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Two-wise and Three-wise Similarity, and Non-deductive Analogical Arguments

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Abstract: Analogical arguments have varying degrees of similarity, which helps us to understand their varying degrees of strength. Three-wise similarity claims – case C_1 is more similar to C_2 than it is to C_3 – will be used to argue that assessing degrees of strength is both important and common in analogical arguments. Making the degree of argument strength a function of, among other things, degree of similarity, means the arguments are best understood non-deductively.

Keywords: analogy, two-wise similarity, three-wise similarity, n-wise similarity, deductive reconstruction, non-deductive reconstruction

1. Introduction

Arguments from analogy are often construed or interpreted as involving two cases, a source and a target. The source is the case that we are arguing from, and the target is the case about which we are trying to draw some conclusion. Where the C_i are cases, this kind of argument claims that C_2 is like C_1, so C_2 should be treated like C_1. This paper will examine a kind of case-based argumentation that involves three cases. The claim in these kinds of arguments is that C_3 is more like C_1 than C_2 is. The focus will be on this kind of claim and how it arises in legal and ethical argumentation.

Be they lawyers in court or participants to an ethical dispute, consider two agents or arguers (the A_i) having a disagreement about some case. Agent or arguer A_1 says that the disputed case C_3 is (relevantly) similar to C_1 and should be treated as h_1, just as C_1 is. A_2 says that C_3 is (relevantly) similar to C_2 and should be treated as h_2, just as C_2 is. (The h_i are the relevant legal or ethical classifications at issue.) A_1 may counter with a three-wise similarity claim: C_3 is more similar to C_1 than it is to C_2, because…, so C_3 should be treated as h_1. This kind of three-wise comparison of cases arises in a perfectly natural way in the process of arguing about two-wise comparisons. Below, it will be argued that these three-wise claims are well understood in terms of the degree of similarity that holds between cases, and that this degree of similarity is usefully understood in non-deductive terms. Guarini (2004) has argued that a point in favour of non-deductive reconstructions of analogical arguments is that they help us to understand degrees of strength in analogical arguments involving two cases. Govier (1985, 1999, 2002), Juthe (2015), Postema (2007) and Sunstein (1993, 1996, 1999, 2000) also have favoured non-deductive reconstructions. On the analyses provided by Brewer (1996) and Shecaira (2013), arguments from analogy are a two-part complex, where the first part involves either the induction or abduction of a rule, and the second part a deductive application of a rule. It will be argued that while this may allow for some assessment of the degrees of strength, it may not allow for a complete assessment of degrees of strength. The degrees of strength in arguments from analogy are a function of, *among other things*, the similarity and differences in the cases being

compared. The point will be that deduction is not required to make sense of that, and it may even get in the way of helping us to understand that.

2. Strategies for understanding three-wise similarity arguments

In previous work (Guarini 2010) I used notation that treated three-wise similarity comparisons as an instance of a four wise comparison: $C_3,C_1 > C_3,C_2$, which would read as C_3 is more like C_1 than C_3 is like C_2. Timothy Williamson (1988) has argued at length that three-wise comparisons are best treated as a special case of four-wise comparisons, a position for which I have great sympathy. Treating three-wise similarity as an implicit instance of four-wise comparisons helps us to see some strategies for how to understand and evaluate arguments that have such a comparison as their conclusion. Here is one 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. On the strongest possible version of this approach, relevant differences are not considered in the first pair; relevant similarities are not considered in the second pair, and the comparison is not multivalent or a matter of degrees. A different approach would look at both the relevant similarities and differences of each pair of cases (C_3,C_1 and C_3,C_2) and treat the comparison between them as being a matter of degree. This later approach will be the one endorsed herein, and it will be argued that a non-deductive reconstruction of such arguments provides a plausible way of understanding the degrees of similarity at work in them.

3. From two-wise to three-wise analogical arguments

Let us consider the well-worn example of Judith Thomson's famous violinist. We will take the target case, C_1, to be the issue of the moral permissibility of abortion when a woman has become pregnant as a result of rape. We will consider a series of possible source cases.

> C_2: you are kidnapped, forcibly hooked up to a famous violinist to filter his blood, and you have to stay hooked up indefinitely. The violinist staying alive is dependent on you staying connected. The claim is that it is permissible to disconnect yourself from the violinist even if doing so guarantees the death of the violinist.

There is a rather significant difference between C_2 and C_1: in the case of pregnancy, the dependency and physical burden last nine months; in C_2, the dependency and the burden are indefinite. We can consider a modified case.

> C_3: you are kidnapped, forcibly hooked up to a famous violinist to filter his blood, and you have to stay hooked up *for nine months*. The violinist staying alive is dependent on you staying connected. The claim is that it is permissible to disconnect yourself from the violinist even if doing so guarantees the death of the violinist.

While the duration of the burden has been better controlled for, there may be other morally relevant considerations. For example, if the violinist is conscious, then he could violate the kidnapped victim's privacy in a way that fetus could not. This might lead to still another variant.

