Argumentation (2007) 21:83–92
DOI 10.1007/s10503-007-9041-3

Asymmetrical Analogical Arguments

J. E. ADLER

Department of Philosophy, Brooklyn College and the Graduate School, CUNY, Brooklyn, NY 11210, USA
E-mail: jadler@brooklyn.cuny.edu

ABSTRACT: Analogies must be symmetric. If *a* is like *b*, then *b* is like *a*. So if *a* has property R, and if R is within the scope of the analogy, then *b* (probably) has R. However, analogical arguments generally single out, or depend upon, only one of *a* or *b* to serve as the basis for the inference. In this respect, analogical arguments are directed by an *asymmetry*. I defend the importance of this neglected – even when explicitly mentioned – feature in understanding analogical arguments.

KEY WORDS: analogy, analogical argument, asymmetry, directionality, precedence, similarity, symmetry

An analogical argument infers from the similarity between objects, along some dimension, that if one has a property due to its inclusion in that dimension, the others do. This broad conception is incorporated in two parallel analyses of analogical arguments, either of which can be regarded as standard. Trudy Govier writes:

> An argument from analogy begins by using one case (usually agreed-upon, and relatively easy to understand) to illuminate or clarify another (usually less clear). It then seeks to justify a conclusion about the first case on the basis of considerations about the second. The basis for drawing the conclusion is the relevant similarity between the two cases (1992, 268).

Her reconstruction is:

1. The analogue has features a, b, and c.
2. The primary subject has features a, b, and c.
3. It is by virtue of features a, b, and c that the analogue is properly classified as a W.
4. So, the primary subject ought to be classified as a W (275).[1]

In his recent, comprehensive treatment, Juthe (2005) provides the following similar 'basic formal argument structure for argument by *conclusive analogy*':

(1) Target-Subject$_{(TS)}$ has element$_{(e1en)}$.
(2) The Analogue$_{(A)}$ has the Assigned-Predicate$_{(AP)}$ in virtue of the elements$_{(e1en)}$.

(3) The elements$_{(e1en)}$ of the Analogue are counterparts of elements$_{(e1en)}$ of the Target-Subject$_{(TS)}$.
(4) Therefore, the Target-Subject$_{(TS)}$ has the Assigned-Predicate$_{(AP)}$.

For convenience, I'll mainly use Govier's terminology and, following her, treat only of analogical projection to a single target or primary subject.

These standard analyses share a characteristic that is neglected, even when explicitly mentioned. I aim to show the centrality of this characteristic in understanding analogical arguments, briefly drawing a tie to the study of analogical thinking in cognitive science.

The distinction between analogue and the primary (target) subject incorporates an *asymmetry* into the analysis – one of the analogous pair is the analogue, the other is the subject, and not conversely [Some use 'anti-symmetry'.].[2] In Plato's Crito: 50d-51a the state draws on Socrates' accepting that the citizen should obey the state like – on analogy to – the child to the parent. Since the latter relation – the analogue – is not one of equality – the child cannot respond to the parent as the parent has done to the child. By parity, it is not right for Socrates to do to the laws what they have done to him. Even though the state's argument is dependent on a citizen-child analogy, the argument is asymmetrical. The conclusion drawn depends upon the prior standing of parent to child. For another, famous example: The argument from design moves, by analogy, from our endorsement of the inference from a mechanical device like a watch requiring a designer (a watchmaker) to the inference from the design of the world to its requiring a designer. The inference would be pointless conversely.

These asymmetric applications are initially puzzling, since analogies must be symmetric. If *a* is like *b*, then *b* is like *a*. So if *a* has property R, and if R is within the scope of the analogy, then *b* (probably) has R. However, the puzzle dissolves with the realization that it does not follow that analogically based arguments cannot single out or depend upon one of *a* or *b* to serve as the basis for the inference, and so, in this respect, operate by an asymmetry.

A more serious difficulty is that since an analogical argument is weakened by disanalogies, a strong analogical argument can not admit properties which are both relevant to inferential support and had by *a*, but not by *b*. For if *a* and *b* so differed that would constitute a relevant disanalogy, which would undermine the inference. Clearly the difficulty lies in the exploitable vagueness of the much-abused term "relevance."[3] Although there is no hope of avoiding that term, there is hope for controlling its more profligate uses. A property could facilitate or direct the inference, and so be relevant in this way, without serving as one of the properties that constitute the base similarity or analogy, and so not be relevant in that way. If the latter are properties

of the objects, the former would be higher-order ones, ways of relating these sets of properties.

