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Johnson and the Soundness Doctrine

David Botting[1]

Abstract   Why informal logic? Informal logic is a group of proposals meant to contrast with, replace, and reject formal logic, at least for the analysis and evaluation of everyday arguments. Why reject formal logic? Formal logic is criticized and claimed to be inadequate because of its commitment to the soundness doctrine. In this paper I will examine and try to respond to some of these criticisms. It is not my aim to examine every argument ever given against formal logic; I am limiting myself to those that, as a matter of historical fact, were instrumental in the replacement of formal logic by informal logic and initially established informal logic as a separate discipline (in particular, Toulmin's attacks on what he calls the "analytic ideal" will not form part of the discussion and were not instrumental in this way, only becoming appreciated later). If the criticism of the soundness doctrine is defective, then the move from formal logic to informal logic was not theoretically well-motivated. It is this motivation that I wish to bring into question, rather than the adequacy or inadequacy of formal or informal logic as such. While I will tend to the view that formal logic is as adequate as it is reasonable to expect, the real issue is whether it is inadequate for the reasons that, as a matter of historical fact, were used to motivate its rejection.

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✉   David Botting
    davidbotting33@yahoo.co.uk

[1]   Instituto de Filosofia da Nova, FCSH, Universidade Nova de Lisboa, 26-C Av. de Berna, 1069-061 Lisbon, Portugal

1 The Motivation for Informal Logic

Formal deductive logic identifies the goodness of an argument as its soundness: an argument is good if and only if it is sound, where this means that it has a valid form and its premises are true. The view that this is so for all arguments, that is to say, that soundness is necessary and sufficient for goodness, is deductivism. Informal logic disagrees, claiming that soundness is neither necessary nor sufficient for goodness. For Johnson and Blair, this disagreement over the adequacy of the logical concept of soundness as the sole criterion of goodness of arguments forms the principal distinction between formal and informal logic; it motivated their introduction of informal logic, and they characterized informal logic by contrasting it with the soundness doctrine. It is this motivation with which this paper is concerned. Like most initial motivations, theirs stemmed from dissatisfaction with the orthodoxy that preceded it, namely the teaching of logic courses that seemed divorced from the real-life arguments that students were presented with in the media. For at least some of these arguments, soundness is held by Johnson and Blair to be an inappropriate criterion, and therefore deductivism to be false: some arguments are good that formal logic would say are unsound, and some arguments that formal logic would say are sound are not good.[1] Unless they can show that a logical theory of appraisal is inadequate to capturing these pre-theoretical judgments of arguments as "good" and "bad" expressed in our everyday use of "good" and "bad" as evaluative/normative terms, informal logic's alternative proposals—however useful they may be for the analysis and evaluation of real-life arguments, and however well-motivated they may be as pedagogical tools in consequence of this—are not *theoretically* well-motivated.

In (2011, 18–20) Johnson outlines another view that he calls *latent deductivism*. One can be a latent deductivist even if one accepts criteria other than soundness for the goodness of arguments if one nevertheless *privileges* soundness. A non-deductive argument may still be good, but not as good as a deductive argument, which represents a kind of ideal. It is consistent with being a deductivist of this kind that one could be what Govier calls a positivist (someone who thinks that all arguments are either deductive or inductive) or could even be open to other kinds of arguments such as abductive, conductive, plausible etc. One could perhaps put Johnson's point this way: although there are different types of arguments with different criteria of goodness, the soundness doctrine is still a norm for *all*

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[1] Johnson has described this history several times, e.g., Johnson (2009) and Johnson and Blair (2002), and for a recent recapitulation of informal logic's inception stressing its opposition to deductivism see van Eemeren et al. (2014, Sections 7.2 and 7.3). Johnson (2009, 27) says: "The soundness criterion—valid form plus true premises—is neither necessary nor sufficient. There are good arguments that are not sound arguments, viz., good inductive arguments; and there are sound arguments that are not good arguments: any circular argument with a true premise." Further, Johnson and Blair (2000, 101–102) characterizes "the end of deductivism" as restricted to "truths that follow necessarily from premises known to be true," but this not only misconstrues deductivism as an epistemological view concerned with knowledge but also erroneously assumes that deductive logic has some particular problem when premises are not known to be true (in other words, it seems to make the mistake of assimilating deductivism to strong foundationalism and infallibilism). Also, see Johnson (2011, 24–26), Blair and Johnson (1987, 42), Johnson and Blair (2002, 347–48).

arguments, for those that are not sound fall short of the ideal, although they may still be good instances of the kind of argument that they are.

This brings up an important point whose significance I am not sure Johnson realizes: being a norm is not necessarily the same as being a necessary and/or sufficient condition. I will later argue that we can interpret the soundness doctrine as describing a norm of goodness without being a necessary and/or sufficient condition of goodness, and showing that soundness is neither necessary nor sufficient for goodness does not show that it is not a norm or, consequently, that a deductivism construed in this way is false. What is interesting is that Johnson seems to acknowledge this in his notion of *latent deductivism*.

My purpose in this paper is to deflate this attack on the soundness doctrine and thereby the theoretical motivation for the move taken by Johnson (and others) away from formal logic to what eventually became known as informal logic. My aim is not so much to show that the soundness doctrine is true (strictly speaking, I do not think that it is) but to show that these criticisms do not motivate the choice of informal logic over formal logic—formal logic is as adequate a theory of argument appraisal as one can reasonably expect, and where they are not simply mistaken, these criticisms apply equally to informal logic, and probably to any theory of appraisal at all.

What is at stake here? No-one, I think, denies that deductivism has its advantages, hence its privileged position as the established, orthodox position, at least until the 1970s. Johnson (2011, 22–23) gives two: its entrenchment in a theory of knowledge, and that it is a mature, theoretically well-developed account.

The first reason is dubitable, for it seems to bind too closely deductivism and the epistemological theory called strong foundationalism. Strong foundationalism attempts to build knowledge from infallible, non-inferentially justified premises through deductively valid inferences into a corpus of knowledge. The problem, of course, is that there do not seem to be any premises, or at least none that state contingently true propositions about the world, that we know infallibly. However, there are more modest, fallibilist forms of foundationalism that do not insist on infallibility or that we know them for certain but still proceed by deductive inference and thus still deserve to be called deductivist. This is a kind of probable reasoning that I suspect Johnson would say is non-deductive, but I will show this to be a misunderstanding; there is nothing non-deductive here. In any case, deductivism does not stand or fall with strong foundationalism or infallibilism and, although strong foundationalism has certainly been historically influential (e.g., in the Cartesian revolution, as Johnson says) it has largely been rejected now, without rejecting deductivism along with it as a theory for the analysis and appraisal of arguments.

Johnson's second reason is more telling, and even Govier, whose hostility towards deductive logic is possibly the most implacable among the informal logicians, concedes that deductivism

> has the advantage of being an extremely simple theory … there is only one kind of argument … [and] there are clearly articulated standards [for their appraisal] … Hence, if deductivism is the correct theory of argument, we have

the assurance of the relevance of an established and recognized body of very precise knowledge to be used in the appraisal of arguments. (Govier 1987, 24)

Formal logic has a conception of argument and standards of argument appraisal that are well-developed and understood, so on pragmatic grounds we are well-motivated in our deductivism if informal logic's challenge to the soundness doctrine were to fail, and conversely the alternative conception of an argument and alternative criteria for its goodness that informal logic proposes, though not necessarily or for that reason inadequate, is badly in need of another motivation.

Let us put it this way: we should be deductivists if we can, at least in terms of the kinds of normativity we are prepared to consider. As the traditional if nowadays unfashionable view, deductivism is the default position, and even if it has a few problems, we have learned to live with those problems. The onus is on those challenging this view to make a strong case for replacing it with something else and must show that their alternative does not suffer from the same problems.