> C_4: you are kidnapped, forcibly hooked up to a famous violinist to filter his blood, and you have to stay hooked up *for nine months*. The violinist staying alive is dependent on you staying connected, and the *violinist will be unconscious the entire time*. The claim is that it is permissible to disconnect yourself from the violinist even if doing so guarantees the death of the violinist.

Here are some plausible similarity (S) claims

> S_1: C_3 is more like C_1 than C_2 is like C_1.
> S_2: C_4 is more like C_1 than C_3 is like C_1.
> S_3: C_4 is more like C_1 than C_2 is like C_1.

Indeed, if we wanted to, we could even modify the original target case (C_1) to come up with something like this.

> C_5: a women has become pregnant as the result of rape and is *largely bedridden* for the duration of the pregnancy. The claim is that an abortion would be morally permissible.

The addition of being bedridden makes the case even more similar to the violinist cases since the assumption in those cases is usually that the person connected to the violinist is stuck in the hospital, in bed, and is hooked up to machines.

This would allow us to say

> S_4: C_4 is more like C_5 than C_2 is like C_1.

I will spare the reader other possible similarity comparisons. S_4 allows us to see what a full four-wise similarity comparison looks like. While the form of S_1 through S_3 is four-wise – i.e. there are four variables slots – only three cases are compared. S_4 has four slots and four different cases.

Similarity between the cases comes in degrees. If analogical arguments are understood in terms of degrees of similarity between the cases, then we should understand those arguments as having degrees of strength. Someone might argue like this.

> In C_1 (pregnancy case), force is used to make one life dependent on another.
> In C_2 (first violinist case), force is used to make one life dependant on another.
> In C_4 (a more refined violinist case), force is used to make one life dependent on another.
> In spite of a relevant similarity between C_1 and C_2, there are some relevant differences: the duration of physical burden is indefinite in C_2, and the source of the physical burden is also the source of a privacy violation.

C_4 does not have these relevant differences.
Therefore, C_4 is more like C_1 than C_2 is like C_1.

This kind of three-wise argument shows us something important about two-wise arguments: it shows that the two-wise arguments admit of degrees of strength, and it is suggestive of the possibility that the degrees of strength in the two-wise arguments is a function of, among other things, the degree of similarity between the cases. Consider a series of abbreviated arguments.

A_1: C_1 is relevantly similar to C_2, so C_1 should be treated like C_2.
A_2: C_1 is relevantly similar to C_3, so C_1 should be treated like C_3.
A_3: C_1 is relevantly similar to C_4, so C_1 should be treated like C_4.

A_3 is stronger than A_2; A_2 is stronger than A_1. This is true even if all three arguments are, in the end, bad arguments. Arguments can fail in more less spectacular ways. Arguments can also succeed in more or less convincing ways, so the claims about argument strength hold if all the arguments are good. One more possibility is that some of the arguments succeed, and some fail, and even here the claims about differential strength hold. How is all of this possible?

Let us say that we understand two-wise arguments in the following way.

A Non-deductive reconstruction:
C_1 has features $f_1, f_2, \ldots f_n$.
C_1 has or is classified as h_1 in virtue of $f_1, f_2, \ldots f_n$.
C_2 has features $f_1, f_2, \ldots f_n$.
Therefore, C_2 has h_1.

Pretty clearly, the premises do not deductively entail the conclusion. While differences are not mentioned, they certainly could be brought up in the argumentation process, and they certainly could be a part of assessing the argument's strength. The considerations or relevant similarities ($f_1, f_2, \ldots f_n$) that contribute to a particular classification or treatment (h_1) of a case may vary in significance and number, and they may interact with relevant differences (which may also vary in significance and number) in complex ways. It is possible for there to be relevant differences that do not outweigh the relevant similarities, but the number and significance of the similarities and differences could affect the strength of the overall comparison; alternatively, the relevant similarities might be outweighed by the relevant differences, but the number and significance of those differences and similarities could affect the overall weakness of the argument. An account of analogical argument should not mask or block these considerations. Indeed, the above schema captures a moment in the process of analogical argumentation. It does not make reference to differences, but it does not block their consideration in a way that allows for considerations of degrees of strength. A reply to the above might consist of something of the form:

C_2 has features $d_1, d_2, \ldots d_n$ that contribute to it being treated differently than C_1.
The d_i outweigh the f_i.
Therefore, C_2 should not be classified as h_1.

There is variation in the extent to which various d_i may or may not outweigh various f_i, and this allows for varying degrees of similarity between cases, and that similarity can be used in the assessment of argument strength, leading to varying degrees of argument strength.

4. To deduce or not to deduce?

Can a non-deductive or monotonic approach to reconstructing analogical arguments allow for degrees of strength *in virtue of degrees of similarity*? Guarini (2004) does not deny that there can be variation in argument strength in virtue of variation in acceptability in the premises, and it will not be denied here. The point being argued for is that when it comes to arguments from analogy, *some* of the variation in argument strength comes from the variation in the overall similarity or difference of the cases being considered.

Here is a "deductive" schema that captures ideas from Brewer (1996) and related ideas in Shecairia (2013).

