University of Windsor

Scholarship at UWindsor

May 18th, 9:00 AM - May 21st, 5:00 PM

Commentary on "Two-Wise and Three-Wise Similarity, and Non-Deductive Analogical Arguments"

Ian Dove
University of Nevada, Las Vegas

Follow this and additional works at: https://scholar.uwindsor.ca/ossaarchive

Part of the Philosophy Commons

Commentary on "Two-Wise and Three-Wise Similarity, and Non-Deductive Analogical Arguments"

IAN J. DOVE
Department of Philosophy
University of Nevada, Las Vegas
4505 Maryland Parkway, Box 4505, Las Vegas, Nevada
USA
ian.dove@unlv.edu

1. Introduction

Insofar as I agree, at least in broad strokes, with Guarini's account of analogical argument, much of this commentary will focus on what may seem pedantic issues. For example, I object to calling these cases "two-wise" and "three-wise" similarity. Instead, there is a growing literature on this phenomenon that goes by the name *contrastivism*. A contrastivist account appeals to a contrast class—and this is precisely the difference between two-wise and three-wise comparative similarity. One advantage to this nomenclature is that it already accounts for n-wise comparisons.

Besides terminology, one must be on guard against taking the measurement of similarity too lightly (and I don't think Guarini does). One difficulty with measuring similarity arises for qualitative similarity as opposed to quantitative similarity. Part of Guarini's case is that the strength of an analogical argument is (partially) a function of the "degrees of similarity" in the analogy. Although Guarini is in good company in treating similarity in analogical arguments as easily measured, there are good reasons for thinking that similarity isn't so easy to measure in actual cases. Suppose that one attempts to analyze similarity by appeal to some morphism—a mapping of items between classes or sets. So, in the case of an analogy comparing three classes, hold the target stable and define a similarity measure, $S(x,t)$ as the *degree of similarity* between some class, x, and the target, t. This will be cashed out in terms of numbers of shared properties or something like that. Then, it would seem, we can order the degrees of similarity linearly such that for any two non-target classes, *a* and *b*, we get trichotomy: either $S(a,t) = S(b,t)$[1] or $S(a,t) > S(b,t)$ or $S(b,t) > S(a,t)$. However, Nelson Goodman's *Seventh Stricture* on similarity is that "similarity cannot be equated with, or measured in terms of, possession of common characteristics" (Goodman 25). Instead, he thinks that we make do with subsets of properties. But these vary "with every shift of context and interest, and [are] quite incapable of supporting the fixed distinctions that philosophers so often seek and rest upon it" (Goodman, p. 27). The upshot of this complaint is that a critic—or worse, a motivated sceptic—regarding a particular analogical argument will seem to have indefinite recourse to measurement difficulties in rejecting such analogical claims.

Relatedly, there is a strange possibility lurking when the number of cases being contrasted grows beyond two—i.e, in four-wise and greater similarity on Guarini's terminology. The weird possibility is that similarity comparisons might not be transitive. Let A, B, and C be contrast classes to a target, T. The similarity between the classes is intransitive if A is more similar to T than B is; and, B is more similar to T than C is; but, C is more similar to T than A is.

---

[1] One should expect that in this case $a = b$, though; hence, this wouldn't occur for distinct *a* or *b*.

This is admittedly counterintuitive. However, given the growing literature on the intransitivity of comparable preference and causality, one would be remiss not to consider this possibility whenever we confront a non-deductive chained sequences of claims.

As I mentioned above, I am generally inclined to the same account Gaurini offers. The terminological complaint is minor, especially as I think Guarini's resulting analysis much improves the account of analogical argument. The measurement issue recurs for every non-deductive similarity account—it is just a natural by-product of weaker-than-identity relations as comparisons. Finally, the possibility that *more similar than* is intransitive is so odd that it probably causes little to no concern for defenders of similarity accounts of analogical reasoning.

2. Contrastive similarity comparisons

In section §2, Guarini suggests that taking three-wise similarity comparisons as operative in analogical arguments leads to a very nice strategy for understanding the force of analogical arguments. Here's a strategy.

> Provide considerations in favour of the similarity between C_3 and C_1; provide considerations for the differences between C_3 and C_2; conclude that C_3 and C_1 should be treated in the same way and that C_3 and C_2 should not. (Guarini 2016, p. 2)

A three-wise similarity comparison has the form, "C_3 is more similar to C_1 than C_3 is to C_2." This is *three-wise* because there are three items in the comparison, $C_{1\text{-}3}$. In this case, C_1 and C_3 are more alike by some measure than C_2 and C_3. The use of "than" suggests a contrast. And there has been a growing literature on contrastive accounts of many phenomena. Perhaps the first was Peter Lipton's (1990) discussion of contrastive explanation. Later, in his book on inference to the best explanation, he explains contrastive explanations as those that answer why questions of the form, "Why X rather than Y?" (Lipton 1991, p. 33). The insight of contrastive explanations is that we often don't want or need to explain phenomena *simpliciter*. Instead, we want to explain phenomena via comparison or contrast. This allows the explanation to focus on a relevant notion of causal determination. Likewise, with some analogical reasoning, we don't need or want to know how alike or unalike two classes are, but how much more alike two classes are than either is to another class. And this will allow us to focus our attention on a relevant notion of similarity.

