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ARGUMENT STRUCTURE

Representation and Theory

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*For my colleagues in Informal Logic and
Argumentation Theory in Gratitude for
Many Years of Collaboration*

Preface

These papers are a product of reflections on argument structure which I have engaged in, on and off, for thirty years. By “structure” here I mean “macrostructure” as defined in *Dialectics and the Macrostructure of Arguments* (1991). We are concerned here with how the various statements (and perhaps other elements such as modalities and rebuttals) constituting an argument may fit together, rather than whether a given argument instances some inference rule or pattern, such as *Modus ponens*, Syllogism in Barbara, or Statistical Syllogism. I first encountered this sense of structure in Monroe C. Beardsley’s *Thinking Straight* (1974, originally published as *Practical Logic* (1950)). It struck me immediately that Beardsley’s diagramming procedure should be a keystone of any informal logic course. How can one properly evaluate an argument unless one sees what supports what in that argument?

Thomas’ refinement of Beardsley’s procedure in *Practical Reasoning in Natural Language* (1986, first edition 1973) introduced distinguishing linked from convergent argument structure—a distinction which has proved both intuitively appealing and vexingly problematic ever since. I believe that although Thomas has identified an important distinction, he has not drawn it the right way. Substantiating this claim and presenting, motivating, and defending a constructive alternative which I believe draws the distinction in the right way has been an ongoing process which has continued from my first encountering the distinction through composing the three concluding essays for this collection. Thomas gets into difficulties, as I see it, when he speaks of the logical combination of two or more premises. The problem is that there are two senses of “logical combination” or “needing the others to support the conclusion” and Thomas’ specific examples of a deductive hypothetical syllogism, an inductive statistical generalization, and an abductive inference to best explanation conflate them. Speaking very intuitively or metaphorically for the present, one way in which premises logically combine is to “pool their weight.” Each premise may give some reason for the conclusion, but their combined weight constitutes a stronger case. We call this modal combination. Thomas’ example of a statistical generalization illustrates this sense:

- (1) After eating chocolate bar # 1 my face broke out.
- (2) After eating chocolate bar # 2 my face broke out.
- ⋮
- (N) After eating chocolate bar # N my face broke out. Therefore
- (C) Always, after eating a chocolate bar, my face breaks out.

(Thomas 1986, 59) Obviously, this argument illustrates modal combination. Intuitively, the higher the value of N, the stronger the argument. Although, conceding that each premise “provides a little support for the conclusion,” Thomas holds we should count this argument as linked because “the strength of support is much greater when the instances are considered in union together, and each reason needs the truth of the others in order for the conclusion to be supported” (Thomas 1986, 59). Thomas’ argument illustrating inference to best explanation,

- (1) His swimming suit is wet.
- (2) His hair is plastered down. Therefore
- (C) He’s been swimming.

(Thomas 1986, 59) again gives an instance of modal combination. Certainly, given both premises, we should be more confident of our conclusion than if we had just either premise alone, although each premise, by itself, gives some evidence.

By contrast, premises which taken individually do not constitute even relevant reasons for a conclusion, when taken in combination may constitute one obviously relevant reason. This is relevance combination. If one were given only one premise of Thomas’ illustration of a hypothetical syllogism:

- (1) If marijuana were legalized, then it could be commercially processed and made available in a form that did not need to be smoked.
- (2) If marijuana could be commercially processed and made available in a form that did not need to be smoked, then it could be made safer for people’s health.
Therefore
- (C) If marijuana were legalized, then it could be made safer for people’s health.

(Thomas 1986, 58) and one were totally unaware of the connection stated in the omitted premise, one would not see why the stated premise was intuitively relevant to the conclusion. Together they constitute a deductively strong reason for it. I hold that premises involving relevance combination are linked, while premises involving modal combination are convergent. Thomas in general would count both as linked, thus conflating relevance and modal combination.

For Thomas, in convergent arguments the premises involve no logical combination, but “each reason supports the conclusion completely separately and independently of the other” (Thomas 1986, 60) For example, the argument

① <Martina has good scholastic aptitude.> ② <She is highly motivated.> Therefore ③ <she will do well academically in college.>

would be deemed convergent. But are the premises completely independent? On relevance considerations they are. But the two premises together give a stronger case for the conclusion than either by itself. In the argument they combine modally. Without distinguishing relevance and modal combination, both the Martina argument and the argument about chocolate bars appear both linked and convergent. Since relevance and modality are distinct issues, and premises can instance either modal or relevance combination, one should keep these two ways of combination distinct in an account of argument structure. Arguments are linked when premises combine on relevance considerations. They are convergent when the premises may combine on modal grounds.¹

Developing a system for diagrammatically representing argument structure adequately, which may reflect the modal/relevance distinction, is facilitated by incorporating some elements of the Toulmin model into Thomas’ approach to constructing diagrams, which we call the standard approach.² Specifically, we must add the representation of modal qualifiers to our diagramming system. Certainly in an argument

P₁
 P₂
 ⋮
 P_n Therefore
 Probably C

¹In distinguishing modal and relevance combination, I have been motivated by a difference Anderson and Belnap (1962) draw between two reasons why it is wrong to read “ $B \rightarrow A$ ” as “ B entails A ,” when “ $A \rightarrow (B \rightarrow A)$ ” is a theorem characterizing “ \rightarrow .” First, there is a problem with necessity. An entailment is supposed to be necessarily true, not contingent or dependent upon any contingent matter of fact. Suppose “ A ” is a contingent statement. Then “ $A \rightarrow (B \rightarrow A)$ ” apparently asserts that the necessary statement “ $B \rightarrow A$ ” follows from the contingent statement “ A .” Anderson and Belnap further press that “If A should be a true contingent proposition, then $B \rightarrow A$ is also contingently true, and an entailment is established because of an accident of nature” (1962, 30). “ $B \rightarrow A$ ” thus fails as an analysis of entailment on grounds of necessity. But necessity, and thus entailment, are modal notions. Anderson and Belnap develop that relevance is a distinct issue from necessity (and hence modality). “ $B \rightarrow A$ ” can be deficient as an analysis of entailment on grounds of relevance, as well as necessity. If “ $A \rightarrow (B \rightarrow A)$ ” is a theorem where “ \rightarrow ” is an alleged analysis of entailment, and “ A ” is a true statement (even if not contingent), then “ $B \rightarrow A$ ” is true, even if there is no intuitive connection of meaning between “ B ” and “ A ”. But

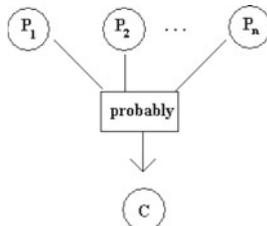
That Hilary Clinton was the first woman to serve as President of the United States entails that for any sets $A, B, A \cap B = B \cap A$

is simply false.

²We present the standard approach in [section 2](#) and the Toulmin model in [section 3](#) of [Chapter 1](#), before indicating a way to integrate them in [section 4](#).

“probably” could be construed as making a claim about how strongly P_1, P_2, \dots, P_n jointly support C , about the strength of the argument overall, although Toulmin counts modal qualifiers as modifying the conclusions of arguments. If each of P_1, P_2, \dots, P_n are independently relevant to C , separate lines could proceed from the representation of each premise to the representation of the modality and a single arrow from that representation to C (See Fig. 1).

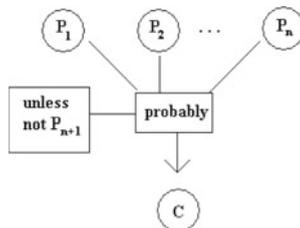
Fig. 1



This is appropriate, since we are understanding the modality as making a claim about the combined weight of the premises, i.e. about the weight of their modal combination.

Toulmin’s layout gives us a further way of representing Thomas’ intuitions over linked versus convergent reasoning without conflating relevance and modal linkage. Concerning the statistical generalization argument, Thomas points out quite rightly that “If no outbreak followed eating a chocolate bar in some instances, then the support given the conclusion by the other positive instances would be greatly reduced” (Thomas 1986, 59), and he offers this as a further reason for seeing the premises as linked, not distinguishing modal from relevance linkage. Now suppose that after eating N chocolate bars, my face broke out but upon eating bar $N+1$, I suffered no adverse consequences. Instance $N+1$ would function as a rebutting defeater and Toulmin gives us a way of representing rebuttals in arguments. We may still see each instance as constituting separate evidence for the conclusion but the defeaters as undercutting their combined force, to be represented by some modality. Letting “ P_i ” represent “After eating chocolate bar # i my face broke out,” Fig. 2 then represents both modal combination of the n premises and the defeating character of the information about instance $n + 1$.

Fig. 2



Besides distinguishing linked and convergent structures, Thomas also identified serial structure.³ It struck me that there was a close connection between the serial/linked/convergent distinction and the three ARG criteria formulated by Govier and others, and which I see deriving from Johnson and Blair's identification in the first edition of *Logical Self-Defense* (1977) of irrelevant reason, hasty conclusion, and problematic premise as the three basic fallacies. To be cogent, arguments must avoid all three. Their premises then will be relevant, their conclusions will be grounded adequately by the premises and thus not hasty, and those premises will be acceptable, not problematic. Should a proponent defend some claim by giving a reason for it, a challenger could question why she should accept that reason, why it was relevant to the claim the proponent alleges it supports, or whether the proponent could supplement his argument with some further reason. Thinking of the proponent's answer as extending his argument, the resulting argument will have a different structure depending on which question he answered. Giving a reason for accepting the original reason produces an argument with serial structure. Adding a relevance explaining premise yields an argument with linked structure, while mooted one or more additional reasons produces an argument with convergent structure.

We can go further. Should the proponent have presented his case for some claim (not necessarily consisting of just one reason) and used a modality to indicate how strongly, in his opinion, the premises supported the conclusion, the challenger, aware of various defeating conditions, could ask him why he is so sure. At the core, then, of argument structure and motivating four different structural considerations are four simple questions:

1. Why should I accept that premise?
2. Why is that premise relevant to the claim?
3. Can you give me an additional reason?
4. How can you be so sure?

Seeing different argument structures motivated by these different questions lets us make contact with another theoretical stream feeding informal logic and argumentation theory—pragma-dialectics, given perhaps its first comprehensive statement in van Eemeren and Grootendorst's *Speech Acts in Argumentative Discussions* (1984).⁴ Van Eemeren and Grootendorst see argument as fundamentally dialectical. A proponent puts forward and defends a claim to a challenger, who responds by asking critical questions. This critical exchange is the basic form of argument. In the first edition of my text *Thinking Logically* (1988), I put forward an intuitive

³Thomas identifies one further structure, divergent, where one premise supports two (or more) distinct conclusions. To evaluate such arguments, we evaluate the inference from the premise to each conclusion separately, as if we were evaluating distinct arguments. Hence, we may set divergent structure aside as not theoretically interesting. We characterize all four of Thomas' basic argument structures in [Chapter 1, Section 2](#).

⁴See especially pp. 15–18.

synthesis of Thomas' standard approach, as I believe it should be corrected, and elements from Toulmin's model, motivated by the notion of a dialectical exchange. In *Dialectics and the Macrostructure of Arguments* (1991), I presented a white paper, i.e. an extended argument, attempting to justify this approach through a dialectical theory of argument structure, providing a rationale for my understanding of argument structure and its diagrammatic representation. In [Chapter 1](#) of these papers, after contrasting the standard approach with Toulmin's model, I present the synthesis as developed in both (1988) and (1991). I also contrast the integrated approach with Wigmore's Chart Method, which Goodwin (2000) has recognized as another approach to representing argument structure and Pollock's method of inference graphs.

In his critical study (1992a) of *Dialectics and the Macrostructure of Arguments*, Alec Fisher found three discussions of especial value besides the contrast of Toulmin's model with the standard view. The first is the positive dialectical theory presented in the book. That discussion was included in [Chapter 2](#) of (1991) and is included in [Chapter 2](#) here. Although I have found much in the Toulmin model which is central to understanding argument structure and argumentation in general, I have found Toulmin's presentation in (1958) problematic at points, especially his discussion of warrants, in a way which leads to a confusing misinterpretation of how his model should be understood. Hence, although I have incorporated both modalities and rebuttals into my approach to argument diagraming, I have rejected Toulmin's distinction of data, warrants, and backing as appropriate for analyzing arguments as products—that is arguments laid out for analysis and evaluation. My reasons why were included in [Chapter 3](#) of (1991) and constitute [Chapter 3](#) here. This is the second discussion Fisher finds of special value. Besides discussing Toulmin, in [Chapter 3](#) I also examine the positions of certain philosophers who may be the intellectual ancestors of his views on warrants—Ryle and Mill. Finally, we have already noted that the linked-convergent distinction has proved problematic. That feature was recognized by the time (1988) and (1991) were written. I presented the approach sketched above to the problem of making the distinction in [Chapter 4](#) of (1991). This is the third discussion Fisher finds especially valuable and is included in [Chapter 4](#) here.

The 1990s saw publication of two further monographs on argument structure, Snoeck Henkemans' *Analysing Complex Argumentation* (1992) and Douglas Walton's *Argument Structure: A Pragmatic Theory* (1996). Both raise critical questions for my approach. In particular, Snoeck Henkemans presents a distinction between multiple and co-ordinatively compound argumentation which she regards as parallel with the convergent-linked distinction. But she finds no discussion of multiple argumentation in my account. I believe that this criticism and some of Snoeck Henkemans' other criticisms reflect that she and I are approaching the phenomenon of argumentation from different disciplinary perspectives—she from dialectic while I from logic (together with epistemology). I developed this response in "Argument Structure and Disciplinary Perspective" (2001) and include the relevant discussion in [Chapter 5](#) here. In particular, I do not read the multiple-co-ordinatively compound distinction and the linked-convergent distinction as the

same. The concept of multiple argumentation is central for the dialectical analysis of argumentation, but it plays no role in logical analysis. In [Chapter 5](#), I also respond to Snoeck Henkemans' analysis of modalities, rebuttals and more generally defeaters and counter-defeaters in (1992), again contrasting how our differing approaches reflect our different disciplinary perspectives.

In (2001), we related drawing the multiple-co-ordinatively compound distinction and the linked-convergent distinction, considered as two different pairs of distinctions, to the problem of resolving conflicts over how the linked-convergent distinction should be drawn, critically examining a number of proposals for making the distinction, including those appearing in various texts which Walton systematized in (1996). There Walton raises a critical issue over my use of relevance in drawing the linked-convergent distinction. I accept the criticism. The concept of relevance is an intuitive notion but, I hold, not a simple or unanalyzable concept. To do the work of distinguishing linked from convergent structure, we should present that analysis. A first formulation appears in (2001). Although I still agree with the overall approach of that analysis, I believe that my account of how it should be applied to mark the linked-convergent distinction needs to be corrected. In [Chapter 6](#) I present the corrected definition of relevance and relate it specifically to drawing the linked-convergent distinction.

Interestingly, Thomas gives us a clue for the characterization of linked structure by saying that his diagramming method was based on the work of several authors, in particular Gerhard Gentzen. We use Gentzen's discussion of the inference rule Cut to explicate the notion of a mediating element, which gives us the key to identifying arguments with linked structure. Given this criterion, we proceed to criticize the systematically presented tests Walton considers in (1996) for trying to do a syntactic job with semantic tools. We also consider a number of recent proposals and critiques concerning the linked-convergent distinction. These include Blair and Pinto's proposal that we need to distinguish complementary arguments as a third type of structure beside linked and convergent, and Vorobej's proposal concerning hybrid arguments. We defend our assumption that analysis precedes evaluation, which Gratton has questioned, and reply to direct challenges to our relevance test for linked structure. We also reply to G.C. Goddu's skeptical arguments against making the distinction. Our discussion has benefitted from correspondence with Professor Goddu, which we acknowledge with thanks.

In replying to Goddu, we acknowledge that a complete answer presupposes an account of enthymemes. In (1996), Walton identifies the feature that arguments may have unstated premises or conclusions as posing a major problem in argument diagramming. Accordingly we turn our attention to enthymemes in [Chapter 7](#), applying insights of David Hitchcock to construct our approach. The issue of enthymemes stands at the border between argument analysis and evaluation. The transition to argument evaluation raises further questions, three of which we address in [Chapter 8](#). Further purely evaluative issues we leave for another day.

Origins of the Chapters

The first three sections of [Chapter 1](#), together with the last section, were originally prepared for a chapter, “Argument Structure,” to appear in one volume of a proposed *Handbook on Practical Logic*. I wish to thank Prof. Francisca Sneock Henkemans for much useful advice in acting as referee for this chapter. The fourth and fifth sections, together with the appendices on Wigmore and Pollock, were prepared especially for this volume.

The first five sections of [Chapter 2](#) are a slightly revised version of Section 2.1, “The Dialectical Nature of Argument,” in *Dialectics and the Macrostructure of Arguments* (Berlin and New York: Foris Publications, a Division of Walter de Gruyter & Co., 1991). The last section of the chapter, my reply to Finocchiaro, has been added for this collection. [Chapter 3](#) is a revised version of Section 3.2 of *Dialectics and the Macrostructure of Arguments*. [Chapter 4](#) presents material from Section 4.4 again from *Dialectics and the Macrostructure of Arguments*, supplemented with material from Section 1.4 and from Section 6.5. We hereby thank Walter de Gruyter and Company for their permission to use this material.

The material in the first three sections of [Chapter 5](#) is substantially included in “Argument Structure and Disciplinary Perspective” (*Argumentation* 15, 397–423, 2001), with some minor editorial revision. We hereby thank *Argumentation* for the use of this material. The fourth section of [Chapter 5](#) is largely new with this volume.

[Section 6.1](#) contains further material from “Argument Structure and Disciplinary Perspective,” first on defining relevance with respect to inference rules. As in (2001), we then indicate how this bears on drawing the linked-convergent distinction, presenting a refined account. [Section 6.2](#) discusses themes also discussed in the *Argumentation* article. We thank *Argumentation* for allowing us to use this material also. [Sections 6.3](#) and [6.4](#) are new. [Chapter 7](#) and [8](#) are completely new to this volume.

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Chapter 1

An Approach to Argument Macrostructure

1.1 Introduction—Some Basic Preliminaries

In discussing argument structure in the context of argumentation, one must begin by stressing the distinction, already noted in the Preface, between argument microstructure and argument macrostructure. By the *microstructure* of an argument, we mean its logical form as studied in deductive or inductive logic. Specifically in formal deductive logic, microstructural analysis reveals how the constituent statements of an argument are built up from simple or atomic components by means of truth-functional connectives, quantifiers, and in some cases other operators such as adverbial modifiers and modal or propositional attitude connectives. In inductive logic, microstructural analysis may classify an argument as instancing inductive enumeration, argument by analogy, or one of Mill's methods. Microstructural analysis thus concerns the internal structure of the constituent statements of an argument. By contrast, the *macrostructure* of an argument concerns how its component statements (together perhaps with other elements) fit together as wholes to allegedly lend support to some claim or claims. Which statements are put forward to support which other statements in the course of an argument and how, if at all, are those claims of support qualified? For example, consider this argument from St. Thomas Aquinas, appearing in *Summa Contra Gentiles*:

① <Wealth is not sought except for the sake of something else,> because ② <of itself, it brings us no good, but only when we use it, whether for the support of the body or from some similar purpose.> Now ③ <the highest good is sought for its own, and not for another's sake.> Therefore ④ <wealth is not man's highest good.>

In this argument involving four constituent statements, the second is put forward as a reason for the first. The first and third together constitute a reason for the fourth. These are macrostructural features of this argument. The two main approaches to argumentation that involve discussion of argument structure, informal logic and pragma-dialectics, are concerned with macrostructure as opposed to microstructure. How is a consideration of macrostructure relevant to the issue of argumentation? Consider this question from the point of view of the informal logic approach.

The aim of informal logic is to develop tools for analyzing and evaluating arguments in general, including arguments that may appear in everyday life, in the

discussion of the moral, social, cultural issues of the day—the arguments of the *polis*. As we saw in the Preface, informal logic is concerned with premise acceptability and connection adequacy. Clearly, asking these questions properly presupposes macrostructural analysis. How can we determine which premises of an argument are acceptable unless we can recognize which constituent statements of the argument function as premises, e.g. the first three statements in the above argument? How can we judge whether premises provide adequate support for a conclusion unless we can recognize which premises are put forward to support which conclusions? In an argument of any complexity, questions about macrostructure will not be trivial. Even our relatively simple example constitutes an argument with two premise-conclusion connections. Structurally, the argument can be analyzed into two subarguments. The adequacy of each subargument constitutes a distinct question. But we cannot address ourselves to either of these questions unless we can recognize which statements go to constitute which premise-conclusion connections. Furthermore, we cannot assess the overall cogency of the argumentation, how the merits or flaws of the two subarguments constitute merits or flaws in the argument itself, without reference to macrostructural features. The conclusion of the second subargument is the main conclusion or standpoint of the overall argument. If each of the premises in the subargument directly supporting this final conclusion are acceptable in themselves and without further argumentation and together they constitute adequate support for the conclusion, then that conclusion is properly supported. But one of these premises is itself an intermediate conclusion, argued for. Now if the premise were acceptable in itself, this further argumentation would not be necessary, at least from a logical point of view. If the argumentation for this premise as intermediate conclusion were fallacious, the overall argument would be flawed even though the second subargument constitutes a cogent case for the conclusion. It would be better if the first subargument for the intermediate conclusion were not there. On the other hand, if the intermediate conclusion were not acceptable in itself, if it required argumentation to establish its acceptability, then a flaw in the argument for it would show that the entire argument is flawed in establishing its main point. Alternatively, the cogency of the first subargument for the intermediate conclusion together with the cogency of the second subargument for the final conclusion might well show the cogency of the overall argument. We could not make any of these judgments without discerning the macrostructure of the argument.

What may we say of St. Thomas' argument? Statement (2) is straightforwardly acceptable. Wealth is valued for its current and future buying power. Statement (3), the other basic premise, is either part of or a straightforward consequence of the definition of the highest good. What about statement (1)? Is (1) empirical or normative? If St. Thomas is making a claim about human wealth acquisition behavior, his statement could be easily counterexamples, for many people hoard wealth. But in the context of this passage, would it be wrong to interpret (1) as saying that wealth is not *properly* sought for its own sake? So interpreted, statement (2) gives us a good reason for accepting statement (1). (1) and (3) constitute a reason for (4), and statement (3) may likewise be read as a normative statement. (1) and (3) together

deductively entail (4). Recognizing macrostructure directed our evaluation, letting us see straightforwardly that the argument is cogent.

To be able to analyze arguments structurally, we must have some account of argument structure. What are the ways in which the elements which constitute an argument may combine to form the overall argument? Into what structural patterns may they enter? From before the beginning of the informal logic movement, we may identify two radically distinct accounts of argument structure in the literature: the standard approach and Toulmin's model. In the next two sections of this chapter, I shall survey these two approaches. I shall then discuss how certain questions, which I call the basic dialectical questions, motivate different structures in the standard approach and how an additional question may motivate introduction of some elements in the Toulmin model into an extension of that approach, indicating how Toulmin's model may give us insight into understanding certain issues.

1.2 The Standard Approach

By the standard approach we mean the system of representing argument macrostructure by diagrams where the component statements of an argument are represented primarily by encircled numbers, and logical support is represented by arrows. Consider Descartes' classic argument

“① <I think,> therefore ② <I am.>,”

which (See Fig. 1.1) we may diagram as

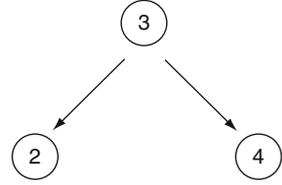
Fig. 1.1



This diagram represents the simplest structure an argument may have. In any argument, there must be at least one premise and at least one conclusion. Obviously many arguments will have a number of premises and some will have a number of conclusions. Structurally, these premises and conclusions fit together in various ways. Thomas' distinction of divergent, serial, linked, and convergent structure comes into play with arguments involving at least three component statements. First of all, one premise may be given to support two separate, distinct conclusions. Consider

① <There is a perennial classical question that asks which part of the motorcycle, which grain of sand in which pile, is the Buddha.> Obviously, ② <to ask that question is to look in the wrong direction,> for ③ <the Buddha is everywhere.> But just as obviously ④ <to ask that question is to look in the right direction> for ③ <the Buddha is everywhere.> Robert M. Persig, *Zen and the Art of Motorcycle Maintenance*

Fig. 1.2



Thomas calls this *divergent* structure (See Fig. 1.2).

In representing the structure of some arguments, the component statements will line up in a row or series, e.g.

① <The death penalty is ... warranted> because ② <it is the only practical way to make certain that a murderer will not repeat his crime.> ③ <Under today's permissive, revolving-door justice, it is almost an everyday occurrence to read where a convicted murderer, after serving a relatively short sentence, has killed again.>¹

Fig. 1.3



Thomas says that such arguments have *serial* structure (See Fig. 1.3). We can think of the final conclusion of such arguments (here statement (1)) as the proponent's initial thesis. The second statement (2) functions (or is intended to function) to support the conclusion (1). (2) is a premise. But (2) is in turn supported by (3). So (2) functions both as premise and a conclusion. It is an intermediate as opposed to a final conclusion in this argument. (3) is an initial or basic premise. It is put forward to support (2) but is not itself supported in the context of this argument.

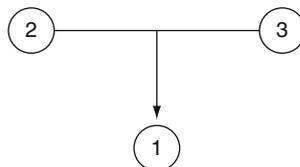
As we noted in the Preface, Thomas' distinction between linked and convergent argument structure has proven problematic. We shall discuss the problem thoroughly beginning with [Chapter 4](#). In some arguments, several premises may each be offered to support some conclusion but these premises are apparently intended to be taken together to constitute a case for the conclusion. Each premise given is somehow incomplete in itself. Its removal would leave the argument with a gap.

¹Frank G. Carrington, *Neither Cruel Nor Unusual*, in Copi (1986, 41).

① <Morals cannot be derived from reason alone> because ② <they have an influence on the actions and affections.> But ③ <reason alone can never have any such influence.>²

Does (2) just by itself give us reason to think (1) true? Likewise, does (3) by itself constitute a reason for (1)? But put (2) and (3) together and we clearly do have a reason for (1). Following Thomas, we say that such an argument has *linked* structure, and we diagram the structure this way (See Fig. 1.4):

Fig. 1.4

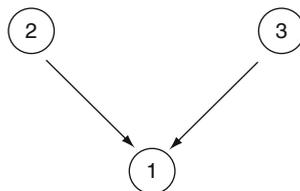


By contrast, some arguments will have what Thomas calls *convergent* structure, where two or more premises are intended to support the conclusion separately, independently giving evidence for it.

① <He is a morally good man> because ② <his disposition evinces an underlying kindness> and ③ <his character displays real integrity.>³

Each premise by itself constitutes some reason for the conclusion, and that it does is evident from the statement itself without referring to the other premise (See Fig. 1.5).

Fig. 1.5



Of course, an argument is not limited to exhibiting just one of these types of structure. A portion or subargument may be serial while another subargument is convergent. All four types of structure may appear in the same argument, witness the following example:

① <The civil rights movement for racial equality of the early 1960s soon became a movement for gender equity also.> Therefore ② <It is only right that it should expand further to include equity for sexual minorities.> So ③ <Same sex marriage should be available as a legal option.> ④ <Some states have laws that specifically prohibit same sex marriage.> ⑤ <Some states do not specifically guarantee that same sex couples have the right to marry.> Therefore ⑥ <if same sex marriage is to be available, the marriage laws must be revised

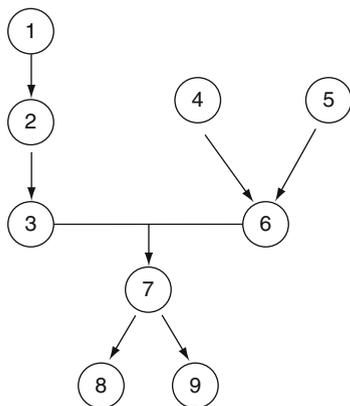
²Adapted from David Hume, *A Treatise of Human Nature*.

³This example is adapted from an illustration of conductive arguments in Wellman (1971, 51).

in a number of states.> Hence ⑦ <states should proceed at once with revising their constitutions.> Therefore ⑧ <supporters of marriage equality should lobby state legislators for necessary changes> and ⑨ <same sex couples denied marriage licences should file suit to correct this injustice.>

(See Fig. 1.6)

Fig. 1.6



In all of the structures we have examined so far, we are asked to accept the premises outright. By contrast, some arguments will ask audiences merely to suppose certain premises are true for the sake of argument. This happens in arguments involving conditional, reductio ad absurdum, or separation by case strategies. If I wanted to show a claim of the form “If P then Q ,” I might ask my audience to suppose or assume for the sake of argument that P was the case, and reason from this supposition to Q . Again, if I wanted to show P false, I might ask my audience to assume that P was true and reason from that either to a manifest contradiction, to the contradictory of some statement recognized true, or to some other falsehood. In neither of these arguments would I be asking my audience to accept P , but only to suppose it for the sake of argument. Lewis Carroll’s contribution to the vivisection debate is a classic example:

Suppose ① <killing an animal does infringe its rights.> What follows? ② <Never may we destroy, for our convenience, some of a litter of puppies>—③ <or open a score of oysters when nineteen would have sufficed>—④ <or light a candle in a summer evening for mere pleasure, lest some hapless moth should rush to an untimely end!> ⑤ <Nay, we must not even take a walk, with the certainty of crushing many an insect in our path, unless for really important business!> ⑥ <Surely all this is childish.> In the absolute hopelessness of drawing a line anywhere, I conclude ... that ⑦ <man has an absolute right to inflict death on animals, without assigning any reason, provided that it be a painless death, but that any infliction of pain needs its special justification.>⁴

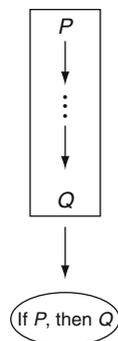
⁴Lewis Carroll, “Some Popular Fallacies About Vivisection.”

Carroll is using the fact that (1) yields (2), (3), (4), and (5) together with what he takes to be their manifest absurdity (6) as a reason for (7). He is not asserting any of (1)–(5).

In a separation by case argument, if I had put forward a disjunction as a premise for my audience to accept in an argument to some further statement, I might ask my audience to assume each disjunct in turn and argue from that supposition to the target statement. If so, I would then be entitled to assert this target claim as conclusion outright.

Structurally, in conditional strategy the whole argument from P to Q is being put forward as the reason why one should accept “If P , then Q .” Again, with reductio ad absurdum arguments, the whole argument from P to the absurdity is put forward to support that P is false. Thomas has given us a way of diagramming such arguments and thus has extended the standard approach to enable representing arguments involving such structures. For conditional strategy, we enclose the diagram of the argument from P to Q in a box with a downward directed arrow from the box to the conditional statement (or some representation of it) (See Fig. 1.7):

Fig. 1.7



For reductio ad absurdum strategy, where we are reasoning from P to some absurdity Q , we again enclose the diagram of the reasoning in a box with an arrow to a conditional, “If P , then Q .” But this is linked with the rejection of Q to support the denial of P as the final conclusion (See Fig. 1.8):

We should consequently diagram Lewis Carroll’s argument this way (See Fig. 1.9):

Thomas comments,

A box . . . is used because, in this reasoning, it is neither statement [P] nor statement [Q] that justifies the concluded conditional statement; rather, it is justified by the *validity* of the *step of reasoning from [P] to [Q]*....The top of the box is closed (that is, a horizontal line is drawn across the top) because the truth of the conditional statement inferred as a conclusion does not depend on the truth of the statement assumed or pictured as a reason inside the box. (Thomas 1986, 216)⁵

⁵Thomas indicates how this diagramming technique may be elaborated to handle further complexities, but these issues are beyond our scope here. The standard approach has been incorporated

Fig. 1.8

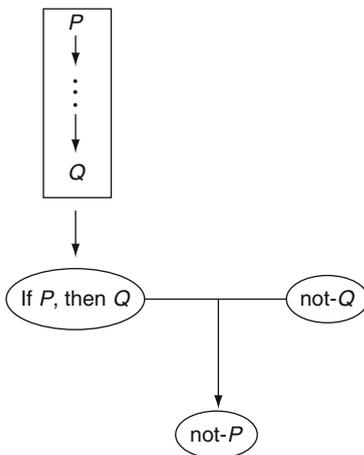
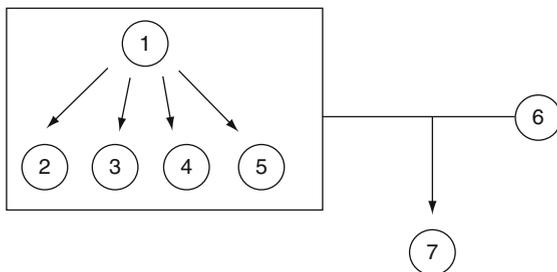


Fig. 1.9



Now consider a separation by case argument:

- ① <Len is just old enough to vote if he’s just 21.> ② <If he’s under 21, he can’t drink legally,> and ③ <if he’s over 21 he’ll be drafted.> But clearly ④ <either Len is just 21, or he’s under 21, or he’s over 21.> Now suppose ⑤ <Len is just 21.> Then ⑥ <he just old enough to vote> and hence ⑦ <Len is either just old enough to vote, or unable to drink

to a certain extent into a number of texts. Indeed, we may say that diagramming became part of the canon of logic studies in North American colleges and universities when Irving M. Copi incorporated it into the sixth edition of his classic *Introduction to Logic*. But many of the texts presenting diagrams principally deal just with informal logic. Among these are Johnson and Blair’s *Logical Self-Defense*, Moore and Parker’s *Critical Thinking*, Fisher’s *The Logic of Real Arguments* (which contains the extension to suppositional reasoning), Govier’s *A Practical Study of Argument*, Scriven’s *Reasoning*, and our own *Thinking Logically*. Variants or parallels of the standard approach also appear in certain scholarly monographs, in particular van Eemeren and Grootendorst’s *Speech Acts in Argumentative Discussions*, Finocchiaro’s *Galileo and the Art of Scientific Reasoning*, and Snoeck Henkemans *Analyzing Complex Argumentation*. We motivate the serial, linked, and convergent distinction from a theoretical perspective in “Dialectical Situations and Argument Analysis,” and present a developed theory of argument structure in *Dialectics and the Macrostructure of Arguments*. See References for bibliographic details on these texts and monographs.

legally, or he'll be drafted.> Likewise, if we assume ⑧ <Len is under 21> or ⑨ <Len is over 21.> Thus ⑦ <Len is either just old enough to vote, or unable to drink legally, or he'll be drafted.>⁶

This argument illustrates how in arguments involving suppositions, there can be an interplay between statements an audience is asked just to assume and those they are asked to accept outright. (1)–(4) are all asserted, as is (7) when stated as the conclusion of the argument. (5), (8), and (9) are merely assumed for the sake of argument, but the reasoning proceeds not from their supposition alone but together with (1), (2), and (3) respectively. The contrast of dashed with solid circles in our diagram makes this perspicuous (See Fig. 1.10):

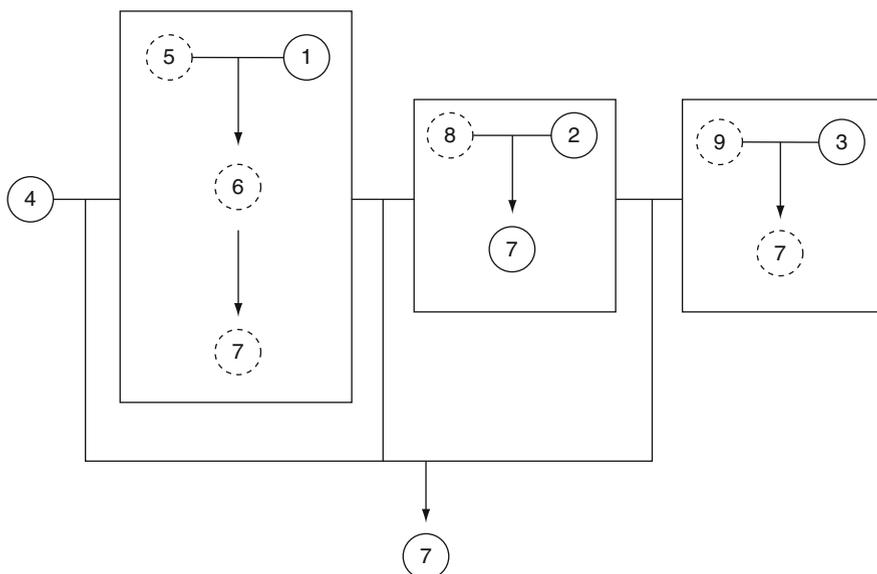


Fig. 1.10

There is a feature of many arguments, however, which our diagramming system, even extended to accommodate arguments with assumed premises, cannot accommodate. As Johnson has stressed in (2000), presenting reasons which directly support a conclusion may not be sufficient to defend that claim properly. One has presented the illative core, in Johnson’s phrase. We may understand the illative core of an argument to consist of the main conclusion, together with the reason or reasons—premise or premises presented to directly support that conclusion or whole arguments involving supposition, together with the reason presented to support those reasons, if any, together with the reasons for those reasons, going back to the basic premises of the argument, i.e. those not defended at least within the context of the argument. One may still need to consider and counter objections to the

⁶Adapted from an example in Leblanc and Wisdom (1976, 104).

conclusion, the premises, or the illative steps in the core argument. This takes us, in Johnson's phrase, to the dialectical tier. Consider the following argument:

Mrs. Wilson's daughter Judith will inherit virtually no share in her mother's estate, because Mrs. Wilson's will leaves her only \$1.00. "Was she mentally competent when she made the will?" you ask. The witnesses who signed her will, her lawyer, her doctor, and three close friends will all testify that she was in complete possession of her mental powers when she made the will.

The core argument presents a fact about the will to justify the claim about Judith's share in the inheritance. How does the rest of the passage fit into the argumentation? Mental incompetence could invalidate a will. The proponent is considering an objection to his inference. But his reply that Mrs. Wilson was known competent does not, by itself, constitute evidence for the conclusion about Judith's share in the inheritance, nor does the stated premise explain why the statement about mental competence is relevant to the claim about Judith's share, nor does that premise need this information about mental competence to be seen relevant to the claim. The structure here is not linked or convergent, nor clearly is it serial. How then should we diagram this argument? As we shall see shortly, Toulmin's model provides what we need.

In *Thinking Logically* (1988), we advocate incorporating elements of the Toulmin model into the standard approach. Toulmin has a radically different conception of argument structure. Just what this is and how it raises questions for the standard approach and indeed for the whole issue of recognizing the structure of arguments, we turn to next.

1.3 Toulmin's Layout of Arguments

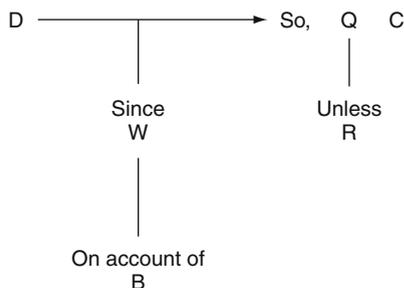
In *The Uses of Argument* (1958), Stephen Toulmin proposes a radically different approach to displaying argument structure. We must, however, enter this caveat. Although we may read Toulmin as presenting a method for analyzing argument texts, arguments as products, which is a very natural reading and how some authors have read him, we must question whether this reading is appropriate. We feel it may be more accurate to regard him as presenting a way of analyzing arguments as process or procedure. But let us defer that question until after we see Toulmin's account of how arguments are structured.

Instead of seeing arguments as built up from statements which may play the role of premise or conclusion (or both), Toulmin distinguishes six argument roles, six types of elements which may occur in arguments. Conclusions he calls *claims*. Facts given to support, justify, ground claims are *data*. Data are potential answers to the question "What have you got to go on?" asked to challenge a claim. They are premises on the standard approach. But once the proponent gives the data, the challenger can ask how we get from the data to the claim the proponent alleges these data support. "How do you get there?" *Warrants* answer this question, explaining why the data are relevant or pertinent to the claim. Introducing warrants leads Toulmin

to introduce two further types of elements which do not appear on the standard analysis. Different warrants permit asserting conclusions with different degrees of force. In some cases, “necessarily” is appropriate, while in others only “probably” is justified. Expressions indicating various degrees of force Toulmin calls (*modal qualifiers*). Also, some warrants apply normally or ordinarily, but not universally. There are excepting circumstances where they will need to be set aside. Associated with warrants then are conditions of exception or *rebuttal*. Finally, warrants may be challenged. What the proponent of an argument offers to establish their authority Toulmin calls *backing*. The representation of arguments, then, involves these six types of elements.

Toulmin arranges or lays out these elements in the following way to diagram argument structure (See Fig. 1.11):

Fig. 1.11



This is all straightforward. We appeal to data D to justify claim C. The arrow indicates this evidential support. The warrant W licenses the move from D to C and so is “attached to” the arrow. The backing B authenticates the warrant and so is attached to it. The modal qualifier Q is understood to modify the claim, indicating the force with which it is asserted, and so is written next to the claim. Rebuttals R indicate conditions when the warrant would have to be set aside and so the force of the claim invalidated. Hence they are attached to the modality. Here then we have Toulmin’s approach to argument structure, a distinctly different layout from the standard approach.

With the addition of rebuttals, we can readily find a place for the question “Was Mrs. Wilson mentally incompetent when she made her will?” in an argument diagram (See Fig. 1.12). True, our diagram displays no warrant or backing, and we had to supply a modality to attach the rebuttal properly according to Toulmin’s layout. These issues relate to our claim that the model was not intended to diagram arguments as products, which we shall develop in the next section. Also, we have not found a place for the reply to the question about Mrs. Wilson’s mental competence. However, these issues do not gainsay the fact that the model has allowed us to find a place in an argument diagram for the question of mental competence, which plays a role in the reasoning of this argument.

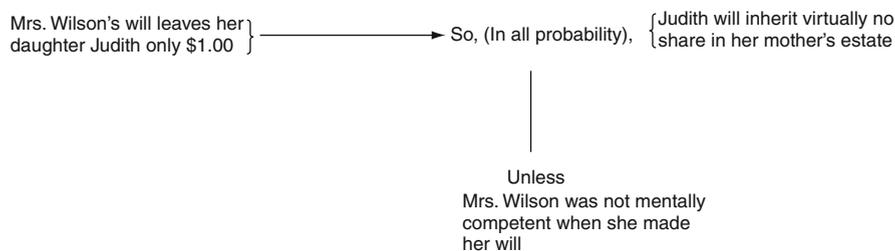


Fig. 1.12

Having these two markedly different accounts of argument structure raises the question of whether we must decide between the two or whether they can be somehow synthesized. We hold not only that these two approaches may be synthesized, but so doing lets us accommodate Johnson's dialectical tier. Furthermore this synthesis enables us to draw clear distinctions between various types of argument structure. Indeed, we contend that the Toulmin model casts distinct light on the problem of distinguishing linked from convergent structure. But just what the major issues in argument macrostructure are and how the Toulmin model may advance dealing with them is the subject of the next section.

1.4 Integrating the Standard Approach and the Toulmin Model

Our discussion in section one indicates that the standard approach is designed to analyze argument texts, where one person has presented his or her overall case for a given claim or claims. Arguments laid out this way are standardly called arguments as products. We contend that Toulmin's model should be thought of as analyzing arguments as dialogical exchanges between a proponent and challenger, what are standardly called arguments as process or, if the exchange is regulated by certain rules, procedure. (The process/product/procedure distinction was introduced by Wenzel in (1979). See pp. 44–45.) For our purposes here, we may set aside this latter distinction, simply contrasting arguments as process and product. The challenger's questions calling for data, warrant, and backing and motivating their differentiation are critical questions. The challenger is not simply accepting the proponent's claim, but is asking for reasons for that claim, and for why those reasons are reasons and reliable reasons. As we shall see, phrasing questions to introduce modal qualifiers and rebuttals is straightforward and likewise motivated by critical concerns. We understand the challenger to be asking these questions not out of mere curiosity, but from a sincere desire to come to a justified acceptance of the conclusion. The challenger then exercises a Socratic or maieutic function, drawing out an argument from the proponent as she recognizes that his case presented so far needs further development to constitute a cogent argument or the strongest argument possible.

Someone composing an argument might very well imagine himself the proponent in an exchange with a challenger. He anticipates her questions and his argument takes shape as he tries to answer them. Now as different questions distinguish the different elements of the Toulmin model, so different questions will produce arguments with different standard structures. The questions motivating the standard structures are not the same as Toulmin’s motivating questions, but nonetheless are distinctly related to them.

The challenger’s data-introducing question “What have you got to go on?” and the proponent’s response get argument going subsequent to the proponent’s enunciating a claim. Toulmin’s simple diagram (See Fig. 1.13)

Fig. 1.13



suffices to represent the structure of the initial argument process. Should the argument be laid out as (1) C, because (2) D, the diagram (See Fig. 1.14)

Fig. 1.14



properly represents the structure of the argument as product on the standard account. Now contrary to what the Toulmin model might suggest, the challenger might not find the data to be transparently acceptable. Hence of that data she might ask “What have you got to go on?” The proponent composing an argument as product might imagine the challenger asking “Why should I accept that premise?” Should the proponent answer with data D’ to support D, extending his written argument with “Because (3), D’,” the diagram (See Fig. 1.15)

Fig. 1.15



represents the structure of the argument. That is, serial structure is motivated by acceptability considerations.

Should the proponent ask Toulmin’s warrant-introducing question —“How do you get there?” I believe she is sincerely perplexed by the implicit allegation of the relevance of the data to the claim. Likewise, in composing his argument as product,

the proponent could anticipate that his challenger would ask of some premise he put forward “Why is that relevant to the claim you allege it to support?” But the proponent’s answer in his argument as product is not the same as his answer in a dialogical exchange. In the latter, his answer is a warrant. Although Toulmin is not always clear on this point, a warrant is an inference rule. Although arguments (as products) may instance inference rules, in which case the warrant licenses a step from one or more premises to a conclusion, the warrant is not a premise or any other element explicitly in the argument. This point is obvious with deductive warrants. Consider

If demand for goods in general increases, then prices for goods in general will rise.

Demand for goods in general is increasing.

Therefore, prices for goods in general will rise,

a clear cut case of *Modus ponens*:

From	If p then q
	p
To infer	q

But it would be clearly wrongheaded to ask which of the statements in the argument as product present the data and which is the warrant. The arguments instances *Modus ponens*. The rule is not an element in the argument.

Peirce, in (1955), makes certain points which are crucial here. He claims that humans, through experience, develop certain belief habits, including inference habits. When developed, such habits convey us from premises of a certain sort to a conclusion of a certain sort. In short, they enable us to “see” that such premises are relevant to the conclusion. Peirce indicates that we need not be conscious of such habits when making the inferences they present. Propositions formulating such habits Peirce calls leading principles. Given the function of such habits to convey us from premises to conclusion, clearly the formulation may also take the form of inference rules. Since these habits develop through experience, we would expect that the stock of habits one person develops would overlap with but nonetheless differ from the stock of habits someone else develops. Hence, premises which one person sees as relevant to a given conclusion another might not recognize as relevant.

Returning to our *Modus ponens* argument, a proponent-challenger exchange might begin this way:

PROPONENT:	Prices for goods in general will rise.
CHALLENGER:	What have you got to go on?
PROPONENT:	Demand for goods in general is increasing.

Notice that the warrant of the proponent’s argument at this point, unlike *Modus ponens* which is a two-premise formal inference rule, is a one-premise material inference rule.

From: Demand for x in general is rising
 To infer: Prices for x in general will rise

Should the challenger ask for the warrant, stating this rule would be the proper answer.

Now it is at least conceivable that in composing an argument, a proponent might begin by asserting

- (1) Prices for goods in general will rise because
- (2) Demand for goods in general is increasing

But, taking the challenger as representative of the audience he is addressing, he might imagine her not seeing why (2) is relevant to (1). He is not going to extend his argument by adding a bald statement of the inference rule, because that has no place in an argument as product. But corresponding to his one-premise inference rule is the universal generalization

For all x , if demand for x in general is increasing, then prices for x in general will rise.

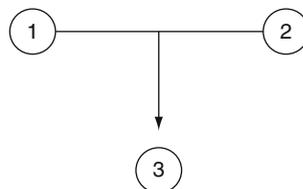
The conditional premise in the above *Modus ponens* argument is a straightforward instantiation of this universal. Clearly it appropriately answers the relevance question. Hence, we may see the *Modus ponens* argument as generated through a dialogical exchange parallel to the Toulmin warrant-eliciting exchange, and thus where one of the premises has been offered to explain why the other is relevant to the conclusion.

What moral may we draw from this discussion? We may find many instances of arguments as products which instantiate multi-premised inference rules. (Clearly, three, four, in general n -premised inference rules are abstractly possible.) Included in the inference habits of many persons who might encounter such arguments are inference habits which would allow them to pass from some non-empty subset of the premises of the argument to the conclusion. For these persons, the premises in those subsets would be seen as relevant to the conclusion. But not all persons need have acquired such inference habits. These persons, when confronted with an argument from a subset of the premises to the conclusion, would ask the relevance question of those premises, and the remaining premises will explain the relevance. As a first approximation to the general view we shall defend later, we hold that arguments instancing multi-premise inference rules should be viewed as displaying linked argument structure.⁷ Hence, we should diagram our demand-increase/price-increase *Modus ponens* argument as Fig. 1.16.

As Toulmin indicates (Toulmin 1958, 97), in answering the data-generating question, our proponent may present a plurality of facts to support his claim. There is another way in which the challenger might be dissatisfied with the body of data the proponent has brought forward. She might grant that each piece of data is acceptable

⁷We shall explain why we see this as a first approximation in [Chapter 4](#).

Fig. 1.16



and relevant to the claim from her viewpoint (her stock of inference habits facilitates each inferential move from datum to claim). But she regards the proponent's data as too meager to render his claim acceptable. We can easily imagine her repeating this question a number of times. Likewise, someone composing an argument as product might set down several reasons for his conclusion. Let's assume, to simplify our discussion here, that he sets down each reason in a single, separate premise statement. Parallel to the case with the Toulmin exchange, we can picture the proponent imagining after he sets down his first premise that a critical interlocutor asks

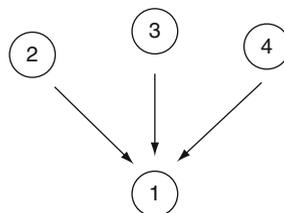
Can you give me an additional reason?

His second premise responds appositely, and should he present several more premises, he can likewise imagine them as responses to the question asked again. Notice that from the perspective of the proponent's inference habits, a one-premise inference rule conveys him from each stated premise to the conclusion, and he can presume this of his interlocutor. Hence he does not need to link any of the stated premises together to see why those premises are relevant to the conclusion. Each premise is independently relevant, although the premises together may constitute a stronger case for the conclusion than any one of them separately. Our proponent's argument then has convergent structure. Consider:

- (1) The economy will be resurgent next year because
- (2) All the leading economic indicators are up,
- (3) The public mood is confident, and
- (4) Business needs to make significant capital improvements in the near future.

(See Fig. 1.17)

Fig. 1.17



We do not see a further question motivating divergent structure, since we may view such arguments, for the purposes of evaluation, as two separate arguments (Compare Fig. 1.18 and Fig. 1.19). The diagrams convey the same structural information—that statement **P** is put forward to support both **C1** and **C2**. That this

is done stating the premise only once, as the first diagram suggests, is not material to discerning what is put forward to support what or to the evaluative questions one might raise in assessing these two support claims.

Fig. 1.18

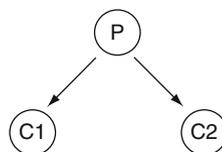
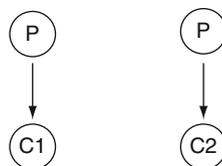


Fig. 1.19



We see then that the three basic structures of the standard approach can each be motivated by questions analogous to Toulmin's data and warrant-generating questions.⁸ Our three questions also reflect the three basic concerns of argument evaluation within informal logic, acceptability of premises and their relevance to the conclusion and ground adequacy in supporting it—the ARG criterion. We have argued that there is no need to supplement the standard approach with a representation of warrants, since warrants are not parts of the argument products the standard approach is designed to analyze. A fortiori, we need not supplement the approach with a way to represent backing. Although, in evaluating arguments, the issue of whether the warrants licensing the inferential steps are reliable to some degree is crucial to showing the premises relevant and assessing their ground adequacy, and the issue of reliability concerns whether and to what extent the warrant is backed, warrants and backing are still not elements in arguments as products.

The situation is different for the two remaining elements of the Toulmin model, modal qualifiers and rebuttals, and for different reasons in each case. The modal

⁸By seeing the dialectical nature of argumentation as fundamental, argumentation being generated through an exchange between a proponent and a critical challenger, we completely agree with the pragma-dialectical school and indeed are indebted to them for emphasizing the importance of this point. In (1992, Chapter 4), Snoeck Henkemans discusses how various dialectical structures can be motivated by a proponent's responses to a challenger's critical questions, in particular multiple and co-ordinatively compound structures. In Chapter 5 below, we discuss these structures and argue that the distinction between them is *not* the same as the distinction between convergent and linked arguments, as one might at first think. In particular, the multiple/co-ordinatively compound distinction marks a difference in argumentation at the dialectical level or level of argument as procedure, while the linked-convergent distinction pertains to arguments as products.

qualifier words “necessarily,” “probably,” “presumably” may actually occur in argument texts, unlike inference rules. Should such expressions be considered separate elements in argument texts, as they are treated as separate elements on the Toulmin model? I believe they are separate elements, although this may require us to construe them differently from Toulmin. More accurately, it may require us to specify with more precision just exactly what these elements are or how they function in arguments as products. Toulmin speaks of modal qualifiers as qualifying conclusions, i.e. stating a property of the conclusion, and this is reflected by their position in his model. But Toulmin also indicates that this force is conferred by the data “on a claim in virtue of a warrant” (Toulmin 1958, 101). Again, he indicates that qualifiers indicate the strength conferred by the warrant on the step from data to claim (Toulmin 1958, 101). It would seem more appropriate, then, to consider the qualifier as modifying or qualifying the step rather than the conclusion.

There is another reason for viewing qualifiers this way. In the expression of the hackneyed syllogism

All humans are mortal.
Socrates is a human.
So, necessarily, Socrates is mortal.

how is “necessarily” functioning? The way the argument is stated suggests that the conclusion is “Necessarily, Socrates is mortal.” Describing the modal qualifier as qualifying the claim only reinforces this suggestion. But on this interpretation, the argument is clearly fallacious, for the statement “Socrates is mortal” is clearly not a necessary truth, nor does its necessitation follow from the premises. Rather the statement itself *follows necessarily* from the premises. Construed as qualifying the step from premises to conclusion, the qualifier correctly indicates the strength of the step.

A similar situation holds with qualifiers indicating non-demonstrative strength, such as “probably”. Brian Skyrms in (1986) distinguishes inductive from epistemic probability. Inductive probability is a property of arguments. More generally and fundamentally, it is a relation which may hold between a set of statements and an individual statement. It is a measure or indication of how strongly the premises support the conclusion. Consider

- (1) That die on toss 1 came up one.
- (2) That die on toss 2 came up one.
- ⋮
- (100) That die on toss 100 came up one. Therefore it is probable that
- (C) That die on the next toss will come up one.

Given these one hundred premises (and assuming them acceptable), the conclusion *is* probable in their light. The argument has a high *inductive* probability. By contrast, to say that the conclusion is probable in its own right is to use the notion of *epistemic* probability, where that is defined as the inductive probability of a statement given the entire body of relevant knowledge. Suppose someone had observed 1,000 tosses of that particular die. Suppose that on 500 tosses, the die came up one,

but on the other 500 tosses it came up six. Let us suppose also that the 100 tosses the argument refers to are included in the 1,000 tosses and that one has no further relevant information about the die. Then the epistemic probability that on the next toss the die will come up one is .5, i.e. it is *not* epistemically probable. Hence, given this background knowledge, the argument

- (1) That die on toss 1 came up one.
- (2) That die on toss 2 came up one.
- ⋮
- (100) That die on toss 100 came up one. Therefore
- (C) It is probable (i.e. epistemically probable) that that die on the next toss will come up one.

is not cogent. The information about the additional 900 tosses rebuts the inductive force of the argument by showing that the conclusion is highly questionable.

Given these considerations, it would seem that Toulmin’s diagrams would be more perspicuous if he positioned the modal qualifier as interrupting the arrow from **D** to **C** (and perhaps also omitting “So” as redundant, given the arrowhead See Fig. 1.20):

Fig. 1.20



If the qualifier is understood as indicating how strongly data or premises support the conclusion, let us refer to it as a “modality.” Incorporating modalities into standard approach diagrams, where the step from premises to conclusion is represented by one or more arrows, is straightforward. Enclose the modal words in a box and let that box interrupt the arrows connecting the premises to conclusion, e.g. Fig. 1.21: Note that this diagram makes explicit, unlike the standard diagram for convergent arguments, that we have one argument for the conclusion here, not three. The modality is making a claim about the combined strength of (1), (2), and (3) to support (4).

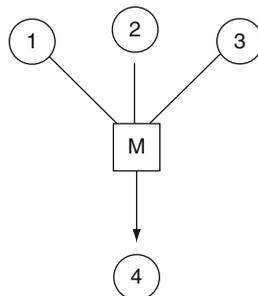


Fig. 1.21

Although Toulmin does not introduce modal qualifiers through a question, coining an introducing dialectical question is straightforward:

How sure do your reasons make you of your claim?
 How strongly do your reasons support your claim?
 (cf. Freeman 1991, 39.)

Should the proponent enunciate a modality in response to this question, the challenger could continue the dialogue by asking

How can you be so sure?
 Why do your premises make you so sure?

