

By Parity of Reasoning*

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*"Analogy is an unstable form of argument"*¹

I

Analogy is rife in the lives of certain species. It scarcely seems possible that we ourselves could do without it. We have analogical predication, analogical pattern recognition, analogical explanation, analogical inference, and analogical argument. Analogy is one of those ideas as old as logic itself, and yet, perhaps more than the others, it has resisted analytical reconstruction to the point of theoretical impotence. In this respect, analogy is like relevance, another momentous discouragement to theory, and yet another of those ancient and indispensable guides to rational life. This is ironic, since, as we shall soon see, our own account of analogical argument will press relevance into theoretical service in a non-trivial way. So at the outset there may be cause to wonder whether ours is an account in which the blind leads the blind.

We will here concentrate on analogical argument. It is not the same as analogical inference, if only because inference is not the same as argument. It doesn't follow, of course, that a good theory of analogical argument will be of no use for accounts of analogical inference; it is just that they cannot be the same account. The argument that argument isn't inference is well-known and we will not take the time to reproduce it here.²

Analogical argument must also be

distinguished from analogical explanation, if only as a reflection of the fact that argument also differs from explanation. Even if it were true that explanations can always be made out to be deductive-nomological arguments, we would not have lost our distinction, for not every argument is a deductive-nomological argument. Many writers propose a sharper divide between argument and explanation than is drawn by the deductive-nomological account of explanation. Mill is one such and it was he who reserved explanation—as opposed to argument—for analogy's pride of place: "[A]nalogy's sole value is that it makes it possible to formulate a hypothesis for verification by induction."³ Though analogical explanation plays a large role in rational life, we do not share Mill's restrictive view of it.⁴ We are rather more drawn to a remark of Perelman and Olbrechts-Tyteca: "Any complete study of argumentation must ... give [analogy] a place as an element of *proof*."⁵

Some may find it surprising that analogical argument differs from analogical inference. More surprising still is the suggestion that analogical predication differs from analogical argument, not just in the way that predication differs from argument, but in rather more striking ways that suggest the unlikelihood that they exemplify a single, unified idea of analogy. It is almost as if the structural elements that make for analogousness in argument are not those that deploy to make for analogousness in predication; at a minimum, anyhow, they deploy quite differently. This we will attempt to demonstrate in due course, but it

is well to flag the point here, to sound the admonition that predication and argument do not draw down the same concept of analogy.

Other things are said about analogical argument which we think untrue or, if not untrue, imperspicuous from the point of view of theory. These we will take up *en passant*. There is, however, one matter which should be addressed at the outset. In particular, it is the claim that arguments are analogical because they conclude from the fact that things are similar in certain respects that they are also similar in certain other respects.⁶ This is not so much wrong as unhelpful. For if we say that such an argument is good just when the conclusion (that the things are similar in certain other respects) cannot consistently be resisted in light of similarities already noted, this leaves it unexplained as to how the similarities interact with the inconsistency. That is, why should it be, and what is it about them, that the noted similarities give rise to the concluded ones? Without further elucidation, we trade in one obscurity for another. We trade in “and so by analogy such and such” for “and so, because they are similar in certain respects, they must be similar in these other respects.”

Thus a characterization of analogical argument cannot be theoretically illuminating until the appropriate connection is made between the factors of *similarity* and the *inconsistency* of resisting the conclusion.⁷ If we ask whether there are clear cases in which factors of similarity admit of descriptions that genuinely elucidate such verdicts of inconsistency, the answer is Yes. Consider, for example, the following two rather simple-minded arguments, *X* and *Y*.

X	Y
1. The cat is on the mat.	1. Bill loves Sue if and only if the market does well.
2. If the cat is on the mat, the dog is in the manger.	2. Bill loves Sue if and only if the market does well,

only if the total memory capacity of the human brain is 4×10^{16} bytes.

3. Therefore, the dog is in the manger.

3. Therefore, the total memory capacity of the human brain is 4×10^{16} bytes.

Now it is evident upon inspection that although *X* and *Y* differ substantially in their surface structure (appropriating a term from elsewhere), they possess a common deep structure. The “similarity” (an understatement) of deep structure just is identity of form, in this case, of truth functional form. It is this identity of form that accounts for the fact that one could not consistently hold that *X* is a correct argument and yet that *Y* is not. Here the interaction between similarity and inconsistency is elucidated. For identity of form is such that properties of a given argument which obtain on its account cannot consistently be withheld from arguments possessing the identical form. That said, it is now clear that the similarity-from-similarity notion of analogy admits of an interpretation under which it comes out true. Since *X* and *Y* are similar in a certain respect (viz., sameness of logical form), they are similar in a certain further respect (viz., in this case, deductive validity).

It is important to see that it is not a question of *X*'s and *Y*'s both being such that their respective conclusions cannot, with deductive consistency, be resisted in the light of their respective premisses (though this too is so in the present case). The point, rather, is a good deal more general. Whatever verdict—whether of deductive validity, inductive strength or whatnot—that is conferred upon a given argument by virtue of the logical form of its deep structure is also conferred upon any argument sharing that structure.⁸

It is our principal contention that it is precisely this way with arguments from

analogy. Arguments from analogy are arguments by parity of reasoning, so-called.⁹ They are arguments about arguments, *meta-arguments*. They argue that two or more target arguments stand or fall together and that they do so because they are relevantly at parity, that they possess similar deep structures by virtue of which they coincide in logical form. The target arguments of the meta-arguments are thus *analogues* of each other. This basic idea, or something similar, can be found in pragmadialectical writings on argumentation: "Argumentation in which there is an ordering based on a similarity in the structure of things connected with the thesis being defended and a structure of things that is not subject to doubt in the mind of the audience is used in *argumentation by analogy*."¹⁰ That said, it is still doubtful that the pragma-dialectician has our *analysis* in mind.¹¹

If the meta-argument account of analogy is true, it is important in another respect. For it shows that the analogy-relation defined over arguments is symmetrical. But, as we have shown elsewhere, analogical *predication* is not symmetrical.¹² We return to this point below.

