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Explaining and Justifying*

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Are explanations always associated with *some* form of justificatory argument, and should we, in teaching our students to critically evaluate a piece of discourse, teach them to be concerned to discern the difference between the two? The aim of this paper is to provide an answer to this question.

Generally, the literature on whether or not explanations are to be taken, and so evaluated, as making (at least implicit) reference to justificatory arguments falls into two camps: some authors hold that, for purposes of critical assessment, explanations *should* be treated as involving justificatory arguments and some authors hold that explanations are *not* to be so construed and that construing them as such seriously misconstrues what is being said. Stephen Thomas in *Practical Reasoning in Natural Language*[1] is the most notable example of the former position, a position found as well in Monroe Beardsley's *Practical Logic*[2] and Max Black's *Critical Thinking*[3]; representative of the latter are Michael Scriven in *Reasoning*[4], Irving Copi in *Informal Logic*[5], Johnson and Blair in *Logical Self-Defense*[6], Trudy Govier in *A Practical Study of Argument*[7], and John Nolt in *Informal Logic: Possible Worlds and Imagination*[8].

In this paper I shall try to show that the first view—which is given its most explicit statement by Steven Thomas—is incorrect, and that the second view, though it has something to be said for it, has been presented in the literature in ways that are more likely to obscure than to clarify.

I

Stephen Naylor Thomas in (the third edition of) his widely used critical thinking text *Practical Reasoning in Natural Language*[9] explicitly tells his reader that in evaluating a piece of discourse it is indifferent whether we regard the piece under consideration as an explanation or as a justificatory argument. He gives us three reasons for this position:

1) "...*explanations* (especially scientific explanations) generally involve showing how a prediction of the event being explained could have been *justified* by logically deducing it from statements of universal natural laws, or general principles and hypotheses, plus descriptions of the particular conditions that preceded or surrounded the event. In other words, a good *explanation* of an occurrence will give reasons that would have *justified* predicting it... This view is part of the "Hypothetico-Deductive Model of Scientific Explanation."[10]

2) Since explanations and justifications are both "reasoning"—that is, both make claims for which support is offered—for purposes of evaluating the legitimacy of the reasoning that they exhibit, there is no need to distinguish one from the other.

3) Finally, although, admittedly, explanations and justifications have different purposes—we offer justifications to convince others (or persuade ourselves) of the truth of claims and we give explanations when we want to make a state of affairs or occurrence clear—nonetheless, these purposes are "often so intermixed that we cannot even separate one from the other". We may therefore proceed unprejudicially to both by regarding and treating them as if they were the same *sort* of reasoning.

For Thomas, then, the association of explanations with justifications has more than one rationale, and these are logically independent of one another. Let us look at each of these in turn.

Reason #1:

> We need not worry about distinguishing explanations from justifications because *suitably interpreted* explanations are a *form* of justificatory argument: *any* explanation can be turned *into* an argument in which what is to be explained will be derivable, deductively, from the explanation (along, that is, with some third statement).

This view, that the logic of explanation—whether in ordinary life or in science—is exhibited by the Hypothetico-Deductive model of scientific explanation is, of course, not new. Monroe Beardsley, in *Practical Logic*[11], put the matter in perhaps its most explicit form in one of the earliest critical thinking texts:

> ...the logic of... [explanations] is basically quite simple. When we give an explanation of something (not necessarily the *true* explanation, but *an* explanation), we must have at least three statements. (1), There is the *fact to be explained*... (2), There is the *explanation*... (3)... there is a generalization that is known to be true by previous investigation...[12]

Together, Beardsley tells us, these statements form a deductively valid argument. "This is sugar" explains the fact that the granulated white material that has spilled on the table is sweet because it can be translated into:

> All sugar is sweet (the generalization)
> This is sugar (the hypothesis or explanation)
> This is sweet (the fact to be explained)

"Thus", Beardsley concludes, "to say that one statement *explains* another is to say that the first statement (with the help of a third) logically implies the second"[13]. To say that the statement "This is sugar" *explains* the statement "This is sweet" is to say that "This is sugar" (with the help of a third statement) logicaly implies "This is sweet".