To see this in action, consider Guarini's retelling of Thomson's famous violinist case. He alters the particulars of the cases in order to set up a comparison/contrast with the case in which someone has become pregnant as the result of rape. Let's focus on just two such retellings. In one case, labeled "C_2," a person is kidnapped and forcibly hooked to the violinist for an indefinite amount of time. In this case, we are to conclude that it is moral to disconnect even if so doing will kill the violinist. In another case, C_3, the duration is limited to nine months, though everything else, including the conclusion, is the same. Let C_1 be a case in which someone becomes pregnant as the result of rape. We are to conclude, then, that C_3 is more like C_1 than C_2 is because actual pregnancy doesn't last indefinitely. Hence, C_3 is a better base than C_2 for considerations of C_1.

As far as I can tell, "three-wise" and "two-wise" are Guarini's own labels. A three-wise comparison of similarity is one that contrasts the pair-wise similarity measure of the three

objects. A two-wise comparison of similarity is just similarity measure *simpliciter*. Hence, there is no need to for the clunky two-wise/three-wise terminology.

3. Measuring similarity

A more worrying problem stems from issues regarding how one measures similarity. Guarini writes that "similarity between the cases comes in degrees" (Guarini 2016, p. 3). Moreover, these degrees of similarity will explain the strength of inferences based upon the analogies. In order to remain within Goodman's seventh stricture, it is important not to explain the degrees of similarity in terms of shared characteristics generally. Instead, we need to circumscribe the comparison only to those "relevant" similarities and dissimilarities.

In the violinist cases, one way to obviate measurement worries is by holding most of the properties static across cases. Hence, it is only the variable properties that can play the role of differentiators in comparisons of cases. Thus, what is important is that the varied property in the potential bases captures a property in the target. The more the varied property captures the target property, the closer the similarity judgment. For example, a nine-month confinement better captures the duration of pregnancy that indefinite confinement. And hence, the case in which the confinement is limited to nine months is more similar to target case of pregnancy as the result of rape than one with indefinite confinement.

On one end of the capture-spectrum is identity. The property being captured is identical between one of the comparison cases and the target. Let us imagine another case for Guarini's retelling of Thomson's violinist scenario. In this one, call it C_a, everything is the same as case C_3 (the nine-month confinement case) except in C_a the kidnapping also involves a sexual assault.[2] That is, not only are you kidnapped and hooked to a violinist for nine-months, but during the kidnapping you also endure a sexual assault. Since the assault is a feature shared between C_a and C_1, but it is not shared between C_3 and C_1, it follows that C_a is more similar to C_1 than C_3 is. However, the properties being shared aren't always identical.

Let's reconsider the cases of C_2 and C_3 as possible analogues of C_1. Recall that in C_2, the duration of confinement is indefinite; in C_3 one is confined for *only* nine months. The claim is that a nine-month confinement better captures the actual duration of a pregnancy than an indefinite duration does. And, this is true. However, the actual duration of a pregnancy is almost never exactly nine months. Indeed, a better estimate of the duration is 40 weeks. But the natural duration of a pregnancy is quite variable. This suggests that although nine months gives us a better similarity measurement than an indefinite duration would, we probably couldn't differentiate cases that had durations ranging between the normal natural ranges of pregnancy durations, i.e., about 35 to 45 weeks. Insofar as duration of confinement is a relevant consideration for termination in the violinist case, then we might need to consider cases that approximate the time-to-viability duration, i.e., the duration it takes for a foetus to develop to where it could survive on its own. Again, this will not be an exact number. Instead, it will be a range. So, the capture will be approximate. The similarity between the cases will be rough. Let us define case C_d such that the duration of confinement is between 20 weeks—where viability outside the womb isn't just wishful thinking—and 45 weeks; let us stipulate that the actual duration will be randomly selected so that it is most likely to be between 35 and 42 weeks,

---

[2] This feature is missing from discussions of the violin case. Thomson, I assume, wanted the decision to unhook not to be attached to lingering emotional distress. However, if we are discussing pregnancy that results from rape, the rape itself seems like a relevant notion for discussing the morality or immorality of terminating the pregnancy.

though it is possible but unlikely that it will last *only* 20 weeks or as long as 45 weeks. C_d is more similar to C_1 than either C_2 or C_3 are. Overall similarity measurement, therefore, is a function of the individual similarity measurement on individual properties.