1. One or more source cases have $f_1, f_2, \ldots f_n$ and has or is classified as h_1.
2. P is the best explanation or justification of why cases having $f_1, f_2, \ldots f_n$ also have or are classified as h_1.
3. The target case has $f_1, f_2, \ldots f_n$.
4. Therefore, from 2 and 3, the target case has or is classified as h_1.

The move from 1 to 2 is abductive (or could be rendered inductive, depending on the details of the formulation). The move from 2 and 3 to 4 is deductive, and it is this deductive moment in Brewer and Shecaira (see Waller 2001 for a similar variant) that is being questioned here.

Imagine we have two lawyers citing cases. The target or disputed case is T.

The prosecutor says that X_1, X_2, … X_n all have $f_1, f_2, \ldots f_n$ and have been treated as h_1. Since T has $f_1, f_2, \ldots f_n$, it should be treated as h_1.

The defense lawyer says that cases Y_1, Y_2, … Y_n have $g_1, g_2, \ldots g_n$ and have been treated as not h_1. Since T has $g_1, g_2, \ldots g_n,$ it should be treated as *not h_1*.

There is nothing in what has been stated so far that requires a deductive reconstruction, but let us see what happens if we reconstruct these positions using the deductive schema mentioned above.

Let us assume that all other things are equal. In other words, we will say that the pedigree of the source cases is the same for both sets of sources (i.e. the level of court deciding them is the same, and the confidence of the decisions is the same). If we use the deductive schema from above, the arguments from the prosecutor and defense look as follows.

Prosecutor
1. X_1, X_2, … X_n all have $f_1, f_2, \ldots f_n$ and have been treated as h_1.
2. All cases that have $f_1, f_2, \ldots f_n$ should be treated as h_1.
3. T has $f_1, f_2, \ldots f_n$.
4. Therefore, T should be treated as h_1.

Defense
1. $Y_1, Y_2, \ldots Y_n$ all have $\boldsymbol{g_1, g_2, \ldots g_n}$ and have been treated as *not $\boldsymbol{h_1}$*.
2. All cases that have $\boldsymbol{g_1, g_2, \ldots g_n}$ should be treated as *not $\boldsymbol{h_1}$*.
3. T has $\boldsymbol{g_1, g_2, \ldots g_n}$.
4. Therefore, T should be treated as *not $\boldsymbol{h_1}$*.

Again, we are assuming that the sources, the X_i and Y_i are of equal pedigree, and we will even assume the same number of sources have been cited in each argument. The point here is not that things are likely to happen exactly like this in real life. Rather, it is to undertake a kind of controlled thought experiment where the influence of certain factors are controlled to see if this sort of reconstruction can account for all the factors contributing to degrees of strength. Given what we have said, the second premise in each argument is equally strong, and we will assume that the third claim is true and equally well supported in both arguments. Of course, claim 4 follows deductively in both, so it looks like we should say that both arguments are equally strong. *Perhaps* they are. The problem is that there does not appear to be any option to say anything else given the assumptions made. The reason is that arguments are reconstructed in a way that refers to similarities and blocks the consideration of differences as counting in a way that might weaken the similarity comparison being made. For example, say that there are several relevant and weighty differences between the X_i and T, and few or no such differences between the Y_i and T. It would then be reasonable to say that the defense's argument is stronger than the prosecutor's argument because the defense's sources *are more similar* to the target and the prosecutor's sources. The non-deductive approach mentioned above can allow for this. The deductive approach considered here fails to account for degrees of similarity and degrees of strength because after the similarities are mentioned and we get to premise 2, everything works by deduction, and there is no room for (unmentioned differences between the cases) to have an impact on the assessment of the overall similarity and difference between the cases.

A possible response to this line of thought is to reformulate the deductive reconstruction so as to somehow allow for a fuller consideration of degrees of strength. Considering and replying to such alternatives awaits a fuller, more developed version of the ideas considered herein (i.e. the expansion of this paper into a journal paper).

5. Conclusion

Much has been skipped over. The works of Brewer and Shecaira contain many genuine insights, but for reasons of time, I have focussed on points of difference between their views and the position defended herein. I do not want to give the impression that deduction has no role to play in a broader understanding of analogical reasoning and argumentation, but a proper exploration of that role is beyond the scope of this work. The scholarship of Bermejo-Luque (2012) and Andre Juthe (2015) was not engaged herein and awaits discussion in a fuller treatment of the subject matters discussed in this paper. Finally, the analogies treated in this work are linguistically articulated. There are profoundly interesting questions about the nature of visual analogies as well as analogies that make use of other modalities, such as auditory analogies. "This new piece of music is so similar to that older piece of music that the new piece constitutes copyright infringement" – this is similarity-based reasoning, and the cases (i.e. pieces of music being compared) admit of degrees of similarity, and the arguments involving comparisons of such cases admit of degrees of strength. How the analogies of different modalities may or may

not be related to one another, and the extent to which full linguistic articulation would or would not be required, is a separate project altogether. I flag it *not* because it could possibly be discussed here or in the expanded version of this paper, but because questions regarding degrees of similarity, degrees of strength, and n-wise comparisons will likely recur in the discussion of the analogies of other modalities.

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