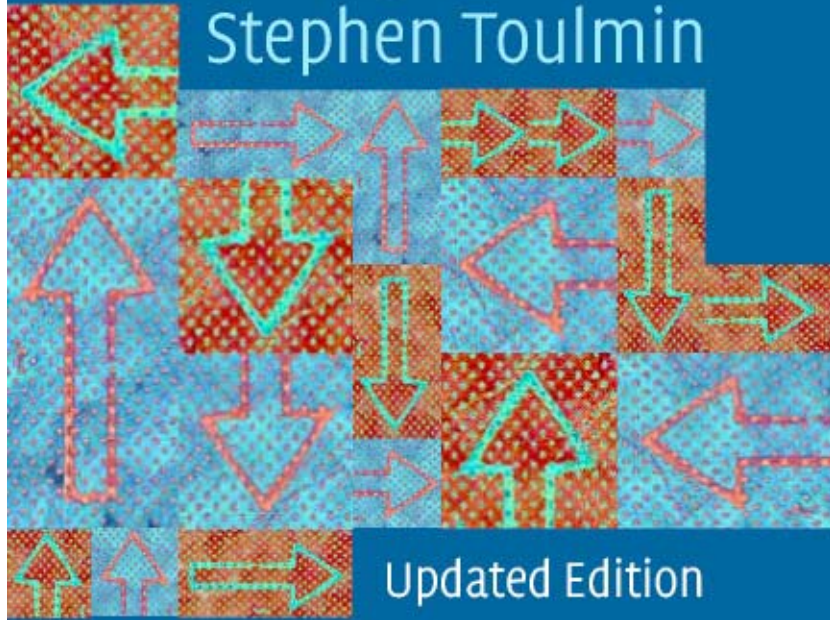


The Uses of Argument

Stephen Toulmin



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Two last remarks may be made by way of introduction, the first of them simply adding one more question to our agenda. Ever since Aristotle it has been customary, when analysing the micro-structure of arguments, to set them out in a very simple manner: they have been presented three propositions at a time, ‘minor premiss; major premiss; *so* conclusion’. The question now arises, whether this standard form is sufficiently elaborate or candid. Simplicity is of course a merit, but may it not in this case have been bought too dearly? Can we properly classify all the elements in our arguments under the three headings, ‘major premiss’, ‘minor premiss’ and ‘conclusion’, or are these categories misleadingly few in number? Is there even enough similarity between major and minor premisses for them usefully to be yoked together by the single name of ‘premiss’?

Light is thrown on these questions by the analogy with jurisprudence. This would naturally lead us to adopt a layout of greater complexity than has been customary, for the questions we are asking here are, once again, more general versions of questions already familiar in jurisprudence, and in that more specialised field a whole battery of distinctions has grown up. ‘What different sorts of propositions’, a legal philosopher will ask, ‘are uttered in the course of a law-case, and in what different ways can such propositions bear on the soundness of a legal claim?’ This has always been and still is a central question for the student of jurisprudence, and we soon find that the nature of a legal process can be properly understood only if we draw a large number of distinctions. Legal utterances have many distinct functions. Statements of claim, evidence of identification, testimony about events in dispute, interpretations of a statute or discussions of its validity, claims to exemption from the application of a law, pleas in extenuation, verdicts, sentences: all these different classes of proposition have their parts to play in the legal process, and the differences between them are in practice far from trifling. When we turn from the special case of the law to consider rational arguments in general, we are faced at once by the question whether these must not be analysed in terms of an equally complex set of categories. If we are to set our arguments out with complete logical candour, and understand properly the nature of ‘the logical process’, surely we shall need to employ a pattern of argument no less sophisticated than is required in the law.

The Pattern of an Argument: Data and Warrants

‘What, then, is involved in establishing conclusions by the production of arguments?’ Can we, by considering this question in a general form,

build up from scratch a pattern of analysis which will do justice to all the distinctions which proper procedure forces upon us? That is the problem facing us.

