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ANALYSING ARGUMENTATION IN PLANNING AND PUBLIC POLICY: ASSESSING, IMPROVING AND TRANSCENDING THE TOULMIN MODEL

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Analyzing Argumentation in Planning and Public Policy: Assessing, Improving, and Transcending the Toulmin Model

Abstract

Planning and public policy endeavors are argumentative. We explore issues in analyzing and learning about planning/policy argumentation, by considering the use and misuse of Stephen Toulmin's method of argument representation. We first outline Toulmin's heuristic and its contributions, then discuss the dangers of converting it into 'The Toulmin Model'. From examples in published literature and from classroom experience, we suggest there is widespread misuse of the model, including: 1) oversimplification of complex argumentation by trying to squeeze everything into a single simple diagram; 2) much mistaken identification of components; 3) treatment of the introductory Toulmin diagram as if it could be a layout equally suitable for every argument; and 4) possible discouraging or misleading of users due to an unwieldy and perhaps counter-intuitive visual presentation. We suggest the following as practicable ways by which effective use can be raised: 1) employment often of multiple linked diagrams rather than a single one; 2) a more systematic, multi-stage, coding process to identify argument components; 3) more flexible handling of layout, responsive to the specificity of particular arguments; 4) use sometimes of tables rather than diagrams. In addition, going beyond the Toulmin model, we advise attention to more flexible general approaches for specifying argument structure, to approaches with more policy-analysis and planning content, and to other aspects of argumentation analysis.

1. The case for argumentation analysis has been won - but how to do it?

The centrality of argumentation in planning and public policy is increasingly well established. The recent book edited by Frank Fischer and John Forester, *The Argumentative Turn in Policy Analysis and Planning* (1993), goes in certain ways beyond older statements such as Rittel and Webber (1973) or Goldstein (1984). It has helped to consolidate awareness that ability to construct and evaluate arguments represents an essential family of skills for planners and policy analysts.

Less agreement exists over what are the most vital skills in the family. And less clear still is how to promote the learning and strengthening of such skills. One can finish reading Fischer and Forester's book and similar material and yet lack clear guidance on how to practice or teach argumentation. Suppose one accepts with MacRae (1993) that the ability to apply certain quality criteria to policy proposals is fundamental; or with Throgmorton (1993) that sensitivity to argumentation as rhetoric, including the use of tropes in language, does matter.[1] How does one convert this into activities that sufficiently motivate, engross and benefit busy practitioners and students, and can result in practical applications?

More directly lending itself to use in training is Forester's (1993) view that 'practice stories' are central to how planners communicate with and learn from each other: narratives and stories which, implicitly and explicitly, combine reportage with elements of definitions of others and of self, of problems and values, and of priorities and constraints. But how are such 'stories' to be analyzed, understood and assessed? Are we left to face an ocean of 'everyday language', proverbial injunctions, anecdotes and tropes, with just our 'common sense' and 'professional savvy'? If so, one might ask why should people devote years and riches to come to graduate school, rather than do an apprenticeship plus professional examinations, the common pattern in an earlier era?

Relatively little literature seems to exist on tested applicable approaches for upgrading policy and planning argumentation. A high proportion of such material relies on a single model, based on Stephen Toulmin's schema for argumentation in general (Toulmin, 1958, *The Uses of Argument*).[2] Hunting for something clear, striking, teachable and manageable, around which to organize their approach to planning and policy argumentation, many have found, or built, a refuge in 'The Toulmin Model'.

Toulmin proposed his scheme or schema for a purpose both particular and general: to show that the classical syllogism handed down from Mediterranean antiquity was inadequate for handling many, perhaps most, cases of argumentation in practice. The

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[1] Tropes are figures of speech, where words are not used in their literal sense; for example, with metaphors we describe something as something else, to imply a similarity.

[2] See e.g.: Bozeman and Landsbergen, 1989; Chang, 1993; Dunn, 1981, 1993, 1994; Goldstein, 1984; Mason and Mitroff, 1980/1, 1981; Mitroff and Mason, 1980; Parkin, 1993; Ray, 1990.

purpose was particular in that Toulmin was engaged in a specific debate: against taking classical determinate deductive logic as the main basis for analyzing and teaching argumentation. He was not proposing a model sufficient for all purposes and all occasions. However his purpose was general too, in being at a high level of abstraction and not concentrating on the specifics of argumentation in any one field. In a later textbook (Toulmin et al., 1979) he looked briefly at such specifics in a range of fields, and stressed the variation between fields. Recently he has said he would, if now rewriting *The Uses of Argument*, stress further how the very substance of the things at stake varies between fields, and hence how each field is distinctive (Toulmin, 1992).

Most of the authors who have adopted Toulmin for use in policy analysis and planning are clear that we need to fill out his general model with specifics from our field. But some have not considered, or perhaps even conceived, that Toulmin's particular, yet highly general, purpose limits the model as a universal guide for analyzing varied arguments from very varied contexts. Instead his famous diagram, barely or not at all modified, is often put forward as the main exhibit for how policy analysts and planners should deal, and learn to deal, with real, concrete arguments and debates, on real, complex issues in real, idiosyncratic settings. Our experience with using the model suggests its considerable shortcomings and even dangers for this.

We will first outline Toulmin's general heuristic for argument specification, its contents and contributions; and, drawing on a series of examples, discuss the dangers of converting it into 'The Toulmin Model'. Unfortunately the teaching and practice of argumentation analysis sometimes stifle thought rather than stimulate it. We draw both on published literature and our experiences and those of our colleagues in teaching argumentation in the classroom.

We then make a series of proposals. Firstly, to improve 'The Toulmin Model' by (i) using more than one diagram to represent complex arguments, in order to separately cover different sections of the system of argument; (ii) more painstaking and systematic procedures for identification of argument components; (iii) using differently constructed diagrams for different arguments; and (iv) sometimes using tables instead of diagrams. Secondly, to go beyond 'The Toulmin Model': to more flexible approaches for specifying argument structure; to approaches with more policy analysis and planning content; and to other aspects of argumentation analysis.

2. From Toulmin's general heuristic to 'The Toulmin Model' for argument specification - Contents and contributions

Argumentation in planning and policy does not involve the overriding, more or less definitive, proofs seen in mathematics and formal logic, but instead claims and supportive propositions for persuading an audience, in a given case, of the claims' reasonableness as compared to alternative claims. For planning and policy problems are typically 'wicked': they lack a definitive formulation, an enumerable or exhaustively describable set of potential solutions, and clear stopping rules concerning when a solution has been found (Rittel and Webber, 1973).

The overall contribution of Toulmin's *The Uses of Argument* (1958) was to give a picture that is more widely helpful in practical argumentation than is the classical syllogism. In the syllogism a conclusion necessarily follows from a 'major premise' and a 'minor premise' (e.g.: since all *A*s are *B*, and given that all *C*s are *A*, then all *C*s are *B*). Classical logic's focus on determinate inference means that it is less relevant for planning and policy analysis than is jurisprudence, which has non-definitive conclusions, exceptions to rules, and so on.

More specifically, Toulmin's model advances practical argumentation in several ways: by establishing that arguments have structures; by identifying argument components and relationships among components; by demonstrating that the nature of argument components varies among and within fields; and by demonstrating how the same information can be used in very different arguments.

The notion that arguments have structures is the first and key insight; it provides more focus and purpose to argumentation. The next specific gain is a more refined list of argument components, according to their function, thus showing how the components interconnect.

According to Toulmin et al.: 'six elements can be found in any wholly explicit argument' (1979:25).

1. The focal element of an argument is a *Conclusion* or, in Toulmin's terms, a *Claim*. A key aspect of a Conclusion is that it is debatable: two or more positions may be taken on the issue. This necessitates the argument.
2. A Conclusion is supported by one or more *Grounds* (Toulmin et al., 1979), also called Data (Toulmin, 1958), each of which can support the truth of the Conclusion.[3]
3. If the truth of the Conclusion is not trivially established from the Grounds, then a *Warrant* must be supplied. The Warrant provides the inference rule that allows the Conclusion to be established given one or more Grounds. It is normally understood as

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[3] The term *data* might suggest sheer facts: '...the facts we appeal to... our data' (Toulmin, 1958:97); 'factual data' (Toulmin et al, 1979:25). Toulmin (1958) used the term *data* almost throughout for what he later called *grounds*; the latter term however permits a move beyond the 'factual data' definition. Dunn speaks instead of 'policy-relevant information.' Information, like data, can be wrong.

a principle relevant to a number of cases.

4. The Warrant itself may be debatable, and appeals must be made to the source of legitimacy of the Warrant. This is called its *Backing*.
5. Since Warrants do not necessarily deductively oblige a Conclusion, a *Qualifier* is often used to modulate the strength of belief in the Conclusion. Qualifiers could be in the form of words and phrases such as *probably*, *possibly*, and *unless*.
6. To elaborate and substantiate a Qualifier, a *Rebuttal* is used. The Rebuttal describes why belief in the Conclusion needs to be modulated. It may consist of doubts or counter-arguments concerning any of the elements of the argument or directly concerning the Conclusion. The Rebuttal may require Backing.

Often a Rebuttal or Warrant could itself be presented as a Claim, resting on Grounds, a Warrant and so on; but to retain simplicity in the Toulmin diagram this is only referred to by the use of Backing elements.

So in addition to listing components, Toulmin's model offers a general picture of argument structure, in terms of the links between the specified standard components. This picture is a tool for looking at any case presently at issue; we will see though that it is not universally sufficient.

Figure 1A summarizes the relationships of these components within an argument, as derived from Toulmin (1958:104-5). The diagram consists of a horizontal chain of components and two vertical chains. The horizontal chain starts with Data at the left end, and terminates in the Claim at the right end. These two components are linked by an inference component ("So") and a Qualifier ("Presumably"). In one vertical chain, the link between Data and the inference components is supported by a Warrant, supported in turn by Backing. In the other chain, the Qualifier is supported by the Rebuttal.

In Figure 1A, an argument is made about how the nationality of a particular individual is to be decided. The claim is that Harry was a British subject since he was born in Bermuda, and the inference rule (backed by various statutes) is that people born in Bermuda were British subjects. The claim is qualified by the possibility that Henry was either born of alien parents or had become a naturalized American.