For further, suggestive examples of asymmetric relations within the scope of an analogical or symmetric comparison: (1) If *x* (e.g., smoking) is correlated with *y* (e.g., cancer) then *y* is correlated with *x*. Still, *x* may cause *y*, which is an asymmetric relation; (2) If Euthyphro is right in Plato's eponymous dialogue, what the gods love and what is pious are the same class, and so symmetrical. Yet, Euthyphro concedes that they are in an asymmetrical explanatory relation: an act that the gods love is explained by that act's piety, and not conversely; (3) Psychological and computational accounts of analogy treat it as a common pattern of relationships e.g., the relationship of the planets to the sun and the relationship of electrons to the nucleus of an atom (Gentner, 1983). But one of these – the one better known or understood – is taken as the source or base, and the other is the target for drawing the analogy (for transferring an attribution from source to the target) (Holyoak, 2005); (4) We standardly apply or psychologically classify analogous objects asymmetrically. In well known studies, Tversky (1977) showed that the symmetry of judgments of similarity or likeness – e.g., ''Vietnam is like China'' – is psychologically represented or applied asymmetrically. We naturally think or say ''Vietnam is like China'', but not ''China is like Vietnam'' (without, presumably, believing that *a is like b* is itself asymmetric.); (5) Metaphors display an asymmetric *directionality*, which is stronger than for analogies or similarities, even though (or when) metaphors are analogically grounded (Ortony, 1979). Metaphorically: ''Your gums are angry'', but not ''Anger are your gums''. The latter is not intelligible, unlike the disfavored, but manifestly intelligible, ''China is like Vietnam''. Understanding your gums as metaphorically angry is dependent on holding fixed a literal comprehension of 'anger'.[4] We do not comprehend literally ''Your gums and anger are alike in redness [or irritability]''. (Another difference with analogical reasoning is that in (successful) metaphor, there is 'conceptual blending' of the domains so that 'anger' becomes a more natural term to apply to bodily organs or surfaces, Fauconnier, 2001); (6) Consider the premises ''If Marcia is in Detroit, Bill is in Miami. If Tom is in London, Marcia is in Detroit.'' What follows? Quickly, you reply ''If Tom is in London, Bill is in Miami''. The ease of the inference depends on treating the 'if, then' as asymmetric or directional. But, under weak assumptions, these premises can be represented in equivalent, simple forms that gave no priority to the contents of the 'if' clause. Entering the obvious symbolizations, equivalents include: 'Either ~M or B. Either ~T or M;' '~(M&~B)&~(T&~M)'. In either of these forms, each lacking the

surface asymmetry of the original example, you will find it much more difficult to come up with the simple answer above to 'What follows?'.

A further example deserves extended treatment. *Precedence* in law generates an asymmetry of warrant-dependence (a higher-order relation) among cases judged analogous. Those who provide analyses of analogical argument, including virtually all the authors mentioned in this article, look to the law as a prominent source of realistic examples of analogical reasoning. (A recent issue of *Argumentation* (volume 19 no. 4) focuses on legal argumentation.) Yet, the theorists lose sight of the role of precedence, which confers special (but defeasible) weight to cases already decided (*stare decisis*).[5]

Precedence extends probative force to the earlier case in judicial decisions and provides for the directionality in chains of decisions that are linked by analogy (as like cases). To succeed at showing that a new case is like an earlier one is thereby to show that it must be decided similarly. The role of legal precedent in analogical arguments generates an asymmetry: if case *a* is the precedent for case *b*, then case *b* is not the precedent for case *a*.

However, ordinary analogical argument (and the conclusions drawn from it) cannot ascribe as much weight to precedence as it achieves within the institutional setting of the law. Each argument must be decided on its merits. If a previous argument is now thought to be erroneous, a new one acquires no protection from its similarity to the one previously judged cogent. That is a main reason why precedence generally operates only within an institutionalized setting. Participants need to generate reliable expectations, which calls for publicity (of judgments) and consistency among them. Regardless of whether a case has been decided poorly, citizens are entitled to use that decision to guide their actions. So the decision has a force or weight for future decisions independent of the judged cogency of the reasoning guiding it.

Of course, in both law and ordinary argument, participants must be consistent. They must treat like cases alike. But only in the law does this extend – though controversially and imperfectly – to what is now regarded as a questionable decision.