Nothing said here (or anywhere else in Beardsley's text) restricts the model of explanation put forth here to *certain types* of explanation. For Beardsley, as for Thomas, what is asserted here for scientific explanation goes for *any* explanation whatsoever. If it is wet on the outside porch and I want to know why and you tell me that it is because it is raining, that explanation too is an explanation *because* it fits the pattern of a deductively valid argument whose premises include the explanation and whose conclusion is a statement of the fact to be explained: 'When it rains it is wet. It is raining. Therefore it is wet.' On this view explanations are to be understood as harboring (implicit) justificatory, predictive, arguments and we should proceed to evaluate them accordingly.

Robert Fogelin, in *Understanding Arguments: an Introduction to Informal Logic*[14], concurs. To be sure, Fogelin tells his reader that arguments give reasons on behalf of claims while explanations answer questions about how or why something happened—and so have as their purpose the making sense of things. He also grants that there are times when we explain something simply by fitting it into a context, filling in the details so that what initially seemed unusual and requiring of an explanation no longer does so. Nonetheless, Fogelin tells his readers, when we are *not* engaging in a narrative to make something comprehensible, we explain a certain event in everday life as in science, "by deriving it from established principles and facts"[15]—a derivation that is in the form of a deductive argument.

So for Fogelin, too, it is not necessary for students to make much of the distinction between explanations and justifications; indeed, to do so is to misunderstand what an explanation *is*, and what an explanation is—when it departs from narrative—is *what it is in science,* namely, a deductive derivation.

Ought we to accept this view that 1), explanations in everyday life are in logical structure like explanations in science and 2), explanations in science are in effect, though perhaps not in expression, justifactory, predictive arguments, and that because of this 3), we should follow Thomas' advice to readers of his text that they should proceed with a critical evaluation of a discourse without worrying about whether the discourse is offered as an explanation or as a justification?

First off, we might note that appeal to the Hypothetico-Deductive model of scientific explanation (or some variation of it) as the standard to which *all* explanations must conform was explicitly repudiated by Carl Hempel, co-author of the most well-known and detailed defense of the deductive model of explanation[16]. Although Hempel wrote that

"The explanandum [the sentence describing the phenomenon to be explained] must be a *logical consequence* of the explanans [the class of those sentences which are adduced to account for the phenomenon]"[17], he cautioned that:

> To put forward the covering-law model of scientific explanation is not to deny that there are other contexts in which we speak of explanation, nor is it to assert that the corresponding uses of the word 'explain' conform to one or another of our models. Obviously, those models are not intended to reflect the various senses of 'explain' that are involved when we speak of explaining the rules of a contest, explaining the meaning of a cuneiform inscription, or of a complex legal clause or of a passage in a symbolist poem, explaining how to bake Sacher torte or how to repair a radio. Explicating the concept of scientific explanation is not the same thing as writing an entry on the word 'explain' for the *Oxford English Dictionary*.[18]

Indeed, although Hempel wrote that

> ...all adequate scientific explanations and their everday counterparts claim or presuppose at least implicitly the deductive or inductive subsumability of whatever is to be explained under general laws or theoretical principles[19]

he was careful to point out in a footnote to the above that:

> This idea needs to be sharply distinguished from another one, which I am not proposing, namely, that any empirical phenomenon can be explained by deductive or inductive subsumption under covering laws. The idea here suggested is that the logic of all *scientific* explanations is basicaly of the covering-law variety, *but not that all empirical phenomena are scientifically explainable*, and even less, of course, that they are all governed by a system of deterministic laws.[20]

What Hempel is claiming here—and rightly so—is that it is not the case that explanations of all sorts, and without qualification, may be analysed along the lines of what is taken to be the scientific paradigm. For what makes an explanation an explanation is not its "form".

John Passmore has expressed this point well by calling our attention to the very large variety of activities—both verbal and nonverbal—that count as explaining something to someone: indicating what something is for, telling what a word means (i.e., defining), giving an excuse, fitting something into a general context (say, in illuminating an obscure passage in an essay), filling in the details of a narrative, reclassifying something (for example, "Mary wasn't winking; she merely had a tick"), citing precedent, and pointing to a cause[21]. And he calls our attention to the fact that *by itself* neither the form *nor* the content of what is said may serve to indicate whether an explanation has or has not been given:

> Everything depends... on what I know and what I want to know. If I am asked by an adult human being why Jones died, it will be no explanation to reply: 'All men are mortal', for so much, it can be presumed, he knows already: that is not the unfamiliar feature of the situation that is bothering him. To a child, on the other hand, who is quite unfamiliar with the fact of death, such an answer can be an explanation, and all the explanation he needs... The schema: 'All X are Y, P is an X, therefore P is a Y' can sometimes be used to explain why P is a Y, but it can also be used to test the hypothesis that all X are Y, to prove that P is Y, to calculate that it is Y, to predict that it will be Y. How the schema is used will depend on what we know and what we want to know, and these are not formal considerations... We cannot say *a priori* that 'All American drugstores sell cigars, this is an American drugstore, therefore this drugstore sells cigars' is or is not an explanation. Addressed to a stranger it can serve to explain why the drugstore sells cigars; addressed to a travelled American, who is really wondering why any American drugstore sells cigars but may express his puzzle by a reference to a particular case, it is no explanation at all...[22]

In light of this, we may say that if we take into account the various forms of response—both verbal and nonverbal—which we make in our efforts to explain things to people, it is clear that not only may all sorts of *activities* qualify as explanations, there is, in addition, neither a singular nor purely formal model of *verbal* explanation. Authors of critical thinking texts who, along with Thomas, maintain that explanations of all sorts and to whatever purpose owe their explanatory status to their conformity with the one model that is the hallmark of a *scientific* explanation—the Hypothetico-Deductive model—are, therefore, mistaken.

It is worth noting, by the way, that the mistake made by regarding all explanations as having the same logical structure as explanations in science has led some writers to

offer as illustrations of their view sample explanations that have been so distorted to fit the covering-law model of scientific explanation that the sample explanations they offer are no longer recognizable as explanations anyone might seriously give.

To take one example, in *How to Argue: An Introduction to Logical Thinking*[23], authors Crossley and Wilson tell us that we can explain a classmate's acting in a peculiar way—being unhappy, not eating properly, losing weight, and becoming inattentive—once we have a theory or hypothesis that fits all the facts. "She is worried" is such a theory. So the situation can be analysed into the following pieces of information:

1. She is worried (our theory or hypothesis)
2. She is unhappy, does not eat properly, is losing weight, and is inattentive (the observed facts)

and finally, our disbelief that there is a link between worry, on the one hand, and unhappiness, losing weight, etc., on the other:

3. All worried people are people who are unhappy, do not eat properly, lose weight, and are inattentive

Now, putting statements 1 and 3 together as premises, we see that, true to the scientific paradigm of what an explanation is, we can derive, by means of a deductively valid argument, statement 2, which is a statement of the facts to be explained[24]:

All worried people are people who are unhappy, do not eat properly, lose weight and are inattentive
She is worried

She is unhappy, does not eat properly, is losing weight and is inattentive

Let us put aside the fact that 'being worried' is at least as observable as 'being unhappy' so it is puzzling that one is listed as a "theory" that explains behavior while the other is listed as one of its observable features. Let us put aside as well the question of whether the properties ascribed here to worried people in fact describe them, or describe all of them; and let us also put aside the fact that even were worried people *all* to behave in the ways described in this example, so do people who are undergoing religious crises, psychoanalysis, divorce, love affairs, or prolonged illness (so that "she is worried" is not uniquely explanatory, if explanatory at all).

What we cannot put aside is how this example of what it means to explain a piece of human behavior subverts any attempt we might make to get our students to think critically and deeply about explanations generally, and particularly about explanations as they apply to human conduct, intentions, desires, aspirations, and the like. To have our students believe that we have explained a piece of behavior always and only when we have subsumed it under some general law or regularity not only gives them a false representation of the myriad *kinds* of explanations that we give in everyday life, it inhibits an appreciation of the sorts of things that might be *relevant* to explaining such things as an individual being unhappy and inattentive, someone's wanting to study philosophy (or being disenchanted with it), a person's being interested in the topic of this paper (or finding it consummately boring). What explains these things has, for the most part, very little to do with what anyone might seriously call a "principle" or generalization of human behavior; it is not through conformity with the covering-law model of scientific explanation that our explanations achieve their explanatory status. Rather, as John Passmore has pointed out, "[s]cientific explanation is the peculiar thing—the odd-man-out—in the general use of explanation, peculiar in its overriding concern with what is only... from the everyday point of view, one type of explanation..."[25]

We should be careful, then, not to impoverish our students' legitimate sense of the kinds and variety of explanations we might understand and offer, and we should reject the view that we should proceed with the critical evaluation of a discourse without worrying about distinguishing explanations from justifications *on the grounds that* explanations in general are to be assimilated with explanations in science, and so with explanations that fit the Hypothetico-Deductive paradigm.