This diagram has been variously modified, including by Mason and Mitroff (1981) and Dunn (1981, 1994). They indicate the possibility of Rebuttals to Warrants not only to Claims. Presumably there can also be Rebuttals to Grounds and Backing, but some authors (e.g. Dunn) wish to emphasize how different conclusions can be drawn even from shared Grounds, and so treat Grounds as consensual data. Further, since all Warrants, Grounds and Backings are themselves claims produced by other arguments, one may prefer to leave debate over their status to separate diagrams; even though by introducing the category of Backing into his diagram, Toulmin had already taken his diagram beyond

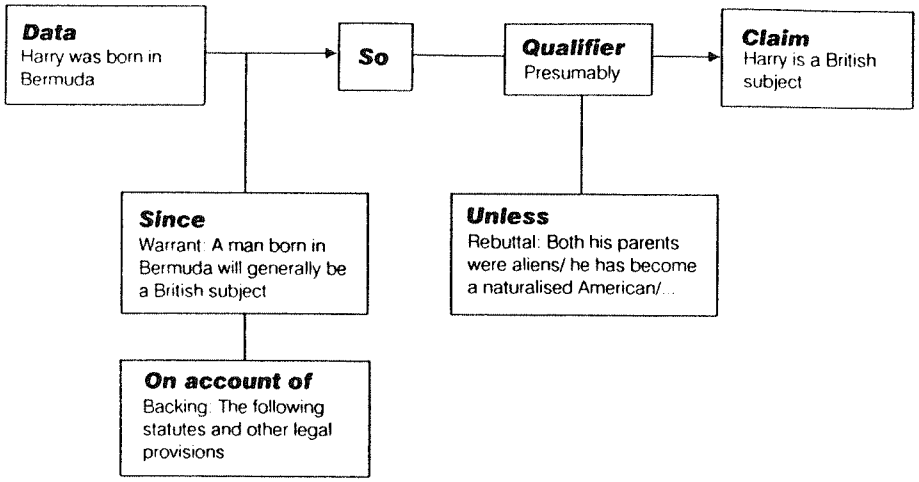

Figure 1A: Toulmin's format for specifying any argument

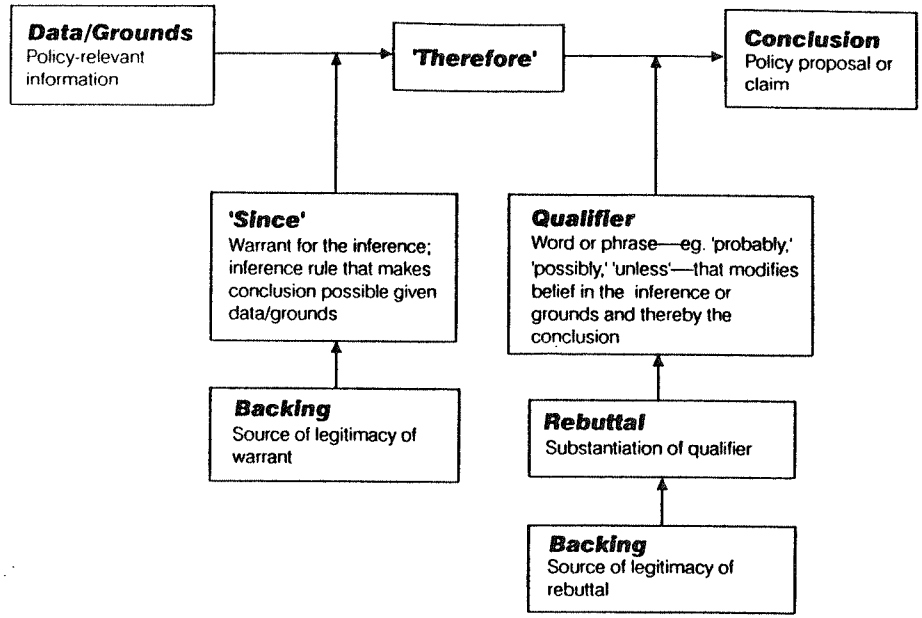

Figure 1B: A version of the Toulmin format for specifying policy and planning arguments

single inferences.[4]

We provide a more general version of the diagram in **Figure 1B**. The principal difference from Figure 1A is a more elaborate structure for qualifying a Claim. Figure 1B also suggests the optional nature of the Warrant and the Qualifier. The vertical chains — one associated with the Warrant, the other with the Qualifier — may or may not appear in an argument. Even if Rebuttals may concern any element of the argument, for reasons of elegance we continue to visually link Rebuttals only to the category of Qualifier, rather than complicate the diagram. The figure also adds further explanation, and the policy or planning equivalents provided by Dunn for terms used by Toulmin.

Figure 1C is presented in Dunn's textbook to introduce *Elements of a policy argument* (1981:43; 1994:67); it has influenced subsequent users in policy analysis circles. Dunn outlines the argument that a government should invest in nuclear power plants. The Ground for this claim is that these plants were considered two to three times more efficient than conventional sources, and the Warrant for the inference is the statement that only nuclear energy can ensure the growth of the economy. This is backed by two statements: Arab countries could continue to embargo oil; alternative sources of energy are limited. By way of Rebuttal, Dunn counterposes the statement about the economic role of nuclear power plants with the proposition that solar energy can be developed on a large scale, and backs this with the opinion of experts.[5]

We include Dunn's diagram to highlight the danger that readers will use a model thoughtlessly. In this diagram, Dunn illustrates the use of argument components with a case in which the Rebuttal concerns the proposed Warrant. As we will see, some of his readers seem to have drawn the conclusion that Rebuttals can and must only attach to Warrants — despite Dunn's text and later examples to the contrary.

Next, Toulmin et al. (1979) use the model to show how the character of 'grounds', 'warrants' and so on varies between fields, and how even within one field there are many types of warrant. For policy analysis, Dunn (1981, 1994) illustrates the use as warrants of each of: i) authority; ii) insight, judgement and intuition; iii) established analytical methods; iv) standard general propositions; v) pragmatic comparisons with other cases; and vi) ethics. One exercise for students is to look for the types of Warrant, as well as of Backings, Grounds etc., in a selected study or report. It proves to be more difficult than it may sound, for reasons we will come to.

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[4] The combination of these two stances--(1) the treatment of Data/Grounds as sheer facts, and (2) the treatment of all elements as themselves derived from some such Data/Grounds via a Warrant--leads some to conclude that Rebuttals can, when traced back, apply only to a Warrant. However the achievement of Toulmin's diagram is to give a concise and necessary overview of the context of any single inference, the structure of the wider system of arguments within which it must be understood. Within this context we can, even if we accepted stance (1), still usefully specify Rebuttals as linked to other components besides Warrants.

[5] There are ways we believe this diagram can be made more effective. Later, in Figure 6, we recast Figure 1C to more effectively describe the argument.

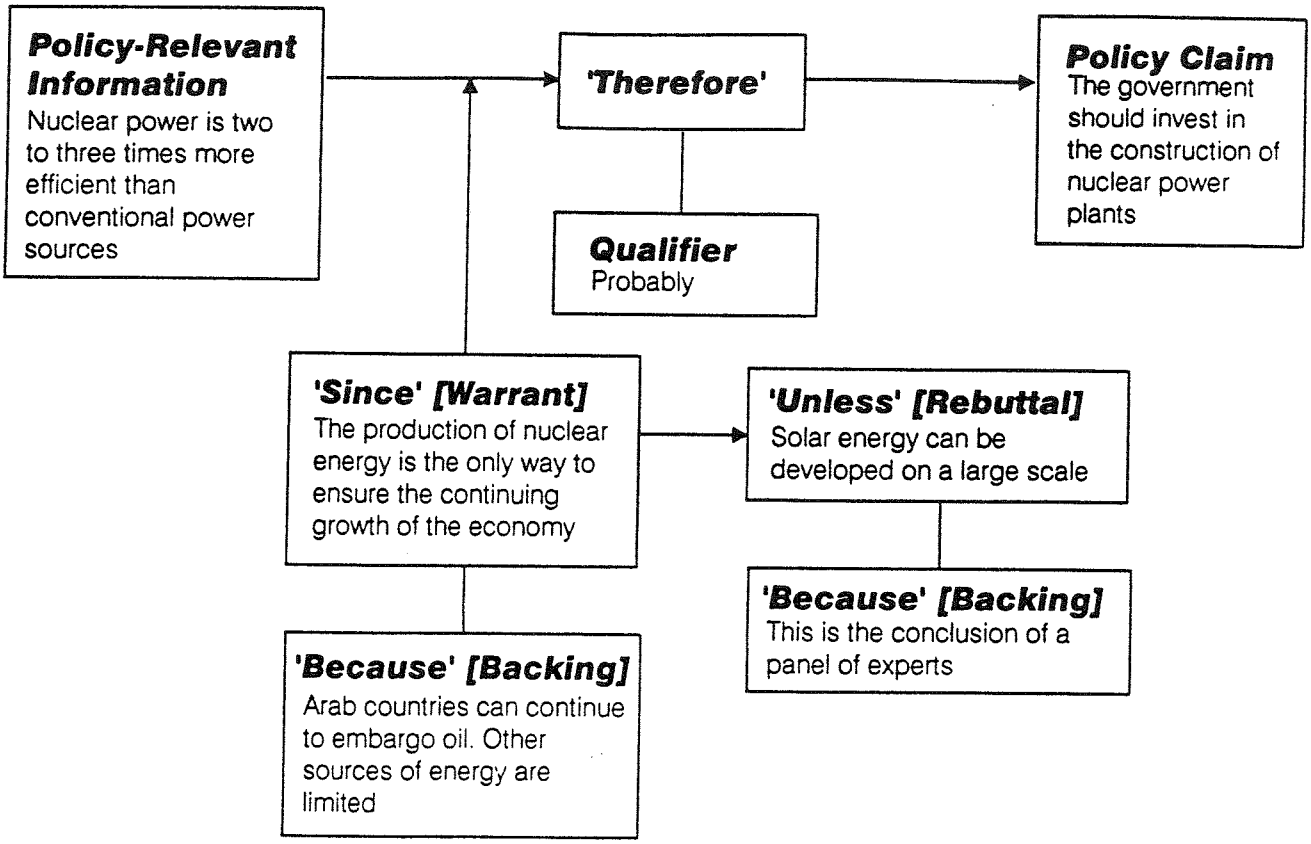

Figure 1C: Dunn's illustration of the 'Elements of a policy argument'

Goldstein (1984) has similarly elaborated the varied nature of Warrants and Backings used in arguments in planning, which reflects its inter-disciplinary history and tasks, and its need to combine empirical and normative considerations. In drawing inferences from grounds (data about current or projected situations, such as about needs and preferences), the warrants used can include positive theories, normative theories about appropriate allocations or procedures, and existing laws. Their proposed backing may include views on method, broad positive and normative conceptions of 'man' and society, the legal constitution, established professional approaches, and so on.[6]

Finally, for Bozeman and Landsbergen (1989) and Dunn (1990, 1994), a great merit of the Toulmin format is that it helps to highlight how the same information (grounds), depending on how it is viewed and processed, can lead to very different conclusions by interaction with different proposed warrants, backings and rebuttals.[7]

3. Examples of use and misuse

Notions about the way planning ought to be practised can be tested by implementing them in real-world professional situations and by introducing them in the classroom. In our experience, the Toulmin format is rarely used correctly, especially by busy professionals and students, who are short of time to learn its tricks and pitfalls. We could provide examples from our experience in (mainly postgraduate) teaching in the Netherlands, Zimbabwe, and the United States. But some might ask: Are these fair game? How well were the students taught? How far are they an adequate sample? So our fire here is trained on examples of published work by academics. They often experience the same problems and commit the same errors as do students. We treat published academic pieces as fair game.

3.1. Putting given clauses in given boxes

In his widely-used textbook on policy analysis, Dunn gives in the chapter on policy argument an opening example (1981:66; 1994:93) for the theme just mentioned: how, from the same starting point of policy-relevant information, very different conclusions can

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[6] Goldstein suggests that in utilitarian arguments the grounds include individual preferences, market prices, etc.; the warrants are from orthodox welfare economics; and the backing is utilitarian social philosophy (with more or less liberal amendment). In systems arguments, grounds include estimated and/or projected system conditions; the warrants are the models used of the system, and the posited goals, usually for system maintenance; backed by the associated methodology. In procedural arguments, the grounds are facts about the procedure by which a conclusion was reached (e.g. majority voting held under certain conditions); the warrant is a purported principle of good procedure; and the backing is a supportive social philosophy. He noted too the prominence of qualifiers and rebuttals in policy and planning arguments, given our limited theories, orientation to an uncertain future, and typical need to act before research can fully mature. (This discussion of Goldstein draws from Gasper, 1996.)