But this break between law and ordinary argumentation though severe, is not, in practice, complete. If the arguer previously defended *p*, then if an opposing argument is offered to $\sim p$ or $\sim p$ is asserted, there is a presumption that the arguer will continue to defend *p* or else he has the burden of explaining why not, unlike other participants who have not claimed or defended *p*. The previous claims or arguments represent what the arguer stands for. In presenting them, he invites and burdens others to take his arguments seriously. His presentation generates shared expectations in others, which affect the

organization or alignment of his social-intellectual community, according as others agree or disagree or remain neutral on his position. Consequently, the arguer is expected to be more resistant to new, potentially conflicting information, unlike those whose avowed position is neutral or opposed. There remains then a weak, precedent-like stickiness to one's prior assertions and argument, which generates an asymmetrical direction to how an arguer will search for, judge, and treat, new, related cases.

Surely, though, two legal cases can be held alike without either taking precedence or other priority over the other? More generally, the objection can be pressed that a cogent analogical argument could depend only on an ascribed similarity without favoring one as analogue to the other as subject. The objection is strictly correct, as I will illustrate. But subsequent discussion, drawing on earlier examples, will also explain why such illustrations are misleading for a good understanding of analogical arguments.

The truth in the objection is highlighted, though unintentionally as far as I know, by a contrast with a recent analysis. The analysis, which I now examine, maintains a strict symmetry that confers on it an advantage of scope over the standard ones. But the advantage is at the serious cost, I argue, of a weakness in the richness of structure of analogical arguments that it can represent. That structure is better illuminated by giving prominence to the asymmetries between analogue and subject.

Guarini's (2004) "core" representation of analogical argument is:

1. *a* has features $f_1, f_2, \ldots f_n$.
2. *b* has features $f_1, f_2, \ldots f_n$.
3. *a* and *b* should be treated or classified in the same way with respect to f_{n+1}. (161)

Guarini's analysis is symmetric – there is no preference in the argument between *a* and *b*, unlike for the above, standard analyses.

The obvious advantage of Guarini's analysis over the standard ones is, as already noted, that it has a wider scope of application. There are arguments that the standard analyses cannot capture because neither of the pair is asymmetrically related to the other as analogue to target. A major class of cases has already been noted. Those are analogical arguments dependent on a consistency ('treat like cases alike') principle of law and formal justice. (For immediate purposes, however, I will bracket the asymmetry imposed on these cases by precedence.) These arguments, at their simplest, end with a symmetric (disjunctive) conclusion: either A and B both share the crucial property or neither does.

In an earlier article (Adler, 1991), I analyze a 'treat like cases alike' argument concerning racial bloc voting that concludes that it is either right for whites and blacks in Chicago to vote as a bloc in a mayoral contest or wrong for both. The argument's point is to deny entitlement to an asymmetric treatment, one in which, specifically, it is permissible for blacks to vote as a bloc, but not whites. The standard analyses, as stated, cannot handle this case because there is no feature or classification, which is present in the analogue and which, as a consequence, is inferred present in the subject or target.[6]

However, this advantage in scope of a symmetrical over a standard analysis is minor because the conclusion reached is very weak. What Guarini's (3) comes to (simplifying his formalization) is that "a is F and b is F or a is not-F and b is not-F".[7] Although not a tautology, in natural contexts it is not far removed. Assume that you want to know whether the hallway should be painted red, inviting an analogical or comparative judgment with the next door dining room, presupposing that their colors should match. If the response (conclusion) is "Either the hallway and the dining should both be painted red or both not painted red", you will have learned nothing. Judging that two cases are alike, which is the major premise of an analogical argument, is only likely to be valuable if a determination about one of them can be (asymmetrically) transferred to the other.

Why then is the previous example I offered about bloc voting, which ends with a symmetrical judgment of alikeness, a substantial, not an empty, argument? Pragmatically or dialectically, the affirmation that the attitude toward black and white bloc voting should be the same denies a substantial thesis that is already put forth. In the example, the disjunctive conclusion is informative because there was a *prior* claim that a treatment (bloc voting) was permissible for one group but not for the other. The interest of the argument was in showing that the principle of equality, which all accept, ruled out this difference in treatment (the disjunctive conclusion is then an obvious corollary.)

A purely symmetrical analysis appears then stronger than it is, given its presentation within a dialogue, as just illustrated. The misleading impression can arise in other ways. Contrast the informativeness speakers generate in asserting e.g., 'Cincinnati is like Cleveland,' as contrasted to the semantically equivalent 'There is a likeness between Cincinnati and Cleveland,' which is informationally weak because overtly symmetrical.

For a more developed example, though still simplified, John argues to Tom:

1. You received an A in logic.
2. My grades in that course are about the same as yours.
3. So, I should have received an A, rather than an B+.

But why should John's argument be favored over Tom's?:

1′. You received an B+ in logic.
2′. My grades in that course are about the same as yours.
3′. So, I should have received an B+, rather than an A.