It would be well to make explicit what these proposals are so that we may know what we are choosing between. The conception of argument that informal logic has increasingly come to favour is dialectical. Blair and Johnson (1987, 46) define it as "an exchange between two or more people" in which "each participant has it as his or her goal to change or reinforce the propositional attitude of the interlocutor or of himself or herself." It is important to note that the participants may not choose any means to do this, but only by rational persuasion (Blair and Johnson 1987, 48); hence, the kind of correctness or goodness that is implicated in our pre-theoretical judgments of "good" and "bad", and that it is the proper task of the theory of appraisal to capture is a rational one (Botting 2014b). According to informal logic, arguments are rationally good if and only if their premises are relevant to the conclusion, sufficient to support the conclusion, and acceptable.[2]

Before assessing Johnson's criticisms it seems necessary to make clear exactly what is involved in the soundness doctrine, for I suspect that it has been misunderstood, and that formal logic's notions of detachment, defeasibility and monotonicity have been taken in argumentation theory generally to be more theoretically significant than they really are. I will show that only inductive generalizations can be genuinely inductive arguments, being ampliative and consequently risky; whether they actually are inductive arguments will be shown to depend on how they are used. As we will see, Johnson considers these kinds of arguments and claims them to be inductive. But he also considers (along with the majority of informal logicians, and some formal logicians also) statistical syllogisms to be inductive on the grounds that the conclusion does not follow with certainty from the premises. This, I will argue, is not so: statistical syllogisms are deductive. I will also show that the same situation can be expressed using a statistical syllogism or using a default logic, and subsequently that whatever can be

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[2] Other informal logicians may prefer other models and theories of appraisal. Johnson's own view develops too, for in (2000) Johnson adds that the argument must not only be rationally good but *manifestly* rationally good, and also he re-introduces truth as a criterion of premise adequacy. What concerns me, though, is the model that historically replaced formal deductive logic as a theory of appraisal, namely the RSA model.

expressed in either way can be reasoned about equivalently using an argument that nobody would deny is deductive. It follows that what distinguishes these different ways of doing things is not some philosophically deep problem impacting on the adequacy of deductive logic.

The difference between a statistical syllogism and inductive generalization is given in Kyburg and Teng (2001, 175):

> We consider a group of puppies, take what we know about that group as a premise, and infer, as a conclusion, something about the population of all puppies. Such an inference is clearly risky and *invalid*. … Some such inferences are more cogent, more rational than others. Our business as logicians is to find standards that will sort them out. Statistical inference includes inference from a sample to the population from which it comes. … Statistical inference is a paradigm case of uncertain inference.

This kind of statistical inference is inductive generalization and gets expressed in arguments like "This raven is black; that raven is black; therefore, all ravens are black." Inferences about a population are drawn from facts about a sample. This is genuinely inductive and uncertain.

The text continues:

> Statistical inference is also taken to include the uncertain inference we make from a population to a sample, as when we infer from the fairness of a coin that roughly half of the next thousand coin tosses we make will yield heads—a conclusion that might be false. Note that this is not probabilistic inference: the inference from the same premises to the conclusion that the probability is high that roughly half of the next thousand tosses is *deductive* and (given the premises) not uncertain at all. (175)

This kind of statistical inference is the statistical syllogism and gets expressed in arguments like "Most ravens are black; this is a raven; therefore, (probably) this raven is black." Inferences about a sample drawn from facts about a population are, they say, not inductive or uncertain at all, but deductive and certain. The bracketed "given the premises" is important: it guarantees the logically necessary connection between the premises and the conclusion as long as (as is well known) you do not detach the conclusion from the premises—it would be a misunderstanding of the conclusion of a statistical syllogism to say that it concludes something like "This raven is probably black" for there may be other facts about that particular raven not mentioned in the premises that make it extremely unlikely that that particular raven is black. Rather, what the statistical syllogism expresses is a probabilistic relation between the premises (a particular body of evidence) and the conclusion, and this relation holds even if the conclusion is false, for even if some raven is not black, blackness still would follow from its being a raven (the evidence given in the probabilistic conditional) to the same degree it always did relative to that evidence alone; the relation is a measure of the influence, so to speak, of being a raven as such on being black and is represented by the fact that the probability qualifies the consequence relation and not the propositions. Following from the evidence to the specified degree is invariant for all instances/uses of the statistical syllogism, and

taken this way its normativity is deductive, for there is no instance of this argument for which the conclusion could follow with some other degree. The degree to which the conclusion follows from the premises is established conclusively by the premises, even though the conclusion itself is not established conclusively by the premises.

In a later passage, they call this *direct inference* (Kyburg and Teng 2001, 195–196):

> Direct inference is the inference to the composition of a sample of a population of a premise concerning the whole population. Direct inference may have two forms. One is strictly deductive, as the inference from "the coin is fair" to "the probability is high that about half the next thousand tosses will exhibit heads." The other form of direct inference would assert, from the same premise, "about half the next thousand tosses will exhibit heads," without any qualification, but with the understanding that the inference may need to be withdrawn in the light of further evidence.

This second kind of direct inference where "the inference may need to be withdrawn in the light of further evidence" seems to have non-monotonic logic (e.g., default logic) in mind. The text continues:

> Direct inference, in the first form, is deductively valid: Given that the coin (and tossing apparatus) is fair, it is deductively certain that the probability that about half of a long series of tosses yields heads is very high.

This seems to imply that direct inference in the second form is not deductively valid, and I have just said why: it is defeasible and non-monotonic. Despite this difference, both forms of the inference represent the same set of facts and reflect the same reasoning. Any direct inference can be represented in either way, and the choice of how it is to be represented depends not on any point of principle but is simply a preference. This implies that defeasible and non-defeasible forms of reasoning are not separated by the deep theoretical divisions that proponents of defeasible reasoning are inclined to suppose.

Going back now to Kyburg and Teng, immediately after distinguishing the kinds of direct inference, they point out that the situation is different with inductive generalization or what they call *inverse inference*:

> Inverse inference carries no such guarantee. To obtain that guarantee requires additional premises.

Even here it is pointed out that you could make the inductive generalization into a deductive one by adding a premise, e.g., stipulating that this is a fair sample, or simply adding the logical minimum. Is adding such a premise justified? In my view, it depends. I do not think that it is justified when we generalize in a speculative way, because then we are not saying that the premises are good reasons for the conclusion until *after* we have decided that the inductive argument is strong—the status of being a reason is conferred retroactively on the premises. However, if I put forward the thesis that all As are B and then put forward this A being a B and that A being a B as my supporting reasons, and assuming that I am not insincere and take these to

be good reasons, then it seems to me that adding the logical minimum to my premises is justified, because now I must be committed to the associated conditional and thus be giving the enthymematic deductive argument "This raven is black; that raven is black; if this raven is black and that raven is black, then all ravens are black; therefore, all ravens are black." Because I do not think that all arguments as such are deductive I would consider myself a positivist, but I do believe that all arguments in discourse—that is to say, all arguments whatsoever should we adopt the dialectical conception of argument—are deductive, for the reason just given. In fact, they are deductively valid, because the addition of the logical minimum guarantees their validity. This does not prevent us from evaluating whether the evidence really supports the premises (including the associated conditional), and this evaluation may need to appeal to norms of inductive reasoning. In brief, this is what argument evaluation boils down to (Botting 2015a).

So, a statistical syllogism and an argument in default logic are inter-substitutable. I now want to show that an argument in default logic and an ordinary deductive argument that does not contain any probabilistic premises are likewise inter-substitutable, despite their apparent differences in logical properties: arguments in default logic are non-monotonic, defeasible, and do not license detachment, whereas arguments in deductive logic are monotonic, not defeasible, and do license detachment.

That non-monotonic reasoning is not really different from monotonic deductive reasoning is argued for in Israel (1990), and rests on the fact that any deductive argument is indifferent between being used constructively to fix a belief in the conclusion, and destructively to reject a premise. Deductive rules of inference are not real rules of inference: they are not used to fix beliefs. As Israel (1990, 100) points out (echoing points made by Harman long ago) deductive rules of inference tell you to believe a conclusion *or to reject a premise*. Logic does not and cannot help you decide which—the choice depends on epistemic and not proof-theoretical considerations. The fact that some proven conclusion may turn out to be false or evidence may come to light that suggests that it is false does not in itself necessitate a move to a logic that is non-monotonic. The same cases that default logic handles as an exception and consequently not requiring rejection of a premise are handled by deductive logic by using the argument destructively to reject the logical minimum. However, there are two points that need to be remarked here. Because we always need to allow ourselves the possibility of rejecting a premise, the conclusion should not be detached from the premises in the sense that you can throw away the premises once you have a deductively valid argument, unless your knowledge that it is sound is certain and infallible; this is not what detachment means—it is not an epistemological or belief-fixing operation. This idea of detachment is a misunderstanding of work of the Polish logicians who meant by detachment only the assertion of the consequent of a material conditional when the antecedent is asserted, or in other words, *modus ponens* (Bar-Hillel 1968, 120–121). The other point is that rejecting the associated conditional does not make the truth of the antecedent of the conditional any less good a reason for the truth of the consequent—if I believe that "if p then q" is true nine times out of ten, then my rejection of "if p then q," that is to say, my inferring that it is false in this instance,

might mean only that I believe that this instance is among those one in ten, and not that it must be more than one in ten, or that I must downwardly revise my epistemic probability as such. The valid but unsound deductive argument still expresses a good reason for the conclusion; adopting the soundness doctrine does not involve denying that there can be good reasons both for and against a standpoint, although strictly speaking we cannot say that there can be good arguments for and against a standpoint, because one or the other must be unsound.