[7] Dunn speaks of using the Toulmin format to derive or illustrate a 'structural model of argument,' whose features include that: it shows how conclusions leap beyond deduction alone ('ampliative;' 'interpretive'); and, being 'critical,' shows how the content of justifications is multiple ('multirational,' 'multimodal') and varies between contexts. (The adjectives are from Dunn, 1994.)

be drawn, depending on the warrants and corresponding counter-arguments that are brought to bear. Dunn shows this for three different conclusions. In **Figure 2A**, we examine one of those three lines of argument, to point out a particular danger. Toulmin indicated the roles of grounds and warrants by including one of each in his heuristic diagram; the danger is of turning that indication into an assumption that arguments include only one ground and one and only one warrant.

The illustrative Claim/Conclusion in Figure 2A is that American blacks cannot realistically hope for higher educational achievement. It draws on several proposed bits of information: (A) that black students attending predominantly black schools have lower educational achievements; (B) secondly (presented as a Warrant), 'Since black students are concentrated in urban areas'; to which a possible rebuttal is appended; and thirdly (C), that schools in large areas are primarily black. This last piece of data is found nesting in the Conclusion, again as a 'Since...' clause. While the format's highlighting of key words like *since* and *unless* helps in identification of important phrases and components, in practice these key words can still be overlooked. On examination, both 'Since' clauses could well be seen as Data/Grounds. Further, the Rebuttal bears no relation to the Warrant. Instead it queries an implicit premise that the lower level of achievement of black students in predominantly black schools was because of the lower level of contact with whites, and not for example due to differences in family incomes.

Only to juggle explicitly stated clauses into the Toulmin format may not help us identify key elements and links in an argument. **Figure 2B** suggests that the argument contains instead three stages of inference. Data 1 and 2 lead to an intermediate conclusion that most black students will be in primarily black schools. This conclusion, together with a Warrant which is the inverse of Dunn's Rebuttal generates a further intermediate conclusion, that concentration of most black children in mainly black schools will continue. This in turn, when combined with the proposition above about the past record of relative achievement, motivates the main Conclusion. (NB: here and later our re-working of others' arguments is to strengthen their internal logic, not to state our own views.)

So, problems can arise in assuming that a position includes just one stage of inference, in allocating clauses to component-boxes and in identifying the actual lines of inference and dependence. The next two examples illustrate these themes — the dangers of oversimplification and difficulties in 'coding' (identification and classification of components) —- in more detail.

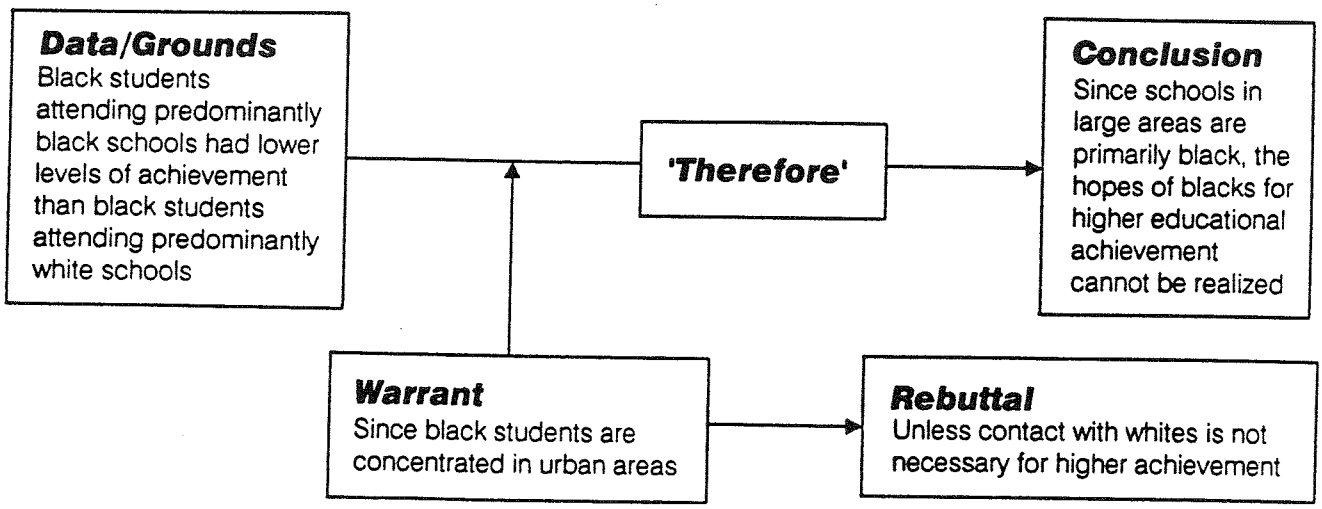

Figure 2A: Dunn's (1994) illustration of arguing for a designative policy

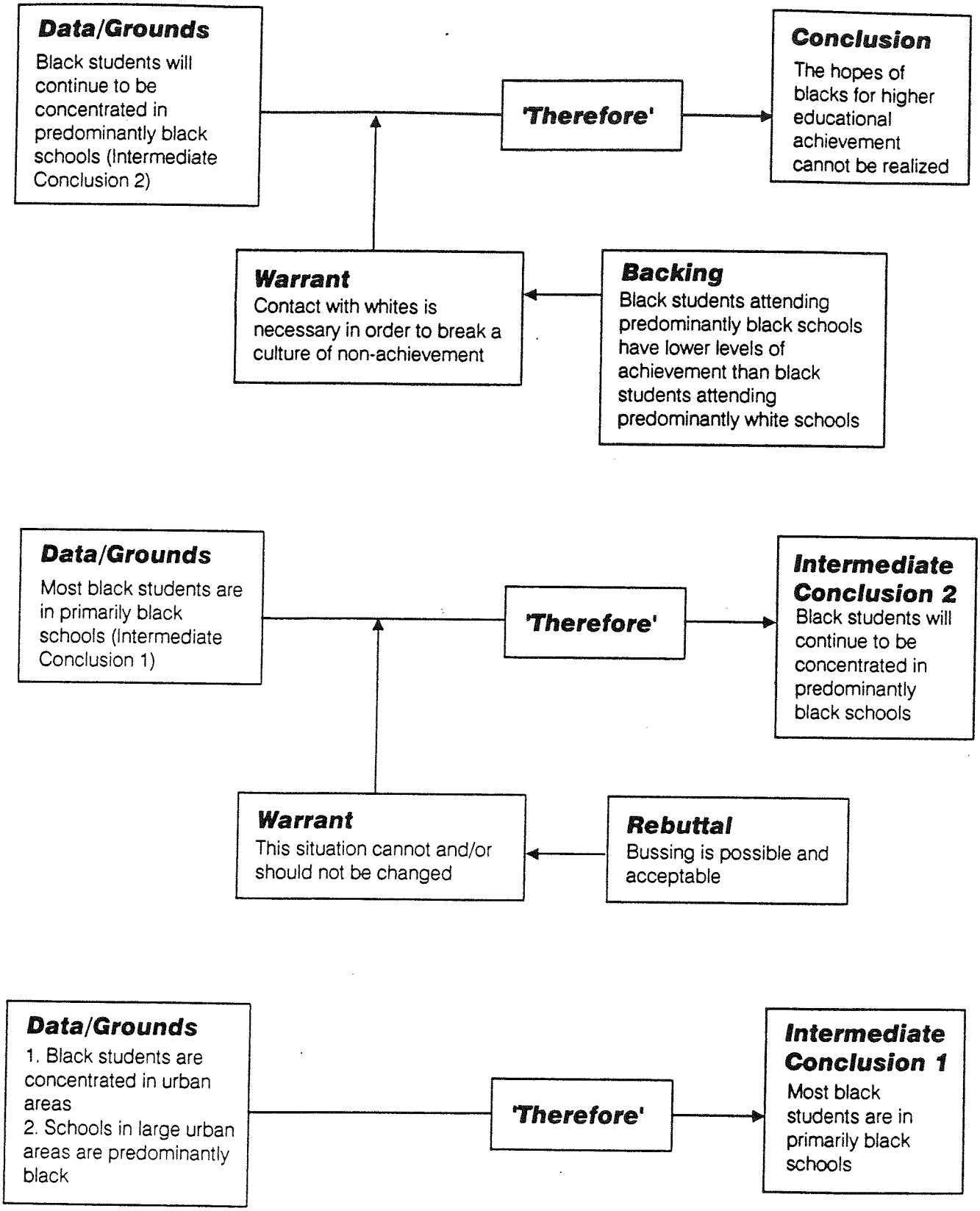

Figure 2B: Re-working Dunn's illustration

3.2. In which boxes? Difficulties in coding

Bozeman and Landsbergen (1989:358) illustrate the Toulmin format with the diagram shown in **Figure 3A**. The central claim is that diplomatic recognition of a foreign government probably signals approval of that government. The claim is supported by citing an expert on the subject, and establishing his credentials. Withdrawal of U.S. recognition of Cuba is also cited as evidence. In rebuttal, another expert and his credentials are cited; and the U.S. reaction to Cuba is described as a special situation.

The diagram is attributed to Toulmin et al. (1979), but has a number of troubling features.

1. In the case of the main Claim ('Diplomatic recognition is a sign of approval') the Warrant is not presented as mediating between Data and Claim; the 'Since' clause should mediate that move, for a Claim is not justified by Data alone.
2. The downward arrows to Warrants are incorrect in both cases; the role of Warrants is to contribute to a Claim.
3. In neither case does the Backing clause actually provide backing for the Warrant concerned.
4. The Rebuttal is drawn as linked to the main Claim and (as in Mitroff & Mason and Dunn's diagrams) to the Warrant behind the main Claim. In this case though the horizontal Rebuttal-Warrant link has no rationale: the comments about Professor Y are not a rebuttal of those about Professor X. An element of another Toulmin/Dunn diagram has been preserved, regardless of its relevance to the case, perhaps as a mark of respect.

The rationale of Toulmin's definitions seems misunderstood. As done by many students, a set of available clauses appear to have been hopefully filed into a given set of boxes, which are then adjusted in an *ad hoc* way to try to reduce the gap between the case and the model.

Part of the confusion is because two parallel arguments have been mingled and squeezed into the same diagram.[8] One line concerns the significance of the Cuba case; the second is the 'own convenience' argument. **Figure 3B** attempts to put this debate into better order. We use two diagrams instead of one, each with a different claim; Conclusion 2 is a second possible rebuttal to Conclusion 1.

Relatedly, we have had to re-code several parts of Bozeman and Landsbergen's diagram. For instance, while the Cuban example is cited as Backing in Figure 3A, we use it as a Ground for Conclusion 1; and while the 'own convenience' argument is used to rebut the Claim and Warrant in Figure 3A, we use it as grounds for Conclusion 2. We do not propose that our figure is the only reasonable way to map the argument; but that it is more logical, consistent and in line with Toulmin's definitions than is Figure 3A.

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[8] Similarly, in uses of the 'logical framework' approach to project and policy analysis, beloved of USAID et al., one often finds that complex multi-activity projects or multi-project programmes have been disastrously squeezed into the single diagram provided by the funding agency.

