Denying the Antecedent as a Legitimate Argumentative Strategy: A Dialectical Model

David M. Godden *University of Windsor*

Douglas Walton *University of Winnipeg*

Abstract: The standard account of denying the antecedent (DA) is that it is a deductively invalid form of argument, and that, in a conditional argument, to argue from the falsity of the antecedent to the falsity of the consequent is always fallacious. In this paper, we argue that DA is not always a fallacious argumentative strategy. Instead, there is a legitimate usage of DA according to which it is a defeasible argument against the acceptability of a claim. The dialectical effect of denying the antecedent is to shift the burden of proof back to the original proponent of a claim. We provide a model of this non-fallacious usage which is built upon pragmatic models of argumentation.

Résumé: On décrit typiquement comme non valide et toujours fallacieux tout raisonnement dans lequel on infère la négation du conséquent d'une proposition conditionnelle à partir de la négation de son antécédent (NA). J'avance dans cet article que ce raisonnement n'est pas toujours une stratégie argumentative fallacieuse. Il y a un usage légitime de NA selon lequel il est un argument réfutable contre l'acceptabilité d'un énoncé. L'effet dialectique de NA est de renvoyer la charge de preuve à la personne qui a premièrement avancé l'énoncé. J'emploie des cas exemplaires d'argumentation pragmatique pour décrire un modèle de cet usage non fallacieux.

Keywords: Argument, argumentation, conditional, denying the antecedent, fallacy, rebuttal, refutation.

1. Introduction

Denying the antecedent [DA] is commonly regarded as a formal fallacy of argument. DA is the fallacious counterpart to the *modus ponens* [MP] form of argument which is almost universally accepted as a deductively valid argument form. But the standard account of conditional argument forms as deductively valid or fallacious takes its place within a theory of the meaning (or interpretation) of conditional claims used in argumentation. As shown below, this theory becomes contentious when applied to many instances of natural language argumentation. As a result, and as has already been argued (Walton, 2002), many arguments that have traditionally been interpreted as deductively valid instances of *modus ponens* are properly understood as examples of arguments whose underlying evidential structure

is not deductive but defeasible. However, it will be shown that this is not the only problem with the standard account of the formal fallacies of conditional arguments.

In the present paper, it is argued that, in cases where the conditional employed in the argument is properly interpreted as a Philonian (or material) conditional, there are non-fallacious uses of the argumentative strategy of denying the antecedent. Successful (i.e., non-fallacious) uses of DA as an argumentative strategy require that denying the antecedent be viewed dialectically, as a move made within an argumentative dialogue. Hence, the interpretation of DA as non-fallacious relies on a pragmatic theory of argument. Within such a theory, we propose a model of a way in which denying the antecedent may be employed as a non-fallacious move within an argument.

We begin by reviewing the standard, deductivist interpretation of conditional claims that underlies the standard classification of conditional arguments as formally valid or as formally fallacious.[1] We proceed to note the contentiousness of this interpretation when it is applied to many instances of everyday uses of conditional claims in natural language, and conclude that this alone requires a revised treatment of conditional arguments extending beyond the deductive models typically employed. Beyond this, we observe an additional circumstance in which the standard classification of conditional arguments as formally valid or formally fallacious fails. This circumstance is best modelled as occurring in the context of an argumentative discussion, in which DA is employed as part of a defeasible argument offered in refutation of a conditional argument.

2. Denying the antecedent on the standard account of conditional arguments

Explanations of the standard, deductivist classification of conditional arguments begin with the claim that conditional assertions occurring in natural language arguments are to be interpreted as asserting a materially (or factually) sufficient / necessary relationship between the components of the conditional.[2] Conditional assertions can be standardized into a natural language expression of the form "If A then C" where A and C are variables for natural language statements. A is the antecedent of the conditional, and marks a sufficient condition for C (the consequent of the conditional). Similarly, the consequent, C, marks a necessary condition for the antecedent A. As such, expressions of the form "If A then C" assert a relationship between the components of the conditional. This relationship is that A is sufficient for C and that C is necessary for A.[3]

Given this, conditional expressions having the form "If A then C" can be interpreted truth-functionally, where the truth-value of the conditional is determined solely and completely by the truth-values of its constituent expressions. On the standard interpretation, the truth-functional conditional is false only when the antecedent is true and the consequent false. This interpretation dates back to Philo of Megara (Kneale and Kneale 1962, 130; Sanford, 19-20) and for this reason has

been called the Philonian conditional (Engel 1989/1991, 45-46). (Commonly, this is also called the "material conditional.") The Philonian conditional relationship can be formalized by the truth functional operator '⊃'and can be represented using the following truth-table:

A	C	A⊃C
T	T	T
T	F	F
F	T	T
F	F	T

Table 1. Truth table for '⊃'.

This truth table may be seen as expressing the valuation rules for the symbol '⊃', and as such actually gives the semantics for '⊃'. On the Philonian interpretation, 'A ⊃ C' is logically equivalent to '~ (A & ~C)' as well as '~A ∨ C'.

Accepting this interpretation of the conditional, the formally valid and formally fallacious forms of conditional arguments can be catalogued as follows.

Modus Ponens	*Modus Tollens*	Denying the Antecedent	Affirming the Consequent
A ⊃ B A B	A ⊃ B ~ B ~ A	A ⊃ B ~ A ~ B	A ⊃ B B A
Deductively valid; affirms sufficient condition	Deductively valid; denies necessary condition	Formal fallacy; denies sufficient condition	Formal fallacy; affirms necessary condition

Table 2. Summary of Conditional Argument Forms

3. An explanation of the fallaciousness of denying the antecedent

Accepting the Philonian interpretation of conditionals, the fallaciousness of DA is easily explained. The antecedent of the Philonian conditional represents a materially sufficient condition for the truth of the consequent. That is, for the conditional to be true, whenever the antecedent is true so is the consequent. Importantly, when the antecedent is false, the consequent might be true, or it might be false. That is, the falsity of the antecedent has no bearing on the truth-value of the consequent. Given this relationship between antecedent and consequent, it is easy to see how any conditional argument which depends solely on a second premise which asserts the falsity of the antecedent can go no distance towards establishing the falsity of the consequent. Since, on the standard interpretation of the conditional, the falsity of the antecedent has no bearing on the truth-value of the consequent, any

conditional argument relying solely on the falsity of the antecedent can tell us nothing about the truth of the consequent. So, at an intuitive level, the fallaciousness of DA is easily explained.

It is just as easy to demonstrate the formal invalidity of DA at a semantic level. An argument is deductively invalid if it is logically possible that its conclusion be false while the conjunction of its premises are true. Using the truth-table below, this possibility is easily seen for arguments having the form of denying the antecedent.

A	C	Denying the Antecedent $(A \supset C) \& \sim A$	Conclusion $\sim C$
T	T	F	T
T	F	F	F
F	T	T	F
F	F	T	T

Table 3. Truth Table for arguments having the DA form

The invalidity of denying the antecedent as an argument form is explained when we see that it is logically possible that the premises be true and the conclusion still be false. This occurs in the situation (or valuation) where A is false and C is true. Indeed, this valuation (or distribution of truth-values over the atomic sentences involved in the argument) represents a possible situation in the world. It is precisely because this situation is possible that the truth of the premises cannot *guarantee* the truth of the conclusion, and the argument is formally invalid.

