was, for example, justice at Nuremberg, as many say, it was located in space and time. Most would agree that injustice can be quite concrete.

2.

Philosophical use of "abstract" is notably different, in that it has come to mean something incompatible with existence in space and time (or space-time---not a distinction to be undertaken here). Being abstract may even be defined as existing separately from space and time. Materialist opponents of Platonism hold that nothing exists outside space and time. Lest that be dismissed as tautologous due to "outside", they may put it that everything that exists is located in space and time. Including space and time can be managed with such maneuvers as calling space the ultimate place and time the ultimate occasion, locating them at, or in, themselves. (Whether space is located in time, or time located in space, can be set aside along with space-time.)

The view that everything that exists is located in space and time is worthy of consideration. So is the view that some abstract things would, if they existed, not exist in space and time. But to infer from the premise that if an alleged kind of thing were to exist, it would not exist in space and time, the conclusion that the thing would be abstract is either mistaken or dependent on a use of "abstract" not in keeping with the ordinary meaning. A critic may say "Platonic universals exist only in the abstract" as in the example above of "Justice exists only in the abstract" to mean that the platonic idea is only an idea, and a bad one at that. To use "abstract" to mean "not existing in space and time" is a misuse.

This philosophical use of "abstract" arose in discussing the relation of general terms to universals. Giving a general account of a general term has caused philosophers trouble. The trouble starts with distinguishing a general term such as "dog" from a singular term such as "Fido". To say "dog" applies generally to many animals while "Fido" applies to only one is not a guide to a general distinction. "Trufflehound" could be a general term even if it turned out there never have been any trufflehounds, and "Fido" could be used to name thousands of dogs. Platonism, or more generally,

realism about properties, attempts to answer in terms of idealized grammar, either in terms of the origin of language (the "primary' uses) or in terms of ideal or logically perfect languages. A general term t is introduced into a language, "in the primary case", to "express" a property F which is common to many things. The general term t applies truly to a thing x if x is an instance of the property F. A singular term is introduced, in the primary case, to "denote", "designate", "name" just one thing. A singular term is true of a thing in a different way than a general term. It is true of x if x is the thing the term was introduced to name.

The primary uses are extended by compounding, such as conjunction, disjunction, and conditionalization. Compounding serves a variety of functions which make it logically difficult to describe in a general way, but truth-functional compounds offer a clear picture of how general terms can be formed which apply only to one thing or to none. Such compounds retain the linguistic form signaling generality. A device such as the definite article can modify a general term T to signal the claim or presumption of designating a single thing, "the T", to form a singular term which also expresses a property. Assigning different things the same proper name can be seen as an accident arising from the extension of language use from a small community of users to a larger number with less and less coordination. The "logically perfect language" included the ideal of avoiding this defect of using a proper name to name different things - a "defect" standard in natural languages.

On the property realist view about general terms, they are linguistic expressions with the primary, original purpose, of expressing a property, so that the property can be attributed to a thing x by applying the general term to x. Realists regard one important kind of universal to be a property shared by more than one thing. The original purpose of a general term would be to apply truly to more than one thing by expressing a property common to those things. But logical compounding results in properties and general terms which apply only to one thing or to none. On the realist view, a property is not a linguistic item, and exists whether or not it is recognized by humans. (Whether a property is also independent of instances is a point on which realists are divided.)

In giving examples for general discussion, simple pointing gestures may not work and it is common to use linguistic predicates. We might say that Spot, Rover and Fido are dogs and thus share the common property of being a dog. Nominalists can understand that as a figure of speech, but hold that what the three dogs have in common, the universal, is the term "dog" or predicate "___ is a dog" or related linguistic items. Realists hold that the universal property is not a linguistic item and could have existed before there was language or language users. There are properties not expressed by any linguistic terms and there are now grammatically correct linguistic general terms which do not express properties at all, retaining only the misleading grammatical form of general terms.