The challenger may ask this question, even without the proponent's explicitly stating a modality. By putting forward the conclusion as supported by the premises, the proponent is claiming at least that all things being equal, the conclusion is acceptable, given the acceptability of the premises. Why the challenger would ask this question leads us directly to consider the remaining element in Toulmin's model. The challenger might be quite willing to admit that all things being equal, the premises provide a sufficient case for accepting the conclusion. The problem is that from her perspective not all things are equal. There is a question in her mind whether some condition or state of affairs holds which, should it hold, would either constitute evidence against the proponent's conclusion or call the reliability of the proponent's inference to that conclusion into question. It is not necessary that the challenger accept on evidence that this condition holds. It is sufficient that there be a realistic possibility, from her perspective, that it does.

Some examples may help make plain the various possibilities here. We are actually dealing with two distinctions. Pollock's work in epistemology has in effect made plain that we may distinguish two types of rebuttals in Toulmin's sense—"defeaters" being his terminology. A rebutting defeater may constitute evidence negatively relevant to the conclusion being argued, evidence that the conclusion is false. At least a rebutting defeater will raise the issue of negative evidence. For example, in a trial, the prosecutor may present certain evidence to establish the guilt of the accused. He had motive to steal the money—he needed to pay gambling debts. Sworn witnesses testify that he had talked about stealing money. He had opportunity—he owned a gun, ski mask, and he knew that the bank would be deserted of customers in the early afternoon. Most telling of all, most of the bills stolen were stored in his garage. It looks like the prosecutor has a good case, but the defense attorney now introduces the testimony of witnesses who will swear to having seen and recognized the defendant at another place at the time bank video equipment indicates that the robbery occurred. This evidence constitutes a rebutting defeater to the prosecutor's argument.

Contrast this with the following situation: A prosecution witness testifies that she saw the accused enter a certain house on the evening the house was burgled. In cross examination, the defense attorney points out that the witness recently acquired new

eyeglasses. The defense attorney asks whether she was wearing the glasses when she made the observation. She had not yet acquired them and in fact she was not wearing any glasses at all at the time. This information is negatively relevant not to the claim that the defendant is guilty but to the reliability of the witness. It is thus an undercutting defeater to the inferential move in the argument

The witness testifies that she saw the accused enter the house on the night it was burgled.

Therefore

The accused entered the house on the night it was burgled.

Undercutters call into question the reliability of some inferential move from premises to conclusion. In this case, the reliability of the inference was undercut by showing that the witness was not reliable. Notice that the truth of an undercutting defeater is consistent with the truth of the conclusion. It is quite possible both that the witness was not wearing her glasses and that the accused *is* guilty. The point is that the witness' testimony does not count as good evidence for his guilt in the light of this undercutting defeater.⁹

Pinto in (2001) talks of overriding versus undermining evidence, information, or considerations. Overriding information is consistent with the reasons given for some claim but constitutes stronger evidence for the negation of that claim. By contrast, undermining evidence does not constitute a reason for the negation of the claim, but casts the reliability of the inference in doubt. Should I know that 95% of the light bulbs in a shipment came from a factory which produced 98% functioning bulbs, I should have good reason to believe that the bulb would function properly. But if I learned further that the bulb was one of the five percent coming from a different factory where only 50% of the bulbs produced functioned properly, although I would not have reason to believe the bulb would not function properly, my previous inference concerning its functioning would be completely undermined. (cf. Pinto 2001, 13–14, 28, 102–103.)

From the challenger's point of view, in light of either rebutting or undercutting defeaters, the proponent's *ceteris paribus* argument is no longer successful. It does not transfer the acceptability of the premises to the conclusion, unless this defeater can itself be defeated. So, should a juror or other rational evaluator of the prosecution's argument hear the testimony of the witnesses that the accused was someplace else at the time of the bank robbery, the prosecutor's argument collapses unless he can somehow discredit the witnesses. Similarly, should the prosecutor's argument that the accused burgled the house be built upon the testimony of just one eyewitness, learning that the eyewitness could not reliably make the observation

⁹Pollock contrasts these two types of defeaters, although he does not use the terminology of rebutting or undercutting defeater, in Pollock (1970, 73–74), where he distinguishes two kinds of excluders corresponding to rebutting and undercutting defeaters. He explicitly defines these concepts in Pollock (1995, 85–86).

again invalidates the prosecutor’s argument, unless he can somehow rehabilitate that testimony.

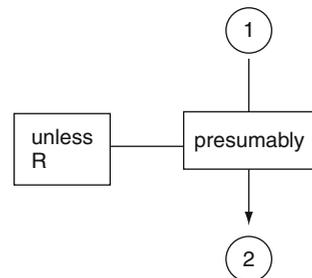
Notice however that even if those the prosecutor was trying to persuade had not received the defeating evidence, the argument could still be deemed insufficient if there were a significant question in their minds whether this evidence could or would be presented. If the defense attorney in outlining her case had made no mention of rebutting witnesses, there would be a presumption that no such witnesses would be forthcoming. But if defense counsel had indicated that she was going to call such witnesses, then there would *not* be a presumption that such testimony would not be forthcoming. So in this case also, the burden would be on the proponent to show that such testimony would not be made, or if made, would not be reliable. Otherwise, his *ceteris paribus* case is compromised, if not defeated. Likewise, if even before the defense attorney raised the issue of whether the eyewitness were wearing her eyeglasses, there was significant question of whether the witness could make the necessary observations reliably—there was no presumption that she could—the prosecutor’s argument would again fail to be successful.

Should the challenger be aware then that rebutting or undercutting defeaters held or even that there was a non-trivial question of their holding, she may ask the proponent why he is so sure that his premises render his conclusion acceptable. Should she follow Toulmin in calling these defeaters rebuttals, she might ask the “surely” question more candidly as

Why do your premises make you so sure in light of rebuttal **R**?
(cf. Freeman 1991, 39.)

Since defeaters of both types operate by claiming that in their light the stated premises no longer create a presumption for the conclusion, or no longer allow the proponent to be justified in describing the force of the argument with the modality he used, representing either type by including some indication of such defeaters in a rebuttal or defeater box attached to the modality is appropriate. Hence in our extended standard approach to diagramming, we place them in a position corresponding to their position in Toulmin’s layout of arguments. See Fig. 1.22:

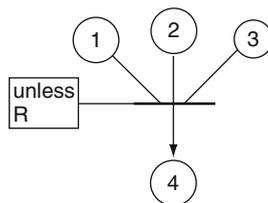
Fig. 1.22



Should an argument explicitly acknowledge defeaters to an inferential move but not describe the force of that move with a modality, we can still diagram the argument with an easy adaptation of our method: Should one arrow lead from the premise or

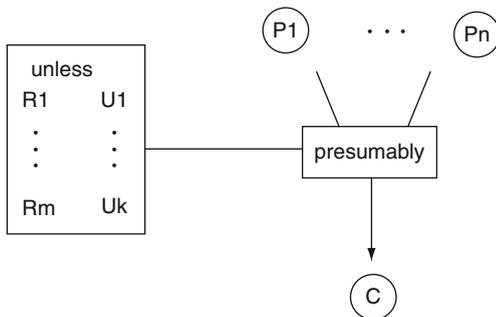
premises to the conclusion, connect the rebuttal box to that arrow with a horizontal line. Should several premises converge on the conclusion, interrupt the arrows with a horizontal line. Above the line are separate lines from each convergent reason to the horizontal line. Below the line, one arrow would point to the conclusion. The defeater box would then be attached to the horizontal line (See Fig. 1.23.).

Fig. 1.23



The horizontal line resembles a pan on a balance scale. All the premises are being put together on that pan so that their combined weight may tip the scale in favor of the conclusion. We may keep rebutters distinct from undercutters by having two columns in the defeater box, rebutting defeaters on the left and undercutting defeaters on the right. We furthermore represent rebutting defeaters with R_1, R_2, \dots, R_n , and undercutting defeaters with U_1, U_2, \dots, U_m . Of course, a given argument need not include both types of defeater. Hence, where P_1, P_2, \dots, P_n are independent reasons rendering a claim C prima facie presumptively acceptable, R_1, R_2, \dots, R_m rebutting defeaters, and U_1, U_2, \dots, U_k undercutting defeaters, an argument entertaining both rebutting and undercutting defeaters might be diagrammed this way (See Fig. 1.24):

Fig. 1.24



Some might object that including rebutters and undercutters in the same box is less perspicuous than having separate boxes for rebutters and undercutters.¹⁰ Those familiar with Wigmore’s chart method (see Appendix 1) might ask why we do not have separate boxes for the rebutters and undercutters, with the rebutter box attached to the conclusion and just the undercutter box attached to the modality box or horizontal line (See Fig. 1.25.).

¹⁰We thank an anonymous referee for Springer for raising this objection with us.

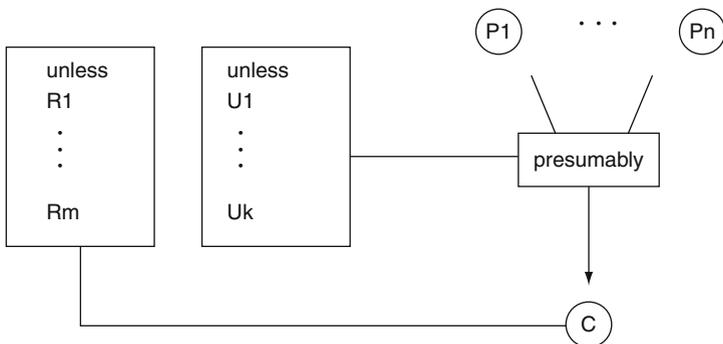


Fig. 1.25

This representation seems well motivated. Rebuttals present evidence against the conclusion, while undercutters present evidence against the step from premises to conclusion. Furthermore, the two box representation adopts Pollock’s approach to representing rebutting versus undercutting defeaters in (2008) in his method of inference graphs. (See [Appendix 2](#).)

We believe this complication is unnecessary and might ultimately complicate or render less perspicuous our diagramming procedure. To explain why, we anticipate discussion we shall develop in connection with contrasting our diagramming approach with Pollock’s in [Appendix 2](#) of this chapter and with defending the dialectical nature of argument in [Chapter 2](#). Following Rescher in (1977), given an argument that reasons from premise Q to conclusion P , if we express the warrant as “ P generally obtains provided that Q ,” a challenger may call this warrant into question by asserting “ $\sim P$ generally obtains provided that $Q \ \& \ R$ and for all you have shown $Q \ \& \ R$ obtains” (Rescher 1977, 6, 12). The challenger is clearly raising the question of a rebutting defeater by raising the question of R . But, as Rescher points out, in formal disputation this move is a countermove to the warrant of the argument. It is thus a countermove to the inferential step from premises to conclusion, not a countermove against the conclusion.

That rebutting and undercutting defeaters may be appropriately represented simply as defeaters, using one defeater box, may be further supported by considering how an argument may be extended to counter these countermoves to the warrant of the argument. How might our proponent extend his argument to answer the question of how he can be sure in light of R , specifically to counter the rebutting defeater R , and how would such an argument involve structural considerations beyond those we have already introduced? Again, let us consider the possibilities. If R is simply mooted as a significant question but not an established fact, the proponent can either present a reason negatively relevant to the mooted rebuttal, or he can concede that even if the rebuttal should hold in this instance, its force is undercut by some further consideration. Should the rebuttal be a recognized fact, the first mode of response is not open to the proponent, although the second is. Concede that the rebuttal holds,

but point out that it in turn is rebutted or defeated. Let's see how this might develop in a dialectical exchange, First consider a mooted rebuttal:

PROPONENT: Jones can vote in the Westwood municipal elections.
 CHALLENGER: Why—How do you know that?
 PROPONENT: Jones is a resident of Westwood.
 CHALLENGER: How can you be so sure that he can vote?
 Might Jones not be an American citizen?
 PROPONENT: Jones has an American passport.

Surely, Jones' having an American passport is sufficient reason, *ceteris paribus*, to believe he is an American citizen. On the other hand, our proponent may be able to respond this way:

PROPONENT: Even if Jones *isn't* an American citizen, he has a green card and has lived in Westwood for at least ten years.

Suppose U.S. law allowed states, municipalities, and other governmental jurisdictions to enfranchise non-citizens who had green cards and who had lived within their jurisdictions for at least 10 years to vote in local elections. Then even should the challenger's objection be true, it does not show that Jones cannot vote in the municipal elections. If it were an established fact that Jones is not an American citizen, and not just a mooted possibility, the combined fact that he had a green card and had lived in Westwood for 10 years would again undercut the force of the defeater. In all these cases, the proponent's answer counters the rebuttal and so one may call it a counter-rebuttal.

The proponent need not simply vouch for his counter-rebuttal, but may argue for it. Consider

① <Mrs. Wilson's will directs that her entire estate go to charity.> So, presumably, ② <her daughter will inherit nothing from her mother,> unless ③ <Mrs. Wilson has made a supervening will leaving her daughter a share in her estate.> But ④ <Mrs. Wilson made no later will.> ④ <A thorough search of her personal effects found no such document.>

(3) is a counter-rebuttal, but (4) supports (3).

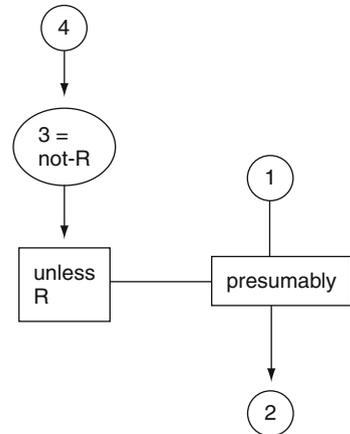
Before considering counters to undercutting defeaters, let us consider how counters to rebutting defeaters should be represented in argument diagrams. Does the question, "How can you be so sure in light of **R**?", generate a distinct type of argument structure as do the previous three dialectical questions we have considered? Seeing that it does and how is straightforward. Consider the Wilson will argument again. (3) supports the conclusion by countering the rebuttal, rather than supporting the conclusion directly. The argument

③ <Mrs. Wilson made no later will.> Therefore ② <Her daughter will inherit nothing from her mother.>

makes no sense. The premise seems irrelevant to the conclusion. One might suggest that by linking (3) to (1), (3) would be rendered relevant. But unlike genuine linked structure, (1) by itself *is* relevant to (2) and does not need (3) to explain its relevance. Hence, we represent (3) as a premise, but positioned above the defeater box with the

arrow pointing to the box, indicating that it supports the conclusion by countering a rebutting defeater. We further make this plain by indicating that (3) is the denial of (R) and crossing out (R) (See Fig. 1.26).

Fig. 1.26



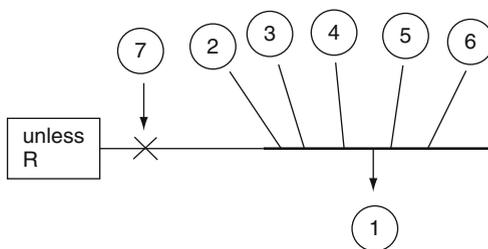
Suppose the proponent counters a rebutting defeater by admitting that the defeater holds but that its force is defeated by some further consideration, a defeater to the defeater. Consider this argument countering a rebutting defeater not just mooted but recognized to hold:

- ① <The accused is guilty of robbing the bank.> ② <He needed to pay his gambling debts.>
 ③ <Sworn witnesses testify that he had talked about stealing money.> ④ <He owned a gun and ski mask.> ⑤ <He knew the bank would be practically deserted in the early afternoon.>
 ⑥ <Most of the bills stolen were found in his garage.> Yes, ~~(R)~~ <witnesses will testify that the accused was no where near the bank when the robbery occurred,> but ⑦ <all these witnesses have been bribed.>

The argument from (2) through (6) to (1) would be effectively rebutted if the defense could establish that the accused was no where near the scene of the crime when bank video equipment documents that the robbery took place. The defense has attempted to establish just that by presenting sworn witnesses. The proponent—presumably the prosecution—does not deny that the witnesses gave testimony, but makes the further claim that they have all been suborned. We may see his counter-defeater as consisting of the new information undercutting the force of the rebutting defeater. Since the counterrebuttal (7) does not show (R) false but its rebutting force undercut, we position the representation of (7) over the line connecting the rebuttal box with the representation of the core argument and place an X on that line rather than over (R), since (R) is now conceded (See Fig. 1.27):

How would representing a counter to an undercutting defeater be different from representing counters to a rebutting defeater? Consider this argument with an undercutting defeater:

Fig. 1.27



① <The testimony of our moral tradition condemns extramarital sexual intercourse.> Hence presumably ② <extramarital sexual intercourse is sinful>, unless <the traditional attitude was based on factors which no longer hold.> But ③ <these factors continue to hold.> ④ <Birth control cannot guarantee that children will not be born out of wedlock,> since ⑤ <we may easily overestimate the effectiveness of present birth-control measures.> Yet ⑥ <We still need to give children the secure social status which only birth to married parents affords.> Furthermore, ⑦ <jealousy is still a problem.> In addition ⑧ <intercourse brings with it emotional ties which are not easily broken.>¹¹

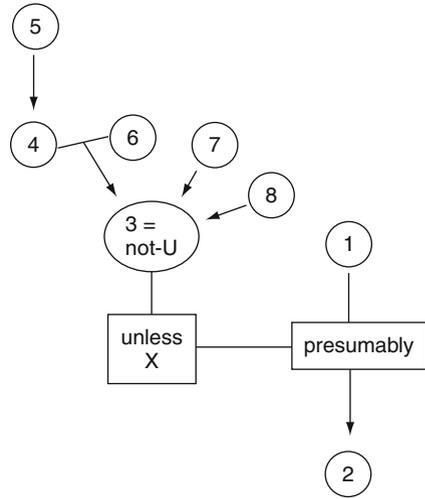
The claim that the traditional attitude is based on factors which no longer hold does not count as evidence that extramarital sexual intercourse is *not* sinful, but it does serve to undercut that the traditional attitude creates a presumption for the claim that extramarital sexual intercourse *is* sinful. The proponent is countering this undercutter by denying it and presenting an argument for that denial. This method then is exactly parallel to countering a mooted rebutting defeater, which counts as further evidence that rebutting and undercutting defeaters can be represented together in one defeater box. The effect of this counter is to neutralize the undercutter, but not in itself to give additional evidence for the claim that extramarital sexual relations are sinful. Hence, we should not represent the counter as a premise. But we can do this simply by omitting the head of the arrow, i.e. drawing just a line to the defeater box. We represent the counter's neutralizing function by crossing out the defeater countered (See Fig. 1.28.).

Should a proponent counter an undercutting defeater by conceding it and bringing forward some consideration in turn defeating its force, we should represent it just as we represented the counter to such a defeater in Fig. 1.25, but omitting the head of the arrow to the line connecting the defeater box to the core argument.

There is yet a third way for a proponent to respond to rebutting defeaters. Instead of countering them, he may simply admit them as negatively relevant to the conclusion, but in effect claim that whatever negative force they have is completely defeated by the original premises. Here “even if,” admitting their possibility, or “even though,” admitting that they actually hold, signals the statement of the rebuttal and the appraisal of its ineffectiveness in defeating the original argument.

¹¹cf. Stevenson (1944, 123–24), from which this example was adapted.

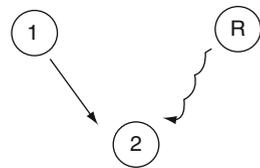
Fig. 1.28



Even if ⑧ Mrs. Wilson and her daughter had a reconciliation, the fact is that ① Mrs. Wilson’s will leaves all her estate to charity. Therefore ② her daughter has no share in her estate.

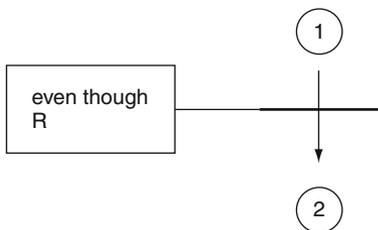
Here the proponent is asking us to rethink or reconsider the positive argument in light of both the positive and negative evidence bearing on the conclusion. Govier in (1985) calls such defeaters counter-considerations and introduces a way of representing them through wavy arrows (See Fig. 1.29).

Fig. 1.29



However, I believe such counter-considerations can be represented more perspicuously. Govier’s diagram assimilates them to premises, albeit premises supporting the conclusion in a funny way. By contrast, we view counter-considerations as a special type of rebuttal or defeater, one which in the proponent’s eyes at least is so weak that no counterrebuttal is called for. Hence, we think it better to represent counter-considerations through a rebuttal box, but with “even though” replacing “unless” to distinguish it from rebuttals needing countering (See Fig. 1.30).

Fig. 1.30



1.5 The Extended Standard Approach and the Toulmin Model

Integrating the extended standard approach, which we discussed in Section 1.1 (See pp. 6–7.), with the Toulmin model raises the question of how inferences from suppositions can be motivated dialectically. Such motivation is straightforward, as long as we are willing to allow a virtual role reversal between proponent and challenger in motivating the subarguments from suppositions occurring with these strategies. Suppose that the challenger has questioned why she should accept a statement of the form “If *P*, then *Q*.” The proponent could reply by first asking the challenger to suppose *P*. Should she agree, she would be granting a supposition through using a declarative sentence, as opposed to asking a question to which her role as challenger heretofore had been strictly limited. When we argue from suppositions, we are putatively drawing out their implications. The proponent could then ask whether the first intermediate conclusion *IC*₁ (assuming there is at least one intermediate conclusion) follows. The proponent now is asking a question. The challenger may respond either with “Yes” or “No.” If “No,” she may very well resume her traditional challenger role by asking why some rebuttal does not hold. Then the proponent must assume his traditional role to deal with the mooted rebuttal. Given that he does this successfully and the challenger eventually answers “Yes,” we can imagine her similarly answering “Yes” for each of the remaining intermediate steps down to admitting that *Q* follows given the last intermediate step. But then the argument from supposition *P* to *Q* has been motivated dialectically, and it is that *argument* which the proponent is offering in response to the challenger’s questioning why she should accept “If *P*, then *Q*.”¹²

1.6 Concluding Remarks

That we may find modalities, rebutting defeaters, undercutting defeaters, counter-considerations in arguments as products and that in countering them the proponent enters the dialectical tier of argumentation shows that we should want to integrate

¹²For a more detailed discussion of how arguments involving suppositions can be dialectically motivated, see our Freeman (1991, 221–228).

modalities and defeaters into argument diagrams. Our dialectical questions motivate how the serial, linked, and convergent patterns of the standard approach, together with the pattern of arguments involving suppositions, may be combined in an account of argument macrostructure and its diagrammatic representation with the modalities and rebuttals from the Toulmin model. This then is our approach to argument macrostructure. We have not followed Toulmin in distinguishing data, warrants, and backing among the elements of arguments. That it would be inappropriate to do this is implicit from our understanding of warrants as inference rules. We argue for our position in depth in [Chapter 3](#). That warrants or inference rules are not parts of arguments in no way diminishes their importance for argument evaluation. Indeed, we cannot say that the premises of an argument constitute relevant and sufficient grounds for accepting the conclusion unless the inference rule is reliable in some way.

We want to stress here that the whole issue of argument structure is intimately related to argument evaluation. As we have seen, our dialectical questions are basically evaluative questions, for they are in an obvious way related to the basic issues of whether the premises are acceptable, whether they are relevant to the conclusion, and whether they support the conclusion sufficiently or constitute adequate grounds for accepting the conclusion. If, once we have determined the structure of an argument, we can still legitimately ask these questions and the answers are nowhere to be found in the argument text, then we have a genuine criticism of the cogency of the argument. If we can ask why certain undefended premises are acceptable, if the argument should have been embedded in a larger argument involving serial structure, then the argument is flawed by including questionable premises, and may even be fallacious. Whether or not the argument is fallacious is also a function, at least in part, of its structure. In a single premise argument, the falsehood or questionability of the premise signals that the argument fails to be logically convincing on grounds of premise acceptability. Likewise, if one of the premises in an argument with linked structure is false or questionable, that whole reason fails. But in a convergent argument, the falsity or questionability of a premise does not necessarily mean that the entire argument is fallacious. Although ordinarily the case for the conclusion will not be as strongly supported, the remaining premises, if all acceptable, may constitute grounds adequate for accepting the conclusion. If a counter-defeating premise is not acceptable, the defeater still stands and the cogency of the argument is damaged to the extent that the defeater is damaging. By contrast, a serial argument whose premise immediately supporting the final conclusion is questionable in itself may not be fallacious, if that premise is adequately supported by initial or more basic premises. On the other hand, if that penultimate premise *is* acceptable, questionable basic premises will not indicate that the argument fails to present an adequate case for the conclusion. We can tell analogous stories for the interrelation of relevance and ground adequacy considerations and argument structure. Hence, not only is argument structure motivated by issues of argument evaluation, the import for the cogency of the argument as a whole of finding some premise or inferential move problematic will vary depending on the structural position of that premise or inference.

Our presentation of this approach to argument macrostructure may raise a number of questions. We have stressed the practical importance of a dialectical or

dialogical model of argument generation in motivating an account of the elements which may enter into arguments and the types of structure arguments may exhibit. Is our model simply practically useful or is a dialectical account indispensable to a proper theoretical understanding of argumentation? We address that question in [Chapter 2](#). What more may we say to show that Toulmin's distinction of data, warrants, and backing does not properly apply to arguments as products? We develop our argument in detail in [Chapter 3](#). Our account of argument macrostructure accepts the linked-convergent distinction. But this distinction has proven problematic since Stephen Thomas introduced it. Indeed, in (1996), Douglas Walton identifies it as one of the three main problems in structural analysis.¹³ In light of the conflicting intuitions on this subject, can one justify making the distinction and even if one can, what is the value of making it? We address these questions in [Chapters 4, 5, and 6](#). Our discussion of enthymemes in [Chapter 7](#) addresses further questions the linked-convergent distinction raises. Finally, in [Chapter 8](#) we address further issues relating structure and evaluation.

Appendix 1: Comparison with Wigmore's Chart Method

In (2000), Jean Goodwin called the attention of the argumentation community to a method of argument diagramming, designed for certain judicial arguments, antedating by about 40 years Beardsley's method introduced in 1950, previously the earliest method of diagramming known to scholars. Goodwin remarks that our method presented in (1991) and summarized in this section seems closest to Wigmore's of those accounts proposed in the argumentation community. We should like to comment on this method and this comparison. The Chart Method is distinctly dialectical. Besides representing the support from reasons to conclusions by upward directed arrows, the Method allows representing objections to conclusions, which Wigmore calls explanations, and refutations of these explanations. A testimonial reason for some claim is represented by a square, the conclusion itself by a circle, an objection to a conclusion by a triangle (equilateral) positioned to the left of the conclusion, pointing toward it, and connected to the conclusion by a line. A refutation of the explanation is entered to the right of the conclusion, again in a triangle pointing toward the conclusion connected to it by a line, but with a cross placed on this line. If several reasons are offered for a single conclusion, they are in effect represented as linked. The Chart Method furthermore allows representing reasons for reasons serially.

In not distinguishing between linked and convergent reasons, the difference between Wigmore's Chart Method and our integrated approach is more apparent

¹³On Walton's view in (1996), the other two problems are distinguishing arguments from explanations and supplying missing premises. However, if we understand argument structure to concern how the elements in an argument fit together, the argument/explanation distinction concerns what texts should be regarded as presenting arguments and so as being candidates for analysis as arguments, rather than as marking a distinction in types of argument structure. The distinction is thus preliminary to argument analysis. Hence we shall not discuss this issue in these essays. Arguments with missing premises are commonly called enthymemes. We turn to the issues enthymemes pose for argument structure in [Chapter 7](#).

than real. Goodwin indicates “that Wigmore takes his Chart primarily to represent the thought processes of someone trying to make a decision” (Goodwin 2000, 229) in a judicial context. This process consists in constructing an argument for some judicial decision. Argumentation in such a context has some special features, in particular when one is trying an issue of fact. First, the basic premises of one’s reasoning concern received sworn testimony. Hence, receipt of that testimony and its presumptive reliability are established facts. The question of their basic premise acceptability does not arise (barring challenges to the testimony). Secondly, if one has taken a piece of testimony into account in reasoning toward a decision, one sees its relevance for supporting some claim in that reasoning process. The issue of relevance thus also does not arise. But, as we shall develop in [Chapter 6](#) (See pp. 170–171), a primary motivation for making the linked-convergent distinction concerns identifying and subsequently removing from further consideration unacceptable or irrelevant reasons. In asking whether the remaining premises sufficiently support the conclusion, we ask about their combined weight, i.e. we modally link them. Wigmore uses a horizontal line to indicate this linkage, as we have done (either through a simple straight line or a modality box). That Wigmore’s arrows are upward directed, while on the standard and integrated approaches they are downward directed is insignificant. Hence, for the core arguments or the reasoning behind them which Wigmore wants to chart, the two approaches are equivalent.

Wigmore apparently recognizes rebutting but not undercutting defeaters. If correct, his seeing defeaters attach to the conclusion being attacked rather than the step from premises to that conclusion is motivated. As we have already argued, we believe that our method of attaching the defeater box to the modality or the horizontal line is preferable. If an inferential step is less than deductively valid, then augmenting the premises with additional information, consistent with those premises, can produce a set of statements in light of which the conclusion is not sufficiently supported, even though the original premises constituted *prima facie* adequate grounds for the conclusion. That is, the strength of the original argument is compromised by this new information, whether or not the information is negatively relevant to the conclusion or to the cogency of the original argument. Information of either sort attacks the degree of sufficiency of the original argument, possibly expressed through a modality. Attaching the rebuttal box to the modality or to the line from premisses to conclusion then is appropriate.

Like Wigmore’s Chart Method, our method allows representation of counter-rebuttals and, more generally, counter-defeaters. The mode of representation appears distinctly different, but again this difference may be more apparent than real. To see this, let us contrast how Goodwin diagrams an argument adapted from Quintilian using the Chart Method with how we diagram it on our expanded standard approach:

1. There is blood on this man’s cloak. Therefore
2. He was involved when the victim was stabbed to death.
3. Objection: His cloak was stained when he sacrificed a chicken.
4. Reply: He didn’t sacrifice a chicken.
5. Evidence: His neighbor testifies that he’s an atheist and never sacrifices

- 6. Objection: It was stained from a nosebleed.
- 7. Reply: He didn't have a nosebleed.
- 8. Evidence: A doctor testifies that he examined the nose and found it sound.

(Goodwin 2000, 236) Fig. 1.31 presents Goodwin's diagram according to the Chart Method:

Fig. 1.31

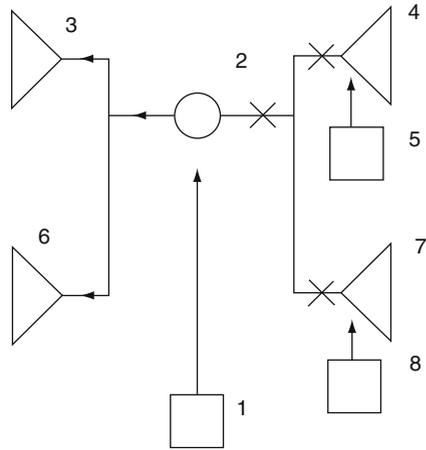
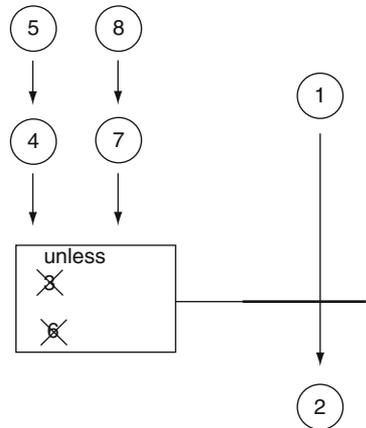


Fig. 1.32 diagrams the argument according to our expanded standard approach:

Fig. 1.32



Wigmore's Chart Method calls for placing rebuttals on one side of the diagram of the core argument, counter-rebuttals on the other side. This could facilitate weighing one set of considerations against another, although it may not be immediately perspicuous how counter-rebuttals are connected to the rebuttals they counter. The expanded standard approach makes this connection manifest. Goodwin notes

another feature of Wigmore’s Chart Method which parallels our expanded standard procedure. Neither represents warrants as parts of the diagram. For the most part, in judicial reasoning Wigmore sees argumentation moving from a particular claim to a particular claim. Goodwin notes that there are exceptions when generalizations are explicitly presented which can be defended by special evidence—and which may need such defense, since there is no presumption for them as expressing the way things generally are. For example, if an expert witness testifies that “Correct vision from such a location is impossible,” representing that statement in a Chart supported by the expert’s testimony is proper. As we see it, in this case such a generalization is a premise, not a warrant. Hence, we see Wigmore’s Chart Method in effect as isomorphic to a simplification of our expanded standard approach appropriate for analyzing judicial proof.

Appendix 2: Comparison with Pollock’s Inference Graphs

In (1995) and continuing in subsequent publications, in particular (2008), Pollock has presented an approach to argument diagramming resembling our approach in several respects but markedly contrasting with it in others. Pollock’s system contains three distinct types of elements: nodes, inference links, and defeat links. Nodes in inference graphs represent premises or conclusions. In (1995), Pollock uses Greek letters to indicate nodes. In (2008), he uses either statement schemes built up from capital letters or whole sentences written out. Support links indicate that a conclusion may be inferred from one or more premises via a single inference rule. Pollock represents support links through arrows. In both (1995) and (2008), he incorporates a modal indication into the arrows themselves. Inferences instancing conclusive inference schemes are represented by solid arrows, while those instancing defeasible schemes are represented through dashed arrows. Thus the graph (See Fig. 1.33)

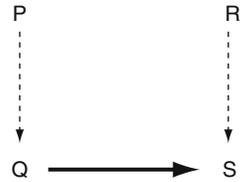
Fig. 1.33



indicates that the inference from P to Q is defeasible, while the inference from Q to R is conclusive or necessary.

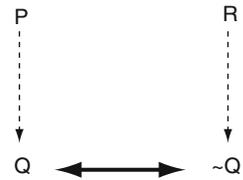
Defeater links diagram defeater relations. In both (1995) and (2008), Pollock uses heavy arrows to represent defeat relations. Thus Fig. 1.34

Fig. 1.34



represents that node S is defeated by node Q. In marked contrast with the system of diagramming we have presented, defeat relations hold between nodes. In (1995), Pollock represents them as holding between nodes exclusively. In (2008), in line with his distinction between rebutting and undercutting defeaters, defeat arrows may point either to nodes or to inference links. Defeat may go both ways. If P yields Q defeasibly while R yields $\sim Q$, (cf. (2010), 10.) Fig. 1.35 represents not only the inferences but the mutual defeat relations between Q and $\sim Q$.

Fig. 1.35



In (1995), Pollock represents defeat links as holding between nodes exclusively. By contrast, in (2008) he represents only rebutting defeat relations as holding between nodes, while undercutting defeat relations hold between a node and an inference arrow. Simplifying his diagram somewhat yields Fig. 1.36. (Here “ $\square \rightarrow$ ” represents the subjunctive conditional.) However, in the balance of his discussion, Pollock speaks of nodes, rather than support (or defeat) links, being defeated.

The underlying motivation behind Pollock’s inference graphs is distinctly different from the motivation underlying our mode of representing argument structure. In analyzing an argument, we are taking the challenger’s perspective. A challenger’s critical questions motivate the exfoliation of an argument through premises supporting the main conclusion, those supporting subconclusions, and those countering rebutting or undercutting defeaters, all in their various configurations. By contrast, Pollock is concerned with what beliefs are justified for a reasoner, given both the defeasible and conclusive inferences he has made from premises of which he is sure. Thus Pollock takes the proponent’s perspective. A reasoner begins with basic premises, which may be the result of perception. Pollock indicates that perception may be broadly construed to include introspection and what he calls “proprioception” (2008, 455). A reasoner infers further conclusions from the basic premises

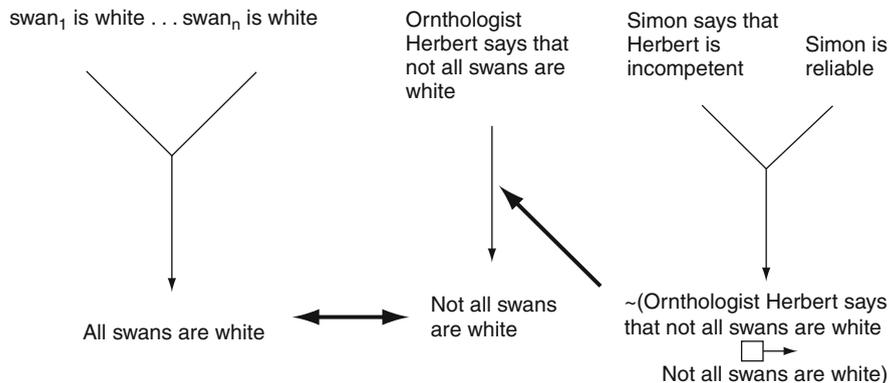


Fig. 1.36

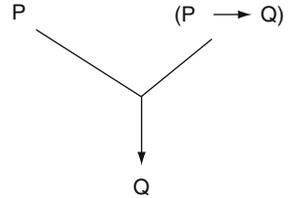
licenced by either conclusive or defeasible schemas. (cf. 1995, 86.) Instances of such reasoning can be expressed in arguments, but such arguments will be generated by recognizing conclusive or prima facie inference licences, rather than responding to the questions of a critical challenger.

As Pollock points out, a reasoner may construct a number of arguments. However, he may want to consider not each argument or inference individually, but his inferences overall. He wants to determine what he is justified in believing on the basis of all his reasoning collectively. Since some of that reasoning is defeasible, he may have constructed defeasible arguments to both **P** and \sim **P**, for some proposition **P**. Which of these two, if either, should he accept? A facilitating step in answering this question is to amalgamate the graphical representations of the reasoner’s individual arguments into an overall inference graph. The graph will show not only how the reasoner has inferred propositions ultimately from basic beliefs but defeat relations between the propositions he has inferred. Ideally, on this basis the reasoner will be able to determine which propositions are undefeated and which defeated. The reasoner is justified in believing the propositions which are basic for him. Whether or not a non-basic proposition is defeated depends upon its support relations to other propositions and to the defeat relations holding not only between the proposition itself and other propositions but between its supporting propositions and other propositions. As Pollock puts it, “A justified belief is one supported by an undefeated node of the inference graph” (1995, 91). We say “ideally,” since presenting general rules for determining whether or not a proposition is justified or defeated on the basis of an inference graph poses distinct problems. We turn to these issues specifically in [Chapter 8](#).

In one way, inference graphs are simpler than argument diagrams. Since a graph represents reasoning from a proponent’s perspective, as opposed to reasoning drawn out from a proponent by a critical challenger, and a reasoner proceeds according to a stock of inference licences he has internalized, the question of relevance does not arise for the reasoner. Hence, there will be no need to distinguish between linked

and convergent arguments. Pollock’s representations of multi-premised inferences in (2008) makes this plain, where he uses a representation which connects separate premises to graph both linked and convergent arguments. Compare Fig. 1.37 with Fig. 1.38:

Fig. 1.37



(2008, 453)

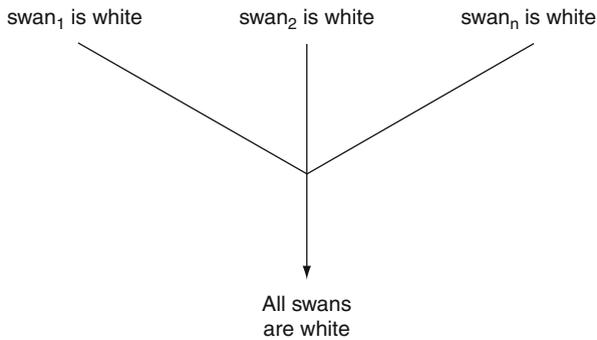


Fig. 1.38

(2008, 454) As we shall develop in Chapter 8, to evaluate the (prima facie) strength of an inference, we evaluate the inferential step from the *conjunction* of the premises to the conclusion. From the reasoner’s perspective, then, the linked-convergent distinction need not be raised.

By far, the most significant contrast between Pollock’s inference graphs and the system of argument diagramming we have developed concerns the representation of defeaters. We may argue that these contrasting methods reflect the contrary perspectives of the proponent and challenger. Since the question for the reasoner is whether a given belief is justified, it is perfectly appropriate for a defeat arrow to point to a node, as opposed to an inference link, in an inference graph, even when the principle of inference corresponding to the link has been defeated. The reasoner wants to know the justification status of the belief. Likewise, even if the arrow points to the support link, it is still appropriate to speak of the node (and the proposition it represents) being defeated. More centrally, if a node or a support link to a node are defeated by being linked via a defeat link to an undefeated node, then the reasoner is not justified in believing the proposition that node represents. By contrast, the

challenger in a dialectical situation may find it an open question whether a given conclusion of an inference is defeated, should she question the inferential step on the basis of a rebutting defeater. **R** may be a reason for $\sim C$, but there may be no presumption either that **R** does or does not hold. **R** is not a justified belief for the challenger, but an open question. This open question may very well affect the status of the inference from the premises proffered for **C** to **C** itself, until the proponent can somehow neutralize the question of whether **R** holds, either by showing $\sim R$ or by conceding **R** but pointing out that its rebutting force is countered by some further consideration. In light of this question, do the premises support the conclusion with sufficient weight?

This question raised by a rebutting defeater, as we see it, has implications for representing the structure of arguments from the challenger's viewpoint. As we have emphasized, an inferential move from premises P_1, P_2, \dots, P_n to conclusion C instances an inference licence. In (1977), Rescher in effect represents such an inference licence through $C/(P_1 \& P_2 \& \dots \& P_n)$, where the licence is *prima facie* or *ceteris paribus*. This form Rescher calls a *provisoed assertion*. When $P_1 \& P_2 \& \dots \& P_n$ obtains, C obtains *ceteris paribus* or $P_1 \& P_2 \& \dots \& P_n$ constitutes *prima facie* evidence for C (Rescher 1977, 6). For simplicity, Rescher does not consider undercutting countermoves to *provisoed assertions*, but he does consider what in effect are rebutting countermoves, which he calls *distinctions*. To the proponent's $C/(P_1 \& P_2 \& \dots \& P_n)$, the challenger may respond " $\sim C[(P_1 \& P_2 \& \dots \& P_n) \& Q]$ but for all you have shown $(P_1 \& P_2 \& \dots \& P_n) \& Q$ holds," i.e. "for all you have shown, Q , a rebutting defeater of P , holds." The proponent can now argue against Q or can concede Q but indicate that Q is neutralized by asserting a further distinction, $C/[(P_1 \& P_2 \& \dots \& P_n) \& Q] \& R$. R in effect is a rebutting defeater of $\sim C$. The point we want to emphasize is that distinctions are countermoves to *provisoed assertions*, which are counterparts to warrants of arguments. Hence distinctions, and thus rebutting defeaters, pertain to the issue of the ground adequacy of arguments, from the challenger's perspective. Taking that stance, representing the rebutting defeaters which distinctions raise as modifying the strength of an argument (or neutralizing the move from the premises to the conclusion), as we have done by attaching the rebuttal box to the modality box or to the line indicating that the weight of several independently relevant premises is being combined in supporting the conclusion, is appropriate.

Chapter 2

The Dialectical Nature of Argument

2.1 Dialogical Situations and Dialectical Situations

Imagine a discussion or debate going on between two or more persons over some contested issue, perhaps one of the “hot” topics of current public controversy. Some if not all of the parties to this exchange have distinct views they would like to put across. Each would like to persuade the others of his or her view. In the course of the discussion, these views will be propounded, attacked, defended, and modified in the light of criticism until either a consensus is reached or the parties abandon or recess the argument. We call such an interchange a *dialogical situation*, for the participants are clearly engaged in some sort of dialogue with each other. It is clear that frequently dialogical situations are very complex systems of personal interaction, where the participants play various roles. To propound a view and to attack other views involve two distinct roles, distinct again from drawing out arguments for or against different positions. That role is distinct again from criticizing argumentation. Of course, just because these roles are distinct does not mean that a participant cannot play more than one of them. Indeed, in making one and the same contribution, a participant may be playing several roles. One can attempt to draw out an argument for a view by asking questions in a critical manner. One can ask questions to shore up the logical weaknesses of the argument as developed thus far. Here one and the same person plays both the role of questioner and critical judge.

Of course, we can also imagine the participants to such an interaction having distinctly different attitudes toward this dialogical situation. Some may be simply interested in presenting their own opinions and having a go at anyone with the temerity to challenge them or present what appears to be a contrary view. If all the participants in our dialogical situation held this attitude, it is hard to see how consensus—much less rational consensus—could ever emerge. The participants would simply bash each other until bashing served no further purpose or the “discussion” was otherwise interrupted or terminated.

But we can also imagine dialogical situations where the participants have a very different attitude. Of course, they shall want to present their own points of view. But they will also want to test these points of view by exposing them to different

viewpoints and to the critical probing of the other participants in the dialogical situation. Here, genuine consensus might be a possibility. At least, the participants to the situation should leave it with a better appreciation of the strengths and weaknesses of the views expressed. For reasons which will emerge shortly, we want to call such situations *dialectical* in addition to being merely dialogical. It is with dialectical situations that we shall be principally concerned.

Clearly, the complexity of a dialectical situation varies directly with the number of roles its participants are playing. If several protagonists are each trying to defend a separate and distinct view and are challenging each other to defend their own views, we have a much more complex situation than when one respondent develops an argument under the questioning of an interlocutor-challenger. Such a simple basic exchange we call a *basic dialectical situation*. Here just one person begins by making a claim, the other challenges it, the respondent answers, and based on that response, the challenger may ask further questions.¹ We understand that the challenger is not interested in putting forward a position of her own or in defeating or discrediting the basic claim of the respondent or proponent. Her role is simply that of constructive interlocutor, trying to draw out from the proponent the most cogent argument of which he is capable. Her role is to initiate and continue dialogue until a successful, logically cogent argument has been formulated, or it becomes apparent such an argument cannot be given. It is not to cut off exchange but to continue exchange by getting answers to questions, where those answers are logically needed. In effect the challenger plays one compound role. To use van Eemeren and Grootendorst's terminology, she is a *rational judge*, someone whom the speaker regards as evaluating what he says and entitled to question his claims overtly and critically, if she finds them not convincing (van Eemeren and Grootendorst 1984, 5, 9, 15).

2.2 What Makes Dialectical Situations Dialectical?

Why do we call these situations dialectical? First of all, what do we mean by "dialectical"? This word has had a rather wide range of meanings in the Western philosophical tradition. But one concept frequently associated with "dialectical" is that of opposition. In Hegelian and Marxist dialectics, we hear of opposites and the struggle of opposed forces. There is certainly opposition in a basic dialectical situation. For a challenger to question a proponent's claim which he has shown himself committed to puts her in opposition to him. But mere opposition is not enough for genuine dialectic. We have distinguished between dialectical and dialogical situations. Where the participants to a "discussion" belligerently propound their own views and seek to discredit opposing positions by any verbal means whatsoever, including outright fallacious argument, we have a dialogical "exchange" with opposition, but not a dialectical situation. It is not enough merely to co-present

¹The challenger/respondent terminology is derived from Wellman (1971).

opposing viewpoints, and bashing to see who can stand up the longest is not the additional condition required. Following Plato, such situations should properly be called *eristical*, from ἔριστος, strife.²

We flesh out our conception of “dialectic” more when we specify that the exchange must involve questions and answers. We develop the concept further when we specify that through this questioning and answering procedure the participants are seeking to critically test the views that have been propounded. To use van Eemeren and Grootendorst’s terminology, the participants are engaged in a *critical discussion*, “the purpose of the discussion being to establish whether the protagonist’s standpoint is defensible against the critical reactions of the antagonist” (van Eemeren and Grootendorst 1984, 17). This means that questions will be designed to expose or lead to the weaknesses of a claim. This is in line with the tradition which counts *reductio ad absurdum* reasoning as dialectical. To the proponent’s claim, the challenger may ask a series of questions leading him to infer the very opposite of his claim.

We must add one further condition to the concept of dialectic. This applies in particular to basic dialectical situations and makes them paradigmatically dialectical. We can imagine two persons discussing some issue, making claims about it and raising questions about those claims. But we can imagine the proponent, shortly after enunciating his view, raising questions about it. And we can imagine the challenger propounding contrary claims of her own. Such an exchange could get rather chaotic. It would be hard to assess whether the issue had been advanced or advanced properly. But, as we have indicated in defining a basic dialectical situation, the roles of the participants are strictly defined. One participant is the proponent, who makes an initial claim and subsequently acts as respondent to the challenger’s questions. His role is not to ask questions and ordinarily he will not do so.³ The role of the challenger is precisely to ask questions, and not to propound views of her own. She “is supposed to adopt the position of a rational judge. . . who reacts to the argumentation critically, so that a critical discussion ensues” (Van Eemeren and Grootendorst 1984, 15). Her role is not to answer questions, and she ordinarily will not do so.⁴ So we may add to our conception of dialectical that a situation is dialectical just in case each participant has a clearly defined role.⁵ This is an instance of being regimented. By a situation being dialectical, then, we mean that it involves some opposition among its participants over some claim, that it involves interactive questioning for

²Roland Hall points out that Plato used “eristic” to describe such a degenerate form of dialectic in Sophist 231E. See Hall (1967, p. 386).

³The exception, as we have noted in Chapter 1, is when the proponent is presenting an argument involving a supposition. See pp. 6–9.

⁴Again, with the exception of arguments involving suppositions, which we have discussed in Chapter 1. See reference in footnote 3.

⁵In 1984, van Eemeren and Grootendorst regard this as a hallmark of being dialectical. “The crux of a dialectical approach is that argumentation is regarded as an attempt to defend a standpoint in respect of an expressed opinion against the critical reactions of a rational judge in a regimented discussion” van Eemeren and Grootendorst (1984, p. 18).

critically testing this claim, and that this process proceeds in a regimented, rule governed manner. The rules define the roles of participants in the procedure.

We believe this account of “dialectical” is in line with the original use of the term in the Western tradition. As Hall points out in (1967), both Zeno and Socrates engaged in dialectic in the sense of drawing out unacceptable consequences from a hypothesis, and Aristotle credits Zeno with inventing dialectic (Hall 1967, 385). Socrates widened the concept, regarding dialectic as the search for truth by question and answer (Hall 1967, 385), and Plato accepted this characterization. The requirement of regimentation reflects the medieval heritage of the formal disputation, a dialectical exercise.⁶

Given this explication of the concept dialectical, it is obvious why we call basic dialectical situations dialectical. There is opposition in these situations. The proponent’s views are challenged. These challenges are critical challenges, intended to critically test the proponent’s thesis and the argument he brings forward to support it. Finally, the procedure is regimented. Proponent and challenger have clearly defined roles. Also, there are standards for judging that the dialectic is advancing. Each contribution, be it a question, answer, or some other assertion, should be determined by or apropos to the previous contributions. A challenger’s question will be appropriate just when it spots some logical or evidential difficulty or problem. A proponent’s answer will be appropriate when it meets the issue of that question.

2.3 The Basic Dialectical Situation as a Model for Argument

We contend that this basic dialectical situation can serve as a model of argument. That is, the paradigmatic arena for argumentation is the exchange, discussion, debate between proponent and challenger over some issue. Argument is the attempt to convince a skeptical but rational judge of the rightness or rational acceptability of a claim.

In saying this, we are not proposing to make an empirical claim about how arguments in fact are generated. Surely, not all arguments as a matter of fact originate in dialogues between a proponent and a challenger playing just the roles assigned to them in a basic dialectical situation. Many arguments may simply be conceived as monologues, as developing a series of reasons supporting some conclusion. Persons composing them might not imagine they are holding conversations with potential interlocutors or even with themselves. On the other hand, in typical adversarial situations, the challenger will have a thesis of her own to support. She will play the roles both of challenger and proponent. We should expect the proponent to challenge her thesis and its argumentation, thus also playing the additional role of challenger. Of course, we can imagine dialectical situations even more complex than this, with more than two participants playing several roles.

⁶“Perhaps the clearest, and surely historically the most prominent, instance of dialectical process is formal disputation.” Rescher (1977, 1.) See pp. 1–3 for an account of formal disputation.

But dialectical situations where several persons are arguing for distinct claims could in principle be reduced to the basic dialectical situation. Where several arguments are being developed simultaneously, we can imagine each being developed in its own basic dialectical situation. Interior dialogues where one person questions himself about the acceptability of a view are just special basic dialectical situations where one and the same person plays both the proponent and challenger roles. He is somehow divided in himself. Even if a person composing an argument as a monologue does not consciously carry out this interior dialogue, it seems plausible that the reasons put forward and the considerations entertained are instinctively those which would answer anticipated challenges. The dialogue is implicit. Plato makes this point in the *Sophist*: “Thought and speech are the same thing, but the silently occurring inner dialogue of the soul with itself has been specially given the name of thought” (*Sophist* 263E. Quoted in Hall 1967, 386). The point is that we can look at arguments presented by one person in written prose or spoken address as presenting the results of such challenger-responder dialogues, the argument that has been elicited through them.

We may fruitfully draw an analogy between basic dialectical situations and the original contract in Rawls’ social contract theory of justice. According to this model, what is just is what would accord with “the principles that free and rational persons concerned to further their own interests would accept in an initial position of equality as defining the fundamental terms of their association” (Rawls 1971, 11). The original position involves “a veil of ignorance” (Rawls 1971, 12). Those in this position do not know what favors or liabilities society or natural endowment have dealt out to them. They choose the principles which will govern their association in complete ignorance of these factors. In fact, since rational endowment and social background put humans from birth in an unequal position, the original contract is purely hypothetical. Yet it has normative force. “One conception of justice is more reasonable than another, or justifiable with respect to it, if rational persons in the initial situation would choose its principles over those of the other for the role of justice. Conceptions of justice are to be ranked by their acceptability to persons so circumstanced” (Rawls 1971, 17).

Similarly, the concept of a basic dialectical situation is hypothetical or an idealization. We are not saying that given a particular argumentative text, there was an actual, historical interpersonal exchange between a proponent and a questioner/rational judge which generated the argument. In particular, we are not claiming that there are, as a matter of fact, rational judges. What we are claiming is that given such a text, we can see the development of the reasons presented to justify the conclusion, the exfoliation of the argument, as prompted by the questions a rational judge would ask in the basic dialectical situation. Not only are we claiming that the argument can be viewed this way, but that this gives insight into argument structure. The model of the basic dialectical situation gives us norms for appraising approaches to understanding and representing the structure of arguments.

Furthermore, as the original contract is normative for conceptions of justice, so also is the basic dialectical situation normative for the logical cogency of arguments. We can appraise the logical cogency of an argumentative text by determining

whether a rational judge would be satisfied with the argumentation as developed in that text. Would her doubts have been satisfied, her objections met? Or would she continue to ask further questions? Viewing an argumentative text as developing through a challenger/response exchange, should the challenger qua rational judge be completely satisfied with the responses as incorporated into the argumentative text, then we should have a logically cogent argument. Should she not be satisfied, yet this is all the argument that has been given, then it is incomplete, deficient on one or more logical grounds, in particular the grounds of premise acceptability, relevance, and ground adequacy.

We have indicated that arguments as monologues can be pictured dialectically. But it is precisely at this point that our theory raises a measure of controversy. It insists that the process aspect of argument is central and essential to argumentation. We see dialectical exchange as inherent to understanding what argument is. This goes against the standard logical tradition of defining arguments as discourses where various statements are presented to support some further statement. Such discourses are arguments as products on our view. Insisting on the process aspect of argument also goes against the fact that most arguments we meet with in texts, in editorials, essays, speeches are presented in monologues. One might then ask, given that very many of the arguments we meet with are presented monologically, how can you defend your dialectical conception as basic? How can you justify the appropriateness of this dialectical model as basic for our understanding of argumentation? To put the challenge most trenchantly, Is your story of arguments arising in basic dialectical situations simply that—a story? Surely, we may take an argumentative text and reconstruct it as a challenger-response dialogue. From the text, we generate a story of how the argument came to be. But here, the text came first and then the story. Is not the argument as monologue then basic? Does the story or the dialectical model it embodies give insight into the argument?

How does our model give insight or focus insight into argumentation? We may argue this on two grounds. First, our model is based on and highlights a comprehensive picture of argument. Secondly, it places the very purpose of argument at the center of understanding what argument is. In 1979 and 1989, Joseph W. Wenzel points out that argument involves a family of concepts. We may distinguish process, procedure, and product. Argument is a natural process of human communication. As such, it is basically interpersonal and interactional. It involves “one or more social actors addressing symbolic appeals to others in an effort to win adherence to theses” (Wenzel 1979, 84). This aspect of argument has been traditionally studied by rhetoric, which is concerned with how effective these appeals are in winning adherence (Wenzel 1979, 84). Argument as procedure involves rules for regulating, deliberately controlling argumentative communication, so that the interlocutors will not merely address appeals but will enter into “a uniquely cooperative effort to reach joint understanding or critical decision” (Wenzel 1979, 84). Such rules have traditionally been incorporated in dialectics, whose central concern “is to determine and promote conditions for candid and *critical* argumentation” (Wenzel 1979, 84, italics in original). Argument as product involves the linguistic reconstruction of what the argumentative process and procedure have generated. It involves first of

all identifying premises and conclusions in what has been generated, “laying out” what is perceived as the argument, with a view to evaluating its logical cogency (Wenzel 1979, 84–85). This is the traditional province of logical appraisal. Our dialectical model of argument involves all three of these aspects of argument. It does not truncate the notion of argument, as a monological model, concentrating on argument as product, might very well do. Merely seeing arguments as discourses in which certain premises are put forward to support or deductively entail a conclusion leaves out the whole dynamic of how arguments are generated. By contrast the dialectical model, the image of the basic dialectical situation is motivated by and pictures the very process by which arguments are generated. And the dialectical model includes the aspects of procedure and product also. Dialectical situations are regimented and they seek to subject theses and argumentation to critical test. This comprehensiveness commends the dialectical model to us.