Importantly, there may be valid instances of invalid argument forms.[4] [5] (An argument form is said to be invalid if there is even one instance of an argument having that form which is invalid.) An example would be the substitution instance where A is "Alfred is Betty's father" and C is "Betty is Alfred's daughter". In this substitution instance, the sentences named by 'A' and 'C' are not logically independent, but are semantically related is such a way that it is not semantically possible for A to be false and C to be true. That is, on this substitution instance the valuation (or possible situation) which makes denying the antecedent an invalid form of argument is not logically possible. But, the logical impossibility of this situation is not explained formally (in terms of the truth-functional relationships which obtain no matter how the variables in the argument schema are interpreted), but rather semantically (in terms of the semantic relationships which obtain between the individual statements which compose the interpretation of the argument scheme). Cases of this sort demonstrate the failure of the assumption of semantic atomism inherent in truth-tables.[6] On the truth-tables above (tables 1 and 3), it is assumed that all possible combinations of truth-values can be distributed over the atomic sentences. But, on certain substitutions (e.g., the one just considered), where the

atomic sentences have a specific semantic relationship to one another, this assumption fails.[7]

Importantly, in many of the cases where the interpretation of the sentence-variables would provide a semantically valid instance of denying the antecedent as a form of argument, the conditional premise occurring in the argument actually understates the actual relationship between the antecedent and consequent. To return to our example above, it is not merely the case that Alfred being Betty's father is a sufficient condition for Betty being his daughter (i.e., $A \supset C$), but it is also a necessary condition (i.e., $C \supset A$). Contrariwise, Betty being Alfred's daughter is not merely a necessary condition for Alfred being her father; it is also a sufficient condition. So, the actual relationship between A and C is better captured by the bi-conditional claim '$A \equiv C$'. (Indeed, failure to use this stronger claim in the argument would violate the Gricean Maxim of Quantity (1967/1989, 28).) Yet, when the stronger claim is used, the argument is not merely semantically valid, but it is also a formally valid instance of *modus tollens*.

Despite the possibility of these valid instances of otherwise invalid argument forms, it has standardly been held that denying the antecedent is a fallacious move in argument, and as such that it is a strategy to be avoided. This is especially so since many of the cases which turn out to be successful are better described as perfectly legitimate instances of denying a necessary condition rather than as non-fallacious instances of denying a sufficient condition. We find, though, that there is a relatively common argumentative strategy having the apparent form of denying the antecedent which is both perfectly legitimate and involves a genuine instance of denying a sufficient condition as described above. Before proceeding to describe this situation, and to propose a model of it, we review some of the standing objections previously raised against the standard view just described.

4. Challenges to the standard view

There is a long tradition of objections to the Philonian conditional dating back to ancient times.[8] Contemporary developments in logic (including informal logic and argumentation theory) have also brought about several challenges to the standard view. Most of these challenges stem from observations regarding the use of conditional claims in natural language argument, and questions surrounding whether the actual—even the normal—use of conditional claims are properly interpreted as instances of the Philonain conditional (Strawson 1952, 82-90; Mitchell 1962, 61-68). There are many common uses of conditional claims where such an interpretation fails, and as a result, such arguments cannot properly be seen as instances of a deductively valid argument form. Indeed, in many such cases, it might even be that the proponent of the argument is not aiming at the evidential standard of deductive validity.

Most recent among these challenges is the one launched by Walton (1996, chapt. 5; 2002). The argument here is that conditionals offered in natural language

arguments are often best understood as asserting a strong but defeasible connection between antecedent and consequent, rather than a materially (or factually) "if *sufficient* then *necessary*" relationship between antecedent and consequent.[9] For instance, Walton argues that "[t]he typical conditional really says that if the antecedent is true in a given situation, and all other factors are held constant in that situation, then the consequent is also true (or will be)" (Walton 2002, 38).

The broader theoretical point here is that the logical treatment of conditionals should be linked to the treatment of generalizations (Walton 2002, 29). The material conditional is linked to the universal generalization which is, in turn, is defined by what Walton has called the *single counter-example characteristic* (2002, 29) where it is falsified if there is a single instance in which the antecedent is true and the consequent false. Yet, there are different types of generalizations which do not share this single-counter-example characteristic, and these are linked to different types of conditional claims. So, there are several kinds of conditional argument forms based on the several kinds of generalizations embodied in the conditional premises of these arguments (1996, chapter 5; 2002; forthcoming). As a result, not all conditional arguments are properly analysed or evaluated according to the deductivist model designed for the material conditional. Rather, "[h]ow an inference should be classified thus depends on the generalization or conditional that functions as the warrant of the inference" (Walton 2002, 31).

In abductive inference, for instance, the conditional claim might best be understood as claiming something like the following: "if the antecedent is true, then everything else being equal at this point in the investigation of the case, the consequent is a good working hypothesis to go ahead with, at least as a basis for conducting tests, or if tests are not necessary, as a basis for provisional action or inaction" (Walton 2002, 32). That is, the consequent is not established as a claim to which all participants in the dialogue must be committed and which cannot be retracted, but rather as a working hypothesis, subject to refutation as more information is obtained. In abductive reasoning, the conditional form of argument leads to further a discussion by narrowing a search for an explanation, rather than curtailing a discussion by establishing, once and for all, one explanation over all others (*ibid*.). For these reasons, not all arguments of the *modus tollens* form are deductively valid.

As such, we do not reject the view that any substitution instance of the argument form A, $A \supset C \vDash C$ is deductively valid. Indeed, accepting (i) the Philonian interpretation of the conditional, and (ii) the principle that invalid forms of argument are forms which have (at least) a single substitution instance on which the conjunction of the premises is true and the conclusion false, all variations of the conditional argument listed in Table 2 are accurately described. Rather, it is other components of the standard picture that require challenging. Most importantly, should all natural language conditional expressions be interpreted according to the truth-functional Philonian conditional? Here we claim that the answer is "no".

Other interpretive models are required, and other standards of evaluation must accompany these alternate interpretations of conditional assertions.[10]

Yet, even in the presence of adequate models of argument capable of representing argumentation involving non-Philonian conditional reasoning, there still remains the question: On a Philonian interpretation of the conditional, is it always fallacious to argue in the form of denying the antecedent? With this qualification, most theorists are likely to accept the standard view described above, and answer in the affirmative. Against this, we contend that many common and perfectly acceptable arguments work by denying a sufficient condition, and that we require not only a theory of argument which reflects this, but also a workable model of denying the antecedent as a legitimate move in argument.

5. Previous attempts to treat denying the antecedent

5.1 Burke's enthymematic modus ponens *model*

The question is, then, how should seemingly reasonable arguments which appear to deny the antecedent be treated? Some have argued for an interpretive strategy on which arguments which appear to deny the antecedent should be interpreted non-fallaciously on charitable grounds. For example, Burke (1994) has argued that when all interpretive options are fully considered, denying the antecedent should not be considered a fallacy that commonly occurs in day-to-day argumentation. Importantly, approaches of this sort construe judging cases of denying the antecedent primarily as an interpretive problem whereby an argument which has an apparently fallacious structure can sometimes be interpreted non-fallaciously.

