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On the Limits of the Woods-Hudak Reconstruction of Analogical Argument

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ABSTRACT Woods and Hudak take analogical arguments to be meta-arguments, or arguments about arguments. I argue that their emphasis on "deep structure" or "logical form" does not allow for a proper understanding of analogical argumentation that takes place in the absence of a complete grasp of the deep structure of the first order arguments in analogical meta-arguments.

Introduction: Analogical Arguments as Meta-Arguments

Woods and Hudak (1989, 127) take analogical arguments to be meta-arguments, or arguments about arguments; they offer the following general schematic for how such arguments are to be reconstructed.

1. Argument *A* possess a deep structure whose logical form provides that the premisses of *A* bear relation *R* to its conclusion.
2. Argument *B* shares with *A* the same deep structure.
3. Therefore, B possesses a deep structure whose logical form provides that its premisses likewise bear *R* to its conclusion.
4. Hence, *B* is an analogue of *A*. *A* and *B* are good or bad arguments, by parity of reasoning, so-called.

Call this *Meta-Schema I*. There are at least two ways to interpret this schema. First, we may understand the argument from (1), (2), and (3) to (4) as being monotonic. Call this the Strong Interpretation. Second, we may understand this same meta-argument as being non-monotonic. In other words, if (1) through (3) are true, then (4) follows, but when further claims are added to the premise set, (4) may not follow. Call this the Weak Interpretation. As we will see in the next section, W&H are committed to the Strong Interpretation.

I will argue that the W&H approach to reconstructing analogical argument is committed to the following claim:

(I) that *R* (refereed to in the schema) can in principle (after reflection) be completely stated by those wanting to engage in the evaluation of analogical arguments.

I will argue that at least with respect to some reconstructions of analogical arguments, (I) is false. This is a concern for the W&H analysis of analogical argument since it undermines the idea that logical form and consistency play a central role in reconstructing and evaluating such arguments.

On Consistency and Logical Form

Woods and Hudak (1989, 126 & 137 n7) want to reconstruct analogical arguments in such a way that those who refuse to treat arguments having the same deep structure as both good or bad are guilty of an inconsistency. To see this point, let us consider how they treat Judith Thomson's

celebrated abortion-kidnapped-violinist analogy. Thomson asks us to consider the case of a violinist who is dying of a kidney ailment. The society of music lovers kidnaps you, knocks you out, and hooks you up to the violinist so that your kidneys are filtering his blood. You awake, and the doctor apologises and says that he had nothing to do with this. Furthermore, you are informed that you may unplug yourself from the violinist and walk away. Doing so will lead to the violinist's death, and the only way to keep the violinist alive is if you stay hooked up to the violinist for an indeterminate period of time, perhaps nine months, perhaps longer. Thomson suggests that while it would be decent of you to stay hooked up to the violinist, you are not morally required to do so. She also suggests that by analogy, a woman is not required to see a pregnancy through (or stay "hooked up" to the fetus) if the pregnancy was the result of rape. Clearly, there are similarities between the case of a pregnancy resulting from rape and a case of being forcibly hooked up to the violinist. However, for Woods and Hudak (1989, 126), it is not helpful to simply assert that from "the fact that things are similar in certain respects that they are also similar in certain other respects" because this "leaves it unexplained as to how the similarities interact with the inconsistency" associated with "resisting the conclusion."

According to Woods and Hudak (W&H), the *Violinist-Abortion* argument is a meta-argument. The idea is that there are two target arguments at issue, and that they are either both good or both bad in virtue of sharing a deep structure or logical form. W&H (1989, 129) offer the following as an attempt to capture the logical form at issue:

(1) without H_2's consent, H_1 has placed H_2 in a state of vital dependency;

(2) the period of dependency is indeterminate (perhaps nine months, perhaps nine years, perhaps forever);

(3) the dependency is a grievous impediment both to locomotion and to (stationary) mobility;

(4) the dependency constitutes a grievous invasion of privacy;

(5) it is an invitation to social disaster, for H_2 (and H_1 as well) is a laughing stock;

(6) it threatens H_2's economic self-sufficiency…

(7) therefore, it would be morally permissible for H_2 to terminate the vital dependency.