What is the purpose of argument? As van Eemeren has pointed out,⁷ arguments by definition seek to establish something. That means there is a gap between some claim and acceptance of that claim. The claim is in doubt and argument seeks to remove the doubt, thus closing the gap. Indeed, if a claim were not somehow in doubt, why argue for it except perhaps as a school exercise? Now a claim’s being subject to doubt does not mean that it is actually doubted by some particular person. Imagine a researcher who has just gathered evidence he considers sufficient to confirm some hypothesis, a hypothesis he has framed in the light of his research work. He, at least, is convinced of this proposition. But at this point, others will not have thought about the claim and so have no opinion, much less any doubt, about it. But they certainly might very well have doubts if the researcher just baldly stated his hypothesis, and he is sensitive at some level to this. He realizes that he needs to *argue* for his hypothesis, and should he proceed cogently here, he will consider the objections persons might bring to his claim. Whether or not he actually imagines reasoning with his challengers, what he is doing is tantamount to attempting to convince them. This means that the purpose of arguments is not just to make assertions, even assertions that some statements support others, but to convince an audience, at least a potential audience, of some claim. Rescher in (1977) reinforces this point for arguments presented monologically, in writing or in oral address:

Writing of persuasive intent is closely comparable to disputation. The author is cast in the role of a proponent, and his reader is cast in the dual roles of sceptical opponent and determiner. . . . Reasoning in written exposition can and should be regarded as *argumentation* aimed at winning over an opponent: in both senses of “winning over,” namely *defeating* the objections he made in his role as opponent, and *persuading* or *convincing* him in his role as adjudicative determiner (Rescher 1977, 52).

If we accept that the purpose of argument is to win over—convince—then it should be clear that the dialectical model of argument gives insight into what

⁷In response to questioning at his presentation “Argumentation and Fallacy Analysis in a Pragma-Dialectical Perspective” at The Fifth International Conference on Critical Thinking and Educational Reform, Sonoma State University, Rohnert Park, California, August 3, 1987.

argument *is*. Dialectical situations are precisely those situations which intend convincing to take place. The dialectical situation, then, offers a comprehensive picture of argument highlighting its essential purpose. These considerations justify taking it as our basic model of argument.

2.4 Some Other Dialectical Views on Argument

We are by no means alone in seeing argument as dialectical. In 1987, Blair and Johnson endorse a dialectical conception of argument in complete agreement with ours. As they see it, argumentation involves at least two roles, that of questioner and answerer. This, as they point out, goes back to Aristotle's conception of a dialectical exchange in the *Topics*. Argumentation begins when some proposition is challenged, put in doubt, although recognizing that a proposition could be challenged, rather than confronting an overt challenge, may be enough to initiate argumentation. Questioner and answerer have compatible purposes in proceeding with the argumentation.

The questioner aims at showing the answerer that the proposition should be challenged (at best) or rejected (at worst), or at discovering that it can withstand challenges. The answerer, conversely, seeks to show the questioner that the proposition can withstand the challenges, or to discover that it should not be accepted (at least in the absence of further support) or that it should be rejected (Blair and Johnson 1987, 46).

But these are precisely the respective purposes of proponent and challenger in our basic dialectical situation.

The dialectical picture of argumentation is central also to another major contribution to argumentation theory, Perelman and Olbrechts-Tyteca's *The New Rhetoric* (1969). They advocate a fundamental model of argumentation strikingly similar to ours. For them, demonstration and argumentation are distinct. A mathematician or logician may demonstrate a proposition by showing that it follows from certain axioms. The demonstration is monological. The presence of an audience or interlocutor seems accidental here. But arguing means "using discourse to influence the intensity of an audience's adherence to certain theses" (Perelman and Olbrechts-Tyteca 1969, 14). According to this conception, argumentation by definition involves two parties, a speaker and the audience. There is a two way interaction between these two parties. Not only is the speaker trying to move the audience to accept a certain thesis, the audience will influence how the speaker will carry out this task.

Furthermore, certain audiences will be normative for a speaker, as the questions of our interlocutor are normative. Argumentation addressed to these audiences constitutes convincing as opposed to mere persuading, using certain special features and tendencies of an audience to gain adherence. These normative audiences include the *universal audience*, "the whole of mankind, or at least, of all normal, adult persons" (Perelman and Olbrechts-Tyteca 1969, 30), the *single interlocutor*, and the speaker or *subject himself* (Perelman and Olbrechts-Tyteca 1969, 30). For normative purposes, the universal audience is principal. What does this mean? For Perelman and Olbrechts-Tyteca, each audience which a speaker addresses is a construction of that

speaker. He builds an image of the audience which in particular will indicate what argumentation will be effective. What premises will the audience grant? What attitudes will affect the inferences audience members make? Speaker's images may vary in how true they are to the audiences they depict. The goal, of course, is to develop as adequate an image as possible. A speaker will also develop an image of an audience composed of all rational or competent beings. "Every person believes in a set of facts, of truths, which he thinks must be accepted by every 'normal' person, because they are valid for every rational being" (Perelman and Olbrechts-Tyteca 1969, 28). Perelman and Olbrechts-Tyteca are not prepared to grant that these facts and truths considered valid are in fact valid for every rational being. Each speaker must submit his image to empirical test. However, "he will have done all he can to convince, if he thinks he is validly addressing such an audience" (Perelman and Olbrechts-Tyteca 1969, 28). To address an argument to the universal audience, then, means to give reasons one believes anyone who understands them will have to regard as compelling. The speaker believes he has a right (Perelman and Olbrechts-Tyteca 1969, 31) to expect the universal audience to recognize the force of his argument. Hence, for the speaker at least, his image of the universal audience gives him his norms for cogent argument.

The model of argument before a mass audience, even should that audience be the universal audience, is problematic, however. An argument addressed to a group audience will display certain rhetorical traits. In particular, it will involve "the technique of the long, sustained speech. But this kind of speech, with all the oratorical action involved in it, would be both ridiculous and ineffective before a single hearer" (Perelman and Olbrechts-Tyteca 1969, 35). Hence, even if such an argument were logically cogent, we could not presume it would be accepted by all members of the universal audience, at least when those members were addressed individually. When addressing a single hearer, it

is normal to take his reactions, denials, and hesitations into account, and when he notices them the speaker does not think of evading them. He has to prove the contested point, apprise himself of the reasons for his interlocutor's resistance, and thoroughly understand his objections (Perelman and Olbrechts-Tyteca 1969, 35).

A single hearer is a genuine challenger. This role is just not possible for a general audience. As long as the single hearer is a representative of the universal audience and so her reactions to the argument bear on its logical cogency, by taking these reactions into account and responding to them the speaker may construct, from his perspective, a more cogent or at least logically tighter argument than if he were composing an address to a collective audience. The single hearer's reactions help to generate a cogent argument from the speaker's point of view. Hence the picture of argumentation before a single hearer who is a representative of the universal audience is strikingly analogous to the picture of the basic dialectical situation. This analogy supports the aptness of our model.⁸

⁸Besides these authors, we may also mention that van Eemeren and Grootendorst (1984, Chapter 1) explicitly discuss the "dialectifying" approach to argument—that a proper study of argument must include the features we have identified as dialectical. This theme is central to the thought

2.5 Two Possible Problems for Our Approach: Demonstrations and Inferences

Perelman and Olbrechts-Tyteca's distinguishing demonstration and argumentation raises a critical question for our approach. Demonstrations are standardly counted as arguments, at least as argument products. Demonstrations would seem to be among the argumentative texts whose structure we might wish to analyze. We should want to be able to diagram the structure of logical and mathematical proofs just as well as the structure of arguments for some policy. Our system of structural analysis and the diagramming scheme which makes it manifest is supposed to be a generic tool of argument analysis. But if demonstrations are not arguments, why should one and the same system of analysis adequately serve to represent the structures of *both* demonstrations and arguments as products? Are argument texts the products of at least two radically different processes? Is it a happy accident that these products, at least superficially, seem to share certain structural features, leading us to think both are instances of the same phenomenon? Even if one and the same system of analysis, as a matter of fact, could serve to structurally analyze both arguments (as products) and demonstrations, what about the theory behind that system? Why should a dialectical theory of dialectically generated arguments throw light on monologically generated demonstrations?

Has the distinction between argument and demonstration been drawn too tightly? Is it wrong to attempt to picture demonstration on our model? The issue, as we see it, is this. If someone gives a demonstration, is he or she intending to convince at least a potential critical interlocutor of the correctness of some claim? To answer this question, we need to clarify what we mean by "demonstration." Perelman and Olbrechts-Tyteca contrast argumentation with demonstration conceived of as a totally formal exercise, divorced from any consideration of truth or even of meaning.

In modern logic, . . . the formal systems are no longer related to any rational evidence whatever. The logician is free to elaborate as he pleases the artificial language of the system he is building. . . . It is for him to decide which are the axioms, . . . and to say which are the rules of transformation. . . . The only obligation resting on the builder of formal axiomatic systems, the one which gives the demonstrations their compelling force, is that of choosing symbols and rules in such a way as to avoid doubt and ambiguity. . . . When the demonstration

of these authors. The dialectical model appears also in van Eemeren (1987), and van Eemeren, Grootendorst, and Kruijer, (1987).

In 1987, Joseph Kopperschmidt points out that the very act of asserting a claim is at least implicitly intersubjective. To assert a claim is to indicate not only that what is asserted is reliable for oneself, but reliable generally, trans-subjectively, or intersubjectively. Kopperschmidt (1987, p. 180) Certain claims are disputable or can become disputable under certain circumstances. Here again we have an interpersonal conception, for although there may be internal disputations, ordinarily disputes arise between two or more persons. Kopperschmidt credits Quintilian with asserting that arguments are necessary only when there are disputes. Kopperschmidt (1987, p. 180) Only arguments can legitimate claims. Kopperschmidt (1987, 180) An argument can legitimate a claim when it can rationally motivate persons to accept that claim Kopperschmidt (1987, p. 180) and a claim can be established by argument when it is possible that all participants in a dispute, capable and willing to argue, would agree to that claim. Kopperschmidt (1987, p. 180) This conception of argument is again clearly intersubjective and dialectical.

of a proposition is in question, it is sufficient to indicate the processes by means of which the proposition can be obtained as the final expression of a deductive series, which had its first elements provided by the constructor of the axiomatic system within which the demonstration is accomplished (Perelman and Olbrechts-Tyteca 1969, 13, 14).

Unfortunately, this is a rather stereotyped view of the formal logic enterprise. Logicians ordinarily are *not* interested in constructing simply arbitrary formal systems, seeing what consequences may be formally deduced by an arbitrary set of inference rules from an arbitrary set of axioms. A formal system of logic, to be interesting and deemed worthy of consideration, must typically satisfy certain properties—soundness and completeness in particular. A system which allows us to deduce, from a set of premises, what those premises did not entail would not long be the object of logical study. In abstract mathematics, likewise, mathematicians as a rule are not interested in playing around with arbitrary systems. We are able to characterize a group abstractly, but what makes group theory interesting and important is that there are so many different realizations of this concept in a wide variety of mathematical areas. The point is this: Even if some formal logicians and mathematicians are interested just in toying around with formal, abstract systems, this is certainly not true of all. Consequently, it remains to be seen whether all logical and mathematical arguments can be seen as demonstrations in Perelman and Olbrechts-Tyteca's sense, and whether the offering of demonstrations can be seen as merely constructing sequences of statements according to certain rules.

When we turn to actual mathematical practice, I believe we shall find Perelman and Olbrecht-Tyteca's characterization of demonstration insufficient as a general characterization of mathematical argument. True, some mathematical arguments take place within the framework of what are called elementary theories. In the elementary theory of groups, a group is characterized as a mathematical structure satisfying certain axioms. The theory is developed by showing that certain other statements, theorems, deductively follow from these axioms. But this is only one way of investigating group theory, and for the mathematician, not nearly the most interesting or important way. Mathematicians will ask whether one group is a homomorphic image of another, whether two groups are isomorphic, whether there is a particular class of groups primary in the sense that any group can be represented as, i.e. shown isomorphic to, some group in that class. To establish these claims, a mathematician must show in particular that certain functions exist or could be constructed which have certain properties. This is a far cry from the elementary theory where the axioms make no mention of functions, homomorphisms, or isomorphisms. And this brings us to our central question: Is it inappropriate to think that such arguments could be offered in response to a challenger's request for justification? It may not be at all obvious that two groups are isomorphic. It may not be at all obvious that if a statement is not provable, then there exists a model in which it is false—a rough version of the completeness theorem. When simply enunciated, a challenger may not know that these statements are true and will not know that they are true until a proof is forthcoming. Certainly, we can imagine a challenger asking "Why?", i.e. initiating a basic dialectical situation. Would not a mathematical demonstration be an attempt to convince such a challenger?

Even in the case of proofs, demonstrations within the elementary theory, we can have convincing. For suppose a challenger accepts the basic axioms from which the demonstration proceeds. By providing this demonstration, surely the proponent is seeking to convince the challenger of the acceptability of some theorem. But there can be convincing in another sense. The point of the argument may not be to convince the challenger of the truth or acceptability of some particular theorem of the elementary theory, but rather to convince her of the truth of the claim that the theorem can be derived from the axioms. In effect the argument seeks to establish the conditional: If the axioms are true—better true of a certain structure—then so is the theorem. This brings us to conditional reasoning. The fact that we can reason from one statement or set of statements to another may be offered as a reason for accepting a conditional statement. The argument itself, then, can be offered to convince someone of the conditional. In those circumstances, it is a proper response to the question “Why?”

But what of the chain of inferences in the argument itself moving from antecedent to consequent—Can this be modeled dialectically? We believe that it can, given a suitable modification of our procedural rules for our basic dialectical situations, as we have discussed in [Chapter 1](#). (See p. 29.) This should not be a surprising thesis. *Reductio ad absurdum* reasoning is a special case of conditional reasoning, but the *reductio* is a major type of challenge in Socratic dialectic! (See Hall 1967, 386.) There would be something very wrong with our dialectical understanding of argument, if such reasoning could not be seen as dialectically motivated.

Our mention of inference brings us to another potential challenge to our working hypothesis that all arguments encountered in texts can be seen as dialectically generated. Blair and Johnson distinguish between argumentation and inference in (1987). They contrast argument and inference on three grounds: (1) Argument is dialectical, while inference is monological. (2) Since the purpose of argument is rational persuasion, arguments deal with controversial issues, while inference need not involve controversy. (3) “Implication and argument differ structurally. An inference can move along one track; but an argument in the complete sense can only develop against the background of heterogeneity of point of view and of other arguments” (Blair and Johnson 1987, 48).

This distinction anticipates Johnson’s distinguishing in (2000) an illative core from a dialectical tier in genuine arguments. For Johnson, the illative core consists of the positive reasons a proponent puts forward to support some claim together with that claim. Presenting an illative core invites those addressed to infer the conclusion from the premises, i.e. to make an inference. For Johnson and Blair in (1987) an inference instantiates some inference rule such as *modus ponens*, although that rule need not be formal or deductive, witness the examples of inference they cite:

I see smoke in that direction, so there is a camp-fire over there, so I may be able to get some food by walking in that direction.

I left my wallet at home this morning and the five dollars was in it so I can’t have lost the five dollars in my office. (Blair and Johnson 1987, 48).

The first two declarative assertions of the first example together instantiate the rule:

From I see smoke in direction x
 To infer There is a camp fire in direction x

Abstracting the inference rules instanced by the remaining inferences is straightforward. Clearly, in each case the rule is not deductive and so by “inference” Blair and Johnson mean more than just “deductive inference” or “deductively valid inference.”

In (2000), Johnson insists that an illative core by itself does not constitute an argument. It must be accompanied by a dialectical tier. The proponent

already knows that there are objections to the argument, whether to the thesis-target assertion, the reasons supporting it, or both. Realizing this, the arguer, who we are supposing is rational, is under a rational obligation to address these dialectical dimensions: alternative positions, and standard objections. This material forms the second tier of the argument, the dimension I call the dialectical tier. (Johnson 2000, 165)

For Johnson, an illative core without a dialectical tier, and likewise a dialectical tier without an illative core, do not present complete arguments. The dialectical tier is well named, since it involves responding to objections. Furthermore, objections will typically arise over controversial issues. These considerations then motivate distinguishing argument from inference.

We find Johnson’s insight very valuable, but we are not persuaded to limit the extension of “argument” to exclude discourses consisting of just the illative core. Suppose someone presented several compelling, indeed telling, reasons for some claim. To say that the proponent presented good reasons but no argument seems anomalous. Let us continue to regard texts which present illative cores as argument texts. Are some argument texts, then, the products of argumentation and others the products or records of inference? Are there these two sources of arguments as discourses, and does this mean that a dialectical model of argument need not adequately ground a generic theory of the structure of argument texts? Consider again Blair and Johnson’s examples of inference. Notice that although such inferences or chains of inferences may have arisen without any explicit intent to convince anyone, they certainly can be viewed as preparations to convince. If someone asked why we should walk in a certain direction or why the five dollars was not lost in the office, the premises of these inferences would constitute very plausible reasons for our claims. In neither case do we have an example of reasoning which we cannot imagine to have arisen in a basic dialectical situation. But, as we argued above, that is all we require in proposing the dialectical model of argument. Encountering these inferences, then, as argumentative texts, it would be plausible to construe them as results of the dialectical argumentative process.

The question remains whether there are any inferences which could not be construed as preparations to convince. Are there argumentative texts, arguments as products, which express these inferences and which could not plausibly be construed as being generated through a basic dialectical exchange? Blair and Johnson consider some further examples in (1987). In particular they consider these two, taken from Lambert and Ulrich’s *The Nature of Argument* (1980):

Boston is a city and Boston is in the United States. Therefore Boston is in the United States.

The sky is blue, grass is green, therefore tigers are carnivorous. (Lambert and Ulrich 1980, 71; quoted in Blair and Johnson 1987, 47.)

Both passages constitute argumentative texts. In both passages, statements are put forth which allegedly support some further statement. But both, as attempts to convince, seem distinctly odd. Concerning the latter, Blair and Johnson remark:

It is exceedingly difficult for anyone who takes the view that argumentation is dialectical to imagine that [it] constitutes an argument in any sense of the term. Our point is not the trivial one that [it] is an exceedingly bad argument; it is simply that [it], taken by itself, is not an argument. (Blair and Johnson 1987, 47.)

But can we conceive this product as generated through a dialectical exchange?

PROPONENT: Tigers are carnivorous.
 CHALLENGER: Why?
 PROPONENT: The sky is blue.
 CHALLENGER: Oh, can you perhaps give me another reason?
 PROPONENT: Grass is green.

This dialectical exchange is conceivable, although very unlikely. It is unlikely because the reasoning is so egregious—the reasons are simply irrelevant to the conclusion. But it would seem that any theory of argument should allow for there to be bad arguments, even spectacularly bad arguments. The dialectical exchange seems no more implausible than the argument product. It is not as if a plausible argument had to be generated through an implausible dialectical exchange. Hence we do not find here a counterexample to our claim that argumentative texts are arguments as products—they can be viewed as generated through argumentative exchanges.

The latter argument does not seem to provide grist for the mill of the argumentation/inference distinction. We do not have an argumentative text which could plausibly be construed as expressing an inference, but not as the product of some argumentative process. Whatever inference underlies this “argument” is pretty implausible. This is not the case for the former argument. It expresses a valid inference, but, as Blair and Johnson point out,

Someone used to the idea of argumentation as dialectical would have trouble situating this performance in a dialectical setting. . . . We cannot imagine anyone producing such an argument in an effort to persuade an audience of the conclusion, for the premises contain the conclusion in a strikingly obvious fashion. (Blair and Johnson 1987, 47.)

It is certainly true that trying to construe this argument as an attempt to convince is implausible. But this is not sufficient to show that this inferential move could not occur in a basic dialectical situation. For reasoning according to this pattern might very well occur in an attempt to draw out the consequences of some thesis.

$\alpha \in C$ and $C = A \cap B$, but this means that $\alpha \in A$ and $\alpha \in B$. So $\alpha \in A$.

Is this implausible as an attempt to develop one consequence of the thesis that $\alpha \in C$? Surely we can imagine someone arguing this way or incorporating these

inferences in an argument to convince someone that $\alpha \in A$ is a consequence of $\alpha \in C$.

Hence, we have not found any examples of argumentative texts which cannot be construed as arising in a basic dialectical situation. Hence, we have blunted the objection that not all argumentative texts express products of the dialectical process. Our dialectical theory of argument, then, is a general theory of the argumentation which may be expressed in argumentative texts. Hence, we can argue that the dialectical model of argument is appropriate to any argumentative text. We may view the argument involved in any text as the product of a dialectical argument process.

2.6 But is Our Model Really Dialectical?

Maurice Finocchiaro complains in (2005) that our model of the basic dialectical situation lacks sufficient opposition between proponent and challenger to be genuinely dialectical. Remember that on our view, the challenger is a midwife, seeking to draw from the proponent a sufficiently cogent argument for his initial thesis, if possible. Proponent and challenger are cooperatively testing to see whether this thesis is justified, or at least whether the proponent can justify it. The challenger's opposition to the proponent consists in her not simply accepting the proponent's thesis, but asking for justification until she is satisfied that the proponent has discharged his initial and all subsequent burdens of proof. Finocchiaro would have no problem calling such an exchange a basic evaluative dialogue. Indeed, he agrees that what we call the basic dialectical questions are evaluative questions. In fact, he believes that our discussion shows the evaluative nature of argument or reasoning (2005, p. 245). But he does object to calling these interactions basic *dialectical* situations.

Finocchiaro feels that circumscribing the role of proponent to making assertions and answering questions, and of the challenger to asking questions (except in certain special situations) and understanding that they are cooperating in the construction of one and the same argument is to oversimplify the situation, and from a dialectical perspective to make it self-defeating. He feels the fact that one and the same person could play both the proponent and challenger roles, as one composing an argument as product could imagine what questions a challenger might ask, renders the distinction between these roles insignificant. Again, that in special circumstances, such as arguing from suppositions, there can be role reversal, further contributes to Finocchiaro's impression of the insignificance of distinguishing these roles. "The two roles are artificial constructs of little real significance, and... they can be easily played by one and the same person" (Finocchiaro 2005, 243).

By contrast, Finocchiaro claims, in a genuinely dialectical situation one interlocutor puts forward an argument and another advances either an argument for a conclusion incompatible with the main conclusion of the first argument or for a conclusion "questioning either a premise of the original argument or one of its inferential steps" (Finocchiaro 2005, 243). To our possible reply that such a dialectical situation could be reduced to two basic dialectical situations, one developing the first interlocutor's argument, the other the second's argument, with roles reversed,

Finocchiaro replies that in the second situation, the proponent from the first, now challenger, would be trying to draw from his interlocutor the refutation of his own argument. He doubts this is a realistic possibility.

Finocchiaro's criticisms seem semantic rather than substantive. In no way does he feel that the evaluative issues our basic dialectical questions raise are wrong-headed or fail to be insightful for the nature of argument. The issue is over whether a certain degree of opposition between interlocutors greater than that recognized on our account of a basic dialectical situation is necessary for the situation to be genuinely termed "dialectical." In reply, we cite two precedents which construe the meaning of "dialectical" broadly enough to include our basic dialectical situation within the extension of "dialectical." The first is van Eemeren and Grootendorst's discussion of the "dialectification of argument" (van Eemeren and Grootendorst 1984, 15–18). In giving an argument, one language user addresses another who is expected to react critically to this argumentation, instituting a critical discussion. Although as a rule the interlocutor will hold a view opposed to the proponent's, this is not necessary (van Eemeren and Grootendorst 1984, 15). Rather, a critical discussion is required, whose purpose is "to establish whether the protagonist's standpoint is defensible against the critical reactions of the antagonist" (van Eemeren and Grootendorst 1984, 17). The antagonist's, i.e. challenger's, critical reactions call for further responses from the protagonist, generating an interaction. Van Eemeren and Grootendorst "believe this interaction to be an essential feature of a dialectical process of convincing" (van Eemeren and Grootendorst 1984, 17), the other essential feature being that the interaction is rule governed. Our basic dialectical situations certainly satisfy these two conditions. Hence, characterizing them as "dialectical" is not without precedent.

A second precedent occurs in the use Rescher makes of "dialectical" in *Dialectics* (1977). Rescher admits that the word has a spectrum of meanings within philosophy, but also holds that one sense deals with "disputation, debate, and rational controversy" (Rescher 1977, xii). One special but nonetheless dialectical case of disputation is formal disputation. Here the roles of proponent and challenger are strictly circumscribed. The proponent and only the proponent may make categorical assertions, " P is the case," in symbols $!P$. The challenger, and only the challenger, can make cautious assertions. To the proponent's $!P$, the challenger may reply with "Why P ?" or "Please prove P ," in symbols $\dagger \sim P$ ($\sim P$ is the case, for all you have shown). In response, the proponent may reply with one or more reasons, G_1, \dots, G_n for P . In putting forward these reasons, the proponent would not only categorically assert each one of them but also make what is called the provisoed assertions $P/G_1, \dots, P/G_n$, understood as asserting that *ceteris paribus*, when G_i obtains, then P obtains. The challenger may likewise put forward provisoed assertions, when to a proponent's $!P$ she responds $\sim P/Q \& \dagger Q$.

Provisoed assertions are principles of relevance and Rescher confines his attention to only those situations where any such principles introduced by proponent and challenger are transparent, obviously true or plausible. For the sake of simplicity, let us also assume, as does Rescher, that proponent and challenger put forward just one reason at a time, rather than a plurality of convergent reasons. The challenger then

will not be asking the relevance question. To the proponent's asserting P/G_1 & $!G_1$, the challenger could ask for an additional reason for P or could ask "Why G_1 ?" i.e. $\dagger \sim G_1$. To this point, the challenger has simply been asking for reasons, drawing out from the proponent an argument with serial and/or convergent structure.

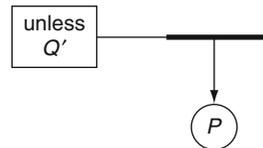
However, the challenger herself may have an argument *against* P and the rules of formal disputation may allow her to present it, albeit in an oblique way. For simplicity, let us assume that the challenger has a simple serial argument for $\sim P$, i.e. $\sim P$ because Q' , since Q'' (See Fig. 2.1):

Fig. 2.1



Hence, instead of her first contribution to the exchange being $\dagger \sim P$ (Please show P), her initial contribution might be $\sim P/Q' & \dagger Q'$ (Ceteris paribus, $\sim P$ is the case given that Q and Q' holds for all you have shown.) With this first move, even before the proponent has presented any argument for P , the challenger has presented a rebutting defeater to P (See Fig. 2.2).⁹

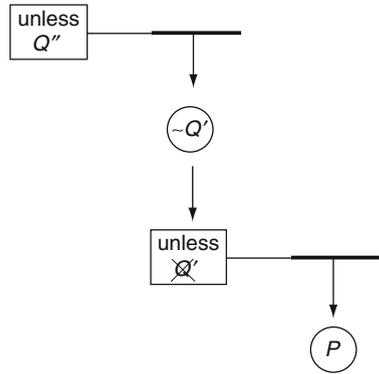
Fig. 2.2



She has not asserted Q' . Rather, she has claimed that the burden of proof is on the proponent to show that Q' does not hold. The proponent can reply with either type of counterrebuttal. Let us assume that he simply replies with $! \sim Q'$. But the challenger has a reason for Q' . She can then reply $Q'/Q'' & \dagger Q''$ (See Fig. 2.3).

⁹Although Toulmin sees rebuttals as directed against a move from data to claim, if a rebutting defeater is a reason negatively relevant to a claim, there should be nothing wrong with a challenger claiming that the proponent has a burden of proof to counter that reason, even before he has presented any reasons positively relevant to his claim. The rules of formal disputation clearly allow her to make this move, structurally represented in our diagram.

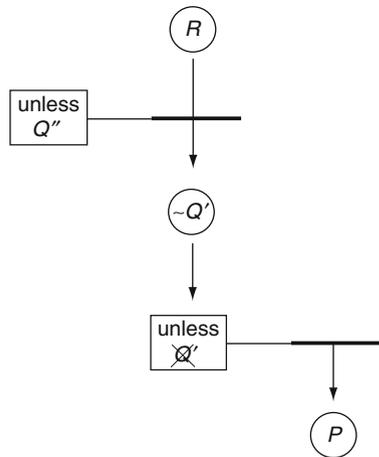
Fig. 2.3



Again, in presenting this rebuttal the challenger has raised another burden of proof for the proponent.

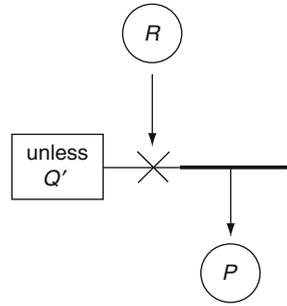
Instead of the simple categorical assertion $\sim Q'$, the proponent could give a reason for $\sim Q'$, i.e. his contribution would be of the form $\sim Q'/R \& !R$. But this does not gainsay that the challenger has a reason for Q' . Should she present it, she would again be presenting a rebuttal, but one that this time we would represent as a rebutting defeater to the argument from R to $\sim Q'$ (See Fig. 2.4):

Fig. 2.4



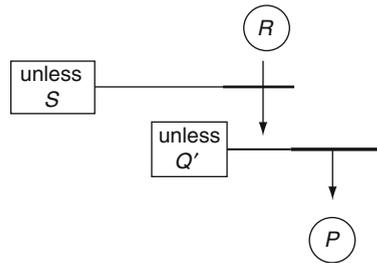
By contrast, the proponent could seek to neutralize the rebutting force of Q' by conceding it but asserting that some further condition holds, $P/(Q' \& R) \& !(Q' \& R)$ (See Fig. 2.5).

Fig. 2.5



The latter response is called a strong distinction. Since the proponent agrees with her in accepting Q' , and Q'' is a reason for Q' , in general Q'' will not be an appropriate rebuttal either to R or to the move from Q' together with R to P . But the challenger may still be able to counter the proponent's counterrebuttal R through a weak distinction $\sim P/(Q \& R \& S) \& \dagger(Q \& R \& S)$ (See Fig. 2.6).

Fig. 2.6



Further exploration of the extent to which a challenger could present an argument against the proponent's initial claim, albeit in the form of rebuttals raising issues of burden of proof, is beyond our scope here. This sketch should be enough to indicate that to the proponent's categorical assertion the challenger can bring an opposing reason and, unless the proponent neutralizes her reason, even argue for it. Hence, within the framework of formal disputation, the challenger can incorporate into the critical questions constituting her responses to the proponent both material from an argument whose final conclusion is incompatible with the proponent's initial claim and material from arguments that challenge premises, or possibly through weak distinctions, inferential moves within the proponent's argument. But advancing such counterarguments or critical arguments against the proponent's argument constitute Finocchiaro's minimum for a "genuinely dialectical situation" (Finocchiaro 2005, 243). Does restricting the challenger's presenting her argument through cautious as opposed to categorical assertions render the situation less than dialectical? That formal disputation is regarded as a stylized form of dialectic gives precedent for a negative answer.

Finally, in connection with formal dialectic, we should note that although our concept of a basic dialectical situation envisages the challenger as trying to draw the best possible argument from the proponent, this does not mean that she will be content to “go easy” on him. As Rescher points out, in a disputation, “the proponent is ever striving to lead his case towards the secure ground of plausible contentions and the opponent is ever seeking to prevent his reaching any such safe harbor” (Rescher 1977, 24). There is thus a contest between proponent and challenger. Is this situation sufficiently conflictive to be called dialectical? I submit that the precedent of regarding formal disputation as dialectical is sufficient to show that calling the basic dialectical situation “dialectical” is not outside the scope of accepted senses of the word.

Chapter 3

Toulmin's Problematic Notion of Warrant

In [Chapter 1](#), we advocated extending the standard approach to incorporate modalities and rebuttals into diagrams of argument texts, but rejected recognizing warrants as textual elements. Warrants are inference rules, which arguments may instance, but are not elements in arguments, as are the premises and conclusions we recognize. Toulmin's very introduction of warrant gives us some precedent for this understanding, for he characterizes warrants as "rules, principles, inference-licences" (Toulmin 1958, 98). But he presents these examples as categories of *propositions*. Again, warrants are to be "general, hypothetical statements," (Toulmin 1958, 98). But rules or inference licences are not propositions. They do not make assertions which are true or false, but rather allow us to pass from one or more statements to some further statement.

Toulmin's further characterization of warrant, however, might lead one to question whether we are being scrupulous here. He says that warrants "can act as bridges, and authorize the sort of step to which our particular argument commits us" (Toulmin 1958, 98). Surely it is plausible to read this as understanding the bridge to be distinct from the particular argument and not part of it. Toulmin, our critics might urge, agrees that warrants are not parts of arguments. Again, he says "data are appealed to explicitly, warrants implicitly" (Toulmin 1958, 100), reiterating his agreement. Why are you making such a big deal of his calling warrants propositions, even though it is true that inference rules and propositions are different categories of expression?

Our insistence involves more than scrupulosity. One would naturally assume that an account of the layout of arguments would concern the structure of argument texts. Some authors, indeed, have taken Toulmin's model exactly this way and have complained that in certain texts, one cannot tell warrant from data, bringing the distinction into question. Indeed, van Eemeren, Grootendorst, and Kruijer comment, "The distinction between data and warrant is perfectly clear only in Toulmin's examples. In practice, at least if one tries to apply his definitions, they are totally indistinguishable" (van Eemeren, Grootendorst, and Kruijer 1987, 205). As we shall discuss, analyzing both arguments which lend themselves to the data-warrant distinction and those that do not while using the data-warrant framework may require analyzing arguments whose structure seems obviously parallel in very non-parallel ways. Not only does this disparity seem unnatural, it is completely

avoided on the standard approach. Secondly, Toulmin does apply his layout to certain argument texts, producing analyses which raise distinct philosophical questions. In light of a critical examination of these issues, we feel that Toulmin's application is not justified.

Let us be clear, however. Nothing we say here in any way denies that the steps in an argument as product have inference licences, nor that identifying these licences and determining their reliability—issues of warrant and backing—are not legitimate and central questions in argument *evaluation*. We are not contending that the category of warrants is inappropriate in analyzing arguments as process—far from it. What we are contenting is that applying the data/warrant/backing distinction in analyzing arguments as products, argumentative texts whose structure it is our aim to understand, is highly problematic. It is so problematic in fact that we conclude the concept of warrant, indeed the threefold distinction, is inappropriate in this context. How may we justify these contentions?

3.1 Warrants and Arguments as Process

In analyzing arguments as process, it is straightforward to identify warrants, since we have the participants in our basic dialectical situation in front of us. We witness their exchange. We thus know which statements are warrants because we know the questions which the challenger has asked the proponent. Consequently, we know which statements are answers to the warrant-generating question “How did you get there?” Appropriate answers to that question are warrants. Even if warrants should be left implicit in a dialectical exchange, we can imagine entering that exchange and asking the warrant generating question. If the proponent could not answer our question, that should show a defect in his reasoning, not in our system of argument analysis. If we can readily anticipate the proponent's answer, we have already plausibly identified the implicit warrant.

The problem when confronted with an argument as product is that we do not know what generating questions have been asked. This we must imaginatively reconstruct, to the best of our ability, from the evidence the argument itself provides. Will the argument as product give us unambiguous indications for reconstructing these questions? In an argument as product, will we always know, for sure, whether a given statement should be regarded as offered to answer the data generating question or the warrant generating question? Consider whether we can have an argument in which a conclusion is allegedly supported just by a conditional statement which would ordinarily be taken on Toulmin's view as the warrant. As Clark points out in (1956) and Cowan points out in (1964), we may encounter such arguments.

John will not come to the party, because
If Mary is coming, John won't.

Doesn't the question “How do you get from stated hypothetical premise to conclusion?” arise for this argument? And wouldn't we expect the answer to be

Mary is coming to the party

So in the argument

John will not come to the party, because if Mary is coming, John won't and Mary is coming to the party

how do we know which statement presents the data and which is the warrant?

Diagramming the argument viewed as generated with hypothetical premise presented first and then the categorical “Mary is coming to the party” to explain relevance, we have Fig. 3.1:

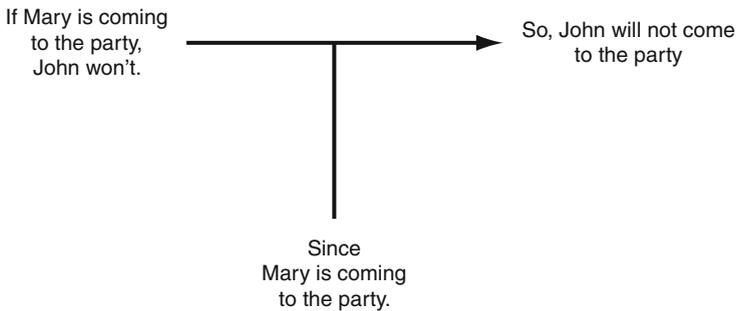


Fig. 3.1

But this seems to get data and warrant reversed, to have them in the opposite positions from what we would expect. Or would Toulmin reply that the warrant in our original argument as product is

Given (the datum) that if Mary is coming to the party, John won't, we may take it that John will not come to the party

But this seems manifestly ad hoc. Yet to claim that the expected diagram correctly diagrams the argument from hypothetical premise to conclusion, or diagrams that argument in a fuller, more developed, more candid form, makes the system of diagramming very revisionistic. It both requires supplying evidence which was not manifestly stated and treating the statement manifestly offered to support the claim not as evidence at all, but as a warrant. Wouldn't it be far simpler and more straightforward to regard the argument from stated conditional alone to conclusion as assuming that Mary is coming to the party is an understood, unstated premise—the reasoner in effect is proceeding from both statements *as premises* to the conclusion? Proceeding according to the above diagram indicates a preconceived notion of structure which we are imposing on this argument, rather than displaying how the argument actually fits together. But are we not operating precisely with this preconceived notion, should we insist, faced just with the evidence of the argument as product, that “Mary is coming to the party” is the datum and “If Mary is coming to the party, John won't” is the warrant, i.e. Fig. 3.2?

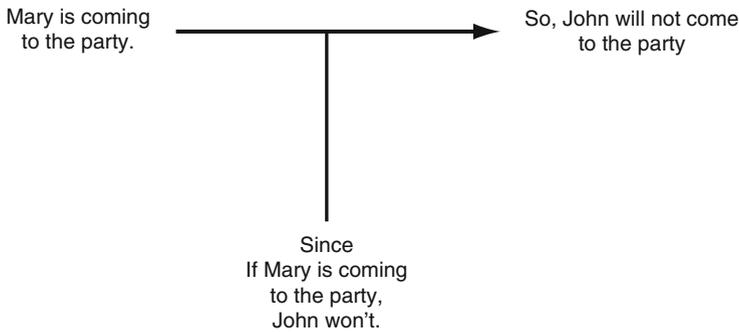


Fig. 3.2

We can be accused of operating with a preconceived notion of structure unless we can justify our discrimination of datum from warrant here. If we cannot do this, the notion of warrant is problematic for arguments as products. We may certainly attempt to present a rationale for counting certain statements included in arguments as products as warrants. But this account will encounter serious and in the end overwhelming problems. I believe we can develop how by addressing ourselves to three questions in succession:

1. What are warrants?
2. Are there compelling reasons to count certain statements or types of statements which may occur in arguments as warrants?
3. Are warrants properly parts of arguments?

We shall organize our discussion in the ensuing sections around these three questions.

3.2 What are Warrants?

This question seems easy to answer from Toulmin's perspective, for he explicitly says that warrants are inference rules. Although Toulmin says warrants can be expressed in the form "If D, then C," they are better expressed by such forms as "Given data D, one may take it that C" (Toulmin 1958, 98).¹ We might call the latter the canonical (or to use Toulmin's term "candid") way of expressing warrants. General or hypothetical statements may be taken as expressing warrants elliptically

¹Hitchcock (2002b, 487) points out that the simple form "If D, then C" fails to convey that warrants are general, and never simply conditional statements. Hitchcock's pointing out that warrants are general expresses an important insight concerning warrants, an insight which we hope is reflected in our formulations of warrants in these discussions.

or as having the force of warrants. This last formulation accords very closely with Toulmin's view, as we shall see when we discuss Toulmin on syllogisms. Further, given this formulation, it would seem straightforward to identify warrants or to discriminate warrants from data in arguments as products: Count the conditional or generalized conditional statements appearing in premissory position as warrants. The particular or categorical statements whose relevance to the conclusion they explain are data.

Although this seems straightforward, we have reservations. What we have called the standard approach and Toulmin's approach give us two rival or divergent ways of construing the argument

If Mary is coming to the party, John won't. Mary is coming to the party. So John won't.

The standard approach construes the conclusion as being drawn from, being supported by two premises. Toulmin's approach sees the conclusion being supported by the datum, "Mary is coming to the party" via the warrant "If Mary is coming to the party, John won't". Clearly, Toulmin's second approach is novel. Even if we understood how to apply this approach, why should we prefer it over construing the argument with two premises supporting a conclusion? Are there any advantages to be gained? Does Toulmin have some insight into the nature of conditional statements which justifies seeing them as constituting a radically different type of argumentative element than other premissory statements? This brings us to the second principal question organizing our discussion: Are there compelling reasons to count certain statements, namely conditional statements, as warrants?² Toulmin speaks directly to this issue in *The Uses of Argument* when he presents his views on certain syllogisms. Will this discussion allay our reservations?

3.3 Toulmin on Certain Syllogisms

In discussing "the layout of arguments" in (1958), Toulmin confines himself to just one family of syllogisms, where a particular conclusion is inferred from a particular premise together with a universal or general premise. He says, "We are interested primarily in arguments by which general propositions are applied to justify particular conclusions about individuals. . . . Many of the conclusions we reach will, in any case, have obvious application — *mutatis mutandis* — to syllogisms of other types" (Toulmin 1958, 108). What these other types of syllogism are is far from clear, as our discussion above suggests. The one obvious application is to *modus ponens* type reasoning applying a conditional, albeit not a universally generalized conditional, in justifying the conclusion. Hence, it would not be accurate to present Toulmin's views here as a theory of the syllogism in general, but only of certain

²Here we are construing "conditional statement" broadly to include generalized conditionals and modified conditionals such as "Typically If D, then C," or "Usually if D, then C."

types. We should note, however, that Toulmin applies his analysis not just to syllogisms where the general premise asserts categorically that “All A are B” or “No A are B,” but to statistical syllogisms involving premises of the form “Almost all A’s are B’s” or “Scarcely any A’s are B’s” (Toulmin 1958, 108). In fact, he feels that such statistical generalizations best reveal “the internal complexity” of general propositions (Toulmin 1958, 108).

According to Toulmin, the general premise, be it of any of these forms, may very well serve two distinct functions—it may serve as a warrant or serve to make a statistical report, or both. As a statistical report, “All A are B” says or may be expanded as saying

The proportion of A’s which are also B’s is 100%.

As a warrant, it should be expanded to read

An A may certainly be taken to be a B.

Likewise, as a statistical report, “No A are B” asserts

The proportion of A’s which are B’s is nil, 0%.

As a warrant, it issues the following authorization:

An A can be taken certainly not to be a B.

The expansions of “almost all” and “scarcely any” statements are parallel. We can more explicitly express what “Scarcely any A’s are B’s” says as a statistical report in the form

The proportion of A’s which are B’s is less than (say) 2%

while as a warrant,

An A can be taken almost certainly not to be a B

serves as a more “candid” formulation (1958, 108–109). In the context of a syllogism, the statement may serve both functions at once, the statistical report being the backing for the warrant.

We should make plain, for future reference, that for Toulmin, when “All A are B”, “No A are B” make statistical reports, they are making reports of observed data. “No A are B” says that “Not a single A is recorded to be a B”. “All A are B” says “Every A has been found to be a B” or “The proportion of A’s found to be B’s is 100%”. In all these cases, the universal statements simply summarize data and do not make extrapolations from observation. “All A are B” does not say that “Every A in existence *is* B”, but “Every A observed (which might, but need not, be the entire class of A’s) has been found to be a B”. Thus, when these universal categoricals are used as backing, they make a statement about a closed class. Whether or not the

class of A's is finite and every A has been observed, only a finite number of A's have been observed. The class of observed A's is closed and limited.³

As Toulmin sees it, a simple form of words masks a "crucial difference in practical function" (Toulmin 1958, 111). And, Toulmin maintains, frequently in arguments, the universal premise performs both functions.

Often enough, especially in arguments, we make the single statement do both jobs at once and gloss over, for brevity's sake, the transition from backing to warrant — from the factual information we are presupposing to the inference-licence which that information justifies us in employing. The practical economy of this habit may be obvious; but for philosophical purposes it leaves the effective structure of our arguments insufficiently candid (Toulmin 1958, 111–112).

The general premise then involves both the functions of warrant and backing, and its simple form conceals its twofold function. To properly represent the structure of the syllogism arguing Socrates' mortality from his humanity on Toulmin's account, we need the diagram in Fig. 3.3:

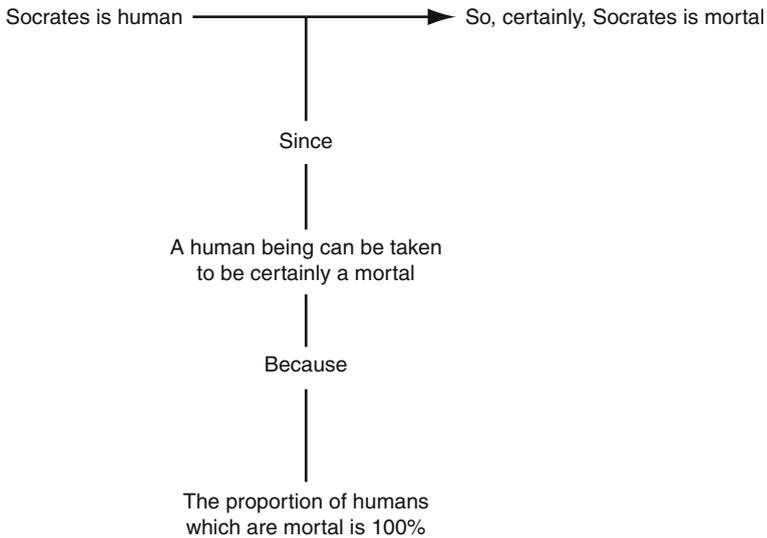


Fig. 3.3

³For maximum accuracy, we should also note that in some cases to properly explicate the backing function of a general proposition, we shall have to resort to statements of a somewhat different form than a straight statistical report. "All A's are B's" may need to be expanded as

A's are ruled by statute to count unconditionally as B's

or

The class of B's includes taxonomically the entire class of A's

(Toulmin 1958, 112.) But in both these cases we are dealing with straight reports, not extrapolations from data. The first reports a statutory condition, while the second reports a taxonomic decision.

To construe such syllogisms as two premise arguments, Toulmin claims, would obscure the structural differences his model makes manifest.

The first critical question we can ask of Toulmin's approach is what came first — the syllogism to be analyzed or Toulmin's system of structural categories? More precisely, does Toulmin's model reveal or mirror the structure of these syllogisms or are they being structurally distorted to fit his model? Why should we regard the universal premise as functioning to express warrant or backing or both unless we were trying to accommodate these syllogisms to the Toulmin model?⁴ Toulmin would argue that the roles of data, backing, and warrant are so distinct that we need to supplant the premise/conclusion distinction with "at least the fourfold distinction between 'datum,' 'conclusion,' 'warrant,' and backing,'" (Toulmin 1958, 114) to properly analyze arguments. But when confronted with syllogisms such as Toulmin is analyzing here, and the straightforwardness of representing them as two premise arguments, our inclination is to question Toulmin's categories rather than the standard interpretation.

But is Toulmin's interpretation of general statements viable? Toulmin is saying that statements of the form "All A are B" express either warrants, permitting us to infer a statement of the form "x is B" from one of form "x is A", or statistical reports about a closed class of objects — "Every A (examined) has been found to be a B". Toulmin emphasizes these are the two functions of such expressions. They are either inference warrants or factual reports of observations concerning just that of which we have observational records, or both. This prompts Hector Neri Castañeda in (1960), to remark, "The central fact seems to be that Toulmin does not acknowledge universal propositions or statements in the customary sense" (Castañeda 1960, 281). Castañeda asks us to consider

(S) Every Russian is ready to fight for his Motherland.

Is this a warrant or a statistical report? Castañeda argues that it is not a warrant, and Toulmin would agree. There is nothing inference-authorizing in (S) and for Toulmin, universal statements beginning with "every (single)" or "Each" are not permissive. (See Toulmin, 1958, 117.) But is (S) a statistical report? Does (S) make the assertion that every Russian has been found ready to fight for the Motherland? This does not seem a plausible reading. If anything, we expect this statement goes beyond observation. Has every single Russian that ever was, now is, (or will be) been observed? Is the statement intended to report just about those Russians who have been observed? Castaneda comments,

It is odd to insinuate that regardless of how hard we may try, if the class of Russians is not closed, if we have not gone through that class until its complete exhaustion. . . . then to say that (S) . . . is *not* to make a statement, but to issue a warrant, or to quote an already issued warrant, for the making of inferences. (Castañeda 1960, 282)

⁴Manicas also asks this question in (Manicas 1966, 87).

It seems that for Toulmin, if a class is subject to augmentation, then we cannot make a descriptive statement about all of it. We either assert a warrant, giving persons permission to infer from the fact that something is a member of this class to its having some other property, or we make a statement understood to describe just the subclass observed. At least, it appears that Toulmin maintains this, should our statement be proffered in a “premissory position” in a syllogism. Consider (S) again. Cannot that statement, indeed any descriptive universal generalization, also be asserted as the conclusion of an inductive generalization argument? How, on Toulmin’s account, are we to understand such arguments as

100 percent of the plants in the experiment injected with the compound survived.
Therefore

Every plant injected with the compound will survive.

We would ordinarily take this to infer a claim about an entire class on the basis of a sample. Does not “every” in the conclusion really mean every — not just all the observed? We would accord an analogous interpretation to statistical generalizations such as “X% of A’s are B’s”, or quasi-statistical or quasi-universal statements — “Most A’s are B’s”, “Few A’s are B’s”, “Almost all A’s are B’s”, “Scarcely any A’s are B’s” asserted as conclusions of analogous patterns of argument.

Toulmin specifically considers such arguments, regarding them as warrant-establishing as opposed to warrant-using:

Warrant-establishing arguments will be . . . such arguments as one might find in a scientific paper, in which the acceptability of a novel warrant is made clear by applying it successively in a number of cases in which both ‘data’ and ‘conclusion’ have been independently verified. (Toulmin 1958, 120)

Toulmin thus bids us construe all such statements as

p_n is a plant in the experiment injected with the compound

as data, and

p_n survived

as conclusion. These are all summarized in the premise of the original argument. Construing

Every plant injected with the compound will survive

as

Given that p is a plant injected with the compound, we may take it that p will survive, we then have the warrant which may be applied in these various cases where data and conclusion have been independently verified through observation. This fact then counts as evidence for the warrant. It leads from verified datum to verified claim. General statements, then, occurring as conclusions of such arguments Toulmin understands as warrants.

But can Toulmin accept this interpretation of the argument, given what he has said about general statements beginning with “Every”? He does not regard such

statements as warrants. So it seems he would reject this interpretation of the conclusion. How then could he construe the conclusion of this argument? If he construes it as backing, as making a summary report of what has been observed, then his interpretation makes the argument question begging. He apparently would interpret premise and conclusion as making the same statement. But the argument clearly is not question begging. The conclusion goes beyond the premise. If Toulmin were to interpret the conclusion as making a statement about every plant which has or will be injected with the compound, then he would be giving the statement an interpretation he otherwise assiduously avoids.

Unless Toulmin can bring forward arguments to show that construing any general propositions as descriptive statements supported by extrapolation is wrong, we may charge his interpretation of general propositions with false dichotomy or false dilemma. For Toulmin, general propositions are either descriptive summary reports or permissive warrants. He appears not to allow that general statements can go beyond reported data and yet be descriptive statements. But why should this interpretation be rejected? Construing many general propositions as making statements seems a far simpler interpretation than trying to construe them according to Toulmin's warrant/summary report dichotomy, which seems designed to perpetuate his model.

The plausibility of Toulmin's position would be greatly increased if he could bring substantial arguments against construing general propositions as making statements involving extrapolation. We want to underscore how Toulmin incurs a weighty burden of proof at this point. The situation here is distinctly analogous to attempting to justify instrumentalism, a view which Toulmin endorses in his essay *The Philosophy of Science: An Introduction* (1953). On the instrumentalist view, the purpose of a scientific theory, ordinarily regarded as a plain statement or composed of plain statements, is to organize data and to operate as an inference rule, licensing inferences from observation statements to observation statements.⁵ Theories are thus not premises, like data statements, but warrants. Toulmin's instrumentalism underlies his claim that

A general statement in physical theory, as Newton reminds us, must be construed not as a statistical report about the behaviour of a very large number of objects, but rather as an open warrant or principle of computation (1958, 122).

If every scientific theory were expressed by a (multiply) generalized conditional statement, then Toulmin's position in (1958) could be seen as a generalization applying to all conditionals, including generalized or modified conditionals—insofar as they go beyond summary reports—of the instrumentalist interpretation of scientific theories. Even without regarding Toulmin's position on conditionals as strictly a generalization of his instrumentalism, what he must show here is analogous. As an instrumentalist must argue that *all* scientific theories function as inference rules

⁵For a critical discussion of the instrumentalist view of theories, see Nagel (1961, 129–40). In 1954, Nagel points out that Toulmin's views in (1953) are similar to the instrumentalists, although probably not derived from them historically.

whenever scientists appeal to them in scientific arguments, so Toulmin must show that this is the case whenever someone in an argument appeals to generalizations going beyond summary reports. It is open to the critic of instrumentalism to object that although the view may give us insight into how scientific theories function on occasion in scientific inquiry, its defenders have not shown that theories *always* function as inference rules. Nagel, in particular, takes this line of criticism. In his review (1954) of Toulmin's *Philosophy of Science*, Nagel urges that although laws do function as rules on some occasions, this is not their exclusive or even their characteristic function.

Theories do in point of fact frequently function as *premises* in scientific practice, and indeed this seems to be the usual way they are explicitly employed. Most if not all systematic presentations of physical theory certainly do so; and as far as casual inspection of scientific papers dealing with special experimental phenomena reveals, this is the customary use to which theories and laws are put (Nagel 1954, 406, italics in original).

Again, in (1961) Nagel urges

Some of the most eminent scientists, both living and dead, certainly have viewed theories as statements about the constitution and structure of a given subject matter; and they have conducted their investigations on the assumption that a theory is a *projected map* of some domain of nature, rather than a set of *principles of mapping* (Nagel 1961, 139, italics in original).

Analogously, unless one can show that all (generalized) conditionals going beyond summary reports always function as inference rules, the critic can protest that Toulmin has not made his point. Although it may be insightful to say that in reasoning, conditionals may function as inference rules or that conditionals may express inference rules appealed to in reasoning, this does not show that when presented in arguments their sole function is to make manifest the rule or leading principle by which the argument proceeds. How does Toulmin argue for his view of conditionals, at least of the generalized conditionals appearing in certain syllogisms? I do not find the arguments Toulmin offers advance his case very far. He argues that the traditional way of construing the universal statement in premissory position as a premise disguises "the great differences between the things traditionally classed together as 'premises'" (Toulmin 1958, 113). But if we do not accept Toulmin's analysis of universal propositions applying to all general statements, we will find this claim question begging. Similarly, Toulmin argues that the traditional analysis of the syllogism "leaves it unclear whether the general statement 'All. . .' is to be construed as a permissive inference-warrant or as a factual report of our observations" (Toulmin 1958, 115). But again this seems to presuppose as established the very dichotomy which is in question.

Toulmin also believes he can argue from standard idiom for the warrant/backing distinction. "The contrast between 'Every A' and 'Not a single A', on the one hand, and 'Any A' or 'An A'' on the other, points one immediately towards the distinction between statistical reports and the warrants for which they can be the backing" (Toulmin 1958, 117). I, for one, find this claim obscure.

Every boy is pugnacious.
Any boy is pugnacious.

Don't these two statements assert the same thing? Now clearly

Every boy observed has been pugnacious

makes a summary report different from

Any boy is pugnacious.

But does it make a different statement from

Any boy who has been observed has been found to be pugnacious?

So far, substantial arguments against construing general propositions as statements possibly asserted on the basis of extrapolations are lacking. But Toulmin in developing his position was greatly influenced by Gilbert Ryle's view of conditionals as inference rules. Ryle defended this view both in *The Concept of Mind* (1949), and "If, 'So,' and Because" (1950). Now the general propositions we have been considering are generalized conditionals of a universal or statistical sort. Can we find arguments in Ryle's considerations on the conditional which will support Toulmin's view of general propositions against the standard view?

3.4 Ryle on Conditionals

In 1950, Ryle asserts that the first purpose of a hypothetical statement, "*if p, then q*" is to license us in inferring from *p* to *q*.

Knowing "*if p, then q*" is, then, rather like being in possession of a railway ticket. It is having a license or warrant to make a journey from London to Oxford. (Knowing a variable [universally quantified] hypothetical or "law" is like having a season ticket (Ryle 1950, 329).

In (1949), Ryle develops the notion this way:

At least part of the point of trying to establish laws is to find out how to infer from particular matters of fact to other particular matters of fact, how to explain particular matters of fact by reference to other matters of fact, and how to bring about or prevent particular states of affairs. A law is used as, so to speak, an inference-ticket (a season ticket) which licenses its possessors to move from asserting factual statements to asserting other factual statements (Ryle 1949, 121).

Should Ryle present a successful argument for this view of hypotheticals, then Toulmin would have a rationale for interpreting general hypotheticals which go beyond being summary reports as inference rules. That is simply what they *are*.

