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The Nature and Status of Critical Questions in Argumentation Schemes

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ABSTRACT: Argumentation schemes are common types of defeasible argument evaluated with critical questions. This position paper identifies and explores some unsolved problems pertaining to critical questions, such as their argumentative effects, their connection to burden of proof, their connection to the scheme itself, and how they should be represented in argument diagrams. Discussion will use the scheme for argument from practical reasoning as an illustrative example.

KEY WORDS: argumentation schemes, burden of proof, critical questions,

INTRODUCTION

By now, the notion of argumentation schemes (Hastings, 1963; van Eemeren and Grootendorst, 1992; Kienpointner, 1992; Walton, 1996; Blair, 2000) is well known throughout the community of argumentation scholars. Argumentation schemes are stereotypical patterns of defeasible reasoning that typically occur in common, everyday arguments (Blair, 2000; Walton, 1990a).¹

Justifying them is an important task because, until recently, many common but defeasible forms of argument were identified as fallacious. Yet it has been shown that, in many instances, arguments of these types are not fallacious but instead provide provisional support for their conclusions. A completely systematic justification of defeasible argument schemes is ruled out by their non-monotonicity and the contextual determination of their acceptability. Hence Walton (2005) has argued that argumentation schemes require not only a systematic but also a pragmatic justification. Walton (2005) writes: 'The pragmatic dimension requires that such arguments need to be examined within the context of an ongoing investigation of dialogue in which questions are being asked and answered'. Thus critical questions play an integral role in the justification of argumentation schemes, as well as in the evaluation of individual schematic arguments.

The argumentative role of critical questions is explained in relation to argumentation schemes. To each scheme a certain number of critical questions are attached. These questions have a role in the evaluation of arguments with the relevant scheme, but their precise function and foundation have not been agreed. Originally, critical questions seemed to have a heuristic - even pedagogical - role, acting as a guide for arguers in their evaluation of arguments of certain recognizable types. Recently, though, there has been pressure from a number of different

¹ Because they can be used to classify types, or forms, of argument these schemes have come to be called 'argumentation schemes'. Here, we introduce the term 'schematic argument' to indicate a particular argument whose structure can be represented as being an instance of a given argumentation scheme.

directions that has served as a catalyst for the development of a more rigorous and robust account of critical questions and their relationship to the analysis and evaluation of schematic arguments.

First, a certain amount of theoretical pressure has been applied by commentators such as Blair (2001) who have called for clarification of the provenance of argumentation schemes, and how their associated critical questions are determined. Theoretical issues include topics like the following. Are the questions necessary criteria that *any* argument of the corresponding scheme should meet, or are they only guides that an arguer, wishing to criticize a schematic argument might want to follow? Are arguers required to use critical questions in evaluating and accepting schematic arguments? What is the argumentative force of posing a critical question? Do they act as defeaters for arguments of the associated scheme? Do they shift the burden of proof back to the original proponent? Or is there a burden attached to posing critical questions?

Further, the development of new techniques for representing the structure of schematic arguments, specifically in computing and artificial intelligence, have prompted a more rigorous specification of the way that critical questions are connected with their associated argument schemes, and how they can be represented in argument diagrams. How can critical questions be represented when diagramming the structure of schematic arguments? And, how ought they to be incorporated into computerized modeling of argument and automated argumentation systems?

THE EVALUATIVE ROLE OF CRITICAL QUESTIONS

While critical questions clearly function in the evaluation of schematic arguments, their exact role is unclear. Sometimes critical questions are described as if they were necessary conditions for the acceptability of any schematic argument. Blair, for instance, writes that critical questions ‘are questions that must be answered appropriately if any substitution instance of a reasoning scheme is to be cogent’ (Blair, 2000). At other times, critical questions are said to function ‘like a traditional topic as a memory device’ ‘offer[ing] the user ... a choice among strategies for probing into the weak points in an argument’ (Walton and Reed, 2003, p. 202).² Which description more accurately portrays their actual role in the evaluation of argument?

Walton (1996) conceived of the questions as pedagogical tools, with a heuristic role in the dialectical evaluation of argument (Walton, 2003, p. 31). So conceived, critical questions play the second role more than the first. On the other hand, the effect of raising a critical question is to temporarily defeat the target argument, at least until the question has been satisfactorily answered. So, at the very least, it is a necessary condition for the acceptability of a schematic argument that all questions posed be satisfactorily answered.