Call this *Target Schema I*. The idea is that the above form applies both to the violinist argument and to the abortion argument. If the two arguments are analogues of one another, then they are analogues in virtue of sharing a logical form. The analogical argument is a meta-argument that says the two arguments are either both good or both bad in virtue of sharing the same form. If we look at *Meta-Schema I* (offered at the beginning of this paper) then we can say that the logical form just examined is R; the violinist argument (henceforth referred to as *Violinist*) is A, and the argument for abortion in cases of rape-induced pregnancy (henceforth cited as *Abortion*) is B. What W&H suggest is that if the first three statements *Meta-Schema I* are true, then the fourth must be true. To assert the premises and deny the conclusion is to be guilty of an inconsistency. The notion of logical form or deep structure is intended to do the work of capturing the similarity between arguments in such a way as to license the charge of inconsistency if the two target arguments (A and B) are treated differently.

To clarify the above further, consider how William H. Shaw and L.R. Ashley (1983, 420) reconstruct analogical arguments:

1. Objects O_1, O_2, O_3, . . . O_n have Properties P_2, P_3, P_4, . . ., P_k in common.
2. Objects O_2, O_3, . . ., On have Property P_1 in common. Therefore, it is probable that
3. Object O_1 has Property P_1.

There may be a *tension* in asserting 1 and 2 but denying 3, but there is no *inconsistency*, at least not in the logician's sense of that term. W&H (1989, 137) express concern that such a reconstruction of analogical argument is inadequate since it renders us unable to charge someone with an inconsistency if they accept 1 and 2 but deny 3. The whole point of stressing that the similarity between the alleged analogues is to be cashed in terms of sameness of deep structure or logical form is to make it possible to lay the charge of being inconsistent if the premisses of the meta-argument (claims 1 through 3 of *Meta-Schema I*) are asserted but the conclusion (claim 4) is denied.

A Critique of the Role of Logical Form

The concern discussed in this section goes to the heart of the W&H reconstruction of analogical argument. While W&H (1989, 129) point out that a complete articulation of an analogical meta-argument (and of the logical form of the first order arguments the meta-argument is concerned with) is often not required for eventual analogical settlement of the dispute, they claim that "nothing in principle prevents a disputant from giving a complete articulation of his side of the issue . . . ". The purpose of this section of the paper is to suggest that a complete articulation of the logical form of the target arguments of an analogical meta-argument is sometimes not possible; this suggests that even a single disputant may not be able to give a complete articulation of his side of the issue. If the preceding is correct, then analogical arguments and the judgements of similarity they require can carry on in the absence of the existence of a completely specifiable logical form for the target arguments.

W&H argue that the notion of logical form is required to cash out what it means for the target arguments to be similar, and the logical form conception of similarity is used to underwrite the charge that one is inconsistent if one accepts the premisses of an analogical meta-argument but denies the conclusion. I will suggest that there are times when it may not be possible to understand similarity in terms of logical form, at least not if the notion of logical form is the sort that can license a charge of inconsistency. Moreover, I will suggest that being able to make the charge of inconsistency is not essential to being able to evaluate all analogical arguments.

W&H (1989, 138) offer an example of an argument which attempts to cast doubt on the validity of the logical form at issue in Thomson's violinist-abortion analogy; the argument is about two Siamese twins, referred to as *a* and *b*.

1. Their attachment is such as to constitute for *a* vital dependency upon *b*, but not vice-versa.
2. The attachment is such as to constitute a sever impediment to locomotion and mobility.
3. The dependency is temporally indeterminate, for though *a* could die at any time, it is possible that he will have a full life-span.
4. Honourable employment is all but out of the question.
5. *a* and *b* are subject to morbid and demeaning curiosity.

6. Their attachment is a perpetual and reciprocal invasion of privacy.
7. Both are innocent victims of circumstance.

Would *b* be morally justified in severing the attachment?

Call this argument *Siamese*. W&H are intimating (and rightly so to my way of thinking) that it would be inappropriate for *b* to sever the attachment and let *a* die. *Siamese* instantiates essentially the same logical form as *Violinist* and *Abortion*. The suggestion is that they should all stand or fall together.

