

An Epistemological Appraisal of Walton's Argument Schemes

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Abstract: The article critically discusses Walton's (and co-authors') argument scheme approach to good argumentation. Four characteristics of Walton's approach are presented: 1. Argument schemes provide normative requirements. 2. These schemata are enthymematic. 3. There are associated critical questions. 4. The method is inductive, abstracting schemata from groups of similar arguments. Four adequacy conditions are applied to these characteristics: AC1: effectiveness in achieving the epistemic goal of obtaining and communicating justified acceptable opinions; AC2: completeness in capturing the good argument types; AC3: efficiency in achieving the goals; AC4: justification of the argument schemes. The discussion reveals weaknesses in Walton's account, including they are neither effective nor truly justified. A better alternative is an epistemological approach based on epistemological principles.

Résumé: L'article discute de manière critique l'approche du schéma d'argumentation de Walton (et des co-auteurs) pour avancer des bons arguments. Quatre caractéristiques de l'approche de Walton sont présentées: 1. Les schémas d'argumentation fournissent des exigences normatives. 2. Ces schémas sont enthymématiques. 3. Il y a des questions critiques associées. 4. La méthode est inductive, en faisant abstraction de schémas à partir de groupes d'arguments similaires. Quatre conditions de la suffisance des raisons sont appliquées à ces caractéristiques: CS1: l'efficacité à atteindre l'objectif épistémique d'obtenir et de communiquer des opinions acceptables et justifiées; CS2: l'exhaustivité dans l'identification des bons types d'arguments; AC3: l'efficacité dans la réalisation des objectifs; AC4: la justification des schémas argumentaires. La discussion révèle des faiblesses dans le compte rendu de Walton, notamment qu'il est ni efficace ni vraiment justifié. Une meilleure alternative est une approche épistémologique basée sur des principes épistémologiques.

Keywords: argumentation schemes, argument schemes, argumentation schemes approach, argument from expert opinion, bottom-up approach, epistemological theory of argumentation, function of argumentation, practical arguments, probabilistic arguments, validity, Walton

1. Theories of argument schemes and the aims of this paper¹

From the 1980s until his death in 2020, Douglas Walton developed an argumentation schemes approach, which is now one of the major paradigms in argumentation theory. In 1996, Walton published a first compilation of a long list of argument schemes; since its publication in 2008, however, *Argumentation Schemes*, co-authored with Chris Reed and Fabrizio Macagno, is the standard exposition of this approach with long theoretical parts and a huge list of argument schemes. At the latest since the publication of this book, Walton's approach has also spread to disciplines like artificial intelligence and cognitive psychology, thus strengthening its position as one of the few main paradigms in argumentation theory. As Walton's 1996 book shows, the approach has been developed by him, though he later coauthored many publications. Therefore, sometimes I speak of "Walton" even though the appertaining reference cites a co-authored work of Walton, namely if the thought in question was already present in Walton's earlier works.

Argument schemes, even if not so named, are a topic and part of many elaborated argumentation theories; such theories always

¹ This article attempts to develop a systematic, fundamental, and relatively comprehensive critical discussion of Walton's theory of argument schemes, clarifying in particular the systematics and claims of this theory and evaluating it systematically from an epistemological perspective. In an earlier paper (Lumer 2016), I have already made a preliminary attempt to critically discuss Walton's theory of argument schemes. That paper, necessarily, already contains a number of ideas that are also put forward here. But the present, more mature, article goes far beyond that paper; it is more complete, theoretically deeper, and more precise. Completely new, for example, are a detailed analysis of the specifics of Walton's approach, the use of specially developed and justified (strongly epistemological) adequacy conditions for the critique of Walton's schemes and the stronger focus on epistemological concerns, the concentration on the essential and fundamental problems, the differentiation of argument scheme, argument form, and argument type, the theory of critical questions, the discussion of Walton's practical-epistemic justification of his schemes, the detailed discussion of the practical argumentations etc. Conversely, the detailed, exemplary discussion of the Argument from Expert Opinion scheme (Lumer 2016, sect. 4), is not included here; it can also be read in isolation from the rest of that paper after reading the present article.

use a variety of argument schemes and, in each case, describe with the help of a single argument scheme a wealth of good or empirically found arguments.

1. Walton's theory, however, is in particular an *argument schemes approach* to argumentation. Argument schemes are not only dominant in his presentation, if only because of their sheer abundance; but Walton also uses exclusively argument *schemes* for the standardised, theoretical description of arguments, especially good arguments. Other argumentation theories also use *forms* of arguments. These are more abstract presentations that only contain variables and, in a broad sense, logical or argumentation-theoretical constants, but not, as in the case of argument schemes, content constants such as "claims," "indicates," "expert opinion." There are several of such specific argument schemes approaches,² but there are characteristics of Walton's approach, which make it unique.

2. A second characteristic of Walton's approach is that his argument schemes are mostly *enthymematic*, even if one could easily add the premise that, according to other approaches, is missing, and that would, for example, make the argument conclusive.

3. A third characteristic of Walton's argument schemes is that the description of every scheme also includes *critical questions* that could be asked by an opponent. Accordingly, Walton's approach is inherently *dialogical*, making its success (i.e., "conveying its conclusion" to the respondent (Walton et al. 2008, p. 36)) depend on an opponent's moves.

4. The fourth and final characteristic is the method used: it is a *bottom-up approach*, i.e., an approach that mainly consists in empirically collecting arguments of all types, analyzing, and evaluating them to bring them into a normative standard form of an argument scheme (Walton 2005, p. 8; 2012). Most fully elaborated competing argumentation theories instead systematically start by establishing the function of argumentation—for example, as pro-

² Aristotle in his *Topics*, Perelman and Olbrechts-Tyteca (1958), Hastings (1963) and Kienpointner (1992a), for example.

ducing consensus;³ causing or strengthening the addressee's belief in the argument's thesis;⁴ or leading the addressee to knowledge or justified acceptable belief.⁵ Then such theories design and define arguments and their argumentative validity criteria so as to fulfil this function. Walton's argument schemes approach does not do so. Instead, it empirically collects from argumentation practice often-used argument figures, distinguished by their content (such as Argument from Expert Opinion, Argument from Example, from Waste, from Precedent). It analyses their usefulness, thereby distinguishing good versus fallacious arguments, and describes them in a canonical form. Hence it is a bottom-up approach to argumentation, whereas functionally defined approaches work more top down, combining this, however, with bottom-up studies and checks.⁶

The aim of this paper is to discuss Walton's approach critically. After presenting this approach in somewhat more detail (Sect. 2), I sketch general adequacy conditions for assessing argumentation theories, which will be applied in the following section (Sect. 3). The next four sections then critically discuss the characteristics of Walton's approach just outlined (Sects. 4-7). Walton had recently tried to show that, despite the bottom-up method, the schemes he had developed are epistemologically justified, or can be justified, namely pragmatically or instrumentally as a means of knowledge acquisition. This justification is discussed in an excursus (Sect. 8). Finally, in a second, more detailed round of critique, one of Walton's important and typical argument schemes—Practical Inference—will be analysed as example in particular with respect to its epistemic value and compared with the respective epistemological-

³ In the *Pragma-Dialectics* of van Eemeren and Grotendoorst (e.g., 2004) or in Habermas' discourse theory (e.g., 1981, pp. 34–71).

⁴ In rhetorical approaches like that of Perelman and Olbrechts-Tyteca (1958; and Perelman 1982).

⁵ In epistemological approaches such as by Battersby (1989), Biro (e.g., Biro 1987; Biro and Siegel 1992; 2006), Feldman (1993), Goldman (1997; 1999; 2003), Lumer (1990; 2005a), Siegel (e.g., Siegel and Biro 1997).

⁶ This method and the associated theory type are called "idealising hermeneutics." They are described in more detail in: Lumer 2011b; Lumer 1990, pp. 7–19; Lumer 2020, pp. 8; 10–12; 19–20.

ly designed scheme, thereby making the implications of the more general critique of Sects. 4-7 more visible (Sect. 9).

2. Main features and the significance of Walton's approach to argumentation schemes

The core of the presentation of Walton's theory, beyond the theoretical discussion and justifications, are the argument schemes that represent normatively acceptable arguments. I call normatively acceptable arguments also "*argumentatively valid*." In this phrase, '*valid*' is used in its general sense, namely as: "corresponding to the standards;" in this general sense we also speak of a "valid passport," "valid trial," "valid procedure," etc. *Argumentative validity* is thus a special case of validity and should be understood here as implying (also) that if an argument is argumentatively valid, this guarantees (according to epistemological standards) the *acceptability of the thesis*, namely that the thesis is true, truth-like, or probably true. This then requires, for example, that the premises are true and that they imply the conclusion deductively, inductively, probabilistically, analytically, or the like. Another special case of validity is *logical (or deductive) validity*, i.e., the quality of an inference whose conclusion is correctly derived from the premises.⁷ When argumentation theorists speak simply of "validity," they usually mean logical validity; when I speak simply of "validity" in the following, instead I mean argumentative validity. (Moreover, it is plain that *inferences* can only be deductively or inferentially valid, but not argumentatively valid. And *arguments* can be argumentatively valid, but in the strict sense not inferentially valid, only the inference contained in them can be inferentially valid; in the less strict sense, however, one then also says, "the *argument* is inferentially / deductively valid;" but I avoid this loose way of speaking.) Argumentative validity differs from logical validity as follows: argumentative validity includes deductive validity of the inference only for deductive arguments, but not for all non-

⁷ For the distinction between logical and argumentative validity see also: Babcock Gove, Philip (ed.): *Webster's Third New International Dictionary of the English Language Unabridged*. Springfield, MA: Merriam-Webster 1993, pp. 2529–2530, keyword "valid" 2a and 2b.

deductive arguments; furthermore, argumentative validity goes beyond (deductive, inductive, probabilistic, etc.) conclusiveness and usually requires, for example, the truth of the premises, but also other things. This explanation of “argumentative validity” is conceived here in such a general way—and not bound to a specific theory—that it should be acceptable as a normative standard by all epistemically oriented theories of argumentation, including Walton’s.