II

It now seems appropriate to speak of the *basic structure* of an analogical argument, somewhat as follows:

1. Argument *A* possesses 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.¹³

On the face of it, the basic structure is something of a letdown, reminiscent of Peggy Lee's "is that all there is to a fire?" Where, it might be asked, are the brilliance and ingenuity that characterize analogical arguments at their best? Where, in particular, is what would account for the sheer *cleverness* of some such arguments? Defending argument *Y* by analogy with argument *X* is a humdrum enterprise, perhaps of help only for the spectacularly dim. The use of certain analogical arguments, by contrast, is arresting and mind opening. How are we to explain this?

The more useful thing to do at this point is to produce an analogical argument and to plumb it for its theoretical yield, if any. Ours is a good but manageable example; good in as much as it has won the admiration of many, if not most, who have studied it; and manageable inasmuch as it seems to admit of analysis in something less than a whole lifetime; unlike, say, the Design Argument. We should also add that it is deliciously controversial.

The example is drawn from Judith Jarvis Thomson's celebrated paper, "A Defense of Abortion."¹⁴ In it Thomson produces an argument designed to show that the termination of a rape-induced pregnancy is morally justified.

You wake up one morning and find yourself back in bed with an unconscious violinist. He has been found to have a fatal kidney ailment, and the Society of Music Lovers has canvassed all the available records and found that you alone have the right blood type to help. They have therefore kidnapped you, and last night the violinist's circulatory system was plugged into yours, so that your kidney can be used to extract poisons from his blood as well as your own. The director of the hospital now tells you, "Look, we're sorry the Society of Music Lovers did this to you—we would never have permitted it if we had known. But still, they did and the violinist now is plugged into you." Is it morally incumbent on you to accept this violation? No doubt it would be very nice if you did, a great kindness. But do you have to accede to it? What if it were not nine

months, but nine years? Or longer still? What if the director of the hospital says, "Tough luck, I agree, but you've now got to stay in bed with the violinist plugged in to you, for the rest of your life. Because remember this: All persons have a right to life, and violinists are persons. Granted you have a right to decide what happens in and to your body, but a person's right to life outweighs your right to decide what happens in and to your body. So you cannot ever be unplugged from him ..."

How, then, are we to account for the sheer cleverness of Thomson's use of the Violinist? Part of the answer is that the clever, ingenious or breathtaking analogy turns on the disclosure or postulation of deep structure that may have been obscured by surface structure. Clever arguments from analogy are somehow striking in their structural perceptiveness.¹⁵ That, as we say, is part of the story. The other parts are more easily told dialectically. So let us imagine that two dialecticians, Bill and Sue, are trying to determine the moral standing of abortion in the case of a rape-induced pregnancy. As might be expected, Bill and Sue are getting nowhere; in fact, they have landed themselves in a *stand-off*.¹⁶

A stand-off is a kind of dialectical black hole, afflicted by a paralyzing dissensus, depriving the contenders of a basis for rational settlement. Slightly over-simplified, an argument counts as a stand-off within argumentative parameters P_1, \dots, P_n to the extent that arguments and counter-arguments, claims and counter-claims, couched in terms of the P_i tend to be either irrelevant or question-begging. Thus, if Bill and Sue were transacting their argument in terms of foetal rights, maternal reproductive control rights, quality of life, and so on, then if their argument threatens to become a stand-off, their only practicable chance of escaping from it is by finding new parameters; by finding factors relevant to the issue at hand on which they *do* agree.

Here is one way in which the escape from a stand-off might go: The juncture at which there is a dialectical shift from the

P_i that make the dispute a stand-off to other parameters that might be agreed upon and considered relevant, is the point at which the *original* argument is abandoned and replaced by an *analogical* argument. The analogical argument, let us repeat, is a meta-argument, an argument to the effect (somewhat over-stylized) that another argument—let's call it a "comparison" argument—shares an identical form with the original argument. Thus the analogical argument both makes an argument and presents a (comparison) argument. The argument it presents (e.g. the Violinist) is not the argument it makes. The argument it makes is analogical, that is, it holds that the comparison argument is identical or—at a minimum—relevantly similar in form with the original, and therefore that the original stands or falls with it.

The dialectical breakout from a stand-off that an analogical argument tries to achieve will settle the original dispute if Bill and Sue agree

- (i) that the original argument and the comparison argument are indeed analogues of one another; and
- (ii) that the comparison argument is good or, as the case may be, bad.