Let it be supposed that we make an assertion, and commit ourselves thereby to the claim which any assertion necessarily involves. If this claim is challenged, we must be able to establish it—that is, make it good, and show that it was justifiable. How is this to be done? Unless the assertion was made quite wildly and irresponsibly, we shall normally have some facts to which we can point in its support: if the claim is challenged, it is up to us to appeal to these facts, and present them as the foundation upon which our claim is based. Of course we may not get the challenger even to agree about the correctness of these facts, and in that case we have to clear his objection out of the way by a preliminary argument: only when this prior issue or ‘lemma’, as geometers would call it, has been dealt with, are we in a position to return to the original argument. But this complication we need only mention: supposing the lemma to have been disposed of, our question is how to set the original argument out most fully and explicitly. ‘Harry’s hair is not black’, we assert. What have we got to go on? we are asked. Our personal knowledge that it is in fact red: that is our datum, the ground which we produce as support for the original assertion. Petersen, we may say, will not be a Roman Catholic: why?: we base our claim on the knowledge that he is a Swede, which makes it very unlikely that he will be a Roman Catholic. Wilkinson, asserts the prosecutor in Court, has committed an offence against the Road Traffic Acts: in support of this claim, two policemen are prepared to testify that they timed him driving at 45 m.p.h. in a built-up area. In each case, an original assertion is supported by producing other facts bearing on it.

We already have, therefore, one distinction to start with: between the claim or conclusion whose merits we are seeking to establish (C) and the facts we appeal to as a foundation for the claim—what I shall refer to as our data (D). If our challenger’s question is, ‘What have you got to go on?’, producing the data or information on which the claim is based may serve to answer him; but this is only one of the ways in which our conclusion may be challenged. Even after we have produced our data, we may find ourselves being asked further questions of another kind. We may now be required not to add more factual information to that which we have already provided, but rather to indicate the bearing on our conclusion of the data already produced. Colloquially, the question may now be, not ‘What have you got to go on?’, but ‘How do you get there?’. To present a particular set of data as the basis for some specified conclusion commits

us to a certain *step*; and the question is now one about the nature and justification of this step.

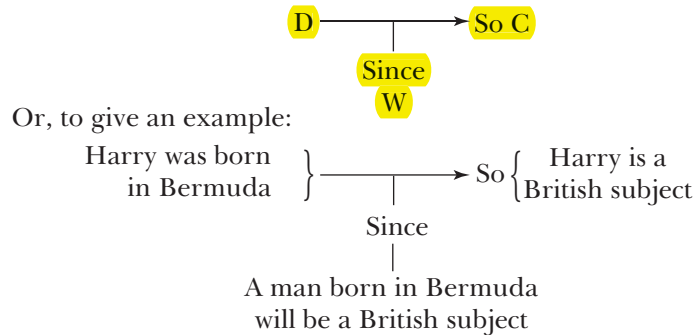
Supposing we encounter this fresh challenge, we must bring forward not further data, for about these the same query may immediately be raised again, but propositions of a rather different kind: rules, principles, inference-licences or what you will, instead of additional items of information. Our task is no longer to strengthen the ground on which our argument is constructed, but is rather to show that, taking these data as a starting point, the step to the original claim or conclusion is an appropriate and legitimate one. At this point, therefore, what are needed are general, hypothetical statements, which can act as bridges, and authorise the sort of step to which our particular argument commits us. These may normally be written very briefly (in the form 'If D, then C'); but, for candour's sake, they can profitably be expanded, and made more explicit: 'Data such as D entitle one to draw conclusions, or make claims, such as C', or alternatively 'Given data D, one may take it that C.'

Propositions of this kind I shall call *warrants* (W), to distinguish them from both conclusions and data. (These 'warrants', it will be observed, correspond to the practical standards or canons of argument referred to in our earlier essays.) To pursue our previous examples: the knowledge that Harry's hair is red entitles us to set aside any suggestion that it is black, on account of the warrant, 'If anything is red, it will not also be black.' (The very triviality of this warrant is connected with the fact that we are concerned here as much with a counter-assertion as with an argument.) The fact that Petersen is a Swede is directly relevant to the question of his religious denomination for, as we should probably put it, 'A Swede can be taken almost certainly not to be a Roman Catholic.' (The step involved here is not trivial, so the warrant is not self-authenticating.) Likewise in the third case: our warrant will now be some such statement as that '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.'