Yet this is only a partial answer to the question of the actual role of critical questions in the evaluation of schematic arguments. Is the answering of all critical questions posed a sufficient condition for acceptability? Is it necessary that critical questions be posed at all?

Is there a burden of questioning?

Let us consider the second question first. Is it incumbent on arguers presented with schematic arguments to pose the relevant critical questions?³ If critical questions give acceptability criteria

² At times, Blair describes the role of critical questions with language similar to that used by Walton and Reed, as for instance when he says that ‘[t]he critical questions function as a check-list to help determine whether any of the standard types of excepting conditions that should cancel the default is present in the given case’ (Blair, 2000).

³ This question has already been addressed by Walton (2003) in the context of legal argumentation.

for schematic arguments, then it would seem that there is a burden upon respondents to pose critical questions of schematic arguments before accepting their conclusions. Similarly, if one is not willing to accept or concede a standpoint at issue, it would seem that there is some obligation to raise objections to any supporting argument. On the other hand, if questions are simply heuristic devices designed to help critics find objections, then it is perhaps not necessary that they be asked as part of the evaluation of schematic arguments. So, part of the answer concerning whether there is a burden of questioning is given by the nature of critical questions themselves.

Several points bear on the answer to this question. First, once critical questions have been posed, it is incumbent on the proponent to satisfactorily respond to those critical questions in order to preserve the acceptability of her argument. So, it is a necessary condition of argument acceptability that, in principle, the critical questions could be answered, if posed. In practice, though, this requirement will be counterbalanced by several more practical considerations.

First, the rules governing commitment and retraction will have a bearing on the decision to raise questions. Some frameworks of dialogue (law, for example) operate with a notion of inference whereby an inference permits, rather than requires, the drawing of a conclusion from certain premises.⁴ In dialogues with a permissive notion of inference, dialogue participants are not obliged to accept a claim that has been argued for by an opponent, even though that argument provides some support for the claim and the argument itself has passed without challenge. Under these sorts of conditions it may not be necessary to question, or otherwise object to, an argument even though one is unwilling to accept its conclusion. Similarly, considerations such as whether, and under what conditions, a respondent is able to retract his commitment to a claim once it has been admitted into a dialogue will certainly have a bearing on whether, and to what extent, a respondent ought to raise questions about any given argument.

In addition to these factors, there will be practical considerations such as whether it is better just to press ahead with the dialogue and return to the critical questions only if it is deemed necessary or important at a later stage. Further, there will be strategic considerations that will help to determine whether critical questions ought to be raised. Such considerations might include: the significance of the particular claim at issue in the overall context of the dialogue and the mass of evidence involved, or whether there is a better way of objecting to the schematic argument, for instance by providing a stronger argument for an opposing claim.

In any real situation, then, the issues guiding critical questioning will be informed by a number of considerations, practical as well as strategic. So, there is a sense in which critical questions do provide necessary criteria for the acceptability of schematic arguments. But, it is not a necessary condition of every schematic argument that it in fact answer each associated critical question in order that its conclusion be accepted.

⁴ In the context of a critical discussion (van Eemeren and Grootendorst, 1992) or a persuasion dialogue (Walton and Krabbe, 1995) it is clear that a dialogue participant is rationally and dialectically obliged to concede (i.e. accept) any conclusions reached in accordance with the rules governing the dialogue. As such, should a dialogue participant be unwilling to make this concession, he is under considerable obligation to raise objections to the argumentation by which that conclusion was reached. In a permissive persuasion dialogue (Walton and Krabbe, 1995), where retraction is possible the participant might be able meet this rational obligation by retracting some previous commitment(s).

By contrast, in law, while disputants cannot ignore facts entered into evidence, they can ignore arguments made by opposing counsel from those facts to other conclusions. The reason for this is that the jury, or fact-finding body in the case, is permitted to draw conclusions from the facts entered as evidence on the basis of their own best rational lights (rather than required to draw the conclusions proposed by the disputants).

Do critical questions provide sufficient criteria for acceptability?

Let us now turn to the question of whether the critical questions give sufficient conditions for the acceptability of schematic arguments. Several factors have a bearing on the answer to this question. One of the problems involved in the evaluation of defeasible argumentation schemes is the problem of completeness. Is the evaluation of an argumentation scheme ever sufficiently complete so that its conclusion should be accepted? And if so, when?