III

We said, just above, that this account of the escape from a stand-off by way of analogical argument is somewhat over-stylized; and so it is. There are, in fact, features of actual cases that call into question our characterization of analogy as a dialectical manoeuvre. In such cases (the abortion case is a good example), the original argument is not fully formulated. The brunt of the disagreement falls upon the conclusion, upon whether abortion is morally permissible in certain circumstances. Since the disagreement is also a stand-off, there is bound to be serious difficulty not only in agreeing on which premisses to count as true, but also about

which statements to recognize as premisses in the first place. An abiding feature of a stand-off is, as we have seen, that considerations advanced by the one disputant have a way of being found irrelevant or question-begging by the other. Irrelevant or question-begging, and so not worth stating, and hence, in a functional sense, not premisses at all.

Though nothing in principle prevents a disputant from giving a complete articulation of his side of the issue, we admit that in actual dialectical practice, prospects for complete articulation are often dashed by dialectical dissonance. Yet it is quite clear that, frequent or not, the fact of the half-expressed original argument need not be a barrier to eventual analogical settlement. For if the comparison argument does provide a basis for settlement, it is usually possible to reconstruct from the original, half-expressed argument a fully articulated version of it, in which the original parameters are integrated with parameters exhibited in the logical form of the comparison argument.¹⁷

We can see this all coming together in the Violinist. The Violinist is a comparison argument. It is offered as more or less obviously correct. If it is correct, this is because it yields to a structural re-description that lays bare a logical form in virtue of which it is correct. If it is also a dialectically tenable comparison argument, it will be possible structurally to re-describe the original argument in such a way as to lay bare the same logical form, which is obscured by the surface structure of the original.¹⁸ If the comparison argument and the original argument turn out to be analogues of one another, it will be because they share that logical form and thus collect the same verdicts on their success or failure as arguments. The Violinist yields the following structural re-description:

Human beings H_1 and H_2 are so related that

- (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.

This suffices to set up the basic question: does H_2 owe to H_1 the hospitality of this arrangement, unconsented to and at the cost of locomotion, mobility, privacy, income, self-respect, and prospects of determinate relief? Let us say, for now, that he does not. The comparison argument finishes, then, with the conclusion

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

It is perhaps odd to call (1) to (7) the logical form of the comparison argument of Thomson's example. But it is certainly (part of) its deep structure, for it is, obviously enough, an abstraction; an abstract re-description of essential factors. In the earlier example of arguments X and Y , the deep structure was very abstract, nothing more than the truth functional structure of modus ponens. The structure of modus ponens deserves the name of logical form because it is an abstraction that determines the logical appraisal for any argument exhibiting it. True, the abstraction (1) to (7) is nothing like a truth functional skeleton, but it too determines the terms of logical appraisal for any argument exhibiting it; and it is precisely in this sense that it too qualifies as logical form.

It is interesting to note, in passing, that even if Thomson's comparison argument is correct, its logical form almost certainly is not exhibited in the facts about the abortion

case. The foetus does not consent to the pregnancy; the pregnancy is not temporally indeterminate; and, in the general case: it is not a grievous impediment to locomotion and mobility; it is not an invasion of privacy; it does not threaten economic self-sufficiency; it does not constitute a social calamity. Thus the analogical argument fails. No doubt revisions could be cast about for, and found. But what is not clear is that any revision of the comparison argument—which would show a logical form exhibited also by the facts of the pregnancy case—would continue to justify the verdict of correctness either for the comparison argument or for the original.¹⁹

IV

As various of our colleagues have made us aware,²⁰ it is possible that we have succumbed to an over-regimented account of analogical argumentation. Consider:

- D*: 1. Bobby and Billy are both your young sons.
 2. You're giving Bobby some pocket money.
 3. So you should give Billy some pocket money, too.

Though not a meta-argument, why isn't this an analogical argument? Our answer can only turn on the exposure of some further structure of *D*, something along the following lines.

- D**: 1. Other things being equal, people should be treated equally.
 2. Other things are equal in this present case.
 3. A and B are people.
 4. A and B alike bear some relation R to F of such a general type as to make it appropriate for F to do X for A and B alike.
 5. F does do X for A.
 6. Therefore, F should do X for B.

Putting A=Bobby, B=Billy, F=Father,

X=providing pocket money, then the particular force of the supposed analogical character of *D**, and thus of *D*, is indicated by conditions that would refute it. Thus

- a. Bobby is good.
- b. Billy is naughty.
- c. So other things aren't equal.
- d. Father needn't give Billy some pocket money.

The refutation of *D** stands or falls on whether premiss 2 of *D** is true. It isn't, and so one might say that Billy is disanalogous to Bobby in relevant respects.

Notice, however, that the analogy between Bobby and Billy (if there is one) is that they both bear R to F and that R makes appropriate a certain action. *D** fails not because the analogy fails, but because premiss 2 does. That is, *D**'s failure is independent of its analogy-making factors (if such there be), and so it is infelicitous to call this a failure of analogical argument. True, you could say that the failure of premiss 2 suffices for disanalogy and thus that 2 itself suffices for analogy. But that would mean that disanalogy just is dissimilarity and analogy just is similarity; and that, we say, would be false.²¹

That dissimilarity does not suffice for disanalogy is a point which should be flagged. Not just any dissimilarity will do for a disanalogy. What is required is a *relevant* dissimilarity. In particular, the dissimilarity in question must be shown to affect the validity of the argument. It may be, for example, that there is a missing premiss essential to the validity of the Violinist argument which has no counter-part in the case of the rape-induced pregnancy. That is, identification of a dissimilarity as a disanalogy is a function of the logical form of the argument.