(The question of whether even all *scientific* explanations conform to this—or indeed, to *any single* model of explanation—is an important one both for Philosophy of Science and for discussions concerning the logic of ex-

planation in general. Discussion of this question, however, is beyond the scope of the present paper.)

II

I turn now to the second reason which Thomas offers for his recommendation that, in evaluating a piece of discourse, we need not be concerned with whether it is offered as an explanation or as a justification.

Reason #2:

> The offering of an explanation, like the offering of a justification, is the making of a claim for which support is offered. Since we evaluate a piece of discourse by asking whether, if the reason is true, it offers good support for the conclusion, it is indifferent whether the reason offered is meant to be explanatory or justificatory. *That* issue need not be decided in order for us to judge the quality of support offered.

First, let us note that *this* reason for regarding, and so evaluating, explanations and justifications as doing pretty much the same thing, is independent of the view that all explanations are to be viewed as conforming to the paradigm of scientific explanation.

Second, it is important to see that there is no attempt here to gainsay *all* differences between explanations and justifications, no denial that explanations and justifications may be called for and offered in different contexts and in response to different questions and perplexities. Indeed, Thomas could well agree with the difference between explanations and justifications as expressed, for example, by Edward MacKinnon, author of *Basic Reasoning*[26]: a justification is presented for the purpose of getting you to accept something as true or (in the case of a practical argument) it is presented for the purpose of getting you to do something. But reasons offered by way of explanation do neither of the above. The author of an explanation is *not* asking his or her audience to accept the conclusion—either as a claim which is true or as a legitimate basis for action. Rather, the author's concern is with the audience's *understanding* of an issue.[27]

Third, although the difference between explanation and justification which MacKinnon calls our attention to here is not denied by Thomas, Beardsley, *et al.*, it is, however, the very difference which is appealed to by writers of critical thinking texts who, in contrast to Thomas, argue that it *is* important to tell which discourses are explanatory and which are justificatory (even if it is sometimes difficult to tell, in particular cases, which is which), and that a discourse being explanatory rather than justificatory *makes* a difference in how we should analyse and critically assess it.

What we are faced with, then, is a dispute not about whether there is a *distinction* between explanations and justifications: a distinction between them is maintained not only by those who, along with MacKinnon, Copi, Govier, Scriven, and Johnson and Blair, hold that we *should* analyze explanations and justifications differently, but also by those who claim that—at least for purposes of critical examination and evaluation—explanations are NO different from justifications. What, then, is the point of contention? It is whether the (admitted) distinction between explanations and justifications *provides a reason for treating them differently*. For Copi, Scriven, Govier, *et al.*, it does; for Thomas, Beardsley, and those who share their views, it does not. It is beside the point to argue against holders of this latter position that there *is* a difference between explanations and arguments, for their position does not deny this point. It is only *the difference these differences make* which it calls into question.

Thus, though the lines of the distinction between explanation and justification find consensus, there is no like agreement about how to characterize the nature and import of the distinction. Copi, in *Informal Logic*[28], Scriven, in *Reasoning*[29], and Johnson and Blair, in *Logical Self-Defense*[30], all call the differences between explanation and justification "conceptual" though they are the very same differences that Beardsley[31], Fogelin[32] and Thomas[33], regard merely as "pragmatic". These different assessments of the difference between explanations on the one hand and justifications on the other account for the difference between what Thomas is able to tell the readers of his text, namely, that in applying the methods of natural logic,

> we will not need to worry about the problem of distinguishing between justifications and explanations, or the problem of trying to decide whether a given reasoned discourse is a justification or a nonjustificatory explanation... [because the methods apply indiscriminately to both][34].

and what Copi advises the readers of his:

> Recognition [of whether a discourse is a justificatory argument or an explanation] and analysis of arguments go hand in hand. Unless it is at least suspected that an argument [rather than an explanation] is present, there is no motivation to apply the method of analysis and to construct a diagram[35].

The disagreement here between Copi and Thomas as to whether the difference between justifications and explanations are such as to warrant the application of different criteria of assessment cannot, of course, be resolved by calling the differences either "conceptual" or "pragmatic". For describing the distinction one way or the other merely short-circuits what is at issue. It merely answers the question of whether explanations are or are not to be construed as justifications by characterizing their differences in such a way as to rule the construal in or out on logical, *but still undefined grounds*. Whether there is a conceptual as well as a pragmatic difference between explanations and arguments is the very point that is in dispute.