The feature of the collective work of Walton, Reed and Macagno that makes it a practical standard exposition of Walton’s argument schemes approach is that it gathers all the schemes so far dealt with by Walton and brings them into a uniform and handy format. This collection is called a “*compendium*” and contains 60 main argument schemes and a further 44 sub-schemes, together with the appertaining critical questions (Walton et al. 2008, pp. 308-346).

All these characteristic features then lead to argument schemes (plus critical questions) like the following two. They are both typical argument schemes with their associated critical questions, and they were much discussed by Walton and his co-authors.

1. ARGUMENT FROM POSITION TO KNOW

Major Premise: Source s is in position to know about things
in a certain subject domain f containing
proposition p .

Minor Premise: s asserts that p is true (false).

Conclusion: p is true (false).

CRITICAL QUESTIONS

CQ1: Is s in position to know whether p is true (false)?

CQ2: Is s an honest (trustworthy, reliable) source?

CQ3: Did s assert that p is true (false)? (Walton et al. 2008, p. 309; variable labels borrowed from my system, C.L.)

2. ARGUMENT FROM EXPERT OPINION

Major premise: Source e is an expert in subject domain f containing proposition p .

Minor premise: e asserts that p is true (false).

Conclusion: p is true (false).

CRITICAL QUESTIONS

CQ1: *Expertise Question:* How credible is e as an expert source?

CQ2: *Field Question:* Is e an expert in the field that p is in?

CQ3: *Opinion Question:* What did e assert that implies p ?

CQ4: *Trustworthiness Question:* Is s personally reliable as a source?

CQ5: *Consistency Question:* Is p consistent with what other experts assert?

CQ6: *Backup Evidence Question:* Is e 's assertion based on evidence? (p. 310, variable labels borrowed from my system, C.L.)

If a scheme speaks of a "true" proposition, Walton, Reed and Macagno mostly add the variant "(false)" as in the above examples. This is superfluous, since ' p ' may also stand for ' q is false,' which is equivalent to 'not q .' Therefore, I will often omit the "(false)" variant.

2.1. Feature 1: Argument schemes

Walton, Reed and Macagno give the following definition: "Argumentation schemes are forms of argument (structures of inference) that represent structures of common types of arguments used in everyday discourse, as well as in special contexts like those of legal argumentation and scientific argumentation" (2008, p. 1). Walton speaks of "argumentation schemes"; but he uses this term to refer to sequences of premises and a conclusion (without reference to an argumentation act or an argumentative dialogue), which are usually called "arguments." Only the added Critical Questions bring these schemes into a possible dialogue context, but such a

context is far from always present, for authors or readers of an argument can also use critical questions. Therefore, I speak here (in contrast to Walton) of “argument schemes” when I mean schemes of arguments (in the sense of sequences of premises and a thesis).

Walton and his coauthors distinguish three main groups of argument schemes, viz. (i) deductive, (ii) inductive (which schematize statistical arguments, such as from a set of collected data to a statistical conclusion and which also include probabilistic arguments), and (iii) “defeasible,” “presumptive,” “plausibilist” or “abductive” schemes (Walton et al. 2008, pp. 1; 10; 12). Because probabilistic arguments are also “defeasible” in Walton et al.’s terms (“a defeasible argument is one in which the conclusion can be accepted tentatively in relation to the evidence known so far in a case, but may need to be retracted as new evidence comes in” (Walton et al., 2008, p. 2)), the term ‘defeasible’ is not sufficiently exclusive. Furthermore, abduction is a very particular inference type, which does not make up a larger group of argument types. Therefore, I will call the third group “*presumptive*” or “*plausibilist*.” Since Walton, Reed and Macagno seem to think the problem of deductive and inductive arguments to be mainly resolved, their argument schemes approach is (at least almost) exclusively intended to capture presumptive arguments and to provide a theory for them, which is a long-needed desideratum.⁸ As a consequence, most of the argument schemes presented by the authors are not deductively valid.

The definition of ‘argument scheme’ quoted above is not very precise partly because it does not make clear the exact degree of abstraction of argument schemes, which however is very clearly recognizable in Walton’s lists of argument schemes. Following the far more precise differentiations and definitions of Hitchcock (2010, p. 157), and above all Hansen (2020, p. 348; forthcoming, p. 3), argument schemes can be located ontologically between arguments and argument forms. According to my own theory, arguments consist of an argument indicator and *judgements*—i.e.,

⁸ This astonishing restriction and exclusion is so strong that Walton sometimes even denies the existence of other than presumptive argument schemes (e.g. Walton and Sartor 2012, p. 111).

combinations of a proposition (i.e., the meaning of a that-clause) with the assertoric mode. Others see sentences, or only propositions, as the main components of arguments (besides the argument indicator). *This* ontological difference does not matter in the present context; so, for reasons of simplicity, I will stick to my ontology here.

To be able to define 'argument scheme,' some other concepts have to be defined first. We can distinguish between judgements and judgement forms. A *judgement form* is a sequence of (i) the assertoric mode and (ii) unbound variables as well as formal (in a broad sense) logical operators, which are arranged so that a well-formed judgement results if the variables are replaced consistently (i.e., the same variables are also replaced by the same concepts or propositions of the correct category) by suitable concepts or propositions. In other words: judgement forms arise from judgements by replacing all the contentual components with variables, so that only the formal components of the original judgement plus the variables remain. For example:

Judgement: "If Amy laughs, she is fine." (The assertoric mode is indicated by the full stop. But I often leave it out in the formal representation.)

Formal representation of the judgement:

"*LAUGH*_{Amy} \rightarrow *FINE*_{Amy}."

In the judgement form, the concepts "laugh," "Amy," and "be fine" must have disappeared. There are three differently fine-grained judgement forms for this example judgement:

1. " $\Phi x \rightarrow \Psi x$."
2. " $p \rightarrow q$."
3. " p ."

For the predicate variables " Φ " and " Ψ ," all possible one-place predicates can be inserted when reconverting into a judgement. This explanation of the judgement form presupposes the distinc-

tion between formal (in a broad sense logical) operators and content components. To be considered here as formal (in a broad sense logical) operators are, above all: logical operators as well as the identity predicate, set-theoretical, modal-logical, probability-theoretical operators, (many) mathematical operators, (in practical argument schemes) operators of value-logic (various desirability and desire concepts, the concepts of consequence / accompaniment).

A *judgement scheme* is ontologically situated between judgements and judgement forms; some of the content components of the judgement are replaced by unbound variables, but not all of them are. Using only the most detailed of the above judgement forms (i.e., no. 1), the following judgement schemes can be developed:

- i. “ $LAUGHx \rightarrow \Psi x$.”,
- ii. “ $\Phi amy \rightarrow \Psi amy$.”,
- iii. “ $\Phi x \rightarrow FINEx$.”,
- iv. “ $LAUGHamy \rightarrow \Psi amy$.”,
- v. “ $\Phi amy \rightarrow FINEamy$.”,
- vi. “ $LAUGHx \rightarrow GOx$.”,

or:

- xi. “ $CRYx \rightarrow \Psi x$.”,
- xii. “ $\Phi eve \rightarrow \Psi eve$.”,
- xiii. “ $\Phi x \rightarrow GOx$.”,
- xiv. “ $CRYeve \rightarrow \Psi eve$.”,
- xv. “ $\Phi eve \rightarrow GOeve$.”,
- xvi. “ $CRYx \rightarrow GOx$.”.

These differentiations can now be applied to arguments. *Argument forms* are constructs that evolve from arguments by consistently replacing all judgements of the argument with judgement

forms.⁹ For instance, the Modus Ponens Argument Form is: “ $p. p \rightarrow q. \text{ Therefore, } q.$ ” And the General Modus Ponens Argument Form with a two-place predicate is: “ $\forall x(\Phi x, y \rightarrow \Psi x). \Phi z, y. \text{ Therefore, } \Psi z.$ ” (Read as: “If something stands in a Φ -relation to y then it is Ψ . z stands in a Φ -relation to y . Therefore, z is Ψ .”) In this term, ‘ x ’ is a bound variable (which implies that it cannot be substituted by a singular term), whereas ‘ Φ ,’ ‘ Ψ ,’ ‘ y ,’ and ‘ z ’ are unbound or open variables, which make this term a form.)

On an even higher level of abstraction, one can specify (argumentative) validity conditions and construction rules for all forms of arguments of a certain class of arguments, or in short: (*argumentative*) *validity conditions for an argument class*, such as the class of deductive arguments. These then contain, among other things, the conditions (very shortened): “(0.) a (argumentatively) valid deductive argument consists of (0.1.) a judgement set of reasons r_1, \dots, r_n , (0.2.) an argument indicator i and (0.3.) another judgement, the thesis t . 1. The propositions of the judgements r_1, \dots, r_n logically imply the proposition of the thesis t . 2. The judgements r_1, \dots, r_n are true. ...” All deductive argument forms must then satisfy these conditions.

Argument schemes, finally, are all constructs that rank ontologically between arguments and argument forms. Thus, at least one of the judgements of the initial argument must be replaced by a judgment scheme or a judgment form; more judgements of the initial argument can also be replaced by judgment schemes or judgment forms; but not all judgements can be replaced by mere judgment forms, for then the thus created construct is no longer an argument scheme but an argument form. An example is Walton, Reed and Macagno's Argument from Definition to Verbal Classification, which fits the general Modus Ponens Form with a two-place predicate (I have adjusted their notation scheme to mine): “For all x , if x fits definition y , then x can be classified as having property Ψ . z fits definition y . Conclusion: z has property

⁹ In earlier publications (Lumer 2011c; 2016) I did not clearly differentiate between argument forms and argument schemes and called the argument forms also ‘argument schemes.’ Hans Hansen (2011; 2020; forthcoming) convinced me of the need for more differentiation and the possibility of a narrower meaning of “argument scheme.”