Still, it is possible that we haven't quite managed to understand the force of the complaint. Perhaps the example reproduced in *D* is better formulated in the following way. We might imagine that someone, noticing the pocket money disparities of the Smith household, reasons that since Mr. Smith en-

dows his young son Bobby with spending money, he should do the same for Billy, *his other young son*. The neighbor's inference turns on an expectation unfulfilled, and thus owes some of its features to other inferential commonplaces. Noticing that lobsters have been red when boiled, I expect the next boiled lobster to be red (but not that *all* boiled lobsters are red.). "Analogy thus pictured is an inferential leap, whereof the top of the trajectory is a slurred-over induction."²² Now, if this captures the sense of the objection, we yield to it. But, note, this is a matter of inference, and inference isn't argument.²³ So we are not persuaded that the complaint succeeds against our account of analogical argument.

Even so, isn't there *something* generically analogical about *D*, for its refutation—a counter-example—turns on a disanalogy between Bobby and Billy? The question is important. This calls forth the suggestion that the concept of the negative analogy receives paradigmatic expression in the concept of the *counter-example*, the classical manoeuvre, surely, of philosophy and science alike.²⁴ Since counter-examples are not in general meta-arguments, isn't the meta-argumental account of (negative) analogy somehow wrong? Let us be clear about what the present objection is. In giving a counter-example, *C*, you *can* be understood as giving an argument. Thus,

- E*: 1. It can't be so that all A's are B.
2. Because *C*—there is an A which isn't B.

But argument *E* is not about arguments; it's about generalizations and instances. So, again, isn't our own account too restrictive?

The notion that counter-examples turn on, or are, disanalogies has its temptations. Consider a further exchange between Bill and Sue.

- E**: (Bill) Ravens are black.
(Sue) Albinos aren't!

Perhaps we can say that the ravens to which Sue alludes are disanalogous to the others, from the point of view of albinhood, so to speak. Up to a point, we can say what we like. But apart from its standing in for the idea of a falsifying dissimilarity or a negative instance, we persist in the difficulty of seeing the concept of analogy doing any real work in the theoretical elaboration of *E**. We are reinforced in this reservation by a second example, *F*.

- F*: (Bill) Ravens are green.
(Sue) Every blessed raven that has ever been known has been black.

With *F* we have a momentous counter-example. *Every* instance of ravenhood so far observed falsifies Bill's generalization. Are we also to say that, likewise, we have a huge negative analogy? If so, it would bind us to the view that every single known raven in the history of the world is somehow a disanalogy, but, if disanalogies, disanalogous with *what*? Thus, if the counter-example of *F* doesn't capture in any theoretically illuminating and deep way the factor of disanalogy, we doubt that the counter-example of *E* does so anymore convincingly. For the counter-example of *E* is just a generalization of the counter-example of *F*. Since it is a generalization in which any theoretically useful notion of disanalogy has been leached out, we are prepared to hazard the same reservation for the counter-example of *E**.²⁵

There is nothing to be gained by dogmatism. We say that it is a distinctive feature of analogical arguments that they are in the general case meta-arguments. Perhaps this is mistaken; we would not be astonished if it were so. In the event, the account offered here would have to be down-graded; it would be true of only a certain class of analogical arguments. It would be a large and important class, however. Loss of generality would not be ruinous.

V

Relevance enters our account in at least two important ways. It enters, first, in the specification of deep disagreements, which is what analogical arguments are intended to break out of. Fairminded dialecticians will seek to settle a deepening disagreement about a disputed proposition by throwing up would-be premisses which not only might the disputants be prepared to accept, but which also might have some resolving effect upon the dispute. It would seem that the greater the depth of the disagreement, the greater the likelihood that proffered premisses, even when accepted by both parties, will be dismissed by one or other of them as not affecting the outcome of the dispute; that is to say, as irrelevant. As such, irrelevant would-be premisses, even when accepted by both, fail to “change the mind” of at least one. This, the idea that a bit of information is relevant for an arguer when, or by the extent to which, it changes his mind with respect to some fixed issue, calls for theoretical elaboration. This is attempted elsewhere by one of the present authors and will not be pursued here.²⁶

Relevance occupies an even more central place in the present theory of analogical argument. In its barest essentials, the idea of relevant similarities is a commandingly important dialectical notion. In the process of analogical argumentation, the comparison argument, however impeccable, will get us nowhere unless it is agreed (a) that its logical form is argumentatively definitive for it; (b) that the self-same logical form is exhibited by the facts of the original dispute; and (c) that this logical form is definitive for *it*.

In so saying, a theoretical grip, of sorts, is available for this use of relevance. It is a matter of whether the comparison argument suffices for the settlement of the original dispute; that is, whether the accompanying *analogical* argument is correct. Thus the idea of the relevance of the comparison argument is cashed out in the idiom

of “the correctness of the analogical argument.” If, as we hope, the latter now enjoys some degree of theoretical clarity, the same may be said for the kindred notion of relevance.

We have been proposing that an analogical argument is an argument to the effect (schematically represented) that since argument

- A
- 1. p
- 2. q
- .
- .
- .
- n. Therefore, w

and another argument

- B
- 1. s
- 2. t
- .
- .
- .
- n. Therefore, u

both instantiate (or are cases of) an argument

- Q
- 1. S₁
- 2. S₂
- .
- .
- .
- n. S_n

and, furthermore, since *B* draws an assessment-verdict, *V*, by virtue of its relationship to *Q*, so too should *A* draw down the same verdict.