This latter feature means that a realist cannot rely generally on identifying a property by such a device as putting a general term T in the blank of "the property of being a _____" or "what it is to be a _____". "Scientific" realists may deny that such a term as "dog" expresses a property common to those things x such that a majority of competent English speakers would agree that "dog" applies truly to x. Even if there is the scientifically testable property of being such that properly interviewed

speakers would agree "dog" is true of x, that property could not be what causes those speakers to so agree and thus would not be the property expressed by the term. No doubt, some property of x must explain why competent speakers generally apply T to x. This need not, in general, be the property, if any, which is expressed by T.

For example, assume, strictly for purpose of discussion, that there is such a property as being a cocker spaniel. "Cocker spaniel" has problems similar to "dog", but the pretense should be clear---the phrase expresses being a cocker spaniel. Now consider an x such that competent speakers agree that "dog" applies truly to x. How this would be proven is important---we assume it is true. If asked "What would you call x?" most of the competent speakers might reply "It's a cocker spaniel". That, which we are assuming is a property, would be the one causing the acceptance of "dog" (the testers would not include "cocker spaniel" among the options). But it is not the property expressed by "dog", even if "dog" expresses a property and being a cocker is a property. This is just one way in which a property causing application of a term may not be a property expressed by the term.

On the nominalist view, the most natural account of truth would be pragmatic, agreement in usage which leads to generally satisfactory consequences in guiding scientific practice. Natural language tends to be unreliable by this criterion, since general satisfaction among users is badly lacking in uniformity and may also be a very low standard. Pragmatic nominalism is most practical (pragmatically successful) in reference to idealized scientific language. Nominalism and property realism are two opposing accounts of what a universal, a commonality, is. The realist says it is a shared extra-linguistic property, the nominalist says it is a commonly applicable general term.

In natural language, ambiguity is a major problem for nominalism. The set of things to which "junk" applies truly share the common property of having "junk" apply truly to them, but that is a logically and scientifically trifling commonality, unlike the boats, narcotics and junk store items. A nominalist might reply that some commonalities are trifling and some are not, and the sorting is determined by pragmatic considerations. That does not answer the point that the sorting is not being accomplished by "junk". The status of nominalism on this problem is not the concern here.

Neither of those accounts of the nature of a universal provide a basis for answering the question as to what justifies applying a general term to a previously unobserved candidate. If an animal is seen for the first time and a speaker is challenged to justify calling it a dog, neither the reply "That's what most people would call it and that usage works well" nor "It is an instance of the property of being a dog" would be adequate. (This is not to assume that the question, either in the particular case or in general, is a good question.)

It might seem that, if it is a fact that applying T to x is a pragmatic success, this would serve to answer a request to justify the application. That is false. Claiming the application is a pragmatic success begs the question. Proving it is a success would be an answer, but that is a different matter. Let us grant for purpose of discussion that for "A is guilty of fraud" to be true is for the attribution to be a pragmatic success. Then to say "Guilty" is true because it is a pragmatic success is no better than saying it is true because it is true, or a success because it is a success.

The fact that the attribution will be a success cannot justify, nor can it explain, why I made the attribution. Believing that the attribution will be a success cannot properly explain my attribution because the belief is too close to the attribution. Believing it is true that x is T does not explain believing that x is T. Neither the pragmatic nominalist nor the property realist accounts of a general term applying truly are a basis for either justifying application as correct or explaining what causes application. This is not a criticism of those views, just a warning against misconstruing what they are attempting to do. There are three distinct projects---(I) explaining what, if anything is common to the things to which a general term applies, (II) explaining what, if anything, justifies applying a general term to a candidate and (III) explaining what, if anything, causes the application of a general term by an agent (correctly or incorrectly). This brings us back to the idea of abstraction.

3.