In 1950, Ryle specifically argues for his position that hypotheticals are inference rules. Given an argument "*p, so q*" we may form its associated hypothetical, "*if p, then q*". For the argument to be valid, the associated hypothetical must be true. Ryle feels it is incumbent on him to explicate just how the validity of an argument requires the truth of its associated hypothetical. He rejects the view that the associated hypothetical is a suppressed premise or a suppressed conjunct of the premise

of the argument, necessary for its validity. On this view, to make good our claim that we can argue validly from “*p*” to “*q*,” we must admit that in a candid formulation of the argument, the premise is “*p and (if p, then q)*”, not just “*p*”, as might be supposed. But the associated hypothetical of the argument

Arg *p and (if p, then q), so q*

is

AH *if (p and (if p, then q)), then q.*

But if for an argument to be valid, its associated hypothetical must be a conjunct of the premise, then to candidly present this argument, Arg, the above formulation of Arg will not do. We have to include the associated hypothetical, AH, as a third conjunct in the premise. And thus we are off on a vicious infinite regress.⁶ In commenting on this, Ryle makes the following statement:

The principle of an inference cannot be one of its premisses or part of its premiss. Conclusions are drawn from premisses in accordance with principles, not from premisses which embody those principles (Ryle 1950, 328).

But if we are searching for an argument to justify saying that hypotheticals *are* inference rules, we may already suspect trouble at this point. Is the associated hypothetical “*if p, then q*” the principle of the inference “*p, so q*”? Isn’t the principle of inference rather and more precisely “From *p*, we may infer or take it that *q*”? That expresses a genuine, permissive rule. Ryle here seems to simply have taken associated hypotheticals for inference rules, and his very next statements confirm this impression.

It is not merely that the officially recognized Rules of Inference cannot be given the rôle of premiss components in all the specific inferences that are made in accordance with them. The same thing is true of the most ‘meaty’ and determinate hypothetical statements, like “If today is Monday, tomorrow is Tuesday.” . . . The argument “Today is Monday, so tomorrow is Tuesday” is an application of “if Today is Monday, tomorrow is Tuesday” (Ryle 1950, 328).

In talking of this argument as being an application of its associated hypothetical, Ryle is treating that associated hypothetical as an inference rule. Ryle needs to justify saying hypotheticals can be so applied to convince us that they are properly construed this way.

This is precisely what Ryle does. He not only maintains that hypotheticals, like rules, can be applied, but develops this view. It is Ryle’s position that all hypotheticals are variable or open in some sense, not just those specifically of the form “*For all x, if φx, then ψx*”. How does he argue for this position? Ryle begins by pointing out that to assert “*if p, then q*” is not to assert or claim true either “*p*” or “*q*”. He regards this as tantamount to saying “Neither the statement ‘*p*’ nor the statement ‘*q*’ enters into the statement ‘*if p, then q*’” (Ryle 1950, 334). But since the statement

⁶Lewis Carroll developed this point with great humor in (1895). Ryle alludes to Carroll’s discussion here.

"if p , then q " looks as if it incorporates " p " and " q ", just as " p and q " incorporates both, Ryle intends to argue that the appearance of the hypothetical statement is misleading. As he puts it, according to this form hypotheticals are misleadingly encoded.

But even at this point, the discussion seems to involve a subtle confusion. Ryle seems to confuse containing a statement with containing the assertion of a statement. "Assertion" is a semantic notion. To assert a statement is not just or even to utter it, but to put it forward as true. "Containment" or "incorporation," on the other hand, is a syntactic notion. A statement may be viewed as an expression, and an expression is a sequence of symbols. For an expression E_1 to contain another expression E_2 , it is necessary and sufficient that E_2 be a subsequence of E_1 . Clearly, just because E_1 contains E_2 , we may not infer that to assert E_1 is to assert E_2 . On Ryle's grounds not only should we say that the "encoding" of hypothetical statements is misleading, but that of a number of other compounds, both truth-functional and non-truth-functional. One wonders what Ryle would say of negations, disjunctions, or statements of the form " a believes that p "?

Ryle has a reply to this objection, which he begins quite tartly:

The suggestion is that to be asserted is a luxury extra, like italicisation. But this will not do. If nothing is asserted, or no statement is made, then no question is answered, nothing is contradicted, no premiss is used, no conclusion is drawn, no information or misinformation is given. A statement bereft of its employments is not a statement and an expression debarred from doing any of the jobs of a statement has either no job or else a different job (Ryle 1950, 337).

But we find this reply confused. The root of the confusion seems to be that for Ryle, "statement" and "assertion" are synonyms. Now although the expressions "to make a statement" and "to make an assertion" may be synonymous, this does not show that "statement" and "assertion" are synonymous, and above we have shown that they are not. Nor is it correct to say that when a statement enters into a hypothetical, it is bereft of its employments. For one of the possible employments of statements is to serve as components of longer statements, which compounds may be asserted. If "*if p , then q* " is asserted, then it is not true to say that nothing is asserted, even if " p ," " q " are not. Ryle's reply falls far short of rebutting our objection.

But let us return to Ryle's argument specifically that hypotheticals are misleadingly encoded. He points out that sometimes one or both components of a hypothetical are worded subjunctively, and when so, the subjunctively worded components are not independent statements, witness

If it be Monday today, it is Tuesday tomorrow.
 If it were Monday today, it would be Tuesday tomorrow.
 It cannot be Monday today and not be Tuesday tomorrow (Ryle 1950, 335).

Ryle points out that in the third form, what follows "cannot" and "and" "has none of the appearances of a statement" (Ryle 1950, 335). He believes any hypothetical can be reworded according to this pattern, and concludes "The statement like appearance of the clauses of those 'if-then' statements which are not subjunctively worded is a deceptive appearance and one which always can be and often is obviated in

stylistically different paraphrases. . . .The logicians’ code style. . . .is deceptive” (Ryle 1950, 335).

It is open to any logician to vigorously reply here that Ryle has not made his point. First, every hypothetical can be reworded according to the third pattern or form only if “if-then” means “implies” or “entails”. For surely

Its being Monday today entails its being Tuesday tomorrow

expresses the same proposition as

It cannot be Monday today and not be Tuesday tomorrow,
and this holds in general. But is it true of every “if-then” statement that “if-then” means “entails”? Consider

(1) If John is coming to the party, then Mary is coming also.

A mechanical rewrite according to the third pattern produces something ungrammatical:

It cannot be John coming to the party and Mary not be coming also.

But Ryle did not say that we had to mechanically preserve this form. We may take it that the looser

(2) John cannot be coming to the party and Mary not be coming also,

i.e. It cannot be that John is coming to the party and Mary is not coming also is the proper rewrite. Now the denial of this statement is clearly

(3) John can be coming to the party and Mary not be coming also

which surely expresses the same proposition as

(4) John can come to the party and Mary not come also.

Now we can imagine someone asserting the following statements:

Of course, John can come to the party and Mary not come also. That’s conceivable. But you can rest assured that if John is coming to the party, then Mary is coming also.

Is this a contradictory set of statements? Would asserting all the statements in this set be contradicting oneself? It clearly would not. But this shows that

(3) John can be coming to the party and Mary not be coming also is

not the negation or denial of

(1) If John is coming to the party, then Mary is not coming also. But (3) *is* the denial of

(2) John cannot be coming to the party and Mary not be coming also,

as we asserted above. Hence these two statements, (1) and (2), are not the same; the “cannot” form does not express a simple paraphrase of the straight indicative conditional. With this particular conditional, at least, “if-then” does not mean “implies” or “entails.”

This is not the place to enter into the controversy of how the concepts of implication or entailment should be analyzed. Suffice it to point out here, as any modal logician would, that there is an element of necessity in

It cannot be Monday today and not be Tuesday tomorrow.

This statement is logically equivalent to a necessitated conditional. For we may express the same proposition by saying

It cannot (is not possible for it to) be the case that (today is Monday and tomorrow is not Tuesday).

But this is equivalent to saying

It is necessary that (if today is Monday, then tomorrow is Tuesday).

The form of this statement is

it is necessary that (if p , then q)

and not the simple

if p , then q .

But this point opens up a further problem for Ryle. For notice that in our expansion of Ryle's third pattern, and as our schema above indicates, indicative statements are components of these expressions. And expanded versions involving just indicative components of Ryle's first two forms are straightforwardly constructed:

If it be the case that today is Monday, tomorrow is Tuesday.

If it were the case that today is Monday, it would be the case that tomorrow is Tuesday.

It appears that Ryle's forms are abbreviations of these expanded versions. But it is open to our logician to argue this way: From the fact that a given letter or sequence of letters does not appear in an abbreviation of a word, it does not follow that those letters are not components of the sequence of symbols constituting that word. Likewise, from the fact that Ryle's abbreviations do not contain the full indicative statement as component, it does not follow that they are not the components of such statements properly understood. Unless Ryle can show that these expansions are illegitimate, and further that indicative conditionals should always be properly or candidly rendered according to one of his patterns, he has not made his point that the logicians' code style "*if p , then q* " is deceptive in representing " p ", " q " as components of hypotheticals.

Having thought that he had established his point that hypothetical statements do not contain indicatives as components, Ryle continues, "What the hypothetical statement does embody is not statements but statement specifications or statement indents—bills for statements that statements could fill" (Ryle 1950, 336). According to Ryle, these statement indents are analogous to variables. Just as an individual variable has an individual it ranges over as one of its values, so "...today be Monday" can have 'Today is Monday' for one of its values" (Ryle 1950, 337). Ryle's discussion here is obscure. Hypothetical statements certainly do not appear to involve variables at all. As Clark points out in (1956), if we have a genuine schema involving a free variable, such as

φx

the " x " marks a slot into which genuine names of individuals may be inserted. Similarly, if we allowed other styles of variables, such as propositional variables or

predicate variables, schemata involving these variables would thereby involve slots into which non-variable expressions of the appropriate category could be asserted. But where are the slots in

If today be Monday, tomorrow is Tuesday ?

There are no slots. As Clark observes, “The hypothetical statement is a statement and not the schema of a statement and there is no appropriate insertion which will render it more of a statement than it is, since there is no possibility of insertion at all” (Clark 1956, 469). He concludes, “This is precisely why hypothetical statements. . . cannot be variable *just as* these expressions are variable” (Clark 1956, 469, italics in original).

If hypothetical statements cannot be variable *just as* schemata are variable, if they do not involve variables or variable expressions in that way, is there any other intelligible sense in which they can be said to be variable? What does it mean for an object to be the value of an individual variable? It means that we could, hypothetically, regard that variable as a name of the object (this is what an assignment function does), and where that variable appears in a propositional function expressing some attribute, we can meaningfully ask whether that attribute is true of the object. It likewise suggests that substituting a name of that object for the variable in the propositional function results in a meaningful statement (as long as the propositional function is unary), one which is true or false. In what sense does “. . . today be Monday” range over statements or what statements express? As Clark asks, what values, other than “Today is Monday” does it range over? (Clark 1956, 470) The very understanding of a variable is that it can range over a whole set of values.

But even taking “Today is Monday” as a value of “. . . today be Monday” is problematic. If some object is the value of a variable “ x ,” then it makes sense, where the quantifier “*for all x* ” ranges over such objects, to ask whether the result of dropping the quantifier in

for all x , φx

and replacing “ x ” by a name of that object, results in a true statement. But in

If today be Monday, tomorrow is Tuesday

not only does there appear to be no quantifier to drop, but on Ryle’s grounds literally replacing “. . . today be Monday” by “Today is Monday” is illegitimate. It should, strictly speaking, result in an expression not well formed, one where the question of truth or falsity would not even arise. Are there, for Ryle, any propositional contexts in which “. . . today be Monday” can be replaced by “Today is Monday” *salva* well-formedness? If not, what does it mean to say that “Today is Monday” is a value of “. . . today be Monday”?

Given these problems, we conclude that Ryle has simply not established that hypothetical statements express inference rules. Someone seeking a clear rationale for treating hypothetical statements appearing in premissory position as radically different from the other premises, as warrants as opposed to data, will either have to make better sense of Ryle’s argument than we have here, or look elsewhere. At

this point, we still lack an argument to show why hypothetical statements, including quantified or variable hypotheticals, are so different from other statements which appear in premissory position that they should be counted as a distinct type of argumentative element. But there is one other writer who has addressed this issue and whose views initially seem quite persuasive. J. S. Mill in *A System of Logic* (1973/1843) presents a discussion of the syllogism which remarkably resembles Toulmin's, but which sets an account of the general proposition in premissory position within a broader account of how we reason. Let's see whether Mill gives us suitable justification for holding that hypotheticals or conditionals going beyond summary reports always express inference rules.

3.5 Mill on the Syllogism

Mill's account of syllogistic arguments of the form

All S are P.
a is S.
Therefore a is P.

strikingly anticipates Toulmin's. In fact, we may use Toulmin's data/warrant/backing distinction to sharpen Mill's exposition. In (1973/1843), Mill holds that a proposition may be regarded either "as a portion of our knowledge of nature, or as a memorandum for our guidance" (Mill 1973/1843, Book II, Chapter ii, Section 4, 180). Under the first interpretation, a universal affirmative categorical proposition asserts that whatever has a given attribute has some further attribute. Under the second, the proposition is not "a part of our knowledge" but an inference rule, "enabling us, when we see or learn that an object possesses one of the two attributes, to infer that it possesses the other" (Mill 1973/1843, Book II, Chapter ii, Section 4, 180). We compress all our observations of particulars and possible inferences into one general proposition.

From instances which we have observed, we feel warranted in concluding, that what we found true in those instances, holds in all similar ones, past, present, and future, however numerous they may be. We then. . .record all that we have observed, together with all that we infer from our observations, in one concise expression (Mill 1973/1843, Book II, Chapter iii, Section 3, 186–187).

This is the memorandum or register interpretation of general categorical propositions.

This interpretation constitutes the basis of Mill's strategy for resolving a notorious paradox or conflict in syllogistic theory. In a valid syllogism, the conclusion cannot assert anything more than what was asserted in the premises. But it certainly appears that syllogistic reasoning can lead to new knowledge. Through such reasoning, persons come to know or recognize facts they were not previously aware of. How can the conclusion of a syllogism give us new knowledge, when it expresses nothing but what was already contained in the premises? As Mill sees it, we must distinguish inferring from registering or deciphering. We infer when we pass by

inductive generalization from particular facts — e.g. the mortality of individual persons — to a generalization — “All humans are mortal,” or when we pass by analogy from particular facts to some further fact — “The [still alive] Duke of Wellington is mortal.” But the general proposition is an inference licence or memorandum that we have such a licence. In syllogistic reasoning *per se*, we do not infer but decipher the import of this licence.

From Mill’s perspective, we infer the conclusion of a particular syllogism from the particular facts which serve as evidence for, which back, the general statement which licences, warrants an inference. In ordinary, everyday reasoning the move from backing to warrant, i.e. inference licence may actually be omitted, the reasoning from backing to claim proceeding by analogy. (If Mill had the data/warrant/backing distinction here and were speaking carefully, I expect he would say we infer the conclusion from the backing for the warrant together with the datum that an object possesses a certain attribute.) Should we set this backing aside, and reason just from (data and) inference licence or warrant to some further fact, we would be consulting, reading our notes, *deciphering* what was already *registered* in our inference licence.

In his memorandum theory of general propositions, in his account of how these propositions are backed by observation of particulars, Mill gives us a rationale for the data/warrant/backing distinction. What I find most persuasive about this discussion, besides its neat explanation of why the syllogism is not a *petitio principii*, is its linking the rationale to an account of the reasoning process. Mill has a conception of reasoning from which the data/warrant/backing distinction grows. But it is right here that we may also raise critical questions. Let us grant for the moment that the universal proposition “All humans are mortal” functions as a warrant in some person’s inferring the mortality of the Duke of Wellington from his humanity. But should this reasoner propound the argument

All humans are mortal.
 The Duke of Wellington is human.
 So the Duke of Wellington is mortal.

does the general premise here function as a warrant? Is this how it is to be properly interpreted as it appears in this public argument as product, in contradistinction to how it appears in private reasoning? Should the reasoner present this argument to convince a challenger of the Duke of Wellington’s mortality, would his first statement serve merely to remind the challenger of an inference rule? Recall that Mill does allow two interpretations of the general proposition. According to the first, the proposition asserts that whatever has the attribute of being human has also the attribute of being mortal. Why should the first statement not be interpreted this way? As R. P. Anschutz points out in (1949) about the parallel argument for the mortality of Socrates,

Although this may not seem a very convincing argument, torn out of any context, it is not difficult to imagine circumstances in which it may, and should, produce conviction, provided we can imagine a person genuinely in doubt about Socrates’ mortality and another anxious to convince him of it. The argument will then take the form of an examination—Well,

Socrates is a man, isn't he? And all men are mortal, aren't they? Hence he must be mortal. And so far as we are all open to conviction, and are right to be open to conviction, in this sort of way we are, I take it, admitting the validity of syllogistic argument in its original dialectical form (Anschutz 1949, 77–78).

Some comments Nagel makes in criticism of instrumentalism seem especially appropriate here. He claims that the premise/inference rule distinction is contextual. In the above argument about the Duke of Wellington, the general statement is a premise and the inference rule is the formal principle of the syllogism “a statement of the form ‘ x is P ’ is derivable from two statements of the form ‘All S is P ’ and ‘ x is S ’” (Nagel 1961, 138). But in the argument

The Duke of Wellington is a man.
Therefore the Duke of Wellington is mortal,

the inference rule is the material principle “Any statement of the form ‘ x is mortal’ is derivable from a statement of the form ‘ x is a man’” (Nagel 1961, p. 138). — “All men are mortal” being the corresponding universal generalization. Further, we may recast or reconstruct the first argument as the second and the second as the first. And this holds for any pair of arguments instancing these two patterns. Nagel concludes,

It is clearly a matter of convenience in which of these alternate ways an argument is constructed. Accordingly, though the distinction between premises and rules of inference is both sound and important, a given statement may function as a premise in one context but may in effect be used as a leading principle in another context, and vice versa (Nagel 1961, 138).

What Nagel says here is very much in line with some further comments Peirce makes on leading principles in (1955). Once the leading principle of an argument is formulated, it may be added to the premise(s) of that argument to form a second argument. The conclusion of both arguments is the same. But the premise set of the second includes exactly the premises of the first together with the leading principle *as a premise*. In the second argument, the conclusion is drawn from all these statements together. Hence, although we may agree with Mill (and Ryle and Toulmin) that conditional statements of various sorts may have the force of inference rules, to construe them as inference rules when they appear in premissory position in the syllogisms we have been considering is to overlook the contextual nature of the premise/inference rule distinction and to misconstrue the structure of these arguments. Surely, when someone offers an argument with a conditional statement in premissory position, we have ample textual evidence that he or she intends to draw the conclusion of that argument from all the statements in premissory position together, including the conditional. By explicitly offering the conditional in premissory position, the arguer creates the presumption that the premises from which this argument moves to the conclusion include this conditional, and not just the remaining “data”-type premises. Construing the argument as if the conditional statement were the warrant (together perhaps with its backing) goes against this presumption.

Of course, it is open to Mill, or better Mill's advocate, to reply that his analysis of universal categorical propositions and their function in reasoning undercuts this

presumption. Such propositions, insofar as they go beyond summarizing observed data, are memoranda, registers of the inferences we may make. When someone manifestly includes such a proposition in premissory position in an argument, he is simply reminding himself or his audience of this memorandum, or perhaps communicating it to his listeners. Inference licenses are just what these statements *are*. But one may counter *this* by pointing out that Mill's advocate, like Toulmin, seems to have forgotten that universal categorical propositions can go beyond being summary reports that all observed A's are B's to making a *statement* about all A's. At least, this is one standard construal of such propositions which has not yet been decisively refuted. Although the force of "All A's are B's" may be to indicate that we may infer from something's having the attribute A that it also has the attribute B, the proposition makes a claim in its own right going beyond summarizing data, and this is ordinarily taken as its intended sense when it is proffered in premissory position.

It seems after reviewing all these considerations put forward by Toulmin, Ryle, and Mill, that we are right back where we started. Let us take stock of our inquiry up to this point. We are asking whether the concept of warrant identifies a basic category of element in arguments as products. Alternatively, we are asking whether the data/warrant distinction can be applied to arguments as products. We saw initially that making this application was problematic, and required a rationale for identifying a statement presented in premissory position as the warrant or as expressing the warrant as one of its functions. To discover such a rationale, we turned to Toulmin's account of certain classes of syllogisms. But this discussion, although suggesting a rationale, that if a statement is of conditional form take it as the warrant, was problematic. It rejected interpreting generalized conditionals as making statements about the world going beyond summary reports. We did not see that Toulmin satisfactorily argued for this view, nor did we find any satisfactory argument in Ryle's defense of construing conditionals as inference rules. Nor have we found a suitable defense in Mill's account of syllogistic reasoning. Hence we still lack a reason for rejecting interpreting general categorical propositions as descriptions involving inference, descriptive *statements* going beyond just what has been observed.

But this is precisely what we needed to see that there was an advantage in counting general categorical propositions as warrants as opposed to premises. Although Toulmin's, Ryle's, and Mill's approach may have the virtue of highlighting that universal categorical propositions and conditionals in general may function as (better correspond to) inference rules in certain contexts, this does not entail that they so function when appearing in premissory position in certain syllogisms. We have yet to see an argument establishing the superiority of construing them as inference rules or warrants when they appear in such contexts. In fact, if Nagel is correct, this may even misconstrue the structure of such arguments. Hence, we have not found any compelling reason or advantage in following Toulmin's approach, but rather have identified a distinct possible disadvantage. Further, we feel there are a number of other disadvantages to Toulmin's approach which will provide telling reasons against taking warrants as a structural category for arguments as products.

By presenting his model of *the* layout of arguments, Toulmin suggests that in any argument, we should be able to identify the distinct types of elements — claims, data, warrants, modalities, rebuttals, backing — in his model. Further, Toulmin's including warrants in “the first skeleton of a pattern for analysing arguments” (Toulmin 1958, 99) certainly suggests that every argument involves a warrant. Of course, if warrants are inference rules, this view is not surprising. For it is a commonplace that whenever we move from premises to conclusion in inference, there must be some rule according to which we make that move, even if we are not aware of it explicitly. But warrants, as we saw above, are inference rules. That was the answer to the first of the three questions we asked to evaluate whether warrants constituted a genuine category of elements occurring in arguments as products. In answering the second, we have failed to find compelling reasons for counting certain statements or types of statements which may occur in arguments as warrants, even in the syllogisms which apparently lend themselves to this analysis. But in other arguments, at least as manifestly stated, we cannot readily identify an explicit warrant or distinguish warrant from data. Indeed, attempting to do so seems only to lead to puzzlement. We shall give plenty of evidence for this shortly. If warrant is a basic category of argumentative element, then in many instances we shall have to supply the warrant. One main evaluative question remains — Even if warrants, implicit or explicit, can be identified, is it right to count them as elements in arguments as products, are they properly parts of arguments? To prepare ourselves for answering that question, let's see why we need, in a number of cases, to supply warrants.

3.6 Warrants as Always Implicit, if not Explicit in Arguments as Products

Let us remind ourselves of Toulmin's apparent position. In at least some arguments as products, some manifestly stated proposition functions as the warrant, or does double duty representing (and masking) both warrant and backing. The point is that from some statement explicitly in the argument we may generate the warrant and contrast it with the data and other statements manifestly in the argument. However, with many other arguments as products, this is not possible. Consider any instance of conjunction, for example

Uncle Henry will come.
So will Aunt Annie. Therefore
Uncle Henry and Aunt Annie will come.

Which premise is the data, which involves the warrant? In a disjunctive syllogism, does the disjunctive premise serve the warranting function? Does a statement of the form

P or Q

say, in part, that

Given not P, we may take it that Q?

Are the premises of a pure hypothetical syllogism data, warrants, or is one data while the other expresses a warrant? How are we to tell? Consider the familiar syllogism in Barbara. On analogy with our singular syllogism, should we count the minor premise as asserting the data and the major premise as involving the warrant? Can this rule be generalized? In a syllogism of the form

Some B are C
 All B are A Therefore
 Some A are C

the major premise is particular, the minor universal. But surely here if we want to analyze as Toulmin does, don't we want to count the *major* premise as data, the minor as furnishing the warrant? Things become even more perplexing when we consider invalid argument forms. In

Some B are C
 Some A are B Therefore
 Some A are C

does either premise involve a warrant?

The problem is not confined to syllogisms or other two premise deductive arguments. Where is the warrant in arguments proceeding by immediate inference, obversion, conversion, contraposition? How are we to analyse arguments proceeding by some form of the rule of replacement, i.e. arguments where the conclusion is just like the premise except at some component, which is distinct from but logically equivalent to the corresponding component in the premise? For example, consider an argument of the form

$$\frac{P \& (Q \equiv R)}{P \& (\sim\sim Q \equiv R)}$$

Is the equivalence of Q with $\sim\sim Q$ the warrant here?

Especially problematic would seem to be arguments proceeding by some special strategy — conditional proof, reductio ad absurdum, separation of case. Recall that in a conditional proof argument, one establishes a conditional as conclusion by showing that we can argue cogently from the antecedent of the conditional to its consequent. The entire argument is put forward to justify the conditional. What here is the warrant licensing the move from the argument to the conditional? Would it be the formal rule of conditional proof?

Problems go further than just deductive arguments or — like these arguments utilizing special strategies — arguments which are frequently deductive. For example, inductive generalization arguments proceed this way:

- (1) e_1 is an A and a B.
- (2) e_2 is an A and a B.
- ⋮
- (n) e_n is an A and a B.
- ∴ (n+1) All A's are B's.

Clearly, the premises constitute a body of data, but where is the warrant? Such arguments seem warrant-establishing as opposed to warrant-using. Toulmin indicates that arguments establishing warrants themselves use warrants (Toulmin 1958, 106), but he does not give examples of these warrants or of the arguments. It would seem that in many of such warrant-establishing arguments, the warrant would have to be supplied.

If we agree that it is improper to take one of the assertions in these arguments as expressing or involving the warrant, but yet also agree that every argument involves a warrant, then we shall have to say that the warrant is implicit in these arguments. But if we agree that the warrants are implicit, the question arises: How should we frame these warrants? What shall we supply to make the implicit warrants explicit? There is a distinct disanalogy between Toulmin's examples motivating recognizing warrants as a separate element in arguments and the examples we have just reviewed.

Harry's hair is red.
Therefore
It is not black.

Petersen is a Swede.
Therefore
He is not a Roman Catholic.

Wilkinson was timed driving at 45 mph in a built-up area.
Therefore
Wilkinson has committed an offence against the Road Traffic Acts. Harry

Harry was born in Bermuda.
Therefore
Harry is a British subject.

(See Toulmin 1958, 97–99.) Each of these arguments involves an intuitively obvious logical gap. Something is needed to connect data and claim, manifestly stated premise and conclusion. What Toulmin offers as warrants clearly fills in the gaps:

If anything is red, it will not also be black.
A Swede can be taken almost certainly not to be a Roman Catholic.
A man who is proved to have driven at more than 30 m.p.h. in a built up area can be found to have committed an offence against the Road Traffic Acts.
A man born in Bermuda will be a British subject (Toulmin 1958, 98–99).

But where is the gap in the move from the data “Uncle Henry will come; Aunt Annie will come” to the claim that “Uncle Henry and Aunt Annie will come”? Likewise, where is the gap in the argument:

Either Jim will get the promotion or he'll resign.
Jim will not get the promotion. Therefore
He will resign.

Where is the gap when we argue according to the form “All B are C/All A are B/Therefore All A are C”, or when I infer that Jones will come from the assertion

that he will not refrain from coming? Again, where is the gap in arguing according to the form

On assumption that P, we have shown that Q.
Therefore
If P, then Q.

Does the question, “How do you get there?” naturally arise for these arguments?

Now it is open for one to reply that although these arguments involve no substantive or material gap, they still require inference rules to licence or enjoin moving from the data or manifestly stated premises to the conclusion. These examples differ from Toulmin’s, since only purely formal inference rules are involved here. In fact, the formal inference rules to which we have alluded in describing the forms of these arguments are the warrants here. By describing the argument as being of a certain form, we have already indicated its warrant.

From a statement that P and a statement that Q, we may take it that P and Q.

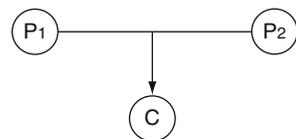
From a statement that either P or Q and a statement that P does not hold, we may take it that Q.

The difference between these warrants and those which Toulmin supplies is the difference between formal and material inference rules. The paradigm case of a warrant for Toulmin is a material inference rule. But this is in no way incompatible with admitting formal inference rules as warrants. We could, quite consistently, take the class of warrants as including both formal and material inference rules. Indeed, it seems we must, if we are to regard any argument as involving a warrant.

3.7 Some Problems With This View

Although this view is consistent, we feel that it raises a number of questions and problems. Consider first Toulmin’s apparent insistence that warrants be always included in argument diagrams. Consider the sample arguments we have been discussing. On the standard approach, arguments proceeding according to rules of conjunction, disjunctive syllogism, Barbara might all be diagrammed as linked (See Fig. 3.4):

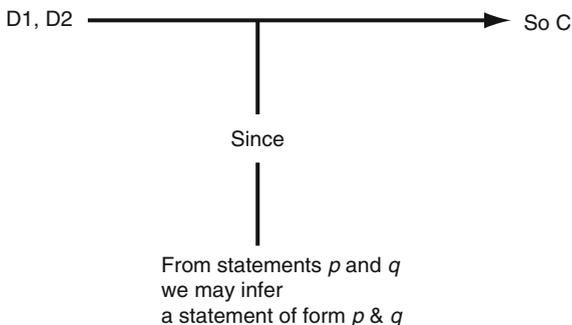
Fig. 3.4



As we noted in [Chapter 1](#), some might want to diagram conjunction arguments as convergent. But in spite of this disagreement, the diagramming appears straightforward.

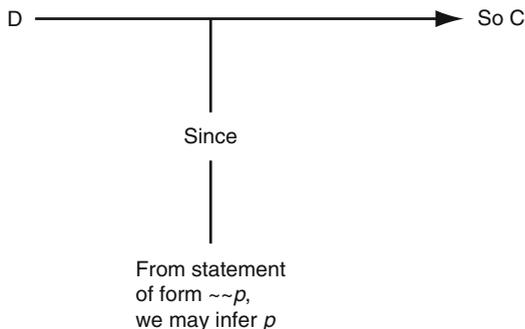
On the Toulmin model, it would appear that conjunction arguments would be diagrammed this way (See Fig. 3.5):

Fig. 3.5



The diagrams for disjunctive syllogism and syllogism in Barbara would be parallel, inserting their respective inference rules in warrant position. An argument proceeding by double negation would be diagrammed this way (See Fig. 3.6):

Fig. 3.6



As we discussed in [Chapter 1](#), in the third and earlier editions of (1986), Thomas has shown how the standard method of argument diagramming can be extended to display the structure of conditional and reductio ad absurdum arguments. Toulmin says nothing about such arguments. Assuming that we could diagram the move from an argument with a conditional assumption to a conclusion where that assumption is discharged, we would again need to supply some inference rule as warrant for that move to complete a Toulmin diagram.

Notice that in each case, we have had to supply the warrant. Deductive arguments in general do not explicitly state the inference rules they are instances of and to which they appeal. Why, if an argument as product does not explicitly include a warrant, should we be required to supply one just to satisfy a requirement of our diagramming system? This makes the diagramming system less straightforward. Why is it incumbent on us to account for warrants — and presumably the other elements in Toulmin's layout — when our first concern is getting a picture of how the argument as manifestly stated hangs together?

This perceived defect in Toulmin’s approach could be easily overcome by a simple modification of his system: Keep the general approach, the structural categories of the Toulmin model, but do not require all these categories to be represented in *every* diagram of an argument text. If a text includes only data and a claim, then a proper diagram of that argument’s manifest structure would display only data and claim. This does not mean that one could not attempt to supply the other elements deemed implicit in the argument. But that is not now *required* in constructing a diagram. We have broadened, or at least clarified, Toulmin’s approach to allow diagrammatic representation just of what a text manifestly includes.

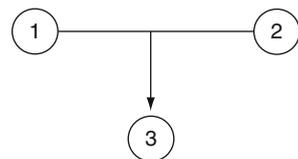
That frequently, indeed generally, we would have to supply warrants and other elements to complete a diagram according to the Toulmin model again raises the question of whether Toulmin’s model applies primarily to arguments as process rather than arguments as product. Are we really describing process rather than product structure here? As we have seen, Toulmin motivates recognizing data and warrants as distinct categories of elements in arguments through questions which a challenger in a basic dialectical situation might ask. It would furthermore be straightforward to frame such questions to introduce modalities, rebuttals, and backing. Toulmin’s categories, then, seem attuned to giving us as challengers a framework for asking critical questions of the proponent, for drawing out the proponent’s argument or imagining what answer he might give. This leaves open how revealing these questions are for discerning the structure of argument texts. This does not in any way gainsay the value of these questions for properly evaluating an argument. To determine just how cogently or with what force someone has argued for a claim, one may have to engage him imaginatively in a dialogue by asking these questions. To see the structure of this developing argument as process as instantiating the Toulmin model might be quite illuminating. But this is different from discerning the structure of an argument text.

Even with this modification to allow diagramming just the manifest structure, there is still a problem on this approach. Compare these two familiar arguments:

- | | |
|----------------------------|----------------------------|
| (1) Socrates is human. | (1) All Greeks are human. |
| (2) All humans are mortal. | (2) All humans are mortal. |
| Therefore | Therefore |
| (3) Socrates is mortal. | (3) All Greeks are mortal. |

We have already noted the first apparently lends itself to Toulmin’s data/warrant distinction, whereas the second is problematic. The standard approach sees both arguments instantiating the same linked structure (See Fig. 3.7):

Fig. 3.7



On the Toulmin model, the first would be represented as in Fig. 3.8):

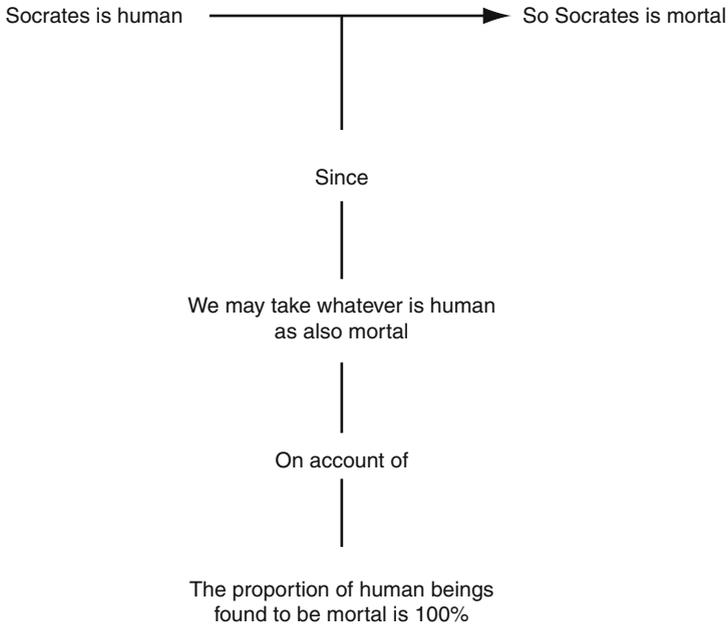


Fig. 3.8

The second, however, would apparently be represented by Fig. 3.9:

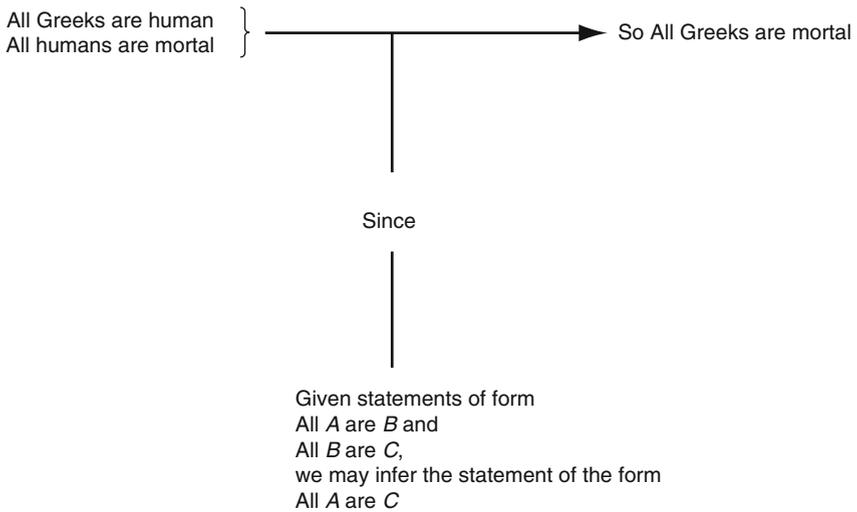


Fig. 3.9

Even if we permitted omitting the warrant, on Toulmin’s approach we could supply it and it would properly be included in a diagram of the argument’s developed structure.

This pair of Toulmin diagrams strikes us as being doubly artificial. First, there is a disparity in these diagrammatic representations which does not reflect a disparity in the original texts. Our first diagram represents the first argument as reasoning to its claim (3) from one datum (1) via the material warrant (2). Our second diagram represents the second argument as reasoning to claim (3) from data (1) and (2) via the formal warrant, syllogism in Barbara. But is there this structural disparity in the original texts? Does not each seem to present two premises from which a conclusion is inferred by taking these premises together? This is how the standard approach represents the structure of *both* arguments. Even using the Toulmin approach, wouldn’t it be more perspicuous to represent the structure of the first argument this way as in Fig. 3.10:

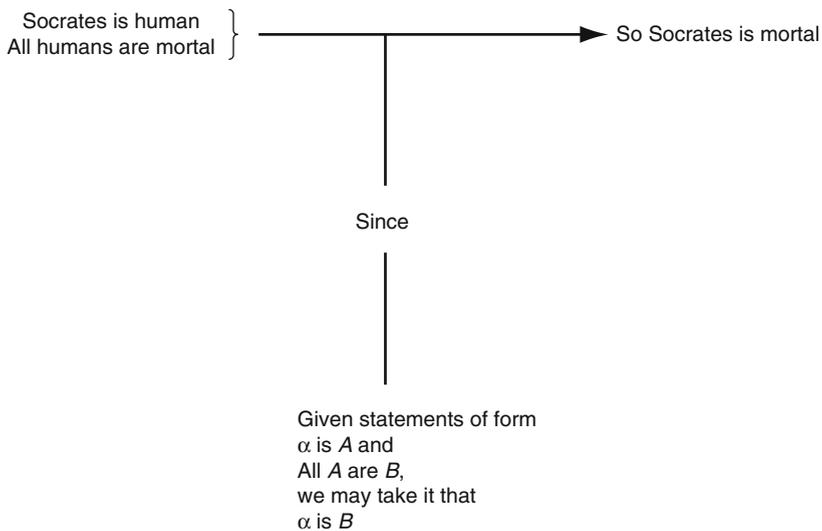


Fig. 3.10

This would restore the parallelism between the two arguments, and be faithful to our intuition that in both, two premises are intended to be taken together to support the conclusion.

But at this point, we are faced with another problem. Presenting a formal inference rule as the warrant seems distinctly artificial. Why, unless we were trying to fill in the gap in the Toulmin model and find a warrant, would we want to include these inference rules in a representation of the argument’s *structure*? This is the second way in which the approach involves artificiality. If we perceive a gap in a diagram, that should be because we perceive the diagram to reflect imperfectly or incompletely the structure of the argument, not because our diagram construction

rules tell us to go out and find a certain element. We sense it artificial to include inference rules in argument diagrams because we are persuaded that inference rules are not parts of arguments. As we have already stated, arguments instance inference rules rather than include them as elements. It is no more appropriate to count an inference rule as a part of an argument than it is to count an attribute as a part of a substance. A substance is a concrete instance of some attribute as an argument is a concrete instance of some inference rule. Hence argument diagrams need not, and in fact should not, contain such elements. This means that warrants should not be included in diagrams of argument texts. The category of warrant should be jettisoned in analyzing arguments as products.

Chapter 4

The Linked-Convergent Distinction—A First Approximation

4.1 The Problem Encountered

Why should we be concerned with the linked-convergent distinction? We seek to discern argument structure to prepare for argument evaluation, in particular by applying the ARG criteria. We want to know whether the argument gives us cogent reason to accept the conclusion. To be recognized as cogent, at least some of the premises must be acceptable from our viewpoint and the argument must transfer their acceptability to the conclusion. Consider a simple argument where several statements are put forward to support some conclusion directly (i.e. no serial structure). Suppose we recognize that one of these statements is unacceptable, either because we recognize the statement as false or as involving an undischarged burden of proof. It is misleading to say that the degree of support that statement gives to the conclusion is nil. A false statement has deductive consequences, either by itself or in connection with other statements, and deductive consequence is the strongest degree of support. But who wants to reason from unacceptable premises, no matter how strongly they are connected to the conclusion? Recognizing an unacceptable premise means that the premise should be taken off the table. We need not and should not consider it further. The remaining premises must give us good reason to accept the conclusion, if the argument is to be cogent.

However, taking one premise off the table may involve taking another off as well. Consider a valid categorical syllogism. The two premises together constitute one reason for the conclusion. If one is gone, the other, by itself, may appear irrelevant to the conclusion, and irrelevant premises, like unacceptable premises, should be taken off the table. Recognizing the unacceptability of one premise means both should be taken off the table. Conversely, premises which taken by themselves may seem irrelevant to the conclusion, as with the two separate premises of a categorical syllogism, may together form a relevant reason for the conclusion. Taking the premises off the table on grounds of failure of individual relevance would be premature. The point is that there need not be a one to one correspondence between the premises of an argument, understood as separate declarative sentences, and the reasons the argument gives for its conclusion. Some premises link together to form reasons. Judgment of whether a premise should be kept on the table or removed in the course of argument evaluation must be made in light of the reason of which that

premise is a factor. But this involves a judgment of whether the premise links with one or more other premises to form a reason or whether it constitutes an independent reason, converging with other reasons.

In [Chapter 1](#), we pointed out that the linked-convergent distinction was a highly problematic issue for the standard approach to argument diagramming. Explanations of the distinction and directions for identifying whether an argument has convergent or linked structure are frequently intuitive, vague, or ambiguous. Open disagreements arise over whether a particular example is linked or convergent. In (1986), Thomas characterizes linked structure this way:

When a step of reasoning involves the *logical combination* of two or more reasons, they are diagrammed as *linked*. (Thomas 1986, 58, first italics mine.)

Reasoning is linked when it involves several reasons, each of which *needs the others* to support the conclusion. (Thomas 1986, 58, italics mine.)

In general, suitably related pieces of evidence *that fit together* to support or justify a given hypothesis, scientific or otherwise, can be diagrammed as linked. (Thomas 1986, 59, italics mine.)

Thomas gives convergent structure this characterization:

When two or more reasons do not support a conclusion *in a united or combined way*, but rather each reason supports the conclusion *completely separately and independently* of the other, the reasoning is *convergent*. (Thomas 1986, 60, all but last italics mine.)

If neither reason *needs the other* reason (or anything like the other) in order to support the conclusion, then the reasoning can be diagrammed as *convergent* reasoning. (Thomas 1986, 62, first italics mine.)

What are the key words in these characterizations? They are “logical combination,” “needs the others,” “that fit together,” “in a united or combined way,” “completely separately and independently.” Without the benefit of theory, these are all highly intuitive, ambiguous concepts. Without some explanation of what logical combination—or the lack of it, one reason needing another, or two or more reasons fitting together mean, we can easily imagine persons disagreeing over whether two reasons need each other. Indeed, we might expect situations to arise where we feel two or more reasons need each other *in some sense* to support the conclusion properly, but not in the sense required for linked structure. But how do we explicate that sense?

Thomas offers one other criterion for distinguishing linked from convergent structure—to our mind a lot clearer. He says if “each separate reason still would support the conclusion just as well even if the other (separate, independent) reason(s) were false, and each separate line of reasoning could still be equally good even if the other line(s) of reasoning happened to be no good” (Thomas 1986, 61), then the reasoning is convergent. However, if the falsity of one reason were to undercut the force of the others, the reasons should be linked. Thomas of course admits that there will be hard cases to adjudicate, for various reasons. He also admits the theoretical difficulty here. “Natural logic still has not fully solved the difficult problem of giving a general, exhaustive formula for distinguishing linked from convergent inference in natural languages” (Thomas 1986, 461).

Thomas is not the only one to have problems with making a clear distinction between linked and convergent structure. In (1984a), Lee Rowen first characterizes an argument with linked (in her terminology “conjoint”) structure as one where “a conclusion is supported by two or more premises each of which contributes to the support which the others in the set give to the conclusion” (Rowen 1984a, 7). We have convergent (“disjointly supporting premises”) structure when the reasons are logically independent, are not contributing any “logical connection” to the support the other(s) give to the conclusion (Rowen 1984a, 7). She also speaks of premises giving “partial support.” Frequently, such premises must be linked with supplied suppressed premises to get complete support. Here again, we note a problem with lack of clarity. What do “each of which contributes to,” “logical connection,” “partial support” mean? (In fairness to Rowen, we should point out that she develops in (1984b) a criterion for distinguishing linked from convergent arguments free of such intuitive, ambiguous terminology. We cite her discussion in (1984a) to illustrate how problematic terminology is associated with the linked/convergent distinction. In (1984), Robert Yanal said he used such phrases as “conceptually similar,” “in the same line of thought,” “logically dependent,” “fill in the logical gaps,” “support each other” to informally characterize when premises should be linked (Yanal 1984, 1). Again, we have rather unclear descriptions of the conditions for linked structure.

How do these characterizations of linked and convergent argument structure lead to disagreements or unintuitive determinations of particular examples? How by following them might we produce “wrong” diagrams? Let us examine particular cases.

- (1) Cigarette smoking poses a substantial health risk to the smoker. It also poses a risk to those nearby who must breathe the smoke secondarily. Therefore people should not smoke cigarettes.

Many would regard this argument as having convergent structure, two separate, independent reasons being given for the conclusion. But surely although each premise by itself gives some support to the conclusion, taken together do not we have a stronger case? If so, does not one contribute to the support of the other? Don’t they both “fit together”—both report adverse effects of smoking? Aren’t they in the same line of thought? Isn’t the structure then linked?

In (1), the first premise gives a strong reason for not smoking. The second premise gives a significant reason against smoking in public if not against smoking in general. This suggests that one reason does not need the other to support the conclusion, and makes a convergent diagram plausible. But suppose we had several premises each of which gives only some support to the conclusion?

- (2) La Petite Coloumb has the best chef in town. The live entertainment there is outstanding. The menu is also quite varied. Thus we should go there for dinner.

Is the structure of this argument linked or convergent? Each premise describes a rather different aspect of La Petite Coloumb. Each independently of the others gives us *some* reason for the conclusion, leading us to think the structure is convergent.

But does any one of the three, by itself, properly support, give us a good argument for, the conclusion? Would basing our decision to go to La Petite Coloumb for dinner on just one of these factors be hasty? Besides, all three premises discuss positive factors of one and the same restaurant. Does this mean they are in the same line of thought? Is the structure linked?

There is overt disagreement concerning the structure of inductive generalization arguments in the literature. Thomas regards them as linked; Yanal explicitly questions this. Taking

- (1) e_1 is an A and a B.
- (2) e_2 is an A and a B.
- ⋮
- (n) e_n is an A and a B.
- ∴ (n+1) All A's are B's.

as the paradigm schema for inductive generalizations, we may regard each of (1), (2), ..., (n) as providing a bit of evidence—perhaps a very small bit of evidence for the conclusion (n+1). Since each instance is presumably distinct from the others, each premise presents a separate piece of evidence for the conclusion, indicating convergent structure. Thomas argues that inductive generalization arguments are linked because “the strength of support is much greater when the instances are considered in union together, and each reason needs the truth of the others in order for the conclusion to be supported” (Thomas 1986, 59). Suppose we found an e_j which was A but not B. Then “the support given the conclusion by the other positive instances would be greatly reduced” (Thomas 1986, 59). Indeed, their support of the unqualified generalization would be defeated altogether. (This is not to say that A might be suitably qualified and *that* generalization sufficiently supported by the remaining pieces of evidence.) The falsity of the conclusion deductively follows from the truth of e_j is A and not B. We must concede that each separate reason would not support the conclusion just as well if any of the other reasons were false. Applying Thomas’ last mentioned criterion for distinguishing linked from convergent structure, such arguments then are linked. But does this show that each premise needs the others to support the conclusion? If we say yes, then how can any inductive generalization support its conclusion unless the premises include a complete enumeration of all instances of A’s, together perhaps with the assertion that these are all the A’s there are? And here we would have a deductively valid argument, not an induction.

In 1984, Yanal considers the following argument, which he adapts from Thomas, as a problematic instance of distinguishing linked from convergent structure.

- (3) (1) Forests are cleared to make way for cultivation. (2) Food trees are poisoned to leave space for better timber trees. (3) Whenever chimps are near human settlements they are threatened with epidemics. That’s why (4) the spread of agriculture and forestry threaten the life of the chimp (Yanal 1984, 2).

Yanal regards this argument as having convergent structure, although he points out that Thomas diagrams it as linked. Each premise gives some evidence that agriculture and forestry, taken as one activity, threaten the life of the chimp. Each mentions a different factor negatively impinging on chimpanzee welfare. One might object that premises (1) and (3) support that the spread of agriculture threatens the life of the chimp, while (2) gives evidence that the spread of forestry is detrimental to chimpanzees. Don't we have to link these premises together to see why all support saying that the spread of agriculture *and* forestry threaten the life of the chimp? The conclusion in effect is a conjunction, with (1) and (3) supporting one conjunct, (2) the other. This raises the more general question—What is the structure of deductive arguments proceeding by the rule of conjunction:

From	A	
	B	
To Infer	A & B	

Should arguments exhibiting this structure be diagrammed as linked or convergent? Now clearly, unless 'A' entails 'B,' the argument from 'A' alone to 'B' is not valid. The situation is symmetric with respect to 'B' and 'A.' But are 'A' and 'B' by themselves irrelevant to 'A & B'? Doesn't each give us "half" of the information we need for 'A & B'? But if each separately gives us half of what we need, doesn't that mean that each reason separately supports the conclusion? Or is it because both reasons are needed to produce a valid argument that neither *completely* separately supports the conclusion?

Suppose we grant that arguments proceeding according to the rule of conjunction are convergent. Does that indicate that the following argument is convergent also?

- (4) Tom, a Central High School student, won a National Merit Scholarship. Mary, another Central High School student, also won a National Merit Scholarship. So two (at least) Central High School students won National Merit Scholarships.

As with a conjunction argument, doesn't each premise, by itself, give us half the information we need for the conclusion? Does this argument then have convergent structure? But does either premise tell us that *two* Central High students won National Merit Scholarships? Don't we need both to support that assertion?

These examples amply illustrate that drawing the distinction between linked and convergent arguments is problematic. To offer a preliminary diagnosis, we see the heart of the problem lying in an ambiguity of the key concept "logical support" and so also of the downward directed arrow in argument diagrams meant to represent it. When we say that a premise P logically supports a conclusion C, do we mean that P gives some evidence for C, or do we mean that P gives good or sufficient (although not necessarily deductively entailing) evidence for it? Likewise, when we draw an arrow from P alone to C in an argument diagram, are we saying P is a reason for C or

P therefore C,¹ i.e. P by itself constitutes a complete “case” for C? Now the question of argument strength introduces the issue of modality. To claim that a premise or set of premises gives a strong reason for a conclusion, assuming that the premises are acceptable, or that it gives at most weak support to the conclusion is to make a modal claim. This is to claim something over and above claiming that the premise is relevant to the conclusion. Clearly, a premise can give us some evidence to support a conclusion without giving us sufficiently weighty evidence. Those who tend to look at logical support as making just the relevance claim and the arrow as indicating just that the premise is a reason for the conclusion will tend to favor convergent arguments for all (or all but the last) of our problematic examples. Those who see logical support involving a modal claim and the arrow indicating “therefore”, will tend to link the premises in our various examples.

4.2 Motivating the Linked-Convergent Through the Relevance-Ground Adequacy Distinction

Which interpretation of “logical support” and so which reading of the arrow is correct? Our motivating linked and convergent structure through different dialectical questions in [Chapter 1](#) gave a clearcut distinction between these two argument patterns. An argument involves linked structure when two (or more) premises must be taken together or are intended to be taken together to see why we have one relevant reason for the conclusion. We can imagine at least one of these linked premises being offered to answer the question—Why is that (the remaining premise or premises) relevant? An argument involves convergent structure when two or more premises are each independently relevant to the conclusion. Each gives a separate piece of evidence for the conclusion. We can imagine each one, after the first, being given to answer the question—Can you give me an additional reason? What are the merits of how our approach distinguishes linked from convergent structure?

The first advantage of our approach is its clarity in distinguishing these two types of structure. We have distinguished linked from convergent structure without resorting to such problematic locutions as “logical combination, connection, dependence, independence,” “needing or contributing to the support of others,” “fitting together,” “being in the same line of thought,” “filling logical gaps,” which we found in Thomas, Rowen, and Yanal. As long as one understands what it is for one statement to explain why another is relevant to a claim, or what it is for two statements to give distinct, independently relevant evidence for a third, the distinction should be clear. But, as Govier remarks in (1985) “the concept of relevance is so basic to thought and the development of knowledge that it is difficult to define and explain” (Govier 1985, 101). Although the notion is intuitive, it is intuitively clear. We understand the notion when we understand what it is for one statement

¹We owe this contrast to a conversation with Prof. Alec Fischer.

to give a reason for another. The most we can do is to forestall misunderstanding by saying that for one statement to give a reason for another, it must give some evidence, even if that evidence is very slight. We may also attempt to explicate the notion of relevance through the notion of likelihood. Johnson and Blair present this characterization in (1977):

If R is relevant to Q, . . . then R's being true would increase the likelihood that Q is true, while R's being false would increase the likelihood that Q is false If there is no effect one way or the other, then you have ample grounds for your claim that R is irrelevant to the acceptability of Q (Johnson and Blair 1977, 15–16).

Not only does our approach dispense with unclear vocabulary in explicating the linked-convergent distinction, it explains why that vocabulary is unclear, ambiguous. To discuss the adequacy of grounds is to discuss an essentially modal question. Modality in part concerns how strong a case the premises make for the conclusion. If the premises are true, how much support does this give the conclusion? Is it as strong as deductive entailment, not that strong but still inductively good, or weaker yet? Since our challenger in a basic dialectical situation is a rational judge, she will ask questions as she perceives logical weaknesses in the argument. Hence, she will ask for more reasons, the first ground adequacy question, not out of idle curiosity, but because she perceives that the grounds given thus far do not give a sufficiently strong case for the claim or that they could be strengthened. On the other hand, she asks the relevance question when she does not see at all why a stated premise gives any support to the claim it is alleged to support. Hence, our basic dialectical questions clearly separate modal and relevance issues.

The central difficulty with the vocabulary Thomas, Rowen, and Yanal use is that it is ambiguous between relevance and modality. Keeping this distinction in mind, a simple review of the problematic vocabulary readily reveals this ambiguity. What does it mean to say that two reasons “logically combine”? It could mean that one explains why the other is relevant to some claim, or it could mean that the two add their weight together in building up a case for the conclusion. The first interpretation concerns relevance; the second, modality. When we say that several reasons each need the others to support the conclusion, what do we mean? We could mean that subtract or remove any one of these reasons, and we shall fail to see (or it is understandable how a rational judge could fail to see) how the remainder, even taken in combination, constitute a relevant reason for the conclusion. On the other hand, we could mean that none of the reasons, by themselves, is strong enough to create a presumption for the conclusion, or a presumption as strong as we would like, but that when all are offered, their weight combined, we do have an appropriately strong presumption. Here we could say that each reason needs the others, but not in the sense required for linked structure, as we understand linkage. We could raise these same questions for talk of premises “fitting together,” “being in the same line of thought,” “filling logical gaps,” or supporting a conclusion “in a united or combined way.” Likewise talk of premises each contributing to the support the others give for the conclusion or talk of premises giving partial support for the conclusion is ambiguous between relevance and modality. In a sense, a convergent premise

gives partial support, presuming that it does give some support to the conclusion. But in (1984a), Rowen uses “partial support” in connection with adding suppressed premises; premises which, when added, would be linked to those manifestly stated. Again, considering one of Thomas’ characterizations, if two reasons “completely separately and independently” support a conclusion, are logically independent, or do not contribute any logical connection to the support the others give, does that mean that we can see the relevance of each, by itself, to the conclusion, or does it further mean that the case each makes by itself gains no augmentation from the other? That is, the case made by presenting all of them together is no stronger than the case of each taken separately? This whole vocabulary then is infected with modality-relevance ambiguity. By separating these issues, we can see why the vocabulary is unclear and can give rise to ambiguous diagramming instructions.

4.3 Testing Our Account of the Distinction

Although our method of distinguishing linked from convergent argument structure is free of this ambiguity, does it properly separate these structures? Is it intuitively plausible or defensible to regard as convergent those arguments it counts as convergent, or to regard as linked those arguments it counts as linked? To explore this question, let’s see how our approach decides the hard cases we considered in section one.

- (1) Cigarette smoking poses a substantial health risk to the smoker. It also poses a risk to those nearby who must breathe the smoke secondarily. Therefore people should not smoke cigarettes.

We have noted that many intuitively would regard this argument as convergent. Our account agrees. Neither premise would be offered to answer the question “Why is that relevant?” But should either premise be offered first, the other could answer the convergent argument generating question “Can you give me an additional reason?” To be sure, offering both premises produces a stronger argument than either one alone. But this does not indicate that the structure is linked, because argument strength is a modal, not a relevance concept. Our intuitions for convergent structure are confirmed against the contraindications of the problematic vocabulary.