There is a way to counter the preceding suggestion. We might say that there are important differences between *Siamese*, *Violinist,* and *Abortion*. First, the social consequences of requiring the Siamese twins to stay connected are different from the social consequences of either requiring people to stay hooked up to patients or requiring women to see pregnancy through if they have been raped. If might turn into open season on anyone who has a blood type that could be useful to others in the way that the kidnapped victim had a blood type that allowed her to filter the violinist's blood. Moreover, it could be open season on women who do not want (more) children but who have partners who do want (more) children. Requiring that the vital dependency remain intact in the Siamese case does not have the same sort of frightful consequences. Second, we could point out that while things are difficult for the Siamese twins, they have had the opportunity to get used to one another since birth. The psychological consequences of keeping them attached are different from the psychological consequences of putting people in a state of vital dependency when they have lived their whole lives not being in such a state.

The ways in which *Siamese* differs from *Violinist* and *Abortion* may suggest to some that we have to reconceive the logical form at work in the *Violinist-Abortion* analogical argument. Perhaps the form is as follows.

Target Schema II

(P1) without H_2's consent, H_1 has placed H_2 in a state of vital dependency;

(P2) the period of dependency is indeterminate (perhaps nine months, perhaps nine years, perhaps forever);

(P3) the dependency is a grievous impediment both to locomotion and to (stationary) mobility;

(P4) the dependency constitutes a grievous invasion of privacy;

(P5) it is an invitation to social disaster, for H_2 (and H_1 as well) is a laughing stock;

(P6) it threatens H_2's economic self-sufficiency;

(P7) there are grave social consequences if H_2 is required to remain in remain in a state of vital dependency[1];

[1]Some might wonder what the difference is between P5 and P7. It is just this: the "social disaster" referred to in P5 refers to the negative social consequences for H_1 and H_2. The "grave social consequences" (which some might say is another way of talking about a social disaster) refers to the negative social consequences for people other than H_1 and H_2.

(P8) H_2 would have a very difficult time adjusting to being placed in a state of vital dependency since H_2 has no experience living this way.

(C) therefore, it would be morally permissible for H_2 to terminate the vital dependency.

The first six conditions restate the form identified by W&H; conditions (P7) and (P8) are new. It might be tempting to say that *Target Schema II* really does capture why *Violinist* and *Abortion* are similar while differentiating them from *Siamese*. However tempting this move might be, it should be resisted. Consider a modified version of the violinist case, where the masses believe the violinist to be guilty of murder, but in fact, he is innocent. The masses have threatened to riot if he was found innocent, but did not riot when it was announced that he was dying of a kidney ailment. Imagine further that violinist has a brother named Jack. Jack's life was saved on several occasions by the violinist, who even donated a kidney to Jack. Jack promised over and over to do anything he could to help his brother if he ever needed help. The violinist's remaining kidney failed, and Jack agreed to be hooked up so that he can help out his brother; he even signs a contract saying he will remain hooked up until a donor kidney can be found. Part of the contract is that a large fee is to be paid to Jack up front. Jack and violinist are hooked up. After the up front fee is deposited into Jack's bank account, he disconnects himself and leaves his brother the violinist to die. The doctors apprehend Jack and hook him back up against his will. To keep the violinist hooked up until a donor kidney is found will incite the masses to riot since they want him dead (believing he is an evil mass murder or some such). In other words, there are grave social consequences to letting Jack detach himself. Let us call this case *Violinist II*. The first thing that should be noticed is that this case instantiates the form captured in *Target Schema II*. However, it is not obvious that it is morally permissible for Jack to detach himself. I think it plausible that *Violinist* and *Abortion* should be treated differently from *Violinist II*. So then, should we modify *Target Schema II* to better capture the similarity between *Abortion* and *Violinist* while not including as similar *Violinist II*? Perhaps we could add the following condition.

(P9) H_2 has done nothing to create any obligations towards H_1.