Besides the nominalists and the property realists, there are the conceptualists, who hold that a universal is an idea and thus a mental item. The essence of the conceptualist theory of universals is that a universal, in the simplest case, is an idea or "concept" which is created by a process of abstraction. The person experiences a sufficient number of instances and abstracts from these sensory images to form an abstract mental image which can be recognized as somehow sufficiently depicting each of the cases. Stated in this way, the theory is an easy target for ridicule, as Berkeley shows in his discussion of Locke. It is almost enough for Berkeley to cite Locke's own words. Locke says that even such a relatively easy case as the general idea of a triangle "must be neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon, but all and none of these at once...In effect, it is something imperfect, that cannot exist; an idea wherein some parts of several different and inconsistent ideas are put together".

That is a very unpromising formula for a theory. Trying to form a triangle image which is neither right, nor obtuse nor acute is what Locke would call combining inconsistent ideas. On a common use of "idea", there is no difficulty at all in combining inconsistent ideas--- attending to the compound property of being, for example, a triangle which is both acute and obtuse. Similarly, the idea of a natural number which is both prime and composite is just as easy and clear as either of its components. It is equally easy to see that the idea is inconsistent. It was more difficult to see that the idea of a rational square root of 2 is inconsistent. In any case, seeing an idea to be inconsistent is no reason to find the idea itself at all difficult to grasp. Seeing it to be inconsistent is just understanding it better. But Locke is taking the ideas to be images, which is quite another matter. Forming an image of a triangle which is both acute and obtuse is not a likely project.

It may be unfair to Locke to characterize him as holding that the general idea of a triangle is a person's introspectable mental image, since he says that such an image "cannot exist". The characterization may be the penalty for his ironical style. When we say that someone understands the general idea of a triangle, this is merely to convey that the person applies the term "triangle" sufficiently in conformity with general use of the term. That cannot explain why the person applies

the term as they do. The conceptualist theory goes beyond the innocent observation about usage to offer the "concept" as a mental item which has a causal role in that usage.

Of the three historical theories as to what it is to be a universal, the conceptualist theory is the least plausible. This is in spite of the fact that most proponents of introspectable mental images as providing meaning for general terms do not claim one image per term, but rather, think of the "connotation" or "sense" of a term as a range of images linked by similarity. This makes the images achievable, but at the cost of losing universality. The fact that an obtuse triangle "matches" one mental image filed under "triangle" and an acute triangle matches another image in that file does not qualify either image or the whole file as the mental image constituting the commonality, the universal.

Mere similarity is not what unites the set of images into one concept. One can draw a long obtuse triangle and snip off a tiny piece from one end to form a quadrilateral. That quadrilateral will be perceived as more similar to the original triangle than either is to some acute triangle. What unites the triangle images is that anything matching either one of them is a triangle. That does not supply a candidate for the entity common to all triangles. Furthermore, the conceptualist candidate for a universal leads into subjectivism and private language, because the concept, as a mental item, cannot be the same entity from one agent to another. The idea that communication depends on similarity of concepts rather than identity can make some sense in a different context, but there is no hope for the idea that the one thing common to a number of things is a number of similar things.

The platonic realist answer to the question what is common to a number of things to which a general term T applies truly, is that, in natural language, there may be nothing of logical importance beyond the property of being a thing to which T applies truly. That commonality can be trifling due to ambiguity, among other things. However, T may apply by virtue of expressing a property common to the instances, and that property is something independent of having instances and independent of minds. Independence from instances can be hard to discern in the case of properties which necessarily have instances, such as being a prime number. Giving examples of properties is profoundly difficult on the realist theory due to the very independence of properties from predicates, since philosophers are so dependent on predicates for communication in general discussion from separated locations.

The other property realists, the "scientific" realists, are distinguished primarily by insisting that everything is located in space and time. This raises the question as to where a property, such as being a triangle or being a hydrogen atom (if those are examples---a scientific realist could say, consistently with their position, "hydrogen atom" is still a loose term not adequately tied to a definite property) is located. The main hope for an answer is that the property is located wherever its instances are located in space and time. (How this relates to locating atomic particles will not be undertaken here.) This leads to denying that there are uninstantiated properties, since, by that standard of location, they would fail to be located in space and time. That is quite awkward logically, because, if F and G are properties, the material negation of either and the material conjunction

should be properties. Properties should be closed under logical compounds. The physicalism of scientific realists causes them to lose the Platonist idea of the independence of properties from their instances and also to resist clear logical rules as if they were "metaphysical". The two realisms still agree about independence from minds.