Ψ .” (Still more formal: “ $\forall x(FIT-DEFINITION_{x,y} \rightarrow \Psi_x)$. *FIT-DEFINITION* $_{z,y}$. Therefore, Ψ_z .”) Here, the open predicate variable “ Φ ” of the respective argument form has been replaced by a predicate constant “*FIT-DEFINITION*.” Because of the wide margin offered by the definition of ‘argument scheme,’ namely that at least one substantive term and at least one unbound variable must appear in argument schemes, but the other contentual elements can be conserved or be replaced by a variable, argument schemes can be very differently abstract in that very few or very many concepts have been replaced by variables. In the above quoted scheme of the Argument from a Position to Know three different concepts have been replaced by three unbound variables; but the concepts “source,” “be in position to know,” “subject domain,” “proposition,” “assert” have remained. The proportion of content is therefore relatively high compared to the proportion of formal terms. (Another, simpler way to define the ontology of argument schemes as standing between arguments and argument forms would be to stipulate that argument schemes consist only of judgement schemes plus the argument indicator. But this would be unnecessarily narrow and too narrow to be able to cover all of Walton’s argument schemes. For in the standard work there are both argument schemes that also contain mere judgment forms—for instance, the conclusion of the scheme Argument from Position to Know, which is “ p is true (false).” (Walton et al. 2008, p. 309), can be reduced to the (elementary) judgement form “ p .”—as well as argument schemes with complete judgements—for example premise 2 of the scheme Moral Justification *ad Populum* Argument: “Your goal is (or should be) to be a good person, or a member of a group with good qualities.” (Walton et al. 2008, p. 312).)

Following these explanations, we can define ‘argument scheme’ as follows:

x is an *argument scheme* iff:

AS0: Domain of definition: x consists of a sequence of 0.1. judgements, judgement schemes or forms of judgement and 0.2. an argument indicator.

AS1: Intermediate position: The main components (accord-

ing to condition 0.1) of the argument scheme (x) are neither all judgements nor all forms of judgement. And
AS2: Pattern of argument: There are suitable individual concepts, general concepts, and propositions which, if they are inserted coherently for the unbound variables of x , transform x into an argument.

Explanations: The condition AS1, intermediate position, gives the following possibilities: these main components can be (i) all judgement schemes, or (ii) some judgements and the rest then judgement schemes or forms of judgement, or (iii) some judgement forms and the rest judgement schemes or judgements. In other words, at least two of the main components according to AS0.1 each must contain at least one unbound variable (and, if it is only these two variables, then the same ones), and at least two of the main components must contain, apart from unbound variables, at least one content concept or proposition that occurs in both, which could still be replaced by an unbound variable. Condition AS2, argument pattern, could also be worded the other way round: there is an argument for which the following applies: if one replaces in it some matching content components (individual concepts, general concepts and included propositions) with identical variables, one obtains the argument scheme x . This definition of 'argument scheme' presupposes a definition of the concept of argument (in AS2). According to this strategy of definition, one cannot subsequently define 'argument' as that which results from replacing all unbound variables of an argument scheme by corresponding contentual terms. Thus, according to this definition strategy, argument schemes are only expedients to describe special types of argument. It is possible, however, that Walton would proceed the other way round. As far as I know, he never defines 'argument' (in the sense of a sequence of propositions) properly and generally.¹⁰ Perhaps he would define 'argument' as everything

¹⁰ The English term 'argument' has many meanings; Lumer (1990, pp. 26–27) distinguishes 14. The most frequently used in argumentation theory are: 1. *argument content*: sequence (= ordered set) of propositions, i.e., abstracts, one of which is the thesis, the others being the reasons for it; 2. *argumentation action*: sequence (= temporally ordered events) of speech acts by which an

that results from replacing the unbound variables in his argument schemes with content terms. However, this would require that his list of argument schemes be complete; but he almost certainly did not believe this.

Not only does Walton exclusively use argument schemes for the general presentation of arguments—whereas other theories at the central point, when describing types and structures of arguments, use argument forms as well or even exclusively—but he also uses relatively content-rich, concrete ones. For example, in the Argument from a Position to Know, only three of at least nine different concepts were replaced by variables. Why does this approach rely so heavily on argument schemes? Walton and his co-authors see their work in the tradition of works on argument schemes, that begins with Aristotle's *Topics* and which more recently has been enriched by authors like Chaim Perelman and Lucie Olbrechts-Tyteca (1958), Arthur Hastings (1963), Manfred Kienpointner (1992a; 1992b), Wayne Grennan (1997) or Bart Garssen (1997; 2001; 2002) (Walton et al. 2008, pp. 3-4; 8-9). *Topics*, or “*topoi*” in Greek, are commonplaces; and the main idea of a topical approach to argumentation is to establish collections of powerful contents, that is, ideas from which to argue convincingly,

argument₁ is stated; 3. *dialogue with disagreement*: linguistic interactions of at least two speakers about a thesis disputed between them ... 3.1 *discussion*: ... with arguments₂; 3.2. *verbal quarrel*: ... in the form of a quarrel. These are not definitions, but only characterisations for differentiation. (For a definition of ‘argument₁’ see: Lumer 2005a, pp. 234–236.) This article is mainly about arguments₁. (Below, however, also the question is discussed whether arguments₁ (and arguments₂) are necessarily bound to arguments_{3,1}, that is, to discussions, argumentative dialogues.) The cautious assertion in the main text also refers only to *arguments₁* (argument contents) and says that Walton never defines them *properly*. However, Walton does define ‘argument₂’ (“The term ‘argument’ is used in a special sense, referring to the giving of reasons to support or criticize a claim that is questionable or open to doubt” (Walton 2006, p. 1; similarly p. 225)) and ‘argument_{3,1}’ (“An argument is an interaction between two or more participants that involves a claim by each participant that his contention can be justified” (Walton 1989, p. 114)). (I thank an anonymous reviewer for these references.) But even these definitions are not proper for argumentation–theoretical purposes. In the first definition, for example, it would be necessary to define or clarify what “giving of reasons” or “to support a claim” means.

which are then classified according to, again, content categories. And this content orientation—as opposed to an approach based on formal criteria from epistemology (such as logical- or probability-theoretical criteria)—is also present in Walton's argumentation schemes approach. Another source of his theory is Walton's long-standing work on fallacies (e.g., 1987; 1995), in which he discusses and analyses traditional fallacies, many in great detail, on the basis of a rich database of real arguments, thereby revealing that many sub-forms of traditional “fallacies” in fact are useful arguments. Among others, these analyses are often based on a dialectical method that consists in asking what a respondent could object to the argument, what the arguer could reply to the objection and so on, thereby coming to an assessment: under what conditions the argument could and should be accepted. The argumentation schemes approach then has turned this kind of work into the positive. A third inspiration for the collective work and standard exposition (Walton et al. 2008), which is new with respect to Walton's first compilation (Walton 1996), is the aim of making the schemes usable for argument analysis and diagramming with the help of computer programmes and for artificial intelligence. This has led to giving the schematization a somewhat pragmatic touch that manifests itself in the degree of concreteness and proximity to everyday reasoning. Since this AI element in the approach is irrelevant for the more fundamental questions of validity of the approach and its schemes, I will not consider it further in the following.

The content orientation is easily recognizable by the fact that the argument schemes are defined and distinguished from each other in terms of their content, like Argument from Position to Know, Argument from Expert Opinion, Argument from Sunk Costs, Argument from Sign, Argument from Rules, or Argument for an Exceptional Case. Because of the contentual differentiation, two or more different schemes (according to Walton) can have the same logical form, i.e., represent the same argument form. For example, several schemes have a Modus Ponens Form, including, among others, the Rhetorical Argument from Oppositions, in the normative as well as in the descriptive variant (Walton et al. 2008, p. 318); the Argument from Bias (p. 338); and variants 1 and 2 of

the Argument from Rules (p. 343). Among the 104 listed schemes of the compendium only twenty-three are deductively valid and another five are analytically valid, i.e., deductively valid if supplemented by analytically true premises (my classifications and counts).¹¹ Hence the remaining seventy-six schemes should be presumptive argument schemes—such as the two examples quoted above. Among the presumptive argument schemes many resemble general modus ponens; however, their major premise often contains qualifications like ‘generally,’ which makes the argument “defeasible”; and so Walton et al. call their structure “defeasible modus ponens structure” (Walton et al. 2008, p. 365). After presenting the schemes, Walton, Reed and Macagno try to classify them in a system of non-overlapping classes and sub-classes (Ch. 10, pp. 347-363). I do not find this attempt convincing and will ignore it here.¹²

2.2. Feature 2: Enthymemes

Most of Walton’s argument schemes are not conclusive—not only not deductively valid, but also not inductively, probabilistically, or practically conclusive. One could make many of them conclusive or come considerably closer to conclusiveness by adding one or two additional premises. In the Argument from Position to Know quoted above, for example, the following additional premise would do this: “in the vast majority of cases it holds true that: if some source s is in a position to know about things in a certain subject domain f containing proposition p , and s asserts that p is true, then p (p is true).”

¹¹ The deductively valid schemes are: 4, 11.1, 11.2, 12.1, 12.2, 13.2, 14, 15, 16, 17, 18.2, 21.1, 21.2, 26, 26.1, 32.2, 38, 41, 46, 48, 55.1, 55.2, 55.3, 56; the following schemes are analytically valid: 3, 44, 51, 54.2. The deductive inference forms are: 11.1, 11.2, 12.1, 12.2, 21.1, 21.2, 46, 55.1, 55.2, 55.3, 56 modus ponens; 16, 17 modus ponens with two conditions; 48 iterated modus ponens; 14, 15, 18.2, 41 general modus ponens; 38 general modus ponens with three conditions; 26, 26.1, 32.2 modus tollens; 13.2 alternative. (Cf. Walton et al. 2008, pp. 310–344).

¹² Walton and his co-authors, in particular Macagno with Walton and Reed following him, have more recently worked on a theoretical classification system of argument schemes (Macagno 2015; Macagno et al. 2017). However, this classification system has not been applied to the compendium.

Walton, Reed and Macagno do not supplement such additional premises; they leave the argument schemes in an enthymematic form and do not formulate these additional premises in any other way. They deliberately do not do so because, according to them, such additions are too “perilous” (Walton et al. 2008, p. 18). I think another reason is that a main idea behind Walton’s argument schemes approach is to keep the schemes elaborated by the theory near to everyday reasoning or common reasoning in politics or science or jurisprudence. Therefore, Walton and his co-authors keep the enthymematic form of everyday reasoning, leaving out several premises that would be essential for the arguments’ possible inferential validity—in particular, general conditional premises that could link the explicit singular reasons to the conclusion (cf. Walton et al. 2008, p. 18). As a consequence, minimally formalizing a found enthymeme—where mostly only names or singular terms occurring in the enthymeme are replaced by unbound variables, but the rest (predicates, logical operators, etc.) is left as is—already provides the argument scheme, as in the examples quoted above.