We can repeat this same line of reasoning for the second problematic argument:

- (2) La Petite Coloumb has the best chef in town. The live entertainment there is outstanding. The menu is also quite varied. Thus we should go there for dinner.

Each premise gives another reason for going to La Petite Coloumb for dinner. Each answers the first ground adequacy question, not the relevance question. Again intuitions of convergent argument structure are confirmed. That all the premises speak of the same restaurant may indicate they are in the same line of thought, but this is not germane to determining whether the structure is linked or convergent. What

about the fact that each premise, by itself, may give a less than compelling reason for going to La Petite Coloumb for dinner? We may need to consider all of them to see why we have a plausibly convincing reason to go. We shall consider this issue shortly.

We can repeat this reasoning for the third argument, claiming that agriculture and forestry threaten the life of the chimp. (See p. 92). We agree with Yanal against Thomas, because we see each premise independently relevant to the conclusion. As we pointed out, a more general issue here is the structure of arguments supporting conjunctions. Intuitions go both ways. Since each conjunct is by itself relevant to the conjunction, but each gives an additional reason for the conjunction, our procedure confirms those intuitions counting for convergent structure. Of course, in the deductive case, we need both conjuncts to validly argue for the conjunction. Intuitions for linked structure are based on this fact. In effect, each premise gives us only fifty percent of what we need, not enough for a good argument. So this is essentially the same objection which we saw might be mounted against the La Petite Coloumb argument, and which we shall consider in due course.

What about the fourth argument, which we admitted was problematic?

- (4) Tom, a Central High School student, won a National Merit Scholarship. Mary, another Central High School student, also won a National Merit Scholarship. So two (at least) Central High School students won National Merit Scholarships.

As we see it, what makes discerning the structure of this argument tricky is that it has a third premise, implicit because so obvious, to wit:

Tom is not identical with Mary.

To say that *at least two* Central High School students won National Merit Scholarships is to say that there are persons x , y , such that x is a Central High School student and a National Merit Scholarship winner, y is a Central High School student and a National Merit Scholarship winner, and $x \neq y$. Once the implicit premise is made explicit and the meaning of the conclusion made clear, it is straightforward that each premise can be seen as answering the question “Can you give me another reason?” As long as we are willing to count arguments for conjunctions as convergent, this argument is not problematic.

This argument again highlights the problem concerning arguments where the premises individually give weak reasons for the conclusion or where if one of the premises were false, the force of the others would be undercut. There is no doubt that the relevance and ground adequacy dialectical questions provide a clear rationale for distinguishing linked from convergent structure. The problem is—Does this approach draw the distinction in the right place? Consider the La Petite Coloumb argument again. Suppose we had just the second and third premises and suppose it was not true that La Petite Coloumb had the best chef in town. Suppose, to the contrary, that the chef was pretty bad. Would the force of the remaining two reasons be undercut? Would they support the conclusion just as well? Clearly, they would not. As we pointed out in Section 4.1, according to Thomas’ final and much clearer

criterion, that only when a reason would support the conclusion just as well even if the other reasons were false is the argument convergent—otherwise it is linked (See p. 90), the reasons in this argument should be linked.

That such arguments have linked structure is the verdict of other authors. Consider the following argument due to John Eric Nolt in (1984):

- (5) Mr. A had no motive to cheat on his income taxes, since his annual income reaches six digits and he is not in debt (Nolt 1984, 33).

We count this argument as convergent. Do we need both premises to see why we have a relevant reason for saying Mr. A had no motive to cheat? Although arguing from each reason, and even together, might be easily rebutted, do not both premises give some evidence that Mr. A had no motive to cheat? But the very issue of rebuttal would lead someone like Thomas to say that the premises should be linked. Suppose Mr. A were in debt even though his annual income reached six digits. Might he then have a motive to cheat on his income taxes? Suppose he were not in debt, but his annual income did not reach six digits. Suppose it did not even reach five? Might Mr. A then also have a motive to cheat? Nolt claims the premises are linked: “They are intended to be taken together, though even together they constitute very weak evidence” (Nolt 1984, 33).

Our difference with Thomas and Nolt becomes most acute, and our approach may seem most extreme, in dealing with inductive generalization arguments. We see such arguments having convergent structure, even if the evidence each premise gives for the conclusion by itself is quite weak or if the combined weight of the evidence presented by the various premises is stronger than the weight of any premise taken singly. Each premise can answer the question—Can you give me another reason? Thus each premise by itself is independently relevant to the conclusion.

Our account here conflicts with three different intuitions. First, if several premises presented to support some one conclusion are individually weak but together make a stronger case, it would seem intuitively appropriate to link them together to represent how they support the conclusion. Secondly, and closely related, the fact that an arguer has presented several less than deductively strong reasons for one claim which apparently augment one another would intuitively suggest that linked structure appropriately represents the arguer’s intentions that these premises be taken together. Finally, if the falsity of one premise would undercut the force of the remaining premises, intuitively it would seem their connection is closer than mere convergent, and so they should be linked. The objection stemming from this third intuition, due to Thomas, we believe can be answered if we include rebuttals within our account of argument structure. We discuss this question in the next section.

Our disagreement with the first two intuitions rests on our sharp separation of modal from relevance considerations. We have seen that the vocabulary used to characterize linked or convergent structure is ambiguous between modal and relevant connection. In addition, the very discussion some authors use to explain why

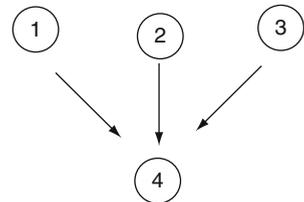
structures should be linked employs modal considerations. Nolt calls arguments with convergent structure “split-support arguments.” In discussing whether an argument is convergent, he says: “We can identify split-support arguments by asking whether the premises are supposed to work separately, each by itself being presumed to imply the conclusion, or whether they are to be taken as a single complex of evidence” (Nolt 1984, 32). A key word here is “imply”—a modal term here indicating very strong if not deductively strong support. Nolt is claiming that separate premises or separate lines of reasoning must each offer strong support if the reasoning is to be convergent. Again, in discussing a particular example, Nolt says of two premises

Each, if true, would by itself be good evidence for the conclusion. However, joining the two together produces a single inference which is somewhat stronger than either of the two inferences obtained by keeping them separate. . . . Hence the author . . . probably intended the two premises to be taken as a single unit of evidence (Nolt 1984, 32).

This discussion is shot through with modal considerations. If the modal strength is increased, we link according to Nolt. Augmented strength indicates intention to link. Thomas also agrees that increase in strength of support is a reason for linking premises. He is in close agreement with Nolt when he specifically restricts convergent argument structure just to those cases where each premise provides *good* (note the modal term here) support for the conclusion, where “each reason alone would be enough, if true, to support the conclusion” (Thomas 1986, 62). This raises an important question for our account—Why should such modal considerations be divorced from the criterion for linked argument structure?

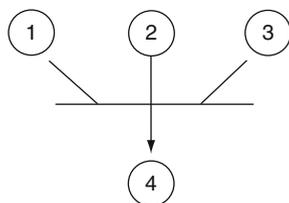
We may have blunted the force of this question by our modification of how convergent structure may be represented. Let’s take again the La Petite Coloumb argument. Numbering each component statement successively, representing its structure as convergent according to the standard method produces Fig. 4.1 as the diagram:

Fig. 4.1



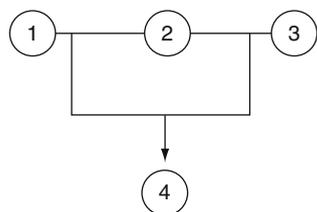
This representation may suggest to some that we have three separate arguments for statement (4) here, or that the reasoning from any one of (1), (2), (3) to (4) is intended to be sufficient, with no need of further augmentation from the others. We, of course, do not intend such suggestions. On the other hand, should we represent the structure according to our alternative method, the diagram would look like Fig. 4.2:

Fig. 4.2



Here the suggestion that each reason constitutes a separate argument, that we have three rather than one unit of argumentation for (4) is dispelled by the horizontal bar. There is but one case presented for the conclusion in this argument, albeit that case contains three separate reasons. But that the strength of the argument rests on their combined weight should be plain to all who understand the diagram. The bar allows representation of a modal “linkage” without resorting to representing the structure of the argument as linked. The second diagram does not say the same thing as Fig. 4.3:

Fig. 4.3



Thus we have a perspicuous way of accommodating some intuitions of those who want to link, while still keeping modality and relevance issues distinct.

But why should we want to keep those issues distinct? Because they are distinct!² Clearly, the relevance question and the first ground adequacy question are distinct. An answer to one will not in general be apposite to the other. More importantly, answers to these questions *do* function differently in argumentation. No one would think that “All humans are mortal” gives evidence separate from “Socrates is human” for the claim “Socrates is mortal.” Speaking heuristically, the generalization explains the relevance of the data about Socrates to the conclusion. Together they constitute one reason for the claim. But in saying “Socrates was a great man because in his life he pondered the central questions of meaning and value, and in his death he showed an exemplary courage” we have two distinct pieces of evidence for the conclusion, not one. Failure to separate modal and relevance issues leaves

²Although at the back of our minds, Anderson and Belnap’s distinction of modal necessity and relevance in (1962) we believe has also been seminal in leading us to keep modality and relevance distinct. We also believe Grice recognizes this distinction through his separate maxims of quantity and relation in (1975). See our discussion in Freeman (1991, 40). We find the distinction also in Govier and Johnson and Blair.

us with an account of argument structure and a diagramming system ambiguous in its applications. By clearly separating relevance linkage from modal combination, we gain a clear rationale for representing two different ways premises may join to support a conclusion. The intuitions that the weight of several premises is intended to be combined, that they are intended to make one case for the conclusion, that the strength of the case they make together is stronger than the cases they each make severally can all be accommodated without representing modal connection through linked structure. Representing both types of combination through linked structure makes it unclear how to distinguish linked from convergent structure. Clarity is served by recognizing these two types of combination.³

In 1984, Yanal has tried to justify *through* modal considerations a linked-convergent distinction in essential agreement with ours. His attempt is problematic, but this will simply highlight another reason why modal and relevance considerations should be kept distinct. Recall that according to Johnson and Blair's criterion, if a premise is not relevant to the conclusion, then its being true does not increase the likelihood of the conclusion's being true at all. However, should we link a premise which by itself seems irrelevant to the conclusion with a relevance explaining statement, the resulting positively supporting reason does distinctly increase the likelihood of the conclusion. Without some connection being established between "being human" and "being mortal," the premise "Socrates is human" is irrelevant to "Socrates is mortal." The support the premise gives the conclusion is nil. But link the premise with the statement "All humans are mortal" and we have a deductively valid argument. As Yanal puts it, the strength of support "leaps" from 0 to 1. Should we have an inductive argument, the leap would not be as great, but would still be there. On the other hand, should we add a separate, independently relevant premise to one already relevant to the conclusion, we should expect their combined strengths to "add" together. In a convergent argument, each individual premise should contribute its weight toward supporting the conclusion. There would not be any leaps. Yanal has actually proposed this difference in modal behavior as theoretically explicating the difference between linked and convergent structure, as presenting "the *real* distinction between convergent and linked reasons in principle" (Yanal 1984, 1). If an argument is genuinely convergent, then the probability its reasons together lend to the conclusion is the sum of the probabilities of each.⁴ If the premises are linked, the probability does not sum this way, but leaps. Yanal draws a moral from this that you cannot teach the distinction between linked and convergent structures, allegedly part of the analysis of arguments, without going into the issue of weighing

³We hope our use of scare quotes in connection with 'modal "linkage"' and our speaking of 'modal combination' as opposed simply to the expression 'modal linkage', which we used in (1991) is a clearer way of distinguishing these two types of combination and highlighting that there is a distinction to be made. In this way we reply to Snoeck Henkemans concern in (1994) that by speaking of modal lineage, we have added "to the confusion concerning the concepts of 'linked' and 'convergent' structure" Snoeck Henkemans (1994, 320).

⁴This is according to a summing formula Yanal describes in the Appendix to (1984), which we need not present here.

the strength of the evidence, an issue of evaluation. You have to show how probabilities leap with linked reasons (Yanal 1984, 2), and thus you have to get into the issue of probabilities and weight of evidence.

Although pointing out how probabilities—better degree of support or amount of evidence—leap in particular, sample arguments with linked structure may be valuable heuristically in illustrating the linked-convergent distinction, it is easy to see that there are real problems with this as a theoretical explication of the distinction, which Rowen discusses in (1984b). For many non-demonstrative arguments, it will simply be impossible to assign probabilities in any meaningful way. Furthermore, for some inductive arguments, given background information about probabilities, it may be possible that when linked, the probability actually goes down rather than leaps.⁵ Our relevance rationale for linkage both explains why we might expect probabilities to leap—at least in a number of cases, and dispenses with this leap as the feature distinguishing linked from convergent arguments. If a premise, taken by itself, is not relevant to the conclusion, then the degree of support it gives is nil. But if taking that premise together with another statement produces a relevant reason, then we do have positive evidence. To be relevant, a premise must give some evidence. So we have had a “jump” from 0 to some positive amount, even if this cannot be quantified. If probabilities would decrease in certain special examples, this would not gainsay the general principle, or show its disutility as an illustration. But since it is because taking premises together gives us a relevant reason as opposed to taking them separately that explains why they should be linked, such anomalies are not theoretically bothersome. For this reason, our relevance criterion, which does not resort to modal considerations, gives a better rationale for identifying linked argument structure. Notice that our ground adequacy criterion for convergent structure itself suggests why probabilities should sum with convergent arguments. If each premise gives a separate, additional reason, the probability of the conclusion given all of them should be the sum of the probabilities of each, or at least each reason should raise the probability. However, to apply our criterion we need not determine the probability of the conclusion relative to each premise or develop a formula for adding probabilities. All we need do is see that each premise appropriately answers the question—Can you give me another reason?

This consideration leads directly to another advantage of our approach. It is a commonplace that we diagram arguments as a preliminary step to evaluating them. We determine how the argument hangs together before we assess its logical cogency. Hence, it would be a distinct disadvantage for a diagramming procedure to require us to make evaluative determinations before we could display the structure. But this is exactly what is required both in Yanal’s proposal and in those of Thomas and Nolt. To ask whether each line of reasoning constitutes a good or valid reason for the

⁵See Rowen’s example, Rowen (1984b, 4).

conclusion to determine whether the structure is convergent or linked is to incorporate evaluation into structural analysis. To ask whether the likelihood or probability of the conclusion “leaps” or merely sums when premises are added, taken together is to ask an evaluative question, and a fairly problematic one at that. However, although relevance is one ground on which we can evaluate an argument, to ask whether one statement explains the relevance of another to the conclusion, or whether two or more premises mutually illuminate why we have a reason for the conclusion, or whether two or more statements were intended to be taken together as one reason for the conclusion, is to keep evaluative issues at a minimum. It is really to ask just how many reasons have been given to support a claim and whether these reasons are spread over various statements—a structural question. To ask whether a statement is positively relevant to another and to ask whether it constitutes a reason or premise for another is to ask the same question. Likewise to ask whether two statements are independently relevant to a claim is just to ask whether we have two distinct reasons here. But in diagramming, the aim is to represent the support structure, the pattern of premises and conclusions in an argument.

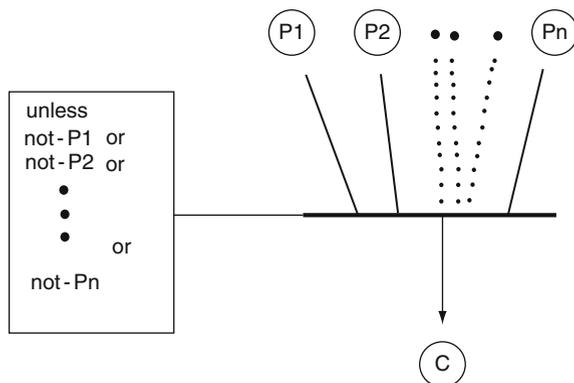
Furthermore, in many cases, judging whether one statement is relevant to another or whether one statement explains the relevance of another to the conclusion is intuitive. Being able to “see” whether one statement is relevant to another often involves no special training other than to properly assess the sense of both statements. Assessing modality is a different story. Here the concepts of validity, inductive correctness, and comparative strength must be defined, and skills developed for their proper application. Indeed, in some cases, determining deductive validity may involve rather refined skills, while inductive strength can be quite problematic. Hence, making judgments of relevance as part of discerning argument structure does not add to the skills necessary to analyze arguments for structure, while incorporating modal considerations does. So keeping relevance and modality separate is well motivated procedurally. It allows us, insofar as possible, to discern argument structure without considering questions of argument evaluation. Giving a clear cut rationale for distinguishing convergent from linked arguments by keeping separate questions and functions which are genuinely separate, and keeping evaluative considerations, as far as possible, out of determining preliminary structural issues are strong reasons for drawing the line between linked and convergent structures as we do.

This perspective indicates a very clear cut demarcation of linked from convergent arguments, but a demarcation not without controversy. The intuitions of some authors run counter to ours. But as we have seen, by suitably modifying convergent argument diagramming, we can accommodate some intuitions of those who would regard as linked some arguments we see as convergent. We have still not answered Thomas’ challenge that if the falsity of one premise should undercut the force of the others, the argument structure is linked. Above we have indicated that by acknowledging rebuttals as elements in arguments, we should have an answer to Thomas’ challenge. We turn to making good on that promissory note now.

4.4 Implication of Rebuttals for the Linked-Convergent Distinction

We claim that we may diagram as convergent arguments where the several premises are independently relevant to the conclusion, even though the falsity of one would undercut the force of the others, but yet satisfy Thomas' intuitions to represent them as linked. Consider such an argument. Suppose the falsity of any one of its reasons serves to rebut the argument and any argument from the remaining premises to the conclusion. But we can represent that fact in an argument diagram directly through the use of rebuttals. We can place the denial of any one of the premises, or a disjunction of such denials, or a statement equivalent to such a disjunction in the rebuttal box. The falsity of one converging premise, then, can serve as a rebuttal for the entire argument. But with the *category* of rebuttals at hand and a method for representing them diagrammatically, we can represent this fact without resorting to linking independently relevant premises. We can represent this rebutting function for what it is, a rebutting function. Suppose an argument has n independently relevant premises, where the falsity of any of them would serve to rebut the force of the argument. We can represent that fact through Fig. 4.4:

Fig. 4.4



This diagram certainly indicates that the falsity of any premise would not merely subtract that one piece of evidence from the argument, but would undermine its entire force. Yet the diagram does this without resorting to linked structure. Each reason does provide some evidence, no matter how small, for the conclusion. Each is independently relevant to the conclusion, and our diagram shows this. The claim that we have a case for the conclusion is based not on the weight of each severally, but “added” together, and our diagram shows this through its horizontal line under P1, P2, ..., Pn. That the falsity of any one of these undercuts the argument is indicated through the rebuttal box. Hence, as with other intuitions which seemed to conflict with our way of distinguishing linked and convergent structure, we can accommodate these intuitions without redoing the boundaries of that distinction.

Notice that judging that the falsity of one premise would undercut the force of the others is distinct from and additional to judging that several premises have been put forward to support a conclusion and that each serves to give a distinct, independently relevant reason for that conclusion. The latter is a structural issue. The former involves some evaluation. Suppose a proponent simply presents several independent reasons to support a conclusion. He does not acknowledge that the falsity of one rebuts the argument, even though this is true in this case. To diagram his argument properly on our view, we need only recognize its convergent structure. We do not have to make the additional evaluative judgment about the interdependence of the premises, as Thomas would require for a correct diagram on *his* approach. Hence, on our approach we can diagram such convergent arguments straightforwardly, while having the resources to explain the intuitions of those who would see them linked because of the interconnection of their premises. We submit, then, that these considerations answer objections based on Thomas' intuitions.

Our discussion may still not satisfy certain critics familiar with the pragmatic distinction of multiple versus co-ordinatively compound argumentation. The premises in co-ordinatively compound argumentations are only sufficient together, while those in multiple argumentations are each individually sufficient. The distinction is made on modal grounds. But is not the distinction the same as the linked-convergent distinction, *pace* your discussion of relevance? We claim that it is not, and argue for that claim in the next chapter.

Chapter 5

Argument Structure and Disciplinary Perspective: The Linked-Convergent Versus Multiple-Co-ordinatively Compound Distinctions

The metaphorical nature of the terms in which the linked-convergent distinction is frequently cast may betray a more fundamental difficulty with this distinction. Intuitions over just exactly what this distinction is to mark conflict. We contend in this chapter that these intuitions, when put in perspective, properly mark two different distinctions. Keeping these distinctions separate may allow us to draw each of them more clearly and thus to advance the questions of how properly to draw the linked-convergent distinction. To gain this perspective, we should consider the distinction between multiple and co-ordinatively compound argumentation as defined by the pragma-dialectical school. It is tempting to regard this distinction as coinciding with the linked-convergent distinction, only using different terminology.¹ However, as we shall argue, the distinction should be regarded as marking something quite different.

It is important at this point to say something about terminology, in particular to clarify what is meant by our use of the terms “argumentation” and “argument” as this contrasts with the use in the pragma-dialectical school. Van Eemeren and Grootendorst use “argument” as many North American scholars would use “premise.” We believe that van Eemeren and Grootendorst would agree that when one puts forward one statement to support some standpoint or claim, one puts forward one argument, the supporting statement being the argument. By contrast, “Argumentation comprises the whole constellation of utterances advanced in defense of a standpoint. The argumentation can be very brief and simple, consisting of only one argument, or elaborate and complex, consisting of many arguments” (van Eemeren and Grootendorst 1992, 14). Thus on a given occasion, the argumentation for a given claim or standpoint consists of or is identical with all the arguments, i.e. premises, put forward ultimately to support that standpoint on that occasion. Notice that there is nothing in this terminology corresponding to the North American use of “argument,” which in the first instance refers to the premise/conclusion nexus. Thus in the syllogism

¹This is how we regarded the distinction in (1991). See p. 262. In 1996, Walton indicates that he understands the two pairs of terms as drawing the same distinction. See pp. 81, 157.

- (1) All plants are edible.
- (2) All mushrooms are plants. Therefore
- (3) All mushrooms are edible.

(1) and (2) are two distinct arguments for van Eemeren and Grootendorst. There is no term corresponding to the syllogism as a whole, while in North American terminology, the syllogism itself is the argument. In what follows we shall use “argument” in the North American sense. When we speak of argumentation, we shall mean all the arguments given for a standpoint, claim, or conclusion on a given occasion. Notice that it is possible for arguments to combine, the result being one argument analyzable into simpler arguments.

- (1) All plants are edible.
- (2) All mushrooms are plants. Therefore
- (3) All mushrooms are edible. So
- (4) I would not worry about eating this mushroom.

Such arguments will have a plurality of premises, as will, of course, argumentations where several separate arguments are put forward to support some standpoint.

5.1 The Multiple-Co-ordinatively Compound Distinction

According to van Eemeren and Grootendorst in (1984), a multiple argumentation consists of “a series of separate and independent single argumentations for or against the same initial expressed opinion” (van Eemeren and Grootendorst 1984, 91). Each argumentation is (or is intended to be) individually sufficient to justify accepting (or rejecting) the initial expressed opinion. With co-ordinatively compound argumentation, the single argumentations are “only sufficient together” (van Eemeren and Grootendorst 1984, 91). In (1992), they point out that in “multiple argumentation, the constituent single argumentations are, in principle, alternative defenses of the same standpoint” (van Eemeren and Grootendorst 1992, 73). Again, “What matters most is that the individual arguments should count as independent defenses of the same standpoint” (van Eemeren and Grootendorst 1992, 73). By contrast, “Compound argumentation consists of a combination of single argumentations that are...presented collectively as a conclusive defense of a standpoint....In a coordinative argumentation, each argument individually is presented as being a partial support for the standpoint, but it is only in combination with the other arguments that it is presented as a conclusive defense” (van Eemeren and Grootendorst 1992, 76, 77).²

Why should we not see van Eemeren and Grootendorst as drawing the linked-convergent distinction here, only using different terminology? The

²We shall comment on the significance of “conclusive” shortly.

multiple-co-ordinatively compound distinction is dialectical, whereas the linked-convergent distinction is logical. We have two different disciplines here out of which these distinctions have come, disciplines with different perspectives on argumentation. Let us make it clear that by saying that these perspectives are different, we are not suggesting that one perspective is valid and the other not, or that one perspective is superior to the other. The perspectives of these disciplines may be equally valuable, but they are different, have different goals, and should not be confused.

The goal of a *logical* analysis and evaluation of an argument is to determine whether the premises constitute good reasons for accepting the conclusion, good in the sense of transferring the acceptability of the premises, given that the premises are acceptable, to the conclusion. The unit of analysis, then, is the premise-conclusion nexus. In developing a system of argument diagramming from the logical point of view, a system containing circles, arrows, and perhaps other elements, we understand these elements as making manifest the internal structure of such a nexus. This contrasts with the tools needed for a properly dialectical analysis of argumentation. Where the focus of interest concerns how well a critical discussion has come to a reasoned resolution of some disputed question, the argumentation included in the critical discussion need not form one single unified argument developed over the course of the discussion. In the case of resolving some dispute, a proponent may put forward a reason which he regards as sufficient to defend some claim. This reason, then, constitutes the premise in a distinct argument for that claim. Yet the proponent may later withdraw that reason, and thus the argument, under critical questioning from the challenger. She may not accept that reason and the proponent may have no premises—at least premises which she will accept—from which to argue for it. He may then offer another reason for the claim. Clearly this could be repeated a number of times. Each time a premise is withdrawn and replaced, the proponent is putting forward a different argument.

Alternatively, a proponent may put forward what he regards as a number of distinct arguments for his claim. This could happen in a critical discussion with several interlocutors. The reason or premise one interlocutor is prepared to accept may not be acceptable to the others. But by presenting a series of reasons, the proponent has given each interlocutor at least one reason which that interlocutor finds acceptable. (Cf. van Eemeren and Grootendorst 1992, 74.) If then each reason is sufficient to justify the claim which is the issue of this critical discussion (and seen as sufficient by the interlocutor who accepts that particular premise), by offering this series of reasons the proponent will have brought about a reasoned resolution of the dispute favorable to him. But notice that he has brought this about *not* through one argument developing cumulatively but through a whole series of discrete arguments. Again, for rhetorical purposes, a proponent may present a plurality of arguments for the same conclusion. A claim becomes more credible the more often one hears it repeated, especially if it is repeated in varying contexts. Surely if a proponent wants to get his audience to believe some claim, he may want to repeat it a number of times. But he can certainly vary the context by each time giving a different reason for that claim. The tools for carrying out a dialectical analysis of argumentation then must include a way of indicating that an argumentative passage or exchange includes

a number of distinct, separate arguments. A *dialectical* analysis of argumentation, then, will focus on a different unit, a whole argumentation, possibly containing multiple arguments, where a *logical* analysis will take an individual argument as its unit of analysis. Different disciplines then will legitimately have different modes of analysis of argument structure.

That van Eemeren and Grootendorst are engaged in dialectical analysis as we understand it comes out specifically in their identification of multiple argument structure and the distinction between multiple and co-ordinatively compound argumentation structure. By saying that a multiple argumentation consists of a series of single argumentations, each sufficient or intended to be sufficient to accept the conclusion, van Eemeren and Grootendorst indicate that the unit of their analysis of argumentation is more than a single argument. Their discussion also indicates that we should judge an argumentation to be multiple when the single premises “should each be regarded as conclusive defenses of the speaker’s standpoint” (van Eemeren and Grootendorst 1992, 79). Their use of “conclusive” is significant here. If we read “conclusive” as “logically conclusive,” the word is revealing for highlighting the separateness of the arguments in multiple argumentation. On the logical understanding of “conclusive,” to claim that the premise or premises of an argument constitute a conclusive defense of the standpoint is to claim that they entail or necessitate the conclusion. It is to claim that the argument from those premises to the conclusion is deductively valid. This is significant, because from a logical point of view, no argument is stronger than a deductively valid argument. If certain of the reasons or premises put forward for a conclusion constitute a deductively valid argument for that claim, any remaining reasons will in no way strengthen that argument. That a premise necessitates a conclusion could then be taken as a sign that any other premises offered in support of that conclusion are parts of one or more other, numerically distinct arguments for it. “Conclusive” on this understanding then would highlight the fact that in multiple argumentation we have two or more separate arguments for the conclusion.

However, we believe that van Eemeren and Grootendorst are using “conclusive” to make a possibly even stronger claim, albeit not a modally stronger claim, than that the premises necessitate the conclusion.³ For them, arguments instance argumentation schemes. These involve norms for evaluating arguments falling under the scheme. For example, in arguing according to the pattern

x is φ Therefore

x is ψ

one is putting φ forward as a sign or symptom of ψ . We may take the pattern itself as in effect the warrant of the argument. Critical questions then concern the acceptability of both the premise and the warrant. But to the warrant there corresponds a statement

All (typically, usually) φ 's are ψ 's.

³We wish to thank an anonymous referee of *Argumentation* for pointing this out to us.

The warrant is acceptable if and only if the statement is acceptable. It is straightforward that statement could be added to the premise to form a deductively valid quasi-syllogism or inductively correct statistical syllogism. If the acceptability questions can be given positive answers, then both the syllogisms and the original argument may be regarded as conclusive. Certainly they should be dialectically conclusive, conclusive to resolve doubt or disagreement over the acceptability of the conclusion.⁴

Reading “conclusive” in this pragma-dialectical sense in no way compromises our point that the term underscores the separateness of arguments in multiple argumentation. It allows us to make that point in another way. If certain argumentation is pragma-dialectically conclusive, it instances a certain argumentation scheme. That scheme then serves to identify this argumentation as one separate argument.

Notice that since some arguments whose premises give a sign of what is claimed in the conclusion are statistical syllogisms, they need not be conclusive in the logical sense—although they may nonetheless be conclusive in the pragma-dialectical sense. This should resolve a problem caused by an exclusively logical reading of “conclusive.” In this sense, it seems that the premises of the various arguments in a multiple argumentation must each constitute logically conclusive support for the conclusion. But surely we must allow for the possibility of multiple argumentation where each of the separate arguments provides less than logically conclusive evidence to justify accepting the conclusion, and we must also allow for the possibility of co-ordinatively compound argumentation where the premises collectively provide support but not logically conclusive support for the conclusion. In this connection, Snoeck Henkemans’ appeal to modal qualifiers in distinguishing multiple from co-ordinatively compound argumentation is very insightful. In her view, modal words such as “probably,” “certainly,” “possibly,” “necessarily,” “make explicit the degree of certainty with which their standpoint is advanced” (Snoeck Henkemans 1992, 108). In deciding then whether an argumentative text has multiple or co-ordinatively compound structure, we should not look solely for units whose premises conclusively support their conclusions (in either the logical or pragma-dialectical sense). Rather

If the argumentation consists of more than one argument [premise], in order to determine which structure is to be attributed to the argumentation, the analyst has to judge whether each individual argument is sufficient to support the standpoint with the claimed strength, or whether the arguments only have sufficient weight if they are combined (Snoeck Henkemans 1992, 113).

Clearly, if each premise supports the conclusion with the strength claimed, then we have good reason to count the argumentation as multiple. On the other hand, if only

⁴We have treated here only the argumentation scheme for symptomatic arguments or arguments from concomitance, one of the three principal argumentation schemes van Eemeren and Grootendorst identify. Similar remarks apply to the other two argumentation schemes, arguments based on a relation of similarity or causality. (See van Eemeren and Grootendorst (1992, 96–102).) To develop this however would take us beyond the scope of this chapter.

the premises in combination have sufficient strength, we have reason to count the argumentation as co-ordinatively compound.

5.2 Contrast with the Linked-Convergent Distinction

Given that the multiple-co-ordinatively compound distinction marks the difference between a plurality of reasons given for some claim constituting a plurality of arguments for that claim and one argument with a plurality of premises, the question obviously arises: What difference is the linked-convergent distinction supposed to mark? Clearly, this is to be a distinction within co-ordinatively compound arguments.⁵ But why, from a logical point of view, should we make this distinction? That for *logical* or *logico-epistemological* reasons we should want to distinguish linked from convergent arguments is easily shown. As we have developed previously, most particularly in (1991), we may see the linked-convergent distinction as marking whether several premises given within one argument are each independently relevant to the conclusion or only together constitute a relevant reason. The premises of an argument must be acceptable. Now suppose the first premise of a multiple premise argument were recognized false and thus not acceptable. If the argument were convergent, the remaining premises could still constitute a cogent case for the conclusion. The falsity of one premise would not spell the demise of the entire argument, although if all the premises had been true, we would have had a stronger case for the conclusion than that made by those remaining. The point is that even if one premise proves unacceptable, it still makes sense to proceed with the logical evaluation of the remainder of the argument. If the remaining premises are acceptable, it makes sense to ask whether they logically justify the conclusion.

By contrast, consider a two premise argument with linked structure. The two premises together constitute a relevant reason for the conclusion. Hence, the unacceptability of one premise means that the entire reason constituted by these premises

⁵Snoeck Henkemans recognizes this in (1992). See p. 68 in particular. However, she says that she does not regard linked arguments—at least those where major and minor premises are linked—as being complex, but rather instance simple argumentation. Hence, she would not agree that the linked-convergent distinction as I am describing it is a distinction within complex arguments. This indicates to me that her use of “argument” ordinarily understood to correspond with “premise” as used by North American scholars, better corresponds with “reason.” A reason may be expressed by one statement or be broken over several statements intended to be taken together. In the latter case, we have linked structure. This may also reflect disciplinary perspective. For a dialectical appraisal, the question of acceptability may be conceived to arise just in connection with reasons. For a logical appraisal, it arises for premises. As we shall see in Chapter Six, being able to ask whether an individual premise is acceptable can in some cases greatly increase our efficiency in argument evaluation. If several premises constitute one reason, the entire reason is unacceptable if one of its component premises is unacceptable. (See pp. 170–171.) It is especially important to be able to group premises into reasons for arguments with a mixed convergent-linked structure. Several reasons may converge on a conclusion, but some may be expressed by individual premises and others by several premises linked together. Where premises are a unit of argument analysis, I do not see how we could represent this fact without the linked-convergent distinction.

fails to be cogent, because it fails to be relevant. Judging whether the premises of an argument are convergent or linked then may have a significant effect on how the logical evaluation of that argument is carried out and on the outcome of that evaluation. Convergent and linked arguments as we have distinguished them are evaluated differently from the logical point of view. We thus need the linked-convergent distinction in addition to the multiple-co-ordinatively compound distinction.

Perhaps the strongest motivation for acknowledging these two pairs of distinctions will come in resolving conflicting accounts of the linked-convergent distinction. If one can show that a proffered account of this distinction more properly characterizes the multiple-co-ordinatively compound distinction, one will have resolved that conflict. One would have brought about this resolution not by showing that one point of view was wrong, but by showing that the conflicting points of view concerned different things. To see whether we can bring about such resolutions, let us look at several accounts of the linked-convergent distinction.

5.3 Resolving Conflicting Accounts of the Linked-Convergent Distinction

Consider Thomas's first characterization of convergent argument structure: When "each reason supports the conclusion completely separately and independently of the other, the reasoning is *convergent*" (Thomas 1986, 60, italics in original). Thomas's wording is quite strong here. If by "completely separately and independently," Thomas literally means completely separately and independently, then convergent reasons on his characterization are separate distinct arguments for the conclusion. This means that Thomas is characterizing multiple argument structure here. One would expect that the cogency of each reason as support for the conclusion should be assessed separately from any of the other reasons. Thomas apparently endorses this interpretation when he says that "A convergent argument is equivalent to separate arguments (or evidence coming from separate areas) for the same conclusion" (Thomas 1986, 61). We say "apparently endorses," for in the light of Thomas's further elaboration of the nature of convergent arguments, it is not clear that he would endorse the view that convergent reasons should *always* be regarded as the premises of distinct arguments for the conclusion.

But it is here that we can see a conflict in Thomas' view, a conflict that can be resolved by recognizing that multiple argument structure and convergent argument structure do not amount to the same thing. Thomas makes the following claim:

It is possible to have a correct convergent diagram in which the result of combining the separated reasons would (if this were done) be a stronger argument than either reason provides alone, as long as the *negation* or *falsity* of the various separated reasons would not decrease the support given by the other(s) to the conclusion. (Thomas 1986, 62, footnote 18, italics in original).

This assertion is problematic in the light of Thomas' previous characterization of convergent arguments. It now appears that various distinct premises, each giving a separate, independent reason for the conclusion, can constitute one convergent

argument. If the convergent-linked, multiple-co-ordinatively compound distinctions amounted to the same thing, then the convergent diagram would represent a plurality of arguments, and the combined argument would have co-ordinatively compound, i.e. linked structure. But Thomas does not regard the resultant combined argument as having linked structure. The last clause makes reference to what he regards as another hallmark of the linked-convergent distinction. Reasons are convergent if the falsity of any one of them would in no way affect the strength of support each of the others affords for the conclusion. If by contrast the falsity of one of the reasons undercuts the strength of the others, the structure is linked. This allows for the possibility that the strength of two or more premises considered together will be greater than *the strength of the strongest premise*, and that the strength of the overall argument will be diminished but not completely undercut by the falsity or withdrawal of any of its premises. The argument will be convergent as long as the strength of each remaining premise considered separately remains the same.

Notice that this allows the combination of a plurality of premises which supplement each other, which work together logically in terms of the weight of the entire case for the conclusion, but which are still regarded as convergent. No wonder, then, that there is confusion over the linked-convergent distinction. One would think that if the combined weight of the premises offered to support a conclusion were greater than the weight of any premise taken individually, then the premises would be working together, logically supplementing each other, and thus should be linked. But Thomas now apparently allows that under certain circumstances they may be convergent, even though in such a case we shall have only one argument.

With our two pairs of distinctions available, however, this conflict can be readily resolved. Thomas' first characterization of convergent argument structure is a characterization of multiple argumentation structure. His latter characterization is of arguments with co-ordinatively compound structure, but where the individual premises of such arguments are independently relevant to the conclusion. It is a characterization of co-ordinatively compound argumentation with convergent structure on our explication of convergent structure. We may view Thomas' provisos that the negation or falsity of the various separate reasons would not decrease the support given by the others as an explication of independent relevance.

In (1984), Nolt distinguishes normal from split-support arguments, diagramming normal arguments as linked and split-support arguments as convergent. In normal arguments, the premises "work together" (Nolt 1984, 26). By contrast, in split-support arguments, the premises "work independently; neither needs to be completed by the other..., but stands by itself as a separate line of reasoning." The premises then constitute "separate inferences" (Nolt 1984, 31). Nolt carries this through in his instructions for evaluating split-support arguments. Each inference should be evaluated separately. The reasoning of an argument involving split-support structure "will generally be as strong as the strongest chain of reasoning it contains,... [T]he overall strength of the argument is as great as the overall strength of its strongest chain" (Nolt 1984, 90). But this is to regard each chain of split-support reasoning as a separate argument. If various parts of an argumentative text should be evaluated separately, they constitute distinct arguments from a logical

point of view. By contrast, from the dialectical point of view we may analyze the text as one argumentation with multiple structure.

Although this may seem straightforward, upon closer examination of Nolt's exposition of his distinction, we can see a conflict of intuitions, as with Thomas. Although he has characterized split-support arguments as involving premises which work independently, do not need to be completed by the others, in discussing whether the two premises of a particular argument constitute linked or split-support of the conclusion, Nolt claims that it is not easy to tell which. The premises each report numerous but different sightings of haunting phenomena to support the conclusion that "the existence of haunting phenomena is well-supported by eye-witness accounts" (Nolt 1984, 32).

Each, if true, would by itself be good evidence for the conclusion. However, joining the two together produces a single inference which is somewhat stronger than either of the two inferences obtained by keeping them separate, for accumulation of similar observations makes a stronger case. Hence the author, assuming that he or she was trying to make the strongest case possible for the conclusion, probably intended the two premises to be taken as a single unit of evidence

(Nolt 1984, 32).

This sets us a conflict of intuitions. If several premises are each intuitively independently relevant to a conclusion, they constitute split-support for that conclusion. If several premises together constitute a stronger reason for a conclusion than each separately, together they constitute one normal or linked argument. So if the premises are each independently relevant but together constitute a stronger reason, we have a conflict of intuitions. This conflict may be more prevalent than Nolt realizes. He believes that the argument

Mr. A. would not have cheated on his income taxes, because he is an honest citizen and he had no motive to cheat.⁶

has split support structure. But do we not have a stronger argument if we have both that Mr. A. has an honest disposition and that he has no occurrent motive to cheat, than if we had just one of those facts? On the other hand, Nolt believes that in the argument

Mr. A. had no motive to cheat since his annual income reaches six digits and he is not in debt

the two premises "are intended to be taken together" (Nolt 1984, 33). But how do we know this? Each is independently relevant to the conclusion. Is it because each presents only a weak mark for the conclusion while the two together constitute a bit stronger mark?

Having two pairs of distinctions available lets us do justice to Nolt's intuitions while removing the perplexity. There are argumentations where several reasons are each completely independent. These are split-support or multiple arguments. But that premises are independently relevant to a conclusion is not a sufficient reason for

⁶This and the following example are subarguments of an argument Nolt considers on p. 33 of (1984).

saying that the argument is split-support or multiple. With normal or co-ordinatively compound arguments, we can distinguish those where several independently relevant premises together constitute a case for the conclusion from those where several premises need to be taken together even to see why we have a reason for the conclusion. In the former we have convergent structure; in the latter, linked.

Robert J. Yanal speaks of dependent versus independent reasons rather than linked or convergent arguments. He regards independent reasons as constituting a plurality of arguments for a given conclusion. Indeed, he sees forming one argument versus a plurality of arguments as constituting the dependent-independent distinction. “What, then, is the difference between dependent and independent reasons? We suggest that it is this: Dependent reasons form one argument; independent reasons form multiple arguments” (Yanal 1991, 139). Thus Yanal apparently draws the distinction along the pragma-dialectical multiple-co-ordinatively compound line. But the statement of the criterion Yanal proposes for distinguishing dependent from independent reasons seems inconsistent with this view that independent reasons constitute separate arguments. He says,

The probability of the conclusion of an argument with independent premises is the ordinary sum of the probability of each premise. The probability of the conclusion of an argument with dependent premises is not the ordinary sum of the probability of each premise (Yanal 1991, 140).

If premises incrementally add their weight to the overall weight of the argument, then that weight is the “ordinary sum” of the weights of the component premises. But in some arguments by taking the premises together, the weight is significantly more. For example, in the argument

He’s either in the kitchen or in the bedroom.
He’s not in the bedroom.
Therefore, he’s in the kitchen (Quoted in Walton 1996, 128).

each premise by itself clearly only weakly suggests the conclusion, if at all. But taking the premises together gives us a deductively valid argument.⁷ But how can Yanal speak of *an* argument (i.e. one argument) with independent premises? If the premises are independent on Yanal’s account, we do not have one argument but more than one. Indeed if independent premises constitute distinct arguments one would want to sum their probabilities only to determine whether the reasons are independent or dependent. It is done to determine argument structure. But then it appears that this summing procedure would not have a part in argument evaluation. If several premises are independent, then each constitutes the single premise in a separate argument for the conclusion. So in evaluating the argumentation as presented, it could seem that one should evaluate each of these arguments separately for how strongly each supports the conclusion. The strength of support given for the

⁷Yanal present the details of his method for computing the ordinary sum of the weights of several premises in (1991). The details of this and their evaluation are beyond the scope of this chapter.

conclusion then is the maximum of these individual supports, as Nolt has indicated for split-support arguments.

But surely, at least in some cases, we may want to ask about the strength of the case the various separate “arguments” jointly make for the conclusion. We believe Yanal would agree. In discussing another straightforwardly convergent example he says

Someone begins by citing D1 as a reason to believe D3, and clearly D1 provides some evidence for D3. But then he continues, and offers D2 as additional evidence for D3. Obviously we now have *more* evidence, and hence *more* reason to believe D3 (Yanal 1991, 142, italics added).

But on *Yanal's* analysis, in *evaluating* how strongly premises D1, D2 jointly support D3, we are not evaluating an argument as given but rather are evaluating something else of our own construction. But does this not distort a proper understanding of how the proponent has proceeded here? On Yanal's view, we have a multiplicity of one premise arguments which *we* must take together to see how strongly an overall case the proponent has presented for his claim. Would it not be more natural to say that the proponent has given *one* argument whose premises we may distinguish, but whose joint weight constitutes how strongly the premises support the claim? But this construal as one argument does not draw the independent-dependent distinction along the lines of the multiple-co-ordinatively compound distinction. It is rather to put forward the distinction as applying to arguments with co-ordinatively compound structure.

In 1996, Walton assumes that the multiple-co-ordinatively compound distinction is the same as the linked-convergent distinction; that we have here only a terminological variance. He says

Van Eemeren and Grootendorst...define ‘convergent,’ or as they call it, ‘multiple argumentation,’ as the kind of case in which there is ‘a series of separate and individual arguments’ for a conclusion, and ‘it is necessary that at least *one* of these argumentations actually be advanced, but in principle it does not matter *which* argumentation is chosen.’...By contrast, in a linked, or as they call it, ‘co-ordinative compound argumentation,’ each premise is individually necessary, but the premises are only sufficient when taken together (Walton 1996, 114–115).

Walton believes that the linked-convergent distinction has proven problematic because different texts propose different tests to identify linked arguments and thus to distinguish them from convergent arguments. These tests fall along two axes: the Falsity-Suspension axis and the No Support-Insufficient Proof axis. Some tests will ask us to consider the effect on the support the remaining premises give a conclusion if one premise is false. Others will ask us to consider the effect on the support if one premise is suspended, i.e. blocked out of the mind. If that premise were simply removed from the premise set of the argument, what would be the effect on the support the remaining premises give to the conclusion? Again, some tests will judge an argument to be linked if and only if the support is completely undercut, while others will judge the argument linked if and only if the resultant support is insufficient to show the conclusion. The various combinations of these two axes yield four possible

tests for identifying linked arguments and thus distinguishing them from convergent arguments:

Falsity/No Support...Test: *If one premise is false, the conclusion is not given any support.*

Suspension/Insufficient Proof...Test: *If one premise is suspended (not proved, not known to be true), the conclusion is not given enough support to prove it.*

Falsity/Insufficient Proof...Test: *If one premise is false, the conclusion is not given enough support to prove it.*

Suspension/No Support...Test: *If one premise is suspended (not proved, not known to be true), the conclusion is not given any support* (Walton 1996, 119–120, italics in original).

Of these four tests, Walton believes that the first two, the Falsity/No Support Test and the Suspension/Insufficient Proof Test appear most frequently in texts. Walton finds additional tests in the literature, which he calls Degrees of Support Tests. Yanal's criterion of non-ordinary summing for linked arguments illustrates this type of test. After critically evaluating these tests, Walton admits that the Suspension/Insufficient Proof Test may not function well in distinguishing linked from convergent arguments in given cases. Rather he regards it as "an analysis of the meaning of the linked-convergent distinction, generally, in an ideal argument in which the premises are collectively sufficient for the conclusion" (Walton 1996, 151). It provides "a right minded contextual framework, and a sensible pragmatic viewpoint on what is meant by the linked-convergent distinction generally" (Walton 1996, 181). If one wants a test to distinguish linked from convergent arguments, Walton regards Yanal's version of a Degree of Support Test as the best. Walton indicates, quite significantly, that "The *Susp./Insuf. Proof* test is congenial to our pragmatic theory of argument because of its frankly dialectical conception of an argument as a dialectical exchange" (Walton 1996, 179). The test conceives of the argument as being presented in a dialectical exchange, and in one version "works best when there is enough context of dialogue given in a particular case so that indications are present to tell us what the respondent is trying to doubt, and how the proponent is trying to answer these doubts in her argument structure" (Walton 1996, 181).

Does the test characterize or provide a proper analysis of the pragma-dialectical concept of a co-ordinatively compound argumentation? It is straightforward to see that it does, especially in the light of the pragma-dialectical understanding of "conclusive" or "sufficient support" discussed above. In a dialectical exchange, a challenger or respondent will have certain doubts about a standpoint or claim which the proponent is trying to remove. If the information from several premises is necessary to remove these doubts, the structure of the argumentation is co-ordinatively compound. Now all of the premises are required to remove the challenger's doubt. This means that if any one were missing or were deemed unacceptable to the challenger—from her perspective the proponent incurred a burden of proof in putting forward this premise which he has not discharged—the conclusion would not be given enough support to prove it, i.e. to avail to remove the challenger's

doubts, to constitute a conclusive case for it. The Suspension/Insufficient Proof Test analyses the concept of a co-ordinatively compound argument.

But to say that the various premises a proponent puts forward are all required to remove the challenger's doubts regarding some standpoint is *not* to say that those premises constitute a *logically* conclusive case for the proponent's conclusion or that they are together needed to constitute such a case. These are two distinct issues. That certain argumentation constitutes a dialectically conclusive unit to establish some standpoint does not say how that unit is internally organized from a logical point of view. It could be that the several premises each incrementally contribute to supporting the conclusion (or we should at least understand the argument as making this claim). On the other hand, the premises and conclusion may instance some one inference schema. If any premise were missing, this schema would not be instantiated and the remaining premises would not—at least ordinarily—constitute a reason for the conclusion. Claiming that the premises of an argument are dialectically conclusive says nothing about these structural issues concerning how the premises of this argument fit together. But if our considerations above are correct, these structural questions are appropriate to a *logical* analysis of the argument preparatory to its logical evaluation.

It is our contention that the distinction within co-ordinatively compound arguments that we have just sketched coincides with the convergent-linked distinction. Hence we hold that the dialectical distinction between multiple and co-ordinatively compound arguments does not amount to the logical distinction between linked and convergent arguments. These are two different distinctions, ultimately expressing two different disciplinary perspectives, and we should not confuse the one with the other or use the one to explicate the other. Several authors in attempting to characterize convergent arguments are better seen as characterizing multiple argumentation, with resulting confusion of intuitions. Walton still has an objection to our approach to drawing the distinction as we do, based on what he believes is the lack of clarity of the concept of relevance. We believe we can answer Walton's criticisms, but that this is best done through a refined restatement of our criterion for distinguishing linked from convergent arguments. We turn to these issues in the next chapter.⁸

5.4 Postscript—Modalities, Defeaters, Counter-Defeaters in Disciplinary Perspective

We agree with Toulmin that modalities and rebuttals are distinct categories of elements in arguments.⁹ Snoeck Henkemans demurs, saying explicitly "I do not consider the addition of these elements to lead to greater *argumentative* complexity"

⁸Almost all of the material in this chapter is included in my (2001). I wish to thank referees of *Argumentation* for helpful comments on an earlier version of that paper.

⁹We have argued at length in (1991), Chapters 5 and 6 (See pp. 111–165.) that modalities and rebuttals may genuinely occur in arguments as products as elements distinct from premises and conclusions.

(Snoeck Henkemans 1992, 94, italics in original). If argumentative complexity is a function of the number of reasons given for a standpoint in an argument, and how they are structured, we agree. But we believe that from the perspective of a *logical* analysis of an argument text, preparatory to evaluation, and from the perspective of carrying out that evaluation, being able to distinguish and represent these elements as we have is crucial.

For Snoeck Henkemans, when a modal word occurs in a sentence expressing the conclusion of an argument, the word is not part of the conclusion, but rather gives “an indication of the strength of the speaker’s commitment to the proposition” (Snoeck Henkemans 1992, 109). Again, “modal words and expressions...make explicit the degree of certainty with which their standpoint is advanced” (Snoeck Henkemans 1992, 108). Thus

- (1) Socrates is certainly guilty of corrupting the youth.
- (2) Socrates is guilty of corrupting the youth.
- (3) Socrates is probably guilty of corrupting the youth.
- (4) Socrates is possibly guilty of corrupting the youth.

all express the same proposition, but the standpoints taken to the proposition are different in each case, since each involves a different degree of commitment to the proposition (Snoeck Henkemans 1992, 110). The modal adverbs in these examples, together with their cognate modal adjectives, e.g. “possible” and modal verbs, e.g. “may,” express what Snoeck Henkemans calls epistemic modalities, and she confines her analysis to this type of modality.

As such, we can immediately make two comments on Snoeck Henkemans’ view. First, the modality qualifies the standpoint. Secondly, although it is clear that epistemic modalities express different degrees of force, or different levels of commitment to the proposition advanced by the standpoint, it is not clear that they have cognitive content or informational meaning on her view. They express an attitude or degree of commitment to a proposition but in no way affect the cognitive claim being made. Nevertheless, Snoeck Henkemans believes that the presence of a modality affects the burden of proof a proponent incurs in advancing a standpoint. To say that Socrates is probably guilty of corrupting the youth is to indicate a far less complete commitment to the truth of the proposition than Socrates is guilty of corrupting the youth than to say that he actually *is* guilty. By expressing a weaker commitment, the proponent is required to justify the proposition only to that lesser degree. We agree both that the modality has a force to express the speaker’s commitment and that its presence may affect the burden of proof required of the proponent in an argument. But we cannot agree that the modality lacks cognitive content.

For purposes of our discussion, let us focus on the adverbs “possibly,” “probably,” and “necessarily.” Unlike our position in (1988) and (1991), let us concede to Snoeck Henkemans that other adverbial expressions such as “obviously,” “evidently,” “surely,” “apparently” all have force, but at least in some cases their cognitive meaning is sufficiently vague as to render their force the only aspect of their meaning worthy of interest. Where their cognitive meaning is clear, it is

synonymous with “necessarily” or “probably.” “Certainly” for our purposes is synonymous with “necessarily,” while “likely” is synonymous with “probably.” Our first point is another concession to Snoeck Henkemans. These words “possibly,” “probably,” and “necessarily” may qualify conclusions. However, when they do, they modify the cognitive content or literal meaning of the unmodalized component statement. How they modify that meaning is further determined by what type of modality is involved—logical, causal, or some other. Recall that to assert “possibly p ” in the sense of “it is logically possible that p ” is not to assert that p is the case with some level of diffidence. To use a possible worlds semantics, “possibly p ” asserts that p is true not necessarily in the actual world but in some possible world. Similarly, to assert that Socrates is possibly guilty of corrupting the youth is not to assert that he is guilty, but just that in some possible world, sharing some recognized features with features of the actual world, Socrates is guilty. It remains to be shown whether the possible world is the actual world. Toulmin has pointed out that there is a further sense of “possibly” beside logical possibility.¹⁰ “To say that a conclusion is possible...is to say that, bearing in mind the nature of our problem and data, the conclusion must be admitted to consideration” (Toulmin 1958, 169). This sense of “possibly” also alters the cognitive content of the statement being asserted. We are not, or not just, asserting p with a weak level of commitment but asserting outright the claim that p is worthy of consideration. We might call this sense genuine or real possibility, as opposed to (merely) logical possibility.

Probability is a notorious conceptual thicket which we best not attempt to penetrate here. It is sufficient to remind ourselves of certain uncontroversial points. First, in asserting “probably p ” we may mean “the probability of p is greater than .5” So if we were to assert

(5) Probably the coin is biased toward heads

we would count that statement as true should a series of tests consistently confirm that in flipping the coin, heads comes up better than 50 % of the time. As Ian Hacking points out in (2001), a statement such as

(6) The probability of that coin coming up heads is greater than .5

is a statement about the coin. It “is either true or false, regardless of what we know about the coin... [It] states a fact about how the world is, and we can collect evidence to see whether [it] is true or false” (Hacking 2001, 128). Here, (5) asserts what Hacking calls a categorical probability. (See Hacking 2001, 47.)

By contrast, in asserting (3) we mean that

(7) In light of the information we have about Socrates and the youth he has allegedly corrupted, the probability that Socrates corrupted the youth is greater than .5

¹⁰We wish to thank an anonymous referee for Springer for calling out attention to Toulmin’s discussion of this point.

Here, we have a statement not primarily about Socrates, made true or false by certain facts about him, which we could research as we could research a fact about the coin through a series of tests, but a statement about the relation between our evidence concerning Socrates behavior toward the youth and the claim that Socrates corrupted them. To be sure, the assertion (2) is a statement about Socrates, for which we can gather evidence. But the evidence we gather will support this claim, not the claim about the *relation* of that evidence to the claim about Socrates. As Hacking points out, if a statement such as (7) is true, “it is not true because of ‘how the world is,’ but because of how well the evidence supports statement [(2)]. ... If [(7)] is true, it is because of inductive logic” (Hacking 2001, 129). (7) asserts what Hacking calls conditional probability as opposed to categorical probability. (Hacking 2001, 47) To underscore this contrast, note that to ask for evidence that probably the coin is biased towards heads is perfectly meaningful. But to ask for evidence that probably Socrates is guilty of corrupting the youth as opposed to evidence that Socrates is guilty of corrupting the youth makes no sense, attempting to support a logical claim with empirical evidence. Taken as asserting a categorical as opposed to conditional probability, (7) is also meaningless.

“Necessarily” likewise exhibits these two contrasting meanings. Similarly to “possibly p ,” recall that “necessarily p ” when understood as asserting “it is logically necessarily the case that p ” is asserting not just that p is true in the actual world, with an absolute degree of confidence, but to assert that p is true in all possible worlds, again given a possible worlds semantics. Similarly, a statement of causal necessity would assert that p holds in all possible worlds sharing the relevant causal laws with the actual world. By contrast, to assert that “given certain evidence or premises, necessarily p ,” is ordinarily properly interpreted as asserting a relation between the premises and the statement p , that the premises *entail* p . We believe this relational understanding of “necessarily” should be the default understanding when approaching an argument text for analysis. To assert

All those who question with the youth culturally taught doctrines concerning the gods are guilty of corrupting the youth. Socrates has questioned with the youth culturally taught doctrines concerning the gods. So necessarily Socrates is guilty of corrupting the youth,

is not to argue that

Socrates is guilty of corrupting the youth

is a necessary truth—a false proposition, but rather that this conclusion follows necessarily from the premises. The former construal commits a fallacy analogous to the fallacy noted in medieval logic of confusing the necessity of the consequent with the necessity of the consequence. Reading ‘ \Box ’ as “it is necessarily the case that,” a statement of the form ‘ $p \supset \Box q$ ’ is not the same as ‘ $\Box(p \supset q)$.’