This epistemic probability must be the same as the probability that is attached to the consequence relation in the statistical syllogism, or equivalently, the empirical probability expressed in the probabilistic conditional. If the probabilistic conditional is "9 out of 10 ravens are black" then 9 out of 10 substitution-instances of "If ___ is a raven, then ___ is black" with true antecedents must also have true consequents, and so the epistemic probability of "If X is a raven, then X is black" should be 0.9, given these premises and these alone. Further, if we are certain that X is a raven, then the epistemic probability of the conclusion, given these premises and these alone, is also 0.9. The argument now is one that nobody would deny is deductive, namely

> X is a raven
> If X is a raven, then X is black
> Therefore, X is black

Assuming we are certain that X is a raven and that we do not know anything else about X, then the epistemic probability that X is black is the epistemic probability that X is black given that we know that X is a raven—that is to say, of the conditional premise "If X is a raven, then X is black"—and this will be 0.9 if 9 out of 10 ravens are black because 9 out of 10 instances of conditionals of this form will be true. This is to say that for every statistical syllogism we can reason deductively about its consequences because the conclusion is as likely as the premises, and that is all that deductive logic ever said, and just repeats in other words what the statistical syllogism said. Just because we are not certain of our premises does not mean that the argument is not deductive; it is perfectly consistent with reasoning from premises that are only probable to conclusions that are only probable that the way we arrive at those conclusions is deductive, as Whately showed as far back as (1854, 79–80):

> One circumstance which has misled some persons into the notion that there is a Reasoning that is not, substantially, syllogistic, is this: that in a Syllogism we see the Conclusion following *certainly* [or *necessarily*] from the Premises; and in any apparent syllogism … [not "valid"] the Conclusion *does not follow at all*. … And yet we hear of Arguments that have *some* weight and yet are not quite decisive;—of Conclusions that are rendered *probable*, but are not absolutely *certain* &c. And hence some are apt to imagine that the conclusiveness of an Argument admits of degrees; and that sometimes a conclusion may, *probably and partially*,—though not *certainly and completely*,—follow from its premises.

This mistake arises from men's forgetting that the *Premises themselves* will very often be doubtful; and then, the Conclusion also will be doubtful. … [I]f one or both of the Premises be merely probable, we can infer from them only a probable Conclusion; though the *conclusiveness*,—that is the connection between the Premises and the Conclusion,—be perfectly certain.

This is precisely what fallibilist foundationalism does and what deductive arguments do—the conclusions *must* be as probable or improbable as the premises—and the reason for this necessity resides in the relations between the truth-values and is a logical necessity.

We could instead use the second kind of direct inference, and instead of a probabilistic conditional use a defeasible conditional and adjust the inference rule by saying that the inference only goes through in the absence of particular exceptions, in this way protecting the conditional from falsification when the conclusion is false (there being no connection between the premises and the conclusion in these exceptional circumstances and hence no *modus tollens*). This *defeasible modus ponens* is acceptable as a theoretical fiction—a feature of the model—but does not amount to a normatively different kind of reasoning or inference. Israel (1990, 100) has the right idea when he says that *modus ponens* is not really a rule at all (still less a 'rule of detachment') but a syntactic relation between logical formulae; the premise-conclusion relation in a deductively valid argument is invariant and hence cannot be defeated.

Israel thereby shows a correspondence between non-monotonic and monotonic logic that makes the distinction out to be rather less that we might initially have thought. Where default logic uses a defeasible conditional, deductive logic uses an ordinary material conditional (the logical minimum) of which we may not be certain. Also, Kyburg and Teng have already shown how default logic and the statistical syllogism are just equivalent ways of expressing a direct inference, despite their different logical properties; here, instead of a defeasible conditional we use a probabilistic conditional. Because in such statistical syllogisms we do not detach the conclusion, the statistical syllogism is not defeasible—to be defeasible would mean that the strength of the inference given the same set of premises is not invariant, but it is.

Perhaps there are reasons why one may choose one way of modelling the situation rather than another, but it is not because one of them is theoretically inadequate, for then the choice would be illusory. Although all of these inferences involve probabilities and this is probabilistic reasoning, it is not probabilistic logic, or some other non-monotonic logic, which is needed for direct inferences, but ordinary deductive logic. The distinctions usually made between deductive arguments and statistical syllogisms—that the latter are defeasible and have non-detachable conclusions whereas the former are not defeasible but have detachable conclusions—turn out to be distinctions without a difference, two inter-substitutable ways of representing and reasoning about the same epistemological situation. The same applies if we choose default logic. One important outcome of this inter-substitutability is that soundness is a norm of all these forms of argument and for precisely the same reasons. The reasons are epistemological and involve

epistemic probabilities, but the norm itself is not; it is the relations between truth-values that tell us what our epistemic probabilities normatively should be given our evidence.

Armed with this elucidation of the soundness doctrine we examine the objections.

2 Validity is not Necessary for Goodness

Not all good arguments are deductively valid. Also, not all good arguments are equally good, but all valid arguments are equally valid. Goodness, unlike validity, comes in degrees.[3] Therefore, validity is not necessary for goodness.

An example is inductive arguments, which can be good to a certain degree but are not deductively valid. Johnson (2011, 20) recruits Aristotle to his cause, citing from the *Nicomachean Ethics*: "Our subject, then, and our data being of this nature, we must be content if we can indicate the truth roughly and in outline, and if, in dealing with matters that are not amenable to immutable laws, and reasoning from premises that are but probable, we can arrive at probable conclusions". The kind of argument that Aristotle describes as dialectical that argue not from necessarily true premises but from *endoxa* (the opinions of the wise) is likewise thought of as probable reasoning. It is not obvious how this furthers Johnson's cause, for it should be noted that this does not affect the syllogistic forms themselves: conclusions still follow necessarily from their premises. Aristotle does not introduce a different logic to deal with premises that are but probable. Probability qualifies our knowledge (or ignorance), or sometimes in Aristotle the kind of truth involved (e.g., necessary, contingent), but not truth itself. *Deductive reasoning (whether syllogistic or propositional, and whether using a probabilistic conditional or an ordinary material conditional) just is probable, defeasible reasoning* [see Israel (1980) and Botting (2012a) for more discussion].

So, if by inductive arguments Johnson means something like a statistical or dialectical syllogism then I have already shown that there is nothing non-deductive about this. And it seems that he does mean this, for in Blair and Johnson (1987, 42) he describes probable reasoning by saying that "the conclusion of a probabilistic argument follows from the premises with some degree of probability rather than necessarily." This matches Kyburg and Teng's first type of statistical inference mentioned earlier.

However, slightly later he refers to a kind of reasoning that does not seem like a statistical syllogism and matches Kyburg and Teng's second type of statistical inference: "the inference from any well-designed sample to the population carries some risk of error: of going from truth to falsity." This is an inference that seems genuinely ampliative—going from what is true for a sample to what might be true for the population—and corresponds to the inference we generally call inductive generalization. Following Kyburg and Teng, I am prepared to call these, unlike

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[3] Objections of this kind can be found at Johnson (2000, 79, 2009, 27), and Blair and Johnson (1987, 42–43).

statistical syllogisms, genuinely inductive, for whether we call this deductive or inductive the fact remains that we must develop a system for calculating what this "risk of error" should be and for getting the empirical probability (e.g., by the Straight Rule); hence, somewhere in the analysis and evaluation of arguments we will have to use these norms.