2.3. Feature 3: Critical questions

The *prima facie* most distinguishing characteristic of Walton’s theory as compared to other argument schemes approaches is the addition of critical questions to the schemes proper and thereby a dialogical conception of argumentation.¹³ A slight majority of the argument schemes from the compendium is supplemented by critical questions.

To the above-cited argument schemes, Argument from Position to Know and Argument from Expert Opinion, the critical questions provided by Walton, Reed and Macagno had already been added. The critical questions presuppose the clarification of questions of understanding, and thus concentrate on possible substantial criticism. They are very heterogeneous in content. According to my own classification, the types of question content listed below can be distinguished, but the questions are sometimes difficult

¹³ However, the idea of adding specific critical questions to argument schemes goes back to Hastings (1963).

to assign to these classes. In the exposition of the critical questions, Walton, Reed and Macagno themselves do not distinguish different types and functions of the critical questions. In the theoretical part of the book, however, they point out that the questions can have different functions.

The following differentiations, examples and figures refer to the compendium (Walton et al. 2008, pp. 309-346):

1. *PT, premise truth*: “Is the premise p_i true?” The question of the truth of a certain premise can be asked in this simple way, but also in a much more specific form, so that attention is drawn to typical weaknesses in the truth of certain types of theses. Example AS22.3: “*Practicality Premise*: Nothing unchangeable prevents me from bringing about B_i [sic!], as far as I know.” “CQ3: Is it possible for agent a to do B [sic!]?” (Walton et al. 2008, pp. 323-324). 52 (30.0%) of all Critical Questions in the compendium are PT questions.
2. *PJ, premise justification*: “How is the premise p_i justified?” Example, AS4, CQ1: “What evidence like a poll or an appeal to common knowledge supports the claim that A is generally accepted as true?” 29 (17.3%) of the compendium’s Critical Question are PJ questions.
3. *MP, missing premise*: “Which premises should be added to make the argument conclusive (if it is not conclusive)?” Here, ‘conclusiveness’ also means inductive, probabilistic or practical conclusiveness. As far as I can see, the only example of an MP question in the compendium is: AS43, CQ3: “Why is the pragmatic inconsistency indicated by satisfactory answers to CQ1 and CQ2 a relevant reason for not accepting argument α ?” 1 (0.6%) of all Critical Questions in the compendium is an MP question.
4. *CT, conclusiveness truth*: “Does the conclusion follow

from the premises?" Here, too, in addition to deductive validity, an inductive or practical conclusiveness is again meant. An example: AS6.1, CQ2: "Does the example cited support the generalization it is supposed to be an instance of?" 8 (4.8%) of the compendium's Critical Questions are CT questions.

5. *UC, undercutter*: In the case of uncertain (defeasible) arguments: "Are there any facts that could prove the premise-conclusion relationship not being fulfilled in this case (with relevant probability)?" Thus, undercutters do not question the truth of the premises, but undermine their applicability in the specific case. In their practical argument schemes, Walton and his co-authors bring up a particularly large number of undercutters as Critical Questions, e.g.: AS22.1, CQ5: "What consequences of my bring about *A* should also be taken into account?" 64 (38.1%) of the compendium's Critical Questions are UC questions.
6. *RB, rebuttal*: "Are there reasons why the thesis is wrong?" RB questions aim at a possible direct attack on the thesis itself. An example is: AS3, CQ1: "Is what the witness said internally consistent?" (If it is not consistent, it cannot be entirely true.) 3 (1.8%) of the compendium's Critical Questions are RB questions.
7. *"Rebuttal Factor"*: Walton and his co-authors list "Rebuttal Factors" instead of the Critical Questions in 4 (2.4%) cases, e.g., AS54.1: "Rebuttal Factor: 1. The warrant backing does not apply if the premise is not a necessary truth." Actually, these are *undercutters* (not rebuttals to the thesis itself) and in a certain way even refutations of the second premise, which does not mention the necessary conditions of the implication relationship.

8. *Unclear Critical Questions*: 7 (4.2%) of the Critical Questions are not functionally clear to me (namely: AS6.1, CQ4; AS26.2, CQ2; AS26.2, CQ3; AS31.2, CQ3; AS31.2, CQ4; AS46, CQ1; AS58: CQ3), so I cannot assign them to any of the types of questions distinguished here.

Argument schemes without critical questions: 49 (47.1%) of the 104 argument schemes contain no critical questions.

The number of critical questions assigned to the individual argument schemes varies greatly (from zero to seven questions). Moreover, the qualitative equipment with the different types of questions is very different. For some argument schemes, several questions of the same and only of this type are listed. For others, there are questions of up to three or four different types. A pattern, for example, that questions of a certain type are added to all argument schemes, is not recognizable. On the one hand, the fact that questions on the supplementation of premises (MP) are virtually non-existent fits in with the approach of leaving the arguments as in everyday life in an enthymematic form; on the other hand, it would then have been possible to address this weak point in everyday arguments when dealing with critical questions. However, Walton may think that these additions are not necessary because he believes he has found another solution: the Critical Questions, and in particular the undercutter (UC) questions (which make up the biggest subgroup), are Walton's way of dealing with presumptive arguments, which are uncertain or, in Walton's terms, "defeasible," such that the conclusion may be false though all the premises are true and though they "plausibilistically" imply the conclusion. Because of their uncertainty, presumptive arguments are non-monotonic, i.e., further information may reveal the conclusion's falseness or its doubtfulness and hence require a revision of the former result. The undercutter questions (and the rebuttal questions) ask for such counter-evidence.¹⁴ Generally speaking, the

¹⁴ Further information, of course, can also *strengthen* the case for the thesis,

critical questions, according to Walton et al., express the defeasibility of plausibilist arguments and they provide a solution to the conclusiveness question thus opened: The acceptability of the thesis justified by the argument no longer depends on the certain deductive transfer of truth, but on the outcome of the dialogue opened by the critical questions (Walton et al. 2008, pp. 7-8; cf. also: Macagno and Walton 2014, p. 185).

The critical questions are intended to be tools for a respondent, who thus gets suggestions for possible critical replies to the argument. This is one main aspect of the fact that Walton et al. understand presumptive argumentation as a dialogical enterprise, and they design argument schemes and their theorization accordingly. Following this line, they also define an *argument's failure* and an *argument's success* or positive quality as well as the mechanism which leads to the "bindingness" of schemes in dialogic terms: an argument is *defeated* if the respondent asks an appropriate critical question that is not answered by the proponent (Walton et al. 2008, pp. 3; 9). Advancing an argument shifts the burden of proof, and asking the critical question shifts it back again, etc. (pp. 12, 35-37). In the end, according to the authors, "a presumptive argumentation scheme imposes a relation of conveyance on the respondent such that if he accepts the premises, and if the scheme is applicable, and if all the requirements of the scheme are met, the conclusion is conveyed to him by these factors." And this means "that he has now been given a cogent reason for accepting it" (p. 36). All this makes plausibilist argumentation inherently dialogical—as opposed to the propositional and monological character of deductive arguments (cf. p. 8).

2.4. Feature 4: Bottom-up method

Walton does not describe his research method in great detail, and especially not the details of the assessment part. However, his theory of argument schemes is based on *induction* (Macagno et al.

make it more plausible or even certain. This may happen not only during further research but also in cooperative argumentative dialogues if the respondent is interested in cooperatively settling a question. Walton and his co-authors do not mention this possibility.

2007, p. 5), that is, it results from a processing of empirically found arguments and tries to encompass all of the more frequently occurring types of argument (Macagno et al. 2007, p. 5; Walton 2012). Huge sets of arguments of all types are collected empirically, analyzed, classified into subsets of different types, evaluated as more or less strong, and then the normative standard form of an argument scheme is abstracted from the arguments of the same type (Walton 2005, pp. 2, 8). In addition to this—apparently intuitive—assessment of the argument strength by the analyst, i.e., Walton himself, Walton seems also to have used a dialogical criterion to assess the quality of an argument scheme (his description remains vague), the core of which could ideally be: “are there objections raised against this argument or identical or comparable arguments, and if so, how many, how quickly and how often?” (Walton 2005, pp. 8-9.)

The empirical origin of Walton’s argument schemes notwithstanding, the goal of his theory is clearly normative, even if Walton does not always say this directly: The sense and function of the argument schemes with their critical questions is precisely the critical assessment of individual arguments, namely whether the respective argument fits into one of the schemes and whether the critical questions belonging to this scheme can be satisfactorily answered for the argument (Walton et al. 2008, e.g., pp. 3, 8, 11, 34). The result of such an assessment is expressed by the quality predicates to be assigned, which are also intended to be evaluative: “The argument holds” or “defaults”, respectively, (pp. 4, 9), or the argument is “good (correct, reasonable)” or “bad (incorrect, fallacious)”, respectively (Walton 1996, p. 1). The criterion behind the schemes is “cogency” (Walton et al. 2008, p. 34), i.e., whether the arguments according to the schemes are cogent. Even if the term ‘valid’ (in the sense of logical validity), according to Walton, is not appropriate for defeasible arguments, they may nevertheless “meet some kind of standard of correctness of use”; and it is precisely these standards that are to be established in a theory of argument schemes (Walton 1996, p. 1).

More recently, Walton specified “cogency” and the value of corresponding arguments epistemically: good arguments could direct a bounded cognizer to true beliefs and correct choices (Wal-

ton and Sartor 2013, p. 111, Abstract; p. 122). In a “teleological” justification, Walton and Sartor then try to show that the arguments matching the Waltonian argument schemes really fulfil these purposes (pp. 137-139)—this justification will be discussed separately in Sect. 8.

2.5. Summary: Strengths of Walton's argument scheme approach

From what has been said here so far about Walton's theory, the following advantages of his argument scheme approach emerge. (1) Walton's argument schemes theory is empirically based on an enormous data base of argumentation examples. So, the proposed schemes are not simply invented but have their empirical counterparts. (2) The schemes have a format close to the found arguments. Therefore, they can easily be handled by laymen or argumentation theory beginners. (3) They cover a great portion of argument types found in everyday reasoning. (4) The proposed schemes are handily and clearly elaborated in a uniform and tight format and collected in the compendium. This compendium is a very rich reference text. (5) The critical questions appertaining to schemes of uncertain arguments remind us of this uncertain nature and give hints of possible confutations or possible relevant information. (6) Most of the schemes of the compendium are accompanied by references to literature (most of it by Walton), where the respective scheme is discussed further, e.g., with respect to its precise meaning and value.