So far, so good. However, it becomes somewhat more difficult to judge overall similarity between cases if the number of individual properties that are variable in the potential bases increases. As we have already considered varying the duration of confinement as way of *modeling* a pregnancy's duration, we could, and Guarini does, vary the consciousness of the violinist so that it more accurately *models* a foetus during pregnancy. And, again, this variability can at best be approximate. Hence, the overall similarity measure will be a function of several individual-property similarity measures. But there is reason to think that this function will not be simply additive. Instead, the function is likely to involve a differential weighting of individual-property similarity measures. Moreover, the differential weighting is likely to vary by person and context. Again, I take Goodman as my guide:

> [C]omparative judgments of similarity often require not merely selection of relevant properties but a weighing of their relative importance, and variation in both relevance and importance can be rapid and enormous. (Goodman, p. 28)

Goodman is sceptical that similarity can survive philosophical scrutiny. And there is a further bite to his scepticism.

Reconsider the claim about individual-property similarity measurements. So, we want to know, regarding just the property of duration, whether C_2, C_3, or C_d is most similar to C_1 and can thus serve as an appropriate base for reasoning about C_1. We compare the cases in terms of duration. We judge C_d to most closely approximate the duration of pregnancy. That is, we cash out some of our notions of individual-property similarity measurement in terms of approximation. But, the very notion of an *approximation* is in the neighbourhood of *similar to* already. That is, we are explaining the similarity measure in terms of similarity measure. And that is problematic.

4. Intransitivity and Similarity

One might be tempted to think that the best base for an analogy will have the best, all things considered, approximations of properties for the target—regardless of the apparent circularity that ended the last section. However, it might it be the case that these properties could interact and affect our judgments in unforeseen ways. It is possible that our judgments regarding the similarity of items might vary in unpredictable ways as we vary the source of the comparison. In the abstract, let us define a similarity relation to a target, t, and with an indexed property, p, so that if we think that A is more similar to t as regards p than B is, we write $A >_{t/p} B$. Let us distinguish this individual-property similarity comparison with an all-things-considered similarity measure. Thus, if we think that A is more similar to t all things considered than B is, we write, $A >_{t/\Omega} B$. I think it is unlikely that we can generate intransitivity on single-property similarity measurements. However, for all-things-considered similarity measurements, it seems possible that we might judge as follows: $A >_{t/\Omega} B$, $B >_{t/\Omega} C$, but not $A >_{t/\Omega} C$.

How might this occur? It is surely counterintuitive. To generate the possibility of intransitivity for all things considered similarity we need to recognize the possibility that these

properties can act to screen each other. For example, a luminous object's shape or size might be obscured by its luminosity. The bitterness of a beer might obscure its other taste profiles. Etc.

Here is the case. I'm trying to find an adequate analogue for *Pliny the Younger* by Russian River Brewery. That is the target. Pretend that there are three possible beer bases, A, B, and C. Let beer A best capture *Pliny*'s hoppiness and do a good job with the other properties, except carbonation, which it captures terribly. Let beer B best capture *Pliny's* body, and do a good job with the other properties, except for color, which it captures terribly. And let C best capture none of the properties, but that it do a very good job with all of them except aftertaste, of which it captures terribly. Now, it seems possible for someone to set up an all things considered similarity measurement as follows: A > B, and B > C, and C > A.[3]

This means that there may be a limit to the number of contrast classes one should consider when building contrastive analogical arguments, unless of course you can rule out intransitivity by appealing only to single-property similarity comparisons. Since we want our similarity comparisons to be maximal, intransitivity might be a more pressing issue than one would initially suspect, especially given its counterintuitiveness.

5. Conclusion

I agree with Guarini's approach to analogical argument. His papers have been my reference guides whenever I have considered analogical argumentation. I endorse fully the consideration of contrastive similarity comparisons. It is an excellent and needed extension to the current literature on the proper analysis of analogical argumentation. Moreover, insofar as everyone working with similarity-based accounts of analogy will have to confront the measurement problems, Guarini's current approach is no worse than any others. And, finally, the possibility of intransitivity is remote (though I think fascinating). Perhaps, though, it will give someone besides me pause when they consider the possibility of multiple contrast classes for analogies.

References

Goodman, N. (1970). Seven strictures on similarity. In: L. Foster and J. Swanson (Eds.), *Experience and Theory* (pp. 19-30), University of Massachusetts Press.

Guarini, M. (2004). A defense of non-deductive reconstructions of analogical arguments. *Informal Logic* 24 (2), 153-168.

Guarini, M. (2010). Particularism, analogy, and moral cognition. *Minds and Machines* 20 (3), 385-422.

Guarini, M. (2016). Two-wise and three-wise similarity, and non-deductive analogical arguments. In: Bondy, P., & Benacquista, L. (Eds.), *Argumentation, Objectivity, and Bias: Proceedings of the 11th International Conference of the Ontario Society for the Study of Argumentation (OSSA), 18-21 May 2016*. Windsor, ON: OSSA.

Hitchcock, C. (2001). The Intransitivity of Causation. *Journal of Philosophy* 98(6), 273-399.

Temkin, L. (1996). A Continuum Argument for Intransitivity. *Philosophy and Public Affairs* 25(3), 175-210.

---

[3] Such intransitivities are known to infect *preference* (e.g., Temkin 1996) and *causation* (e.g., Hitchcock 2001).