A related objection that is often made is that there can be good arguments for both sides of an issue, yet there cannot be sound arguments for both sides of an issue.[4] Note that there can be inductively strong arguments for both sides of an issue, that is to say, that a proposition may be highly probable relative to one set of premises (that is to say, one reference class) yet highly improbable relative to another set of premises. What prevents this from resulting in contradiction is that you cannot detach the conclusion from the premises. So even if this objection holds against deductivism it is no bar at all against positivism even on Johnson's own construal of probable reasoning. But if the inter-substitutability I expressed in the previous section is correct, we should not expect it to hold against deductivism, and indeed it does not.

Here is an example. Suppose I have reason to believe that 8 out of 10 cats prefer brand X, but that Tiddles the cat does not prefer brand X. Perhaps I believe that it prefers to eat only what it has killed itself. In this situation there is a good reason to think that Tiddles does prefer brand X (because Tiddles is a cat) and good reason to think that Tiddles does not prefer brand X. What should I believe?

It obviously depends on which reason I think is better.[5] If I am more confident in my reason for believing that Tiddles does prefer brand X than I am in my reason for believing that Tiddles does not prefer brand X then I should accept the conclusion that Tiddles does prefer brand X, rejecting the contradictory conclusion that Tiddles does not prefer brand X, and by *modus tollens* reject my reason for believing that Tiddles does not prefer brand X. Rejecting this reason, it should be remembered, does not mean that it has ceased to be a good reason, or that it never was a good reason—relative to the premise that Tiddles is a cat my epistemic probability is still 0.8, because this follows from the probabilistic conditional, and this conditional has not been rejected or found to be untrue. There is nothing non-deductive about this process. This goes even if my confidence in the conclusion is not 0 or 1—if I think that the pros are stronger than the cons then I have to upgrade my confidence that the better supported conclusion is true and downgrade my confidence that any

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[4] This objection is made in Wellman (1971, 25), Johnson (2000, 79) and Johnson and Blair (2002, 347–48), to name but three. It is given a dialectical turn in Johnson (2011, 21) where he says that deductivism involves a commitment to knockdown arguments—the language of "refutation and proof"—and at Johnson (2000, 80) where he notes that this commitment is inconsistent with fruitful criticism (presumably because any such critical argument must *ipso facto* be unsound). This is an error—we would only have a knockdown argument after we have considered all the information.

[5] Note that "better" does not mean "having the higher epistemic probability" but "more likely to be or to be closer to the probability given all the relevant evidence." Thus, the epistemic probability for an individual (e.g, Tiddles) derived from the empirical probability in a wider reference class (e.g., cats) may be higher than that derived from a narrower reference class (e.g., cats that like to eat what they kill themselves), yet the lower probability will, by definition, be the more accurate, because it includes and goes beyond the information contained in the wider reference class, or to put it another way, we are using more of our information about Tiddles.

contra reason is true, and the reason that I have to do this is because of the deductive, logically necessary relations between the premises and the conclusion. But note that if I downgrade my confidence in "If Tiddles is a cat then Tiddles prefers brand X" this does not mean that I must downgrade my confidence that "8 out of 10 cats prefer brand X" or believe that less than eight out of ten cats prefer brand X; it means only that I have other information about Tiddles that indicates that Tiddles is among the two out of ten cats that does not prefer brand X.

It might be objected that what this shows is that there can be deductively valid arguments for both sides of an issue, when the point was not just about its validity but its soundness. If you have a sound argument then you should be able to detach the conclusion, the objection might continue, but if you have good arguments for contrary propositions and detach both of these propositions as conclusions of these arguments then you are caught in a contradiction. Therefore, only one argument can be sound, and if goodness is the same as soundness, only one argument can be good. I will concede this: although there can be good reasons for both sides of an issue, and each considered in isolation may give us a high degree of confidence in the conclusion of the argument, strictly speaking we should not say that both arguments are good, and in deciding that one reason is better than another it is *ipso facto* identified which argument is sound. Although we reject the premise of the other, we do not reject its status as a good reason or believe that the conclusion follows from the reason any the less, as already said. This amounts to using this argument as *modus tollens*, and re-construed as an instance of *modus tollens* the argument is sound after all and it is because soundness is a norm of arguments that we construe it that way. But we can only give ourselves this choice if we do not throw away the premises in detaching the conclusions, and, indeed, we should not; properly understood, logic never said that we should.[6]

Even if you find this unconvincing, we still have the option of positivism open to us. Rejection of positivism, then, rests on there being kinds of arguments that are not deductive or inductive, arguments for which it is to no avail to bring the resources of deductive logic or inductive logic (e.g., confirmation theory) to bear (Johnson and Blair 2002, 349 and 388–389). There seems to be a proliferation of such things in the informal logic literature, possible candidates being abductive reasoning, conductive reasoning, analogical reasoning (esp. a priori analogies), and plausible or presumptive reasoning. I have yet to be convinced that any of these have some distinct kind of normativity as opposed, perhaps, to being merely different models, and they remain controversial, having a fairly wide variety of accounts.[7] The burden

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[6] The informal logician may try to turn to the same trick by appealing to monotonicity instead of detachment. If there is a good argument for Tiddles preferring brand X and goodness is the same as soundness, then adding the further information that Tiddles prefers only what he kills himself cannot affect the outcome, it might be thought, because adding additional information to a valid argument cannot make it invalid. But this does not prevent the additional information from altering one's decision to use that valid argument destructively (*modus tollens*) rather than constructively (*modus ponens*).

[7] In my (2013b) presumptive reasoning as represented by Walton's presumptive argumentation schemes is argued to be just a way of modelling probabilistic relationships where it is only by virtue of a conditional probability (changes to the reference class) that a critical question has the force to transfer the burden of proof. In (2012b) Guarini's account of *a priori* analogies is shown to make them second-order

of proof still seems to be on the informal logicians here, and even if they do succeed, it still leaves latent deductivism as a viable option.

There is another kind of case that is often appealed to in favour of there being different degrees of inferential strength or different types of inferential connection. This is often put forward as the jurisprudential contrast between criminal cases where the probanda have to be proven "beyond a reasonable doubt" and civil cases where they have to be proven "on the balance of considerations" or "on the balance of evidence."[8] There are different standards for the two cases, certainly, but for each of those cases the reasons and evidence presented either reaches those standards or it does not, and is conclusive with respect to those standards or it is not. The relevant standard for the *inference* is deductive validity and is an all-or-nothing affair. It would be a misleading way of putting the matter to say when we satisfy the weaker standard that we are satisfying the stronger standard more weakly, or that the probandum is being supported more weakly—it is, quite simply, not the same probandum at issue in both cases. Any difference is built into the standards, that is to say, into the probandum, and does not affect the inference. When a jury finds a defendant guilty it is not saying that the reasons given in court make it conclusively true that she is guilty or even necessarily that she should be believed to be guilty (belief in guilt or innocence being beside the point); what is conclusively true (according to the jury) is that the stipulated standard has been met.[9] To show the need for different inferential strength it would have to be the same propositional attitude with the same propositional content that was at issue, and that is not the case in this instance.

3 Validity is not Sufficient for Goodness

Some deductively valid arguments are not good arguments. Circular arguments and arguments whose conclusions are logically true or whose premises are logically inconsistent are deductively valid but not good. I do not want to say much about

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Footnote 7 continued

inductions (however, this is one type of argument where I do not favour a deductivist reconstruction). In (2012c) conductive arguments are argued to be enthymemes and conductive inferences just psychology. Lastly, in (2013a) at least some examples of abduction are shown to be just materially valid inferences or their close relations. This leaves only those cases of abduction better described as inference to the best explanation. It should be noted, however, that there is doubt whether these cases are valid at all [for which see the debate between van Fraassen (1980) and Lipton (2004)] and also doubt whether they differ substantially from Mill's methods [for which see the debate between Rappaport (1996) and Lipton (2004)], in which case they are inductive.

[8] Goddu (2001) comes into this category. It is also worth noting that the standard of proof that needs to be met in the different contexts is determined by our conception of justice and the relative importance we give to punishing the innocent and letting the guilty go unpunished, and not anything to do with epistemology or logic.