In sections 4-7 some weaknesses of Walton's argument scheme approach (as a general theory of argumentation) will be discussed. However, before that I must introduce some criteria for evaluating an argumentation theory.

3. Adequacy conditions for assessing argumentation theories

For reasons of transparency and clarity, the criteria for the critical discussion of Walton's theory of argument schemes are presented here in the form of adequacy conditions for such a theory or for argumentation theories in general. The adequacy of an argumentation theory also requires, for example, that in the theory arguments be described and defined at all. Such rather trivial adequacy condi-

tions are ignored in the following; only adequacy conditions that might be critical are presented.¹⁵

Since the quality criteria for different types of theories—e.g., empirical vs. normative—are quite different, it is necessary to first determine what kind of theory Walton’s argumentation theory is supposed to be. As explained above, Walton’s theory is intended to be normative. The most important form of normativity of theories in our context is the instrumental one: certain objects are distinguished by the theory as normatively correct because, according to the theory, they fulfil certain purposes or functions well. Within argumentation theory, the most important determinations of the function of arguments are: (i) to generate belief in the thesis (rhetorical approach), (ii) to lead to consensus (consensualist approach) or (iii) to guide to rationally justified acceptable (true, probably true, or truth-like) belief (epistemological approach) (cf. Lumer 2005b, pp. 189-192). In his discussions of the various types of fallacy, Walton very often pursues epistemological goals, at least implicitly. In Walton and Sartor, he clearly declares his commitment to an instrumentalistic, especially epistemological approach, even if he does not call it that: good arguments could direct a bounded cognizer to true beliefs and correct choices (Walton and Sartor 2013, pp. 111, Abstract; 112, 122, 124, 137-139, 140, 141). This is very close to what the epistemological approach says (cf. Lumer 2005a, pp. 213-214 (219-220); Lumer 2005b, p. 190)—even if the second epistemological component is missing in Walton, namely that the true belief should also be justified. Walton’s argumentation theory will, therefore, be assessed here on the basis of adequacy conditions for an instrumentalistic epistemological theory.

AC1: Approximate maximum epistemic effectiveness: The minimum requirement for instrumental theories is: the instrument they develop at least produces the desired output. An epistemologically oriented argumentation theory must therefore classify arguments as correct, good, (argumentatively) valid, or similar that lead to justified, acceptable beliefs. I call this “*epistemic effective-*

¹⁵ Complete conditions for good instrumental theories in philosophy: Lumer 2011b, pp. 60–71; Lumer 2020, 10–12; 19–21.

ness.” Some goals are not simply either achieved or not achieved; they can be achieved to a greater or lesser degree, more or less completely or perfectly; a good instrument leads to the best possible output, or at least to a comparatively very good one. I call such an instrument “(approximately) maximally effective.” Often, one is content with only approximately maximum effectiveness (instead of real maximum effectiveness) in order to achieve other goals, such as parsimony. Such a gradualization of the goal also exists for the acceptability of beliefs: opinions may be strongly or weakly justified so that more or less of them are true, or so that opinions are more or less likely to be true or more or less truth-like. Therefore, a good epistemologically oriented argumentation theory should be maximally epistemically effective or at least approximately maximally effective if the small loss of effectiveness brings other sufficiently large advantages. Maximum epistemic effectiveness implies, primarily, that the arguments conceived in accordance with this theory lead to more acceptable beliefs than the arguments based on competing theories. A sub-requirement for maximum epistemic effectiveness is *reliability*: The use of the criteria for good arguments at different times or by different persons leads to the same result under (for the theory) otherwise identical conditions (cf. Hansen 2011, pp. 744–745; Govier 1999, p. 109). In a non-reliable argumentation theory, an argument would be (argumentatively) valid and its thesis would be true in one situation, but in another situation, which for the theory does not show any relevant differences from the first, the argument would be invalid or its thesis would be false. Since a meaningful proposition can only be true or false (but not true today or for person one and false tomorrow or for person two), such a theory would disorient and in each case of unreliability produce *one* unacceptable belief. Therefore, non-reliable theories of argumentation are not maximally effective.

AC2: Full coverage (completeness): There are very special and very versatile instruments, usable in many situations. By definition, theories are general and, therefore, belong to the very broadly applicable instruments; they are supposed to cover a certain (more or less large area) completely. This applies in particular to argumentation theories. Argumentation theories are in a certain way

meta-instruments with which instruments at the ground level, namely arguments, can be constructed and assessed. They should not only provide a few recipes, but as theories they should also provide a comprehensive overview of which instruments are at our disposal; in this way, they extend the argumentative power of the users. In concrete terms, this means that a good argumentation theory, first, for each type of proposition for which one can somehow argue should have a type of argument in its programme with which one can argue for such propositions. Second, it should cover all good (epistemically effective) forms of arguments with which one can argue for the same proposition. I call this condition “*full coverage*” (or “*complete operating range*”) of the theory. Full coverage is a particular form of completeness. (Cf. Hansen 2011, p. 745-)

AC3: Efficiency: One requirement of economic rationality is *efficiency*: Instruments should be designed in such a way that the output aimed at with the instrument is realized with as little effort as possible. Efficiency can refer to financial costs, but also—as in the present case of (prescriptions for) arguments—to the effort involved, for example, in handling. Since the theory of argumentation is a *meta*-instrument, efficiency is required on two levels: (1) the criteria developed in it for the construction and assessment of arguments should be easy to apply, and (2) the arguments that it considers to be good arguments should be easy to handle.¹⁶

AC4: Practical justification of the argumentation criteria: The conditions of effectiveness, completeness and efficiency represent only the most important aspects of a practical justification for an instrument. I have mostly ignored other aspects (though some of them will be briefly mentioned later on), because they are less important in a still coarse-grained critical discussion. A full justification of an instrument and in particular of argument schemes, of course, should also take into account other possible relevant (good or bad) aspects of the object, weigh them against each other and show that the instrument is optimal, that is, that it is the best instrument for achieving the desired output. Furthermore, the output

¹⁶ Hansen makes a similar request, but surprisingly calls it ‘effectivity’ (Hansen 2011, p. 745).

itself should also be practically justified as good and important. (On prudential practical justifications: Lumer 2014.) Only via this kind of reasoning will it be possible to identify or to construct the best instrument. I am referring here to the practical justification of the argumentation criteria also for another reason. The criteria for valid arguments developed by argumentation theory should not only be optimal, but since this is an argumentation *theory*, a practical justification which shows the criteria's optimality should also be included in the theory: i.e., it should be shown that the criteria are optimal and serve a good and important function.¹⁷

These conditions of adequacy are probably widely shared. They do, however, have an empirical implication that is perhaps less obvious: In order to meet the conditions, especially those of effectiveness (AC1), completeness (AC2) and practical justification (AC4), a strong theory is needed that explains in general terms how the effectiveness of arguments is ensured, and which, because it has penetrated the functioning (i.e., the path from input into the instrument to output) can also be used to guarantee completeness. For with the help of such a theory, many instruments can then be constructed with which all kinds of outputs from the same area can be realised. Since the desired output is to achieve rationally justified acceptable belief, this theory must be epistemological in nature, or at least be epistemologically founded, and inform about the conditions of justified acceptable belief and the way to get

¹⁷ Elsewhere (Lumer 2011b; 2020) I have proposed a normative theory of philosophical theories, which specifies, in particular, for four different types of philosophical theories, the types of theses and justifications that must appear in the theory. According to the above, Walton's theory of argumentation is an instrumentalist, or more precisely: a technical–constructive theory (Lumer 2020, pp. 89, 12, 20–21). The conditions of adequacy just outlined are among the normative requirements for such a theory. Effectiveness, completeness, efficiency and practical justification are required by the following parts of the theory: The theory must determine the standard output of the instruments to be developed (theses TTC2), justify this output practically, i.e., prove it to be a desirable, multifunctional, fertile and generally humanly interesting goal (TTC6), and also justify the developed instrument as the optimal means of achieving the goal (TTC7) (Lumer 2020, p. 20). This optimality includes effectiveness, efficiency, and completeness. I will not go into the other requirements for technical–constructive theories here; they are less important in the current context, where fundamental problems are at stake.

there. Only in this way can effectiveness (AC1) be realised, that is, can the goal be achieved. According to what is now known about the nature of deduction or probabilistic or inductive inferences, etc., namely, for example, that the validity of deductive inferences depends on the logical form of their propositions, the theory must also be formal and general. Without the formality and generality of the theory of argumentation, neither completeness (AC2) nor efficiency (AC3) can be achieved, because they get lost with the abundance of individual types of arguments.

In the following four sections, the characteristics of Walton's theory of argumentation schemes are critically discussed, applying these adequacy conditions.

4. The schemes approach—no effectiveness, no efficiency without recourse to argument forms

Schemes approaches to argumentation, or at least their kernel, consist of empirically collecting, analyzing and evaluating argument types and bringing them into a normative standard form which is always defined in a way that also includes contentual terms. All such approaches suffer from five interrelated argumentation theoretical problems. (1) The lists of resulting schemes are long, often very long, (2) are never complete and always arbitrary in what they include and exclude. (3) At the same time, the lists compiled in argument schemes approaches mostly contain many superfluous entries. (4) To the contentual conception of the schemes corresponds the lack of a structural understanding of their form and functioning; as a consequence, the lists contain many schemes with different contents but that are identical in form. (5) Many, even most of the schemes are argumentatively invalid, i.e., fulfilling their conditions does not guarantee the thesis's acceptability (truth, probable truth or verisimilitude).