According to Burke, "[a]n argumentative passage that might appear to be an instance of denying the antecedent will generally admit of an alternative interpretation, one on which the conditional contained by the passage is a preface to the argument rather than a premise of it" (23). In addition to claiming that the asserted conditional does not function as a premise in the argument, Burke's interpretive strategy is to attribute to the author of the argument an assumption which operates as a hidden premise in the argument. This hidden premise is the inverse of the conditional actually stated (though the converse would do just as well). Burke argues that, of the examples he considers in his paper,[11] "[i]n each case it is at least plausible to take the argument to be an enthymematic instance of *modus ponens* (or of *modus tollens*, depending on the formulation of the unstated conditional)" (24; italics changed). As such, arguments which might appear to deny the antecedent may be interpreted as deductively valid arguments.

5.2 Application of Burke's interpretive strategy to an example

To get a better idea of Burke's interpretive strategy, let us apply it to one of the examples discussed extensively by him (Burke, 24-25).

DA *Capital Punishment*
If capital punishment deterred murder, it would be justified.
Since it doesn't, it isn't.

Clearly, the Capital Punishment example appears to have the form of denying the antecedent. On Burke's reading, though "the argument contains one stated premise [that capital punishment does not deter murder] and this unstated premise: If capital punishment doesn't deter murder, then it isn't justified" (25). According to Burke, the conditional actually stated in the argument is not asserted as a premise and "is not a part of the argument" (*ibid*.). Instead it has a rhetorical or dialectical role, and is prefatory to the argument. Specifically, Burke identifies the dialectical role as that of "making clear that the arguer opposes capital punishment *only* because the arguer believes it doesn't deter murder" (*ibid*.). The argument itself contains—as an unstated premise—the inverse of the stated conditional which, when combined with the stated premise produces a deductively valid argument of the *modus ponens* form.[12]

There are crucial similarities between Burke's interpretive strategy and that suggested by Adler (1994), in consideration of a different example.[13] Adler suggests that the conditional stated in an argument apparently having the DA form be read as a biconditional (271). Such an interpretation would list not only the stated conditional among the arguer's commitments, but also the inverse conditional, which is then claimed to be operative in the arguer's valid reasoning. This interpretation should be friendly to Burke, since he claims that the arguer is committed to the stated conditional even though it has only a dialectical function in the argument (25).[14]

5.3 Justification of Burke's interpretive strategy and problems therein

Importantly, Burke's interpretive strategy in these cases (as well as Adler's) is predicated on the view that denying the antecedent is indeed fallacious, and it is for this reason that Burke claims that theorists must search out some more charitable exegesis of the argument. According to Burke's principle of fairness (23-24), "we [should] *not* presume the *presence* of fallacy" (24). Operationally, given two interpretations of an argument, one of which is fallacious and the other of which is not, the principle of fairness prescribes that the non-fallacious interpretation is to be preferred "unless the balance of textual, contextual, and other evidence" favours the fallacious interpretation (*ibid*.).

Given that this is the justification for Burke's exegesis, Burke's reconstructive strategy has two questionable interpretive claims in it. First, Burke claims that, in the apparent instances of DA he considers, "there is no adequate reason to regard the conditionals they contain as *premises*" (24), and that "in no case is there adequate reason to consider the [stated] conditional as a part of the argument" (*ibid*.). Yet there is a very good reason to suppose that the stated conditional claim is part of the argument: namely, that it is stated—indeed apparently asserted—by the arguer.

The larger point here is that, in the examples as given and considered by Burke, there seems to be plenty of *textual* evidence to suggest that the arguers in these cases *are* asserting the stated conditionals, while the *only* evidence to suggest that they are asserting the inverse conditional is provided by a normatively driven principle of charity.[15] As such, it would seem that the principle of fairness actually requires that we choose the apparent, and fallacious interpretation.[16]

Perhaps in anticipation of this type of objection, Burke tries to provide textual evidence for his interpretive strategy by considering a series of speech patterns (some of which he sees as common, and others of which he sees as uncommon) in which conditional arguments are offered (26). These considerations give rise to the second questionable interpretative tactic employed by Burke. On Burke's interpretation of these patterns of conditional reasoning, it seems that only statements (or perhaps only conditional statements) immediately following premise indicators, or immediately preceding conclusion indicators, are actually offered as premises in support of an argument's conclusion (26). That is, if a statement is not marked by an indicator word, then it need not be considered as a premise in an argument. It is on these grounds that Burke justifies his claim that the stated conditional need not be interpreted as being part of the argument.

There are both empirical and theoretical reasons why this interpretive tactic is inadequate to cover all cases. Empirically, indicator words are not present in all arguments, and even when they are they are not used to flag every premise, conclusion, and sub-conclusion. Theoretically, Burke's tactic misrepresents the role of indicator words in arguments. The proper use of indicator words is based on the structure of the arguments in which they are used; it is not the case that arguments have a certain structure simply because certain indicator words occur in them. Put another way, since the criteria according to which indicator words are properly employed is given by the structure of arguments, it cannot be claimed that the occurrence of indicator words in arguments can provide the sole criteria by which the structure of an argument is to be determined (Godden, 1998).

It would seem then that there is little or no acceptable textual evidence to justify Burke's interpretation of arguments apparently having the DA form, whereby (i) the stated conditional does not function as a premise in the argument, but rather that (ii) an unstated, inverse conditional is actually operative in the reasoning. This is not to say that Burke's strategy will not be correct sometimes, only that it is not justifiable as a blanket interpretation of conditional arguments, and that its application on any particular occasion must be justified on grounds other than those discussed by Burke.

Perhaps some evidence of just this sort may be found by studying the actual usage of conditional expressions by competent language users in cases of everyday reasoning. For example, Adler (1994, 277) suggests that the common usage of the conditional as reversible indicates that the Philonian interpretation of natural language statements of an "If ... then..." form does not capture their meaning in everyday discourse. Instead, Adler suggests that our treatment of a conditional as reversible

in our reasoning should indicate that we typically mean to express something closer to a biconditional relationship between the constituents in expressions of an "If ... then ..." form (*ibid*.). So, while Walton suggests that normal usages of conditional expressions in everyday discourse often indicate a weaker link than that given by the material conditional, Adler here suggests we can frequently mean a stronger link as well. Data of this sort, if gathered by valid and reliable means, would offer considerable support to a general interpretative strategy of the sort offered by Burke. In the absence of such data, strong justification for Burke's interpretation in any particular case could be provided by explicit textual evidence that the arguer did indeed treat the inverse conditional as a commitment. In the presence of such data, critics of Burke's strategy might be required to provide explicit textual evidence that the arguer did *not* treat the inverse conditional as a commitment in some particular case.

5.4 Hitchcock's explanation-based model

Finally, in response to Burke (1994) and George (1983), Hitchcock (1995) argued that "there is a valid form of argument, which can superficially look like the predicate logic analogue of denying the antecedent" (Hitchcock 1995, 300). According to Hitchcock, some arguments which appear to have the fallacious DA form 'Every G is H. Because *a* is not G, *a* is not H' may actually be instances of a *modus tollens* argument so long as (i) the initial premise is interpreted as expressing a sufficient causal condition and not a sufficient evidential condition, and (ii) the argument is read as having a hidden premise. In such situations, Hitchcock suggests that the argument may be read as follows: 'Every G is H. *a* is not H. Therefore *a* is not H **because** *a* is not G' (299, italics added), where the hidden premise is marked in bold. The initial structure of this argument, then, is that it denies the consequent, not the antecedent. On Hitchcock's interpretation, the word "because" is not a premise indicator separating premise from conclusion. Rather, "because" is indicator of an explanatory relationship which is asserted *within* the conclusion of the argument. Hitchcock describes the inferential structure of arguments of this type as moving "from a general causal claim of the form 'Being G is sufficient cause for being H" [combined with the claim that this is not H] to a particular causal claim of the form 'this is not H because it is not G'" (300). That something is a non-H is sufficient for its being a non-G. But, its being a non-H is explained (in part) by its being a non-G, and this is what is asserted in the conclusion. Indeed, as Hitchcock observes, there might well be many other causally necessary conditions for being a not-H, and each of those might also be validly included in an explanatory conclusion of this sort as well. Here again we do not have an instance of denying the antecedent, but a disguised instance of the perfectly valid argument form of denying the consequent.

