The Asymmetry Thesis and the Diversity of "Invalid" Argument-Forms[1]

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Abstract: According to the Asymmetry Thesis, whereas there are many kinds of argument-forms that make at least some of their instances valid, there is none that makes any of its instances invalid. To refute this thesis, a counterexample has been produced in the form of an argument-form whose premise-form's instances are all logically true and whose conclusion form's instances are all logically false. The purpose of this paper is to show that there are many more kinds of argument-forms that make some of their instances invalid and that, hence, are counterexamples refuting the Asymmetry Thesis.

Résumé: Selon la Thèse d'Asymétrie, quoi qu'il y a plusieurs genres des formes-des-arguments qui fassent valide au moins quelques-uns de leurs cas, il n'y en a aucune qui fait invalide un seul cas. Pour démontrer la fausseté de cette Thèse, on a produit comme example contraire une forme-des-arguments dont les cas de la forme de sa prémisse sont tous vrais logiquement et dont les cas de la forme de sa conclusion sont tous fausses logiquement. Cette communication a le but de montrer qu'il y a beaucoup plus des genres des formes-des-arguments qui font invalides quelques uns de leurs cas et qui, donc, sont des examples contraires qui démontrent la fausseté de la Thèse d'Asymétrie.

I. The Asymmetry Thesis and its defense

In his essay "Are There Any Good Arguments That Bad Arguments Are Bad?", Gerald J. Massey asserted what was later called[2] the "asymmetry thesis"—namely, that "at the present stage of logical theory our ability to prove validity totally eclipses our ability to show invalidity" (1975a: 61-62).

The Asymmetry Thesis consists of two claims, one affirmative and uncontroversial, the other negative and controversial: the affirmative claim is that we can prove, on the basis of their possession of some form or other, that some arguments are valid;[3] the negative claim is that we cannot now prove, on the basis of its possession of any form, that any argument is invalid. The reason Professor Massey gave for his controversial negative claim was that no argument-form that we can presently specify renders invalid any[4] argument that has it. For any argument possessing an "invalid"[5] argument-form like

>*Form 1*   Premise 1. p.
>   Premise 2. q.
>   Conclusion. r.

or

>*Form 2*   Premise 1.   If p, not-q.
>   Premise 2.   Not-q.
>   Conclusion. p.

may possess another form that makes it valid (Massey, 1975a: 64-65).[6]

In this paper I shall be concerned with the claim Professor Massey gave as his reason for the negative half of the Asymmetry Thesis—namely, the claim that no presently specifiable argument-form makes any of its instances invalid.[7] I shall first recount a prior refutation of that claim, then give a new one, and finally offer a possible explanation for what appears to be Professor Massey's error.

II. Prior refutation of the claim

The question is: Can we specify any argument-form that makes any of its instances invalid? It seems that we can. For, as Gary Iseminger pointed out, we can specify argument-forms that, like

>*Form 3*   Premise. p or not-p.
>   Conclusion. q and not-q.

have a premise-form all of whose instances are logically true and a conclusion-form all of whose instances are logically false; and any argument having such a form is invalid (Iseminger, 1989: 35).[8]

This kind of argument-form (namely, one whose premise-form has only logically true instances and whose conclusion-form has only logically false instances) is the only one the possession of which makes all of its instances invalid. For any other kind of argument-form might have instances whose premises were logically false or whose conclusions were logically true, in either of which cases the argument would be valid because of the paradoxes of strict implication (Lewis and Langford, 1959: 250-251). For example, the form of Affirming the Consequent

>*Form 4*   Premise 1.   If p, q.
>   Premise 2. q.
>   Conclusion. p.

has at least one instance—namely,

Argument 2

Premise 1.   If either all men are mortal or some men are not mortal, either some snakes are not spotted or all snakes are spotted.

Premise 2.   Either some snakes are not spotted or all snakes are spotted.