Each of the platonic and the scientific realist accounts of universals could be described as a "no-account" account. They mainly emphasize what a universal is not---not dependent on minds or language. "Property common to a number of things" is positive, but if three people pool funds to buy a sailboat, it is a property common to each of them but would not be acceptable to the realists as a universal. In a polygamous society a spouse is common to many but not a universal for the realists. How to disambiguate? The boat cannot be predicated truly of the common owners, the spouse cannot be predicated truly of the other spouses. How is a property predicated? This can be done by social animals including humans, without language, but not in communication from separated locations. We rely on predicates and are thus back to general terms.

The nominalist account is admirably clear. The universal can be pointed out on a page or written out on a blackboard. There is, of course, the possibility of ontological confusion about the term, involving type versus token. But a sensible discussion in terms of tokens is manageable. The main problem is ambiguity. But idealization about that is equally attractive to realists. Nominalism is the most forthcoming and simple answer for project I, as to the nature of universals. Neither the nominalist nor the realist account for project I have direct implications for project II, what justifies attributing a universal or III, what causes attributing. The conceptualist's attempt at project I offers a candidate for the universal which is not just bland, but weighted with obvious defects.

4.

However, the conceptualist answer to project I can look better than the others when we move on to project III, since it implies a clear answer for that, explaining what causes application. This is assuming there are such events as "Agent A applied T to x", either in their own thinking or in assertion to others. Some might prefer to eliminate in favor of such as "A produced a token of T in the relevant way while in the appropriate sort of proximity to x" (or has a disposition to do that). I assume that applying happens, and then, like every event (setting aside quantum phenomena) is caused.

Consider a cognitive robot stationed along an assembly line to monitor passing widgets. Regarding the robot as a cognitive agent can be questionable. The robot is assigned to determine whether a widget is defective. If defect is being over 12" high, the robot might extend an arm at just over 12", so that unsatisfactory widgets are knocked off. That earns no credit for cognitive achievement. If there is one simple feature that determines acceptability, the robot may be a one trick pony. But there may be a complex range of disqualifying features and a high success rate for our agreeing with the robot's rejections, which makes it natural to count the robot as a cognitive agent.

This calls for explanation and a reasonable possibility is that the robot can take in images of the candidates and compare them with templates stored in the robot's "mind". For example, the robot might get a photo image, or brush the widget to "feel" its texture, or "listen" to its resonance, "smell" it or "taste" it (that is, detect signs of chemical or other composition which would produce in humans images with such sensory names), etc. for a variety of perceptual images. These images could then be compared by various means with stored "templates". That there were numerous templates would not count against their constituting one complex template as the robot's concept of an acceptable widget. Alternately, the complex template could be a concept of an unsuitable widget. It would not be what is common to all the defectives or to all the acceptables, the universal "defective widget" or "acceptable widget".

The concept of a concept sketched here could be precisely illustrated in an actual working robot. It is reasonable to suppose that something similar would explain much application of general terms by people in simple perceptual cases. (That the idea makes sense does not prove it is correct.) The idea that agent A recognizes x is F by taking in an image of x and comparing it with a stored F concept breaks down for more complex cases. If a robot is asked to determine whether this semi-trailer can drive under this bridge, with the road dipping under the bridge, the question can have the logical form, is x (the semi) an instance of F (able to drive under this bridge). "Taking an image of the semi to compare with a concept for being able to pass under that bridge" is liable to badly describe the operation of the robot in solving the problem. That would be true also for an abstract version of the problem. Computation involving the length of the truck and the length and shape of the curve of the road bed, etc. is not a matter of comparing an image with a stored "concept" to see if it "fits". To view the computation involved in solving the problem as construction of a concept is quite forced.