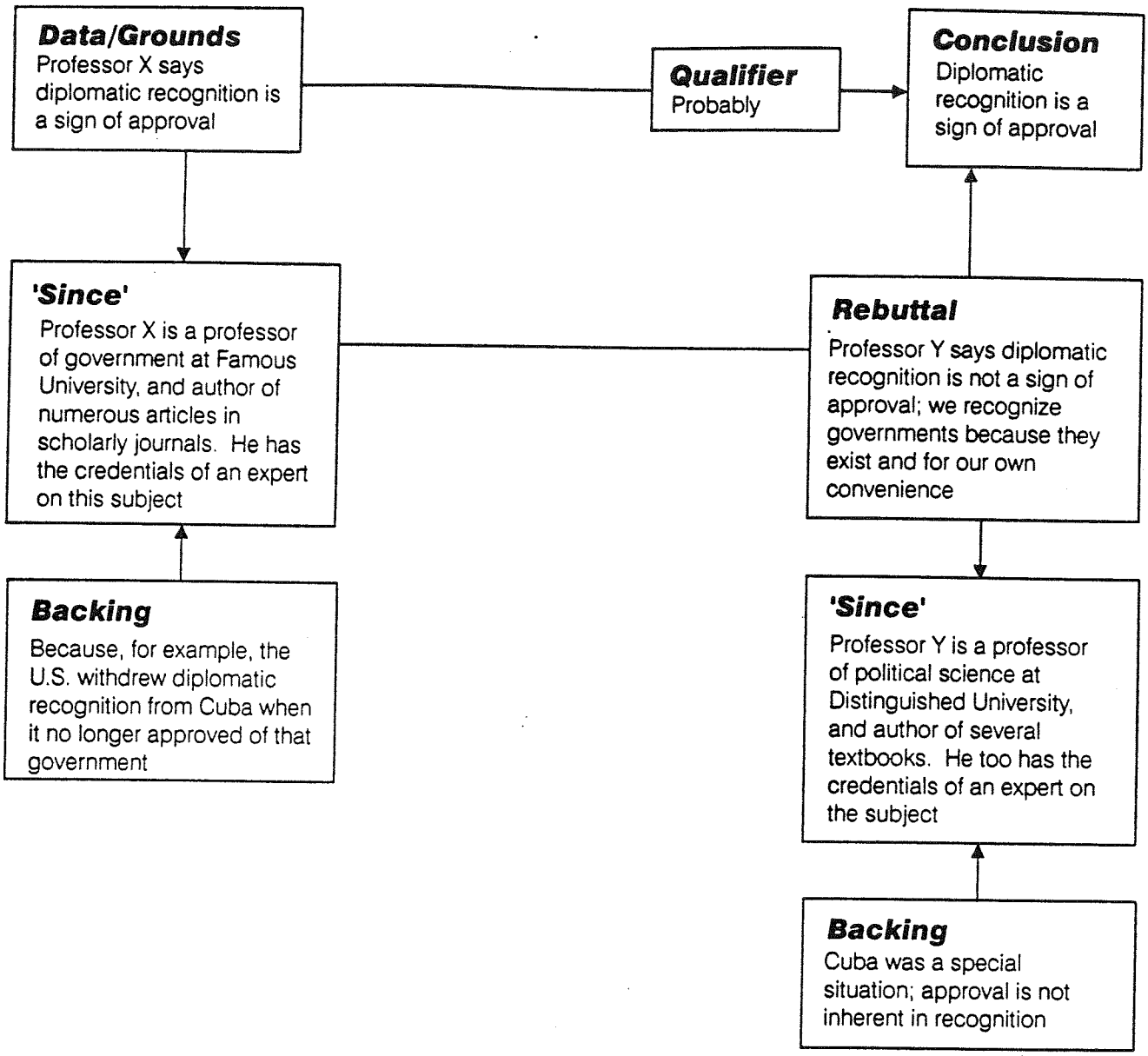

Figure 3A: Bozeman and Landsbergen (1989) on diplomatic recognition

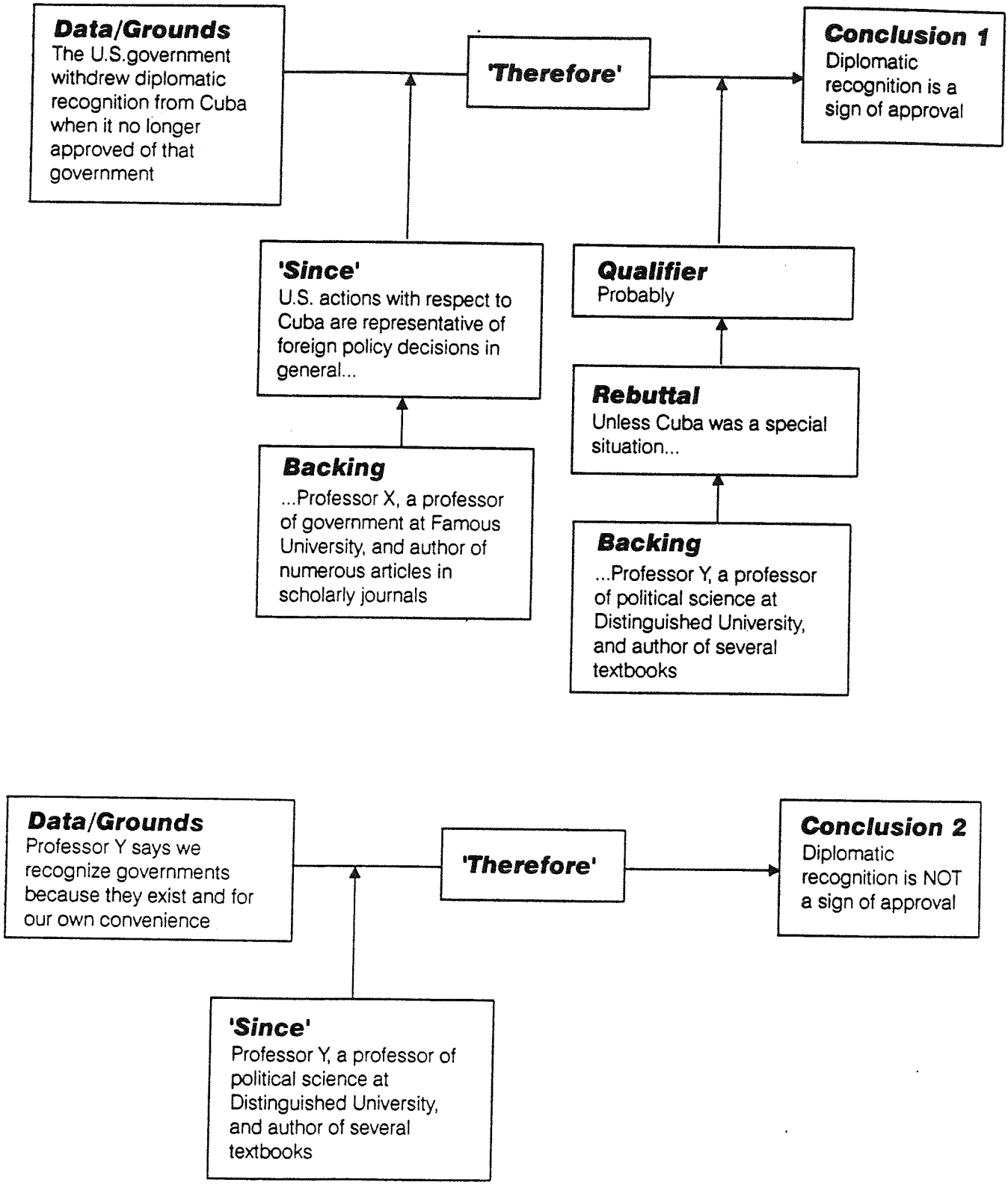

Figure 3B: Revision of Bozeman and Landsbergen on diplomatic recognition

3.3. Stuck in the single-claim, single-ground, single-diagram mode

Our next example centres on this apparently felt imperative not to stray from the textbook visual representation of the Toulmin format. Ray (1990) maps arguments concerning whether public policy should support mediation in disputed matters of child custody. (A relevant dictionary meaning of mediation is: intervention between conflicting parties to promote settlement or compromise.) One of her two maps is again flawed from a desire to cram too much into a single replica of the format.[9] That diagram (from her p.70) is reproduced in **Figure 4A**. There are two Claims: public policy should probably endorse but not require mediation in contested child-custody cases, and policy should probably require an equitable child-support formula. Evidence about the number of children living in single-parent households, and the problems caused by lack of parental support, is presented. To infer the Claims from this evidence, Ray proffers two Warrants: the right of children, articulated by the U.S. Congress, to receive emotional and material support; and the unfair burden placed on women by mediated settlements of child-custody cases. She indicates as Rebuttals, counter-arguments, to these two Warrants: that all children have a right to the attention of two parents; and that mediation allows both parents to participate in child rearing.

Despite noting two separate Claims, Ray squeezes at least two lines of argument into one Toulmin diagram. As a result the logic of connections is no longer explicit and they become less reliable and persuasive. Her Warrant B seems to counter the first Claim, and Rebuttal B to support it; Rebuttal A seems not strictly a rebuttal of Warrant A.

Our de-congesting and re-presentation of the debate, in **Figure 4B**, separates and clarifies the logics behind the two claims. The first Claim, that child-support requirements should be used to promote equitable sharing of the burdens of parenting, is supported by Data on the extent of the problem of single-parent families, and by a statement about the unfair burden of child-rearing on women (used as a Warrant in Figure 4A). The second Claim, that policy should probably favour mediation, is supported by a statement about the value of mediation (this statement is not in Figure 4A, but is taken from Ray's paper). The link between the two arguments is made now via the Qualifier in the second argument, which is the first Claim. We also drop the eccentric use of an arrow into the Data.

[9] Her other case (p.68) appears in difficulties in stating Warrants and Backings.