A first point to consider is that the schemes under consideration are non-monotonic. That is, the probative weight provided offered to a conclusion by the reasons is always subject to defeat in light of new information. In view of this, the answer to the completeness problem seems to be that the evaluation of any defeasible argumentation scheme can never be closed in any final sense, but can only be closed in some local context, in relation to some specified body of information. Within the global context in which it may be subject to new information which might bring about its default, a defeasible argument provides some, though not conclusive, evidence in support of its conclusion. In the absence of any reasons to the contrary, these reasons provide sufficient grounds for the provisional acceptance of the conclusion. As a result, the argumentative effect of this type of argument is to shift the burden of proof to any objector. It is for this reason that Walton described argumentation schemes as presumptive in nature (1996; forthcoming). Their effect is to create a presumption in favour of their conclusions.

A second aspect of the problem is whether the critical questions alone provide sufficient criteria within this more limited context, i.e. for the provisional acceptance of a conclusion, relative to a fixed body of information. The answer here seems to be that, while the questions contribute to the assessment of schematic arguments, they are not exhaustive of it.⁵ For instance, Pinto, Blair and Parr (1993) suggest three general assessment criteria for arguments: premise acceptability, acceptability of the link (relative to some given standard of evidence), and whether there are other relevant considerations (among the given data set) which would count against the claim at issue (or in favour of some counter claim). Critical questions sometimes reflect these assessment criteria, but sometimes they are directed specifically towards features of particular relevance to individual argumentation schemes. As such, even if all critical questions are satisfactorily answered there may be other factors affecting the cogency of a particular schematic argument, or the acceptability of its conclusion. Ultimately, as Walton has argued (forthcoming) '[t]he solution to the completeness problem is that ... [schematic arguments] should never be regarded as complete and closed to further questioning, until the dialogue itself has been closed. Only at that point is all the relevant evidence on both sides of the issue weighed up'.

The completeness problem

Another dimension to the completeness problem can be framed in terms of the asking of critical questions themselves. That is, in the context of a dialogue, when, if ever, is a respondent obliged to stop asking critical questions of an argument and concede the standpoint at issue? Should

⁵ We recognize that this paper does not provide a full answer to Blair's (2001) concerns regarding the provenance of the critical questions themselves. Nor do we have a chance to address his (2000) thesis that the provenance of schemes will be given in relation to the warranting conditions associated with certain types of argument. These important topics will have to be left for later consideration.

there be a procedural rule that puts an end to the process of critical questioning, and if so, what criteria should determine that point?⁶

Part of the answer to this question depends on whether the critical question has been satisfactorily answered. If ever a question cannot be satisfactorily answered, then the questioning can be halted, because the target argument will have been diffused. But, to get a more theoretically robust answer to the completeness problem, it is worthwhile to consider some of the other argumentative features of critical questions. Suppose that a question has been given a preliminary answer. Can the questioning proceed with sub-questions, or with different questions? Here again the answer seems to be dialectical (Walton, forthcoming), and will ultimately be explained in terms of the burden of proof.

In these terms, the question of completeness is linked to the issue of whether there is a burden attached to posing critical questions. If we are right on this point, then the ultimate answer to the completeness problem is that the questioning process (like the larger process of raising objections) halts whenever a burden of proof cannot be met.

CRITICAL QUESTIONS AND BURDEN OF PROOF

In the end, the answer to the completeness problem must fall back on the notion of burden of proof. There is a burden upon the proponent to satisfactorily answer all critical questions relevant to the schematic argument posed by a respondent. There may or may not be an obligation on the part of a respondent to raise, or to pose such questions. But, in many cases, having received some response from the proponent to the question, it will be incumbent on the respondent to show that the answer is not adequate. That is, posing the question defeats the argument, until it is satisfactorily answered. But, in many cases, a satisfactory answer to the critical question will not require the introduction of new information, reasons or argument into the dialogue. In many cases, it will simply prompt a reflection on the part of the proponent, regarding the considerations made in reaching her standpoint. Yet, answering the question is sufficient to restore the initial presumptive status of the standpoint supported by the schematic argument, and shift the burden of proof back to the opponent. The only condition under which this move fails is if the answer is not satisfactory. But, we claim that it is the job of the questioner to show this. The point is that, eventually, it will fall to the questioner, not the proponent, to introduce new evidence into the dialogue. This accords with the argumentative effects of presumptive arguments, which shift the burden of proof to the respondent.

It is not the job of the answerer (i.e. the proponent) to show that her answers are satisfactory. Rather, the burden is on the questioner to show that an answer is unsatisfactory. This raises the important question of whether there is a burden of proof attached to questioning.

Is there a burden in questioning?