Now it might be said that since the relationship that the sentences of *A* and *B* bear to one another is that of a shared subject matter, evidenced by their instantial connections to just the same constituents of *Q*, this shows the existence of a prior conception of analogy; analogy as shared subject matter. Thus *A*.1 and *B*.1 might be said to be analogues of one another by virtue of the

subject matter that they share on account of their instantial connections to *Q*.

True, one could speak in this way. One could say that the notion of analogical argument draws down a different and prior notion of analogy. Even so, this would not disturb our claim that analogical arguments are meta-arguments. Nor would it make our account circular, since the notion of analogy as the sharing of subject matter is not the concept of analogy which our account seeks to capture.

A more interesting and fruitful thing to say is that the shared subject matter of the constituent arguments in an analogical (meta-) argument discloses not analogousness but relevance. Thus analogues in our sense answer to and fulfill a relevance condition, and so relevance enters our account in a third way. Analogues are required to be *topically relevant* to one another, and they are. So the point at issue, far from damaging the meta-argument account, seems to lend it further support.

If this is right, then we have it that two arguments said to be analogues by virtue of sharing a valid truth functional form, say modus ponens, are so without fulfilling the relevance condition. This is actually a welcome consequence, since it reinforces the notion that in general there has to be something more to analogousness than the sharing of logical form under conditions of pure topic neutrality. So we will say that instantiations of modus ponens are analogues of one another *at the limit*.

Analogies are dialectically interesting in those cases in which the logical form of a given argument is obscured by its surface structure. By examination of an analogue of a second argument in which the logical form is more or less transparent in its surface structure, it is proposed that the first argument can now be read more perspicuously, that is, in ways that allow its form to show forth.

So it is quite true that even analogousness at the limit can be dialectically interesting, but usually it is not. The more

interesting cases involve the presentation of pairs of arguments the sentences of which admit of an abstract re-description; the *same* abstract re-description for each sentence-pair. When it is conceded that this abstracted argument deserves verdict V, it becomes clear that its instantiations do too.²⁷ Thus, in the general case, an argument from analogy won't go through unless the premiss-pairs and conclusion-pairs of the original and the comparative argument yield to the same abstract re-description. But this is just to say that in the general case the original argument and the comparative argument can't be analogues of one another unless they fulfill a condition of topical relevance. Relevance, as we say, enters our account in this other central way. For relevance is a condition of the specification of logical form in the dialectically interesting cases.²⁸

VI

We said, some pages ago, that analogical argument and analogical predication call upon no tightly unified single concept of analogy. Can this be justified? What do we mean? In an analogical argument, two (or more) arguments are said to be one another's analogues. They are analogues when they share a logical form which is argumentatively definitive for them both; that is, when they are both good or bad arguments of a given type by virtue of their possession of that same form.

Analogical predication works on quite different structural principles, as the following example will show. Let us allow that "Philip is the First Lady of Britain" is a correct analogical predication. If so, Philip Mountbatten is an analogue of Barbara Bush, but not, as we will see, she of him. Philip's First Ladyship of Britain turns on an abstracted description which both he and Mrs. Bush share, namely being *spouse* of his of her respective head of state. Let us now say that *a*'s satisfying a description D

is *predicationally definitive* for *a* with respect to *F* just in case '*Fa*' is true. Let us also say that *a*'s satisfying *D* is *analogically definitive* with respect to *F* just in case '*Fa*' is a correct analogical predication. It is now easy to see that where *D* is 'is spouse of his/her head of state' and *F* is 'is First Lady of his/her country', that Philip's satisfaction of *D* is not predicationally definitive with respect to his First Ladyship, but is analogically definitive. However, in contrast, Mrs. Bush's satisfaction of *D* is neither predicationally nor analogically definitive with respect to her First Ladyship. Being spouse of the president doesn't suffice; the First Lady must be his *wife*. So it is that, although Philip is Mrs. Bush's analogue with respect to First Ladyship, she is not his. Argument analogues are symmetrical. Predicational analogues are not.

It also seems clear that argument analogousness is reflexive and that predicational analogousness is not. Every argument has the same logical form as itself, and that seems to be that for reflexivity. Admittedly, it sounds odd to say that every argument is an analogue of itself, but reflexivity frequently manifests itself in the limiting case (e.g., every proposition implies itself; every two-dimensional plane figure is congruent with itself), so we will let the oddity pass. If nothing else, reflexivity is secured by the over-all theoretical yield of the account which begets it. On the other hand, there is no intuition, no factor of theoretical fruitfulness that would sanction our saying, for example, that the wing is the-wing-of-the-bat of the bat, i.e., that the bat has a wing by analogy with the bat's having a wing.²⁹

Transitivity is tricky. On the one hand, we have it quite straightforwardly that predicational analogousness is not transitive. Although the rudder is the tail of the boat and the tail is the rudder of the fish, there is no rudder that is the rudder of the fish. But argument analogousness is another matter. If, for arguments, *M*, *N* and *O*, *M* is analogous to *N* and *N* to *O*, then *M* and *N* share a logical form and *N* and *O* share

a logical form. But we haven't ruled it out, especially for complex arguments, that the form shared by *M* and *N* is not the same as the form shared by *N* and *O*. In particular, we haven't ruled it out that *N* is multi-structural, and so possessed of multiple forms. So we remain uncertain about transitivity in this case.