5.5 Summary of previous treatments

To summarize our discussion of Burke, Adler and Hitchcock, it is important to notice that, while there are many important differences among these interpretations of DA, there are several important similarities. First, each is an interpretation-based approach, which begins with an apparently fallacious instance of argument, and attempts to provide a justifiable exegesis which renders the argument non-fallacious. Second, each account relies on (or restricts itself to) the Philonian interpretation of conditional expressions. Third, each regards the denial of a sufficient condition as fallacious attempt to establish or prove some claim (the negation of the consequent of the conditional). It is because these theorists see the move of denying the antecedent as fallacious that they try to supply some alternative interpretation of the argument, one on which the fallacy is avoided. Fourth, those accounts which seek to interpret arguments which appear to deny the antecedent as non-fallacious do so by supplying some interpretation on which the argument does not deny a sufficient condition, but instead denies a necessary one. Typically this is done by postulating that the arguer is actually committed to a claim (either the inverse of the asserted conditional, or a biconditional with the same components) other than that which is explicitly asserted in the argument. Finally, while some attempt is made to consider the argument contextually, these strategies do not represent the argument pragmatically, as a sequence of moves in an argumentative discussion, and nor do they evaluate the argument in the context of an argumentative discussion.

6 A dialectical model of denying the antecedent

6.1 A legitimate use of denying the antecedent

In view of the similarities of these approaches, we now turn to the task of proposing our own model of denying the antecedent as a non-fallacious form of argument. The only similarity which our model bears to the above accounts is that we restrict ourselves to a Philonian interpretation of the conditional.[17] While the other differences will become apparent, two of them deserve mention at the outset.

First, the model we propose does not have its roots in an interpretation-based approach to argument. Questions regarding the proper interpretation of conditional arguments are not the primary focus of this paper. We do not supply an exegetical strategy by which arguments having the apparently fallacious structure of denying the antecedent can be interpreted non-fallaciously. Rather, the purpose of this paper is to note a non-fallacious use of denying the antecedent in argument, and to offer a model of this usage. That is, we propose a normative model which delineates a non-fallacious usage of denying the antecedent. That said, the model suggests some (though perhaps not all the required) interpretive criteria by which instances of argumentation can be classified as exemplifying the fallacious or non-fallacious

usage of denying the antecedent. Further, we feel that our model can contribute to a better understanding of the actual argumentative purposes which can be achieved by denying the antecedent.

This brings us to the second difference. The model of DA proposed below occurs in the larger context of pragmatic models of argument, where an argument is seen as the product which is transacted in an argumentative discussion. In an argumentative discussion two parties attempt to resolve a difference of opinion by engaging in rational dialogue.[18] In a persuasion dialogue, these parties are called the proponent (Pro) and the respondent (Resp). There are two basic types of persuasion dialogues. In a *dispute*, Pro tries to establish some standpoint or claim, C, as a commitment in the dialogue, while Resp tries to establish some thesis opposite to C. In a *dissent*, Pro's goal remains that of establishing some claim, C, while the goal of Resp is merely to show that Pro has not been successful in establishing C. In a *dissent* the goal of the respondent is more critical, and does not involve attempting to prove a claim.

In this context, there is a use of DA which is properly interpreted as a deductively fallacious form of argument. Should the move of denying the antecedent occur as a move made by the proponent in an attempt to establish the consequent then the standard account of DA, on which it is a fallacious move in the argument, applies. In circumstances like this, our proposed account is no different from the standard account the details and justification of which were discussed above (sect. 2).

On the other hand, should the move of denying the antecedent occur as a move made by the respondent to an argument, a second usage of denying the antecedent might apply on which the move is not fallacious. Here, Resp uses the strategy of denying the antecedent to reject a conclusion established by a conditional argument offered by Pro. For example, suppose that Pro offers a *modus ponens* argument A, $A \supset C$ in support of her conclusion that C. Several counter-arguments are possible. From among these, Resp might select a counter-argument which seeks to provide several *better* reasons for thinking that not-C. For example, Resp might argue D, E, F, and $(D \vee E \vee F) \supset \sim C$. (In this example, Resp has offered three independent reasons in support of ~C, all of which he asserts as acceptable and each of which he sees as independently sufficient for ~C.) Alternately, Resp could reject the conditional premise $A \supset C$, perhaps by suggesting that A is not a genuinely sufficient condition for C, or by claiming that there are occurrences of $A \& \sim C$ which show $A \supset C$ to be false. As still another option, Resp might deny the antecedent of Pro's initial argument. This is the move which concerns us here. In a counter-argument of this sort, the conditional premise of Pro's initial argument is accepted by Resp. But Resp rejects the move, made by Pro, of affirming the antecedent. Instead, Resp denies the antecedent.

To show how this might occur in an argumentative discussion such as a persuasion dialogue, we offer the following dialogue profile (Krabbe 1999; Walton 1989, 65-71).

Moves	Proponent	Respondent
1.	I can prove that C.	How can you prove it?
2.	Argument: A, therefore C.	Is your argument valid?
3.	Yes, because A ⊃ C is true.	OK, but I still deny C.
4.	Why?	Because I deny A.

Table 4. Dialogue profile for denying the antecedent

In the above dialogue profile, we represent Resp as denying Pro's standpoint, C, by denying the antecedent, A, of Pro's conditional argument for C. But there are many forms that this denial might take. The strongest way Resp could deny A would be for him to show the falsity of A by providing reasons in support of ~A sufficient to have it admitted into the argumentative discussion as a commitment. Alternately, Resp might deny A merely by expressing his doubts about it, or by asserting its falsity in the hopes that Pro will abandon it, or by refusing to accept it as a commitment. These latter strategies are defeasible, and merely shift the burden of proof concerning A back to Pro, inviting her to provide some sufficient reason in support of A. The way in which Resp goes about denying A will affect the moves that are available to Pro as potential responses to the denial. But however the denial of the antecedent is achieved, its argumentative effects are the same: it undercuts the conditional argument initially offered by Pro, demonstrating that Pro has failed to thereby establish the conclusion of her conditional argument.

6.2 A dialectical model of non-fallacious denying the antecedent

Our thesis is that denying the antecedent, when employed in the manner just described, is not a fallacious argumentative move. A central feature of this non-fallacious usage of denying the antecedent is that it is not offered in an attempt to establish the falsity of the consequent. Rather, the antecedent is denied in an attempt to establish that the consequent is not acceptable on the grounds expressed by the conditional premise. This is the cardinal difference between the legitimate usage of denying the antecedent, and its fallacious cousins. (It also marks the third difference between our model and those considered above.) To return to our example above, Resp does not deny the antecedent A in an attempt to establish the falsity of C; indeed the strategy does not seek to establish any claim (i.e., commitment) in the argumentative discussion whatsoever. Rather, the move is made in an attempt to demonstrate that C has not been established, and hence that it cannot be admitted into the argumentative discussion as a commitment.