Conclusion.   Either all men are mortal or some men are not mortal.

that is made valid by the logical truth of its conclusion. Only an argument-form that excludes the possibility of either a logically false premise or a logically true conclusion can also exclude the possibility of instances that are valid because of the paradoxes of strict implication, and only a form like Form 3 can do that.

III. Present refutation of the claim

At this point an adherent of the Asymmetry Thesis might object in the following way: "Even though we can specify one kind of argument-form that makes invalid every argument that has it, still that is a 'special case,'[9] whereas we know many kinds of argument-forms that make valid every argument that has them. Many invalid arguments do not have a form like Form 3, so their invalidity cannot be proved by reference to any known form that they possess. So, there is still a one-versus-many asymmetry in our knowledge of formal determination of invalidity and validity."

The purpose of this paper is to answer this objection, with its weakened version of the Asymmetry Thesis, by pointing out that there are many additional kinds of argument-forms known to us that make *some* of their instances invalid—namely, those instances (hereinafter to be called 'standard instances') that are free of such countervailing features as logically false premises or logically true conclusions.[10] Consider

Form 5   Premise.   Most xs are ys.
            Conclusion.   This x is a y.

It does not guarantee that *all* of its instances are invalid, since some of them are valid either because their premise is logically false or because their conclusion is logically true. For instance,

Argument 3

Premise.   Most logic papers are nonpapers.

Conclusion.   This logic paper is a nonpaper.

is an instance of Form 5, and yet it is valid, because its premise is logically false. Still, although Form 5 does not guarantee that all of its instances are invalid, it does guarantee that *some* are. For it determines that each of its standard instances is such that the conclusion is probable (that is, probable

but not certain) relative to the premises; and this means that all such instances are invalid. For example,

Argument 4
Premise.   Most logic papers are papers that are too long.
Conclusion.   This logic paper is a paper that is too long.

is a standard instance of Form 5; its conclusion, then, is probable relative to its premise;[11] and so it is invalid.[12]

Now, compare Form 5 with

Form 6   Premise.   Few xs are ys.
             Conclusion.   This x is a y.

Form 6 guarantees that each of its standard instances is such that the conclusion is improbable relative to the premise. Consequently, like Form 5, Form 6 renders invalid all such instances. For example,

Argument 7
Premise.   Few logic papers are papers that are too long.
Conclusion.   This logic paper is a paper that is too long.

is a standard instance of Form 6; its conclusion, then, is improbable relative to its premise; and so it is invalid.

Likewise,

Form 7   Premise.   No xs are ys.
             Conclusion.   This x is a y.

guarantees that each of its standard instances is such that the premise is inconsistent with the conclusion. So, like Forms 5 and 6, Form 7 renders invalid all such instances.[13] For example,

Argument 8
Premise.   No logic papers are papers that are too long.
Conclusion.   This logic paper is a paper that is too long.

is a standard instance of Form 7; its conclusion, then, is impossible relative to its premise; and therefore it is invalid.

Similarly,

Form 10   Premise.   Some xs are ys.
             Conclusion.   This x is a y.

guarantees that each of its standard instances is such that the premise is irrelevant to the conclusion—*i.e.*, the conclusion is neither certain, probable, im-

probable, nor impossible relative to the premise.[14] Hence, like Forms 5-9, Form 10 renders invalid all such instances. For example,

Argument 9

Premise.	Some logic papers are papers that are too long.
Conclusion.	This logic paper is a paper that is too long.

is a standard instance of Form 10; its conclusion, then, is neither certain, probable, improbable, nor impossible relative to its premise; and so it is invalid.