The fundamental difference between argument analogues and predicational analogues is this:

- I. When arguments are analogous, there is some shared structural description by virtue of which they are both good or bad arguments. So, there is a form by virtue of which they are both some same thing.
- II. When things are predicational analogues of one another, there is some shared structural description by virtue of which they are not some same thing.

VII

We have been saying that two arguments are analogous when they share a deep structure by virtue of which they stand or fall as arguments. Deep structure deserves the name of logical form when it binds logical appraisal in such ways. Of course, not every appraisal of an argument is determined by its deep structure; in simple cases, validity is settled thus, but not soundness.

Not everyone is happy with logical form as an instrument of theoretical elucidation.³⁰ Logical form, even for the purposes it is meant to serve in the present account of analogy is both (i) obscure, and (ii) susceptible to explanatory collapse.

The charge of obscurity can arise in the following way. True, the idea that arguments *X* and *Y* share a logical form that is decisive for their validity is a reasonably clear theoretical device, for it is simply that of the truth functional structure of *modus ponens*. But in claiming that the Violinist has a logical form which it may or may not

share with the original abortion argument, one resorts to nothing as clear as truth functional structure.³¹ Pending some further clarification, imputations of logical form are here too obscure to bear much theoretical weight.

Clarification is, however, possible. In each of the lines of the abstract structural redescription of the Violinist, there occur key descriptions on which the argument turns, and to which corresponding descriptions in the Violinist stand in the relation “is a case of”. This we can see as follows:

- Line 1:* kidney-sharing is a case of vital dependency.
- Line 2:* enduring something for 9 months or even much longer is a case of temporal indeterminacy.
- Line 3:* not being able to walk the dog or tie one’s shoes is a case of impediments to locomotion and mobility.
- Line 4:* being overheard in everything one says is a case of the invasion of one’s privacy.
- Line 5:* not being able to date, dance, shop is a case of serious social disruption.
- Line 6:* not being able to play for the Rams any more is a case of economic privation.
- Line 7:* severing the renal attachment is a case of termination of a vital dependency.

Thus the abstract structural redescription, which is the deep structure in which the appraisal of the Violinist is anchored, is clarified by the notion of casehood, therewith illuminating the appellation “abstract.” “Structural” is secured by the fact (if it is a fact) that any argument whose critical descriptions are in this sense cases of counterparts in the abstract redescription will call down the same logical appraisal as the abstract argument itself.

Clearly, deep structure gives a less tight notion of logical form in the case of the

Violinist than it does in simple truth functional environments. In so saying, it is appropriate to call upon a notion of *soft analogy*.³² Analogy can be said to be soft when (i) not every critical description in the deep structure of the comparison argument is instantiated in the original argument or (ii) when the relation of casehood between instantiating critical descriptions and their instantiations admits of degrees (as some believe to be the case with ‘foetus’ as a case of ‘human being’). Counter-examples can also be more or less soft. Some people think that albino ravens constitute at best a soft counter-example to generalizations of blackness, since albinism can be thought of as much as a ‘teleological failure’ as a counter-example.

We can now appreciate the wisdom of the remark that analogy is an unstable form of argument.³³ In complex cases, there is often the question of whether deep structure has been adequately specified, and there is also the question of whether the analogy is too soft to be bothered with.³⁴

Logical form also lies open to the charge of explanatory collapse. Consider, for example,

- G: 1. This is red.
- 2. Therefore, this is coloured.

Many people will have no hesitation in seeing that G is semantically valid, that is, there is no valuation v such that $v(\text{This is red}) = T$ and $v(\text{This is coloured}) = F$. Is it formally valid as well; that is, valid by virtue of its logical form? If so, how does one state its logical form? One possibility is to claim that G is enthymematic for

- G^* : 1. Anything red is coloured.
- 2. This is red.
- 3. Therefore, this is coloured.

which, if true, now nicely exhibits a logical form.

It is notorious that every invalid argument can be salvaged by just this manoeuvre, and this faces us with the quite general question of when it is legitimate to

use it at all, especially in those cases in which it is agreed, as in the Violinist, that the premisses of a premissorily unaugmented argument do not semantically entail its conclusion. We will not pursue the matter of when premiss-augmentation (by way of the corresponding conditional) is all right and when not;³⁵ for we cannot bring ourselves to see that this would help us with the logical form of *G*. In brief, we think that if re-expression by way of *G** is necessary to give sense to the idea of the logical form of *G* itself, it is better to face the fact that it is far from obvious that *G* owes its validity to anything deserving of the name. So we find it necessary to acknowledge that judgements of validity are not always anchored by postulations of logical form. In those contexts, logical form suffers from explanatory collapse.

Further trouble for logical form lurks in celebrated criticisms by Massey.³⁶ First, every argument, good or bad, instantiates invalid argument forms. This puts pressure on our claim, repeated throughout, that the validity or invalidity of an argument turns on the validity or invalidity of its analogues—those arguments having the same form as it. If every argument instantiates an invalid form, we cannot set out to characterize an invalid argument as one possessing an invalid form. True, we might say that an argument is invalid just in case its every argument form is invalid. But this is tricky on two counts. First, it may be (as

we have seen) that some semantically valid arguments (red, therefore coloured) will come out invalid on this test. Second, if we try to re-instantiate these arguments by premissory augmentation, nothing is an invalid argument.