The question will at once be asked, how absolute is this distinction between data, on the one hand, and warrants, on the other. Will it always be clear whether a man who challenges an assertion is calling for the production of his adversary's data, or for the warrants authorising his steps? Can one, in other words, draw any sharp distinction between the force of the two questions, 'What have you got to go on?' and 'How do you get there??' By grammatical tests alone, the distinction may appear far from

absolute, and the same English sentence may serve a double function: it may be uttered, that is, in one situation to convey a piece of information, in another to authorise a step in an argument, and even perhaps in some contexts to do both these things at once. (All these possibilities will be illustrated before too long.) For the moment, the important thing is not to be too cut-and-dried in our treatment of the subject, nor to commit ourselves in advance to a rigid terminology. At any rate we shall find it possible in *some* situations to distinguish clearly two different logical functions; and the nature of this distinction is hinted at if one contrasts the two sentences, 'Whenever A, one *has found* that B' and 'Whenever A, one *may take it* that B.'

We now have the terms we need to compose the first skeleton of a pattern for analysing arguments. We may symbolise the relation between the data and the claim in support of which they are produced by an arrow, and indicate the authority for taking the step from one to the other by writing the warrant immediately below the arrow:



As this pattern makes clear, the explicit appeal in this argument goes directly back from the claim to the data relied on as foundation: **the warrant is, in a sense, incidental and explanatory, its task being simply to register explicitly the legitimacy of the step involved and to refer it back to the larger class of steps whose legitimacy is being presupposed.**

This is one of the reasons for distinguishing between data and warrants: data are appealed to explicitly, warrants implicitly. In addition, one may remark that **warrants are general, certifying the soundness of all arguments of the appropriate type**, and have accordingly to be established in quite a different way from the facts we produce as data. **This distinction, between data and warrants, is similar to the distinction drawn in the law-courts between questions of fact and questions of law**, and the legal distinction is indeed a special case of the more general one—we

may argue, for instance, that a man whom we know to have been born in Bermuda is presumably a British subject, simply because the relevant laws give us a warrant to draw this conclusion.

One more general point in passing: **unless**, in any particular field of argument, **we are prepared to work with warrants of *some* kind, it will become impossible in that field to subject arguments to rational assessment.** The data we cite if a claim is challenged depend on the warrants we are prepared to operate with in that field, and the warrants to which we commit ourselves are implicit in the particular steps from data to claims we are prepared to take and to admit. But supposing a man rejects all warrants whatever authorising (say) steps from data about the present and past to conclusions about the future, then for him rational prediction will become impossible; and many philosophers have in fact denied the possibility of rational prediction just because they thought they could discredit equally the claims of all past-to-future warrants.

The skeleton of a pattern which we have obtained so far is only a beginning. Further questions may now arise, to which we must pay attention. Warrants are of different kinds, and may confer different degrees of force on the conclusions they justify. **Some warrants authorise us to accept a claim unequivocally, given the appropriate data—these warrants entitle us in suitable cases to qualify our conclusion with the adverb ‘necessarily’; others authorise us to make the step from data to conclusion either tentatively, or else subject to conditions, exceptions, or qualifications—in these cases other modal qualifiers, such as ‘probably’ and ‘presumably’, are in place.** It may not be sufficient, therefore, simply to specify our data, warrant and claim: we may need to add some explicit reference to the degree of force which our data confer on our claim in virtue of our warrant. **In a word, we may have to put in a *qualifier*.** Again, it is often necessary in the law-courts, not just to appeal to a given statute or common-law doctrine, but to discuss explicitly the extent to which this particular law fits the case under consideration, whether it must inevitably be applied in this particular case, or whether special facts may make the case an exception to the rule or one in which the law can be applied only subject to certain qualifications.