When the issue of critical questions was first discussed in the literature, the prevailing view was that no burden of proof attached to asking critical questions. It is commonly accepted that parties making assertions incur a burden of proof to successfully defend their assertions with acceptable reasons, and that they bear an obligation to retract those assertions that they cannot successfully defend. Yet, such a burden is not commonly associated with asking questions. In the first place, it was tacitly held that there was no burden on the part of a respondent to pose any critical

⁶ This problem has also been addressed by Walton (forthcoming).

questions in the first place. And secondly, it was thought that ‘to ask an appropriate critical question in a dialogue shifts the burden of proof back onto the side of the proponent of the original argument to reply to this question successfully’ (Walton, 1996, p. 15). Recent developments have challenged both of these views.

As mentioned above, Walton (2003) has recently argued that there may be a burden to question – that is to raise critical questions – in certain types of dialogues, or in certain argumentative circumstances. In the second place, when trying to specify how critical questions can be represented in models diagramming the structure of argument schemes, it was discovered that certain critical questions might best be seen as having a burden of proof attached to them (Walton and Reed, 2003; Prakken, Reed and Walton, 2004).

Prakken, Reed and Walton (2004), and Walton and Reed (2003) have argued that, since different critical questions relate to their associated schematic arguments in different ways, sometimes there is a burden of proof attached to raising a critical question while in other cases there is not. For example, if a critical question is addressed to some assumption at work in the argument as an implicit premise, then there is no burden of proof attached to raising questions about the acceptability of those assumptions. These critical questions seem to function normally, automatically shifting the burden of proof back to the original proponent of the argument, without themselves bringing any burden of proof back to the questioner. On the other hand, some critical questions appear to instead raise *allegations* against an argument. That is, in order that the questions have the critical force they do, they themselves rest on some implicit claim which serves as an objection to the argument. As a result, it would seem that some critical questions do not automatically shift the burden of proof back to the proponent. Rather, some critical questions seem to have a positive burden of proof attached. In summary, some critical questions represent ‘additional assumptions of the argument ... while others function as starting points for finding rebuttals’ (Walton and Reed, 2003, p. 208). While the former have no burden of proof attached, the latter do.

Analysis of a sample scheme: Practical Reasoning

Walton, Reed and Prakken based their conclusions on the analysis of the scheme from expert opinion. Here, we consider how this analysis applies to other schemes. For the purposes of illustration we have selected the scheme of practical reasoning as given below (Walton, 1990b, p. 48; Walton 1997, p. 165).

Practical Reasoning: Necessary Condition Schema

(N1) My goal is to bring about A (*Goal Premise*).

(N2) I reasonably consider on the given information that bringing about at least one of $[B_0, B_1, \dots, B_n]$ is necessary to bring about A (*Alternatives Premise*).

(N3) I have selected one member B_i as an acceptable, or as the most acceptable necessary condition for A (*Selection Premise*).

(N4) Nothing unchangeable prevents me from bringing about B_i as far as I know (*Practicality Premise*).

(N5) Bringing about A is more acceptable to me than not bringing about B_i (*Side Effects Premise*).

Therefore, it is required that I bring about B_i (*Conclusion*).

Critical questions

CQ₁ : Are there alternative means of realizing *A*, other than *B*? [*Alternative means question*]

CQ₂ : Is *B* an acceptable (or the best) alternative? [*Acceptable/Best Option Possible Question*]

CQ₃ : Is it possible for agent *a* to do *B*? [*Possibility Question*]

CQ₄ : Are there negative side effects of *a*'s bringing about *B* that ought to be considered? [*Negative Side Effects Question*]

CQ₅ : Does *a* have the goals other than *A*, which have the potential to conflict with *a*'s realizing *A*? [*Conflicting Goals Question*]

In the case of argument from expert opinion, whether there is a burden attached to questioning can be determined according to whether the question acts to challenge an implicit assumption, or whether it serves as a starting point for objections. Let us see whether this test applies to the scheme of practical reasoning introduced above.

Here, it would seem that the test criteria cannot be applied in a clear-cut way. In the first place, each critical question is clearly associated with some premise explicitly stated in the argument. So, it would seem that none of the questions have a burden attached to them.

This is correct to a point, since these questions can be posed in a relatively innocuous manner, where they do not have a refuting or objecting function, but simply serve to probe a bit further into the argument. As such, while the proponent has a burden to answer each question asked, this burden can be met in a relatively perfunctory way. For instance, with the alternative means question the proponent might respond simply by saying something like 'No. I can't think of any alternative means of realizing *A* other than those given in the list of *B*' or 'Well, those are all of the options I can think of. Can you think of any others?' So, by responding to the question, the proponent has met her burden, and the presumptive status of her original argument is restored.