Hence, with each of “possibly,” “probably,” and “necessarily,” we may identify a literal or informative meaning which the expressions have when occurring as a component in a statement. With “probably” and “necessarily,” we may also identify a relational meaning. In the relational sense, instead of modifying the meaning of the conclusion of the argument, the expressions make a claim about how strongly

the premises support the conclusion. We cannot identify an analogous sense for “possibly” in the context of arguments for logical possibility. As is well known, in this sense “possibly p ” can be defined as “not necessarily not p .” Hence, on a relational understanding of “possibly,”

- (8) Given the evidence, possibly Socrates has corrupted the youth asserts that
 (9) It is not the case that the evidence entails that Socrates did not corrupt the youth.

(9) is clearly not the intended meaning of (8), most straightforwardly because it is not an argument, while (8) itself is.

If we understand “possibly” in (8) in the sense of Toulmin’s genuine possibility, however, we may argue that “possibly” is being used in a relational sense. We are saying that the evidence, say P_1, P_2, \dots, P_n , renders p worthy of consideration, indeed requires that consideration (if we are to satisfy our dialectical or epistemic duty). In light of P_1, P_2, \dots, P_n , a full (or at least fuller) investigation of the body of evidence, pro and con, bearing on p is merited or required. But this *is* to make a statement about the strength of the evidential relation between P_1, P_2, \dots, P_n and p . That there is a relational sense of possibility does not gainsay that there is a non-relational sense also. To assert simply that it is genuinely possible that p is to assert that there is some evidence in the context of the problem rendering consideration of p worthy or requisite, but not to designate what that evidence is. By contrast, the relational sense indicates a body of evidence in some way.

Having contrasted a categorical and a relative sense for “possibly,” “probably,” and “necessarily,” we may explain why dialectics and logic take a different perspective on modalities. From a dialectical perspective, a proponent’s argument–better series of arguments constituting an argumentation–will be successful if it brings about the same level of commitment to a proposition as the level which the proponent has expressed. This requires the proponent to remove the doubts of the challenger through his argumentation, at least to some extent. The weaker the modality, the weaker the proponent’s level of commitment, and so the weaker the proponent’s burden of proof. As Snoeck Henkemans puts it, should he use a weak modality,

The arguer is only committed to the acceptability of the proposition to a certain extent. He is therefore not obliged to take away all doubt the listener may have concerning the acceptability of the proposition. It is sufficient if the arguer succeeds in convincing the listener that the proposition is acceptable to the degree that he, the arguer, himself considers it acceptable. (Snoeck Henkemans 1992, 112)

Hence, expression of a level of commitment is what is important concerning a modality from a dialectical perspective, and this can be expressed through the non-relational or categorical sense of that modality.

The question of whether the argumentation is sufficient to remove doubt to the extent needed is a question of the strength of the argumentation offered. In this way, a dialectical evaluation will be similar to a logical evaluation, although dialectical criteria for sufficiency will differ from logical criteria. However, from a logical perspective, the question is the relation between premises and conclusion—Are they

so related that the premises constitute grounds adequate for the conclusion or constitute grounds with the strength of support claimed.? If a “logical” modality—“necessarily,” “probably,” “possibly” or one of their cognates occurs in an argument, the logical default understanding takes the modality as making a claim about the strength of this connection. The logical question then concerns whether the premises do support the conclusion with the strength claimed. We may allow therefore that logical modalities have both a force and a relational cognitive meaning. Whether the argumentation justifies the force is the dialectical question. Whether premises and conclusion are so related that the claim of their strength is correct is the logical question.

The reasons put forward in an argument to support a conclusion, together with the reasons put forward to support those reasons, together perhaps with yet further reasons for the supporting reasons, and continuing perhaps with even further reasons, constitute what Ralph Johnson in (2000) calls the illative core of an argument and which we shall refer to as the core argument. For our purposes here, let us prescind from any superstructure and consider just those core arguments where all the reasons directly support the conclusion. A logical modality, if present, then makes a claim about how strong is that support, from the logical perspective. We all know that unless such a core argument were deductively valid, it is possible that if the set of premises were supplemented by further statements, the resulting set of statements might support the conclusion with far less than the strength claimed. Indeed, the weight of the argument might be undercut altogether. In a basic dialectical situation, part of the challenger’s role is to raise the question of these defeaters. The proponent then has the burden of proof to counter them. The introduction of defeaters and their countering takes us to what Johnson calls the dialectical tier.

This core argument/dialectical tier contrast helps clarify, I believe, the function of defeaters and their counters in argumentation, at least from the logical perspective. The modality makes a claim about the strength of the core argument. The question of a defeater attacks that claim. The counter, if successful, restores the claim. (It may actually, together with the premises of the core argument, constitute a stronger case for the conclusion. But, at least from a logical perspective, its primary purpose is to restore the original modal claim.) We see these remarks completely in line with Toulmin’s analysis. As he sees it, different warrants confer different degrees of force on a step from data to claim. This degree may be manifestly expressed by a modality. Defeaters or rebuttals indicate “circumstances in which the general authority of the warrant would have to be set aside” (Toulmin 1958, 101). Counters to the defeaters, then, show that the warrant does not have to be set aside in this case and the original modal claim restored.

We feel these considerations justify the mode of representing rebuttals and counter-rebuttals (more generally defeaters and counter-defeaters) which we presented in Chapter One. (See pp. 25–27.) Defeaters qualify the strength claimed, indicating conditions under which that claim of strength or even the claim that the premises constitute adequate support for the conclusion must be withdrawn. Putting these defeaters in a box attached to the modality (or to the arrow from premises to conclusion) reflects their function and allows representing that proponents of arguments may take defeaters into account in presenting their arguments. Counters

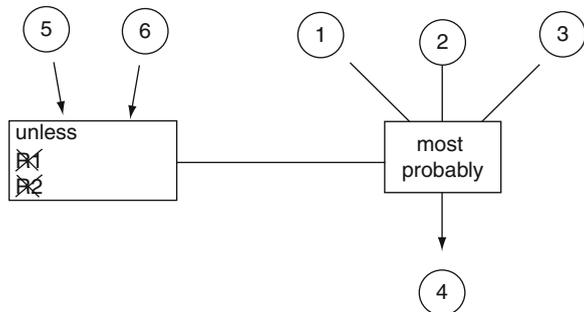
to defeaters support conclusions not directly but by claiming either that the defeater does not hold or that its defeating force is in turn defeated. It is argumentation at the dialectical tier and as such, it is appropriate to represent the premise as neutralizing a defeater rather than to construe it as an additional premise in the core argument.

A casual inspection of at least some arguments including counter-defeaters illustrates the appropriateness of this approach. For example, consider

- (1) Jones has consistently shown herself a very competent administrator.
- (2) She has more experience than any of her rivals for the nomination.
- (3) She is the best campaigner around. Hence, most probably–unless
- (R1) She has been involved in some youthful indiscretion or
- (R2) Her husband’s allegedly shady business dealings have called her integrity into question,
- (4) She is the best candidate to run for president next year. But
- (5) A thorough background check going back to high school indicates that she is the straightest of straight arrows and
- (6) The allegations against her husband are just rumor, nothing more, as even the media now admit.

(5) and (6) counter rebutting defeaters. But a core argument where just (5) and (6) converge on (4) would be totally baffling. Indeed, intuitively they seem practically irrelevant. To see why we have a reason to accept (4) we must look to (1), (2), and (3). Neither (5) nor (6) link with any of these to constitute a relevant reason for (4). Hence, adding (5) and (6) to (1), (2), and (3) would likewise leave them irrelevant. But representing their support as parallel to the core, we may take our diagram as representing them on the dialectical tier, serving to counter the admitted rebuttals (R1) and (R2) (See Fig. 5.1).

Fig. 5.1



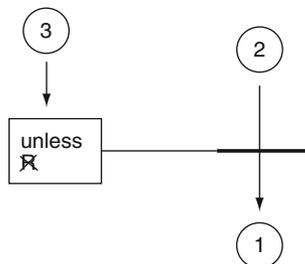
If the evaluative question is whether asserting the conclusion with the force indicated by the modality, being that confident is justified–i.e. evaluation from the dialectical perspective–then, somewhat paradoxically, we may not need to worry about representing a separate dialectical tier in analyzing the structure of the argument. Representing the counter-defeater through additional elements in the (core) argument may be sufficient for the purpose of dialectics. This is

Snoeck Henkemans recommendation in (1992). She recognizes both rebutting and undercutting defeaters. Her method of analysis, however, may require significant paraphrase of the defeater and the counter-defeater as they appear in the text of an argument. Here is her example of an argument incorporating a counter-argument (counter-rebuttal) against a rebutting defeater:

I think [1] the library should stay open on Sundays, because [2] that would give more people an opportunity to make use of it. They say that [R] they don't have enough personnel to keep it open on Sundays, but [3] if a system of working shifts were introduced there would be no problem at all. (Snoeck Henkemans 1992, 133)

We would diagram the argument using Fig. 5.2:

Fig. 5.2



On Snoeck-Henkemans' approach, (3) and (R) are paraphrased into the sentence

(3') The problem of lack of personnel could be solved by a system of working shifts.

The argument from (2) and (3') for (1) is co-ordinatively compound.¹¹

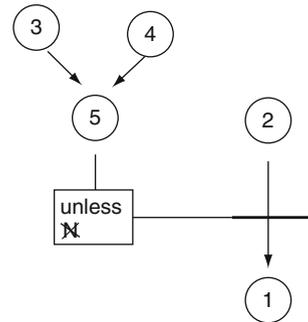
Snoeck Henkemans' structural representation of an argument incorporating a counter-argument to an undercutting defeater again does not represent the defeater.

[1] We want Dyer Street to be a play street, because [2] we would then have a place where children can play without having to keep looking out for cars and bikes. "Why is it so important that Dyer Street should be a play street?" you may ask. [U] "The kids can go into the park on the corner of Swan Street, can't they?" I would say to you: "Just go and take a look!" [3] It's one great pool of mud. And [4] it's full of dog dirt. [5] We can't let our kids play there. (Snoeck Henkemans 1992, 136)

¹¹Snoeck Henkemans distinguishes between co-ordinatively compound arguments where one argument (premise) gives additional information to directly support the conclusion from those where the subsequent argument counters some defeater. The former are cumulative and the latter complementary. Diagrammatically, the arguments (premises) in cumulative argumentation are connected with a "+," while those in complementary argumentation are linked with an "&." So the argumentation from (2) and (3') to (1) is complementary in addition to being co-ordinatively compound.

On our account, we represent the structure this way (See Fig. 5.3):

Fig. 5.3



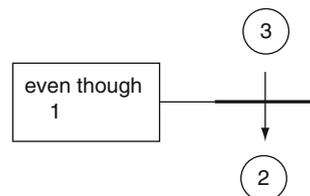
Snoeck Henkemans sees (2) and (5) supporting (1) directly in a co-ordinatively compound complementary argument. Again the defeater does not appear explicitly in her representation of the argument’s structure. (3) and (4) support (5) in a co-ordinatively compound cumulative argument. Hence on her account the argument also involves subordinatively compound structure, as on ours it involves serial structure.

In (1991), Snoeck Henkemans advocates paraphrasing to deal with counter-considerations, possible defeaters simply admitted in the course of an argument but not countered. In Chapter One (See pp. 27–29), we saw that Govier advocated representing these elements with wavy arrows, in contrast to straight arrows from premises, pointing to the conclusion. Snoeck Henkemans feels this mode of representation is insufficient to indicate the proponent’s intention that the positive reasons outweigh the counter-considerations, shown by his continuing to maintain his standpoint. Rather, she feels the analyst must supply a premise, to be added to the positively supporting premise(s), “in which an assessment is made of the relative weight of the counterargument” (Snoeck Henkemans 1991, 367). For example, given the argument

Although (1) I could do with some rest, I still think (2) it’s better not to go on holiday,
because (3) otherwise I won’t finish my thesis in time. (Snoeck Henkemans 1991, 367)

which we would represent using Fig. 5.4

Fig. 5.4



Snoeck Henkemans would add

(a) It is more important to finish my thesis in time than to get some rest

Snoeck Henkemans here brings up the issue of non-explicit premises, which we defer considering until [Chapter 7](#). However, if the component statements of an argument are to be represented in a diagram through encircled numbers and letters, it is not at all clear how (a) would be entered into the diagram to show that (3) outweighs (1) in the opinion of the proponent. Would simply linking (a) to (3) be sufficient? Nor does this seem necessary. By treating (1) as a negligibly significant rebuttal by displaying it in a counter-consideration box, we indicate that the positive reason (3) outweighs, at least in the proponent's mind, the counter-consideration (1).

Snoeck Henkemans analyzes further examples with undercutting defeaters where representing their argumentation structures through her categories requires adding as a premise that some counter-argument (against the cogency of the core argument) is not sufficient or sound. If the categories of multiple, co-ordinatively compound, and subordinatively compound argumentation, together with paraphrasing and supplying premises, allow a sufficient analysis of argumentation for *dialectical* evaluation to proceed, Snoeck Henkemans has presented a plausible case to show the adequacy of this analytical machinery. Again, if the evaluative issue is whether the proponent has presented argumentation sufficient to remove the doubts of a challenger, analyzing arguments by means of these categories seems plausibly sufficient. But for a *logical* evaluation of an argument, in particular to answer the question of whether the premises constitute adequate grounds for the conclusion, or grounds sufficient for the strength claimed, a question which may very well involve raising issues on the dialectical tier, an explicit representation of that tier as a distinct component of the argumentation, with elements of the tier occurring explicitly in the representation, seems required. Again, this is not to say that one discipline is right and the other wrong. Rather it is to claim that practitioners in one discipline should exercise caution and restraint in criticizing work in the other discipline out of respect for disciplinary perspective.

Chapter 6

The Linked-Convergent Distinction—Refining the Criterion

In [Chapter 4](#), we said that two or more premises were linked when they had to be taken together or were intended to be taken together to see why we had a relevant reason for the conclusion they directly support. By contrast, convergent reasons are independently relevant to the conclusion. In a convergent argument—paradigmatically convergent at least—each premise presents a mark or sign constituting evidence for the conclusion. That is why in evaluating an argument, should one (or more) of these premises need to be “taken off the table” because the premise was recognized false or questionable, it still makes sense to evaluate how good an argument the remaining premises make for the conclusion. Do the premises which *are* acceptable constitute evidence sufficient to justify accepting the conclusion? The loss of one premise does not cancel the others as relevant reasons for the conclusion or foreclose the possibility that they might constitute sufficient evidence justifying it. By contrast, if premises are linked then only together do they constitute a relevant reason for the conclusion. Thus if one or more of a set of linked premises proves unacceptable upon evaluation of the argument, the remaining premises fail to constitute a relevant reason for the conclusion. Loss of one premise cancels the whole reason they together constituted.

In 1996, commenting on our earlier formulation of the criterion in (1988), Walton complains that what we mean by “relevance” is unclear. We find this complaint very perspicacious, pinpointing exactly where we need to refine our account. However, I believe that the material we have already presented on Toulmin’s notion of warrant and Peirce’s notion of a leading principle contains an answer to Walton’s complaint. Developing that answer is our goal in section one.

6.1 Dependent Versus Independent Relevance Explicated

As Walton correctly points out, we are concerned here with probative relevance, “meaning that one proposition is relevant to another if it gives some reason, justification, or basis for proving the other” (Walton 1996, 113). That much was clear from earlier discussions. But apart from what relevance *is*, we may ask how one *recognizes* that a set of premises is probatively relevant to a conclusion. Our question here is epistemological, not ontological or semantic. In many cases, it may be intuitively

obvious that one or more statements give at least some evidence for some claim. But why is there this intuitive recognition? Peirce's notion of an inference habit, already introduced (See p. 14.) furnishes us with an explanation. In (1955), Peirce gives a biological account of the development of habits, including beliefs, which he regards as habits. "The representation to ourselves that we have a [belief-habit] is called a *judgment*" (Peirce 1955, 130, italics in original). But judgments can be connected together by belief-habits. "A judgment is formed; and under the influence of a belief-habit this gives rise to a new judgment, indicating an addition to belief. Such a process is called an *inference*" (Peirce 1955, 130, italics in original), and we can say that the belief-habit which conveyed us from one judgment to another is an inference habit. Clearly, inference habits not only allow us to make inferences, but also to perceive or intuit relevance. If one has a habit of thought which leads one in general to infer from a judgment of the form x was born in Bermuda to x is a British subject, then one will certainly see why "Harry was born in Bermuda" is relevant to "Harry is a British subject."

We have also indicated that these inferential habits can be verbally formulated, these formulations being called leading principles in Peirce's terminology. Again, as we have pointed out, although Peirce conceived of leading principles as propositions, they may also be verbalized as inference rules, and in (1992), we argued that it is best to think of them this way. Clearly, given differences in life experiences, we may expect that the inference habits one person develops will not be exactly the same as those developed by some other person. One person then may perceive that P is relevant to Q where another person may not. So the corresponding set of leading principles, inference rules, will not be the same for each person. In 1992 then we argued that we should not understand relevance in the first instance as a binary relation between statements P and Q , but rather as a ternary relation between P , Q , and a set of inference rules I . It is with respect to a set of inference rules that one perceives relevance. Our concept of inference rule includes here not only formal deductive principles such as *Modus ponens*, Disjunctive Syllogism, Barbara, and formal inductive patterns such as Statistical Syllogism, but material inference rules, illustrated for example by many of Toulmin's warrants. We should add, and this is a crucial point, that for this ternary notion of relevance, we make no restriction that the elements of a set of inference rules I be valid or reliable. Someone's set might contain the fallacy of affirming the consequent, the pattern **AAA-2**, or the principle *Post hoc ergo propter hoc*. One might then misjudge that a statement is probatively relevant to another. In some instances, what may be *intuited* relevant will not *be* relevant. But this just underscores that we are dealing with an epistemic (or perhaps better doxastic) rather than ontological issue.

It is straightforwardly possible to characterize, if not precisely define, a binary notion of relevance. We can identify—again not perhaps with total precision—a canonical set of inference rules. P is relevant to Q if and only if P is relevant to Q with respect to C , the canonical set. Clearly, we could expect the differing inference habits of various individuals to nevertheless show some convergence. Surely, we would expect mature human beings to reason according to the familiar patterns of basic deductive inference. But more important than the fact that these inference

patterns are generally shared is the fact that they are deductively valid. “ $P \supset Q$, P ” are relevant to “ Q ” just because

From	$P \supset Q$
	P
We may take it that	Q

is an objectively truth-preserving, deductively valid inference rule. Again, because those born in a country are normally citizens of it, such inference rules as

From	x was born in Bermuda,
We may take it that	x is a British subject

are reliable, and in virtue of that objective reliability would be in the canonical set. Again, through logical blunders, jumping to conclusions, or perhaps other reasons, individuals may develop some unreliable inference habits. But precisely because of their objective unreliability, any corresponding inference rules would not be included in the canonical set. The key is that the inference rules in the canonical set will be properly backed, in Toulmin’s sense of backing for warrants. (See Toulmin, 1958, 103.) As our pair of examples illustrates, different warrants will be backed in different ways, as Toulmin maintained. Discussion of how warrants or inference licenses are properly backed is beyond the scope of this project.¹ These considerations are sufficient to answer Walton’s question about relevance. A statement P is relevant to a statement Q if there is some inference rule in the canonical set C licensing the move from P to Q . Similarly, a set of statements $P_1, P_2 \dots, P_n$ is relevant to a statement Q if there is some n -premised inference rule in C licensing the inferential move from $P_1, P_2 \dots, P_n$ to Q . However, for purposes of clarifying the linked-convergent distinction, the ternary notion of relevance with respect to some set of inference rules is needed.

Let us make one further observation whose import will emerge later. Our ternary notion of relevance is syntactic as opposed to semantic. To say that for statement P to be relevant to statement Q , P must give some justification or evidence for Q is to give a semantic characterization of relevance. To say with Govier that a statement A is positively relevant to a statement B just in case A ’s being true increases, however slightly, the likelihood of B ’s being true or A is negatively relevant to B just in case A ’s being true increases the likelihood that B is false (Govier 1985, 102)² is again to characterize relevance semantically. But to say that $P/\therefore Q$ or $P_1, \dots, P_n/\therefore Q$ instances some inference rule is to make a purely syntactic statement. To be sure, the question of whether that inference rule is valid or reliable is semantic. But our ternary syntactic notion of relevance is not restricted to sets of

¹See our discussion in (1992), especially pp. 226–234, for how proper backing may be characterized for the warrants corresponding to empirical generalizations.

²In Govier’s terminology, if A ’s truth “counts in favor” of B ’s, “gives us some reason to think” B is true, then A is positively relevant to B . Negative relevance is similar. Since if a statement is put forward as a premise it is intended as evidence *for* a conclusion, relevance in the first instance means positive relevance in the context of logical analysis and evaluation.

valid inference rules. The immediate import of this point is that recognizing that the premises of an argument are relevant to its conclusion with respect to a set of inference rules **I** is recognizing that the argument instances one of the rules in **I** (or that there is a series of arguments leading from the premises to the conclusion where each argument instances a rule in **I**). As long as one knows what rules are in **I**, this recognition should be immediate at least for arguments which move from premises to conclusion in one step.

How does this analysis of relevance apply to drawing the linked-convergent distinction? Suppose we have some multi-premise argument, i.e. argument text, before us. Suppose, to simplify matters, that the argument does not involve serial (much less divergent) structure. There is one conclusion and in our diagram all the premises would be one arrow away from this conclusion. Suppose that upon inspecting the text, we recognize that some n -member subset of the premises together with the conclusion instances some n -premise inference rule, $n > 1$. Let's assume this is a two premise inference rule. Let us assume also, to begin, that this inference rule is either deductively valid or otherwise (*ceteris paribus*) reliable. Then we may reason that these two premises are linked. We see that the subargument instances a rule which licences (perhaps with qualification) the step from these premises together to the conclusion. From our point of view, there is no question that these premises are relevant to the conclusion, because the inference rule is part of our stock of inference licences. But since it is a two premise inference rule, we need to take both of these premises together to see why they are relevant.

There are a number of problems with this reasoning. First, one may ask whether the proponent regards the argument as linked. The inference rule which licences our moving from the two premises together to the conclusion is a rule in *our* stock of inference licences. How does this justify our believing that the licence is in the proponent's stock also? Now we have already indicated that different individuals will ordinarily develop different, all be it overlapping, stocks of inference licences. It is possible that a proponent could produce an argument text in which some subargument would instance one of our inference rules, but not that of the proponent. But surely, unless we subscribe to a totally postmodern theory of literary interpretation which says that each reader constructs his or her individual understanding of the text, the presence of a subargument instancing a two premise inference rule is a distinct sign that the rule is part of the stock of inference licences of the proponent of that argument. That said, the objection is really beside the point. We are evaluating the argument as best we understand it, given the argument itself and whatever additional contextual clues we might have. We can misunderstand a text for all sorts of reasons. But that fact does not show that we should not attempt to evaluate arguments or that our evaluation will in general fail to have objective or intersubjective value.

The relevance of the premises in this subargument to their conclusion will be unproblematic for us as receivers of the argument, if we accept the inference rule the subargument instances. Suppose, by contrast, that we recognize that the subargument instances a rule which we, perhaps quite rightly, regard as invalid or unreliable. Besides developing a stock of inference habits according to which we *do* reason,

we may also develop a knowledge or recognition of inference patterns according to which we believe one should *not* reason. Should the unreliability of the pattern affect our judgment that these premises are linked? We may argue that it does not. The salient point is that the argument text contains this subargument which instances a two (or multi-) premise inference rule. Absent evidence to the contrary, we are justified in reading the text as containing this instance of this fallacious rule, and thus as the proponent intending these two or more premises be taken together, i.e. linked.

There is one further objection to our proposal for distinguishing linked from convergent arguments, which requires a refinement of our criterion. Suppose an argument instances the rule of conjunction, for example

The forestry practices employed by agriculture threaten the life of the chimp. The mere proximity of human settlements threatens the life of the chimp. Therefore Both the forestry practice employed by agriculture and the mere presence of human settlements threaten the life of the chimp.³

What then is the structure of deductive arguments proceeding by the rule of conjunction:

From	A
	B
We may take it that	A & B

Now clearly, unless “A” entails “B,” the argument from “A” alone to “B” is not valid. The situation is symmetric with respect to “B” and “A.” But are “A” and “B” by themselves irrelevant to “A & B”? Does not each give us “half” of the information we need for “A & B”? But if each separately gives us half of what we need, does that not mean that each reason separately supports the conclusion? Or is it because both reasons are needed to produce a valid argument that neither *completely* separately supports the conclusion?

How we resolve this question has implications for how we see other families of arguments structured, in particular inductive generalizations and conductive arguments or what Walton refers to as evidence accumulating arguments. Different authors have conflicting intuitions concerning both of these types of arguments.

From	x_1 is S and x_1 is P
	x_2 is S and x_2 is P
	•
	•
	•
	x_n is S and x_n is P
We may take it that	All S are P.

³Compare the argument in Yanal (1984, 2), on which this example is based. Yanal regards the argument as convergent, although he points out that Thomas, from whom he adapted the argument, diagrams it as linked.

Again,

Our troops are supporting a regime which will not take proper responsibility for self-governance. The cost of supporting the regime is harming our economy. Therefore we should bring the troops home.

If one argues that an argument instancing the rule of conjunction is linked because one needs both premises for a valid argument (or that inductive generalization arguments need to take their instances together or conductive arguments need to take all their premises together to sufficiently support their conclusions), one is confusing questions of sufficiency with relevance. As we see it, that is not a proper reason for counting instances of the rule of conjunction as linked. But is the mere fact that the rule is a two premise rule sufficient for linked structure?

We shall argue that it is not, that satisfying a further condition is necessary, and we shall endeavor to define that condition. Clearly, the following argument has linked structure:

If Jack gets to the bridge at 5:45, then he'll arrive at 6:20.
 If Jack leaves home at 4:45, then he'll get to the bridge at 5:45.
 Therefore, if Jack leaves home at 4:45, then he'll arrive at 6:20.

This argument is clearly an instance of the form *Pure Hypothetical Syllogism*:

From	$M \supset P$
	$S \supset M$
We may take it that	$S \supset P$

One point of contrast with the rule of conjunction is striking: The two premises of a hypothetical syllogism share what we shall call a mediating component, while in conjunction there need be no mediating component. Just what we mean by a mediating component we shall explain shortly. I believe that this sharing of a mediating component is the key clue to identifying when premises are linked, and to properly characterize linked structure. Recall that we see linkage and relevance essentially connected. The premises of an argument are linked when we need to take them together to see why we have a relevant reason for the conclusion or they are so intended. Consider the above hypothetical syllogism. If all we had was the first premise, "If Jack gets to the bridge at 5:45, then he'll arrive at 6:20," with no knowledge or awareness of anything like to second premise, we would be at a loss to see why we had a reason for the conclusion. "Why is that premise relevant?" would be an obvious critical question here, to which the second premise would be an obviously appropriate answer. Clearly the situation is symmetric with respect to the second premise.

I believe that Thomas' apprehension of this connectedness through a mediating component may in part have motivated him to define linked in contradistinction to convergent structure. In his "Preface to the Instructor" for *Practical Reasoning in Natural Language*, Thomas asserts "This text develops a method—based on the work of Gentzen, Schutte, Wittgenstein, and others—by which any arguments's [*sic*] logical structure can be represented graphically" (Thomas 1986, vii). Unfortunately, neither here nor in the two further references to Gentzen in (1986) does Thomas

give any page references to these authors. However, I believe that in the work of Gentzen we can find further motivation for seeing multiple premises sharing mediating elements as the key to identifying that they are linked. In (Gentzen 1969, 30–32), Gentzen studies a logistic system with two inference rules, sound and complete for his purposes. The second of these rules is germane to our purposes here, the rule of *Cut*. It will be convenient to present the rule using our own notation, but where “ \supset ” and “ $\&$ ” symbolize material implication and conjunction, with “ \supset ” taking precedence over “ $\&$.”⁴ Let Γ be a finite, possibly empty set of statements. Where $\Gamma = \{P_1, P_2, \dots, P_n\}$, “ $\text{Conj}(\Gamma)$ ” = “ $P_1 \& P_2 \& \dots \& P_n$.” (If $\Gamma = \{P\}$, “ $\text{Conj}(\Gamma)$ ” = “ P .”) Where $\Gamma = \emptyset$ and P is any statement, “ $\text{Conj}(\Gamma) \& P$ ” = “ P .” We may now state the rule *Cut*:

From $\text{Conj}(\Gamma) \& M \supset P$
 $S \supset M$
 We may take it that $S \& \text{Conj}(\Gamma) \supset P$

It is trivial to see that *Cut* is a generalization of the rule *Pure Hypothetical Syllogism*. Simply consider the case where $\Gamma = \emptyset$. Then “ $\text{Conj}(\Gamma) \& M$ ” = “ M ” and “ $S \& \text{Conj}(\Gamma)$ ” = “ S .” Substituting produces the form of *Pure Hypothetical Syllogism* above. It is also easy to see that other valid hypothetical syllogistic forms are special cases of *Cut*. Consider *Modus ponens*. Clearly,

From $\text{Conj}(\Gamma) \& M \supset P$
 $(Q \supset Q) \supset M$
 We may take it that $(Q \supset Q) \& \text{Conj}(\Gamma) \supset P$

is a specific instance of *Cut*. Where $\Gamma = \emptyset$, we have “ $\text{Conj}(\Gamma) \& M$ ” = “ M ” and “ $(Q \supset Q) \& \text{Conj}(\Gamma)$ ” = “ $Q \supset Q$ ”. Substituting, we get

From $M \supset P$
 $(Q \supset Q) \supset M$
 We may take it that $(Q \supset Q) \supset P$

But “ $(Q \supset Q) \supset M$,” “ $(Q \supset Q) \supset P$ ” are logically equivalent to “ M ,” “ P ” respectively. Substituting these equivalents for equivalents, and we have *Modus ponens*.

From $M \supset P$
 M
 We may take it that P

Modus tollens and *Disjunctive Syllogism* straightforwardly reduce to *Modus ponens* via the equivalents of “ $M \supset P$ ” with “ $\sim P \supset \sim M$ ” and “ $P \vee M$ ” with “ $\sim P \supset M$.”

⁴As an anonymous referee for Springer has pointed out, we are here presenting an analogue of Gentzen’s rule of *Cut*. As Gentzen uses “sentence” in the context of the paper presenting this rule, this term may be interpreted as a metalogical statement asserting that a given set of (object language) propositions entails a given proposition. See Gentzen (1969, 30). That we are presenting an analog of *Cut* does not gainsay its motivational or illustrative use for our purposes here.

Now consider the rule of *Syllogism in Barbara*:

From All M are P
 All S are M
 We may take it that All S are P

Clearly and intuitively, any syllogism instancing *Barbara* would be regarded as linked. Given the modern understanding of the **A** categorical, this form is a quantified version of *Pure Hypothetical Syllogism*.

From $(\forall x)(Mx \supset Px)$
 $(\forall x)(Sx \supset Mx)$
 We take it that $(\forall x)(Sx \supset Px)$

As in traditional logic M represents the middle term of a categorical syllogism, so we have picked “ M ” to represent the mediating element. How may we define this notion? Consider that in a hypothetical syllogism, the mediating element is a proposition, while in traditional categorical logic, it is a term, represented however by a monadic predicate in modern logic. This is significant. We would not want to say that the rule

From Φ_x
 Ψ_x
 We may take it that $\Phi_x \ \& \ \Psi_x$

has a mediating element, simply because the premises share the individual variable “ x .” Allowing that sentences are 0-ary predicates and that predicates may be of any finite degree, we may make a first approximation to defining a mediating element in a multipremised inference rule as a predicate shared by at least two premises of that rule. Linked arguments then will instance multipremised inference rules where the premises share a mediating element.

This will not do as it stands, because according to this definition, inductive enumeration arguments will have shared elements, but we want to resist the suggestion that inductive enumeration arguments are linked and not convergent. However, a quick contrast of the inductive enumeration form

From x_1 is S and x_1 is P
 x_2 is S and x_2 is P
 •
 •
 •
 x_n is S and x_n is P
 We may take it that All S are P .

with *Cut*

From $\text{Conj}(\Gamma) \ \& \ M \supset P$
 $S \supset M$
 We may take it that $S \ \& \ \text{Conj}(\Gamma) \supset P$

shows a salient difference between the predicates shared by premises in inductive enumeration and the mediating element M . Unlike S and P , M occurs in the premises but not in the conclusion. This is a necessary condition for a mediating element. We may then define a mediating element in a multipremised inference rule as a predicate (or predicate schema) shared by at least two premises of that rule and which does not occur in the conclusion. Arguments involve linked structure just when a subargument instances a multipremised inference rule with a mediating element. The premises sharing the mediating element are linked.

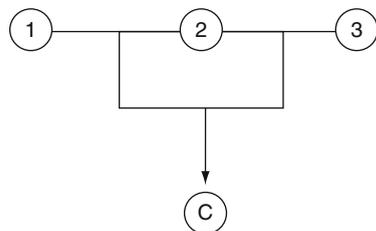
On occasion, we may see more than two premises of an argument as linked. Consider one of Lewis Carroll’s well-known sorites:

- (1) Babies are illogical.
- (2) Nobody is despised who can manage a crocodile.
- (3) Illogical persons are despised. Therefore
- (C) Babies cannot manage crocodiles. (Presented in Copi 1986, 250.)

As we all know, recasting this argument as a series of categorical syllogisms is an elementary traditional logic exercise, providing a straightforward way to check the argument’s validity. But is such recasting necessary to discern the structure of the argument? Do we need to see that (1) and (3) imply an intermediate conclusion and that conclusion together with (2) implies (C)? Or can we see that the *three* premises *together* imply the conclusion? Applying a test analogous to David Hitchcock’s phenomenological test to disconfirm the presence of suppressed premises in enthymemes (See Hitchcock 1985, 86) I believe will show that we infer the conclusion in one step from the three premises together. The licence of this inference contains two mediating terms:

From	All S are M_1
	No M_2 are P
	All M_1 are M_2
We may take it that	No S are P

Fig. 6.1



Intuitively, should we not regard as proper diagramming the argument as having three premises linked together to support the conclusion as in Fig. 6.1, rather than diagramming the argument’s reconstruction as a chain of syllogisms as in Fig. 6.2?

Intuitively, is not the structure of this argument linked, as is the structure of *Modus ponens* arguments?

We believe we have said enough to motivate sufficiently our statement of this refined criterion for identifying linked argument structure:

An argument involves linked structure if and only if two or more premises of the argument directly support a conclusion and the leading principle or inference licence of the subargument consisting of those premises and conclusion contains at least one mediating element.⁵

In (1996), Walton presents what he regards as two key counterexamples to certain tests for distinguishing linked from convergent structure. Intuitively, the first argument is linked and the second convergent. How does our criterion fare in dealing with these arguments? Here is the first:

Bob is wearing a yellow shirt.

Bob is wearing a green tie.

Therefore, Bob is wearing two items of clothing that are not red. (Walton 1996, 135)

This is a very interesting argument, not least because it is open to two analyses—one gross and one refined. A gross analysis identifies the argument just with what is manifestly stated, two premises and a conclusion. Although “*x* is wearing *y*” is an element shared by both premises, it is not a mediating element since it also occurs in the conclusion. On the gross analysis, the argument is convergent. This seems intuitively plausible, since the information that each premise gives—that Bob is wearing something non-red—seems obviously relevant to the conclusion. But we agree with Walton’s intuitions that the argument is linked. We shall argue that this judgment agrees with our criterion, provided that we understand the argument according to the refined analysis.

On the gross analysis, we have a non-demonstrative evidence accumulating argument. But we find the argument deductively valid. To recognize its validity, we have to recognize certain conceptual connections between “yellow,” “green,” and

⁵Notice that the mediating element occurs in the inference rule. In the sequel, we shall frequently speak of mediating concepts occurring in arguments, for example a middle term of a categorical syllogism. We can recognize the middle term as a mediating concept by inspecting the syllogism, but it is because the syllogism instances a form with a mediating element that the middle term constitutes a mediating concept. We say this because, as is well known, arguments may instance a number of forms. If an argument instances a form with a mediating element, it counts as linked, even if it instances some other form which does not have a mediating element according to our definition. So, for example, where “P” abbreviates “The Pope visited the United States in 2008,” the argument

P

P \supset P

Therefore P

is linked, since it is an instance of *Modus ponens*, although *Modus ponens* is not the specific form of the argument. Some might find this example a hard case for determining whether it is linked or convergent, but we trust that counting it as linked is not unintuitive.

“red,” i.e. that they are mutually exclusive properties, and between mutually exclusive properties and non-identity. To say that an item is yellow (i.e. yellow all over) is to say that it is not any other color, i.e. it is distinct from any item of another color, in particular that it is distinct from any item which is green or red. We may say likewise of the color green. So introducing the following symbolization key:

Wxy: <i>x</i> is wearing <i>y</i>	Rx: <i>x</i> is red
Yx: <i>x</i> is yellow	Tx: <i>x</i> is a tie
Sx: <i>x</i> is a shirt	Cx: <i>x</i> is an item of clothing
Gx: <i>x</i> is green	b: Bob

we may say that someone who asserts the first premise of the argument on the refined analysis understands that the first premise by itself analytically entails

$$(\exists x)(Wbx \ \& \ [Yx, \ \& \ Sx] \ \& \ [\sim Gx \ \& \ \sim Rx])$$

Likewise, the second premise is understood to entail analytically

$$(\exists y)(Wby \ \& \ [Gy \ \& \ Ty] \ \& \ [\sim Yy \ \& \ \sim Ry])$$

The conclusion

$$(\exists x)(\exists y)([Wbx \ \& \ Wby] \ \& \ [Cx \ \& \ Cy] \ \& \ x \neq y \ \& \ [\sim Rx \ \& \ \sim Ry])$$

is inferred from these two entailed statements. But clearly this argument has two mediating concepts, “yellow” and “green.” On the refined analysis, the argument is linked.

Now let’s consider Walton’s other key counterexample:

Bob likes red a lot.

Linda thought she saw Bob, and it looked like he was wearing a red tie.

Therefore, Bob is wearing a red tie. (Walton 1996, 136)

Walton find this argument convergent. “Each premise provides a small amount of support for the conclusion, independently of the other premise” (Walton 1996, 136). It is precisely because we can recognize this independent support that we can see that our criterion also rules this argument as convergent. A separate leading principle sanctions the more from each premise to the conclusion.

From *x* likes red a lot
To infer, all things being equal, *x* is wearing a red tie

(and an awful lot of things better be equal!)

From it looked to *y* as if *x* was wearing a red tie
To infer, all things being equal, *x* is wearing a red tie

Although the premises share an element, it is not a mediating element according to our definition, because it also occurs in the conclusion. No two-premise inference rule with a mediating element licences the move from both premises together to the conclusion in this argument. It is convergent, not linked. Our criterion survives Walton’s two key counterexamples with flying colors.

Our reader may have a critical question at this point. According to your criterion, instances of the Fallacy of Four Terms are not linked.

All mammals are animals.
 No cats are dogs.
 Therefore no mammals are dogs.

The warrant of this argument is

From All A are B
 No C are D
 To infer No A are D

and here there is no mediating element. But categorical syllogisms are linked arguments. Intuitively, then, should not these fallacies be counted as linked? In reply we ask—Does it really matter? It does not, from the point of view of argument evaluation, for which analysis is preparatory. Neither premise by itself need be relevant to the conclusion, and putting them together does not yield a relevant reason either. A number of texts would not even count this argument as a categorical syllogism. To be sure, it does bear a family resemblance to standard form categorical syllogisms, and some books would count it as a categorical syllogism. Perhaps if one’s intuitions that this argument were linked were overpoweringly strong, one could say that this family resemblance created a penumbra. Arguments falling within the penumbra are linked also. One could say this, but notice then that although our criterion states a sufficient condition for an argument to be linked, it no longer states a necessary condition. One would have to state that an argument is linked either because it satisfies the criterion as stated or it falls within the penumbra of the criterion by virtue of its family resemblance to arguments which satisfy the criterion. That is a significant complication of our characterization of linked argument—and we have not even spelled out how one might determine the boundaries of the penumbra. Is it worth it?

6.2 Tests for the Linked-Convergent Distinction on Walton’s Systematic Presentation

In [Chapter 5](#), we considered Walton’s formulation of four tests for making the linked-convergent distinction, arranged along two axes: the Falsity-Suspension axis and the No Support-Insufficient Proof axis. For convenience of reference, we restate the tests here:

Falsity/No Support (*Fals./No Supp.*) Test: *If one premise is false, the conclusion is not given any support.*

Suspension/Insufficient Proof (*Susp./Insuf. Prf.*) Test: *If one premise is suspended (not proved, not known to be true), the conclusion is not given enough support to prove it.*

Falsity/Insufficient Proof (*Fals./Insuf. Prf.*) Test: *If one premise is false, the conclusion is not given enough support to prove it.*

Suspension/No Support (*Susp./No Supp.*) Test: *If one premise is suspended (not proved, not know to be true), the conclusion is not given any support.*

(Walton 1996, 119–120, italics in original. In each case, we understand that no support or insufficient support is given by the remaining premises.)

From the standpoint of the last section, we may criticize all of these tests, along with Degrees of Support Tests such as Yanal’s for ordinary versus non-ordinary summing in linked arguments (See p. 116), for attempting to do a syntactic job through semantic means. Support, be it deductive validity or some weaker notion, is a semantic concept. Although possibly agreeing with our criterion in some cases, we might expect that just because they are drawing the distinction with improper tools, the results of particular tests will be open to objections or to be unintuitive on occasion. The *Susp./Insuf. Proof* test apparently agrees with our criterion in some cases. Remember that we are understanding the point of the test to identify linked arguments. Consider any Syllogism in Barbara. Suspend either premise in

All M are P.
All S are M.
Therefore, All S are P

i.e. consider the arguments

All M are P.	All S are M
Therefore All S are P.	Therefore All S are P.

The syllogism is deductively valid. These arguments are manifestly invalid. Invalid deductive arguments do not properly support their conclusions. That the syllogism is linked on the *Susp./Insuf. Proof* test seems an open and shut case.

But is it? Walton has pointed out that the concept of “sufficient support” is vague. We ask—Insufficient for whom or from what point of view, i.e. set of leading principles according to which that person makes inferences together perhaps with that person’s set of propositional commitments? Consider the left-hand argument. Suppose a challenger who receives the argument reasons according to the rule:

From x is S
To infer x is M

She does not know that all M are P, but trusts the arguer. Does the single premise, in light of the inference rule, constitute sufficient support to prove the conclusion? Upon properly sufficient reflection, i.e. understanding what is overtly asserted and explicitly formulating the leading principle either as a proposition or a rule, it seems plausible that the challenger would agree. The case is symmetric for the right hand argument. Is our syllogism convergent from this challenger’s point of view? By contrast, on our criterion the two premises of the syllogism share a mediating element.

The argument is linked. Questions of deductive validity or sufficiency or insufficiency of support from our point of view are irrelevant to making that judgment, and can be reserved for the evaluation stage.

Now consider an inductive enumeration argument with a large number of premises, say fifty:

x_1 is S and x_1 is P
 x_2 is S and x_2 is P
 •
 •
 •
 x_{50} is S and x_{50} is P
 Therefore All S are P.

Since S and P both appear in the conclusion, neither of them are mediating concepts and the argument is convergent according to our criterion. If one of these premises were removed (suspended), the remaining forty-nine still might be sufficient and the Susp./Insuf. Proof test would also rule the argument convergent. But will the forty-nine positive instances be sufficient? It all depends on the relevant variety of the class of S's. As is standardly recognized, if the class is relatively homogeneous, we expect forty-nine will do. But if S is significantly varied, fifty instances might be a bare minimum for possibly getting a representative sample. So in this case forty-nine instances will *not* be sufficient and the fifty premise inductive argument is linked according to the Susp./Insf. Proof test. Hence, although inductive enumeration constitutes one pattern or form of argument, some inductive enumeration arguments will be linked and others convergent, depending on the relevant variety of the subject class, according to the Susp./Insuf. Proof test. But even with the *same* subject class, according to the criterion some inductive enumeration arguments will be linked and others convergent. Suppose S is sufficiently varied that fifty instances are necessary for a representative sample. Add one extra instance to the premises. We now have a fifty-one premise argument. Suspend one of those fifty-one premises. The resulting 50 premise argument is sufficient to properly support the conclusion. So the 51 premise argument is convergent while the 50 premise argument is linked! This seems unacceptably anomalous. To know whether a simple inductive enumeration argument is linked or convergent, one must have information about the minimum size for a representative sample. Whether a sample is representative is a significant evaluative question, and as such it should not be made a prerequisite for argument analysis. As Walton points out, the Susp./Insuf. Proof test is advanced by the pragma-dialectical school. It is designed to mark the multiple-co-ordinatively compound distinction, not the convergent-linked distinction. But distinguishing multiple from co-ordinatively compound arguments is making not a syntactic but a semantic and pragmatic distinction. It is no mark against this test that it yields anomalous results when applied to a distinction it was not designed to test.

However, taking the Susp./Insuf. Proof test to be making the linked-convergent distinction, we can see how tying discriminating these structures to sufficiency

or insufficiency of proof involves the test in another anomaly Walton notes. (See Walton 1996, 154.) Consider any multiple-premised argument where each premise independently of the others gives some small amount of support to the conclusion, but even when all are taken together we do not have sufficient support. Since the various premises are independently relevant, we would be inclined to count the argument as convergent. But since by suspending any premise, the remainder are not sufficient to prove the conclusion, the Susp./Insuf. Proof test apparently counts it linked. But why do we judge the premises as individually relevant to the conclusion? We perceive the independent relevance because for each premise *our* stock of inference licences contains a one-premise warrant sanctioning our step from that premise to the conclusion. Taking the premises pairwise, would we find any sharing mediating concepts, the argument instancing a two or more premise inference rule requiring us to link these premises? But then we recognize the independent relevance of these premises syntactically. The *amount* of their support, simply or together, is beside the point for this judgment.

The examples we have already entertained show that the Fals./No Supp. and the Fals./Insuf. Prf. tests may also yield anomalous results. Consider our inductive enumeration argument. If in fact one of those fifty premises is false because we have something which is an S yet not a P, the conclusion is false. The strength of the argument, and indeed the strength of the argument from the remaining forty-nine premises in light of this falsity is defeated, and the rebuttal cannot be countered. So according to either test, the argument is linked. But clearly, each premise concerns a distinct instance confirming the generalization. Why do we perceive this independent relevance of each premise to the conclusion? Is it not because our stock of warrants contains the one-premise rule

From x is S and x is P
To infer, *ceteris paribus*, All S are P.

We understand that our *ceteris paribus* clause requires that *all* things *really* be equal, i.e. this is a weak rule. But its weakness does not gainsay that it renders each premise recognizably individually relevant to the conclusion for those whose sets of warrants contain this leading principle. Notice that again, we make this judgment without any appraisal of the amount of support the premises give to the conclusion or, in this case, any appraisal of truth-values for the premises, both semantic issues.

Walton points out that the Fals./No Supp. test also fails to deal properly with his first key counterexample. (See p. 139.) If either “Bob is wearing a yellow shirt” or “Bob is wearing a green tie” is false, the claim that Bob is wearing two items of clothing that are not red still has some support. So on the Fals./No Supp. test, the argument is convergent. Intuitively, however, it is linked. Again, we can locate the problem with the test in trying to make a syntactic distinction through semantic means. The issue is not whether an individual premise by itself supports the conclusion should the other be false, but what warrant or warrants authorize the step from premises to conclusion and whether that warrant involves a mediating concept. As we saw, making that determination in this case involved interesting subtleties, but our criterion confirmed our intuition that the argument was linked.

Further, by tying the test for linked structure to support, the Susp./No Supp. test opens itself to some straightforward counterexamples. Consider a quasi-syllogism of the form

All S are P.
 Sa
 Therefore Pa

Intuitively such an argument is linked. Inspecting the argument shows immediately that S is a mediating concept and so the argument counts as linked by our criterion. But suppose the claim that all S are P is part of common knowledge to the extent that the inference licence

From x is S
 To infer x is P

is standardly part of one’s stock of inference licences. Suspend the universal premise. By virtue of this inference licence, the second premise still supports the conclusion. So is the argument convergent? We submit that our considerations concerning each of these four tests show our point. The tests open themselves to rendering counterintuitive judgments and to counterexamples because they attempt to characterize a syntactic distinction through semantic means. The problem is not with the distinction but with using the wrong tools to test for it.

Finally, as we have noted, Walton considers a fifth type of test, the Degrees of Support test. Quoting (Yanal 1988, 42–43), he gives this characterization:

“Reasons are *dependent* [linked] when together they make the overall strength of the argument *much greater* than they would considered separately.” Reasons are *independent* (convergent) “when together they *do not* make the overall strength of the argument much greater than they would if considered separately”. (Walton 1996, 127, italics in Walton)

Here again, a test draws the linked-convergent distinction through semantic means. The test seems intuitive. Each premise of a convergent inductive enumeration or evidence-accumulating argument only incrementally increases the support for that conclusion, while putting the two premises of a linked deductively valid categorical syllogism together causes their joint support to “leap” from the sum of the support each individually gives to certainty. But there are significant problems with the test, as Walton points out (Walton 1996, 128–130). It is quite possible for the test to yield results which we would judge counterintuitive and indeed just plain wrong. According to Yanal, given a two-premise argument, we may obtain the “ordinary sum” of the probability of its conclusion given each of its two premises through the formula

$$\Pr(C/P_1 \ \& \ P_2) = \Pr(C/P_1) + [\Pr(C/P_2 \times (1 - \Pr(C/P_1))]$$

Consider our disjunctive syllogism example above. (See p. 116.) Walton asks us to suppose that

The conditional probability of the conclusion given each premise individually is very high, say 0.9. Then the probabilities summed in the ordinary way

are $0.9 + (0.9 \times 0.1) = 0.9 + 0.09 = 0.99$. But the argument is deductively valid, so the probability of the conclusion given both premises is 1.0. Here, the probability of the conclusion does not increase very much (0.01). So, it appears that, by the summing test, the argument is not linked. However, [the argument] has the form of a disjunctive syllogism, indicating presumably that it is a linked argument. (Walton 1996, 129)

Again, as is obvious, seeking to quantify support through numerical probability values makes the Degrees of Support test semantic. Walton's counterexample shows that again a semantic test gives a highly unintuitive answer, one we can see highly unintuitive by applying our relevance criterion and recognizing immediately (or with a little help from elementary sentential logic) that "not being in the bedroom" is the mediating concept.

Although recognizing that the Degrees of Support test has distinct problems, Walton still favors the test over the other four discussed. "If a working test based on numerical values of degrees of support to be assigned to arguments is wanted, then the summing test is the appropriate test to be used" (Walton 1996, 180). That is a big "if," Walton recognizes, for there are many cases where we cannot assign such probability values, nor does the test specify how great must be the leap to count as showing linked rather than convergent structure. To use the test in determining whether a two-premise argument is linked or convergent, Walton recommends this procedure: First, determine the degree of support just one of the two premises gives the conclusion. Then determine the degree of support the other premise alone gives the conclusion. Add these two results together. Then determine the degree of support of both together. "If there is a significant jump from the first joint degree of support to the second, the argument is linked. Otherwise, it is convergent" (Walton 1996, 181–182). Applying the test then to a two-premise argument involves three evaluations.

We should already suspect something wrong here. Determining whether an argument is linked or convergent is part of argument analysis. Analysis precedes evaluation. But here we need three evaluative procedures to carry out our analysis. Walton's next directive is more troubling yet. He generalizes to any number of premises, two or more. "You need to consider all non-empty subsets of all the premises, grouping those subsets together as linked where the degree of support goes up significantly when the test is applied" (Walton 1996, 182).

So for a three-premise argument, seven procedures are required. For a four premise argument, we need fifteen procedures. In general, for an n -premise argument, $n \geq 2$, we need $2^n - 1$ evaluation procedures! If that be the case to determine whether an argument is linked or convergent, one incurs a significant burden of proof to show why we need to make the linked-convergent distinction. To be fair to Walton, he states that the test should be seen as an adjunct indication, other textual and contextual features ordinarily being primary. But in the light of this complexity, together with the other problems of the test, one can legitimately question its usefulness. All of this is avoided by our syntactic criterion. Inspecting the argument indicates the presence of mediating concepts, if any, and premises are seen as linked as they pairwise share mediating concepts.

Of all the five tests Walton discusses, our criterion is clearly closest to the Susp./No Supp test. That, indeed, is how he understands it. (See Walton 1996, 113.) Walton believes that the test finds a counterexample in an argument distinctly parallel to the counterexample we presented above for this test. (See p. 145.) The example appears in (Copp and Cohen Eighth Edition 1990, 20):

If an action promotes the best interests of everyone concerned, and violates no one's rights, then that action is morally acceptable. In at least some cases, active euthanasia promotes the best interests of everyone concerned and violates no one's rights. Therefore, in at least some cases active euthanasia is morally acceptable. (Quoted in Walton 1996, 110.)

Intuitively, this argument appears linked, but the Susp./No Supp test may rule it convergent, since the second premise at least seems to support the conclusion independently. However, immediate inspection shows that "promoting the best interests of everyone concerned and violating no one's rights" is a mediating concept, the form **AII-1** being the warrant. On our criterion, the argument is linked and poses no counterexample.

Now, as noted above, in my text (1988) I proposed an intuitive test, not to be construed as a formal criterion, for the linked-convergent distinction: Block one premise completely out of your mind. Does the other (or do the remainder) still give a reason for the conclusion? If yes, the argument is convergent; in no, linked. Now for pedagogical purposes, we may still want to propose such a test. If analysis precedes evaluation, then one would expect that a discussion of analysis would precede a discussion of evaluation in a basic text. Thus we cannot expect a student to know anything of inference rules or middle terms of syllogisms, generalizable to mediating concepts. As an introductory pedagogical test, we might expect it to have something of a rough and ready character. In particular, what does it mean to block premises completely out of your mind?

Given our previous discussion, we can readily explicate what we mean. Sticking with the active euthanasia example, given our model of arguments as products generated through dialectical situations, blocking the universal premise completely out of one's mind amounts to this. We may imagine the argument arising through the following dialectical exchange:

PROPONENT: Some cases of active euthanasia are morally acceptable.
 CHALLENGER: Why?
 PROPONENT: Some cases of active euthanasia promote the best interests of everyone concerned and violate no one's rights.
 CHALLENGER: Why is that relevant (to moral acceptability)?
 PROPONENT: All actions which promote the best interests of everyone concerned and violate no one's rights are morally acceptable.

Now, although it seems a matter of common knowledge that promoting the best interests of everyone concerned and violating no one's rights are *prima facie* reasons for saying that an action is morally acceptable, we can imagine that the challenger has never learned of these connections. According to her moral education, right and wrong are determined by specific deontic directives or principles—Stealing is

wrong. Promise-keeping is right—where none of these directives have any consequentialist content. Likewise, although she has a notion of right, she has no notion of *rights*. Consequently, her stock of inference habits contains none which connect promoting best interests or violating no rights with moral acceptability. The poor dear does not see why the proponent’s first presented premise is in any way relevant to his conclusion and thus she asks the relevance question, prompting the proponent’s advocating the universal premise. Taking the challenger’s perspective in this case is what it means to block that premise completely out of one’s mind.

Such blocking is distinctly more radical than what Walton interprets blocking the premise from one’s mind to be, “suspending the other premise (not knowing or assuming it is true or false)” (Walton 1996, 153). This still would allow recognizing some weaker inferential connections. Again, if our challenger had absolutely no idea whatsoever that any cases of active euthanasia could promote the best interests of everyone concerned or not violate human rights, she would not see why the universal premise, by itself, was relevant to the conclusion. Properly understood, then,⁶ our test gives the correct result. We feel it would be best to call this test the Suspension/No Reason in Itself test.

6.3 Complementary Arguments—a Third Structure Beside Linked and Convergent?

Walton (1996, 133–134) points out that Pinto and Blair in unpublished work cited by Snoeck Henkemans (1992) distinguish linked, cumulative, and complementary arguments. Their definition of a linked argument, “Each premise is needed, and no single premise taken by itself supports the conclusion” (cited in Walton 1996, 133–134), seems a conventional intuitive—and semantic—definition of linked structure. Likewise, their definition of cumulative arguments could serve as an intuitive semantic definition of convergent arguments: “Each premise alone lends some support to the conclusion, but with each additional premise the amount of support in question gets stronger and stronger” (cited in Walton 1996, 314). Finally, in complementary arguments, “Some premises complete others” (Walton 1996, 134). To appreciate what Pinto and Blair mean by some premises *completing* others, we may need an example. Walton cites the following argument:

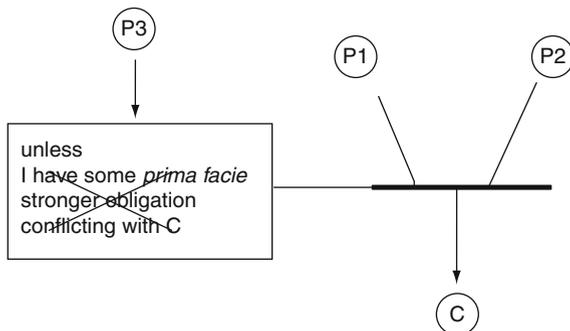
(P1) I promised my girlfriend I’d take her to see the latest Woody Allen movie tonight. (P2) She’ll be really disappointed if I don’t go to that movie with her, and (P3) I don’t have any excuse for not doing so. So I guess (C) I should take her to see that movie tonight. (Walton 1996, 134)

Walton sees the identification of a third type of structure as significant, and thus as potentially raising an objection to our dichotomously distinguishing linked versus convergent structures. But have Pinto and Blair really identified an additional type of structure? We see (P3) as replying to a rebutting defeater, and thus as being a

⁶Walton admits he may not be understanding our test correctly. See Walton (1996, 153).

counter-rebuttal. (P1) and (P2) present distinct *prima facie* reasons why I should take my girlfriend to see the latest Woody Allen movie tonight, i.e. why it is a *prima facie* duty for me.⁷ But a *prima facie* duty can be outweighed by some more significant obligation. (P3) replies to the challenger’s implicit or anticipated question of the how the proponent can be sufficiently sure of his conclusion, that he has an overriding duty to take his girlfriend to the movie, given the possibility of a more significant obligation. Unlike (P1) and (P2), which constitute premises of the core argument, (P3) takes us to the dialectical tier. We may diagram the argument as in Fig. 6.3:

Fig. 6.3



At the level of the core argument, we need not distinguish complementary arguments. However, core arguments can be incorporated into arguments countering defeaters. We believe our recognizing counter-defeaters accommodates Pinto and Blair’s intuitions concerning complementary arguments. However, since, as Snoeck Henkemans points out (1992, 30), what Pinto and Blair mean by premises complementing or completing a reason given in another premise is not clear, we cannot vouch that they would accept our analysis.