If we are to take account of these features of our argument also, our pattern will become more complex. **Modal qualifiers (Q) and conditions of exception or rebuttal (R) are distinct both from data and from warrants, and need to be given separate places in our layout.** Just as a warrant (W) is itself neither a datum (D) nor a claim (C), since it implies in itself

indeed, in all cases where the application of a law may be subject to exceptions, or where a warrant can be supported by pointing to a general correlation only, and not to an absolutely invariable one. We can distinguish also two purposes which may be served by the production of additional facts: these can serve as further data, or they can be cited to confirm or rebut the applicability of a warrant. Thus, the fact that Harry was born in Bermuda and the fact that his parents were not aliens are both of them directly relevant to the question of his present nationality; but they are relevant in different ways. The one fact is a datum, which by itself establishes a presumption of British nationality; the other fact, by setting aside one possible rebuttal, tends to confirm the presumption thereby created.

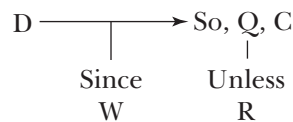
One particular problem about applicability we shall have to discuss more fully later: when we set out a piece of applied mathematics, in which some system of mathematical relations is used to throw light on a question of (say) physics, the correctness of the calculations will be one thing, their appropriateness to the problem in hand may be quite another. So the question ‘Is this calculation mathematically impeccable?’ may be a very different one from the question ‘Is this the relevant calculation?’ Here too, the applicability of a particular warrant is one question: the result we shall get from applying the warrant is another matter, and in asking about the *correctness* of the result we may have to inquire into both these things independently.

The Pattern of an Argument: Backing Our Warrants

One last distinction, which we have already touched on in passing, must be discussed at some length. In addition to the question whether or on what conditions a warrant is applicable in a *particular* case, we may be asked why *in general* this warrant should be accepted as having authority. **In defending a claim, that is, we may produce our data, our warrant, and the relevant qualifications and conditions, and yet find that we have still not satisfied our challenger; for he may be dubious not only about this particular argument but about the more general question whether the warrant (W) is acceptable at all.** Presuming the general acceptability of this warrant (he may allow) our argument would no doubt be impeccable—if D-ish facts really do suffice as backing for C-ish claims, all well and good. But does not that warrant in its turn rest on something else? Challenging a particular claim may in this way lead on to challenging, more generally, the legitimacy of a whole range of arguments. ‘You presume that a man

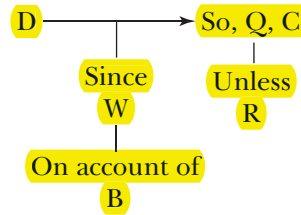
born in Bermuda can be taken to be a British subject,' he may say, 'but why do you think that?' **Standing behind our warrants**, as this example reminds us, **there will normally be other assurances, without which the warrants themselves would possess neither authority nor currency—these other things we may refer to as the *backing* (B) of the warrants.** This 'backing' of our warrants is something which we shall have to scrutinise very carefully: its precise relations to our data, claims, warrants and conditions of rebuttal deserve some clarification, for confusion at this point can lead to trouble later.

We shall have to notice particularly how the sort of backing called for by our warrants varies from one field of argument to another. The *form* of argument we employ in different fields