Let us try, then, to gain some understanding of the nature of the (purported) difference between explanations and justificatory arguments by examining whether or not it is true, as Thomas claims it is, that with respect to any given piece of discourse, it is indifferent to our critical assessment of it whether we view it—and so treat it—as a justification or as an explanation.

Let us begin with one of Thomas' own examples: "Everybody has needs. You don't fill mine. So I'm splittin'."

If we view the above as an explanation, then it will not be in question that the author is splitting. It will be taken for granted that the conclusion is true and the premises will be understood as being offered to make the author's intention to split *understandable*. But if the piece of discourse is a justification then it *is* the truth of the author's claim and not the intelligibility of her action that must be shown. Now, is it indifferent which the author is doing—offering the premises as reasons why it is true (or at least likely) that she is splitting or offering them to make her splitting clear to you? Thomas says "yes": whether we are justifying or explaining we are putting forth a claim supported by reasons—reasons for the truth of the claim that one is splitting if one is justifying, or reasons *why it makes sense* for one to split, if one is explaining. In either case reasons are given in support of the conclusion, and whether the reasons actually do support the conclusion can be determined independent of *why* the author offers them.

Thomas is, however, wrong in this. If the author of the above discourse is *explaining* the conclusion—say, you see that she is leaving and you ask why, and she replies "Well, everyone has needs and you don't fulfill mine. That why"—*that* she's leaving is not in dispute. Indeed, it must be *presumed* that she is leaving for her explanation of the fact that she is leaving to make any sense at all. But if the author of the discourse is trying to *prove* that she is splitting—say, she has said time and time again throughout the course of the relationship that she is leaving and at this point you just don't believe she'll really ever do it—what she is trying to show you is that *it is true* that she is leaving, and here for the discourse to have any point you must believe that she is *not* leaving (or at least have serious doubts about it). So, if you know that the author of the above discourse *is not* leaving, an explanation of *why* she is leaving would not make any sense; if you know that she *is* leaving, a *proof* that she is leaving is beside the point.

Now, saying either that an argument is beside the point—given certain background knowledge, or else that the argument fails to make sense—again, given background assumptions, is to make an evaluation of its success. But since the background assumptions of explanations are different from those that underlie justifications—and about this there is no disagreement among Critical Thinking writers, Thomas included—and since it is the particular background assumptions of a discourse which, in part, determine our evaluation of its success, our evaluation

of a discourse will depend on and NOT be indifferent to whether we view the discourse as explanation or as a justification.

Another way to bring home the point that whether a discourse is a justificatory argument or an explanatory one does indeed make a difference to our critical assessment of it is to see what happens when we apply Thomas' own test for determining degree of support to the example we have been looking at.

Thomas' test for determining degree of support in a piece of reasoned discourse is: "IF the statement(s) given as reason(s) were true, then they would guarantee, or at least make extremely likely, the truth of the conclusion."[36]. Now, assuming the discourse "Everybody has needs. You don't fill mine. So I'm splittin'" is a justificatory argument, do the premises either guarantee or make the conclusion "extremely likely"? The answer is: No. For we all know that human beings are pretty much unwilling to dissolve relationships despite not having their needs met. So, as an attempt to *establish* the conclusion, the best rating this argument could receive is "weak" or "moderate". However, if the truth of the statement "I'm splittin' is *not* in question, and the premises are offered as an *explanation* of it, then the argument qualifies for a rating of "acceptable" or "good" because despite the fact that, as a general rule, we don't readily dissolve relationships for the reason given here, in any particular case, the failure to have one's needs met *may* in fact be the operative reason for one's calling it quits.

With respect to the discourse we are looking at, then, viewing the argument as an explanation rather than as a justification allows a more favorable assessment of it. The principle of charity, therefore, would dictate that we view, and for purposes of critical evaluation, treat, the above discourse as an "explanation" rather than as a "justificatory argument". But, clearly, to be in a position to make this interpretative choice, we must, of course, *make* the distinction between the two.