Legitimate employments of denying the antecedent cannot be modelled as arguments of the form 'A ⊃ C, ~A ⊨ ~C'. To properly model legitimate uses of denying the antecedent, we must distinguish between assertions and denials of a claim, and affirmations or denials of some property of a claim (whether affirmative

or negative). In this case, the property of claims which concerns us might be called its *admissibility*, or *that it follows* or *that it is established* or *that it may be concluded*, or perhaps even *that it should be believed*. (The precise formulation of this property is not a matter of immediate concern, and might well be relative to contextual features of the argument under examination). For now, we will use the symbol '$\models$' to indicate this property, and will read it as '*from which it follows that*'.[19] The expression '$|\neq$' could then be read as '*from which it does not follow that*'. Given this interpretation of '$|\neq$', '$A \supset C, \sim A |\neq C$' properly captures the form of legitimate employments of denying the antecedent.

Clearly, the difference between the legitimate and fallacious employments of denying the antecedent concerns the scope of the negation in the conclusion. Here, it is not a negated claim which is admitted into the argumentative discussion, rather it is the admission of a claim into the discussion which is negated. The claim is not shown to be false (whereby the negation of the claim would be shown to be admissible); rather the claim is shown to be inadmissible. From $|\neq C$ it does not follow that $\sim C$, nor does it follow that C.[20] Indeed, not being a claim (or commitment) in the usual sense, $|\neq C$ does not have any *logical* consequences whatsoever.

It does, on the other hand, have certain dialectical consequences. Principal among these is that, just as with any other strategy which successfully demonstrates that some claim has not been established, denying the antecedent results in a shift of the burden of proof to the proponent of the claim at issue. By showing that Pro has failed to establish her claim that C, Resp has placed the burden of proof back on Pro to supply some other set of reasons demonstrating the acceptability of C. Depending on the manner in which Resp has denied the antecedent, Pro may have a variety of means available by which this burden of proof could be met. For instance, if Resp has only denied A, or demanded that compelling reasons for A be given, Pro might attempt to meet her burden of proof by stating her reasons for A. On the other hand, if Resp has presented a *prima facie* case (i.e., a defeasible set of reasons) that $\sim A$, Pro might try to argue against this *prima facie* case, as well as providing her own reasons for A. As another alternative, Pro might try to provide a different set of reasons—not involving the claim that A—in support of C. This strategy would be required if Resp had conclusively established $\sim A$ as a commitment in the dialogue. The point is that, in the absence of other sufficient reasons establishing C as a commitment in the dialogue, Pro will have to abandon the claim, and perhaps concede the argument as a result. In view of the dialectical effects by which denying the antecedent shifts the burden of proof, it might be said that arguments of the form '$A \supset C, \sim A |\neq C$' have consequences of the following sort: "If we are to accept C, we should not accept A as a reason for doing so,"[21] or "If we are to accept C, there must be some set of good reasons for doing so, and A cannot be among those reasons."

The dialectical role of shifting the burden of proof reveals another crucial feature

of this legitimate use of denying the antecedent. Denying the antecedent is a defeasible argumentative strategy. That is, it does not *conclusively* establish the inadmissibility of C. Rather, it establishes only that C is inadmissible on the basis the grounds presently on offer in the original conditional argument. (Indeed, as discussed above, depending on how it is deployed, DA might not even *conclusively* establish ~A.) Should Pro have offered other reasons in support of C in her initial argument, the inadmissibility of C would not be established by denying the antecedent alone. Alternately, were Pro to respond by supplying some other set of reasons in support of C, and were those grounds to be found to meet the relevant required standard of acceptability, then the admissibility of C could be established. As such, denying the antecedent only serves to show the inadmissibility of a claim on the basis of a specific set of reasons given in a conditional argument. In the presence of other reasons supporting the claim, or when presented with new information which counts as a sufficient reason for the claim, the strategy of denying the antecedent must relinquish its conclusion that the claim is inadmissible.

In summary, successful uses of denying the antecedent do not function to establish some claim. That is, this type of argumentative move does not result in the introduction of a commitment into an argumentative discussion. What then is the argumentative effect of legitimate uses of denying the antecedent? On our model, there are two. The first is to defeasibly show that a claim has not been established as acceptable. The second argumentative effect is to shift the burden of proof in regards to the claim at issue back to the proponent of that claim. These effects might be represented by extending the dialogue profile offered above (Table 4) in the following sort of way.

Moves	Proponent	Respondent
5.	So, are you claiming that not-C?	No, I am claiming that you have not established that C.
6.	Because you deny A.	Yes, you have not met the burden of proof, and must provide some other reason for C.

Table 5. Continuation of a dialogue profile for denying the antecedent

As the above dialogue profile illustrates, denying the antecedent is one way that can be employed to demonstrate that an arguer has not met her burden of proof concerning some claim which she is trying to advance as a commitment in an argumentative discussion. So, the dialectical effect of denying the antecedent is to shift the burden of proof back on to the proponent to provide some *other* set of reasons which sufficiently establish the acceptability of the claim at issue.

6.3 Applying our model to the Capital Punishment example

To clarify our model of denying the antecedent, we now apply it to the Capital Punishment example discussed above. As mentioned above, our proposed model is not based on a thesis concerning the proper way to reconstruct arguments that apparently deny the antecedent. Rather, our model is based on a usage of DA which we have argued is not fallacious. On the supposition that the arguer is using DA in the way described by our model above, the Capital Punishment argument should be judged in the context of a dialectical exchange between two arguers. The proponent has argued that capital punishment is justified on the grounds that it deters murder. The respondent accepts the conditional premise of Pro's initial argument, but rejects Pro's claim that capital punishment actually does deter murder. In this context, Resp offers the counter-argument "If capital punishment deterred murder, it would be justified. Since it doesn't; it isn't." Importantly, on our model Resp's conclusion is not to be read as the strong claim that "Capital punishment is not justified", but rather some weaker claim such as "Capital punishment is not justified *for the reasons given*" (i.e., for the reasons given in Pro's initial, conditional argument), or "It has not been established that capital punishment is justified."

On our model, a reconstruction of the Capital Punishment example could be given in the following diagram (constructed in *Araucaria* (Reed & Rowe, 2002)).