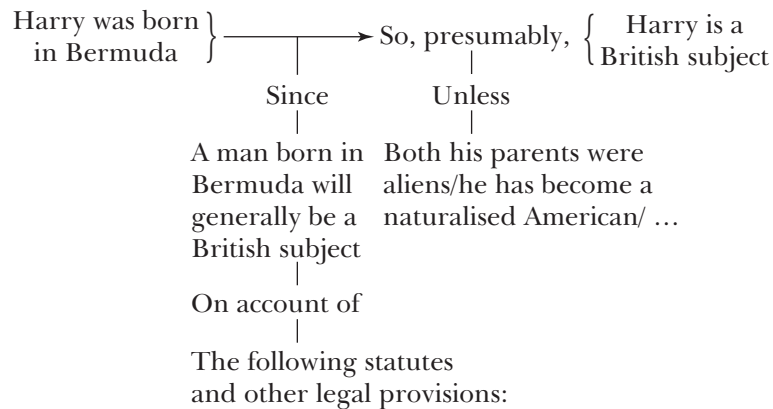


need not vary very much as between fields. 'A whale will be a mammal', 'A Bermudan will be a Briton', 'A Saudi Arabian will be a Muslim': here are three different warrants to which we might appeal in the course of a practical argument, each of which can justify the same sort of straightforward step from a datum to a conclusion. We might add for variety examples of even more diverse sorts, taken from moral, mathematical or psychological fields. But the moment we start asking about the *backing* which a warrant relies on in each field, great differences begin to appear: the kind of backing we must point to if we are to establish its authority will change greatly as we move from one field of argument to another. 'A whale will be (i.e. *is classifiable as*) a mammal', 'A Bermudan will be (*in the eyes of the law*) a Briton', 'A Saudi Arabian will be (*found to be*) a Muslim'—the words in parentheses indicate what these differences are. One warrant is defended by relating it to a system of taxonomical classification, another by appealing to the statutes governing the nationality of people born in the British colonies, the third by referring to the statistics which record how religious beliefs are distributed among people of different nationalities. We can for the moment leave open the more contentious question, how we establish our warrants in the fields of morals, mathematics and psychology: for the moment all we are trying to show is the *variability* or *field-dependence* of the backing needed to establish our warrants.

We can make room for this additional element in our argument-pattern by writing it below the bare statement of the warrant for which it serves as backing (B):



This form may not be final, but it will be complex enough for the purpose of our present discussions. To take a particular example: in support of the claim (C) that Harry is a British subject, we appeal to the datum (D) that he was born in Bermuda, and the warrant can then be stated in the form, ‘A man born in Bermuda may be taken to be a British subject’: since, however, questions of nationality are always subject to qualifications and conditions, we shall have to insert a qualifying ‘presumably’ (Q) in front of the conclusion, and note the possibility that our conclusion may be rebutted in case (R) it turns out that both his parents were aliens or he has since become a naturalised American. Finally, in case the warrant itself is challenged, its backing can be put in: this will record the terms and the dates of enactment of the Acts of Parliament and other legal provisions governing the nationality of persons born in the British colonies. The result will be an argument set out as follows:



In what ways does the backing of warrants differ from the other elements in our arguments? To begin with the differences between B and W:

statements of warrants, we saw, are hypothetical, bridgelike statements, but the backing for warrants can be expressed in the form of categorical statements of fact quite as well as can the data appealed to in direct support of our conclusions. So long as our statements reflect these functional differences explicitly, there is no danger of confusing the backing (B) for a warrant with the warrant itself (W): such confusions arise only when these differences are disguised by our forms of expression. In our present example, at any rate, there need be no difficulty. The fact that the relevant statutes have been validly passed into law, and contain the provisions they do, can be ascertained simply by going to the records of the parliamentary proceedings concerned and to the relevant volumes in the books of statute law: the resulting discovery, that such-and-such a statute enacted on such-and-such a date contains a provision specifying that people born in the British colonies of suitable parentage shall be entitled to British citizenship, is a straightforward statement of fact. On the other hand, the warrant which we apply *in virtue of* the statute containing this provision is logically of a very different character—‘If a man was born in a British colony, he *may be presumed to be* British.’ Though the facts about the statute may provide all the backing required by this warrant, the explicit statement of the warrant itself is more than a repetition of these facts: it is a general *moral* of a practical character, about the ways in which we can safely argue in view of these facts.

We can also distinguish backing (B) from data (D). Though the data we appeal to in an argument and the backing lending authority to our warrants may alike be stated as straightforward matters-of-fact, the roles which these statements play in our argument are decidedly different. Data of some kind must be produced, if there is to be an argument there at all: a bare conclusion, without any data produced in its support, is no argument. But the backing of the warrants we invoke need not be made explicit—at any rate to begin with: the warrants may be conceded without challenge, and their backing left understood. Indeed, if we demanded the credentials of all warrants at sight and never let one pass unchallenged, argument could scarcely begin. Jones puts forward an argument invoking warrant W_1 , and Smith challenges that warrant; Jones is obliged, as a lemma, to produce another argument in the hope of establishing the acceptability of the first warrant, but in the course of this lemma employs a second warrant W_2 ; Smith challenges the credentials of this second warrant in turn; and so the game goes on. Some warrants must be accepted provisionally without further challenge, if argument is to open to us in the field in question: we should not even know what sort of data were of

the slightest relevance to a conclusion, if we had not at least a provisional idea of the warrants acceptable in the situation confronting us. The existence of considerations such as would establish the acceptability of the most reliable warrants is something we are entitled to take for granted.