There are, then, many different kinds of argument-forms that make invalid *some* of their instances (namely, their standard instances).[15] Some argument-forms (like Form 5) determine that the conclusion in those instances is probable relative to the premises, others (like Form 6) that it is improbable, others (like Forms 7, 8, and 9) that it is impossible. Some argument-forms (like Form 10) determine that the premises in those instances are logically irrelevant to the conclusion. Among those forms that determine that the conclusion is probable relative to the premises, some set the probability at one value, others at another; and the same thing is true of those argument-forms that determine that the conclusion is improbable relative to the premises. Forms 5 through 10 are only examples (selected for presentation here on account of their simplicity) of argument-forms that make invalid their standard instances. A complete catalog of such forms is left as an exercise for the reader. These argument-forms severally constitute further refutation of Professor Massey's original claim that we can specify no argument-form the possession of which renders any argument invalid. And collectively they refute the weakened version of the Asymmetry Thesis that there is a one-versus-many asymmetry in our knowledge of formal determination of invalidity and validity.

IV. A possible explanation of Professor Massey's error

Supposing that the prior and/or present refutations presented in Sections II and III above are correct, it may be pertinent to ask how Professor Massey came to think that no known argument form renders invalid any argument that has it. As already related, Professor Massey seems to have concluded this on the grounds that any argument that has an "invalid" argument-form like Form 1 or 2 may possess another argument-form that makes it valid. These two argument-forms are like the simpler

Form 11	Premise.	*p.*
	Conclusion.	*q.*

in that, unlike Forms 5-10, they do not guarantee that each of their standard instances is such that the conclusion is probable, or such that it is improbable, or such that it is impossible, or such that it is none of these, relative to the

premises. In short, these forms do not determine in what logical relation the premises of such instances stand to the conclusions. Unlike Forms 5-10, then, Forms 1, 2, and 11 do not render invalid any such instances.[16] For example, not only Arguments 4, 7, 8, and 9 but also

Argument 10
Premise.   All logic papers are papers that are too long.
Conclusion.   This logic paper is a paper that is too long.

are standard instances of Form 11. In Argument 10, the conclusion is certain relative to the premise; in Argument 4, it is probable; in Argument 7, it is improbable; in Argument 8, it is impossible; and in Argument 9, it is none of these. Clearly, then, Form 11 does not determine in what logical relation the premises of its standard instances stand to the conclusions. Consequently, it does not render any of those instances invalid.[17]

It should now be clear what went wrong. Professor Massey selected, as his examples of "invalid" argument-forms, Forms 1 and 2, which, like Form 11, do not determine, in any of their instances, the logical relation in which the premises stand to the conclusions. Hence, it is not surprising that arguments possessing those two forms may also possess other forms that make them valid. But Forms 1, 2, and 11 are not representative of the whole class of "invalid" argument-forms, which also includes such forms as Forms 3 and 5-10. So, to conclude that what is true of Forms 1 and 2 is also true of all other "invalid" argument-forms is to commit the fallacy of Hasty Generalization.[18] Had Professor Massey surveyed the diversity within the class of "invalid" argument-forms, he might never have propounded the Asymmetry Thesis.

Notes

[1] An earlier draft of this paper was read at Conference 95 on Critical Thinking and Informal Logic at George Mason University, Fairfax, Virginia, on June 17, 1995. I have benefited from criticisms offered by the audience and by *Informal Logic*'s referees. Gerald J. Massey and Maurice A. Finocchiaro have generously provided assistance in this project.
[2] By Bencivenga (1979: 249).
[3] For what Professor Massey meant by 'valid', see Massey (1975a: 63, n. 5; 72-73). Cf. Massey (1987: 22-23).
[4] Professor Massey said: ". . . *besides the trivial logic-indifferent method just mentioned* [namely, the method of showing that the premises are all true and the conclusion false], *there is at present no way whatsoever to show that an argument is invalid*" (1975a: 64) and ". . . since my thesis is a strong universal denial, to show it *false* one need only present one convincing case wherein a bad argument is proved bad by some means other than the trivial logic-indifferent one" (1975b: 46). If even one argument-form rendered invalid even one of its instances, that would constitute a proof of the invalidity of that instance, which would be inconsistent with Professor Massey's claim.