6.4 Further Critiques, Clarifications, and Replies

Various authors have raised critical questions for our approach to the linked-convergent distinction. These range from presenting a challenging example for the distinction (Bassham 2002), to arguing that we must admit an additional type of structure (Vorobej 1995), to challenging our presupposition that analysis precedes evaluation (Gratton 2002), to challenging our making the distinction on relevance grounds (Fisher 1992, Conway 1991, Goddu 2007a), to proposing a method for evaluating arguments which avoids making the distinction, as evidence that we need not

⁷We disagree with Pinto and Blair’s analysis, which sees neither (P2) nor (P3) as presenting an additional reason “of the same kind” Snoeck Henkemans (1992, 27) as (P1). (P1) concerns an explicit *prima facie* duty of fidelity, while (P2) concerns a *prima facie* duty of sympathy, specifically a *prima facie* duty of non-maleficence. (See our account of *prima facie* duties in Freeman (2005), 242–44. We are, of course, following Ross’s account in (1930) of *prima facie* duties.)

make the distinction at all (Goddu 2007b). Each of these claims calls for a response. We believe that we have here ordered them in ascending order of seriousness, and shall address them in that order.

6.4.1 *Bassham's Challenging Example*

In (2002), Bassham suggests that classifying arguments with redundant premises may pose special problems if one holds in effect a Suspension/Insufficient Proof or No Support Test. He presents this example:

1. If either Fred is an uncle or Fred is a father, then Fred is male.
2. Fred is an uncle.
3. Fred is a father.
4. So, Fred is male. (Bassham 2002, 72)

Intuitively, this argument seems linked, but what is the mediating concept? If (2) and (3) were replaced by

- 2.5. Fred is either an uncle or a father

there would be no question that “ x is an uncle or x is a father” would be the mediating concept and the argument unproblematically linked on our criterion. Since both (2) and (3) entail (2.5), as stated, Bassham points out, they are redundant. Either could be omitted. But if either was omitted, it would be totally straightforward to identify the mediating concept, either “ x is a father” or “ x is an uncle,” depending on whether (2) or (3) were omitted. In light of this, it would be best to say that both of these are mediating concepts in the original argument. Both are shared by two premises and neither concept appears in the conclusion. Our criterion straightforwardly confirms our intuition that the argument is linked.

6.4.2 *Must We Admit an Additional Type of Structure?*

Mark Vorobej in (1995) and (2006) has argued for recognizing hybrid arguments as an additional structure besides linked and convergent. In (1995), he introduces this claim with the following example:

- (1) All the ducks that I've seen on the pond are yellow.
- (2) I've seen all the ducks on the pond. [Therefore]
- (3) All the ducks on the pond are yellow. (Vorobej 1995, 291)

For Vorobej, this argument is not linked, given his definition of linkage:

A set of premises Δ forms a *linked set* iff

- (1) Δ contains at least two members,

- (2) Δ is relevant to C, and
- (3) no proper subset of Δ is relevant to C. (Vorobej 1995, 290)

Since premise (1) by itself gives some inductive support for (3), {1} is relevant to C and thus {1, 2} does not satisfy Vorobej's criterion for linkage. (2) however is irrelevant to (3), and so {1, 2} does not constitute a convergent set of premises. On the other hand, when (1) is taken together with (2), we have a deductively valid argument, obviously stronger than the argument from (1) to (3). Vorobej sees (2) supplementing (1) and offers this definition of supplementation:

A set of premises Σ supplements [the support] a set of premises Δ [gives to conclusion C] if

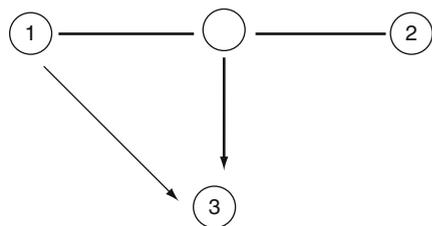
- (1) Σ is not relevant to C
- (2) Δ is relevant to C
- (3) $\Sigma \cup \Delta$ offers an additional reason R in support of C, which Δ alone does not provide, and
- (4) Σ and Δ are the smallest sets yielding R which satisfy clauses (1), (2), and (3). (Vorobej 1995, 292)

Clearly according to this definition, {2} supplements {1}, and thus Vorobej's example satisfies his criterion for hybrid arguments:

An argument A is a *hybrid* iff A is simple [has only one conclusion] and contains at least one supplemented (or supplementing) set. (Vorobej 1995, 293)

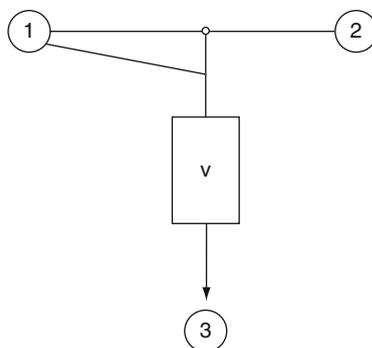
Vorobej holds that our diagramming method must be able to represent this supplementing relation and thus must be expanded to treat hybrid arguments. He proposes the following diagram in Fig. 6.4 for his example above:

Fig. 6.4



(see Vorobej 1995, 293.) Here the arrow from (1) to (3) indicates that (1) by itself supports (3). But the diagram also shows that (1) is supplemented by (2) and together they also support (3). In (2006), Vorobej would represent the structure as

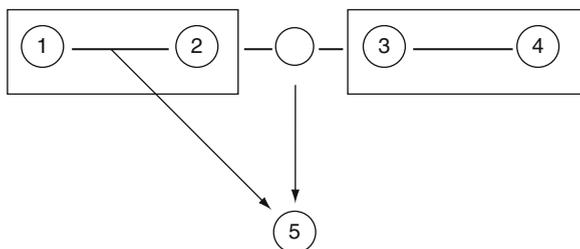
Fig. 6.5



The “v” in the modality box indicates that the argument is valid.) In (2006), Vorobej adds explicitly that the premise set of a hybrid argument is relevant to its conclusion. He further argues that since the supplementary reason builds on an already presented relevant reason, the support relation from that relevant reason to the conclusion be represented in the argument diagram. The argument presents two reasons for (3)—(1) and (1) supplemented by (2).

In this example, supplementing and supplemented sets are both singletons. Should either have more than one member, Vorobej directs that the representations of the elements of the set be enclosed in a rectangle in the diagram. For example, See Fig. 6.6:

Fig. 6.6



(See Vorobej 1995, 294.) The diagram indicates that {1, 2} linked support (5), but are supplemented by {3, 4}. The supplemented set may also have convergent structure.

What may we say to Vorobej’s proposal? On our approach, his illustrative example is linked, since we read it straightforwardly as an instance of AAA-1.⁸ Notice

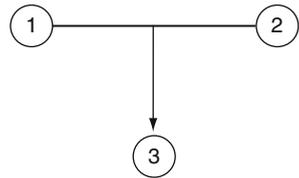
⁸With the other examples in (1995), we also see the supplementing premises linked to the supplemented premise, with one exception.

(1) My duck is yellow.

(2) Almost without exception, yellow ducks are migratory.

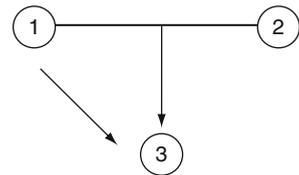
that to recognize an argument as hybrid one needs to recognize that some subset of the premises is relevant to the conclusion, but when supplemented offers an additional reason for that conclusion. This raises a question for our approach. Is a single linked diagram for Vorobej’s argument adequate to portray its logical structure? Should we diagram the argument as linked as in Fig. 6.7

Fig. 6.7



or should we include an additional arrow from (1) to (3) directly as in Fig. 6.8?

Fig. 6.8



We argue that the additional arrow is unnecessary. We see our difference with Vorobej being one of priorities in interpreting argument texts. Whereas Vorobej first sees (1) supporting (3) independently, then supplemented by (2), we see the fact that the argument consisting of (1) and (2) as premises supporting (3) constitutes an instance of Syllogism in Barbara, a two premise rule with a mediating element, as sufficient indication that the proponent of the argument intends the premises to be taken together in supporting the conclusion. That one may see that the argument from (1) to (3) instances the warrant

From All (by me) observed S are P
 To infer All S are P

is secondary. We have no indication from the text itself that the arguer intends (1) by itself to constitute an additional reason for (3). That absence we regard as a sufficient reason for not including an arrow from (1) to (3) in our diagram. In reviewing the examples Vorobej presents in (Vorobej 2006, 271–287) to further illustrate and substantiate how a subset of the premises relevant to the conclusion can be supplemented by some further premise or premises to form a stronger reason for the

-
- (3) My duck is no exception to any rule. (Therefore)
 - (4) My duck migrates.

Here we see the supplementing premise (3) not as linked to (1) and (2), but as a counter-rebuttal to the anticipated rebuttal that my duck may be an exception.

conclusion, again in each case we see the entire premise set as linked. We leave the verification of this point to the interested reader, That a subset of a set of linked premises may also instance some further rule rendering that subset relevant to the conclusion does not show that the author intended to use that rule in reasoning for the conclusion.

That we see the linked diagram in Fig. 6.7 as sufficient points to a deeper difference we have with Vorobej. We regard analysis as preceding evaluation. Vorobej's defining hybrid arguments is very much in line with his approach in (1994), where he argues that evaluation may precede analysis (Vorobej 1994, 153). Understanding relevance as giving at least some support, one sees that (1) is relevant to (3) and that (1) supplemented by (2) gives an even stronger reason for (3). One is carrying out one's evaluation first, and then applying the results to discern the structure, rather than analyzing the text syntactically. To find a consideration which might tip the balance in favor of our approach over Vorobej's, I would appeal to considerations in line with the principle of charity. The linked argument is stronger than the argument from just the supplemented part. By understanding the proponent as presenting one linked argument, we are giving his argumentation its strongest possible interpretation, not also attributing to him a weaker inferential move. That a proper subpart of the argument may also support the conclusion is accidental, from our viewpoint.

Vorobej might object: Suppose the proponent has presented an argument which instances a multi-premise inference rule with one or more mediating elements which nonetheless is deductively invalid. Yet, one or more of the premises separately give some evidence for the conclusion. It would seem that charity would not require us to see the argument as linked. We reply that in such a case, the issue is still the question of the proponent's intentions. Did the proponent intend to present a number of independent considerations which only accidentally instance an invalid form or did the proponent actually intend to present an instance of this form? We expect that this question can only be determined on a case-by-case basis. In the former, we have a convergent argument, in the latter, linked. But in neither case do we need to supplement our means of structural analysis to accommodate hybrid arguments.

6.4.3 Does Analysis Always Precede Evaluation?

Throughout our discussion, in particular in our critique of the five tests Walton has examined critically, we have assumed as obvious our maxim that analysis should precede evaluation. Claude Gratton (2002) has challenged this maxim, claiming that evaluation is necessary to properly distinguish premises from conclusions in certain arguments, to determine whether some passages actually are arguments, and to correctly determine whether an argument has linked or convergent structure.⁹ Suppose we are told that a passage presents an argument, but the passage contains no logical

⁹Gratton indicates that his view runs against the pedagogical presuppositions of many textbooks, and provides an impressive list of texts presenting analysis before evaluation.

indicators. Suppose the passage consists of just two sentences. How do we distinguish the premise from the conclusion? As Gratton points out, a standard technique is to insert “therefore” before each sentence in turn, perhaps also transposing the order of the sentences, and seeing which result makes sense. Gratton then seeks to make his point: Labeling the two sentences in the passage as (a) and (b),

In order to arrive at the interpretation that “makes the most sense”, one must do three things: evaluate the support of (a) for (b); evaluate the support of (b) for (a); contrast the support in each case, and identify the interpretation that results in the strongest support”. (Gratton 2002, 3)

Suppose now we are not told whether a passage presents an argument, but again the passage contains no logical indicators. It may still nonetheless be the text of an argument. How do we tell? According to Gratton, “We must evaluate the passage *as if* [it] were an argument” (Gratton 2002, 3). As I understand him, Gratton wants us to take various subsets of the set of statements constituting the passage. If such a subset Γ only weakly supports some further statement C , then the principle of charity dictates that we should not construe $\langle \Gamma, C \rangle$ as an argument. By contrast, if Γ should lend greater than moderate support to C , “the more charitable it becomes to interpret the passage as an argument” (Gratton 2002, 4)—at least to interpret $\langle \Gamma, C \rangle$ as an argument. Not merely recognizing reasons, but recognizing strength of reasons is necessary in some cases to determine whether to identify a passage as an argument and to separate the premises from the conclusion.

I disagree. First, people can put forward bad arguments, weak or even fallacious. The principle of charity should not require us to judge that someone has not argued when indeed they have, albeit poorly. But how do we recognize whether one statement is a reason for another or is being put forward as a reason for another? I submit that it is by virtue of our inference habits together with our recognition of what others might take as reasons (even though fallacious). In particular, if a passage contains a controversial statement, if our inference habits, even though tacit, let us see that other statements in the passage are reasons for that claim (even weak reasons, where the probability is low that all things are equal), and should the statements presenting reasons be juxtaposed in the passage with the controversial claim,¹⁰ we are justified in counting the passage as an argument, recognizing the reasons as premises and the claim as a conclusion. These judgments involve no weighing or determining the strength of reasons, a semantic exercise. Seeing something as a reason because of some underlying inference habit or recognizing some reasoning pattern, we see as responding to syntactic and perhaps other textual clues.

In commenting on Gratton’s paper, Charles Blatz makes essentially the same point, although from a different perspective. Gratton has asked us to consider the argument

- (a) The streets are very slippery.
- (b) Lynn should not ride her bike. (Blatz 2002, 3)

¹⁰Compare our discussion in Freeman (1988, 25).

Which statement is the premise and which the conclusion? Clearly, inserting “therefore” before (b) makes more sense than inserting it before (a). So here we have an argument from a factual premise to a normative conclusion. What is involved in asking our students to make this judgment?

We are trying to trade upon the students’ past experience, not of assessing or evaluating arguments so much as experience in contexts where they have heard lots of arguments involving so-called “factual” and “normative” assertions. Once the students place them in such a context, we expect that they will “see” [by virtue of this experience involving their own and others’ inference habits] the assertions in the right relationship and, applying the definitions [of “premise” and “conclusion”] we have given them, they will be able to label the assertions in the best way. (Blatz 2002, 4)

If students are not able to apply the premise/conclusion labels properly, we may have to expose them to a number of arguments, where factual premises support normative conclusions “so as to induce the Gestalt allowing them to interpret the relations of assertions in the proper order” (Blatz 2002, 4), i.e. we need to increase their stock of inference habits.

Turning to distinguishing linked from convergent structure, Gratton claims that three different tests occur in textbook accounts for making the distinction, the conceptual, supportive, and logical dependence tests. The conceptual dependence test is remarkably similar to the criterion we have been arguing for. One might say that one is the “negative image” of the other. The test directs us to first “identify all the central concepts in the conclusion,” then identify where they appear in the premises. “If these central concepts are in different reasons, then these reasons are dependent (linked)” (Gratton 2002, 9). Applied in the context of categorical syllogisms, the conceptual difference test turns our attention to the major and minor terms of the syllogism, while our criterion for identifying linked structure asks us to focus on the middle term. So far stated, the conceptual difference test is syntactic.¹¹ But Gratton claims that if we are to understand why when the central concepts appear in different reasons they must be linked, we need to be able to evaluate the comparative strength of arguments. He asks us to consider this example:

- (1) Knowledge is limited.
- (2) Imagination is almost limitless. Therefore
- (3) Imagination is more important than knowledge. (Gratton 2002, 10)

¹¹As it stands, the conceptual dependence test seems open to several objections. It would seem to count all instances of the rule of conjunction as linked contra to what we have argued about such arguments having convergent structure. Also, consider a sorites with at least three premises. The conclusion contains only two central concepts. These will appear in two separate premises. The test directs us to link those premises, but what about the remaining premises in which these central concepts do not appear? Do we have to make explicit the intermediate conclusions and then pair wise link premises as they share central concepts in these conclusions, representing the whole sorites as a series of linked two premise arguments? Although we may need to reconstruct the sorites as an argument with this structure for proper evaluation, does this mean that the proponent intended to assert such a series of arguments or did he intend to assert a single step argument with three (or more) linked premises?

Intuitively, we see (1) and (2) linked to support (3). Why? Gratton urges that understanding the argument as convergent would result in two weak arguments, while taking it as linked would provide one stronger argument. Hence comparative evaluation of strength of support is needed to understand the rationale for this distinction.

There are two ways of interpreting this argument and on both, the argument comes out linked according to our criterion without any appeal to argument strength to understand the rationale for the determination. One could see the argument as involving an unexpressed premise:

$$(\forall x)(\forall y)([x \text{ is limited and } y \text{ is not limited}] \supset y \text{ is more important than } x)$$

Here “ x is limited and y is not limited” is the mediating concept. But notice that both premises contain the concept “limited.” So we can see the argument as stated instancing the inference rule

From x is limited
 y is not limited
 To infer y is more important than x

But this is a two premise inference rule with a mediating concept. Although a rough and ready comparison of argument strength might serve to confirm our intuitions, I believe our intuition of linked structure is based on our interpreting the argument in either of these ways, where in both we have a multi-premised inference rule with a mediating element.

The supportive dependence test asks us to consider the strength of the conclusion and then use counterexamples to test whether *each* premise or group of premises *by itself* is sufficient for the intended degree of support for the conclusion. If a premise or group of premises is not sufficient for the intended degree of support, then it will work with (it will depend on) another (explicit or implicit) premise or group of premises to support the conclusion to its intended degree. (Gratton 2002, 11)

Gratton is here in effect presenting us with the Suspension/Insufficient Proof test, which will thus encounter the problems and counterexamples we have noted above and which Walton has documented in detail. We only add here that as stated, this test makes no distinction between modal connection and relevance linkage. According to this test, many inductive enumeration and evidence accumulating arguments will be ruled linked. Although all the premises individually may be relevant to the conclusion, only when their weight is somehow combined will they present a case strong enough for the conclusion. Those who agree that these arguments are convergent will then not accept this test.

The logical dependence test asks us to identify among the premises of an argument those which, together with the conclusion, instance a multi-premised inference rule. Those particular premises are then linked. This basically is our criterion, minus the refinement requiring sharing a mediating element. As such, it is a syntactic criterion. Now it may very well be that to teach students to recognize some familiar basic valid logical forms (and some classic formal fallacies) before discussing argument

evaluation is pedagogically useful, but this does not show that evaluation precedes analysis in considering a particular argument. Although the issue of why a form is valid or invalid is semantic and evaluative, recognizing *that* an argument (or one of its subarguments) instances a form is not in itself an evaluative judgment. Hence, in discussing none of these three tests has Gratton established his claim that evaluation needs to precede analysis.

6.4.4 *Direct Criticisms of the Relevance Test*

Fisher (1992b) questions basing the linked-convergent distinction on relevance when he notes that students “cannot easily apply Freeman’s tests ... because they have such difficulty in deciding questions of *relevance*” (Fisher 1992b, 162, italics in original). In one way, we would not expect this problem, since we agree with Govier that relevance “is so basic to thought and the development of knowledge that it is difficult to define and explain” (Govier 1985, 101) and, in light of our Peircean analysis, expect many judgments of relevance to be made virtually immediately, in light of our stock of inference habits. Part of the problem may be due to how we stated the relevance criterion in our text (1988). There we said that “When several premises present distinct, separately relevant evidence, we say they are *independent*....If an argument has convergent structure, the premises independently give support to the conclusion” (Freeman 1988, 164, 178; quoted in Fisher 1992b, 160–61). This formulation still connects the criterion to the semantic notion of support, and furthermore builds in a success grammar. Apparently a necessary condition for premises to be convergent is that they actually *do* provide support for the conclusion. It would be better to say “If an argument has convergent structure, the premises *are intended to* independently give support to the conclusion.” The absence of any mediating elements should be a sufficient sign of intention to give independent support. Whether or not a premise *is* relevant (and Fisher has raised some interesting questions here—See 1992b, 164) is a question of evaluation. Intention of independent relevance is a question of analysis, determined syntactically or textually.

Conway (1991) also expresses reservations about a relevance criterion. Suppose we see the various premises of an argument as separately relevant and diagram the argument as convergent. Yet “we cannot assess these arguments as convergent—assess the separate lines of support for a conclusion and somehow use the results to arrive at an overall evaluation—with any hope of reaching a correct overall evaluation” (Conway 1991, 148). Conway’s counterexamples readily support his point. We agree with Conway’s point, but we do not agree that it counts against taking independent versus dependent relevance as the correct way to distinguish convergent from linked argument. Recall that we have distinguished relevance linkage from modal linkage. (See p. 95.) That we may see each premise independently relevant to a conclusion (or intended as independently relevant to the conclusion), in no way implies that in evaluating the argument we should determine the strength

of each premise separately and “add” up the results. The conventional way of diagramming convergent arguments suggests this procedure, but we have indicated that the conventional way is misleading. Let’s assume Fig. 6.9 and candidly diagrams the argument we are analyzing:

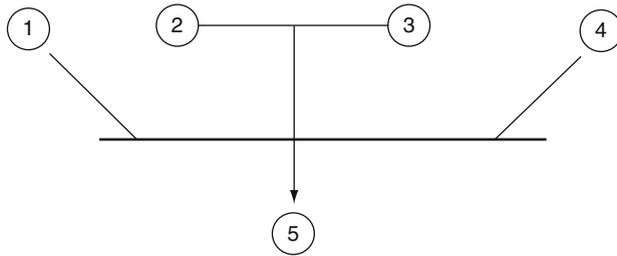
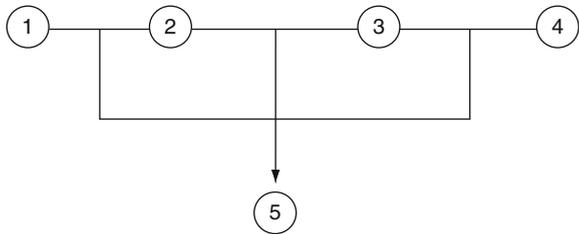


Fig. 6.9

This diagram indicates that the argument presents three independently relevant reasons for the conclusion—the second broken over two premises—but also indicates that we have one argument for (5), not three separate arguments. In determining whether the premises provide grounds adequate for the conclusion, we need to take the premises in combination.

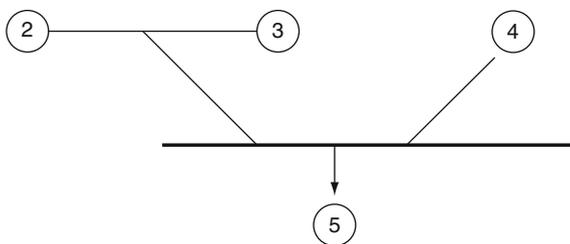
Why, then, should we not opt for one style of linkage, as Conway suggests we should (1991, 156), letting the diagram in Fig. 6.10

Fig. 6.10



represent the structure of the argument? Suppose a critical challenger recognizes that premise (1) is either false or questionable. Figure 6.10 suggests that (1)–(4) constitute one reason for the conclusion, and thus that this one reason is unacceptable because of its unacceptable component. That is, once we find premise (1) unacceptable, the entire argument has failed. Now suppose the step from (2) and (3) to (5) instances some reliable two premise inference rule with mediating element. A challenger may judge that (2) and (3) are intended to be linked and that they *are* relevant to the conclusion. Suppose (2) and (3) are both acceptable and (4) is both acceptable and relevant to (5). Hence whether the argument is cogent amounts to whether the argument without premise (1) (See Fig. 6.11)

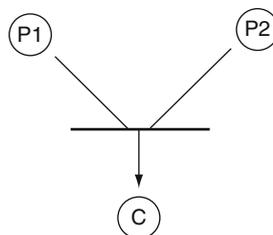
Fig. 6.11



provides adequate grounds for the conclusion. As Fig. 6.11 suggests, to assess this question properly, we have to take both independent reasons together.

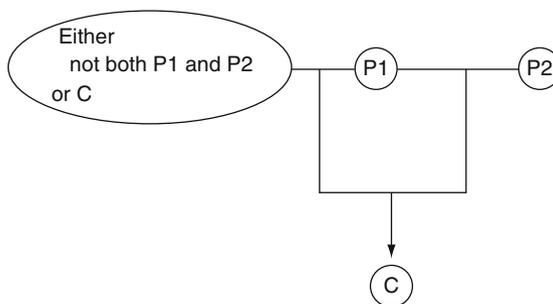
Goddu in (2007a) has presented several problems for what he rightly calls an Inference Rule Test as we have formulated it in (2001). First, he asks us to consider a two-premise convergent argument “P1, P2, Thus C,” ie. Fig. 6.12:

Fig. 6.12



As he quite rightly points out, from this argument we may construct a larger argument by adding as a first premise “Either not both P1 and P2 or C.” The resulting argument, instantiating a straightforward derivative of the rule Disjunctive Syllogism, is linked. (See Fig. 6.13):

Fig. 6.13



Since our first argument is convergent, separate one premise inference rules convey (or the proponent intends them to convey) us individually from the premises to the conclusion. In the second argument, a three premise inference rule conveys us from

the premises together to the conclusion. Goddu then says “But in this case rejecting P1 does not remove all allowable inference rules to C from the premise set. Hence, a critic cannot rely merely on the argument’s structure...in order to determine which premises need to be rejected” (Goddu 2007a, 467).

I believe this remark is very revealing of a significant difference in Goddu’s perspective from the perspective I am taking on the nature of argument analysis and evaluation. From my point of view, when critically approaching an argument text, we are taking the perspective of the challenger. We want to know first what argument the text presents. Structural analysis is a component of answering this question. Then we want to know whether that argument is cogent, i.e. does it satisfy the criteria of premise acceptability, relevance, and ground adequacy. But this means we are concerned with the argument the text actually presents. This brings us to the root of the difference between Goddu and myself as I perceive it.¹² For me, arguments are not individuated simply by their premises and conclusions, but minimally also by the warrant or warrants they instance to move from their premises to their conclusions. So, for example, an argument “P1, P2, therefore C” instancing a two premise inference rule (in particular a two premise rule with a mediating element) is numerically distinct from an argument with the same premises and conclusion, where a one premise inference rule conveys us separately from each premise to the conclusion. Regarding the warrant as a factor in argument individuation is straightforwardly justified. Arguments are expressions of their proponents’ reasoning. One who has reasoned from two premises conjointly to a conclusion in one single inference has not reasoned in the same way as one who has reasoned from each premise separately to the conclusion, making two inferential moves. The arguments are not the same.

Returning to the quote from Goddu, from *our* perspective, his point is beside the point. We are dealing with two numerically distinct arguments here, the original embedded argument and the embedding argument. Suppose (P1) is found unacceptable. Since our embedding argument presents just one reason for the conclusion, since there is just one inference rule with mediating components indicating that the three premises are intended to constitute one relevant reason for the conclusion, and that reason contains (P1) as a component, the entire reason must be rejected and the argument fails (just as a conjunction with a false conjunct is false, even if the other conjuncts are true), even if the disjunctive premise and (P2) are acceptable premises and a reliable inference rule conveys us from (P2) to C. The rejection of the embedding argument does not imply that it is impossible to construct arguments—even cogent arguments—from one or more of its components to C. In particular, it does not imply that the embedded argument must be rejected. Indeed, suppose the proponent presented the embedding argument first. The fact that one might see that one might reliably infer C from (P2) does not change the fact that the proponent has not reasoned this way. To point out that we may reliably move from (P2) to

¹²Private correspondence with Prof. Goddu, which I hereby acknowledge with thanks, has clarified this issue, at least for me.

C is to do the proponent's arguing for him, from *our* perspective. It is to construct a numerically distinct argument employing a distinct inference rule. Contrast this with recognizing that (P1) is an unacceptable premise in the embedded argument. Now although the argument just from (P2) to C is numerically distinct from the embedded argument, since it employs the same inference rule to step from premise to conclusion, it leaves that part of the proponent's reasoning intact.

Goddu continues, "But a more significant problem is that an argument's form is not the relevant variable in determining which premises need to be rejected in order to refute a given argument" (Goddu 2007a, 467). What Goddu says to defend this claim is extremely intriguing. A complete response from our perspective presupposes our account of enthymemes in the next chapter. He presents the following argument:

1. The die is red.
2. The die shows an odd number.
3. Thus, the die is a cube. (2007a, 467)

According to our criterion, this argument is convergent, lacking any mediating concept. In evaluating this argument, premise acceptability should not be a problem. Sense perception, presumptively reliable, will vouch for each premise, if true. The argument will fail because of the unreliability of each inference rule:

From	x is red
To infer	x is a cube
From	x shows an odd number
To infer	x is a cube

However, Goddu continues by asking us to consider

Situation 1: There are 8 red tetrahedral dice with only even number faces, 1 red standard cube die, and 8 blue standard cube dice. In this case, the premises together force the conclusion, but separately each premise alone provides very weak evidence for the conclusion. Hence, we only need to refute one. (2007a, 467)

But, we must ask, why do the two premises force the conclusion in this case? They do because the information we have about the situation establishes the following accidental universal:¹³

Any die in this situation which is red and shows an odd number is a cube.

It is the two premises together with this statement which force the conclusion. To say that the two premises force the conclusion is to treat the argument as an enthymeme. The explicit premises together with the unstated premise instance the licence

¹³The importance of noting that the universal is accidental, both in this case and in the subsequent examples, will be discussed in full in [Chapter 7](#).

From x is ϕ
 x is ψ
 Anything which is ϕ and ψ is χ
 To infer x is χ

But “ x is ϕ ,” “ x is ψ ” are clearly mediating concepts, and the argument is linked. If we found either premise (1) or premise (2) unacceptable, we would reject the argument as not cogent, but Goddu has not presented us with an example of a *convergent* argument where rejecting one premise is sufficient to reject the entire argument without considering the other premise.

However, Goddu has more. He asks us to consider

Situation 2: There are 8 red standard cube dice, 1 red tetrahedral die with only even number faces, and 1 blue standard cube die. In this case, both premises strongly support the conclusion independently of the other, but together conclusively support the conclusion. Hence, assuming that the context allows 88% to count as sufficient support, each premise alone sufficiently supports the conclusion and so both premises would have to be refuted. (Goddu 2007a, 467)

Again, we must ask: Why do both premises together conclusively support the conclusion? It is because the situation makes true a further accidental universal:

All red dice in this situation which show an odd number are cubes.

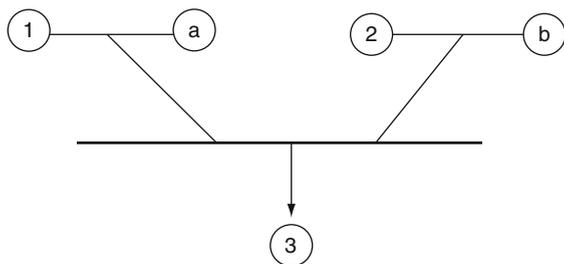
When we link the two premises with this further statement we do get an argument where the premises conclusively support the conclusion, and in that case, finding either of the stated premises unacceptable would render the argument, i.e. the argument whose premises consist of the two original premises together with the accidental universal, not logically cogent on acceptability grounds.

Goddu is right that given the additional information constituting Situation 2, both premises would need to be refuted. But notice that Goddu’s claim that both premises *independently* strongly support the conclusion in this case rests on enthymematic reasoning. The situation makes true the accidental universals

- a. 88% of red dice in the situation are cubes.
- b. All dice showing an odd number are cubes.

We should diagram the developed argument using Fig. 6.14:

Fig. 6.14



It is true that to find this argument not logically cogent one would have to find both (1) and (2) unacceptable premises—given the acceptability of (a) and (b), but this is due both to the claim strength of the unexpressed premises and to the fact that the argument’s structure is convergent.

Goddu has yet a third situation, which I find problematic for the point he wants to make about it. But an easy modification would suit his purposes.

Situation 3: There are 8 red standard cube dice, 1 red tetrahedral die with only even number faces, and 7 blue tetrahedral dice with only odd number faces. “In this case, premise one strongly supports the conclusion, while premise 2 does so only weakly, but again together conclusively support the conclusion. In this case, only premise one would have to be refuted. The situation can be adjusted yet again so that only premise 2 would have to be refuted.” (Goddu 2007a, 467)

But here again, why do we have conclusive support? It is because the facts of the situation support the same accidental universal as in Situation 2. The argument which gives conclusive support is an enthymeme linking this accidental universal with the two stated premises. Find only one of these premises unacceptable, and that argument is not logically cogent.

On the other hand, Situation 3 also renders true the statistical statements

- (a) 88% of the red dice in this situation are cubes
- (b) 53% of the dice showing odd numbers are cubes.

Viewed as a convergent enthymematic argument, as diagramed in Fig. 6.14, it is true that (1) + (a) strongly supports (3), while (2) + (b) gives only very weak positive support. It is true that finding (1) unacceptable would be sufficient to show the argument not cogent, but that is due both to the unstated premise (a), the weakness of the step from (2) + (b) to the conclusion, and the fact that the argument involves convergent structure.

Hence, in light of these consideration, at least from our perspective, we have shown that Goddu has not made his point when he says that the argument we have been considering “is a single argument with a single logical form, yet all possible patterns of what premises would need to be rejected to refute [this] argument...can be instantiated” (Goddu 2007a, 467). As manifestly stated, we do have a single convergent argument. But to instantiate these patterns, we have to consider distinct enthymematic arguments where the effect of finding a premise unacceptable upon the logical cogency of the argument is distinctly connected to the overall enthymematic argument’s having linked or convergent structure.

6.4.5 Should We Even Want to Make the Linked-Convergent Distinction?

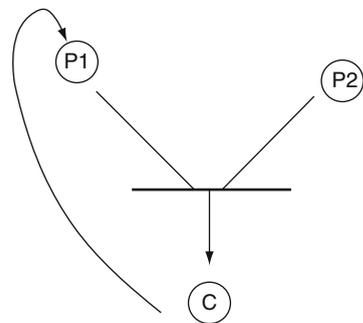
Goddu is a skeptic not only of the relevance criterion for making the linked-convergent distinction, but of the distinction itself. As we have indicated, the most

obvious reason for making the distinction, and the one Goddu has been seeking to refute, is that doing so lets us clarify the extent to which finding a premise unacceptable counts against the cogency of an argument as a whole or against one of its subarguments. If a premise is linked with other premises to form a reason, finding the premise unacceptable means rejecting the entire reason, while if the premise is one reason among other independent reasons, finding it unacceptable leaves the others intact. At least, it makes sense still to inquire of their acceptability. We should add that since relevance to the conclusion is also a criterion of argument cogency, and a premise by itself may be irrelevant to the conclusion, but when linked to one or more other premises, the entire reason is obviously relevant, determining which premises are linked together to form a reason given for a conclusion is a necessary analytic prerequisite to evaluating premise relevance. In (2007a), Goddu points out that Walton endorses this rationale—at least for the purposes of evaluating premise acceptability.

The key ... to understanding the purpose of determining whether an argument is linked or convergent resides in looking at the argument from a critic's point of view. The critic needs to know whether it is necessary to refute both these premises, or if it is enough to find fault with just one, in order for the whole argument to fall down. (Walton 1996, 175; quoted in Goddu 2007a, 466)

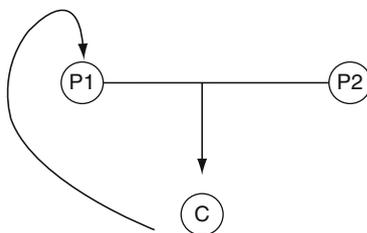
Goddu indicates that Walton has given two further reasons for making the linked-convergent distinction. It helps to “identify whether an arguer begs the question” and to identify “unexpressed premises” (Goddu 2007a, 468). Appreciating the first point is easy. Suppose we have a two premise argument where the conclusion is put forward to support the first premise. The conclusion is presumably a questionable statement, since it is argued for. The first premise is presumably questionable, because *it* is argued for also and supporting it with the questionable conclusion does not make it acceptable. If the two premises are convergent, Fig. 6.15 diagrams the argument, the argument is flawed but still need not be fallacious.

Fig. 6.15



(P1) as a premise is off the table. But (P2), a distinct reason, might still be acceptable and adequate by itself as a ground for C. By contrast, if the argument is linked (See Fig. 6.16)

Fig. 6.16



it gives only one reason for C, and since (P1) is a component of that reason, the entire reason is unacceptable. The argument fails. Whether in the linked case, we may also see (P2) sufficiently supporting (C) by virtue of some further reliable inference rule (not the warrant of the linked argument) is beside the point for the evaluation of the original argument, although not, of course from Goddu's perspective. The argument from P2 to C (See Fig. 6.17).

Fig. 6.17



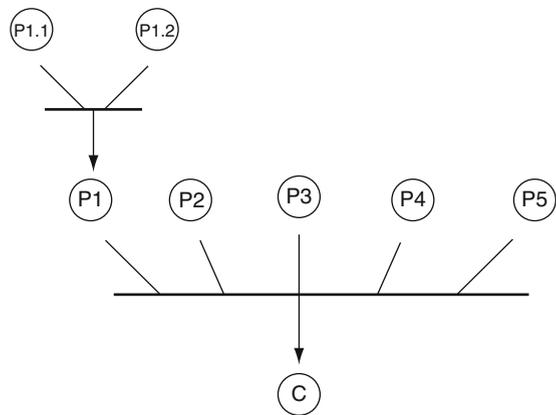
is a numerically distinct argument. By contrast, when the step from (P2) to (C) remains from a convergent argument, not only a premise but a reason of that argument is retained, along with the warrant authorizing the step from reason to claim. Goddu sees this rationale as a special case of the rationale for making the linked-convergent distinction which he has already attempted to refute. If our reply to his argument is successful, we have indicated here how making the distinction may allow us to properly evaluate begging the question arguments, that is, at least from our perspective.

Regarding the issue of aiding the evaluator in identifying unexpressed premises, one's reading the argument as instantiating an inference rule, where the explicitly stated premises constitute a proper subset of the premises needed to instance the rule, discloses what further statement or statements need to be added to have a complete set of premises, given the rule. Hence, I agree with Goddu's assertion that "a person could identify a suppressed premise ... without even knowing of the linked/convergent distinction." (Goddu 2007a, 468). But once one is familiar with that distinction, to recognize that an argument instantiates a multi-premised inference rule with mediating elements (even if some of the premises are unexpressed) is just to recognize that the argument has linked structure. Conversely, recognizing that premises can be linked as opposed to convergent may give the clue to seek to link one or more explicitly stated premises with one or more further statements to form

a relevant reason for the conclusion—relevant because reason/conclusion instance some inference rule.

Goddu has a further rebuttal to the claim that making the linked-convergent distinction is a proper preliminary for argument evaluation. In his critical study (2007b) of Walton’s treatment of the linked-convergent distinction in (1996), he presents a procedure for analyzing and evaluating arguments which he believes obviates the need for distinguishing linked from convergent structure (Goddu 2007b, 19–20). First verify that the passage presents an argument and diagram it. For concreteness let us suppose that Fig. 6.18 the argument diagrams:

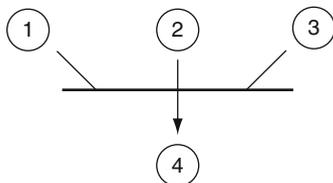
Fig. 6.18



To honor Goddu’s standpoint that we need not make the linked-convergent distinction, we have diagrammed all premises on the same level as convergent, but with our preferred diagramming for convergent premises.

After completing the diagram, we proceed first to evaluate for sufficiency, working from the bottom up. Suppose we find (P1)–(P5) insufficient to support (C). Goddu then directs us to “run the enthymeme “subroutine” to fill in possible implicit premises” (Goddu 2007b, 19). If this step fails to yield a set of premises sufficiently supporting (C), “stop and judge the argument unsuccessful” (2007b, 19). I confess that I do not understand how to apply an enthymeme subroutine without having previously partitioned a set of premises into reasons. But this inability reflects the analysis of enthymemes presented in the next chapter. Suffice it here to ask these questions: Are we to test each separate premise, only the whole set collectively, or each non-empty subset of premises? How do we determine which subset or subsets to test? Suppose we have an argument with the following structure (See Fig. 6.19):

Fig. 6.19



Suppose premise (2) were

Jones is an administrator,

while (3) is

Ceteris paribus, administrators who are faculty members risk a conflict of interest,

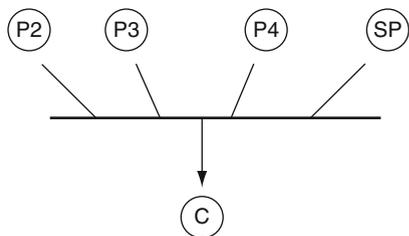
(4) being the statement

Jones risks a conflict of interest,

and (1) giving some further evidence for Jones' running this risk. Now clearly, taking (2) and (3) together, i.e. linked, there is a gap in the argument. Administrator who is a faculty member" is the full mediating concept. But we can already see that we have "fifty percent" of that mediating concept in (2), while (3) indicates what the other 50% should be, if we will group (2) and (3) as our criterion suggests. But if we do not group premises into reasons, what would suggest the missing link?

Setting aside these qualms, suppose we find an additional premise, call it (SP)—"S" for supplementary, such that we judge $\{P1, \dots, P5, SP\}$ to be a sufficient set. We then proceed to evaluate whether (P1.1) and (P1.2) constitute sufficient grounds for (P1). Suppose we find that they do. Goddu then directs us, again working from the bottom up, to test the premises for acceptability. Suppose we recognize that (P1) is questionable, (P2), (P3), (P4) are all acceptable, as is (SP), but that (P5) is outright false. (P5) then is off the table. But since (P1) is defended, taking it off the table would be premature at this point. Rather, we proceed to test (P1.1) and (P1.2) for acceptability. Suppose we find (P1.1) unacceptable, while (P1.2) is acceptable. We then run the sufficiency test to see whether (P1.2) by itself gives sufficient support to (P1). Suppose our test is negative. We then seek for an implicit premise to add to (P1.2). Suppose we find none. Then the subargument for (P1) is unsuccessful, and we take (P1) off the table. Here is what we have left (See Fig. 6.20):

Fig. 6.20



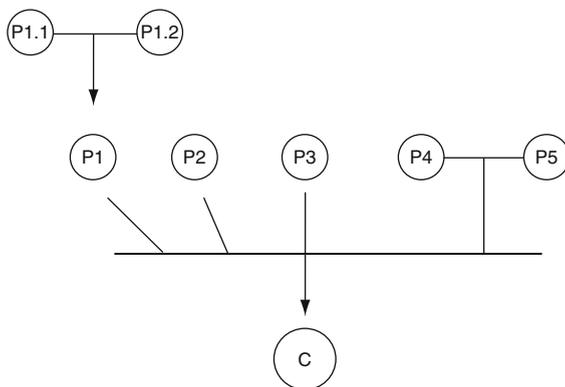
Goddu next tells us to check for fallacies not exposed by the previous steps. These “include the conclusion not being what is needed to make the desired point in the context or some sort of begging the question.” (Goddu 2007b, 20). This step is problematic for at least two reasons. First, if a premise is being argued for, presumably it is questionable and supporting it with the conclusion, itself being questionable since argued for, will not make the premise acceptable. Hence the premise would already have been eliminated with the acceptability step. So it is not clear that the fallacy of begging the question could arise at this step. But even more problematic, it is unclear how to apply Goddu’s directive with respect to fallacies of relevance. Taken together, {P2, P3, P4, SP} is sufficient to support (C). But suppose (P3) is irrelevant, the step from (P3) to (C) illustrating a classic fallacy of relevance. This would at least be a flaw in the argument. In effect, (P3) is just “along for the ride,” i.e. the set {P2, P4, SP} supports (C) just as well as {P2, P3, P4, SP}. Without partitioning this set into reasons, how are we to proceed? Are we to test each non-empty subset for fallacies of relevance, i.e. to carry out $2^4 - 1 = 15$ subtests at this point? Hence it seems that to follow Goddu’s directive, we should have to carry out at least five tests at this point—one for adequacy of conclusion to context and four for begging the question, together with a totally unclear number of tests in connection with other types of fallacies. Suppose at this step that these tests do not require us to remove anything further from the argument. We then proceed to the final step. If we recognize (C) false or otherwise unacceptable, we reject the entire argument. Suppose we do not. Then since {P2, P3, P4, SP} is sufficient to support C, we judge the argument successful (if perhaps a bit flawed).

One’s immediate reaction to Goddu’s procedure might be to argue that he has things, some things at least, in the wrong order. If one can recognize that the conclusion is false, then there has to be something wrong with the argument. The falsity of the conclusion could serve as a defeater against the sufficiency of the premises. What was the point of this evaluation procedure? It would seem justified only if the argument involved some flaw making the exercise of ferreting it out worthwhile in itself, or to underscore how *prima facie* good cases can nonetheless be defeated. The procedure as we have carried it out is also cumbersome, although to be fair to Goddu, it may be no more cumbersome than the version of the Degree of Support test in some of its applications that Walton supports in (Walton 1996, 181–82). By my count, in this example it has involved four sufficiency tests, two enthymeme tests, eight acceptability tests, and five (at least) fallacy tests, or nineteen tests in all.¹⁴ But above and beyond this, we can argue that the procedure may have given us a wrong answer regarding the cogency of this argument.

¹⁴In a private communication, Goddu has pointed out that since the procedure he has presented is schematic, he is not presenting an algorithm to be followed rigidly. If it is intuitively straightforward that by supplementing a set of premises we get a set sufficient to support the conclusion, we should consider the supplemented set and omit assessment of the original premise set for sufficiency or explicitly running an enthymeme subroutine to identify the supplementing premise. Presumably, also, if we could immediately see that some premises were unacceptable or presented considerations irrelevant to the conclusion, they could be taken off the table first.

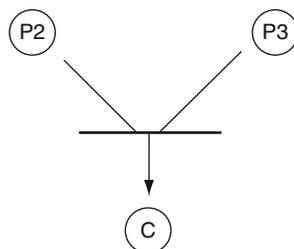
To see this point and to see how recognizing the linked-convergent distinction would permit a far more economical evaluation procedure, let us assume that (P4) and (P5) are linked, as is (P1.1) and (P1.2). (P1), (P2), (P3), and (P4) linked to (P5) constitute four convergent reasons for (C). Fig. 6.21 presents the diagram:

Fig. 6.21



After constructing the diagram, we proceed first to assess the premises for acceptability. As before, we find (P1) questionable and (P2), (P3) acceptable. But assume we recognize immediately that (P5) is false. Since (P5) is linked to (P4), we do not need to evaluate (P4) from our perspective as critics of *this* argument. The entire reason is unacceptable and off the table. Likewise, when we recognize that (P1.1) is unacceptable, the entire reason consisting of (P1.1) and (P1.2) is judged unacceptable and thus in one fell swoop the entire argument for (P1) together with (P1) itself is off the table. Fig. 6.22 diagrams what remains:

Fig. 6.22



We next proceed to check whether (P2) and (P3) are relevant to (C), i.e. does a reliable warrant, in each case, convey us from the premise to (C). Suppose this is unproblematic for (P2), but (P3) has nothing to do with (C). The step is off the wall and (P3) is off the table. It remains to judge whether (P2) constitutes a sufficient ground for (C). Suppose it does not. Then, contrary to the results of Goddu's evaluation procedure, the argument is not cogent. We have completed our procedure in eight steps as opposed to a possible nineteen. In both cases, of course, the evaluation

procedure was preceded by diagramming. But the only difference in diagramming between our approach and Goddu's approach was recognizing both that (4) and (5) are linked and that (P1.1) and (P1.2) are linked. But that is a matter of recognizing, and we expect recognizing immediately, that an inference rule with mediating element is operative in each case, something which should not complicate the diagramming procedure. Since (P4) was linked to (P5), presumably (P4) is not in itself relevant to (C). Now should we have recognized (P4) as acceptable, we might have rehabilitated it by linking it to some supplied premise, say (SP). But since the argument linked (P4) to (P5), this appears to be doing the proponent's arguing for him, not our role as critical evaluators of *his* argument, which is the perspective we are taking. Again, should some inference rule convey us from (P4) to (C) directly, that might rehabilitate (P4). But again, that is not how the proponent has proceeded. It is to entertain a different argument, which might be quite important given Goddu's perspective.

Running in the background throughout this chapter has been an understanding of identifying the warrants in a given argument and whether the warrant in a given case involves an unstated premise. To complete our case, we need to make this understanding explicit and to show that it is justified. That is the subject of the next chapter. However, let us summarize what we believe we have accomplished here. By partitioning the premises of an argument into independent reasons, converging on a conclusion, the premises in multi-premise reasons being linked, and then proceeding to evaluate the remaining argument for premise acceptability, relevance, and ground adequacy (the informal logic ARG criteria) in that order, taking unacceptable or irrelevant premises off the table once their unacceptability or irrelevance is recognized, focuses argument evaluation and may eliminate many unnecessary steps. Possibly having eliminated a number of reasons for unacceptability and irrelevance, assessing ground adequacy may be a much simpler task than evaluating the entire set of premises originally given for sufficiency. Goddu has issued this challenge: "The burden of proof is on the advocates of the distinction to show that (a) an adequate method of determining an argument's linked/convergent structure is possible and (b) even if possible, the benefits of using the method do not outweigh the costs" (Goddu 2007b, 22). Given the criterion for making the distinction which we have presented in this chapter and these comments on argument evaluation, should we be able to cogently defend our position on enthymematic arguments, we claim that we have discharged that burden.

Chapter 7

Argument Structure and Enthymemes

There is one theme in the preceding pages which a critic might challenge. In agreement with Toulmin, we accept that there are both formal and material inference rules. Our fulsome conception of warrant has distinct implications for how we approach the structure of arguments as products. As we have insisted, warrants or inference rules are not non-explicit premises. Recognizing the warrant of an inferential step in an argument in natural language is analogous to recognizing that a step in a formal derivation instances some inference rule. Indicating the warrant or inference rule annotates the step, rather than constituting some element *in* the step. Formulating warrants as inference rules

From φ
To infer ψ

rather than as

Whenever φ , then ψ

guards against the temptation to regard warrants—material warrants at least—as non-explicit premises.

This, of course, has implications for how we view the structure of many arguments instancing material inference rules. On what we might call the standard approach, these arguments would be regarded as having a non-explicit premise, namely the propositional counterpart to the warrant. Take the old saw

- (A1) (1) Socrates is human. Therefore
(2) Socrates is mortal.

On our view, we have a one premise argument here, whose warrant is

- (W1) (1) From x is human
(2) To infer x is mortal

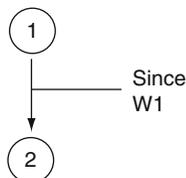
The diagram in Fig. 7.1

Fig. 7.1



is sufficient to represent the structure. If one felt it necessary to indicate the warrant, the modification in Fig. 7.2

Fig. 7.2



suffices. But those steeped in the standard approach might object. (A1) has a non-explicit premise

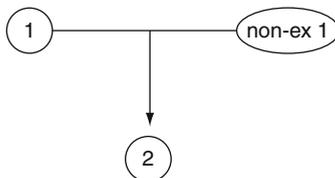
(non-ex 1) All humans are mortal.

The argument is an elliptically stated quasi-syllogism instancing

(W2) From $(\forall x)(\varphi x \supset \psi x)$
 φx
 To infer ψx

(A1) is properly diagrammed in Fig. 7.3:

Fig. 7.3



As we have developed in Chapter 6, if a proponent has presented an explicit quasi-syllogism, one would be justified in seeing the argument instancing (W2), and the two premises linked. But suppose the proponent has presented an argument with just one explicit premise, like (A1) instancing (W1). Why should one construe the argument as having just one premise instancing a one-premise warrant? Why should not one construe it as an argument with a non-explicit universal premise instancing a two-premise formal inference rule?

In traditional logic, of course, the paradigm cases of arguments with non-explicit elements are the enthymemes—arguments that become explicit categorical syllogisms when the non-explicit element is made explicit, be it major premise, minor premise, or conclusion. Of course, the notion of enthymeme, indeed the notion of a non-explicit premise, can be generalized well beyond categorical syllogisms. Nothing which we have said gainsays that some arguments may have non-explicit conclusions. Especially by juxtaposing two (or more) statements, one may suggest a further statement which may actually be entailed by the explicit assertions.

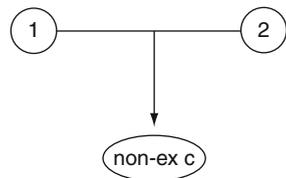
- (A2) (1) All philosophers are abstract thinkers and
- (2) Spinoza is a philosopher.

Clearly we have a non-explicit conclusion here:

(non-ex c) Spinoza is an abstract thinker.

(See Fig. 7.4) Our critic can now ask: Why do you apparently accept the traditional analysis when it comes to non-explicit conclusions but reject that analysis, when it postulates non-explicit premises, at least in some cases? Let us begin by replying that we do not deny that some arguments have non-explicit premises. What we hold is that in many instances what the traditional approach construed as a non-explicit premise more properly should be construed as a warrant. How do we defend this claim? To begin, we consider David Hitchcock’s more radical approach, virtually denying that there are any non-explicit premises. Although we find much of great, indeed indispensable value in Hitchcock’s approach, we shall argue that his view encounters problems which our middle way, allowing some non-explicit premises, avoids, as well as dealing straightforwardly with certain problems for the standard approach. These considerations shall constitute the case for our particular approach to enthymemes.

Fig. 7.4



7.1 Hitchcock’s Challenge to the Notion of Non-Explicit Premises and His Alternative

Recall the familiar fact, which Hitchcock notes, that corresponding to every argument is a conditional consisting of the conjunction of the premises of the argument as the antecedent and the conclusion as consequent. Following Hitchcock, we call this conditional the associated conditional of the argument (Hitchcock 1985, 86). He points out that if there is no common content expression shared by antecedent and

consequent (at least implicitly where some sort of paraphrase might be required to manifest this expression), the premises are irrelevant to the conclusion and the argument is a non-sequitur. (The converse does not hold. Premises and conclusion may share a content expression and the argument still be a non-sequitur, witness affirming the consequent or denying the antecedent.) By claiming that the conclusion follows from the premises of his argument, the proponent is at least implicitly claiming the truth of this associated conditional. But he (and by analogy the argument) is claiming something more, namely “a universal generalization of its associated conditional over its repeated content expressions, in fact the maximal generalization consistent with plausibility” (Hitchcock 1985, 87). Let us call this the associated generalized conditional of the argument.¹ Consider (A1) again:

- (1) Socrates is human. Therefore
- (2) Socrates is mortal.

Here “Socrates” is the repeated content expression. Notice that there is no other common content expression, although there are two other content expressions. By contrast, with

- (A1.1) (1) If Socrates is human, then Socrates is mortal.
- (2) Socrates is human. Therefore
- (3) Socrates is mortal.

there are three repeated content expressions, and every content expression is repeated. Generalizing over all content expressions in (A1.1) (using propositional variables and propositional quantification) produces a logical truth:

$$(\forall p)(\forall q)((p \supset q) \& p \supset q)$$

Generalizing over the common content expression in (A1) gives

$$(\forall x)(x \text{ is human} \supset x \text{ is mortal}),$$

not a logical truth, although true. By contrast, generalizing over the common content expressions in the fallacy of affirming the consequent

- (A1.2) (1) If Socrates is human, then Socrates is mortal.
- (2) Socrates is mortal. Therefore
- (3) Socrates is human.,

¹In 1985, Hitchcock is not concerned with non-deductive arguments. Hence, the arguments he is considering assume the *universal* generalization of the associated conditional. As we shall see, non-deductive arguments assume a qualified conditional. To accommodate both non-deductive and deductive arguments, we shall speak of the associated general conditional rather than the associated universally generalized conditional.

i.e. $(\forall p)(\forall q)((p \supset q) \& q] \supset p)$

is false.

Contrasting our examples, we see that in (A1) the common content expression is a singular term, while in (A1.1) and (A1.2), we have identified the common content expressions as complete simple sentences. But “Socrates,” “is human,” and “is mortal” are also common content expressions in both of these arguments. Why have we chosen to generalize over the common sentential expressions and not over their components? Hitchcock has addressed this issue by proposing this rule:

Generalize over the most compound of the repeated content expressions, unless doing so would be implausible. (Cf. Hitchcock 1985, 92.)

Thus, we have generalized over the common complete simple sentential components in (A1.1) and (A1.2).