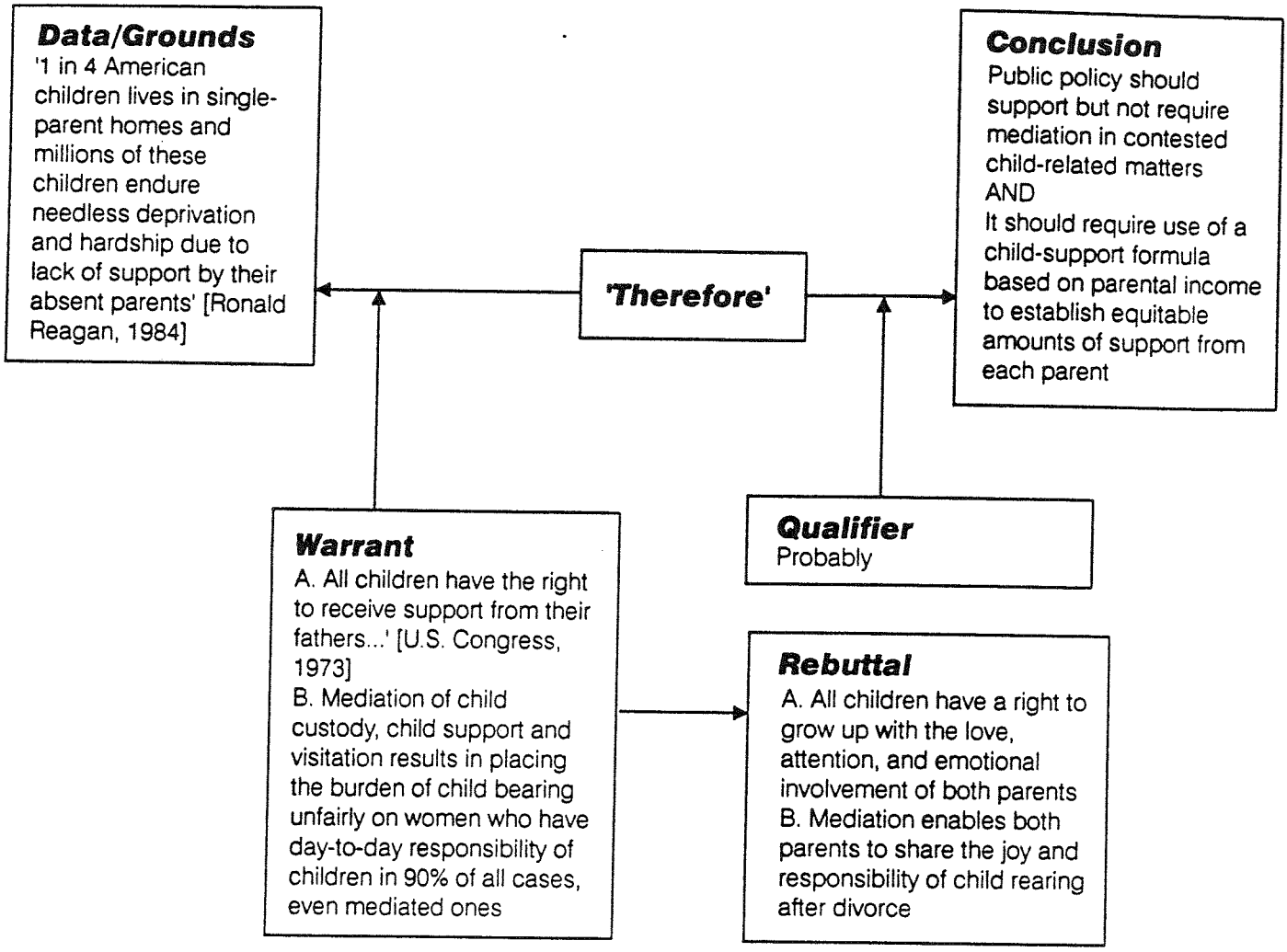

Figure 4A: Ray (1990) on policy on mediation in contested child-related matters

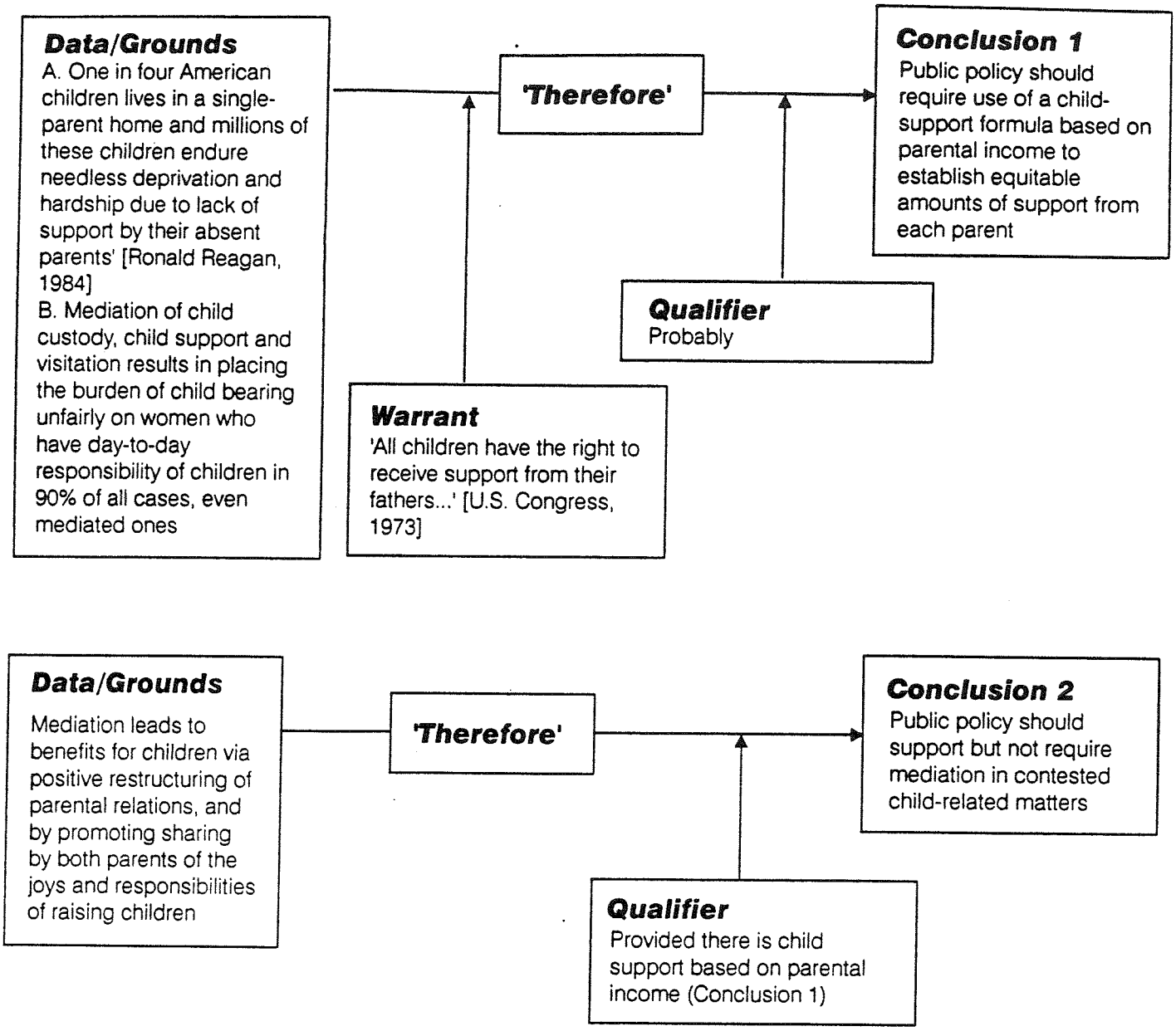

Figure 4B: Unpacking Ray on policy on mediation

3.4. Towards more flexible use

In an important book entitled *Mapping Strategic Thought*, Huff (1990a) and others survey five approaches for understanding and assisting strategic thought by managers and planners. The methods analyze respectively:

1. content in terms of usage frequencies and attention;
2. concepts' meanings and interrelations;
3. analyses of presumed causal interconnections;
4. argument structure;
5. cognitive schemes and frameworks.

For mapping argument structures she and Fletcher look only at the Toulmin method.

Fletcher and Huff (1990a:176) illustrate their approach by diagramming the then-monopoly AT&T's arguments against the 1975 deregulation of the telecommunications industry. See **Figure 5A**. The central Claim is that market allocation will hurt the public. Three grounds are cited in support: the fragmenting of telephone service if phone companies were required to permit direct connection to their equipment; the compromising of the principle of universal access; and the increase in costs resulting from the loss of revenues to AT&T. The experience of telecommunication authorities around the world with impaired service resulting from fragmented responsibility is cited as Warrant for believing the Claim given the Grounds.

Fletcher and Huff do not freeze Toulmin's heuristic format into an obligatory fixed model.[10] To better focus ideas, they relocate the Claim to the top left corner, and relabel it *Key Claim*. This reflects the possibility that a text may contain more than one claim; and the importance of first identifying what is (for one's present purposes) the key claim, before proceeding to identify other argument components in relation to that claim. And they use the format flexibly in other ways: Figure 5A contains three grounds, one of which serves as support for another; further they consider that sometimes the move from Ground to Claim does not call for explicit statement of a Warrant (we agree).

However Figure 5A remains questionable: *Ground* has become a multi-purpose label; and the Warrant does not mediate or bridge the move from Grounds to Claim. **Figure 5B** gives our re-mapping of the argument. We explicitly link all Grounds to the Key Claim, and we restructure and relocate the Warrant to mediate between Ground 1 and the Key Claim. A further arrow could be drawn to the Key Claim from Grounds 2.1; price rises hurt even if nobody disconnects, uses less, or fails to connect, and even if universality is not compromised.

[10] Even when introducing the format, Huff (1990b:35) diverges from Toulmin by presenting Warrants as directly supporting Grounds, in the same way as a Backing supports a Warrant, rather than as mediating and justifying the move from Grounds to a Claim. Like Bozeman and Landsbergen she cites Toulmin et al. (1979).