[5] I think that the terms 'valid' and 'invalid' should be applied not to argument-forms but to arguments, and even then only when certain informal conditions are taken into account (Bowles, 1991). In this paper, however, I conform to the usage of the previous participants in the discussion.

[6] I do not here attribute to Professor Massey the claim that no argument-form that we can presently specify has any invalid argument as an instance. That claim would have such obviously false consequences as that

> Argument 1
> Premise 1.   If Harrisburg is the capital of Pennsylvania, then Pittsburgh is not.
> Premise 2.   Pittsburgh is not the capital of Pennsylvania.
> Conclusion.   Harrisburg is the capital of Pennsylvania.

is not both invalid and an instance of Form 1. Rather, the claim I am here attributing to Professor Massey entails that, although Argument 1 is an instance of Form 1, and Form 1 is an invalid argument-form, neither Form 1 nor any other presently specifiable argument-form of which Argument 1 is an instance renders, or makes, Argument 1 invalid.

[7] Bencivenga (1979), McKay (1984), Finocchiaro (1994), and Krabbe (1995) offer criticisms of the Asymmetry Thesis that do not challenge this claim.

[8] Massey (1987: 1) credited Oliver (1967) with the anticipation, by eight years, of his Asymmetry Thesis. If so, it is remarkable that Oliver also anticipates, by twenty-two years, Iseminger's refutation of Massey's defense of the same Thesis:

> Argument-forms that are not universally valid are of two kinds: (1) those that have both a premiss-form all of whose instances are logically true and a conclusion-form all of whose instances are logically false, and (2) all others. Those of kind (1) can be used to show that arguments which are instances of them are invalid. . . . (Oliver, 1967: 478)

[9] Iseminger (1989: 36).

[10] (a) Any suspicion with which this restriction might be received may be diminished by the following two observations. First, most non-mathematical everyday arguments conform to it. And second, similar restrictions are commonly made in discussions of the traditional square of opposition and the relevance of form to validity and invalidity (*e.g.*, in Copi and Cohen, 1990: 169-170, 195).

(b) Although Oliver (1967: 477) suggests that the only proof that a premise is not logically false is that it is logically true, and that the only proof that a conclusion is not logically true is that it is logically false, this cannot be the whole story; for sometimes we can ascertain (but perhaps not prove) that a proposition is neither logically true nor logically false.

[11] *Objection.* Form 5 does not determine that each of its instances whose premise is not logically false and whose conclusion is not logically true is such that the conclusion is probable relative to the premise. For

> Argument 5
> Premise.   Most men are dissimilar in hair color to someone who shares most of the properties of this man.
> Conclusion. This man is dissimilar in hair color to someone who shares most of the properties of this man.

has Form 5, and yet its conclusion is not probable relative to the premise, since the conclusion is intrinsically improbable: because of analogy, this man is probably *similar*, not dissimilar, to someone who shares most of his properties. (Adapted from Powers, 1995: 2.)

Reply. The Objection assumes that an intrinsically improbable proposition cannot be probable relative to a premise, and this assumption is made plausible by the probability calculus' definition of conditional probability. I have argued elsewhere (Bowles, 1990: 67-

68, and Bowles and Gilbert, 1993: 256-257; 258, n. 2) against employing that as a defini-
tion of a conclusion's probability relative to its premise.

[12] That there are other countervailing features besides possessing a logically false premise or
a logically true conclusion is shown by

> Argument 6
>
> Premise.   Most swans have a color which is shared by most swans and by this
>   swan.
>
> Conclusion.   This swan has a color which is shared by most swans and by this
>   swan.

which possesses Form 5, lacks a logically false premise and a logically true conclusion, and
yet has a premise that entails its conclusion (adapted from Powers, 1995: 3). How many
other kinds of countervailing features there are, beyond those mentioned in this paragraph,
is unknown to me.

But that Form 5, unlike, say, Form 1, determines that each of its standard instances
is such that the conclusion is probable relative to the premise can be seen in the case of
Argument 4: its conclusion is probable relative to its premise, and it is so *because of* the
argument's form.