A symmetrical analysis provides no basis for favoring John's argument over Tom's. Yet once we heard John's argument, we would not expect – asymmetrically – a contrary argument like Tom's.

In this case, the imported asymmetry derives from *background* knowledge that one normally argues for a higher grade and complains about a lower one. Conversely, one does not argue for a lower grade or complain about a higher one. Although this case is simple and contrived, it is sufficient to introduce background knowledge as a resource for analogical arguments, which generates a directionality in them that involves the transferring of a body of information.

When one applies *'a* is like *b'* asymmetrically, *b* serves as the standard. A dimension of comparison is imposed. A paradigm case, regularly used as a model of analogical reasoning (by, e.g., Guarini, 2004, Fogelin and Sinnott-Armstrong, 2001, Waller, 2001), is Thomson's (1972) pregnant woman, who is likened to a sick violinist. The violinist will die except for his hook-up to the blood and nutrient supply of a coerced stranger. The analogy is from our response to the stranger's predicament as permitting him to end the hook-up to that of the pregnant woman wanting to end the pregnancy. But not conversely. Consequently, the comparison is along the dimension of a right to freedom to use one's body, whereas without imposing that focused dimension of comparison, similarities (and dissimilarities) are as plentiful as berries. There is an immediate informativeness to the assertion that the pregnant woman is like the hooked-up violist. The background knowledge that it is permissible for the violinist to sever the hook-up is transferred to yield the permissibility for the pregnant woman to do so.

Actually, though, background judgment can be sufficient. The judgment is asymmetrically transferred (from violinist to pregnant woman) and that role helps to explain a *second-best* nature of analogical arguments. The claim is best defended by another example:

> Some people look on preemployment testing of teachers as unfair – a kind of double jeopardy. 'Teachers are already college graduates,' they say. 'Why should they be tested?' That's easy. Lawyers are college graduates and graduates of professional school, too, but they have to take the bar exam. And a number of other professions ask prospective members to prove that they know their stuff by taking and passing examinations: accountants, actuaries, doctors, architects. There is no reason why teachers shouldn't be required to do this too (Albert Shanker 'Testing Teachers,' *New York Times*, 8 January 1995. Quoted in Copi and Cohen, 1998 p. 470).

What can be referred to as a *direct* argument to Shanker's conclusion would proceed from analysis of the nature of teaching itself to the requirement for testing. Since that preferable path is presently too difficult or controversial, an indirect or second-best method is taken, which surrenders understanding the *why* of testing teachers. It proceeds only after establishing *that* teachers should be tested. It uses our prior or background judgment that there should be testing in other, closely related professions, as the basis for inferring that teachers should be tested. The argument presumes, without stating or articulating, that there is an explanation for those prior judgments, which reveals them as legitimate.

The argument is only 'plausibilist' in that the premises which would firm down definitely the conclusion go unstated, and only presumed, and the evidence offered is an inferior fragment of the ideal evidence for establishing the conclusion. The analogy at root is not of the specific similarities assumed. Rather, the analogy turns on the assumption that the (unavailable) account, which ultimately explains why teachers should be tested, will match the unarticulated, though available, account for testing in other professions. This underlying presumption seems to fit only a qualitative judgment of plausibility, not a quantitative judgment of probability. The asymmetry is then fundamental. It is only with the transferring of an established judgment from one domain to the other that the conclusion can be reached, which by-passes a direct explanation or understanding (the why for testing teachers).

The role of background knowledge or judgment in directing analogical arguments provides a further explanation for why the asymmetry of such arguments goes unattended, and so unappreciated, despite its explicit mention. We have already noted, and challenged in the opening, an argument meant to deny the very possibility of an asymmetry as involved in analogical arguments. Another part of the explanation that we have canvassed is the valuable, but in this case misleading, aim of an analysis with the maximum scope of application. The part of the explanation that we converge on now is this: Asymmetries direct the analogical argument without bringing attention to themselves. The pragmatics of the presentation, and our practice with filling in enthymemes automatically, pick up a directionality due to shared background knowledge or judgment, which is not salient, yet which brings a new understanding to the target subject of the conclusion.

NOTES

[1] A number of problems apply to these analyses:

1. 'Properly classified,' in the analyses, presumably limits analogical arguments to what we [who?] properly classify. Can there be multiple legitimate classifications?

2. Are these inference patterns governed by universal quantifiers, licensing free substitution for the variables? What logical constructions are allowed?
    1. Joe has features $a_1,...,a_n$ (features that characterize a male human).
    2. Joe or Jill has features $a_1,...,a_n$. (Follows from 1.)
    3. By virtue of Joe's having $a_1,...,a_n$, Joe is properly classified as a male human.