1. Overabundance: The compendium of Walton, Reed and Macagno contains 104 argument schemes—60 main schemes and 44 subschemes (Walton et al. 2008, pp. 308-346). That is a lot, but it's not an unmanageable amount. In other fields of knowledge, students have to learn much more. However, as will be shown in a moment, these 104 schemata are only a fraction of the tip of the

iceberg—let's say a thousandth of all argument schemes. But then the abundance of schemes becomes a serious problem. As it is, the extensions of the actually presented lists of argument schemes make the respective approaches and their inherent method for assessing arguments confusing, laborious to handle, and hard to memorize—which all leads to difficulties in learning argumentation skills (cf., Hansen 2011, p. 745). Theories with content schemes are therefore neither complete (against AC2) nor efficient (against AC3): there is too much to learn; and when assessing an argument, too many possibly suitable schemes have to be considered.

2. *Incompleteness*: The compendium (and all similar lists) are very far from being complete—though Walton, Reed and Macagno claim, for their compendium, to have included the most common defeasible schemes.¹⁸ Apart from probabilistic arguments, most deductive arguments are missing as are many others, for instance: a really comprehensive practical justification of value judgements, of actions or of instruments, arguments for definitions, interpretative arguments, arguments from historical sources and historiographic arguments in general, and molecular arguments of any form. Yet empirically, there are typical combinations of atomic arguments, that is molecular arguments, that are used more frequently, such as interpretive arguments that try to find the most probable explanation, or arguments for the optimality of a certain alternative action.¹⁹ Such molecular arguments can easily have the length of a book. Furthermore, all argument schemes primarily used in scientific contexts, from statistical arguments to

¹⁸ “The defeasible schemes listed in the compendium represent the most common forms of reasoning not only in everyday discourse, but also in special contexts of use like legal and scientific reasoning.” (Walton et al. 2008, p. 364.) Now, the “most common” schemes (104) could be the top 70%, but also only the top per mille. Perhaps Walton and his co-authors see the truth closer to the 70%—I do not know this. Personally I see it closer to 1 per mille or still much lower. If my assessment is correct, this gives a collection of schemes such as the compendium a very different value from a 70% coverage, which raises doubts about whether the strategy of compiling a list of all schemes makes sense, whether a more abstract and more general approach would not be better.

¹⁹ Some of such important molecular arguments are presented in: Lumer 2011c, pp. 20–26; Lumer, forthcoming.

arguments in favour of a theory, are missing as well. The compendium of Walton, Reed and Macagno probably does not even contain 1% of the total of argument schemes which could be generated in the same style. Most of their schemes have the deductive or the “defeasible” modus ponens form. However, modus ponens in deductive logic is only one type of the more than 100 current deductively valid inference forms. Something similar holds in probability theory for probabilistic inferences and, hence, for probabilistic arguments. These numbers then can be multiplied by filling these different inference forms with typical contents. All this again violates the requirements of completeness and efficiency (AC2, AC3).

In particular, the simplicity of most of the schemes in the compendium is striking. According to the authors’ claims, it contains only atomic argument schemes. Most of them have one to three premises and one of the modus ponens forms.²⁰ However, in scientific, juridical or philosophical practice, especially for more sophisticated considerations, atomic forms of argument with more, and indeed much more complex premises than in the modus ponens are used.²¹ In particular, for example, individual explanatory steps based on complex scientific laws for explanatory theses of the type “ p_1, \dots, p_n were the causes of q ” can contain extremely complex atomic arguments.

3. *Superfluous schemes*: The compendium contains many superfluous entries. All the subtypes of the Argument from Popular Opinion, e.g. (Walton et al. 2008, pp. 311–313) intuitively seem to be too near to other schemes already listed or to be fallacious.²²

²⁰ Four of the 104 schemes have four premises (AS4.7, AS36, AS38 and AS52), and another four have five premises (AS22.2, AS22.3, AS26.2 and AS27). The schemes with five premises are, however, not really that long: AS22.2 and AS22.3 are awkwardly formulated; two times two premises each could be combined to form two premises, thus creating schemes with three premises each. In scheme AS26.2 the first premise seems to be already the reason for the second premise. And scheme AS27, instead, mixes two atomic argument forms with a maximum of three premises.

²¹ See, e.g., the reconstruction of Albert’s argument for the Münchhausen trilemma, where one judgement may contain eleven logical operators (Lumer 1990, pp. 197–209, especially: 203–206).

²² Just two examples: scheme 4.2. (Position-to-Know *Ad Populum* Argument)

More generally, most of the compendium's deductive schemes admittedly (p. 365) have the modus ponens or the general modus ponens form, and the defeasible schemes mostly have the form of what the authors call a "defeasible modus ponens" (p. 365.). If the compendium in general already contains so many schemes, why do so many schemes of the same form have to be included in the list? Here we have another form of inefficiency (violation of AC3). If a list of argument schemes, on the one hand, is grossly incomplete and, on the other, many entries seem to be superfluous this is an indication that the list is arbitrary.

4. *Lack of a structural understanding of the schemes' form and functioning*: The schemes are compiled on the basis of the empirical material. The result is a collection of elaborated objects. But any explanation of this collection, the composition of the individual schemata and an understanding of how they work and how they are applied, are missing: why does this argument scheme exist, but others that are linguistically possible do not? Why is this one valid, but not that one? Is there a systematic connection between the schemes or groups of schemes or a common background behind them? How and on what basis does the application of the schemata lead to true belief? Answers to all these questions have to be used in a practical justification, so not to provide them violates the requirements of a practical justification (AC4). Walton's argument schemes, as well as those of other argument schemes approaches, are essentially defined in terms of their contents, without considering their structural, logical form and composition, so that, as just noted, many listed schemes have the same logical form. However, such a content-oriented approach in important respects is similar to learning a foreign language by memorizing

says: "Everybody in this group G accepts A . [...] This group is in a special position to know that A is true. [...] Therefore, A is (plausibly) true." (Walton et al. 2008, p. 311) This is only a specialization of scheme 1 (Argument from Position to Know): "Source a is in position to know about things in a certain subject domain S containing proposition A . [...] a asserts that A is true [...]. Conclusion: A is true [...]" (p. 309). The group G that scheme 4.2 is speaking of is a special case of the 'source' of scheme 1, since a (unanimously believing) group can also be a source. And scheme 4.1. (Pop Scheme): "Everybody in a particular reference group G accepts [...] A . Conclusion: A is true/or: you should accept [...] A ." (ibid. 311), is simply fallacious.

complete schemes of sentences (with just some names to be filled in) and their meaning, instead of learning the vocabulary and the grammatical rules. With such a method one's linguistic—and argumentation—competence will be quantitatively very restricted, capturing only a minor fraction of a language's, and of the argumentative domain's, richness respectively without understanding the structure and detailed sense of one's utterances. In terms of argument schemes lists, this must lead to a quite grossly incomplete and unsystematic compendium (violation of AC1, AC2). In addition, if a list of argument schemes, on the one hand, is grossly incomplete and, on the other, many entries seem to be superfluous, this is an indication that the list is arbitrary.

5. *Invalid schemes*: Three quarters of the compendium's argument schemes (Walton et al. 2008, pp. 308-346), if their variables are correctly substituted, are argumentatively invalid in the sense of not guaranteeing their theses' acceptability. This and the following claims about the argumentative validity of the compendium's schemes rely on the usual criteria such as relevance and acceptability of premises and their sufficiency for the inference (e.g., Govier 1992; Blair 2007) and, if these are not sufficiently specific, on the criteria of a theory of argumentation that thoroughly justifies precise validity criteria for arguments and adequacy criteria for argumentations on epistemological grounds (Lumer 1990; 1997; 2005a; 2011a; 2014). The latter is not to be understood as if conformity with the criteria of Lumer's Practical Argumentation Theory has been made the standard here, but only that this theory has been used as a fundus for further types of uncertain inference types that could possibly justify the transition from Walton's premises to his conclusions, if obvious missing premises were supplemented. And also in the following, when "epistemological viewpoints," "epistemological criteria" etc. are spoken of, generally this is not meant to refer to the Practical Argumentation Theory, but only to the general idea of an epistemological approach based on principles from epistemology in a broad sense that guarantee the acceptability of the conclusion—i.e., an idea that Walton also supported (see especially Walton and Sartor 2013). So, many of the argument schemes in the compendium are not argumentatively valid from an epistemological point

of view: they do not satisfactorily lead an addressee to a justified belief in the thesis via listing sufficient (and epistemically accessible) conditions for the thesis' truth or acceptability, thereby inviting him to check these conditions. And I do not see that these critical schemes of the compendium are good in some other major functional respect. More precisely, of the 104 schemes, seventy-nine (76%!) are argumentatively invalid. Four of these seventy-nine schemes (viz. schemes 21.1, 21.2, 38, 41) are deductively valid but contain a false premise. A further eighteen plausibilist schemes²³ are not argumentatively valid, but can easily be corrected by rather simple additions, mostly by inserting the real major (albeit statistical) premise as well as the minor premises asked for in the critical questions, thereby making the argument probabilistic, etc. The other fifty-seven of the argumentatively invalid schemes²⁴ cannot easily be repaired: too many premises are missing, or the missing premises are not obvious, or the thesis is too strong, and it is not obvious how to weaken it, or the structure is altogether inappropriate. The Practical Argument Schemes and the Arguments from Analogy nearly all have the latter defect. This is a very strong claim; therefore, the specific failures of some of these schemes will be discussed below (Sect. 9). The border between what is easily repairable and what is not is not very precise, but this does not change the dimensions of the problem of argumentative invalidity. That the argument schemes are not argumentatively valid is, to be sure, the fundamental violation of the effectiveness requirement (AC1), for with such schemes one cannot be systematically guided to recognise the truth or acceptability of the thesis.

6. *Arbitrary composition of the schemes*: A technical problem of the compendium is also that even the precise formats (e.g., whether the thesis includes a modifier like 'plausible' and, if yes, exactly which one) are quite heterogeneous and their choice often seems quite arbitrary, the effect of a momentary decision.

²³ Schemes 1, 2, 4.2, 4.3, 4.4, 13.1, 22.3, 27, 28, 30, 31.2, 40, 54.1, 54.3, 58, 59.1, 59.2, 60.

²⁴ Schemes 4.1, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 5, 6.1, 6.2, 6.3, 6.4, 7, 8.1, 8.2, 9.1, 9.2, 10.1, 10.2, 18.1, 19.1, 19.2, 20, 22.1, 22.2, 22.4, 22.5, 22.6, 23, 24, 25, 26.2, 29, 31.1, 31.3, 31.4, 31.5, 32.1, 33.1, 33.2, 33.3, 33.4, 34, 35, 35.1, 36, 37, 39, 42, 43, 45, 47, 49, 52, 53, 57.