We can see that, if the question is to serve as an objection in any further sense something else must happen. Namely, it must be shown that the proponent's answer is unsatisfactory. Yet, as we have stated above, it is the responsibility of the respondent to show this. In this case this would be done by finding examples of alternatives not considered in the initial argument. Indeed, in the latter answer above, the proponent explicitly shifts the burden of proof associated with the question back upon the questioner by inviting him to come up with alternatives not initially considered. Such alternatives would have the force of objections and would go towards showing the unacceptability of the move from the alternatives premise to the selection premise in the initial argument.

This reveals the second sense in which a question can be posed, namely as an objection to the argument. Here, the question is asked in a rhetorical voice, whereby a negative answer is implicit in the question. For example, in the alternative means question, it is assumed that there actually is some alternative means that has not been considered by the proponent in her initial argument. Yet, this implicit assertion on the part of the respondent comes with a burden of proof attached. As such, if the question is to serve as an objection in this stronger sense, there is some burden in questioning.

In examining the practical reasoning scheme, it seems that each of the critical questions can be posed either in a weak sense (as a means of probing further into the argument) or in a strong sense (as a challenge, or objection to the argument). Further, whether the question has a burden attached depends on how it is asked. If it is asked in the weak sense, then it functions

normally in shifting the burden of proof back on the proponent. This alone may be enough to diffuse the initial argument if, for instance, the proponent realizes on reflection that there are several options which she had not initially considered. On the other hand, if the question is to go further and act as an objection then it has a positive burden of proof attached to it. This can be explained in several ways. First, it is the dialectical responsibility of the questioner to show that the proponent's answers to the questions are unsatisfactory. Second, in serving as an objection there will generally be some implicit assertion at work in the question giving it its force as an objection. Yet, assertions (even implicit ones) come with positive burdens of proof attached.

So, the issue of whether there is a burden of proof attached to questioning can be explained in terms of how the question functions in the argument. This will contribute to the question of how critical questions ought to be modeled in argument diagrams.

REPRESENTING CRITICAL QUESTIONS IN ARGUMENT DIAGRAMS

The problem of dealing with critical questions has significant implications for the field of AI, where defeasibility of reasoning is a central issue. Pollock (1995, pp. 38-41, 85-86), early on, drew an important distinction between two kinds of defeat relations among arguments. They could be called *rebuttals* and *undercutters*. A rebuttal is a strong form of defeat of a given argument and poses a counter-argument to the conclusion of the original argument. An undercutter is a weaker form of defeat of an original argument that attacks the inference that was used in the original argument to derive the conclusion from the premises. The problem is that there seems to be no standard way of representing critical questions on an argument diagram. The reason is that sometimes critical questions act as rebuttals, while in other instances they act as undercutters only.

In the standard diagramming system, like that represented in *Araucaria* (Reed and Rowe, 2001), this distinction is problematic to represent in any way that does not make the diagram so complex that it becomes harder to learn for the average user. Rebuttal can be represented straightforwardly by the device called a 'refutation'. But to build in undercutters, other notions need to be brought in that start to get into dialogue concepts. For use with helping students think critically and diagram arguments, bringing in such subtler notions of how an argument is defeasible, might make the system cumbersome to use and hard to teach.

However, in other systems, where the application is to legal users, the system needs to deal extensively with defeasible argumentation, and such complications are needed. In his system for building an argument diagram (Verheij, 2005), critical questions acting as undercutters of a given argument are represented on the argument diagram by the device of entanglement. Verheij argued that in legal systems critical questions have four roles:

- (1) criticizing a schemes' premises,
- (2) pointing to exceptional situations in which the scheme should not used,
- (3) setting conditions for a scheme's use, and
- (4) pointing to other possible arguments relevant to a scheme's conclusion.

Concerning the first role, Verheij argued that there should be no need for explicit critical questions that merely ask whether a premise of a scheme is true or not. The given argument is represented on the diagram in the usual way as an arrow (representing a linked or convergent pattern) joining a set of premises to a conclusion. The undercutter, represented by the asking of an appropriate critical question, is represented as another arrow pointing to the original arrow.

Verheij's system thus, inevitably, has quite a different way of handling critical questions from the more standard systems of argument diagramming like *Araucaria*. These developments suggest that there might be no one right way to deal with critical questions in AI. It may depend on what the system is supposed to be used for. There might be different systems for different users.

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