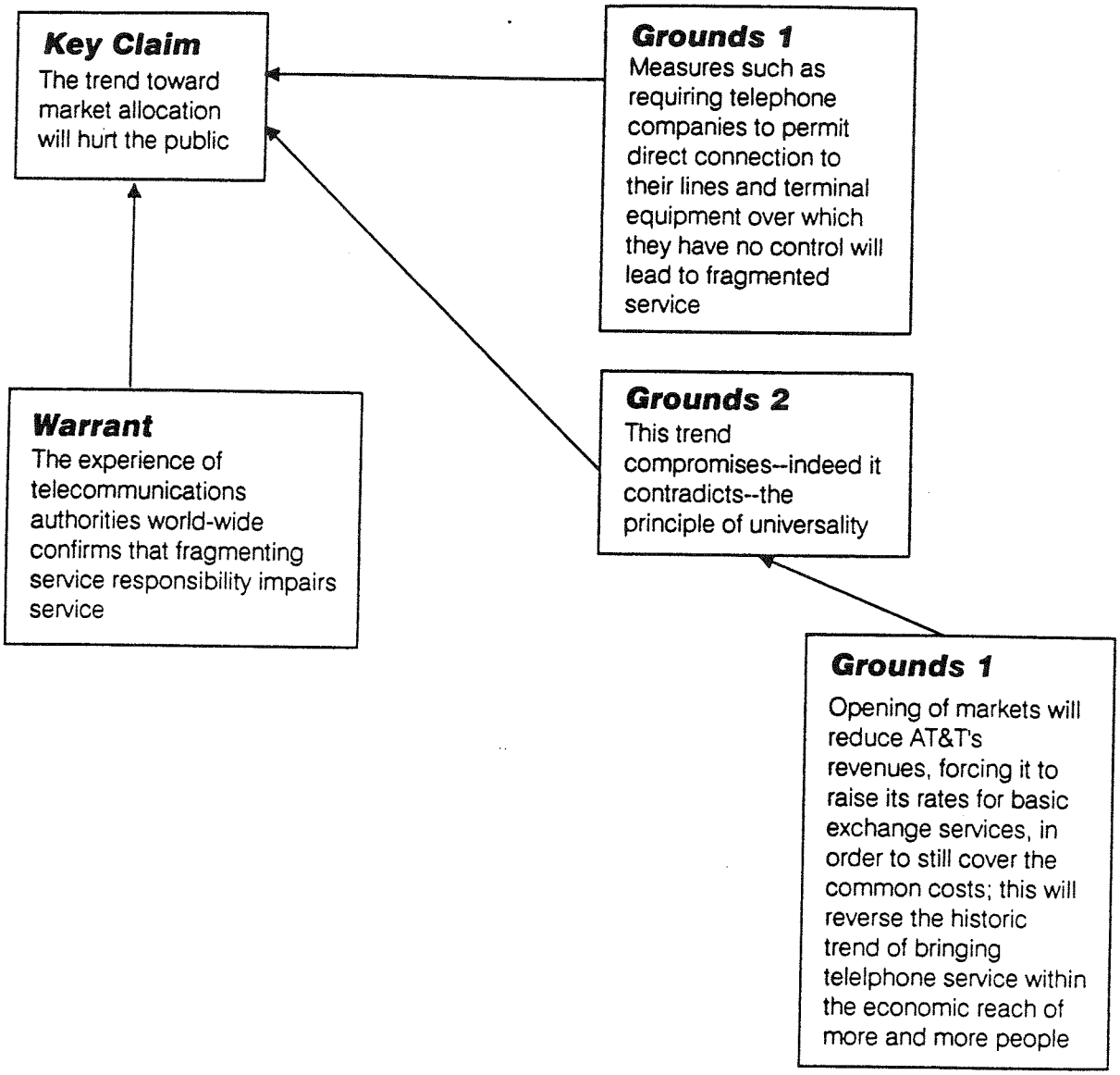

Figure 5A: Fletcher and Huff's strategic argument map for AT&T in 1975

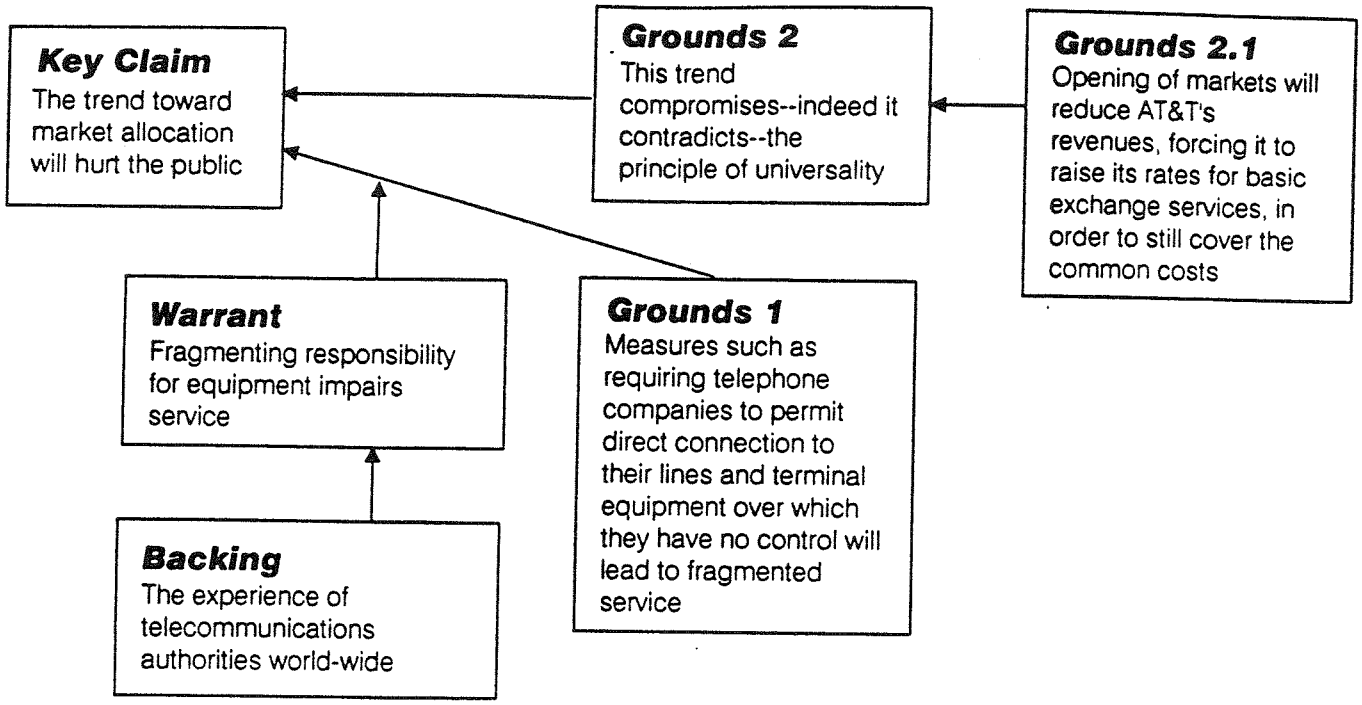

Figure 5B: Re-mapping AT&T's strategic argument of 1975

To sum up this series of examples, and many others, we often see how a scheme that was designed to illustrate some general categories and distinctions, gets read as a putatively universal working model and sometimes weakens thought as much as promoting and deepening it. The scheme becomes ossified, perhaps used as a badge of arcane wisdom which evokes the authority of a famous philosopher, rather than as an heuristic. Yet when people try to handle the format flexibly, they may stray into equal errors of logic.

Can we have and use frameworks so as to aid, yet not stifle, thought? We think so. In Section 4 we diagnose the problem more formally, and in Sections 5 and 6 proceed to possible improvements.

4. 'One size fits all' — Limits and dangers of the Toulmin model

Teaching argumentation to students and practitioners of planning can still begin with the more prominent themes conveyed by the Toulmin Model: that an argument can be disaggregated into several standard components; that these do and should fit together in a systematic way, reflecting their content and specific roles in the argument; and that this structure can be represented in some diagrammatic fashion. Students may be asked to read a planning text, identify the argument components, and then represent the relationships among them in a diagram. In doing so, however, various difficulties become apparent, particularly if they have been given the Toulmin Model. Toulmin provided a way of looking at a particular proposition or small tightly-knit set of propositions, that is more relevant than the standard syllogisms in logic texts, though those still offer us something important. But his format has a number of limitations, which increase for more complex arguments or positions, and are present even with relatively simple arguments.

4.1. Oversimplification

First, though students search for and find a Claim in the given text plus Grounds and a Warrant that support this Claim, this single set of argument components rarely sufficiently captures the richness of the argument. The Toulmin scheme remains too simple if taken as a complete layout for most arguments or positions. Naturally enough:

- discourses contain whole sets of propositions
- 'Grounds' may themselves need support
- there can be several types and layers of Warrants and Backing.

The scheme illustrates the presence of functionally different components in an argument. It does not imply that a position consists of only one inference or argument: e.g. that there is only one Ground, one Warrant or one Claim. Unfortunately users of the scheme sometimes assume so, treat the scheme not as a prompt but as a template, a substitute for thinking, and conflate multiple lines and multiple stages of argumentation into a single

diagram.[11] Further, one can hardly ever in practice analyse complex discourses in the way one can dissect a single page or poem; one must be selective. Here Toulmin provides little guidance.

4.2. Problems in 'coding'

Apart from the issue of simplicity and complexity, the format does not itself provide a procedure for valid 'coding', i.e. for identification of the sections of an argument which match the format's categories. One sees widespread confusion concerning each of the categories. Each can only be accurately recognized by understanding its function in the given context, and that in turn requires understanding the argument as a whole and its context. Grasping the whole argument can be difficult: often it covers 'many pages of text - and the components of the argument are not necessarily presented in convenient (for the coder), or even logical, sequence' (Fletcher and Huff, 1990b:365).

One might take from the model an impression that there is one correct form of drawing any particular argument or position; in other words, that there is one and no more than one correct way of 'coding' the elements of a position -- deciding which are the claims, which the warrants, etc. This is sometimes not true. In practice, people often code differently, and not always is one version evidently superior. But there are also clearly wrong ways of coding, involving illogical inference and misunderstanding of Toulmin's categories.

4.3. Treatment as a universal standard layout rather than as an heuristic

Third, the scheme is at risk of being treated as the universal layout: as if every argument can and must be drawn using the same six elements, in the same mutual relations. In our experience, those who for the first time apply the Toulmin model to planning texts typically make the error of trying to identify all the components --- claim, grounds, warrants, backing, rebuttal and qualifier --- in every argument. While the first two are always necessary, the others may be implicit, trivial, or not required at all. For example, while for every argument a warrant can be extracted, in many cases it would be more important to focus on the support for the proposed grounds. Those who search for warrants, backing, and qualifiers just because they are included in the Toulmin model can end up with a rather forced depiction of the argument. Experience brings a sense of when these components are really necessary in specifying an argument.

Further, the model's universal aspirations mean that it contains none of the specifics of any area of work —- in our case none of the specifics of policy analysis and planning. It may then provide too much guidance on layout, if read as a model not just a general

[11] Ironically, this was close to Toulmin's own original complaint against teaching and practice of logic centred on the classical syllogism: that it creates 'an exaggerated appearance of uniformity as between arguments in different fields' (1958:113). Similarly, he advised against treating 'the formal character of sound arguments...as a matter of their having the right sorts of shape....[and not], rather, in procedural terms' (1958:43).

heuristic, yet too little guidance in other ways for the practitioner or student who is not already a specialist in policy and planning argumentation.

4.4. Problems with the visual representation used

Fourth, using the diagrammatic form of the Toulmin model as a way for extracting and representing the argument can be tedious and counter- intuitive. Tedious if drawing it and redrawing it are time-consuming and 'finnicky'; counter-intuitive if its layout encourages attention first to Grounds and Warrants, rather than to central or culminating Claims -- and thus to the trees rather than to the wood.

In sum, if the model is neither a reliable procedure for analysing arguments nor a universally sufficient layout, it can sometimes become an obstacle to reliable identification of the structure of specific arguments.

- Even with relatively simple arguments, we have found a significant danger, amongst not only students but also professionals and academics, that having learnt the model they do not take it as an heuristic guide and starting point, but try to force everything into a single straitjacket, and become diverted from analysing the particular features of an argument.
- When the scheme become interpreted as a universally applicable and sufficient model, it leads to oversimplified rendering of complex policy positions or debates.

We will now suggest both some ways of improving use of Toulmin's approach and then ways of adding to or going beyond it.

5. Improving 'The Toulmin Model'

The four groups of suggestions in this section match the four groups of problems discussed in Section 4, in the same sequence.

5.1. Countering oversimplification and overcomplexity: beyond the single diagram

Complex policy arguments necessarily involve multiple claims.[12] Usually these constitute a hierarchy of claims. For if claims are unrelated to each other, the resulting argument will be fragmented and diffuse. To be persuasive, a policy argument must be focused. This means that some claims will serve to support others, and eventually there will be one key claim --- to use Fletcher and Huff's term --- or a few key claims.

Naïve applications of the Toulmin model usually attempt to fit an argument into a single diagram. When a number of candidate claims present themselves, the analyst has to decide how to deal with these multiple claims. One approach is to select a single claim,

[12] Van Eemeren et al (1996:288) write of 'multiple', 'coordinatively compound', and 'subordinatively compound' argumentation structures.

diagram. When a number of candidate claims present themselves, the analyst has to decide how to deal with these multiple claims. One approach is to select a single claim, identify the other Toulmin components (grounds, warrants, and so on), and construct one diagram. The pattern identified in this manner does not capture the richness of the arguments. Another approach is to cram all the claims into one complex diagram, which becomes hard to construct, read, and understand.

In earlier sections, when we reworked argument diagrams created by others we sometimes ended with two or more diagrams instead of the single original; see Figures 2B, 3B and 4B. In Figure 3B, the claim in one diagram rebuts the claim in the other; in Figure 4B the two claims work together as parts of a concern that public policy must be concerned with children in 'broken' homes. Complex policy arguments are best represented by multiple diagrams to avoid oversimplification of the argument or overly complex diagrams that are hard to understand. Some of these diagrams will involve Rebuttals; the others will form a hierarchy of Claims topped by a Key Claim, as in Figure 5B.