These six salient problems are consequences of two fundamental deficits.

(i) *No real theory*: Argument schemes approaches to argumentation compile their lists of argument schemes on the basis of empirical research in data bases. As Walton, Reed and Macagno confirm, this is essentially an inductive (Macagno et al. 2017, p. 2497), bottom-up method of empirically collecting schemes. The authors do not start with, for example, a functional objective and constructively develop arguments, argument schemes or forms of argument that fulfil this function. Nor do they formulate an empirical hypothesis that they want to confirm with empirical research or analyse the collected material with regard to a more general explanation or the like. There simply is no further (more general) theory behind these lists of schemes that would explain the arguments' composition, the argumentations' way of functioning and would explain and guarantee the schemes' argumentative validity or some other form of value, as well as bring us nearer to a really systematic and complete list. Hence, on this basis we cannot understand the structure of arguments and why an argument is good, argumentatively valid and proving its thesis or at least showing the thesis's acceptability. This is also a violation of the demand for a practical justification of argument schemes and their function (AC4), because such a practical justification would have to explain precisely what function argumentations have and how, with the help of the structure distinguished by the theory, they fulfil this function.

It is not that Walton, Reed and Macagno do not ask themselves the question about the mechanics, the way of functioning of arguments that conform to their schemes and the contribution of the individual components of their schemes to it. But the answer they give to this shows quite instructively that they cannot come close to answering this question, which in turn confirms the claims just made about the lack of a (truly explanatory) theory. Walton, Reed and Macagno have tried to explain the way of functioning of arguments mainly in Section 1.8., "How Are Schemes Binding?" (2008, pp. 34-38)). First, they try to explain the "bindingness" by what they call the "shifting burden of proof theory of the binding nature of argumentation schemas" (Walton et al. 2008, p. 35):

Putting forward an argument that fits one of the schemes included in the compendium shifts the burden of proof to the respondent, who now by posing critical questions may shift the burden of proof back to the arguer. However, what is going on here, next is explained in terms of cogency and argument sufficiency: A cogent presumptive argument that meets the criteria of acceptability, relevance and sufficiency of premises, puts some pressure on the respondent either to accept the conclusion or to give a good reason why not. This normative cogency means that a rational arguer should accept the conclusion under these conditions (p. 35); if she does not, she is illogical (p. 36). Unfortunately, we do not learn what the “sufficiency” of the premises is (apart from the fact that they correspond to the scheme) and why one now has to accept the conclusion. Next, a further attempt is made to explain the bindingness by the “relation of conveyance” (p. 36), which for presumptive schemes however leads back to the notion of shifting the burden of proof in a dialogue and this again to the cogency with its necessity for a rational person to accept the conclusion because otherwise she would be illogical or unreasonable (p. 36). To cut a longer analysis short: I find this hard to understand. This moving back and forth between four ideas (burden of proof, cogency, logical rationality, conveyance) about the “bindingness” or more generally the goodness of argument schemes shows more the authors’ helplessness in explaining the value of and the meta-criteria behind their schemes than explaining anything. The most basic concept in the end seems to be “(logical) rationality.” However, we are never told why accepting a thesis on the basis of an argument scheme included in the compendium would be reasonable or logical, and not accepting it unreasonable or illogical. The concepts of truth and knowledge are lacking entirely, and the burden of proof idea has something of an agonistic conception of argumentative dialogues; “shifting the burden of proof” could turn out to be like a move in a game of chess: defined by the rules but without epistemic or alethic content.

(ii) *No argument forms and thus no theory of the validity of arguments:* The other major shortcoming behind the six problems presented is precisely the focus on argument schemes and the renunciation of argument forms, in particular the renunciation of

reducing argument schemes to argument forms and, consequently, of explaining these argument forms. In deductive arguments, the transfer of truth is based on deductive entailment: if the premises are true and the inference is valid, the conclusion is also true. However, the validity of the inference is based on its form, namely the logical-syntactic form of the propositions involved with the logical operators contained in them. Only by examining this form and checking and establishing its deductive validity can one know that there really is a “transfer of truth.” Something similar applies to probabilistic arguments: In the argument, the probability of the thesis is usually equated with a mathematical term that arithmetically relates probabilities (or relative frequencies) of different propositions: e.g., $P(a) = P(a \& b) + P(a \& \neg b)$.²⁵ The correctness of the equation results from the axioms of the probability calculus, which in turn are defined purely formally. Without reducing the probabilistic argument to such purely formal structures, the correctness of the probability attribution in the thesis cannot be verified. Finally, something similar also applies to practical arguments for value judgements, whose theses hence ascribe a certain desirability, especially expected desirability, to certain states of affairs. The truth of these value judgements in turn depends on corresponding definitions, especially of “intrinsic desirability,” “total desirability” and “expected desirability.” The definition of ‘expected desirability,’ for example, again equates this desirability with a mathematical term that arithmetically relates different desirabilities and probabilities to each other, roughly like this: $U_{exp}p = U_{in}p + U_{in}q_1 \cdot P(q_1|p) + U_{in}q_2 \cdot P(q_2|p) + \dots + U_{in}q_n \cdot P(q_n|p)$.²⁶

²⁵ This and also the following formula do not represent the correct argument form, but are only intended to indicate what kind of formula the conclusiveness of the argument is based on. The argument itself would start like this: “ p has the (expected) desirability d . For the intrinsic desirability of p is d_i . Furthermore, p has the relevant implications q_1, \dots, q_n . Their conditional probabilities are l_1, \dots, l_n The sum of all these values is d .” A general definition of “valid probabilistic argument,” which also contains the conditions and thus the construction rule for valid forms of probabilistic argument, can be found in: Lumer 2011a, pp. 1149–1151.

²⁶ The argument form for a further development of this formula and the conditions of validity for the associated arguments are described in: Lumer 2014, pp. 11–14.

Here, too, the truth of the thesis thus results from certain purely formal relations. If the argumentation theorist posits practical argument schemes but does not derive them from such purely formal relations, these schemes can either not be (argumentatively) valid at all—valid in the sense that their correct completion guarantees the acceptability of the thesis—or merely accidentally valid. And if the addressee of the practical argument does not reduce it to such formal relations, he cannot verify the truth of the desirability ascription in the thesis. And this implies that he has—despite the argument—no rational reason to accept the thesis. (This does not mean, by the way, that the arguer or the addressee must present the argument formally, or even as a formula. But the arguer and the addressee must be able to recognise the decisive form in the premises and the thesis and assign the parts of the argument to this form. Intuitive recognition without knowledge of explicit rules is sufficient.)

In the case of deductive, probabilistic and practical arguments, the following applies in general. That such arguments guarantee the truth or acceptability of their thesis depends on their conclusiveness, and this in turn is based on certain formal relations between the premises and the thesis. Thus, if the schema approach ignores the argument form, thus foregoing the verification of the inferential validity of the respective form, then it cannot guarantee the argumentative validity of the argument and therefore that the conclusion is true or acceptable. And as a consequence, the use of the argument scheme by an arguer or addressee does not, or, if it does, only accidentally, help to achieve truth or acceptability of her or his belief and in no case to rationally and justifiably *recognise* truth or acceptability. Therefore, in that case the most basic form of epistemic effectiveness (see AC1) is not provided. And, of course, the argument scheme can then also no longer be justified practically via the proof that its application leads to true or acceptable beliefs (against AC4). It is precisely the schema approach *as such*, i.e., its reliance only on schemes and its dispensing with any justification by the form of inference and of argument, that leads to the ineffectiveness of the arguments and to the lack of practical justification of the schemes. In other words, epistemic effectiveness of arguments and the justification of argument norms

can only be achieved by recourse to the appropriate form of inference and argument as well as the conditions of argumentative validity for argument classes.

Argument schemes are one abstraction level lower than argument forms (and two abstraction levels lower than argumentative validity criteria for argument classes). Therefore, the number of argument schemes is a multiple (depending on your inclination: a thousand times, ten thousand times ...) of the number of argument forms. And the number of argument forms is in turn a multiple—in the case of deductive and probabilistic ones more than a hundredfold—of the number of validity criteria for argument classes. If, given these numerical ratios, one establishes norms for valid arguments solely by describing valid argument schemes and without recourse to argument forms or validity criteria for argument classes, then one obtains either an overabundance of normative argument schemes or incomplete normative specifications that omit many valid argument schemes, or both. Overabundance is a form of ineffectiveness (see AC3): one cannot remember all these argument schemes, and it takes considerable effort to check the fit to all known argument schemes when evaluating arguments. And the incompleteness of normative specifications is of course a violation of the completeness condition (AC2). In this respect, too, it is therefore true that it is precisely the schemes approach as such, i.e., relying only on schemes and not referring to argument forms or validity criteria for argument classes, that leads to the incompleteness and inefficiency of the normative specifications. In other words, systematic completeness of normative specifications that cover all valid arguments and efficiency through simplicity, namely a manageable number of normative conditions, can only be achieved by recourse to argument forms as well as to validity conditions for argument classes.

A schemes approach in (normative) argumentation theory may be easier for beginners at first. But even in the medium term it leads nowhere, for several reasons. The learner has too many schemes to learn; these nevertheless fail to capture many arguments and thus do not help him in assessing them: many schemes will be wrong and thus also lead to a false assessment of the arguments' validity and to the adoption of false beliefs; and he does

not develop an understanding of the meaning and functioning of arguments. A more formal and functional-instrumental approach, like the epistemological approach in argumentation theory (Lumer 2005b), systematically begins by establishing the standard function of arguments (namely, to lead to rationally justified true or acceptable belief), then develops validity criteria for argument classes (and argument forms) on an epistemological basis (see e.g., Lumer 2011c, forthcoming) and assesses and justifies the validity of individual arguments on that basis. It might initially be more difficult for beginners because of the high level of abstraction involved, but it leads to a theoretical understanding of the meaning and functioning of arguments. It can capture all valid arguments, even complicated and completely new ones, i.e., assess whether they lead to acceptable opinions or not, and above all it does this, correctly applied, in a correct way, namely it leads to the correct assessment of the acceptability of theses.