[9] In his discussion of the same kind of case, Cohen (2002) comes to much the same conclusions, calling the attitude that the jury has and that is most suitable *acceptance*. He also points out that although acceptance is an all-or-nothing affair while belief comes in degrees, this does not mean that the difference between the different standards of proof is a matter of beliefs coming up to different desired degrees.

these kinds of cases.[10] I am more interested in the kind of cases where although the premises conclusively establish the conclusion, they do not seem relevant to the conclusion, as in this example from Walton (2008, 140):

> Roses are red
> Einstein was a genius
> If roses are red then Einstein was a genius

This is intuitively a bad argument (at least in the actual world—there may be possible worlds in which it is a good argument after all), yet it is valid, its premises are true, and its conclusion is true, so we can honestly say that we have been led from truth to truth in a way that is guaranteed by logical necessity to be truth-preserving; its badness seems to reside in the non-logical fact that believing roses to be red is no reason at all to believe that Einstein was a genius. The redness of roses is *irrelevant*. This seems to play into informal logic's hands, for it does make relevance a criterion of goodness.

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[10] Interestingly, Johnson tends not to say that such arguments are bad, but rather that they are not "real" arguments at all. Consider: Boston is a city and Boston is in the United States. Therefore Boston is in the United States. He comments:

> [S]omeone used to the idea of argumentation as dialectical would have trouble situating this performance in a dialectical setting. If the setting is the United States, it becomes hard to see what the point of this performance would be. Is the writer attempting to persuade himself of something he already knows but can't quite bring himself to believe? We cannot imagine anyone producing such an argument in an effort to persuade an audience of the conclusion, for the premises contain the conclusion in a strikingly obvious fashion.

With regard to a different (deductively invalid) example he says: "Our point is not the trivial one that [this example] is an exceedingly bad argument; it is simply that [this example], taken by itself, is not an argument (Blair and Johnson 1987, 47). Being a real argument in their sense cuts across the valid/invalid distinction.

I do not want to say too much about this and have tried to avoid referring to 'real' arguments in this paper, partly to save space and partly because the tenability and theoretical significance of the distinction between 'real' arguments and those that are not is the subject of current contention (attacked in Goddu 2009; defended in Hamby 2012; attack resumed in Goddu 2014). I want only to make two points.

The first is that, even if Johnson's point is that such arguments are dialectically ineffective, the conditions under which he says this (i.e., premise-circularity, logically true conclusions, etc.) are all definable in purely logical (i.e., syntactical) terms; it is a purely logical fact about a conclusion that it is logically true or that it is the same as a premise, and whether or not these are good arguments, or arguments at all, is less relevant than whether we need to make use of resources beyond those of formal deductive logic in evaluating them or classifying them, and it is not obvious that we do. [For an example where logical definitions of these kinds of cases is given see Woods (2002, 65), in which it is noted that these conditions mimic Aristotle's conditions on syllogisms, and Botting (2011, 32–34)]. If the features of 'real' arguments are simply those of deductive arguments with additional logical features, then this does not motivate replacing formal logic with informal logic.

The second is that there is something peculiar about using this as an argument against deductivism. The deductivist may concede that such an argument would be dialectically ineffective, but may say that this is only relevant to evaluating the argument itself if perforce we have abandoned the view of the argument as logical product and adopted instead the dialectical definition in terms of rational persuasion; the objection begs the question against someone who has not been convinced by the *other* criticisms to do this. This argument is in danger of committing the very fallacy it seems to criticize. But even if we do consider it relevant to evaluation, it is not obvious that we have to go outside of formal deductive logic in order to carry out this evaluation, as I just said, though admittedly we may have to make use of logical features beyond that of validity.

I am prepared to concede this point but make this counterpoint: the issue is less over the truth of the soundness doctrine than over deductive logic's adequacy as a *theory* of appraisal, and whether the criticisms of the soundness doctrine motivate the claim that formal deductive logic is inadequate and should be replaced by something else, e.g., informal logic. For relevance to be part of a theory of appraisal there must be a theory of relevance. Yet Botting (2013c) denies that this is the case and claims that relevance is unanalysable, or at least that it may as well be treated as such. Relevance can survive in the purely formal, non-substantial sense as a criterion of goodness, but as far as a theory of appraisal can be given, deductive and possibly inductive logic gives it. Again, it is here conceded that the soundness doctrine is not strictly true, but it is argued that less follows from this than is normally supposed. Deductivism is as adequate a theory of argument appraisal as it is reasonable to expect.

There is another issue that is raised with regard to the sufficiency of validity due to Massey. Using validity as a criterion of goodness we can evaluate the goodness of good arguments but not the badness of bad arguments, for there is no formal method for deciding that an argument is invalid, since any argument can be translated into different argument-forms both within the same logical system and across different logical systems. Only if we could guarantee having exhausted the possibilities for different logical systems and for logical forms within those systems could we tell whether the argument is invalid. Strictly speaking, this does not show that validity is not sufficient for argument goodness, but it does raise an epistemological problem about whether we can know that bad arguments are bad. Adopting the determination of validity as an aim of the theory of evaluation will give us a theory that can never distinguish between arguments that are bad and arguments that simply have not yet been shown to be good. Argument evaluation would be one-sided: when good arguments are shown to be good by showing that it instantiates a valid logical form, this evaluation is conclusive, but we cannot similarly show that bad arguments are bad, since no matter how many invalid logical forms the argument instantiates, it is always possible that there is a valid logical form that the argument instantiates.

According to Johnson, this makes the notion of form so crucial to deductivism extremely problematic, and in (2011, 33) he says: "*The real significance of informal logic, then, is that it is an attempt to do logic without recourse to logical form and the deductivism that attends it*" [italics original]. It is against *formal* in this sense that he contrasts the *informal* in "informal logic." Blair and Johnson (1987, 33) says: "This asymmetry between judgements of validity and invalidity creates problems for those who defend the validity requirement; for it would mean that an argument's failing to meet that requirement could not be taken as a sign that the argument was defective." [See also Johnson and Blair (2002)]

Certainly I will grant that there is no "knockdown" or conclusive argument that a given argument is invalid (except by the non-formal method of determining that the premises are true and the conclusion false, which all concede). But does it follow that having an invalid argument-form "could not be taken as a sign that the argument was defective" or that the argument "Γ is an instance of the argument-form ø; ø is an invalid argument-form; therefore, Γ is invalid" is never a good one? The degree to which you should believe that Γ is invalid is the degree to which you

should believe the associated conditional "If Γ is an instance of the argument-form ø and ø is an invalid argument-form, then Γ is invalid." Of course, it is difficult to say what this degree is[11]; nevertheless, having the invalid argument-form ø is a perfectly good (albeit inconclusive) reason to think that Γ is defective. In saying otherwise Blair and Johnson seem to be using the very criterion of goodness they criticize. Perhaps they are entitled to do this and would say something like "You must admit that a non-deductive argument can be good in order to be able to say that some deductive arguments are bad." But even if we follow Johnson in counting the kind of probable reasoning involved here as non-deductive, this is no problem for the positivist.

Consider some very simple arguments:

Roses are red
———————————
Einstein was a genius

This has the invalid form $p \vdash q$. It is difficult to see what other forms this could be given, so in this case the fact that it has this invalid form seems to be pretty strong evidence that it is invalid, and this is corroborated further by the fact that the premises do not seem to be relevant to the conclusion and that it is possible to conceive a world where roses are red but Einstein was not a genius. Now consider:

Roses are red and Einstein was a genius
———————————————————————
Einstein was a genius

This also can be given the invalid form $p \vdash q$, but because p is not an atomic proposition it is better to make its internal structure explicit, viz., $(p \wedge q) \vdash q$. This argument has one form that is valid and (at least) one that is invalid; clearly, we should say here that the argument is valid, just as an existential statement implies the negation of a universal generalization (i.e., that there is no valid form of which the argument is an instance). Here, having the invalid form (in this case a form which all arguments both valid and invalid can be given) is fairly weak evidence, and is of course over-ruled after a valid form has been found. Although weak, I would still say that it is evidence. This is just induction by enumeration, and the problem Massey raises is nothing more than a version of the problem of induction, the problem of proving a negative existential statement.

If my aim is to persuade you that your argument is defective, then showing that it is an instance of an invalid form, especially when that form involves a recognized fallacy and thereby explains why you may have thought your argument correct, seems a perfectly reasonable way to proceed, and my argument to you seems to have a deductively valid form like that above. So, a deductively valid argument can be given, even though this argument does not establish its conclusion conclusively.