[13] Forms similar to Form 7 include

> Form 8   Premise. p and q.
>
>   Conclusion.   It is false that p.
>
> Form 9   Premise 1.   All M are P.
>
>   Premise 2.   All S are M.
>
>   Conclusion.   Some S are not P.

[14] Bowles (1990: 65-67). That every instance of 'Some xs are ys' is relevant to an instance of
'This x is a y' in the sense that they have shared subject matter may be conceded. But that
it is relevant to it in the sense that it makes it at least more likely to be true than false or at
least more likely to be false than true is refuted by the fact that 'Some philosophers are rich
people' makes 'This philosopher is a rich person' neither certain, probable, improbable,
nor impossible. Granted, 'Some philosophers are rich people' tells against 'No philoso-
phers are rich people', which in turn tells against 'This philosopher is a rich person'. But
this does not mean that 'Some philosophers are rich people' tells in favor of 'This philoso-
pher is a rich person', for the same reason that a refutation of an objection to a position
does not constitute an argument in favor of the position (Bowles and Gilbert, 1993: 260, n.
3). Moreover, although 'Some philosophers are rich people' is *compatible* with 'This
philosopher is a rich person', that does not mean that the former is logically relevant to the
latter, since irrelevance entails compatibility.

[15] This conclusion implies not merely that there are many instances of invalid argument-
forms that are invalid but also that (1) at least some of those instances are invalid *because*
they are instances of invalid argument-forms, and (2) there are many kinds of invalid
argument-forms that make some of their instances invalid.

[16] Of course, some instances of Form 11 are invalid; but they are so accidentally and not
because they are instances of that form.

[17] Much remains to be discovered and clarified concerning "standard instances". But the
effort seems worthwhile because (a) Forms 5, 6, 7, and 10 do not make all of their instances
in-valid, and yet (b) the possession of those forms by Arguments 4, 7, 8, and 9 is not
irrelevant to the invalidity of those arguments (as is, say, their possession of Form 11). In
order satisfactorily to reconcile (a) and (b), we must be able to say what exactly is the
difference between those arguments (here called 'standard instances') that are made invalid
by such forms as Forms 5, 6, 7, and 10 and those that are not.

[18] *Cf.* Johnson (1989: 423).

Objection. Professor Massey has not committed the fallacy of Hasty Generalization, because he could give the same argument concerning Forms 5-10 that he gave concerning Forms 1 and 2. Take Form 5 as an example. Professor Massey could have argued thus: "Form 5 has some instances which are *valid* (namely, those in which such countervailing features as a logically false premise or a logically true conclusion are present). Therefore, possession of Form 5 is *not* a sufficient cause of *in*validity. Therefore, Form 5 *by itself* cannot make any instance invalid."

Reply. (1) Whether or not Professor Massey *could* have given the same argument concerning Forms 5-10 that he gave concerning Forms 1 and 2, the fact remains that he did not. He apparently argued from what is true of Forms 1 and 2 to a conclusion about all invalid argument-forms—a diverse class among whose members not only Forms 5-10 but also Form 3 have relevant logical characteristics different from those of Forms 1 and 2. Even if it is not necessary to commit the fallacy of Hasty Generalization in order to defend the Asymmetry Thesis, it still appears that Professor Massey did commit it.

(2) Even if Professor Massey had given arguments concerning Forms 6-10 like the one suggested above concerning Form 5, they would not have supported even the weakened version of the Asymmetry Thesis (namely, that there is a one-versus-many asymmetry in our knowledge of formal determination of invalidity and validity) stated at the beginning of Section III. For, to begin again with Form 5, although that form may have some valid instances, it does *by itself* make others of its instances (namely, its standard instances, like Argument 4) invalid. The same can also be said of Forms 6-10 and of the many other kinds of forms like them. This tells against, not for, the weakened Asymmetry Thesis.

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