The difference between a concept constructed by the agent and one somehow built in was behind controversy about "innate ideas". Descartes and Kant held the concept of substance to be innate. For Kant this amounts to an agent needing a built in (innate) capacity to collect distinct sensory impressions together to form a compound which is taken by the agent as one unitary image, which may then be regarded as caused by some object perceived. This concept cannot plausibly be regarded as formed by abstraction, and even for derived concepts, Kant does not rely on abstraction. Some commentators can even depict Kant as seeing "concept" in a deflationary way, as a matter of competence in applying a general term. Locke's vigorous (though not rigorous) rejection of innateness, and his skepticism about the respectability of "substance", suggests that, in spite of his irony, he was committed to the view that the meaning of a general term is an idea arrived at by a process of abstraction.

Even for the easiest cases, conceptualism as a theory of justification of application, project II, has been well criticized by Plato in *Theaetetus*. To justify a verdict of "defective widget", it begs the question to say it matches your defective widget template or fails to match your acceptable widget template. "How do you know it's a defective widget?" "It meshes with my template for defective

widgets." How do you know that template is the one for defective widgets?" Such regress does not count against the theory as an account of what causes application, project III. On question III, property realism and nominalism are nonstarters. Conceptualism is a serious starter, even if the start leaves a very long way to go. It would not be inconsistent for realism or nominalism to turn to conceptualism for an answer to project III. The difference is that conceptualism's answer to I is essentially also an answer to III (and much more plausible there). The realist and nominalist answers to I do not imply an answer to III.

5.

Although conceptualism is a failure as a theory about the nature of universals (I), it clearly justifies describing a universal as an "abstract entity". On the conceptualist theory, a universal would be an abstract entity in a clear meaning of the term "abstract" following the common use of that term. To say that conceptualist universals are abstract entities is a justifiable section heading for an outline about universals. But philosophical usage describes a universal according to the platonic view, as an abstract entity, and means by this an entity not located in space or time. This is a gratuitous new use of "abstract" applied so as to conflate platonic realism and conceptualism. Platonism does not regard universals as resulting from a mental process of abstraction. It regards them as existing independently of minds and language.

Platonic realism does differ from scientific realism in regarding universals as not having locations in space or time, which would make them abstract entities on the gratuitous philosophical use. There is an important platonistic argument for the view that the soul is eternal. The soul is causally influenced by forms, properties. Contemplating the property of being a square root of 2, can cause the thought that it is impossible for there to be an instance. The property is not in space or time and is eternal. So what it causally influences, the mind or soul, is also not in space or time and is eternal. That crude formulation makes the argument highly vulnerable to criticism, and I do not endorse it or attribute it to Plato. But the popular criticism of platonic universals, that they must be unknowable, since they are not in space or time and humans cannot be causally influenced by anything not in space or time, begs the question against that argument. The argument does connect the platonic view with the idea that universals are not in space or time.

It is nonetheless a bad mischaracterization of the platonic view of universals to treat it as making not being spatiotemporal a defining characteristic of a universal. The position that a universal is located at all places and times where any instance is located is needed by a scientific realist in order to avoid having to admit the existence of anything not in space and time. That is confusing location with instantiation. Most importantly, defining location that way makes it impossible for uninstantiated properties to exist and thus rules out the closure of properties even under just material conjunction. Assuming property realism, the Platonist version that properties are not located in space and time is the one supported by logic. Nonetheless, that is very badly described by identifying

being abstract with not being in space and time and thus encouraging conflation of Platonism with conceptualism.

Furthermore, it is not obvious that even the crude conceptualist picture of a universal as a mental item requires regarding the universal as not in space and time. There is no obvious inconsistency in a mind-brain identity theorist being a conceptualist. And we can recall Locke's famous comment that when he travels from Oxford to London, his mind accompanies him on the entire journey.

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