Finally, a word about the ways in which B differs from Q and R: these are too obvious to need expanding upon, since the grounds for regarding a warrant as generally acceptable are clearly one thing, the force which the warrant lends to a conclusion another, and the sorts of exceptional circumstance which may in particular cases rebut the presumptions the warrant creates a third. They correspond, in our example, to the three statements, (i) that the statutes about British nationality *have in fact* been validly passed into law, and say this: . . . , (ii) that Harry *may be presumed* to be a British subject, and (iii) that Harry, having recently become a naturalised American, *is no longer covered* by these statutes.

One incidental point should be made, about the interpretation to be put upon the symbols in our pattern of argument: this may throw light on a slightly puzzling example which we came across when discussing Kneale's views on probability. Consider the arrow joining D and C. It may seem natural to suggest at first that this arrow should be read as 'so' in one direction and as 'because' in the other. Other interpretations are however possible. As we saw earlier, the step from the information that Jones has Bright's Disease to the conclusion that he cannot be expected to live to eighty does not reverse perfectly: we find it natural enough to say, 'Jones cannot be expected to live to eighty, *because* he has Bright's Disease', but the fuller statement, 'Jones cannot be expected to live to eighty, *because* the probability of his living that long is low, *because* he has Bright's Disease', strikes us as cumbrous and artificial, for it puts in an extra step which is trivial and unnecessary. On the other hand, we do not mind saying, 'Jones has Bright's Disease, *so* the chances of his living to eighty are slight, *so* he cannot be expected to live that long', for the last clause is (so to speak) an *inter alia* clause—it states one of the many particular morals one can draw from the middle clause, which tells us his general expectation of life.

So also in our present case: reading along the arrow from right to left or from left to right we can normally say both 'C, because D' and 'D, so C'. But it may sometimes happen that some more general conclusion than C may be warranted, given D: where this is so, we shall often find it natural to write, not only 'D, so C', but also 'D, so C', so C', C' being the more general conclusion warranted in view of data D, from which in turn we infer *inter alia* that C. Where this is the case, our 'so' and 'because' are no longer

reversible: if we now read the argument backwards the statement we get—‘C, because C’, because D’—is again more cumbersome than the situation really requires.

Ambiguities in the Syllogism

The time has come to compare the distinctions we have found of practical importance in the layout and criticism of arguments with those which have traditionally been made in books on the theory of logic: let us start by seeing how our present distinctions apply to the syllogism or syllogistic argument. For the purposes of our present argument we can confine our attention to one of the many forms of syllogism—that represented by the time-honoured example:

Socrates is a man;
All men are mortal;
So Socrates is mortal.

This type of syllogism has certain special features. The first premiss is ‘singular’ and refers to a particular individual, while the second premiss alone is ‘universal’. Aristotle himself was, of course, much concerned with syllogisms in which both the premisses were universal, since to his mind many of the arguments within scientific theory must be expected to be of this sort. But we are interested primarily in arguments by which general propositions are applied to justify particular conclusions about individuals; so this initial limitation will be convenient. Many of the conclusions we reach will, in any case, have an obvious application—*mutatis mutandis*—to syllogisms of other types. We can begin by asking the question ‘What corresponds in the syllogism to our distinction between data, warrant, and backing?’ If we press this question, we shall find that the apparently innocent forms used in syllogistic arguments turn out to have a hidden complexity. This internal complexity is comparable with that we observed in the case of modally-qualified conclusions: here, as before, we shall be obliged to disentangle two distinct things—the force of universal premisses, when regarded as warrants, and the backing on which they depend for their authority.

In order to bring these points clearly to light, let us keep in view not only the two universal premisses on which logicians normally concentrate—‘All A’s are B’s’ and ‘No A’s are B’s’—but also two other forms of statement which we probably have just as much occasion to use