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[11] Because of this difficulty a more Bayesian approach might be more suitable: the posterior probability that an argument is invalid should be lower than the prior probability if it has a form that is invalid, that is to say, we treat the fact that it has a particular invalid form as evidence and conditionalize on it. For this approach see Botting (2014a). This is a more practical approach here than trying to work out the relative frequency of arguments that have a particular invalid form that also have a valid form.

4 Validity is not Applicable to Arguments in Natural Language

By 'inapplicable' what seems to be meant is that it is difficult to translate arguments in natural language into symbolic form, and that doing so distorts what the argument is. Translation into the language of formal logic excludes what in the argumentation is, logically speaking, "clutter", and includes as "missing premises" what was never explicitly in the argumentation at all.[12]

I will not be saying much about clutter. I will focus instead on the problem of missing premises. Johnson (2000, 65–67) notes that one deductivist response is simply to add the associated conditional (the logical minimum) as a premise. The invalidity of the bad non-deductive argument is thus transformed into the falsity of the associated conditional of a deductive argument that is unsound in consequence. He notes that it is precisely the same reasoning (namely, that it is possible for the premises to be true and the conclusion false) that would lead you to say that the non-deductive argument is invalid that would lead you to say that the deductive argument has a false premise, and therefore reconstruction as a deductive argument is no advance. This being so, he questions whether there is really any difference between "pure deductivism" that translates only what is explicit in the original argumentation, and "reconstructive deductivism" that allows for the addition of implicit premises. Johnson and Blair (2002) goes on to say that once validity has been established by adding premises the task of logic is finished, for logic cannot say whether the premises are true or reasonable.

First of all, at best all that Johnson has shown is that there is no difference between pure deductivism and reconstructive deductivism when the argument is bad; it does not follow from what he says that there is no difference when the argument is good. Secondly, it does not follow when the argument is bad because of irrelevance, for the associated conditional here may well be true (as it is above).[13] Thirdly, if there is no difference, one could use this fact just as well to make the claim that the non-deductive argument should be evaluated as if it were a deductive argument as vice versa; I suspect Johnson realizes this, for ultimately he does not use this as an objection to formal deductive logic (Johnson 2000, 67) although he does raise the issue again at (Johnson 2000, 89).

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[12] Objections of this kind can be found at (Blair and Johnson 1987, 43; Johnson and Blair 2002, 341 and 350). Similar objections come from outside informal logic. At (2014, 303–304) van Eemeren et al. describe the formal approach to argument evaluation thusly:

> Applications of such a system to the analysis and evaluation of everyday arguments would then consist of making a "translation" of each argument into the language of propositional logic and determining its validity by a truth-table or other available method of classical propositional logic. There are all kinds of objections against such an approach to argumentation: (1) the process of translation is not straightforward; (2) if the outcome is negative, this does not mean that the argument is invalid [Massey's point]…; (3) the approach misses the crux of the argument by overlooking the unexpressed premises (that must be reconstructed) and the argument scheme used; (4) the approach reduces the evaluation of the argument to the evaluation of the validity of the reasoning used, neglecting such issues as the appropriateness of premises and the adequacy of the particular mode of arguing in the given context.

I have already discussed Massey's point.

[13] In fact, this is the case for all bad arguments whose premises and conclusion happen to be true.

Also, although there is a sense in which the associated conditional is epistemologically redundant, this does not mean that it is logically redundant or that it does not play a logical role in the argument. The conditional is conceptually part of the argument that has been made and is partially responsible for making the argument good or rationally persuasive. Precisely because it *is* a part of the argument, I would claim that any more informative premises are *not* part of the argument. This is important because it is objected against reconstructive deductivism that the premise needed to make the argument deductively valid could be anything that entails the associated conditional (Johnson 2000, 67); the criticism seems to be that whatever premise we actually add does not indicate a unique solution to the problem in analysis.

Let us call the associated conditional P (to register the fact that it is a particular conditional concerning an individual) and the premise that entails it G (to register the fact that typically, though not necessarily, it would be a general conditional concerning some type of which the individual is an instance). My view is that G is not conceptually a part of the argument but is instead our reasons or grounds for holding P to be true (and as such may not actually be part of the appraisal), and is no different in this respect to whatever reasons there are for holding the other premises to be true, which no-one claims to be part of the argument, even implicitly.[14] Obviously, it is part of evaluating the argument, or at least the arguer's performance, to determine whether there are good reasons to hold the premises to be true and whether the arguer herself has good reasons to hold the premises to be true, but this is part of what we do in deductivism anyway (or at least it is not inconsistent with deductivism), and what we would have to do in any theory of appraisal at all. It is wrong to imply that deductivism disregards the truth of premises; the soundness doctrine explicitly requires premises to be true. Anyway, informal logic faces the same problem of missing premises when it tries to identify the argument-structure of the argument, which may also require premises to be added in (Govier 1988, 28–33).

Deductivism does not seem to be any worse with respect to problems of missing premises or translation than informal logic or any other theory of appraisal. In fact, once you have determined what speech-acts have been performed, the propositional

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[14] This is based closely on Grennan (1994). He argues that in an argument like "All As are B; Z is A; therefore, Z is B" the major premise "All As are B" is not a conceptual part of the argument. The argument-structure is actually

$$Z \text{ is A} \qquad \text{All As are B}$$

$$\text{If } Z \text{ is A then } Z \text{ is B} = \quad \downarrow\leftarrow\!\!\text{———————}\lrcorner$$
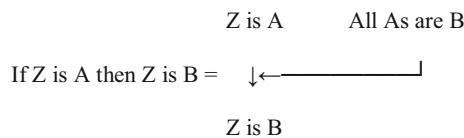
$$Z \text{ is B}$$

The down arrow is the inference from the premise "Z is A" to the conclusion "Z is B" and is made explicit as the associated conditional "If Z is A then Z is B." These three things are conceptually part of the argument. The major premise "All As are B", since it entails on its own the associated conditional that must already be there in the argument, is not conceptually part of the argument but backs the conditional, shown here by a "support" arrow pointing to the inference.

contents of those speech-acts that are reason-giving should lead fairly unproblematically to a logical product and the *rational* goodness of the argumentation should be evaluable by reference to that logical product alone, which is to say that the logical conception of argument is adequate to these purposes. The tough part is working out what reasoning the argumentation actually presents and it is here in the process of analysis that context plays a part (as no formal logician or deductivist ever denied).[15] This kind of analysis is necessary whatever system we apply and whatever theory of appraisal we propose, and not avoided by taking a non-formal approach. The analysis is not made noticeably easier by confining the analysis to natural language rather than the language of symbols. Going from the analysis into the language of symbols is the comparatively easy part, less a translation than a transcription, and once analysed into speech-acts, that analysis is no more ambiguous or context-sensitive than its formal transcription.

5 Truth is not Necessary for Goodness

Before discussing Johnson's attack on the truth requirement that is evident in his early work, it should be noted that in (2000) Johnson re-instated a truth requirement. To some extent, then, I will be countering a position to which Johnson no longer subscribes, though other informal logicians still do so and have criticized Johnson on this issue. On the other hand, it is not entirely clear that what Johnson has in mind is the truth requirement as the deductivist understands it. What he says (2000, 338) is that "for the arguer to attempt to persuade by means of a premise that the arguer thinks is false and therefore does not himself accept is …tantamount to abandoning the telos of rational persuasion in favour of all-out-persuasion." He calls this the truth requirement, but what is referred to here seems to be a subjectively justified belief, or perhaps, more weakly, a sincere belief. Possibly he calls this a truth requirement because acknowledging truth as a norm; if so, his position may not in fact be all that distant from the one I am about to put forward.

I find there to be a clash of intuitions whether truth is necessary for goodness.

On the one hand, if the arguer justifiably believes his premises, and he justifiably believes that if his premises are true then his conclusion must be true (and, perhaps, that this is *because* the premises are true), then it seems harsh to say that the argument is bad just because one of the premises happens to be false. The arguer has not argued badly in this scenario. Also, using premises that are true (and even that one justifiably believes to be true) but that the arguer knows are not acceptable to the audience will be, and be known to be, dialectically ineffective. The arguer would have argued badly in this scenario (Johnson and Blair 2002, 350). It is easy to see from this why informal logic, adopting a dialectical conception of argument, replaces the truth criterion with an acceptability criterion: premises must be

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[15] It is a curious dogma of informal logicians (and not only them) that formal logic is inadequate because it is context-insensitive. All evaluation whatsoever is context-insensitive, simply because all the contextual issues have been worked out in the process of analysis, so that what is presented by analysis for appraisal will *a fortiori* be context-free. See Botting (2014b).

acceptable (not to be confused with "accepted") to the audience you seek to persuade.