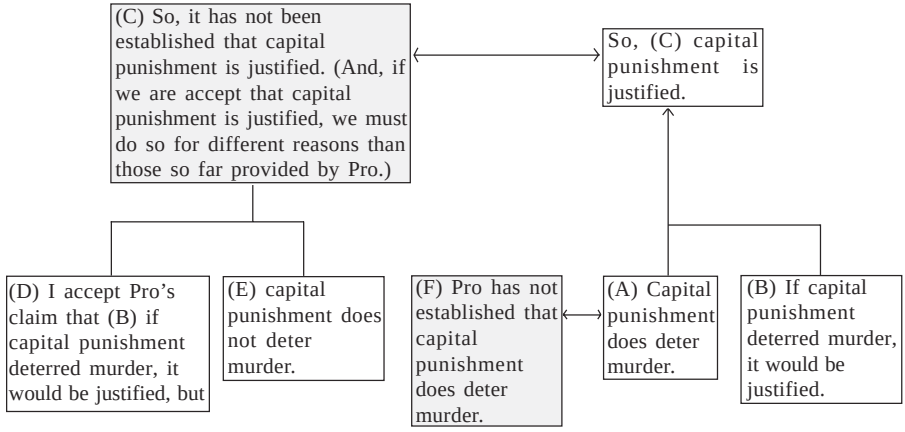

Figure 1. Araucaria diagram of the capital punishment example

In this diagram, we model Resp's argument (shown on the left) as a rebuttal of Pro's initial conditional argument (shown on the right). Two aspects of Pro's initial argument are rebutted. First, Pro's conclusion that capital punishment is justified is rebutted by Resp's counter-conclusion that capital punishment has not been shown to be justified, and that if it is to be accepted as justified it must be done for reasons other than those so far provided by Pro. This counter-conclusion

is supported by Resp with an argument which has the form of denying the antecedent. One of the premises in this counter-argument is that capital punishment does not deter murder. This is mirrored by Resp's rebuttal of Pro's claim that capital punishment does deter murder.[22] In this example, we have supposed that Resp rebuts Pro's categorical premise by simply denying the claim, or perhaps by challenging Pro's reasons for it. But, it could easily be imagined that Resp provides independent reasons providing positive support for his claim that capital punishment does not deter murder. These reasons could easily be diagrammed as sub-premises, providing premise support for Resp's claim that capital punishment does not deter murder.

Having shown how the Capital Punishment example could be treated on our model, it remains to consider some of the important differences between our reconstruction of this example and those reconstructions posited by alternative models (discussed above in sect 5). Perhaps the most important difference is that, on our model, Resp is interpreted to be doing what he explicitly seems to be doing: denying a sufficient condition of a conditional. Because Resp's utterances are taken at face value in this regard, our model does not require the postulation of any hidden premises in his reasoning. Specifically, our model does not require the positing of an unexpressed premise enabling Resp's reasoning to be interpreted as an inexplicit attempt to deny a necessary condition. This marks a second important difference between our model and the alternatives. Should the usage of DA be as we have described it here, its reconstruction does not require the positing of an additional, hidden premise in the argument.

There is one important respect in which our interpretation agrees with the alternative proposed by Burke (1994). Burke argues that the stated conditional premise in the Capital Punishment example can be thought of as having the following dialectical function. "The conditional can serve to communicate, 'Look, I'm not opposed to capital punishment *on principle*. I'm a pragmatist, not a moral absolutist. If I thought capital punishment deterred murder, I'd be for it'" (Burke, 25). On this point, we agree with Burke. Indeed, we feel that this commitment marks an integral feature of Resp's reasoning. Should it be shown that capital punishment does in fact deter murder, Resp is committed to accepting the conclusion that capital punishment is justified. The fact that Resp is committed to this conditional premise is retained in our reconstruction in a way that it is not on Burke's, since Burke does not give the commitment a premissary role but rather a preliminary and dialectical role. Indeed, it is Resp's commitment to this premise which, in part, justifies our interpretation of his conclusion as weaker than an outright claim that capital punishment is unjustified. Further, our reconstruction of Resp's reasoning as defeasible might be seen as better capturing his pragmatism. This combined with the fact that our model does not require the positing of unarticulated premises might suggest that there are at least *prima facie* hermeneutical reasons for thinking that our model might provide a good initial interpretive strategy when approaching argumentation which appears to fallaciously deny the antecedent.

6.4 Denying the antecedent: Does it really deny a necessary condition?

The main difference between the proposed model of denying the antecedent and the alternative models previously discussed is that, on our model the arguer is treated as explicitly denying a sufficient condition, while on the alternative models the arguer is treated as implicitly denying a necessary condition because he is committed to the inverse of the stated conditional. The question which remains to be addressed is whether the inverse of the stated conditional is actually among the arguer's commitments even on the model we propose.

For example, on our model, one of the ways of expressing the conclusion of Resp's counter argument might seem to be as follows:

> (G′) Unless capital punishment is shown to deter murder, it has not been shown to be justified.

On standard interpretations of "unless,"[23] this conclusion could be translated as

> (G″) If capital punishment does not deter murder, it is not justified.

This is the inverse of the stated conditional in Resp's counter-argument. So the question arises: does the proposed model actually mistake a hidden premise in a good deductive argument for the conclusion of a bad defeasible argument?

The preliminary answer to this question is "no," and the reason for this answer is as follows. The conclusion of a counter-argument which denies the antecedent can only be interpreted as a claim like G′ on the assumption that

> (P*) There are no other reasons which could possibly provide sufficient justification for the consequent.

But, in the absence of a claim to the effect of P* in Resp's counter-argument or among his other commitments, the interpretation of his conclusion as something like G′ attributes a far stronger claim to Resp than is hermeneutically justifiable.

This observation does reveal an equally interesting point concerning the more general structure of Resp's reasoning concerning the claim at issue. It would seem that Resp requires some reason which is both acceptable and a sufficient justification in order to admit the claim at issue. In this regard previous models of denying the antecedent have caught sight of an important feature of it. Resp seems to be committed to a version of something like Leibniz's principle of sufficient reason. This principle might be expressed as follows: for any claim, C, which is not already a commitment and which is to be admitted into the argumentative discussion as a commitment, some sufficient reason is *required* for it, and in the absence of such a sufficient reason C is not to be admitted into the discussion. That is, Resp is committed to the claim that some sufficient reason is *necessary* for admitting C into the discussion as a commitment. So, there might be something to the inclination apparent in previous models to treat A as both a sufficient and a necessary condition for C in reasoning which apparently denies the antecedent. Yet, as we have noted, to do so requires the additional premise P* that there are no other sufficient reasons. In the absence of such a premise, A can only be treated as one sufficient reason among many other possible sufficient reasons for C.

To summarize our interpretation of the Capital Punishment example, we reiterate that we do not seek to justify our model of denying the antecedent on interpretive grounds. Instead, we claim that the model describes a legitimate, non-fallacious usage of denying the antecedent in argumentation, and that such a usage may be reconstructed along the lines given above. In addition to the fact that our model takes the utterances of an arguer at face value, and does not require the positing of unexpressed premises, several textual features might serve as indications that a given instance of argumentation is properly reconstructed according to our proposed model. First among these will be that the DA argument is offered as a counter-argument to some conditional argument of a *modus ponens* form. Also, one might look for features indicating that the arguer's statement of, or commitment to, his conclusion is something weaker than a categorical assertion (e.g., something more like the claims listed near the end of sect. 6 above.) Finally, one might look for indications that the arguer considers his reasoning to be defeasible rather than conclusive.