    So, Joe or Jill should be properly classified as a male human???
3. Must it be stated that all and only relevant features are involved in the analogy?
    1. John was a star forward in high school and he is over 6′5″
    2. Bill was a star forward in high school and he is over 6′5″.
    3. By virtue of his being star forward in high school and over 6′5′, John was invited to try out for the college basketball team.
    4. So, Bill should be invited to try out for the basketball team.

    But what of the inference for another student, Ted? He was a star forward in high school and he is over 6′5″, but he was not invited. Should he have been? Well, Ted was arrested recently for drug abuse. The argument now is weak. Perhaps, the argument should include "So, all other things equal". Or, the 'in virtue of' clause must be understood as 'only in virtue of'. Still, these clauses will not work as an enumeration that includes all features that could undermine the argument, since the list would never end.

[2] If a relation is transitive and irreflexive, it follows formally that it is asymmetric (or anti-symmetric). This logical connection has not been noted, as far as I know, perhaps because analogical premises are unfortunately stated only in terms of features or properties, not relations.

[3] I develop this complaint in Adler (1997)

[4] Davidson (1984) argues that metaphors do not involve change of meaning. They are rather a pragmatic or perlocutionary function of the literal meaning. Still, the direction of metaphorical thought can distinguish between what is variable and what is constant or fixed.

[5] Guarini (2004) and Govier (1992) both connect precedent to formal justice but not to *stare decisis*. Fogelin and Sinnott-Armstrong (2001) provide extended treatment (ch.13), which relates *stare decisis* to analogical arguments without assimilation.

[6] Actually, this is not strictly true of the analyses, though it is true to their spirit. The problem is that the analyses do not articulate the negative that an asymmetry involves – that one has a feature or classification that the other does not. Since unstated and not relativized to our knowledge, the implied difference finds no place: The primary subject is properly classified as W already. (Govier's 'properly classified' seems already to have an explicitly epistemic dimension, as may hold for Juthe's "counterpart".) But if we bring in the temporal and epistemic aspects of the inference, the negative aspects do come out:

3.* It is by virtue of features a, b, and c that the analogue is properly classified as a W, but it is not yet known to be true of the subject.

[7] "If *a* is F, *b* is F or if *a* is not-F, *b* is not-F" is a tautology (at least on a material conditional reading of 'If').

ACKNOWLEDGEMENT

For helpful comments, I am grateful to Dan Boone, Trudy Govier and referees for *Argumentation*.

REFERENCES

Adler, J. E.: 1991, 'Double Standards, Equality, and the Right Reference Class', *Journal of Applied Philosophy* **8**, 69–81.
Adler, J. E.: 1997, 'Fallacies not fallacious: Not!', *Philosophy and Rhetoric* 30, 333–350; 367–375.
Copi, I. and C. Cohen: 1998, *Introduction to Logic*, 10th edition, Prentice-Hall, Upper Saddle River, NJ.
Davidson, D.: 1984, 'What metaphors mean', *Inquiries into truth and interpretation*, Oxford University Press, Oxford, pp. 245–264.
Fauconnier, G.: 2001, 'Conceptual blending and analogy', in D. Gentner, K. J. Holyoak and B. N. Kokinov (eds.), *The analogical mind: Perspectives from cognitive science*, The MIT Press, Cambridge, pp. 255–285.
Fogelin, R. F. and W. Sinnott-Armstrong: 2001, *Understanding Arguments*, 6th edition, Harcourt, New York.
Gentner, D.: 1983, 'Structure-mapping: A theoretical framework for analogy', *Cognitive Science* **7**, 155–170.
Govier, T.: 1992, *A Practical Study of Argument*, 3rd edition, Wadsworth, Belmont CA.
Guarini, M.: 2004, 'A Defense of Non-deductive Reconstructions of Analogical Arguments', *Informal Logic* **24**, 153–168.
Holyoak, K. J.: 2005, 'Analogy', in K. J. Holyoak and R. G. Morrison (eds.), *The Cambridge Handbook of Thinking and Reasoning*, Cambridge University Press, Cambridge, pp. 117–142.
Juthe, A.: 2005, 'Argument by Analogy', *Argumentation* **19**, 1–27.
Ortony, A.: 1979, 'Beyond literal similarity', *Psychological Review* **86**, 161–180.
Thomson, J. J.: 1972, 'A Defense of Abortion', *Philosophy and Public Affairs* **1**, 47–66.
Tversky, A.: 1977, 'Features of Similarity.', *Psychological Review* **84**, 327–352.
Waller, B. N.: 2001, 'Classifying Analogies', *Informal Logic* **21**, 199–218.