On the other hand, it seems to be a reasonable way of criticizing an argument to say that its premises are false. If justifiability and/or acceptability of premises were all there was to it, an arguer should be able to respond to this charge by saying "So what? Even if you turned out to be right, this is still a good argument."

A deductivist may explain this clash as the difference between evaluating the argument and evaluating the arguer's performance: the arguer has argued well, he will concede, and this because the arguer has given what he justifiably takes to be a sound argument that should persuade his audience, but the argument itself is not good if it is unsound (Botting, forthcoming). There are other ways in which we might try to make this distinction.

But here I want to take a different tack. I want to say that even if it is conceded that truth is not a necessary condition of goodness this does not mean that it is not a norm of goodness. The conditions that we do use and that informal logicians say we should use get their normativity from the fact that they converge on the truth; they are *latently deductivist*, to use Johnson's term. Construed this way the soundness doctrine would still be appropriate.

This is most obviously so when the criterion used in place of truth is epistemological. When I argue, I make use of premises that I implicitly claim to be true, to add "is true" being redundant. From the arguer's own point of view, then, the relevant norm and criterion of goodness is truth. However, if the arguer has complied with Goldman's (1994, 34) rule that a speaker must believe and be justified in believing premises he asserts, it seems harsh to say that his argument is bad even if his premises are false, especially since we as evaluators should not be assumed to have any privileged viewpoint on the truth.[16] The only way we have of pursuing and even evaluating the norm of truth is by pursuing epistemological norms, so it is these that serve as conditions of goodness.

Goldman (1994, 34) puts the matter this way:

> There are two ways of interpreting these rules (many of them, at any rate): as rules of objective duty, or as rules of subjective duty. (This is a familiar distinction, of course. An act utilitarian might say that an agent's objective duty is always to perform an action that is in fact optimific; correlatively, it is her subjective duty to perform an action she believes to be optimific.) It might be suggested that it is an arguer's objective duty to assert premises and conclusion only if they are true, and only if the premises in fact provide strong support for the conclusion. The correlative subjective duties are to assert

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[16] See Hamblin (1970). However, we could make a distinction between the objectively correct evaluation and the evaluation that it is correct to make. The evaluator may not be in an epistemically privileged position to say that a premise is false, but this does not resolve the question whether, *supposing that a premise is false*, the argument is good or bad. It seems quite possible to say that if the evaluation is correctly carried out then its result will be that the argument is good, and hence that this is the correct evaluation to make, but that this evaluation is nevertheless wrong because leading us on this occasion to accept an unsound argument. Just as in argumentation, in evaluation too we can distinguish between the goodness of the product and the goodness of the performance, between the evaluation being good and the evaluator evaluating well.

premises and conclusion only if one believes them to be true, i.e., believes them, and only if one believes that the premises support the conclusion. …Alternatively, we could view [some of these] rules …as stating independent, objective duties, not subjective correlates of a truth duty. In either case, the rules may be seen as dedicated to the promotion of true belief and error avoidance, especially the latter. They instruct a speaker not to assert things that are false by her lights, because what is false by her lights may well be false; and assertion of such utterances is apt to induce false belief in the audience.

Note how the ultimate objective duty seems to be truth, and the subjective duty—the only duty that the arguer can actually purposely satisfy—is to assert propositions that the arguer believes and is justified in believing from the arguer's own point of view.

On this epistemological view, the condition on goodness is not truth itself but a "subjective correlate" of truth. Even if we take them as objective duties, Goldman (1994, 34) says that "these requirements could again be rationalized by reference to the promotion of true belief and error avoidance…. [J]ustified beliefs are ones produced by belief-forming processes with high truth ratios; so justified beliefs are likely to be true." There is a latent deductivism present in this view: truth is best, but since we can never get at truth, we have to make do with justification from our own point of view, or to put it another way, a premise is good even if false when reached by a procedure normatively guided by truth.

Goodness is a procedural notion in this sense—a procedural correlate of soundness. If I wish to argue against you that one of your premises is false, I would have to give you an argument why I am justified in believing that premise to be false, and if I wish to persuade you that your premise is false I can only use in my justification premises that you yourself would be justified from your own point of view in believing, and in that way I show that you are *not* actually subjectively justified in believing the false premise—you only thought you were because of failing to notice an *internal* inconsistency. This explains the normativity of the acceptability condition and implies latent deductivism, for by using only premises acceptable to the audience I aim to make the audience subjectively justified by the same argument as I am, and if I wish to refute them I need to show them that they are not, in fact, subjectively justified given all the propositions that they are disposed to accept, but only thought that they were by failing to notice some inconsistency between their thesis and other propositions they accept.

I have assumed that I may take myself to be justified in believing all my premises irrespective of whether I can respond to objections to those premises that a particular audience would raise. If these objections are on the basis of premises I share with the audience then we are disputing about which of us is subjectively justified, and if I cannot respond to those objections then I do not seem to be justified in believing all my premises. If there is not enough common ground and the audience accepts too many falsehoods, then my task is to try to persuade them, by showing them that the propositions they accept commit them to propositions they would not accept, that some belief revision is in order. This suggests that Johnson's

dialectical tier is just another step in the latent deductivist declension that goes from truth to subjective justification to acceptability to 'dialectical closure'—the state of having handled all the objections and dialectical material. Ultimately it is this closure that serves as a kind of procedural correlate for "truth" and it is this that we must consciously pursue in order to argue well. This does not seem to be, as Blair and Johnson say at (1987, 48), a structural difference between the logical conception of argument and the dialectical conception.

6 Conclusion

In this paper I have been looking at the attack on the soundness doctrine by informal logic, focussing specifically on the work of Ralph Johnson. There is, of course, something slightly ingenuous about taking the work of one man as representative of a field as diffuse as informal logic, yet it was the criticisms of Johnson and Blair that historically were instrumental in the move away from formal logic to informal logic. As might be expected, there is an element of truth in his criticisms, yet I wonder whether these criticisms really motivate abandonment of the paradigm of formal deductive logic or even whether the alternatives of informal logic actually differ from a properly construed deductivism as much as they suppose.

I agree that validity is not necessary for goodness because I believe that inductive generalization, formulated as the inductive argument "This A is B; That A is B; therefore, all As are B" is ampliative and also neither deductive as given nor (or at least, not always) appropriately reconstructed as the enthymematic deductive argument "This A is B; That A is B; if this A is B and that A is B, then all As are B; therefore, all As are B." So not all arguments are deductive, but all arguments that occur in argumentative discourse (or at least in acts of rational persuasion) would be, and probable reasoning as it is often presented in the informal logic literature (viz., the statistical syllogism) is not, I have claimed, non-deductive or a counterexample to the validity criterion. But even were I to concede that all the reasoning Johnson characterizes as non-deductive actually is non-deductive, he needs to show further that some reasoning is also non-inductive in order to reject positivism—he needs to show that at least one of the other types of argument mentioned has a normativity distinct from that of deduction and induction, and I think that the jury is still out on whether this is so.

I agree that validity is not sufficient for goodness because sometimes the premises are not relevant to the conclusion (or as I prefer to say the argument involves a conditional in which the antecedent is not relevant to the consequent), and I doubt that there is a logical criterion that will capture this notion of relevance. But then, I doubt that there is any way of capturing this notion of relevance at all. At the very least, there seems to be little motivation to choose informal logic over formal logic with relevance added; it is not as if informal logic proposes a *solution* to the problem of relevance or has some special theoretical tools unique to itself to tackle the problem, and if there were a solution there is no reason to suppose that we could not use the same solution alongside formal logic.