6.5 Denying the antecedent as a form of refutation

The proposed model of denying the antecedent connects with the more general theory of rebuttal, or counter-argument. It is widely received that there are three principal strategies for showing that an argument is bad (by some relevant standard of acceptability). The first is to show that there are better reasons for accepting some claim which is either contrary or contradictory to the conclusion of the initial argument. (We might call this a "counter-conclusion".) This strategy directly challenges the conclusion of the target argument, and only indirectly refutes the target argument itself, since no direct refutation is offered against the reasons provided in the initial argument. The other two strategies indirectly refute the conclusion of the target argument, by directly challenging the original argument. Challenges of this sort can follow one or both of two strategies. The first is to show that there is a bad inferential link between the premises of the target argument and its conclusion. The second is to show that the premises of the initial argument are themselves bad. In either of the latter two cases, if an argument is shown to have a problem, this does not directly establish the unacceptability of the conclusion (relative to the relevant standard of acceptability). Rather, it establishes the unacceptability of the conclusion *on the basis of the reasons offered in the argument.*

Pollock (1987, 484-485) marks this difference in strategies of counter-argument with the distinction between what he calls rebuttal defeaters and undercutting defeaters. A defeater can be seen in a dialectical framework as an argument move (or series of argument moves) which successfully defuses a target argument by one of several means. In this context, a defeater could take the form of a complex counter-argument, or the posing of some objection (e.g., in the form of a counter-example which could be directed either at the link of an argument, or at some conditional or general premise of it) or an appropriate critical question. Rebuttal defeaters defuse a target argument by providing better reasons for accepting either

a contrary or the contradictory of the conclusion of the target argument. Undercutting defeaters defuse a target argument by directly attacking some aspect of it (either its premises or its inferential link). While we mark this distinction, in our model "rebuttal" is used more generally to be synonymous with "counter-argument".

No matter what strategy of rebuttal is chosen, to show that an argument has a problem does not necessarily demonstrate that its conclusion has a problem. Undercutting defeaters show only that a conclusion is unacceptable on the basis of the reasons provided in the initial argument. Defeaters that directly rebut the conclusion of a target argument might well show that we should not accept the target conclusion because there are much better reasons for accepting some counter-conclusion. But, unless the rebutting defeater conclusively establishes this counter-conclusion, it can only make a *prima facie* case against the acceptability of the target conclusion at issue. As such, the effects of most counter-arguments are the same: they demonstrate that a proponent has failed to establish her initial claim, and they shift the burden of proof back to the proponent. When confronted with rebuttal of some sort a proponent is required to provide some additional set of reasons (which are both acceptable and sufficient) in support of her initial conclusion *other* than those advanced in her initial argument. (These reasons might directly support her conclusion, or they might provide premise support, or they might take the form of a counter-rebuttal to the reasons offered in the initial rebuttal.)

In this general framework, the legitimate use of denying the antecedent is just a special case of showing that an argument is a bad one by showing that it has a bad premise. Specifically, in a target argument of a *modus ponens* form, while the conditional premise might be acceptable, the premise which asserts the antecedent of the conditional may not be. Denying the antecedent rebuts the initial argument by denying this premise. (As mentioned above, this denial can take many forms.) As such, denying the antecedent works as a form of rebuttal by undercutting the initial argument by showing that it has an unacceptable premise.[24]

Recognizing that DA can be deployed as an undercutting defeater provides some degree of corroboration for our proposed model. If DA functions to undercut an initial argument, then the argumentative effects of DA and of undercutting more generally ought to be very similar. Our model of DA attributes to it precisely the argumentative effects one would expect it to have, realising that it works as an undercutting defeater. When legitimately deployed, DA shows a claim to be unacceptable on the basis of the reasons given in an initial conditional argument, and it shifts the burden of proof back to the initial proponent demanding that some additional set of reasons be provided in support of the claim at issue. Denying the antecedent and showing an argument to be flawed due to an unacceptable premise are analogous in regard to both their argumentative effects and the type of conclusion they license. These similarities indicate that models of denying the antecedent as a non-fallacious move in argument can be based on the prevailing theory of refutation as we have attempted to do in our proposed model.

7. Summary and conclusions

In this paper, we have observed a usage of denying the antecedent as a legitimate, non-fallacious argumentative move, and have proposed a normative model of it. The model takes its place within a larger dialectical model of argument, on which two parties seek to resolve a difference of opinion through a rational discussion.

A non-fallacious usage of denying the antecedent occurs in the following situation. In an argumentative discussion, DA can be deployed in the situation where a claim, C, is offered as acceptable on the basis of two premises: (1) the conditional premise If A then C, and (2) the second premise, A. The conditional is accepted by both parties; on some standard of evidence (which may not necessarily be deductive validity): A *is* a sufficient for C. But, as a counter-argument, the respondent denies the antecedent.

This legitimate use of denying the antecedent is characterized by the following features. The conclusion of the counter-argument is not that we should ***accept not C***, but rather that we should ***not accept C*** for the reasons given in the initial conditional argument. In addition to showing the unacceptability of C, the dialectical effect of the argument is to shift the burden of proof back to the proponent of C. Pro must give some *other* reason for accepting C, or withdraw the claim. In this regard, DA is a defeasible argumentative strategy, because its conclusion is subject to rebuttal in the face of new information or additional argument. Finally, when reconstructing argumentative discourse having this format, it is not necessary to supply unexpressed premises in an attempt to portray the argumentation explicitly stated as a disguised instance of denying a necessary condition. The argumentative move is perfectly legitimate as a denial of a sufficient condition, so long as it occurs in the argumentative context described above.

Let us say a bit more about our choice of a dialectical framework for modelling DA as a legitimate, defeasible argumentative strategy. Our primary reason for this choice is seen when the argumentative effects of legitimate uses of DA are seen in the context of the usual roles of the proponent and the respondent in an argumentative dialogue. Since it is the job of the proponent to establish a claim, and no positive claim is established by a legitimate use of DA, it would be a highly unusual circumstance in which a proponent would ever find a use for such an argumentative strategy. Legitimate uses of DA only really establish that a claim has not been established, and this does not seem to directly advance the goals of a proponent. This is not to say that a proponent cannot use DA in the legitimate way we describe—any arguer can. It is only to say that they would seldom find occasion to.

Similarly, we have claimed that one argumentative effect of DA is to reverse the burden of proof with respect to a certain claim. As a result, the move could be used by a single reasoner in making a judgment or deliberating about a claim. Alternately, DA could legitimately be used to argue that we should not accept a claim for some specific reason. This is a positive thesis, but it is best viewed dialectically as addressing those people who do, or who might, accept the claim

for those specific reasons. So, while there is no reason, in principle, why a proponent could not also use DA, it is much more intuitive to see how the move could be legitimately employed by a respondent.

Our general conclusion, then, is that denying the antecedent is not always a fallacious move in an argument. We recognize that attempts to establish some claim by denying a sufficient condition fail for logical reasons, and when used to this end DA is properly regarded as a fallacy. On this point, standard accounts of the fallaciousness of DA are not challenged, and it is maintained that any attempt to establish the falsity of a consequent (in a Philonian conditional argument) on the grounds that its antecedent is false, fails logically, and is always formally fallacious. Yet, there are other argumentative uses of DA which do not share this problem. Specifically, when DA is used for the purpose of demonstrating the unacceptability of a claim whose original grounds are given by a conditional argument, the logical problems associated with DA on the standard model disappear and we are left with a viable argumentative strategy. As such, the fallaciousness of some occurrence of DA depends, in part, on the argumentative context in which it occurs, that is, on the use towards which it is put in an argument and on the conclusion drawn from it.

Notes

[1] Readers already familiar with the standard account of conditional arguments and the formal fallacies associated therewith may wish to skip sections 2 and 3 and proceed directly to section 4 which discusses some of the previously established objections to this view.

[2] See below (section 4) for alternative interpretations of the kinds of relationships that can be asserted by conditional claims.