As Hitchcock also points out, the associated conditional may contain separate repeated content expressions, where no repeated content expression is compound, i.e. containing other repeated content expressions as components. For example,

- (A2) (1) Jane has done well in calculus and calculus is harder than probability.
 Therefore
 (2) Jane will do well in probability.

Here the repeated content expressions are “Jane”, “ x has done well in y ”, “calculus”, and “probability”. Hitchcock argues that in such cases, one should “generalize over each of the repeated content expressions—unless it would be implausible to do so” (Hitchcock 1985, 92). Applying this rule yields

$$(\forall x)(\forall y)(\forall z)(\forall \varphi)([x\varphi y \& y \text{ is harder than } z], \text{ then } x\varphi z)$$

as the “maximal” generalization. However, here generalizing over “ x has done well in y ” clearly yields implausible results, for the obviously false

Anyone who has taken a course which is harder than some other course has taken the latter course is an instance of the universal generalization. But

$$(\forall x)(\forall y)(\forall z)([x \text{ has done well in } y \& y \text{ is harder than } z], \text{ then } x \text{ will do well in } z)$$

seems distinctly plausible. The intuitive plausibility of the associated universal generalization serves as a rationale for the procedure. Notice that the associated conditional (or the original argument) has suggested the classes over which to generalize—persons and if not courses, types of endeavors. We would not be generalizing over a wider class of entities than persons and types of endeavors, but neither would we restrict our generalizations to some subclass of persons or subclasses of activities.

Setting aside non-deductive arguments, Hitchcock divides the remaining arguments into three classes: deductively valid arguments, enthymemes, and non-sequiturs. Each such argument assumes the truth of one of its associated generalized

conditionals. Certain syntactic features of the associated generalization distinguish enthymemes from both deductively valid arguments and non-sequiturs. As Hitchcock points out, with enthymemes “At least one content expression occurs, perhaps implicitly, in both the premises and the conclusion [not true of some non-sequiturs]. At least one content expression occurs only once [not true of other non-sequiturs or of deductively valid arguments]” (Hitchcock 1985, 88). We may distinguish deductively valid arguments from non-sequiturs by a straightforward semantic fact: With deductively valid arguments, generalizing over the common content expression produces a logically true statement, while for non-sequiturs the statement is false. Hitchcock characterizes what enthymemes assume through this *universal generalization thesis*: “An enthymematic argument implicitly assumes the truth of a universal generalization of its associated conditional with respect to at least one repeated content expression.” (Hitchcock 1985, 89). For the enthymeme to be valid (in the sense of enthymematic validity to be developed shortly), it is necessary that the associated generalization be true.

The associated generalization is a statement. But corresponding to this statement is an inference rule or in Toulmin’s terminology a warrant, e.g.

- (W1) (1) From x is human
(2) To infer x is mortal

corresponds to $(\forall x)(x \text{ is human} \supset x \text{ is mortal})$, while the rule *Modus ponens*

- (W1.1) (1) From $p \supset q$
 p
(2) To infer q

corresponds to $(\forall p)(\forall q)((p \supset q) \& p \supset q)$. One would not take the associated generalization to be a non-explicit premise in a *Modus ponens* argument. Hitchcock is emphatic that one should not construe the associated generalization of an enthymeme as a non-explicit premise either but rather also as an inference rule. Thus argument (A1) is a one premise argument instancing (W1), rather than a two premise quasi-syllogism with “All humans are mortal” as the non-explicit major premise. Why should one prefer construing (A1) as a single premise argument instancing (W1) rather than as a partially stated quasi-syllogism instancing

- (W2) From $(\forall x)(\varphi x \supset \psi x)$
 φx
To infer ψx

Perhaps the most telling argument we can offer is Hitchcock’s own phenomenological argument. In 1986, Copi characterizes enthymemes as arguments where part is “‘understood’ or only ‘in the mind’” (Copi 1986, 244). In 1985, Hitchcock points out that

Authors of acknowledged enthymemes often have no additional premiss in mind. To take an everyday autobiographical example, I recently reasoned that it would not be difficult to find a house in a nearby city for which I had been given directions, because the house was just off

the main road. This simple piece of reasoning is obviously an enthymematic argument, but I was not conscious of having omitted a premiss in articulating it ... This fact, which supports the view that enthymemes do not have missing premises, obviously makes it impossible to identify enthymemes as arguments whose authors omitted a premiss (Hitchcock 1985, 86).

In (Hitchcock 1998, 18), Hitchcock reiterates this point. He invites the reader to perform this test immediately after formulating an enthymematic argument. One should then be aware of the argument in all its fulness, including any non-explicit premises. Hitchcock has no awareness of leaving a premise non-explicit and is confident that those accepting his invitation will not find any non-explicit premises in their enthymematic arguments either.

Hitchcock is not the only one confident that this test will disconfirm the hypothesis of a non-explicit premise. In 1991, Stephen Talmage points out "One is ... not usually aware, when uttering an inference that would be held to have an implicit premiss, of words, occurring in one's mind, that correspond to this alleged premiss" (Talmage 1991, 487). Given this phenomenological fact, reconstructing the alleged non-explicit premise is problematic. This gives us a second reason for not construing enthymematic arguments as those with a non-explicit premise. For example, given an argument of the form "*a* is C, therefore *a* is V," is this non-explicit premise "All C are V" or "C are V" (where it is left open as to whether a strictly universal generalization is affirmed or only a claim about what is typical of C's). Going further afield, the non-explicit premise could be some universal generalization with a restricted subject, "All C and E are V". Is there then a further premise "*a* is E"? Besides these puzzles for the supporter of non-expressed premises, there is the question of why one (or more) premises have been left non-explicit. Talmage's understanding of the enthymematic argument is remarkably congruent with Hitchcock's. The argument involves not a non-explicit premise but a material inference rule, properly expressible in the form of an inference rule. This principle, "like any principle of inference, has to be understood as a causal principle. Or better, it is a causal disposition or propensity, that exists in the inferrer: a propensity for one thought or the like to generate in an inferential way (so that the second is inferred from the first) another thought or the like" (Talmage 1991, p. 490). We shall develop the full import of this causal characterization of inference rules in due course.

Hitchcock considers the objection that we are simply not conscious of the omitted premise. The non-explicit statement is part of a context of beliefs which we accept and which we expect our interlocutors, if any, accept also. Hitchcock's reply foreshadows the full statement of his position on enthymematic arguments: "Such an unthematized implicit framework is more likely to be that *in accordance with which* people reason than to be that *from which* they reason, to be part of *procedural knowledge* rather than *content knowledge*" (Hitchcock 1998, 19, italics added). That is, the alleged unconsciously omitted non-explicit premise is rather an inference rule. As Hitchcock points out, we need not be conscious of an inference rule to reason in accordance with it. But we reason from premises, and so one could expect us to be conscious of them. (See Hitchcock 1998, 19, footnote 8.)

Suppose then that one concedes that no premise is unconsciously omitted, but one still holds there is a non-explicit premise because the conclusion of the argument does not follow logically from the stated premises, even though the proponent is presenting the conclusion as following and has not employed any modal qualifier to indicate a weaker sense of following. The argument as presented has a gap which needs to be filled, i.e. filled with this non-explicit premise. Hitchcock rejects this analysis. “A conclusion can follow definitely but not logically, with no postulation of unstated premisses” (Hitchcock 1998, 20). Rather than follow logically, the conclusion follows enthymematically. What is this notion of enthymematic consequence?

Beginning with the familiar characterization of a conclusion’s being a logical consequence of the premises, “it is impossible for the premisses to be true and the conclusion false” (Hitchcock 1998, 20), Hitchcock reminds us that this conception leads to two paradoxes: Anything follows from a contradictory set of premises, while a logically true statement is a logical consequence of any set of premises. However, this conception of consequence can be revised to avoid both paradoxes: The conclusion of an argument is a consequence of its premises just in case

There is some general feature of the argument which is incompatible with the argument’s having true premisses and a false conclusion, even though that feature is compatible with the argument’s having true premisses and compatible with the argument’s having a false conclusion (Hitchcock 1998, 26, italics omitted).

Hitchcock formulates this as a generic conception of definite consequence and immediately points out this general feature may contain extralogical constants.”If it does contain an extralogical constant, then we may call the consequence relation enthymematic consequence (as opposed to logical consequence)” (Hitchcock 1998, 27). This general feature is the universal generalization of the associated conditional, properly understood not as a statement available to supplement the original set of premises but as an inference rule or warrant. (See Hitchcock 1998, 27.)

Hitchcock specifically addresses the objection which asks what is the importance of construing the assumed associated generalization of an argument as a Toulmin warrant, rather than a non-explicit premise. After all, he himself formulates the associated generalization in the form of a statement, not an inference rule and Toulmin apparently regards inference-licences as a type of proposition and himself characterizes warrants as “general, hypothetical *statements*” (Toulmin 1958, 98, italics added). If properly formulated as statements, why are they not available as premises to fill gaps they intuitively do fill? Counting the assumed associated generalization as a premise, Hitchcock replies, completely misconstrues its function in the argument, witness the contrast Toulmin has developed between data and warrants—facts versus indications of how facts have a bearing on a claim, objects of explicit versus implicit appeals, the grounds of an argument versus what explains why one may step from the grounds to the claim being argued.

The premisses of an argument are its basis, that from which the conclusion is drawn In Toulmin’s vocabulary it is the data alone which should be regarded as the premiss or

premisses of an argument....Implicit general inference-licences which can act as bridges from data to claim are not premisses, but implicit rules of inference (Hitchcock 1998, 30).

Given the distinct difference between premisses and inference licences, Hitchcock catalogues a number of reasons why implicit associated general assumptions should be counted as inference licences rather than premisses. First, this construal explains why proponents of arguments are not aware of these assumptions when putting forward their arguments. "People are generally not conscious of the principles in accordance with which they reason" (Hitchcock 1998, 31). Second, this construal highlights that arguments are general. The step from premisses to conclusion involves something more than the truth of the mere associated conditional of the argument, although where the conclusion follows definitely and not probabilistically or presumptively that conditional is the logically weakest statement affirming a proper connection. Given a recognition of the general nature of an argument, we need no further justification for construing the implicit inference licence as general. Another important consequence is that construing the associated generalization as a warrant highlights its explicit connection to argument evaluation rather than argument analysis. To recognize an argument as an instance of *Modus ponens* is to certify that the argument is deductively valid, as long as one knows that *Modus ponens* is a deductively valid inference rule. But one does this *after* identifying the premisses and conclusion of the argument, analysis proper, and seeing that they instantiate a certain form. Furthermore, recognizing that what is implicit in an argument is a general inference licence gives specific guidance for identifying that licence (Hitchcock 1998, 31), as the procedure for formulating the associated generalization already shows.

The warrants which Hitchcock has considered in (1985) and (1998) are all examples of unqualified warrants, warrants which, as Toulmin phrases it, "authorize us to accept a claim unequivocally, given the appropriate data" (Toulmin 1958, 100). But as we have seen, Toulmin also acknowledges qualified warrants, those which "authorize us to make a step from data to conclusion either tentatively, or else subject to conditions, exceptions, or qualifications" (Toulmin 1958, 100). These would be warrants for non-demonstrative arguments.² It is interesting to speculate whether Toulmin would divide non-demonstrative arguments into two types, inductive and abductive or presumptive, as some authors have classified them. In inductive arguments, the step is tentative. In abductive arguments, it is subject to conditions, i.e. defeaters. Parallel to Hitchcock's enthymematic arguments, we may see warrants for inductive arguments as assuming an associated generalized conditional qualified by "generally," typically," or, where the context indicates it, some percentage and warrants for abductive arguments qualified by "presumably" or —paradigmatically—"ceteris paribus." Consider

- (A3) (1) Smith has been elected Senator. So, probably,
 (2) She will be settling a number of political debts after she takes office.

²Hitchcock in (1994) has already considered the problem of formulating the associated generalized conditional for one family of such arguments, conductive arguments.

Clearly this argument presupposes the qualified generalization

(W3) Generally when one is elected Senator (to high political office), one pays one's political debts after taking office.

Again, consider Toulmin's now hackneyed reasoning about Harry:

(A4) (1) Harry was born in Bermuda. So, presumably,
(2) Harry is a British subject.

This argument presupposes

(W4) *Ceteris paribus*, a person born in Bermuda will be a British subject.

(See Toulmin 1958, 102.)

Reasons for construing these assumed qualified generalizations as inference licences rather than non-explicit premises parallel those for the unqualified cases. Surely we frequently reason according to this pattern. Apply Hitchcock's phenomenological test: Are we aware of entertaining the unstated associated *prima facie* generalization as a non-explicit premise? It seems not. Construing such generalizations as inference licences explains this fact. In general, persons are not aware of the inference licences in accordance with which they reason. Construing them as premises rather than inference licences misconstrues their function.

Here, however, a problem arises. Form the associated conditional. Identify the repeated content expressions. By using appropriate variables, we may form various schemata available for generalization. As enthymematic validity requires the truth of the unqualified universal generalization of one of these schemata, so we would expect "enthymematic cogency" to require the truth of the qualified generalization of one of these schemata. But while we understand the truth conditions of an unqualified universal generalization—no counterexample is true—what are the truth conditions of a statement like (W3) or (W4)? Our answer to this question is bound up with our answer to other critical questions we may bring forward for Hitchcock's approach to enthymemes. We turn to all of these questions in the next section.

Hence, while admitting that the issue of the truth-conditions for generalizations remains a problem, we submit that we have made a *prima facie* case for recognizing that Hitchcock's analysis of enthymemes can be extended to arguments with qualified warrants as well as arguments with unqualified warrants. We submit further then that we have made a *prima facie* case for Hitchcock's overall approach to enthymemes. If so, there is a further pragmatic reason for favoring construing the associated generalizations of arguments as warrants and not non-explicit premises. In 1996, at the very beginning of his chapter on enthymemes, Walton states "Perhaps the biggest single problem of argument diagramming is that so many arguments in natural discourse are incomplete, in the sense that they have premises or conclusions that are not explicitly stated" (Walton 1996, 220). If Hitchcock's approach is correct, we have dissolved the problem of non-explicit premises as a pseudo-problem. This accords with Hitchcock's rather strong statement: "The doctrine of implicit premises is largely a myth. Theorists of argumentation and practitioners of argument analysis and evaluation should abandon it" (Hitchcock 2002, 160). Unfortunately,

Hitchcock's analysis faces at least two problems, the second of which is related to the problem about truth conditions for qualified generalizations. We turn to these problems in the next section.

7.2 Problems with Hitchcock's Analysis

So far the motivating examples we have considered intuitively suggested a general connection between some feature expressed in the premise (or premises) and a feature expressed in the conclusion. Expressing that connection through a generalized conditional was intuitively appropriate. Consider again our first example:

- (A1) (1) Socrates is human. Therefore
 (2) Socrates is mortal.

Generalizing over the common content expression in premise and conclusion gives us

Anything which is human is mortal (All humans are mortal)

which, *pace* what we said in section one, when added as a premise to (A1) gives us a quasi-syllogism. This argument, by traditional logical trickery, may be converted into an **AAA-1** categorical syllogism, with the added premise as the major premise. Hence the argument minus that premise is a first-order enthymeme. In section one, then, we have been motivated by first-order enthymemes in an extended sense. What may we say of second-order enthymemes, taking this notion in a correspondingly extended sense?

Consider the quasi-syllogism parallel to (A1):

- (B1) (1) All humans are mortal. Therefore
 (2) Socrates is mortal.

Is it plausible to see this argument instancing the one-premise inference rule:

- (WB1) From All humans are φ
 To infer Socrates is φ

(WB1) seems manifestly unreliable, i.e. enthymematically invalid. Unless one knows that Socrates is human, how may one infer from the information that all humans are mortal (more generally that all humans possess a certain property φ) that Socrates is mortal (has the property φ)? Should the medical scientists of Alpha Centauri have discovered the elixir of youth and Socrates be an Alpha Centaurean, then the premise would be true but the conclusion false. (B1) has apparently left the minor premise of the quasi-syllogism unstated, a singular, not a universally quantified statement. When supplied, the developed argument instances

- (WB1') From φx
 $(\forall y)(\varphi y \supset \psi y)$
 To infer ψx

a deductively valid rule.

Consider this further example:

- (B2) (1) All rusty objects are oxidized. Therefore
 (2) All the screws in Smith's car are oxidized.

Construing this argument as an instance of the inference rule

- (WB2) From All rusty objects are φ
 To infer All the screws in Smith's car are φ

we again seem to have an unreliable inference rule. Suppose Smith is filthy rich. All the metallic parts of his car are solid gold. It is true that all rusty objects are iron or steel, the metals subject to rust, but it is false that all the screws in Smith's car are iron or steel. What (B2) seems to be missing is the premise "All the screws in Smith's car are rusty." Add that as the minor premise and the resulting argument is deductively valid. Note for future reference that the statement added is an accidental universal and thus contingent, as is the statement that Socrates is human. This contrasts with

- (B3) (1) All humans are mortal. Therefore
 (2) All Greeks are mortal

instancing

- (WB3) From All humans are φ
 To infer All Greeks are φ

Here the inference rule is enthymematically valid, since "All Greeks are human" is a semantic and thus necessary truth. It seems far more plausible, then, to treat second-order enthymemes where the argument's assumption is a contingent statement as arguments with a non-explicit premise.

Hitchcock has a reply to the case of second-order enthymemes involving a singular assumption, namely that this assumption is logically equivalent to a universally generalized conditional. Consider the statement "Socrates is human." Forming the assumption behind (B1) as a statement rather than an inference rule yields

- (WB1'') For any φ , if all humans are φ , then Socrates is φ .

Showing that this statement is equivalent to "Socrates is human" is straightforward.³

³For a parallel argument that "Depo-Provera is a consistently approved drug" is logically equivalent to "For any F , if any consistently approved drug is F , then Depo-Provera is F " see Hitchcock (1985, 90). See also his demonstration for a putatively *Modus ponens* argument with the non-explicit, non-conditional premise "The television is off" that this statement is equivalent to " $(\forall p)([if\ the\ television\ is\ off,\ then\ p],\ then\ p)$ " Hitchcock (1985, 91). For the record, we should note that Talmage (1991) also regards second-order enthymematic quasi-syllogisms on the standard approach as arguments whose sole premise is the explicitly stated universal premise, but whose inference rule is causal (i.e. material). Talmage discusses the nature of this inference rule by proposing a concept of subsentential inference. Considering this proposal involves issues beyond the scope of this essay.

Hitchcock however retreats from his position that no arguments ever have non-explicit premises in (1998). He presents this example as one where intuitively the conclusion seems to follow from the premise:

(B4) Detroit edged Baltimore in the ninth inning. Therefore Toronto is now alone in first place. (Hitchcock 1998, 28)

Here, the common content item "today" is implicit. But generalizing on this common content item produces a false statement:

(WB4') Any day on which Detroit edged Baltimore in the ninth inning is a day on which Toronto is alone in first place.

(Cf. Hitchcock 1998, 29.) To get an acceptable generalization, we have to restrict the class of days over which we are generalizing, where the restriction would be satisfied today by Detroit, Baltimore, and Toronto, and that fact would be known by the audience to whom the argument was directed. We might state the generalization this way:

(WB4'') If a day is such that two (and only two) baseball teams are tied for first place at the beginning of the day and for that day a third team edges out one of them in the ninth inning, and the other team loses no game that day nor does any further team tie the other team, then that other team is alone in first place at the end of that day.

(Cf. Hitchcock 1998, 29.) If this general principle corresponds to the inference rule of (B4), then the argument has a non-explicit premise, namely that

(B4 non-ex) Just Detroit and Toronto were tied for first place at the beginning of the day, Toronto lost no game on that day, nor did any other team tie Toronto for first place that day.

If one were to add (WB4'') as a premise to (B4), the resulting argument would in effect be analogous to a second-order enthymeme, but which would be completed by making the non-explicit premise (B4 non-ex) explicit, not by framing some further generalization.

Our discussion has now made two points. First, Hitchcock allows that some arguments have non-explicit premises. Second, construing arguments in the family of second-order enthymemes as having non-explicit premises is arguably more plausible than construing them as one-premise arguments with inference licences formulated according to Hitchcock's universal generalization procedure. These two points are reasons for treating the family of second-order enthymemes differently from first-order enthymemes. Both families involve assumptions. But the assumptions of second-order enthymemes are non-explicit premises while the assumptions of first-order enthymemes are warrants. But such a position leads immediately to a critical question: What justifies this asymmetry of analyses? Why, when the universal premise of a quasi-syllogism is left unstated should one construe the argument as instancing a material inference rule while if the singular premise is unstated would one analyze the argument as an instance of a formally valid two-premise

inference rule with one premise non-explicit? We have already hinted at the answer to this question. But to bring this answer into stronger relief, let us consider another problem Hitchcock recognizes for his position.

In (1998), after stating his generic conception of consequence (quoted on p. 180), Hitchcock remarks, “In inferring a conclusion from some premisses, the author of an argument implicitly claims that the conclusion follows from those premisses. On the generic conception of consequence which I am proposing, this claim amounts to the claim that some covering generalization of the argument is *true*” (Hitchcock 1998, 27, italics added). In private correspondence, Hitchcock has presented a counterexample to his theory of enthymematic consequence. Consider the argument

(B5) Napoleon ruled France. Napoleon was exiled to St. Helena. Therefore Napoleon was short.

Intuitively, the premises are irrelevant to the conclusion. However, the associated generalization, counterpart to the warrant in propositional form is

(WB5) $(\forall x)(\text{If } x \text{ is a person and } x \text{ ruled France and } x \text{ was exiled to St. Helena, then } x \text{ was short})$

We are understanding the conditional truth-functionally. This statement is true. One and only one person both ruled France and was exiled to St. Helena, and he was short. Furthermore, since Napoleon both ruled France and was exiled to St. Helena, this statement is compatible with the argument having true premises. Furthermore, there are many persons who are not short, e.g. Wilt Chamberlain. So the covering generalization is compatible with the conclusion’s being false. The covering generalization satisfies the generic consequence condition.

Notice that the covering generalization here is an accidental universal. It does not support subjunctive conditionals, as we suggested covering generalizations need to do in (2007). But the generalized subjunctive conditional

(B5’) Any person who were to have ruled France and been exiled to St. Helena would be short.

is not true, as Hitchcock pointed out with the counterexample of Jacques Chirac.

7.3 A Middle Way: Discerning Inference Licences and Non-Explicit Premises

The truth-conditions of a subjunctive conditional concern not just the actual but other possible worlds.⁴ So the subjunctive conditional involves some sort of necessity, albeit in general not logical necessity. Let us then revise Hitchcock’s understanding of his generic conception of consequence. To claim that the conclusion of

⁴For our proposal of truth-conditions for the subjunctive conditional and for the stronger notion of nomic sufficient condition, see our Freeman (2005, 150–154).

an argument follows from the premises is to claim that the covering generalization is necessarily true for some sense of necessity. The covering generalization, then, is not simply a true description, but a true—or at least verisimilitudinous—*nomic* generalization.

How does this help with the problem of second-order enthymemes and related arguments? Notice that descriptions are extensional statements. Their truth-conditions concern only the actual world. By contrast, subjunctive conditionals and interpretations in general are intensional. As we saw, our paradigm case of a second-order enthymeme (albeit a quasi-syllogism)

(B1) All humans are mortal. Therefore
Socrates is mortal

assumed that

(B1 non-ex) Socrates is human

an extensional description. Since that statement is logically equivalent to

(B1 non-ex') Any property true of all humans is true of Socrates

the latter statement is extensional, in this case an accidental universal. But the associated general conditional must be a *nomic* generalization. Hence, it is not appropriate to see (B1 non-ex') as the associated general conditional of the argument. Rather we should regard this statement, as a non-explicit premise. In discussing the structure of the argument, we should add that statement—better its singular logical equivalent—to (B1).

What we have done with (B1) can be generalized. Should the associated generalized conditional of an argument be an accidental universal, it (or a statement logically equivalent to it) should be regarded as a non-explicit premise and added to the argument when analyzing its structure preparatory to argument evaluation. The warrant of the argument then corresponds to the associated generalized conditional of the developed argument. Notice that with arguments (B2) and (B4), the statements added to make non-explicit premises explicit were both descriptions. By contrast, (B3) was not analyzed as having a non-explicit premise, but the associated conditional was a semantic truth and thus intensional. Notice that our example of an enthymematically valid argument (A1) (See p. 183) had a *nomic* associated generalized conditional. Briefly, being mortal is intrinsic to being human. So

($\forall x$) (if x were human, x would be mortal)

is true. Likewise, for Hitchcock's example of an enthymematically valid argument concerning ease of finding a particular house (See pp. 178–179), given human capacities for finding locations,

($\forall x$) (if x were a building just off the main road, then x would be easy to find)

is also true, or at least verisimilitudinous.

One may find our relying on *nomic* versus accidental generalizations to distinguish when an argument involves non-explicit premises as opposed to instancing

some material inference rule objectionable, because one finds the concept of subjunctive conditionals objectionable, at least if one has empiricist leanings. The central objection concerns the fact that subjunctive conditionals, including universally generalized subjunctive conditionals, in many cases appeal to a sense of necessity which is non-logical. The empiricist grants that logical necessity is a clearly understood notion. If the premises of an argument entail its conclusion, saying that if the premises were true, the conclusion would be true also is unproblematic. The subjunctive states the fact of entailment in other words. But not all subjunctives are statements of logical entailment. Causal laws may be understood to support subjunctives, and so involve a notion of causal necessity distinct from logical necessity. But is this notion mysterious? Nagel complains

Those who maintain that the necessity of universals of law is *sui generis* and at bottom not further analyzable postulate a property whose nature is essentially obscure. This obscurity is only named and not lightened by such labels as ‘physical necessity’ or ‘real necessity.’ Moreover, since it is generally supposed that this allegedly special type of necessity can be recognized only by some “intuitive apprehension,” predicating such necessity (whether of statements or of relations between events) is subject to all the vagaries of intuitive judgments. (Nagel 1961, 52–53)

We have responded to this criticism in (2005),⁵ presenting a formal semantical analysis of the subjunctive and of nomic necessity. Hence, the notion is analyzable and is indeed open to precise analysis. Such notions are not obscure.

In light of our discussion in this section, we can now present a general procedure for identifying non-explicit premises in an argument, if any.

Step I: Form the associated conditional of the argument.

Step II: Identify the repeated content expressions in the associated conditional.

Step III: In Hitchcock’s words:

State the universal generalization of the associated conditional, generalizing over each maximally compound repeated content expression, and over the entire category indicated by that compound expression—“the entire category of items within which the content expression’s signification occurs” (Hitchcock 1985, 94)—unless plausibility considerations indicate otherwise.

Step IV: If the step from premise to conclusion is qualified by a non-deductive modality or it would be plausible to so qualify it, qualify the associated universally generalized conditional with “generally” or “*ceteris paribus*” or some synonymous expression, depending on whether the step is deemed inductive or abductive.

Step V: Determine whether the associated generalized conditional is accidental or nomic.

⁵See (2005), pp. 206–212 for our explicit argument and pp. 146–154 for our presentation of a formal semantics for subjunctives and for nomic necessity.

Step VI: If the associated generalization is nomic, count it as the warrant (or the propositional equivalent of the warrant) of the argument. If the associated universal generalization is non-nomic, count it or an equivalent singular descriptive statement as an unexpressed premise of the argument.

Step V can be accomplished in various ways. If the associated universally generalized conditional is logically equivalent to a singular descriptive statement, then the associated universally generalized conditional is not nomic. By contrast, the associated universally generalized conditional may not be equivalent to a singular description but may still be an accidental universal. For example, corresponding to the argument

- (1) s_1 is a screw in Smith's car. Therefore
- (2) s_1 is rusty

we have

All screws in Smith's car are rusty.

(Cf. Nagel, 1961, 56.) But, as we have already argued, it is easy to imagine a possible world in which this universal generalization is false, e.g. one were we put a gold screw into Smith's car. We have tested the generalization with a counterexample. Notice that qualifying a generalization with a *ceteris paribus* clause may yield a generalization which is immune to counterexamplng, to which an unrestricted universal generalization may be subject. Thus

Ceteris paribus, any beam of electrons moving in a vacuum, perpendicular to a magnetic field will be deflected

is nomic, even though the unrestricted universal is subject to counterexamples which predicate that the beam is subject to other forces.⁶

7.4 Advantages of This Middle Way

7.4.1 *Our Procedure Avoids Reading Assumptions Into Arguments*

A distinct worry with attempting to make non-explicit premises explicit by adding statements to arguments concerns discerning whether one is reading between the lines or is reading some statement into the argument. The procedure we have presented we believe should allay this worry. Although in formulating an argument's associated generalization we are not trying to surmise what the proponent of the

⁶Compare our Freeman (2005, 146–47), with references there to Burks (1951, 367–68).

argument may have had in mind concerning some additional premise left non-explicit, our framing of the associated generalization takes as its point of departure the argument text itself. One or more premises have been put forward to support a conclusion. Thus there is an assumption that one can get from premises to conclusion, which Hitchcock calls the argument's assumption (Hitchcock 1985, 89). As Hitchcock points out, it is what Robert Ennis calls a needed assumption as opposed to a used assumption. This assumption involves holding that the argument instances a general pattern which is nomic. We formulate that pattern by first constructing the associated conditional of the argument and then generalizing that conditional over some appropriate shared content term or terms. Hence, both the conditional and the terms generalized over are determined by the argument text. Whether the resulting generalized conditional corresponds to the warrant of the argument or is a non-explicit premise is determined by whether this statement is nomic. Hence our formulation of this principle and our determination of its role in the argument is determined by certain objective facts about the argument and objective requirements for constructing counterexamples. Hence this principle is implicit in the argument, and not something read in.

Proceeding this way can avoid much agonizing over whether we have accurately and fairly portrayed what the proponent had in mind. Consider Scriven's example:

She's red haired, so she's probably bad tempered.

(Scriven 1976, 166; quoted in Walton 1996, 244) The modality "probably" signifies that we have an inductive argument, and thus the associated generalization should use a quantifier such as "most." Has the proponent assumed that most red-headed persons are bad-tempered or that most red-haired women are bad tempered? On our approach, the question is beside the point. The common content expression over which we generalize is "she." The associated generalization is

For most x , if x is red-haired, then x is bad tempered.

Only if "she" were accented to indicate that the proponent was taking some further property into account than her being red-haired, such as her being a woman, or we have reason to think that the proponent would accent "she" in response to our formulation of the associated conditional, should we question our formulation of the associated generalization.

Our approach also seems to avoid the agonizing connected with another example Walton entertains:

- (1) Your brother eats his vegetables. Therefore
- (2) You should eat your vegetables.

(Walton 1996, 252) Walton searches his mind, if not his soul:

What is the missing premise? It could be, 'You always do what your brother does' or 'You want to be like your brother, don't you?' or 'Your brother is big and strong.' It's very hard to say what the proponent might have had in mind to use in this case, and we can't seem to narrow it down further than a range of choices.

(Walton 1996, 252) Applying our approach, we first formulate the associated conditional:

If your brother eats his vegetables, you should eat your vegetables.

“You” is one simple shared content expression; “eats one’s vegetables” is the most compound of the other shared content expressions. Generalizing over both would give us

$$(\forall x)(\forall \varphi)(\text{if } x\text{'s brother } \varphi\text{'s, then } x \text{ should } \varphi)$$

But this obviously can be counterexampld. The fact that 10 year old Joe’s 20 year old brother goes to college now is no reason to say that Joe should go to college now. The argument concerns not actions or properties in general, but a particular type of action—eating—and more specifically yet eating vegetables. So the associated generalization is

$$(\forall x)(\text{if } x\text{'s brother eats his vegetables, } x \text{ should eat } x\text{'s vegetables)}$$

Since we are clearly dealing with an argument by analogy, and thus a presumptive argument, the associated generalization is not strict but presumptive:

Ceteris paribus, if one’s brother eats his vegetables, one should eat one’s vegetables.

Since this generalization is open-ended, it is not accidental and its counterpart serves as a warrant for the argument. Walton endorses distinguishing need from use in approaching arguments suspected of involving a non-explicit premise. In agreement with Hitchcock, we are urging that the use question be set aside and that we concentrate exclusively on the need issue.

That our procedure concerns needed rather than used assumptions addresses a problem related to possibly reading assumptions into an argument. As Walton points out, ordinarily, when considering an argument text, the proponent is not present to answer questions about what was “in his mind” when framing the argument. For Walton, this means that any reconstruction of the non-explicit premises from the text alone will represent a conjecture of what the proponent had in mind, “making any interpretation or evaluation of an argument on this basis conditional in nature” (Walton 1996, 221). We agree that whether the proponent of the argument actually had the argument’s needed assumption in mind is conjectural, but since the argument’s cogency depends on the needed assumptions, in addition to the explicit components of the argument, basing an evaluation on these factors does not render that evaluation conditional.⁷

⁷Walton suggests that in attempting to explicitly state non-explicit premises, the risk of straw man “becomes a real possibility” Walton (1996, 221). Our procedure avoids this risk by targeting the argument’s needed assumptions. Note also that a review of the examples of the straw man fallacy in our (1988) reveals that the fallacy arises not with attributing ridiculous non-explicit premises to the proponent but with parodying a premise or conclusion he explicitly puts forward. See Freeman (1988, 87–90) and examples in exercises, Freeman (1988, 95–101).

7.4.2 Our Procedure Avoids “Deductive Chauvinism”

Walton notes that some authors seem to regard enthymemes as incomplete categorical syllogisms or at least as incomplete *deductive* arguments. Some recent authors, however, allow that non-deductive arguments may also have non-explicit premises and widen the concept of enthymemes to include these arguments. For Walton, any restriction of enthymemes to deductive arguments is unfortunate. In particular, it represents a distortion of Aristotle’s view of enthymematic arguments. For Aristotle, an enthymeme need not be an argument with a non-explicit premise, but an argument where the major premise is a qualified general statement—“Generally *S*’s are *P*’s” rather than “All *S*’s are *P*’s.” We have already guarded our position against such deductivism by allowing the associated generalization to be qualified by “most” or “*ceteris paribus*”.

The middle way approach also avoids the problem of regarding only deductively valid arguments as good arguments. Walton points out the dangers of this problem in (Walton 1996, 237–241). Such an approach would direct adding premises to an argument to result in a deductively valid argument, which might very well distort the argument being analyzed, since the argument may present, and be intended to present, good but non-conclusive reasons for its claim. In particular, regarding only deductively valid arguments as good shifts argument evaluation from connection adequacy to premise acceptability. Only if all the premises, both original and added, are acceptable will the argument be judged cogent. But the premises added to result in a deductively valid argument may very well be unacceptable or recognizably false. Yet the original argument was cogent, since its explicit premises were all acceptable and it instanced a reliable (and undefeated) warrant. We have already indicated how our approach guards against this danger by calling for suitably qualified associated generalized conditionals. Walton counsels that in adding non-explicit premises, it is necessary first to identify the type of argument involved, deductive, inductive, or abductive. Our approach respects that counsel.

The Middle Way Procedure Targets the Relevance Question and Only the Relevance Question

Toulmin’s warrant introducing question—“How do you get there?”—asks why the data given are relevant to the claim they allegedly support. Since an associated generalization may be a warrant, it states a principle of relevance. Should it play the role of a premise, it appropriately responds to the question of why the stated premises are relevant to the conclusion. Hence, non-explicit premises are *not* answers to the basic dialectical questions of why some explicit premise is acceptable, or whether one can give an additional reason for the conclusion, or why one can be so sure of the conclusion, in light of defeaters.⁸ This last has implications for seeing how argumentation schemes are related to the question of non-explicit premises.

⁸The relevance, premise acceptability, ground expansion, and ground sufficiency questions are what we call the basic dialectical questions. We discuss them in Section 1.4.

Reed and Walton address this question specifically in (2002). Besides indicating schematically a pattern of reasoning, an argumentation scheme includes a list of critical questions that could be asked of the argument. In presumptive reasoning, the warrant claims that we may generally infer a conclusion from a given premise or premises, but that this step is subject to defeaters. By presenting his premises, the proponent has discharged his burden of proof until or unless the challenger raises a critical question, in particular the issue of a defeater. At that point, the burden switches back to the proponent. Reed and Walton ask, “Could the critical questions be reformulated as additional premises in the argumentation scheme itself?” (Reed and Walton, 2002, 882) They illustrate with the scheme of appeal to expert opinion. Formulated specifically as an inference rule, the scheme indicates⁹

From Source *E* is an expert in a subject domain *S* containing proposition *A*
 E asserts *A*
 To infer presumably, *A*

Associated with this scheme are six basic critical questions:

1. How credible is *E* as an expert source?
2. Is *E* an expert in the field that *A* is in?
3. What did *E* assert that implies *A*?
4. Is *E* personally reliable as a source?
5. Is *A* consistent with what other experts assert?
6. Is *E*'s assertion based on evidence? (Reed and Walton 2002, 882–883)

Reed and Walton point out that the scheme could be expanded to add affirmative answers to each of the critical questions as additional premises in the argument.¹⁰ They explicitly do not hold that one must make this move to analyze and evaluate the argument correctly. One may keep the critical questions as a critical agenda for arguments instantiating the original scheme. Incorporating their content as additional premises may suggest that arguments instantiating such schemes have non-explicit premises, indeed six of them. But this suggestion should be resisted. The first two critical questions raise acceptability issues for the first premise. The first question asks whether *E* is really an expert and the second whether *E* is an expert in field *S*. The proponent's answer to these questions would not make explicit a non-explicit premise in his argument, but would extend his argument to one numerically distinct. The original argument would be a sub-argument of this new extended argument, which would further include a sub-argument intended to support the first premise of the original argument. The third critical question asks whether the second premise is acceptable. Did *E* really assert *A* (directly or by implication)? Again, the proponent's response would extend the original argument. The fourth, fifth, and sixth

⁹Reed and Walton allow a parallel scheme for cases where the expert asserts that *A* is false. They do not state the scheme specifically in the form of a warrant.

¹⁰They also stipulate that the associated conditional of the original argument scheme be added as a further premise.

questions raise issues of undercutting defeaters. Thus positive answers would function as counterdefeaters, again extending the original argument rather than making a non-explicit premise explicit. Since positive or negative answers to any of the six critical questions do not have the form of generalized conditionals and would not appear to answer the relevance question, they are not non-explicit premises in the original argument.

Another consideration counts against regarding answers to the critical questions as non-explicit premises in the original argument. It misallocates the burden of proof. If the core argument for a claim has a non-explicit premise, then that core argument is incomplete. Unless the non-explicit premise is “in the challenger’s mind,” the proponent has not discharged that burden of proof. But if the argument has no non-explicit premises, given the argumentation scheme it is instantiating, then (provided that the premises are acceptable, i.e. for appeals to expert opinion the proponent has discharged any burden of proof which the first three critical questions could raise), the core argument is complete and the proponent has discharged his burden of proof, at least *pro tem*. Should the challenger raise this issue of defeaters through asking any of the last three critical questions, she would shift the argument to the dialectical tier and the proponent would again have a burden of proof to supply counter-defeating premises. But this burden is encountered after the challenger has raised these issues, not as part of presenting the original core argument. Hence, answers to the critical questions should not be regarded as non-explicit premises in the core argument, and our contention that non-explicit premises, if any, address the relevance question stands.

7.5 Enthymemes and the Borderline Between Argument Analysis and Evaluation

Making explicit the non-explicit premises in an argument, if any, seems part of identifying the premises of an argument and thus of argument analysis preparatory to argument evaluation. But our procedure involves identifying the associated generalization of the argument, which may be the argument’s warrant, as opposed to a non-explicit premise. But identifying the warrant is a step in argument evaluation, rather than analysis. Moreover, to determine whether the associated generalization is a warrant or a non-explicit premise requires recognizing whether it is a nomic or accidental generalization. But this involves determining whether the associated generalization supports subjunctive conditionals, a semantic question. Recall that in discussing distinguishing linked from convergent structure, we argued that this was a syntactic distinction to be determined by syntactic rather than semantic issues. Whether an issue was syntactic or semantic had a bearing on whether we could properly regard it as belonging to argument analysis as opposed to argument evaluation. “Analysis precedes evaluation” has been a motivating motto behind these essays. Are we compromising that principle in our procedure to make non-explicit premises explicit?

The compromise is minimal. The issue of whether an argument involves a non-explicit premise arises when there appears to be a gap in the argument. A further assertion seems needed to make the step from premises to conclusion. Without a noticeable gap, identifying the associated generalization is identifying the warrant. Formulating the warrant is a syntactic exercise here. By contrast, should there appear to be a gap in the argument, recognizing whether the associated generalization is the warrant or a non-explicit premise consists in determining whether the associated generalization is accidental or nomic. As we have seen, in certain cases the generalization will be equivalent to a singular descriptive statement, which thus is a non-explicit premise in the argument. If the associated generalization is not equivalent to a descriptive singular statement, the question of whether it is the argument's warrant or a non-explicit premise depends on whether the generalization is accidental or nomic.

In 1961, Nagel has devoted significant space to the issue of distinguishing accidental from nomic universals. First, accidental universals are restricted to a given spatiotemporal region, while nomic universals are not. "All screws in Smith's car are rusty," more candidly

(∀x)(if *x* is a screw in Smith's car during time period *a*, then *x* is rusty during *a*)
(Nagel 1961, 56)

concerns a circumscribed region of space and time. By contrast, "All planets more on elliptical orbits" is not so circumscribed. Telling whether the generalization is circumscribed is either a matter of syntactic inspection or of recognizing that the antecedent of the generalization is semantically equivalent to an expression making reference to a specific spatiotemporal region.¹¹ Because of this circumscribing, accidental generalizations concern a finite number of objects and are equivalent to a finite conjunction of singular descriptive statements. It is thus in principle possible to establish the truth of accidental generalizations through empirically checking all these statements. There is a presumption that the class of instances will not be augmented. By contrast, with a nomic generalization there is no such presumption. Its scope is not limited to any finite set, and indeed will go beyond any set of evidence gathered to confirm it.

Given these considerations, distinguishing accidental from nomic universals is either a purely syntactic exercise or one which at best is minimally semantic. Distinguishing accidental from nomic generalizations, then, does not involve evaluating the generalizations for truth or reliability, which would be part of argument evaluation. Hence, the issue of making explicit non-explicit premises is still an issue of argument analysis. But it involves centrally the evaluative notion of warrant. What conditions must a warrant satisfy for an argument to be cogent? This is a purely evaluative question and thus not a topic for a collection of papers on argument structure, but for the work of another day.

¹¹Nagel's example, "scarscrew," is stipulated to mean "screw in Smith's car during period *a*" Nagel (1961, 59). One cannot tell just by inspecting "scarscrew" that it could be true of objects only in a limited spatiotemporal region. One needs to know the stipulated meaning.

Chapter 8

From Analysis to Evaluation

Our concern in this project has been with analyzing the structure of arguments as they might be presented by a proponent attempting to convince a critical challenger of some claim. We have already argued in [Chapter 1](#), however, that there is a close connection between the structure of an argument and evaluative issues. The challenger can perceive weaknesses on acceptability, relevance, or sufficiency grounds. The proponent's apposite answers to such questions will extend his argument in structurally different ways, be it serial, linked, convergent, or by countering a defeater. Our approach may have left the reader with certain further questions unanswered, questions again motivated by evaluative considerations. We wish to address some of these questions in this final chapter.

8.1 Convergent Arguments and Determining the Combined Weight of Premises

First, we have motivated convergent argument structure with the question, "Can you give me an additional reason?" Each separate converging premise or reason is putatively relevant to the conclusion, but the combined "weight" of all the premises putatively gives us a stronger case for the conclusion than the weight of any premise singly by itself or the weight of any proper subset of the premises. Let us assume we have a convergent argument with no problem on relevance grounds. Each premise, or subset of premises linking together to form a relevant reason, provides some evidence for the conclusion. On our account, a premise is relevant to a conclusion just in case a warrant reliable to some degree licences the move from premises to conclusion. The strength of this move can be described through a modality. Our account thus raises the question of the relation between each of these individual warrants and the warrant of the argument as a whole, and likewise the relation between the strength of each individual reason and the strength of the convergent argument as a whole.¹

¹We wish to thank an anonymous referee of Springer for raising this question for us.

Much ink has been spilled talking about how the weights of the individual premises or reasons might be arithmetically combined to determine the weight of the full convergent argument. We regard all this talk as wrong headed. Suppose K is some natural kind, where M_1, M_2, M_3 are each independent marks of K . Then

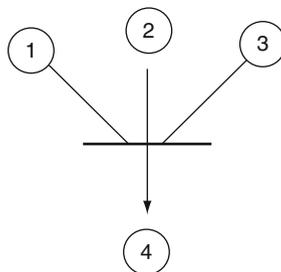
From	M_1x
One may prima facie take it that	Kx
From	M_2x
One may prima facie take it that	Kx
From	M_3x
One may prima facie take it that	Kx

are each warrants which explain why M_1x, M_2x, M_3x are respectively relevant to Kx . But when one argues that

Since (1) M_1a , (2) M_2a , (3) M_3a , therefore Ka ,

as our diagram for convergent argument suggests (See Fig. 8.1),

Fig. 8.1



since there is just one arrow pointing to (4), the argument has just one warrant, namely

From	M_1x and M_2x and M_3x
One may prima facie take it that	Kx

We hold that the strength and reliability of such a warrant is a function of its backing, in Toulmin's sense, and not a function of the strengths of the warrants licencing moves from the individual premises to the conclusion. A full discussion of what this involves can only occur within the context of a comprehensive account of argument strength and connection adequacy. Suffice it to say here that in evaluating the extent of the backing of this warrant, we address ourselves to the extent to which this *conjunction* of marks constitutes a prima facie case for something's being K , bypassing the question of the reliability of M_1, M_2, M_3 individually. For example, suppose this warrant is empirically backed. Supposed that the backing evidence has been gathered by determining the percentage of items which satisfy M_1x, M_2x, M_3x conjointly and also satisfy Kx in some sample. Suppose our sampling procedure has an appropriately high confidence level, and that our sample has been suitably varied. If the sample percentage is suitably high, we conclude that the warrant is sufficiently

reliable. But notice that we considered just one sample of items that conjointly satisfied M_1 , M_2 , M_3 —not three samples, one satisfying M_1 , one satisfying M_2 , and one satisfying M_3 .

This approach is completely in line with Pollock's view on the accrual of arguments in (2010). He asks us to consider the case where we are in a windowless room and two different persons, Carlos and Susan, report that it is raining. On Pollock's understanding, we have three different arguments in front of us, one from Carlos' testimony, one from Susan's testimony, and one from their joint testimony. Pollock is skeptical that we can find some general formula or algorithm for adding together the weights of independent arguments to determine an accrual of their weight. This is for good reason. Reasons each positively supporting some conclusion need not supplement each other's support when taken together, but may actually cancel each other out, functioning in effect as defeaters. Pollock's example is of two jokesters. The testimony of each, by itself, that it is raining gives us a *prima facie* reason to believe that it is raining. But should they both together give us this testimony, we have good reason to think they are pulling our leg and thus should withhold our judgment on whether it really is raining. In the same vein is this example, familiar in informal logic circles, of Sam who both handles cobras barehanded and drinks a quart of gasoline before breakfast. Each individually gives us a reason to think that Sam will not survive for long. But what if gasoline neutralizes cobra venom and vice versa?

The fact, however, that a general algorithm for computing combined argument weight is not available does not show that our intuition that multiple independent reasons supporting the same conclusion in general increase the justification for it is wrong. When we conjoin two independent premises into one convergent argument, the latter, as Pollock sees it, "employs an instance of statistical syllogism appealing to a higher probability than either of the other arguments, so this increases the degree of justification of the conclusion ... even if the arguments do not accrue. ... [W]e often know that the joint probability is higher than either constituent probability, and this gives us a stronger reason for the conclusion, and we get this result without adopting an independent principle of the accrual of reasons" (Pollock 2010, 19).

A question may arise at this point: Suppose several reasons are given for a conclusion, but the proponent does not intend for their strength to be considered collectively in supporting the conclusion. Such a situation might occur if a proponent were addressing several audiences and anticipated that premises acceptable to one might not be acceptable to another. Here then we have a plurality of distinct arguments all supporting the same conclusion. In effect, the structure of the situation instantiates the pragma-dialectical multiple argument structure discussed in Chapter 5. How strongly is the conclusion supported in this case?² We believe Pollock is correct when he says, "If we have two separate undefeated arguments for a conclusion, the degree of justification for the conclusion is simply the maximum of the strength

²We wish to thank an anonymous referee of Springer for in effect raising this question with us.

of the two arguments” (Pollock 1995, 102). Again, “Having multiple arguments for a conclusion gives us only the degree of justification that the best of the arguments would give us” (Pollock 2010, 21). Again, this judgment applies only if we have multiple, separate arguments—a plurality of arguments. Should these arguments be merged into one convergent argument, its strength is determined by evaluating the strength of the new warrant licencing the move from the several premises conjointly to the conclusion.

8.2 Premises, Uncountered Defeaters, and Conjunctions

Suppose the proponent of an argument has left one or more defeaters uncountered. A paradigm case of such an argument would be one which entertains pro and con considerations, holding that the pro considerations outweigh the cons. We shall develop this point shortly. Assessing the strength of such an argument is similar to assessing the strength of a convergent argument. Suppose that in addition to pointing out that a instances three marks of a natural kind K , a proponent concedes that a also instances N , a mark that something is not K , i.e.

From Nx
One may prima facie take it that $\sim Kx$

is a reliable warrant. We are assuming both that the proponent is conceding that Na and presenting no further consideration to defeat its force. Then in evaluating the proponent’s argument, we take the warrant to be

From $M_1x \ \& \ M_2x \ \& \ M_3x \ \& \ Nx$
One may prima facie take it that Kx

Whether or not the proffered premises M_1a , M_2a , M_3a constitute grounds adequate for Ka in light of Na depends on the reliability of this warrant. It could be that Nx completely negates the force of $M_1x \ \& \ M_2x \ \& \ M_3x$. That the barometer is falling may give us a reliable prima facie reason to accept that it will rain shortly. But that both the barometer is falling *and* an offshore breeze is blowing may be a reliable prima facie reason to believe that rain is *not* in the immediate offing. By contrast, that Sue intentionally avoids John may be a strong prima facie reason for accepting that Sue is angry with him. Although Sue is still good friends with John’s mother might be some reason to believe that Sue is not angry with John, the warrant

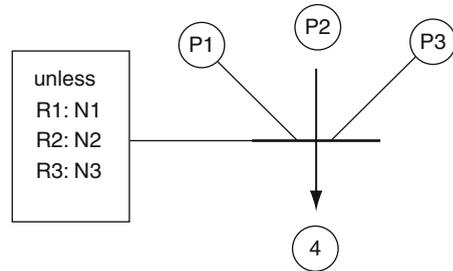
From x intentionally avoids y although x is friends with y ’s mother
One may prima facie take it that x is angry with y

may be virtually as reliable as

From x intentionally avoids y
One may prima facie take it that x is angry with y

These considerations motivate how we believe arguments weighing pro and con considerations should be analyzed and evaluated.³ The pro considerations in such arguments are premises or reasons, and are thus part of the illative core of the argument. The con considerations belong to the dialectical tier. So where three pro reasons are being weighed against three con rebutting defeaters, the diagram of the argument would look like this (See Fig. 8.2):

Fig. 8.2



But in evaluating the argument, we identify the warrant as

From $P_1x \ \& \ P_2x \ \& \ P_3x \ \& \ N_1x \ \& \ N_2x \ \& \ N_3x$
 One may prima facie take it that Cx

We evaluate the strength of the argument or ground adequacy of the premises with respect to the reliability of the warrant conjoining both pro premises and con rebutting defeaters. That is, we evaluate the strength of the argument from the pro considerations in light of both those considerations and the uncountered rebutting defeaters.

8.3 Pollock’s Inference Graphs and the Issue of Argument Evaluation

Our diagram does not make explicit that N_1, N_2, N_3 support $\sim C$, although their representation as rebutting defeaters to an argument supporting C implies it. Using Pollock’s inference graph method (See Chapter 1, Appendix 2), we would represent the argument as Fig. 8.3:

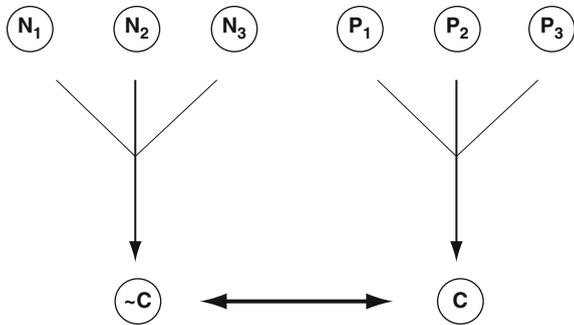
Unlike our diagram which indicates that whether P_1, P_2, P_3 constitute grounds prima facie adequate for C depends on whether

From $P_1x \ \& \ P_2x \ \& \ P_3x \ \& \ N_1x \ \& \ N_2x \ \& \ N_3x$
 One may prima facie take it that Cx

is a reliable inference rule, the inference graph in Fig. 8.3 suggests that C and $\sim C$ defeat each other and that neither constitute a justified belief with respect

³We wish to thank an anonymous referee for Springer for raising this question with us.

Fig. 8.3



to the graph. This, however, would be a hasty reading unless the proponent whose reasoning the graph represents knew that the arguments for C and $\sim C$ were equally strong. This need not be the case. If the argument for C were stronger than the argument for $\sim C$, C might still be worthy of belief—and likewise for $\sim C$ *mutatis mutandis*. But how does one determine argument strength?

In (1995), Pollock proposes a measure based on the statistical syllogism. He formulates the principle of the statistical syllogism this way:

If $r > 0.5$ then $\text{prob}(F/G) \geq r$ & Gc is a prima facie reason for Fc , the strength of the reason being a monotonic increasing function of r . (Pollock 1995, 93)

Pollock's proposal immediately raises the issue of the interpretation of probability. Not only can one ask whether the classical, logical, or some version of the frequency interpretation (or some other interpretation) is appropriate, but whether the appropriate concept of probability is properly axiomatized by the standard Pascalian axioms. Can a specific concept of probability be used in a generally applicable account for determining the weight of reasons? We cannot go into these issues here.⁴ Assuming that a general account of argument strength or the weight of reasons could be given along Pollock's lines, could one read off from an inference graph which nodes are defeated? This is Pollock's aspiration for inference graphs. However, he admits there are significant problems in achieving this goal. "The hardest problem in a theory of defeasible reasoning is to give a precise account of how the structure of a cognizer's inference graph determines what he should believe" (Pollock 2008, 454). Again, "What we want is a criterion which, when applied to the inference graph, determines which conclusions are defeated and which are not, i.e. a criterion that determines the *defeat statuses* of the conclusions" (Pollock 2008, 455, italics in original).

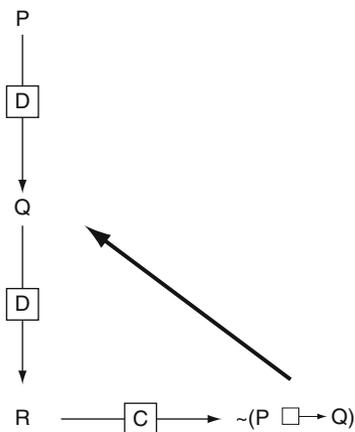
In (1995), Pollock addresses the issue of determining—"computing" is his term—the defeat status of a node in an inference graph. If there is a defeat link from a node B to A and B is undefeated, then A is defeated. Likewise, if A is inferred from a defeated node B , A is defeated. B need not be an immediate ancestor of A . The point

⁴For a discussion of the problems, see our (2009).

is that once B is defeated, all inference descendants of B are defeated. Figure 8.3, illustrating collective defeat, shows why reading off defeat status from an inference graph can be problematic. We have a bidirectional defeat link between C and $\sim C$. So are either defeated? It seems that a node must be undefeated to be able to defeat another node. Intuitively, if the arguments for C and $\sim C$ are equally strong, both C and $\sim C$ should be defeated. But if we appeal to a criterion of comparative strength of arguments for C and $\sim C$, we are appealing to a consideration beyond the inference graph itself to determine defeat status.

A further problem involves what Pollock calls “self-defeating” arguments (Pollock 2008, 456). Suppose we had an argument with the following inference graph (See Fig. 8.4):

Fig. 8.4



(Recall from Chapter 1, Appendix 2 that “D” indicates a defeasible inference, while “C” indicates a conclusive inference.) Is Q defeated or not? P as an initial or basic node is undefeated. If Q is undefeated, then R is undefeated, then $\sim(P \square \rightarrow Q)$ is undefeated, but then Q is defeated. On the other hand, if Q is defeated, then R is defeated, then $\sim(P \square \rightarrow Q)$ is defeated. But then the defeater of Q is defeated and so Q is undefeated! (Cf. Pollock 2008, 458.) It seems that at best, we can read off the defeat status of only some of the nodes of an inference graph.

Notice that the support links between P and Q and Q and R are both defeasible, while the link between R and $\sim(P \square \rightarrow Q)$ is conclusive. Here again, the issue of argument strength comes to the fore. Suppose that the link between Q and R is weak, while the link between P and Q is strong. Or suppose the defeat link between $\sim(P \square \rightarrow Q)$ and Q is weak. Surely, this should bear on whether Q is defeated or not. In (2008), Pollock indicates that although there are proposals for taking account of strength of reasons or degrees of justification in giving an account of how an inference graph should indicate to a reasoner what he is justified in believing, certifying whether any of these proposals are correct remains an open problem.

If these reflections here are cogent, they indicate that both Pollock's reasoners and our challengers must go beyond graphs or diagrams in evaluating arguments. The reasoner must answer just how in general does one determine the strength of reasons. The challenger must answer how in general does one determine whether the premises of an argument are acceptable and adequately connected to the conclusion to transfer their acceptability to the conclusion. These evaluative questions go beyond argument diagramming and are the work of another day.

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