Trouble though this is, it would be quite wrong to hold Massey or ourselves to a radical skepticism in which there can be no theory of invalidity-making structures. Massey's point is that though quantificational paraphrase is not the definitive test of either validity or invalidity, it does a much better job for validity and nothing else does as good a job for invalidity. In fact, Massey has "reason to hope that the gap, or the chasm, that separates our ability to show validity from our ability to show invalidity can be narrowed or even closed through a successful unification of logic and grammar".³⁷ Perhaps unification can be found in something like Lakoff's natural logic, the logical theory of deep structure developed by generative semantics.³⁸ A more fruitful theoretical milieu for our longer term purposes would seem to be that set forth by William Lycan.³⁹ But by whatever means unification is tried, it seems to us a reasonable adequacy condition that it extend and develop a notion of logical form via deep structure which enriches the theoretical employment that we have made of it here. For all its imperfections, we are not ready to abandon logical form as a powerful concept, central to good theories of analogical argument.

Notes

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¹ Ch. Perelman and L. Olbrechts-Tyteca, *The New Rhetoric*, South Bend, IN: University of Notre Dame Press (1971), p. 393.

² See Gilbert Harman, *Change in View*,

Cambridge, MA: MIT Press (1986), pp. 3-7.

³ Perelman and Olbrechts-Tyteca, *op. cit.*, p. 372, paraphrasing J. S. Mill at pp. 364-368 of *A System of Logic*, London: Longman's Green (1959).

⁴ In fact, there is reason to wonder whether this is Mill's considered view, given his predilection for contradicting it.

⁵ *Ibid.*, p. 372, emphasis added.

⁶ For example, David Hume, *Treatise*, ed. L.A. Selby-Bigge, Oxford: Clarendon Press (1888), p. 142:

... as this resemblance admits of many different degrees, the reasoning becomes proportionably more, or less firm and certain. An experiment loses its force, when transfer'd to instances which are not exactly resembling; 'tis evident it may still retain as much as may be the foundation of probability, as long as there is any resemblance remaining.

We also have John Stuart Mill, *An Examination of Sir William Hamilton's Philosophy*, London: Longman's, Green (1865). Here Mill says (p. 402) that there is no *basic* difference between inductive and analogical inference. Also: Mill, *A System of Logic*, London: Longman's, Green (1896), p. 367:

If we can discover, for example, an unknown animal or plant, resembling closely some known one in the greater number of the properties we observe in it, but differing in some few, we may reasonably expect to find in the unobserved remainder of its properties a general agreement with those of the former, but also a difference corresponding proportionately to the amount of the observed diversity.

For a more recent example, see Trudy Govier, *A Practical Study of Argument*, 2nd ed., Belmont CA: Wadsworth (1988): "The basis of arguments by analogy is that when two things are similar in a number of respects, we have some basis for thinking that they may well be similar in further respects also" (p. 100). Cf. W.V. Quine and Joseph S. Ullian, *The Web of Belief*, New York: Random House (1970): "The common core of all the uses [of 'analogy'] is fairly well covered by 'similarity' or 'parallelism'; p. 62. Cf. also William H. Shaw and L. R. Ashley, "Analogy and

Inference," *Dialogue* XXII (1983), p. 419: "An argument from analogy is, in sum, an inference from some points of resemblance between two or more objects to other such points."

⁷ That said, it is clear at once that we must separate ourselves from the position of Shaw and Ashley (p. 420)—among others—that the basic logical form of an argument from analogy is this:

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

What this account loses is the factor of a charge of inconsistency, of the idea that an analogy threatens with a kind of inconsistency someone who acknowledges the relevant similarities but who refuses or fails to act in ways deemed appropriate to the similarities. It is certainly going too far to claim that someone who assented to 1. and 2. but not to 3. is guilty of an inconsistency. But if not there, then where?

⁸ This we take to be Govier's intent in saying that argument analogues need not "depend on a deductive connection." Trudy Govier, "Logical Analogies," *Informal Logic*, VII (1985), pp. 27-33; p.32.

⁹ Strictly speaking, the appellation is off the mark, given the difference between argument and reasoning (inference). However, with the point noted, we will allow the expression to stand.

¹⁰ Frans H. van Eemeren, Rob Grootendorst and Tjark Kruiger, *Handbook of Argumentation Theory*, Dordrecht and Providence: Foris Academic Publishers (1987), p. 242.

¹¹ In particular, though they provide little theoretical elaboration in the *Handbook*, van Eemeren, Grootendorst, and Kruiger seem drawn to the proportionality account of Perelman and Olbrechts-Tyteca. *Handbook*, pp. 243 ff. Cf. *The New Rhetoric*, p. 375 ff. In contrast, Govier adumbrates part of our position in the memorable phrase "logical core" which leaves "the essence of the argument [analogues] in tact." *op. cit.*, p. 31.

¹² John Woods and Brent Hudak, "Verdi is the Puccini of Music", to appear.

¹³ It is worth noticing that on the present account, it is a serious mistake to try to distinguish be-

tween analogical arguments on grounds of deductive or inductive considerations; that is, to try to distinguish between deductive analogical arguments and inductive analogical arguments. Arguments *Z* and *W* may be deductively correct, inductively strong, and so on. But whatever their logical character, it is not recapitulated in the general case, in the analogical meta-argument. Its structure is the same either way.