[3] Relying on this interpretation, conditional statements may also be seen as capturing natural language expressions of the form 'All A's are C', and 'Only C's are A', where "All" is understood to mark a sufficient condition whereby having the property A is sufficient for having the property C, and "Only" is read to indicate a necessary condition whereby being a C is necessary for being an A.

[4] Given some argument schema (of the sort we have just been discussing, e.g., *modus ponens*) in the formal language, any argument which can be generated by a uniform and thorough substitution natural-language statements for the (sentence-)variables in the formulae of the formal language can be called a substitution instance, or an interpretation, of that argument form.

[5] For this reason, George advocates a view on which only arguments themselves are properly and primarily described as being valid or invalid, while argument forms are described as valid or invalid only derivatively (1983, 320-21).

[6] See Wittgenstein, 1929.

[7] Other examples would be where C is logically true, or where A is logically false.

[8] Readers interested in this could consult Sanford (1989) and Kneale and Kneale (1962, 113 ff., 128 ff.).

[9] Walton admits several notions of sufficiency in addition to the material or factual notion captured by the Philonian conditional (2002, 35-36). For instance, sufficiency may be interpreted tautologically (or analytically), presumptively (all else being equal), and even probabilistically (on the balance of probabilities) (*ibid.*).

[10] Also, there is the question of whether all conditional arguments in which the antecedent is

affirmed should be given the name '*modus ponens*', or only those arguments which are properly interpreted as being substitution instances of the argument form A, A ⊃ C ⊨ C.

[11] Burke lists six initial examples (24), plus a seventh (27). Some of these he considers as "concoctions" and the others are "examples of arguments actually given" (24). All of these examples are taken from logic textbooks, and presumably Burke sees them as representative not only of the kinds of conditional arguments typically treated in logic texts, but also of "real arguments, arguments actually given" (23) as it is about these latter arguments which Burke wishes to claim that denying the antecedent is not a commonly occurring fallacy.

[12] Another, related way of interpreting the Capital Punishment example might be to read it as the enthymematic argument 'Capital punishment does not deter murder. Therefore it is not justified.' with the following superfluous premise: 'If capital punishment deterred murder, it would be justified.' The difference between this reading and Burke's reading is that, on this reading, the conditional stated in the argument does act as a premise, but it is a superfluous one. In our view, this interpretative approach faces problems similar to those faced by Burke's strategy which are discussed below.

[13] The example of which Adler writes is taken from John 8:47, and is discussed by George (1983) and Hitchcock (1995) as well as Burke himself (1994).

[14] So, for instance, as the argumentative discussion progresses, Burke's arguer would not be entitled to simply abandon her stated conditional, even though she does not use it in making the argument in question.

[15] This is exactly the problem facing the variant reading discussed in note 12 above. There is no textual evidence to suggest that this example should be read as a good, deductively valid enthymematic argument with a superfluous premise. Importantly, we do not claim that such a deductively valid enthymematic argument is rendered bad or fallacious by the addition of an additional premise (or other dialectical material). What is at issue is not whether the enthymeme stated in note 12 is a good argument, but rather whether the Capital Punishment example is justifiably interpreted as an enthymematic argument in the first place.

[16] Indeed, Burke suggests that his principle of fairness is weaker than the principle of charity, since "[p]rinciples of charity require that we presume, more or less strongly, the absence of fallacy" while "[t]he principle of fairness requires only that we *not* presume the *presence* of fallacy" (25). Yet, as in the situation here, when one of the interpretations from which the principle of fairness selects is justified solely on charitable grounds, this difference seems to vanish.

[17] While we recognize other interpretations of conditional claims, some of which are discussed above, we offer this model only as a model of arguments using a Philonian conditional.

[18] For a more complete account of the types of rational dialogues and the theory surrounding their treatment, see Walton 1998.

[19] We recognize that '⊨' is standardly used as the symbol for semantic entailment, which suggests the alternate reading 'from which it is semantically entailed that'. Such a reading is also more-or-less acceptable for our present purposes, though its narrower reading might not capture all the cases in which denying the antecedent can be employed as a legitimate argumentative strategy.

[20] It might be claimed that tautologies of the form ~(C & ~C) and (C ∨ ~C) - as well as every other tautology - follow from '|≠ C', but since tautologies follow from any set of claims including the empty set, such a claim is trivial.

[21] This consequence might be represented as 'C ⊃ ~A'. Note that conditionals of the form 'α ⊃ ~A' (where 'α' is variable for any well-formed-formula) can be validly inferred from the main premise ~A in the DA argument. So, 'C ⊃ ~A' is a consequence of ~A. While this expresses some of the dialectical force of the DA argument (and so might be called dialectically significant), logically speaking it is a trivial consequence of the argument.

[22] One of the limitations of the current version of the *Araucaria* software is that it does not permit a claim in an argument to perform more than one function. For example, a single claim cannot be

diagrammed as a premise supporting more than one (sub-)conclusion, or (as in this case) a single claim cannot be diagrammed both as a rebuttal to a claim and as a premise for another claim. For this reason, we have included two claims in our diagram. But, in this case, Resp's rebuttal of Pro's categorical premise might have served the double task of denying the antecedent in Resp's own counter-argument.

[23] Standard treatments of "unless" in formal logic textbooks translate it as "if it is not the case that..." (See, e.g., Nolt, 1998).

[24] As one reviewer did, some might take this point as a general objection to our proposed treatment of denying the antecedent. After all, fallacious uses of DA are fallacious because of a failure of validity. Yet, the legitimate use of DA which we observe asserts the failure of soundness of some target argument or inference. So, it might be objected, "since there is an infinite number of possible failures of soundness, it will be impossible to develop a[n exhaustive] typology of failures".

While we agree in principle with the final point of this objection, we disagree that projects such as the one undertaken in this paper are without merit as a consequence. Such an objection has broad implications for the standard typology of informal fallacies. Importantly, some informal fallacies (most notably false dichotomy) can be aptly described as otherwise good arguments that have a bad premise. (While we do not wish to engage in a debate concerning fallacy theory, other instances which might also be noted could include strawman, equivocation, *ad verecundiam*, slippery slope, and false cause, to name a few.) In developing a robust theory of fallacies, the point is not merely that these kinds of fallacious arguments will have bad premises, but that they are common and characteristic types of argument which have equally characteristic errors. They do not just have false premises, they have false premises masquerading as true ones, and these are just the sorts of premises that we would expect to find in acceptable arguments of the relevant type. For example, false dichotomy arguments are disjunctive syllogisms with a bad disjunctive premise; slippery slope arguments are arguments from negative consequences with a bad premise linking the antecedent conditions to the supposedly consequent ones. So, in many cases, fallacious arguments are stereotypically problematic instances of otherwise good forms of defeasible argument.

For similar reasons we claim that the project of this paper is similarly worthwhile. While it should be conceded that "*whenever* a respondent denies *any* of [the] proponent's premises, he shifts the burden of proof back to [the] proponent" it does not follow that " there is nothing special about the case here singled out". There is something very special about the case we have singled out: namely, it is typically classified as a formal fallacy of argument! In this paper we show that the DA pattern of argument is quite often wrong or fallacious but can, in some instances, be correct.

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David M. Godden
Department of Philosophy
University of Windsor
Windsor, ON
Canada N9B 3P4

goddendm@uwindsor.ca

Douglas Walton
Department of Philosophy
University of Winnipeg
Winnipeg, MN
Canada R3B 2E9

d.walton@uwinnipeg.ca