Again, while adding this further condition in an attempt to get the logical form "just right" may be tempting to some, it should be resisted. It is possible that H_2 could do something that creates obligations towards H_1, but it is possible that other obligations could defeat the obligations created by H_2, which would mean that we would have to make our Target Schema longer. Perhaps still other obligations could defeat the defeated obligations, and further obligations could defeat the obligations defeating the defeated obligations, and so on. This is worrisome. If we cannot have a complete statement of the logical form in principle, on what grounds can the charge of inconsistency be made? It is key to the W&H account of analogical argument that a charge of inconsistency can be made (at least in principle) if two arguments sharing the same form are treated differently. What I want to suggest is that it is reasonable to treat *Violinist II* differently from *Violinist* and *Abortion* even if, in principle, there is no logical form that is always valid.

Two objections might be raised at this point. First, it has not been conclusively established that there are cases of analogical argument where there is no way to usefully state the complete logical form of the target arguments in an analogical meta-argument. Second, if there are no such forms, is it possible to evaluate analogical arguments? I will take up each objection in turn.

Regarding the first objection, I must concede that I have no idea how to *conclusively* establish that the sort of logical forms required for the charge of inconsistency are not always to be had. However, there are kinds of evidence that should give formalists cause for concern. The discussion of *Siamese* and *Violinist II* was an attempt to show that it is not obvious that the required sort of logical form is always to be had. But examples from legal reasoning should be mentioned as well. Edward Levi (1948) describes at great length the case law with respect to the liability of a seller of "dangerous articles" to a third party (someone to whom the article was not sold). This is an area of case law where rules were put forward, revised, and rejected in light of further cases, and precedents were set and overturned. Judge Cardozo eventually put forward a rule which continues to guide this area of tort law: There is "a duty of vigilance" on the part of the seller of dangerous articles, and "If the nature of a thing is such that it is reasonably certain to place life and limb in peril, when negligently made, it is then a thing of danger" (Levi 1948, 23). Levi makes an important observation about the nature of this sort of rule. He points out that terms such as "negligence" have their meaning clarified by how they are applied, so the preceding rule, while it may provide guidance, cannot be taken as the final word on what certain cases have in common and how future cases are to be decided. The reason is that future cases may come along which we may want to include under the rule, but those cases may be dissimilar from cases presently included, and that would lead to past precedents being overturned and the understanding of the rule at issue being changed. Someone who understands the nature of legal reasoning in this way should be concerned with the emphasis W&H place on logical form underwriting the charge of inconsistency in analogical argument. The indeterminate rules and principles which Levi acknowledges are part of case law cannot be used as a kind of logical form which can license a charge of inconsistency since the rules are understood to be incomplete (and a logical form with a ceteris paribus clause, or some other indicator of incompleteness, cannot be used to underwrite a charge of inconsistency). If we agree with Levi's understanding of legal reasoning, then we shouldn't be concerned with charging someone with inconsistency if they treat two apparently similar cases in different ways. On the W&H approach, a charge of inconsistency would require the statement of a rule or logical form that the target arguments (or cases) have in common, but Levi's (1948) survey of parts of the history of legal reasoning suggests that such rules are not to be had.

In more recent work on legal reasoning, Kevin Ashley examines the complexities of trade secret law. He points out (1990, 17) that it is written into law that a complete a complete definition of a trade secret is not possible.

An exact definition of a trade secret is not possible. Some factors to be considered in determining whether given information is one's trade secret are:

(1) the extent to which the information is known outside of his business;

(2) the extent to which it is known by employees and others involved in his business;

(3) the extent of measures taken by him to guard the secrecy of the information;

(4) the value of the information to him and to his competitors

(5) the amount of effort or money expended by him in developing the information;

(6) the ease or difficulty with which the information could be properly acquired or duplicated by others. Res. (First) of Torts Sec. 757 comment b.

So it could not be held against a lawyer arguing in a United States court that her argument has not given a complete account of a trade secret. If the objection were raised that she had not given a complete account of the similarities between the two cases because she had not exhaustively defined the notion of trade secret, she would be entitled to argue that such an expectation is unreasonable since the statutes on this matter point out that it is impossible to give such a definition. Without a complete account of what a trade secrete is, it is hard to see how the evaluation of an analogical argument on such a topic could turn on being able to make the charge of inconsistency based on treating two arguments with a similar form in different ways. The reason is that the full form of the argument that a case at issue really does involve a trade secret may not be available. The drafters of the passage quoted above believed that a complete account of a trade secret was not to be had. I take this as evidence in favour of the view that analogical arguments cannot always be reconstructed in the manner W&H suggest. This kind of evidence is not conclusive since it may be overturned by future attempts to more precisely capture the notion of a trade secret. Still, I take this evidence to be non-trivial. The drafters of this legislation had much history and case-law to draw on, but that history showed them the dangers of trying to give complete account of what cases have in common.