In **Figure 6**, we further illustrate how multiple diagrams capture the complexity and structure of policy arguments in a more understandable way. We reinterpret Figure 1C, Dunn's illustration of the elements of a policy argument about investing in nuclear energy, and make the original diagram more readable by splitting it into two separate diagrams. In doing so, we also highlight the hierarchical nature of the argument: a ground for the key Claim is treated as a Claim in a separate diagram. Clearly, some of the other premises are debatable and could be supported in separate diagrams, but we do not do so, in the interest of brevity.

5.2. Reducing coding errors; adding or substituting a procedure for 'the Toulmin model'

How is one to identify the components in such diagrams? Partly through immersion in the argument-system and its context, partly through trial and error. But inter-analyst agreement is not easy to achieve. Fletcher and Huff propose and illustrate a painstaking coding process (1990a:168-9; 1990b:356ff.). It involves:

1. Dividing documents into topic blocks, i.e. continuous sections that deal with one issue; 'a topic block is the basic unit of analysis' because meanings can only be well established in the relevant context (1990b:357).

2. Subdividing the topic block into discrete arguments. It may contain only one dominant argument, perhaps plus some digressions and elaborations, or it may contain several unrelated arguments.

3. Identifying the components of each individual argument. For Fletcher & Huff these are: key claim/conclusion; data/grounds; warrants; and sometimes rebuttal, qualifier, &c.

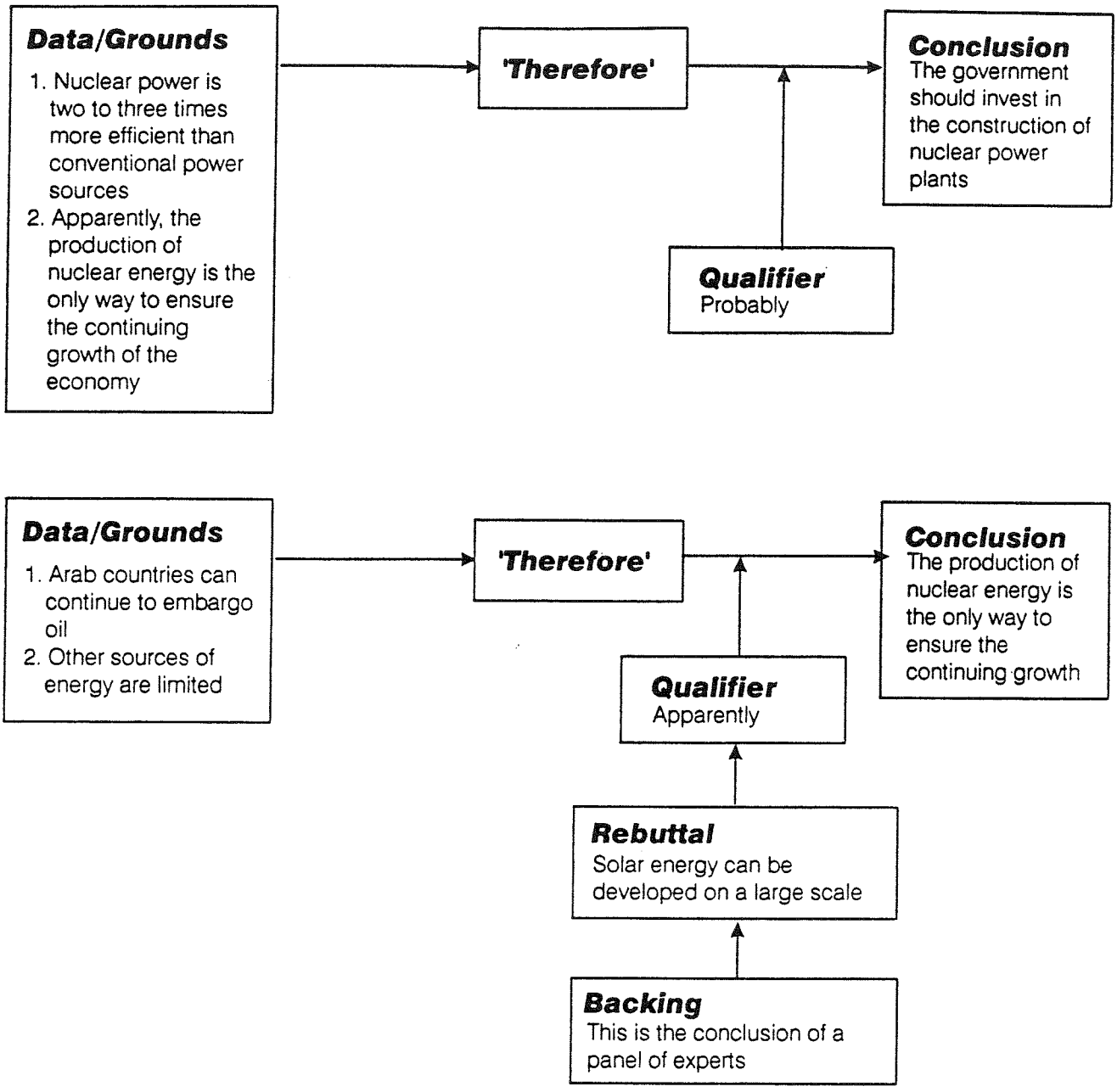

Figure 6: Representing Dunn's argument from Figure 1C using multiple diagrams

a. Searching for the Key Claim, that claim 'which expresses the "explicit appeal" of a given argument' (loc. cit.), and which like all claims conveys something which might be challenged in the given context. It must be identified first.
b. Identifying Grounds. This must be on the basis of relation to the Key Claim.
c. Identifying other components, except Warrants.
d. Identifying Warrants. Since these concern the logical move from Grounds to Claim, they can be elusive and often have to be inferred. Hence Fletcher and Huff suggest that Warrants be the final component for identification, and they further 'require that any warrants supplied by the coder be... [sent] for verification to a second coder' (1990b: 361).

4. Checking: by the first coder and one or more other people.[13]

Thus: 'the process of identifying arguments is often not easy. We almost always need to make multiple passes through a document or topic block to acquire an understanding of the context of an argument and its components' (1990b:357). 'We require even experienced coders to make three specific passes through the material', and four in all (1990b:365). Roughly speaking, the first pass is mainly for familiarization, the second for stages 1, 2, 3a and 3b above, the third for stages 3c and 3d including explicit warrants, and the fourth for inferred warrants. Less experienced coders and more difficult arguments may require more than four passes; e.g. a separate pass for each type of component. From our own more limited experience we can vouch for the value of multiple passes and cross-checking by colleagues.

5.3. Away from the fixed layout: other modifications of the diagram — simplifications, refinements, flexible use

As noted earlier, Huff (1990a) illustrates, compares and assesses five different approaches to mapping strategic thought. Given this comparative perspective, the book is not awed by the Toulmin model. And given the use of detailed illustrative cases, weaknesses as well as strengths of methods are revealed. The Toulmin format is as a result significantly modified and very flexibly applied.

First, Huff and Fletcher endorse the view that 'Qualifiers and rebuttals can be attached to any element of an argument' (1990b: 363). Next, they identify 'three subordinate elements which Toulmin did not specify: 'Elaborations, clarifying statements made about... other elements...; Subclaims, subordinate claims dependent on the acceptance of the Claim; [and] Reiterations, a restatement of the Claim or other elements within a topic block.' (1990a:168)

Thirdly, they eliminate 'the element Toulmin called "backing". In practice it is almost impossible to distinguish from a warrant' (p.168)! We find this comment surprising, since

[13] Fletcher and Huff (1990b) add further advice on use of colour coding, coding sheets, and so on.

the Backing-Warrant distinction is a matter of function, not of content; components may have similar content yet clearly different functions. In practice Fletcher and Huff sometimes identify a justifier-justified chain of Grounds (with no specified Warrant); thus, *de facto* they seem to include Backings of another sort, for Grounds rather than Warrants.

In our experience, the Grounds-Warrant distinction is the harder one to make. Frequently two or more clauses or sentences in a text appear equally well- or ill-fitted for both roles, even though in Toulmin's theory Warrants are expected to be of a somewhat more general nature.[14] Van Eemeren et al. (1987:205) went so far as to claim that '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.' Their later view on the matter is less sweeping (1996:158-9), accepting rather that the distinction is sometimes clear and sometimes not.

Most important, Fletcher and Huff use different diagrams for different cases. They use the elements Claim, Grounds, and Warrant flexibly, recognizing that there may well be more than one of each, and that their structural interlinkages might be complicated.

5.4. Beyond the diagram

Arguments must be represented in a form that is easily and quickly comprehended if they are to be analysed effectively. From this point of view, abstracting arguments in textual form is often not helpful. Text -- which is sequential, linear information -- has to be parsed, and the components extracted and comprehended. Diagrams are more easily grasped, for they organise information spatially. When the spatial organisation of the diagram is internalised by the viewer, relationships among the different components can be more easily understood (Larkin and Simon, 1987).

However, in our experience many novices find the Toulmin diagram hard to use. Perhaps the diagram feels counter-intuitive to them because the claim is located at the right side, whereas the diagram is typically read from left to right. Furthermore, the representations need to be modified frequently while the analysis is refined, which requires much extra effort, especially for those who are not graphically or visually inclined. As a result, novices are not inclined to revise or refine the argument structure they construct.

[14] Huff and Fletcher's own five main worked examples may reflect this difficulty. The example we looked at in subsection 3.4. proposed three Grounds and a peripheralized Warrant, besides no Backing. Its successor, on AT&T's revised outlook as of 1981, has three Grounds and no Warrant at all (1990a:190); so does the third example (1990b:368). The fourth example (p.374) has five Grounds and no Warrant; the fifth (p.375) a Key Claim, and a Qualifier supported by three indicated Grounds; with in neither case a stated Warrant to mediate the move from Grounds to Claim.

One of the authors (RVG) has found in working with students that tables of the type shown in **Figure 7** are a more effective tool for representing arguments. Tables are diagrammatic in the sense that information is spatially organised. Each argument component is located in a separate column, and the components are arranged from left to right so that they can be read and comprehended sequentially.

Also, the presence of column headings reminds readers of the role played by that particular argument component; whereas in the case of the Toulmin diagram, the location and meaning of components has to be internalised and remembered. Using tables, novices seem to have an easier time applying Toulmin's model to a text or devising an argument, and in the process they understand better the idea of structured argumentation.

Tables make it easier for students to learn about, and instructors to teach, systematic argumentation. Students can be assigned a planning or policy text, and be asked to use argument tables to abstract, organise, and analyse the arguments. This exercise sensitises students to the importance of argument purpose and structure. Students can then be asked to use argument tables to plan their own arguments before articulating them in narrative form. It helps students to revisit and better grasp the concepts involved in structured argumentation and presentation of arguments. Since tables can be created using spreadsheet software, they are easily modified and revised. Text can be easily edited, copied, and moved from one place to another. This allows students to interact more with their representation of the argument, which is important for they still face the dangers addressed earlier in this section: oversimplification and overcomplexity; errors in coding; and too rigid conformity with the model.