The point made here is, perhaps, more obviously made by the following examples: Suppose I have 4 blouses in my clothes closet, each of a different color, say, blue, red, white, and green. You see me wearing the white one and you ask why it is the *white* blouse I am wearing. I reply "I have only four and I am indifferent with respect to which one I wear. I pulled one out at random." What I have said to you is a good explanation for why I am wearing what I am—at least as good as any explanation that *can* be given, given the facts.[37] But look what happens if we treat what I have told you as a justificatory argument, i.e., as a *proof* that I am wearing a white blouse.

> I have 4 blouses hanging in my closet, each of a different color—blue, red, white, and green. Indifferently, I pulled one out at random.
>
> ---
>
> I am wearing a white blouse.

As a justificatory argument, the premises do not support the conclusion for they do not make the conclusion "either true or extremely likely". All the premises do here is rule the conclusion in as one of four possibilities. But that a conclusion is shown to be *possibly* true—or even to be true with a probability of one in four—is not sufficient to render the argument a good one.

Or consider this example: Suppose you ask why my brother has become a priest and I answer that when he was growing up he went to Catholic school, found great pleasure and comfort in reading the Bible, and had a warm and loving relationship with many of the priests whom he knew.

What I have told you about my brother's background constitutes a fairly good explanation of the course he has taken in life. But look at what happens to our evaluation of the argument if what I have told you is offered not as an explanation of my brother's having become a priest but as a proof, i.e., as reasons which show it to be "either true or extremely likely" that he did.

> My brother attended Catholic school, took pleasure and comfort in reading the Bible, and had warm and loving relationships with the priests he knew.
>
> ---
>
> My brother became a priest.

As a justificatory argument, what I have said to you is no good at all, because my description of my brother's past doesn't show it to be either true or likely that he became

a priest.[38]

What this shows is that our criteria for what constitutes good reasoning is relative to and not independent of whether we are trying to show a claim *to be true* and so are dealing with a justificatory argument, or trying to show *how it came to be true* and so are dealing with an explanation.

III

The difference between explanations and justifications may be illustrated in yet another way, this time with an example suggested by John Nolt's discussion of how we should interpret justificatory arguments and explanations.[39]

Starting from his claim that "Intention to give evidence is always the criterion by which we distinguish arguments from nonarguments" Nolt argues that, often, interpreting explanations as if they were justifications will render the discourse, by any standard of charity, so flawed that it would be a disservice to the author of the discourse to do so. Take a look at the following discourse, which is a justificatory argument that has an explanation as one of its premises.

> There has been a resurgence of German measles lately, because parents have become more lax about having their children vaccinated. Therefore, the incidence of measles can be reduced by making sure that children get their vaccinations.[40]

In this discourse, the *entire* first sentence, which is itself an explanation, is given as the reason to accept the conclusion as true. (The premise is an explanation because the second half—the part following 'because'—explains *why* the first half is true.) So understood, the argument seems to be a strong one. But if we take Thomas' advice and regard statements of the form "X because Y" indifferently as to whether they are claims for which justificatory reasons are given or claims for which explanations are given, then the first statement of this argument may be interpreted as itself a statement of an inference with the result that the above discourse emerges as the following:

1. Parents have become more lax about having their children vaccinated.

Therefore,

2. There has been a resurgence of German measles lately.

Therefore,

3. The incidence of measles can be reduced by making sure that children get their vaccinations.

But this rendering of the discourse not only distorts the author's initial claim, it makes the entire argument weak, for neither the inference from 1 to 2, nor the inference from 2 to 3 is a good one. As Nolt points out, "The fact that *parents* are becoming more lax does not even make it probable that there has been a resurgence of measles" and "[g]iven only that there has been a resurgence of German measles, we can conclude nothing about what will stop it."[41]

Thus, it makes a difference whether we take the "because" of the first statement as heralding an explanation or as heralding a justification. The former leaves us with a discourse in which the premise supports the conclusion; the latter leaves us with an interpretation of the discourse in which the conclusion is *un*supported.

Once again, it becomes clear that we cannot follow the advice to regard a discourse indifferently with respect to whether or not it is offered as a justification or as an explanation. Not only *is* there a difference between explanation and justification, but, as well, in critically assessing a discourse, the distinction between them is an important distinction to make.