- ¹⁴ In *Philosophy and Public Affairs*, 1 (1971), pp. 47-66; p. 49.
- ¹⁵ Thus, “[a]nalogies are important in invention and argument fundamentally because they facilitate the development and *extension* of thought.” Perelman and Olbrechts-Tyteca, *The New Rhetoric*, p. 385, emphasis added.
- ¹⁶ The idea of the stand-off is developed in further detail in John Woods’ *The Groningen Lectures on Paraconsistent Logic*, to appear. A stand-off resembles what Robert Fogelin calls a *deep disagreement*. See “The Logic of Deep Disagreement,” *Informal Logic*, Vol. 7, No. 1, pp. 1-8; p. 5.
- ¹⁷ But see below, section 7. Also, there is another respect in which our account is over-stylized. It is of course sometimes true that the comparison argument is presented (“Consider the following argument, which you’ll see at once to be valid”) as opposed to waged (“If I keep hammering away, I think I can get you to buy this other argument”). In conditions of dialectical serenity, this would be the norm. In actual practice, often enough, the comparison argument must be aggressively prosecuted, and may itself seek relief from supplementary comparison arguments. Still the bold distinction between presented versus waged is upheld by the fact that the dialectically less hazardous comparison argument is one that can be just presented, one that stands without need of vigorous supplementary advocacy.
- ¹⁸ Thus we recognize that “[a]lthough ‘reduction to the familiar’ is not necessary for successful understanding, it is an aid to comprehension, and analogy is frequently employed in this way.” (“Analogy and Inference,” p. 416.) This, however, has to do with surface structure and psychology. People may well grasp the logical form of some arguments more readily than others. That said, however, we find that surface structure provides us with no clue as to why two arguments are *analogues* of one another.
- ¹⁹ This possibility is explored in some detail in John Woods, *Engineered Death: Abortion, Suicide, Euthanasia, and Senecide*, Ottawa: University of Ottawa Press (1978), pp. 77-82. There is also reason to think that the comparison argument may not be correct. This is suggested by a further comparison argument concerning Siamese twins *a* and *b*, who are now fifteen years of age.
1. Their attachment is such as to constitute for *a* a vital dependency upon *b*, but not vice-versa.
 2. The attachment is such as to constitute a severe 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?
- ²⁰ Particularly E.T. Feteris and Tjark Kruijer.
- ²¹ Cf. “Verdi is the Puccini of Music.”
- ²² *The Web of Belief*, p. 61.
- ²³ Thus, a system such as that found in Ilkka Niiniluoto’s “Analogy and Similarity in Scientific Reasoning,” in *Analogical Reasoning: Perspectives of Artificial Intelligence, Cognitive Science, and Philosophy*, edited by David H. Helman, Dordrecht: Kluwer Academic Publishers (1988), pp. 271-298, may well help to explicate the role of similarity in analogical *inference*, but it is not clear that this also suffices for analogical *argument*.
- ²⁴ Cf. *The New Rhetoric*, p. 387: “This mode of argument uses what the writers of antiquity called comparison *by opposites*.”
- ²⁵ Hence our reservations about an approach such as Mary Hesse’s. On such an approach it is not clear how one should deal with a case where “differences outweigh similarities”. Do we merely have two different cases, or a disanalogy? See for example, “Theories, Family Resemblances and Analogy,” in *Analogical Reasoning*, pp. 317-340, and *Models and Analogies in Science*, Notre Dame, IN: University of Notre Dame Press (1966).
- ²⁶ See John Woods, “Agenda Relevance”, to appear.

- ²⁷ This is not to say that the explicit recognition of logical form is epistemologically prior. Most often its recognition is a byproduct of argument-pair comparisons. The priority of logical form is of a different order. It is meta-argumentation priority. It is the pivot on which analogical (meta-)arguments all turn.
- ²⁸ It is worth noting that topical relevance as here described is not captured by theories in which topical relevance is variable sharing. We think the exclusion salutary.
- ²⁹ Cf. "Verdi is the Puccini of Music."
- ³⁰ We certainly cannot pretend to have at our disposal a theory of logical form that meets the conditions set forth by Gilbert Harman's "Logical Form," in Donald Davidson and Gilbert Harman, eds., *The Logic of Grammar*, Encino, CA: Dickenson (1975), pp. 289-307.
- ³¹ Thus Govier, "Logical Analogies," pp. 25-26: "... logical analogy illustrates the fact that connections may be general without being, in the standard logician's sense, formal."
- ³² In "Analogies Hard and Soft" (*Analogical Reasoning*, pp. 401-419.) Joseph Agassi distinguishes between *soft analogies* and *hard analogies*. Ours are *not* soft analogies in his sense.
- ³³ As Govier says, the "technique of logical analogy ... depend[s] on the human skill [of recognizing] the essential point of an argument." ("Logical Analogies," p. 31.)
- ³⁴ Dialectically a common use of the analogical argument is to shift the burden of proof. "You agree that *this* is a good argument. Why, pray, is this other *not* a good argument?"
- ³⁵ Concerning which see John Woods, "Missing Premises: Not Premises and Not Missing", to appear.
- ³⁶ See especially, Gerald J. Massey, "The Fallacy Behind Fallacies", *Midwest Studies in Philosophy* (1981), pp. 489-500.
- ³⁷ Massey, "Are There Any Good Arguments That Bad Arguments are Bad?" *Philosophy in Context*, 4 (1975), pp. 61-77; p. 62.
- ³⁸ George Lakoff, "Linguistics and Natural Logic", *Synthese*, 22 (1970), pp. 151-271.
- ³⁹ William G. Lycan, *Logical Form in Natural Language*, Cambridge, MA: MIT Press (1984).

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