5.5. Review

Huff concludes that argument mapping -- under which she refers only to the Toulmin approach -- has important strengths and weaknesses. She suggests four weaknesses, related to the following considerations:

1. One may argue in different ways, for different purposes...
2. This is a very time-consuming method of mapping...
3. ..the coding techniques required to produce a strategic argument map are not easy to master. The method requires far more judgement than [simpler] mapping methods [viz. observing word frequencies,... drawing causal maps / problem trees] ... a coder's understanding of the text is the key to accurate coding. Some steps can be taken to improve reliability, such as making multiple passes through the text and reducing the number of coding categories to be coded in each pass. It is also helpful to code all apparent claims, debatable or not. The bottom line, however, is that strategic argument mapping involves a great deal of researcher interpretation...
4. A particular problem is to account for nested claims. (Huff, 1990b:37).

I believe...	since...	given the rule...	backed by...	; unless
Diplomatic recognition is a sign of approval	The U.S government withdrew diplomatic recognition from Cuba when it no longer approved of that government	U.S. actions with respect to Cuba are representative of foreign policy decisions in general	Professor X, a professor of government at Famous University and author of numerous articles in scholarly journals	Cuba was a special situation

Figure 7: Tabular representation of Bozeman and Landsbergen's (1989) argument from Figure 3B

We have looked closely at the first, third and fourth of these: the tension between a universal format and a plurality of situations and purposes; the problems of classifying text elements as one or other of Toulmin's categories; and the problem of multiple claims which constitute a hierarchy of inferences. The problem of time-demands has also been evident, though we believe that it is not so heavy as to put the benefit-cost balance in doubt. And we added the problems associated with the particular visual representation adopted for the Toulmin format. Huff's claims are made from examining and testing only one argument mapping method, Toulmin's. She holds that while '[t]here is some range in cartographic techniques available within each of [the] five generic families [of methods of mapping strategic thought]... by and large each [family] is associated with a circumscribed set of visual representatives' (Huff, 1990b:16). Hence, when drawing conclusions about argument mapping in general, she does not examine other types of argument mapping than Toulmin's. We question whether this is valid.

We regretted earlier both that the Toulmin scheme's universal aspirations mean that it contains none of the specifics of policy analysis and planning, and that it may yet provide too much guidance on layout if taken as a model. In the next section, we note other bodies of work on argument mapping which add something to the Toulmin-Dunn approach, complementing or substituting for it, even though no doubt some of the problems seen above can still arise. We first consider Scriven's more flexible approach to argument mapping; and, second, the work by authors like Hambrick and Fischer on identifying distinctive elements and structures of argumentation in policy and planning.

6. Going beyond the Toulmin(-Dunn) model

6.1. A more flexible approach to specifying argument structure and building better arguments

Michael Scriven is another philosopher who has written on general argumentation analysis, including again in a classic textbook (Scriven, 1976). He has also been active for over thirty years in the field of program evaluation. This gives a strong practical orientation to his advice for analyzing and building arguments, a concern for adequacy in practice as well as for drawing formal distinctions. Scriven does not advocate a single layout for representing arguments; instead he offers a systematic procedure for examining the specifics of each.

In looking at a particular argument or system of arguments, he advises that we proceed as follows:

- try to identify significant propositions and terms, and to clarify their meanings[15]
- try to identify the stated and unstated conclusions (the [key] claims, in Toulmin's language), and thus the overall meaning(s) of the argument(s)

[15] These first steps may require consideration of who is involved in the issue: who is arguing with and to whom and reacting against what.

- only then try to portray the structure of the argument(s), including drawing out the unstated but required assumptions.[16]

We use the phrase *try to*, because often it is not easy. Typically we require an iterative procedure, in which a preliminary answer at one stage will be used in the next stage, which then feeds back to modify the previous stage's work: e.g. our attempts to specify structure may lead us to think again about the meanings of propositions and terms, and about what really are the conclusions, especially unstated ones (see Gasper, 1996). Significant thought may be required; and the portrait of structure that one arrives at is not usually a copy of the Toulmin format. While Scriven's approach has clear parallels to Fletcher and Huff's advice on how to code in the Toulmin format, it avoids a preconceived picture of structure and also puts structure-mapping in a richer context of the analysis of meanings.

Scriven continues beyond specifying arguments, on to how to assess them. Again he lays out a systematic and iterative procedure:

- try to evaluate the premises and inferences identified in the specified argument(s); often this will involve identifying further unstated but required assumptions/premises, which in turn have to be evaluated;
- then compare the argument(s) with any available alternatives (including the alternative of having no conscious point of view on the issue concerned);
- and then try to come to an overall evaluation.

He and others have much more to say on what are relevant criteria in argument evaluation (see e.g. Toulmin et al., 1979, on arguments in general; Macrae, 1993, on policy and planning arguments; Gasper, 1996).

Scriven explains why the specification and mapping of arguments is not sharply distinct from their evaluation. As just mentioned, both specification and evaluation typically require drawing out unstated premises; and since, often, different unstated premises could do the job, a specification choice is required which can involve evaluation. More generally, since arguments and positions are not fully defined, one faces choices when trying to specify concisely, whether by the Toulmin method or another, exactly what an argument or system of arguments has said. Further, the stated arguments and positions are fallible representations of ideas which themselves may not be fully defined. For dealing with these choices, Scriven gives two reasons why one should specify arguments using the strongest of the possible interpretations. Firstly, criticism that relies on a weak possible interpretation (even if that is what most likely was in the author's head) is easier to dismiss ('I certainly never believed the position whose fallacies you have exposed'). Secondly, the very purpose of specifying arguments clearly is to understand the issues better and to then, if necessary, strengthen the arguments.

[16] This is the rationale for identification of 'warrants' in a Toulmin argument analysis only 'last in our coding process' (Fletcher and Huff, 1990b:361).

6.2. Approaches with more policy-analysis and planning content

If one does wish to adopt or refer to a standard format for specifically planning and policy argumentation, for descriptive and/or prescriptive use, then other formats are often more helpful than Dunn's adaptation of Toulmin. For example, while Dunn claims that the Toulmin model 'explicitly accommodates ethical claims (C), warrants (W), backings (B), and rebuttals (R) as essential elements of debates' (1994:96), it instead leaves space rather than explicitly gives them attention. Explicit attention to values and other typical policy components is found in the models of policy and planning thought by Hambrick and Fischer. We will briefly mention their contributions and the increasingly widely used 'logical framework approach'. (See Gasper, 1996, for further discussion.)

Hambrick's *A Guide for the Analysis of Policy Arguments* (1974) went further into the nature of grounds, warrants and so on in the policy field. Thus he introduced 'normative propositions', 'constraints propositions', 'comparative propositions', and so on, as necessary elements of a policy argument. Gasper (1996) organizes these various types of proposition into a diagram that conveys a sequence of policy argumentation: (1) establishment of a cause-effect proposition or chain of propositions, that starts from a variable that a policy can act on; (2) conversion into a means-ends proposition or chain, by addition of normative judgements; and (3) the testing in various ways of the viability of the means-ends proposition, to see if it is sustainable as a policy proposition. Hambrick adds most in this third stage.

The 'Logical Framework Approach' (LFA) mainly elaborates the first stage. It specifies a hierarchy of if-then or means-ends propositions, which link the proposed Inputs, Activities, Outputs, Immediate Objectives, and Higher Objectives of a policy, plan or project (see e.g. Coleman, 1987). It also has potential in the third stage, viability testing: a logical framework diagram provides space, in visual parallel to the means-ends hierarchy, for specifying assumptions behind the if-then claims, concerning possible disrupting factors and so on. Unfortunately this potential tends to be neglected; the assumptions column is often filled perfunctorily or even largely left blank.

The LFA was developed for USAID in 1970. It is now, in various versions, used by many international and domestic agencies, and deserves close examination. Many of the problems we saw in the use of the Toulmin model have arisen here also. A diagram which was meant to sensitize students and professionals to an interlinked set of concepts and distinctions becomes used too often as a fixed template, that displaces rather than stimulates thought; it then no longer summarizes the outcomes of a procedure of examination of a specific argument with its own distinctiveness, but serves rather as a Procrustean bed and substitute for close investigation (Gasper, 1997).

Fischer's (1980) *Politics, Values and Public Policy* provides a model that in effect refines considerably the picture of the second stage in Hambrick, the reference to and further justification of normative principles. It has been modified and applied in several later

works (see e.g. Hoppe, 1993; Fischer, 1995). Here too the question arises of the trade-offs when working with a standardized format. Such a format gives a clear, workable aid that summarizes a lot of ideas in a small space, more effectively than can linear text; this helps 'morale' and eases communication. But when standardized it runs the danger of slighting the specificities of different cases and areas and even of suppressing rather than aiding investigation. In the Fischer model this danger is relatively less because it centres on questions, specifically on twelve sets of questions that can be asked about policies and programmes. (Gasper, 1989, contains a fuller assessment of the Fischer model.)

7. Conclusion

Study of argumentation in policy analysis and planning should cover several important aspects besides argument mapping. These include: finding or forming arguments; understanding differences between types of argument and context;[17] close attention to concepts and how they can evolve,[18] to tropes and other stylistic devices, to logic and possible fallacies, to 'frames' of discourse (Apthorpe and Gasper, ed., 1996; Schön and Rein, 1994) and the roles of 'stories' and narratives (Kaplan, 1986; Roe, 1994; Throgmorton, 1996); and to criteria and strategic choices in argument evaluation.

We have concentrated in this paper on mapping argument structure, as it is an unavoidable complement if one wishes to understand particular argument components, styles or practices. Also it is what often comes first to mind when people think of studying planning and policy argumentation. And within argument mapping the Toulmin model may be the most familiar to a planning and policy audience, thanks to textbooks such as those by Dunn or Mason and Mitroff.

Though the Toulmin model has nothing itself to say about the specifics of argumentation in policy and planning — debates over constraints, over the public interest, over due procedure, and so on — we argued that it can make useful contributions. It gives a more helpful list of argument components and their roles than classical European logic provided; it highlights that arguments have structures; and it helps us understand how even from consensually accepted data very different conclusions may be drawn. However it remains a model established to make some general points about the nature of argumentation, not a universal or sufficient model for analysing real arguments. (See van Eemeren, Grootendorst and Kruiger, 1987:189-91, for a similar view).

We took a series of examples to show dangers in its unskilled use: 1) oversimplification of complex argumentation by trying to squeeze everything into a single simple diagram; 2) much mistaken identification of components; 3) treatment of the introductory Toulmin

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[17] See e.g.: MacRae (1993) on the difference between forms of argumentation within a community and across community boundaries; Toulmin et al. (1979).

[18] E.g. Huff (1990a) embeds argument mapping in a context of other complementary methods, including tracking the changing use of concepts over time.

diagram as if it could be a layout equally suitable for every argument; and 4) possible discouragement or misleading of users through a sometimes unwieldy and perhaps counter-intuitive visual presentation.

As with other models, skilled use is required to get satisfactory outputs; though even unskilled use has training value in raising awareness of various aspects of planning and policy argumentation and hence possibly contributes to better independent argument construction. While mapping and assessing arguments in existing texts is important and tricky, planners must proceed to designing and strengthening their own arguments. Here, a mastery of 'coding' would help, but might not be essential. In contrast, a strong general feel for the types of logical relation illustrated by the Toulmin model is indispensable.

We suggested some practicable ways by which effective use can be significantly raised. These were: 1) employment often of multiple linked diagrams rather than a single one; 2) a more systematic, multi-stage, coding process to identify argument components; 3) a more flexible handling of layout, responsive to the specificity of particular arguments; 4) use sometimes of tables rather than diagrams; and then, going beyond the Toulmin model, exposure to Scriven's more wide-ranging and flexible approach to mapping arguments, and to approaches with more policy-analysis and planning content.

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