IV

Let me end by noting that although I have argued here for our noting (and teaching our students to note) the difference between justificatory arguments and explanations, we should bear in mind that determining whether a given discourse is an explanation or a justification is not always an easy thing to do. This is so for the following reasons:

1) Sometimes the very same facts that prove a claim true, explain it as well and so, at least on occasion, we might be justifying and explaining in the same breath;

2) Explanations can be part of arguments, and arguments part of explanations;

3) Many of the words which indicate arguments, words such as 'because', 'so', 'therefore' and 'for the reason that', indicate explanations as well, so the difference between an explanation and a justification may not be susceptible to mechanical recognition;

4) Whether an author intends to prove her conclusion true, or to explain it, is not *always* on the face of what is said, nor is it even always just beneath the surface. Sometimes, only the context in which the argument is given—what we can assume about the author herself, who we can assume is the intended audience, what we can assume the author believes to be true about the audience's beliefs, and so on—will determine whether the author is trying to get the audience to accept a certain fact, and so if offering a justification of what she claims, or, having granted the acceptance of her claim by the audience, is concerned to get the audience to understand it, and so is offering them an explanation of it. Our knowing whether an author's purpose is acceptance or understanding, then, is something that depends on what else we know.

However, despite the difficulty we may have in determining whether a given piece of reasoning is an explanation or a justificatory argument, and even despite the fact that for some claims, the same premises may serve both as proofs for and as explanations of the conclusion, it remains true that what we require of explanations on the one hand and justificatory arguments on the other so that they be judged *good* pieces of reasoning depends on and is not indifferent to whether or not a particular piece of discourse *is* one or the other.

Notes

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[1] Englewood Cliffs, N.J.: Prentice Hall, Inc., 1986.

[2] 3rd edition, Englewood Cliffs, N.J.: Prentice Hall, Inc. 1952, pp. 382, 383.

[3] Englewood Cliffs, N.J.: Prentice Hall, 1950.

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[6] Toronto: McGraw-Hill Ryerson, 1977. 2nd ed. 1983.

[7] Belmont, CA: Wadsworth Publishing Company, 1985.

[8] New York: McGraw-Hill Book Company, 1984.

[9] Thomas, *op. cit.*

[10] *Ibid.*, p. 15.

[11] Englewood Cliffs, N.J.: Prentice-Hall, 1950.

[12] *Ibid.*, p. 219.

[13] *Ibid.*

[14] New York: Harcourt Brace Jovanovich, 1978. 3rd ed., 1987.

[15] *Ibid.*, p. 111.

[16] "Studies in the Logic of Explanation", *Philosophy of Science*, Vol. 15 (1948), pp. 135-175. Reprinted in *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science*, New York: The Free Press, 1965.

[17] *Ibid.*, p. 247.

[18] "Aspects of Scientific Explanation", *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science, op. cit.*, p. 413.

[19] *Ibid.*, p. 425.

[20] *Ibid.* (emphasis added).

[21] "Explanations in Everyday Life, in Science, and in History", *History and Theory: Studies in the Philosophy of History*, Vol. II, No. 2, 1962, pp. 106-7.

[33] *Ibid.*, pp. 108-9.

[23] New York: Random House, 1979.

[24] *Ibid.*, p. 113.

[25] Passmore, *op. cit.*, p. 122.

[26] Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1985.

[27] *Ibid.*, p. 13.

[28] New York: Macmillan, 1986.

[29] New York: McGraw-Hill, 1976.

[30] Toronto: McGraw-Hill Ryerson, 1977. 2nd ed. 1983.

[31] *Practical Logic,* Englewood Cliffs, N.J.: Prentice-Hall, 1950.

[32] *Understanding Arguments: An Introduction to Informal Logic,* New York: Harcourt Brace Jovanovich, 3rd ed. 1987.

[33] *Practical Reasoning in Natural Language*, 3rd ed., Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1986.

[34] *Ibid.*, p. 15.

[35] *Informal Logic, op. cit.*, p. 36.

[36] *Practical Reasoning in Natural Language, op. cit.*, p. 112.

[37] This example raises the question of whether statements to the effect that a state of affairs has come about unintentionally, or by accident, are indeed "explanations" of those events. I shall not enter into this issue except to say that in response to the request that we explain why an event occurred, it is often (though of course not always) the case that our indicating that it came about "by accident" or "by chance" is taken as a sufficient explanation of it.

[38] This example was suggested to me by Richard Hogan.

[39] *Informal Logic: Possible Worlds and Imagination*, New York: McGraw-Hill, Inc. 1984.

[40] *Ibid.*, p. 29.

[41] *Ibid.*

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