I disagree that validity is not applicable to arguments in natural language: on the whole, translation into the language of formal logic is no more or less difficult than any other mode of analysis, and, in particular, the fact that formal logic is "context-insensitive" is entirely a pseudo-problem. This is not to say that there are not genuine problems here. To be sure, there are sentences of English where it is difficult to make their internal structure explicit, and it is a non-trivial accomplishment to come up with the correct logical form for these sentences, e.g., Russell's theory of definite descriptions, Davidson's way of analysing action sentences and dealing with polyadicity. But this is just to re-iterate what we know from Massey, namely that translating into a logical form that is invalid does not show that the natural language argument is invalid; on the contrary, we can be fairly confident that eventually some analysis will be found in which the inferences that we want to endorse will turn out to be formally valid. We did not say that validity was inapplicable to action sentences (or inferences from them) and only became applicable when a way of formally demonstrating their validity was worked out; quite the reverse, it was because we wanted to apply the concept of validity and to bring formal tools to bear on the problem that we persevered in trying to find acceptable analyses. If validity really were inapplicable, this would be a waste of time and on the wrong track from the start. Besides, such cases do not seem to form part of Johnson's arguments against the soundness doctrine.

I agree that the truth of premises is not necessary for goodness (or at least that there is a plausible way of conceiving of argument evaluation where the truth of premises is not necessary for goodness), but I would counter that it is nevertheless a norm of goodness; it does seem to be a reasonable criticism of someone's argument to say that one of their premises is false, though I am unsure whether we should say for that reason that the argument is bad. It is only true propositions that we can be objectively justified in believing, and since when we argue we aim at and intend to give premises that are objectively justified, the charge that our premises are false is a charge that we have not done what we were aiming to do. Truth is the ideal that is aimed at by the one arguing and also by the one evaluating. We are convinced that this charge is valid when we discover that our premises are inconsistent, as a result of which we are not subjectively justified. Subjective justification is the condition of satisfaction on the speech-act of giving reasons (Botting 2015a), so we can certainly give as reasons what is not true, while objective justification is what the speaker actually aims at (but may not hit). The other conditions of premise adequacy that have been proposed instead such as justification and handling of objections are, I have said, latently deductivist in this sense; they give goals that we may strive for purposely in order to converge on the truth. Johnson later re-instates the truth criterion as an additional criterion and says that in the event of a conflict between acceptability and truth we should choose truth (Johnson 2000, 337–340). This seems to show even more clearly that the approach to the truth criterion taken in informal logic and especially in Johnson's work actually is latently deductive.[17]

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[17] The same can probably said of the pragma-dialectical view where instead of premises being acceptable, premises must only be accepted, for the fact that they are being accepted by arguers who by definition are attempting to resolve a disagreement on the merits of the best argument implies that in the

As a result, I believe that there is less wrong with the soundness doctrine and with formal deductive logic than Johnson supposes, and although I cannot say that I have shown formal deductive logic to be adequate, I have shown that it is not inadequate for the reasons that Johnson and Blair actually took to theoretically motivate their rejection of it. In taking the replacement of formal logic by informal logic to be unmotivated I am not entering the debate on whether there is anything wrong with the criteria of the RSA model and am even prepared to concede for the sake of argument that an adequate theory of argument appraisal can be based on them; as should be expected with any relatively recent philosophical view, these criteria have met with criticism [see van Eemeren et al. (2014, Section 7.3) for a summary of objections] and have evolved in response to those criticisms. However, those who object to their positive proposals still seem to subscribe to Johnson and Blair's negative views with regard to the soundness doctrine, so the issue is not a purely historical one.

References

Bar-Hillel, Y. 1968. On alleged rules of detachment in inductive logic. In *The problem of inductive logic*, ed. I. Lakatos, 120–129. Amsterdam: North Holland Publishing Company.

Blair, J.Anthony, and Ralph H. Johnson. 1987. Argumentation as dialectical. *Argumentation* 1: 41–56.

Botting, David. 2014a. A good argument that bad arguments are bad. *Revista Iberoamericana de argumentacion* 8: 1–16.

Botting, David. 2010. A pragma-dialectical default on the question of truth. *Informal Logic* 30(4): 413–434.

Botting, David. 2013a. A priori abduction. *Argumentation* 27(2): 167–181.

Botting, David. 2013b. Birds fly, except when they don't. *Cogency* 5(2): 9–33.

Botting, David. 2011. Can big questions be begged? *Argumentation* 25(1): 23–36.

Botting, David. 2012a. Deductivism without detachment. *Cogency* 4(2): 9–24.

Botting, David. (forthcoming). Interpreting the norms of rational persuasion. *Revista Iberoamericana de argumentacion*.

Botting, David. 2013c. The irrelevance of relevance. *Informal Logic* 33(1): 1–21.

Botting, David. 2015a. The logical evaluation of arguments. *Argumentation* (Online First).

Botting, David. 2012b. The paradox of analogy. *Informal Logic* 32(1): 98–115.

Botting, David. 2012c. Wellman's typology of arguments. *Journal of Logic, Grammar and Rhetoric* 28(41): 25–46.

Botting, David. 2014b. Why modal pluralism does not require normative pluralism. *Argumentation & Advocacy* 50(1): 168–182.

Cohen, L. Jonathan. 2002. Should a jury say what it believes or what it accepts? In *Knowledge and language: Selected essays of L. Jonathan Cohen,* ed. James Logue, 293–312. Dordrecht: Springer.

Goddu, Geoff. 2001. The "most important and fundamental" distinction in logic. *Informal Logic* 22(1): 1–17.

Goddu, Geoff. 2009. What is a 'real' argument? *Informal Logic* 22(1): 1–17.

Goddu, Geoff. 2014. Why I still do not understand what a 'real' argument is. *Informal Logic* 34(1): 62–76.

Footnote 17 continued

long term rules of critical discussion that allow them freely to put forward and challenge standpoints will converge on epistemological norms (Botting 2010), and consequently on premises that are true.

Goldman, Alvin. 1994. Argumentation and social epistemology. *The Journal of Philosophy* 91(1): 27–49.

Govier, Trudy. 1988. *A practical study of argument*, 2nd ed. Belmont, California: Wadsworth Publishing Company.

Govier, Trudy. 1987. *Problems in argument analysis and evaluation*. Dordrecht: Foris Publications.

Grennan, Wayne. 1994. Are "gap-fillers" missing premises? *Informal Logic* 16(3): 185–196.

Hamblin, C.L. 1970. *Fallacies*. London: Methuen.

Hamby, Ben. 2012. What a real argument is. *Informal Logic* 32(3): 312–325.

Israel, David J. 1980. What's wrong with non-monotonic logic? *Proceedings of the AAAI*, 99–101.

Johnson, Ralph. 2011. Informal logic and deductivism. *Studies in Logic* 4(1): 17–37.

Johnson, Ralph. 2000. *Manifest rationality: A pragmatic theory of argument*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Johnson, Ralph. 2009. Some reflections on the informal logic initiative. *Studies in Logic, Grammar and Rhetoric* 16(29): 17–46.

Johnson, Ralph H., and J.Anthony Blair. 2002. Informal logic and the reconfiguration of logic. In *The handbook of the logic of argumentation and inference*, ed. Johnson Gabbay, and Woods Ohlbach, 339–396. Amsterdam: North Holland.

Johnson, Ralph H., and J.Anthony Blair. 2000. Informal logic: an overview. *Informal Logic* 20(2): 93–107.

Kyburg Jr, H.E., and Cho Man Teng. 2001. *Uncertain inference*. Cambridge: Cambridge University Press.

Lipton, Peter. 2004. *Inference to the best explanation*, 2nd ed. London and New York: Routledge.

Rappaport, Steven. 1996. Inference to the best explanation: Is it really different from Mill's methods? *Philosophy of Science* 63(1): 65–80.

van Eemeren, Krabbe, Snoeck Henkemans, Verheij Garssen, and J.H. Wagemans. 2014. *The handbook of argumentation theory*. Dordrecht: Springer.

van Fraassen, Bas. 1980. *The scientific image*. Oxford: Oxford University Press.

Walton, D. 2008. *Informal logic: A pragmatic approach*, 2nd ed. New York: Cambridge University Press.

Wellman, Carl. 1971. *Challenge and response: Justification in ethics*. Carbondale, IL: Southern Illinois University Press.

Whately, Richard. 1854. *Elements of logic*. Louisville, KY: Morton & Griswold Publishers.

Woods, John. 2002. Standard logics as theories of argument and inference: deduction. In *The handbook of the logic of argumentation and inference*, ed. Johnson Gabbay, and Woods Ohlbach, 41–104. Amsterdam: North Holland.