At this point, I want to return to the second objection mentioned above. If it is possible to "see" or "grasp" that two cases are similar even if there does not appear to be a logical form that two cases share, then can we still say that it is possible to evaluate analogical arguments? The point I want to make is that there existence *some* circumstances under which analogical arguments can be critically evaluated. That legal reasoning frequently involves the critical evaluation of cases without stating anything like a logical form that underwrites a charge of inconsistency is surely evidence that such evaluation need not turn, even in principle, on the ability to make a charge of inconsistency. Exactly what conditions need to be satisfied for such evaluation to take place is a matter that needs its own paper to be explored. However, there are some observations that are worth making at this point.

First, the logic of analogical arguments appears to be non-monotonic, and their evaluation seems to turn on that feature. A precedent may be cited to establish a point about the case in question; that point may be defeated by considerations (including another case) that the parties involved agree are to the point; further claims (perhaps another case agreed to be to the point) may be cited to defeat the defeating considerations and re-establish the initial conclusion, and so on. This type of flexibility may seem suspicious to some, but it need not be. Consider the following argument.

(P1) Jack sees someone who looks exactly like Jill walk into Jill's house.

(C1) Therefore, Jill is in her house.

P1 is not a bad reason for believing C1. However, if Jack is informed that

(P2) Jill has an identical twin,

then Jack would be making a highly dubious argument if he argued from P1 and P2 to C1. Of course, if Jack is informed by a close friend of Jill's family that

(P3) Jill's twin is on vacation in another country,

then C1 seems to be the appropriate default conclusion. If Jack finds out that

(P4) The close friend of the family that is the source of information for P3 is a compulsive liar,

then, once again, the argument for C1 is questionable.

That we can add further premises to the initial argument, P1 to C1, which alters the status of the conclusion, and that we can repeat this process over and over in no way suggests that we cannot critically evaluate arguments of this type. Moreover, non-monotonicity does not undermine the idea that there is a fact of the matter, or a true or false claim to be made, about whether Jill is in the house or not. If analogical arguments are non-monotonic meta-arguments, on its own, that in no way establishes that such arguments cannot be evaluated or that there is no correct answer to the conclusion attempting to be established.

Conclusion

Clearly, more work needs to be done on analogical argument. How such arguments are best evaluated and the circumstances under which they can be evaluated are subjects that need greater exploration. Also, how it is that we can "see" or "grasp" the similarity of arguments even when we cannot exhaustively state (perhaps even in principle) the rules or forms that the arguments share is something that needs to be explained. To be sure, we must be bringing all kinds of background knowledge to bear in our judgements of similarity, but how do we do that if we are not committing ourselves to exceptionless rules or a complete logical form? This question has both descriptive and normative components. With respect to the descriptive component, there have been attempts made by some—Holyoak and Thagard (1995) and Kevin Ashley (1990) come to mind—to computationally model analogy in a way that does not make use of the notion of logical form that W&H use. These attempts shed some light on how, as a matter of fact, it may be possible to make judgements of similarity without a W&H conception of logical form. With respect to the normative component, matters are more difficult. How ought we to make use of background knowledge in coming to judgements of similarity? Presumably there are constraints on what sort of target arguments may be considered similar for the purposes of mounting an analogical meta-argument. What are those constraints? How are they to be expressed if not in terms of an underlying logical form? I think that descriptive work in psychology, cognitive modelling, and artificial intelligence might provide some of the descriptive language in terms of which normative constraints may be more precisely articulated. Much descriptive and normative work remains to be done in the enterprise of understanding similarity judgements and the role they play in making analogical arguments. Broadly conceived, the point of this paper has been to urge that both of these kinds of work should be done in a way that does not rely strictly on a notion of logical form that is used to underwrite charges of inconsistency.

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