5. The enthymematic form—Poor checkability of argumentative validity

Walton, Reed and Macagno's argument schemes are mostly enthymematic (see Sect. 2.2 above). Because these are supposed to be normative schemes, I find this conception very problematic. In Sect. 9, the problem of enthymematic form is discussed in more detail using the example of the scheme Practical Inference.²⁷

Arguments can only guarantee the acceptability of the thesis if the premises are true and if the thesis follows from the premises according to a valid inference form. Complete arguments, which hence contain all premises necessary for conclusiveness, also allow and simplify the complete verification of these conditions of acceptability for the addressee. Enthymematic arguments, which hence omit part of the premises, make this verification considerably more difficult: the addressee is not informed which premises must all be true for the thesis to be acceptable, and he is not implicitly urged to verify them, but must reconstruct the missing premise himself and then verify it, and he can also only then verify

²⁷ An analogous discussion of the Argument from Expert Opinion scheme is provided in: Lumer 2016, sect. 4 (pp. 14–17).

whether the inference is valid.

Walton and his co-authors especially often omit the real main premise. However, in arguments with a quantitatively qualified, or, in everyday language, vaguely quantitatively (e.g., “most likely”) qualified thesis, these main premises usually provide the qualification, which then appears again in the thesis. Without the main premise, the argument does not provide the addressee with a basis for the qualification of the thesis.

These are two very strong reasons against enthymemes in normative argument schemes, hence reasons in favour of complete argument schemes. Walton, Reed and Macagno consider whether to insert the missing premises into the argument scheme (2008, pp. 19-21), but reject this possibility with the single “reason”: “It doesn’t really matter that much which version you use” (Walton et al. 2008, p. 20). As I have just shown, first, this is wrong, and second, it is of course no reason *for* omitting important premises. Just before this, however, they write that the insertion of additional premises is “perilous” because the arguer can reject the attributed additional premise and may retreat to having not said so (p. 20, p. 18). This argument, however, confuses three things. (1) When it comes to finding out what the arguer thought, Walton and his co-authors may be right. (2) If, on the other hand, the aim is to check the validity of an argument, then the addition of premises, if it is done according to methodological rules (Lumer 2019), is a *concession to the arguer*, for without the additional premise the argument is not argumentatively valid. If a premise, reasonably believed by both the arguer and the addressee, is added that makes the argument (argumentatively) valid and adequate, the arguer should be grateful for this. If she rejects this premise and retreats to the fact that she did not say this, then the argument she delivers is just not a short form of a valid argument! (3) In the current context, however, the issue is something quite different, namely what good normative argument schemes should look like. In dealing with this question, the questions of interpretation raised by Walton, Reed and Macagno play no role at all. It is clear that a complete argument offers better verifiability, so normative argument schemes should be complete. In order to accommodate enthymematic argumentation practice and to allow for certain facili-

tations, one can then also concede from a normative perspective in a liberalising additional rule that certain premises can be omitted in the presentation, but that they must nevertheless be true and also be justifiedly accepted by the arguer and addressee.²⁸ In short, Walton and his co-authors have not put forward good reasons for the enthymematic form, where there are strong reasons against it, that is in favour of the complete form.

6. The critical questions—Helpful but no solution to the problem of epistemic effectiveness

The critical questions as a supplement to the argument schemes are a particular hallmark of Walton's approach in the theory of argument schemes. If skilfully chosen, they can help the addressee of an argument to examine specifically typical potential weaknesses of the argument. This is certainly an important addition to the tools of critical thinking. If, for example, the critical question applies to the truth of a particular premise (PT question), then it can be useful not simply to ask generally about the truth of the premise, but to be directed by the critical questions to typical weaknesses of a particular premise of the argument scheme. They then have a heuristic function; i.e., they do not prove anything themselves, but only offer aids for a more targeted search, without guaranteeing that there is anything to be found at all. Pointing out typical weak points in the justification of critical premises of a type of argumentation (PJ question) or frequent types of falsity of certain theses (RB question) are in the same way important heuristic additions to the instruments of critical thinking. The same applies to questions about the undercutters of uncertain arguments (UC questions), which can bring to light more specific information

²⁸ Cf. e.g., Lumer 2005a, pp. 235–236: Conditions A2.2 and A5.4 of the definition of an “argumentatively valid argument” allow leaving out reasons of the ideal version, however within certain limits, namely that the ideal version can be rather easily be constructed from the remaining rest. The special conditions for singular argument types in Lumer 1990 (pp. 188; 258–259; 277–278; 362–363; 365–366; 2011a, p. 1150; 2014, p. 13) always distinguish between ideal and not ideal though still argumentatively valid arguments by means of a ‘liberalization rule,’ which permits to leave implicit certain reasons.

that calls into question the applicability of, in particular, the statistical information used in the argument or immediately points to the existence of more specific statistical information that takes precedence over the one used. So far, so good.

Let us now look at some of the weaknesses of the critical questions. If the compendium also contains many enthymematic argument schemes, then the critical questions about the enthymematic schemes should at least also contain critical questions about the truth of the premises to be supplemented (MP question) as compensation for this concession to the usual mode of presentation of arguments. It is all the more surprising that there is only one question of this type in the compendium (AS43, CQ3). This is a case of a lack of effectiveness of the argument-schema-question combinations (against AC1). It is also astonishing that there are questions about the conclusiveness of the argument at all (AS6.1, CQ2; AS9, CQ1; AS10, CQ1; AS28, CQ1; AS30, CQ1; AS53, CQ1, CQ2; AS58, CQ2). After all, guaranteeing conclusiveness should actually already be the primary task of argument schemes themselves (as well as the function of argument forms)—whereby the conclusiveness of uncertain arguments does not exclude the existence of undercutters. That Walton, Reed and Macagno also provide for critical questions about the conclusiveness of the instantiations of a scheme is then an indirect admission that the associated schemes do not fulfil their primary task, namely, to guarantee this conclusiveness (as already criticized above (Sect. 4, point 5) as lacking effectiveness (AC1)). If one systematically introduces critical questions as heuristic instruments of critical thinking at all, it is problematic, namely a further violation of the effectiveness requirement (AC1), that the individual schemes are so unequally provided with critical questions: as noted, from zero to seven. Massive additions would still be possible here.

Beyond the function of critical questions as heuristic instruments of critical thinking, which I have approved of, for Walton critical questions have a completely different, in the present context even more important function, namely, to solve the problem of the conclusiveness of uncertain arguments, through the critical questions themselves and the dialogue started with them (Walton et al. 2008, pp 7-9). And here, in my opinion, lies a basic problem

of Walton's theory of argument schemes.

Walton and his co-authors write:

A presumptive argumentation scheme imposes a relation of conveyance on the respondent such that if he accepts the premises, and if the scheme is applicable, and if all the requirements of the scheme are met, the conclusion is conveyed to him by these factors. That [...] does mean that he has now been given a cogent reason for accepting it [...]. Otherwise, he is somehow being illogical or unreasonable. (Walton et al. 2008, p. 36; similar: p. 9.)

And in the negative case:

If the respondent asks one of the critical questions matching the scheme and the proponent fails to offer an adequate answer, the argument defaults. Thus we see that defeasibility is linked to a dialogue structure in which a burden can shift back and forth. The original weight of an argument, before it defaulted and had to be retracted, is restored only when the proponent gives a successful answer to the question. (Walton et al. 2008, p. 9.)

The success or failure of argumentation is thus defined by the success or failure in dialogue whether or not the arguer can answer the critical questions that may be raised. Walton, Reed and Macagno do not say exactly what kind of success is involved here, whether (1) argumentative validity of the argument, (2) additionally its situational adequacy for rational persuasion or (3) the factual persuasion of the addressee. But in principle, all three types of success are independent of dialogue, so dialogue cannot be the means to success or failure of argumentation, the counterpart to the conclusiveness of deductive arguments.

Here are the reasons for this threefold counter-claim of independence from dialogue.

Ad 1: Argumentative validity without dialogue: Argumentative validity is the property of an argument to guarantee the truth or acceptability of the thesis. It provides this guarantee by asserting

sufficient conditions for the truth or acceptability of the thesis (explicitly or implicitly) to be fulfilled. Such sufficient truth or acceptability conditions are listed generalised in epistemological principles such as the deductive epistemological principle, “A proposition is true if it is logically implied by true propositions.” The argument specifies these general conditions in a certain form for the respective thesis. (An example of specification: “The proposition ‘Socrates is mortal’ is true if (i) the propositions ‘All humans are mortal’ and ‘Socrates is a human’ are true and (ii) they logically imply ‘Socrates is mortal’.” Argument: “Socrates is mortal. For all humans are mortal; and Socrates is a human.”) The addressee can then check the fulfilment of these specified conditions in detail, thereby using the general conditions of the principle of knowledge as a checklist in the background. If the result of the check is positive, he has recognised the truth or acceptability of the thesis. (Lumer 2005a, pp. 219-224.) The conditions required to be fulfilled in epistemological principles are things like the truth of the premises or the conclusiveness of the inferential relation—where the latter could also be formulated as a *formal premise*: “The premises p_1, \dots, p_n logically imply the conclusion q .” These are all time- and person-independent conditions, they are either fulfilled or not fulfilled; a dialogue does not change this fulfilment. In the case of uncertain, plausibilistic argumentation, an information condition (best evidence condition) is always added to the types of conditions mentioned, which makes the argumentation dependent on a certain database: “The underlying database d does not contain any information that would permit a stronger, better-grounded conclusion with regard to thesis q or an equally well-founded conclusion but in contrast to q .” Of course, this database is then supposed to be the addressee’s information set (this will be discussed below). Whether this best evidence condition is fulfilled is again independent of the outcome of a dialogue conducted after the argumentation. Overall, then, the argumentative validity of the argument is independent of the outcome of any dialogue. The explanation just given (of how arguments can guarantee argumentative validity by orienting themselves to epistemic principles and how this orientation makes the validity of the argument independent of any dialogue) used the proceeding of the Practical Argu-

mentation Theory as an example of a special epistemological approach. But it also applies independently of this particular approach: if arguments are to be valid in the sense mentioned above, i.e., if they are to guarantee the epistemic acceptability of the thesis, then they must be oriented towards some epistemological principles in the broad sense—truth definitions, conditional truth statements, truth-related acceptability criteria for theses or the like—(these do not have to be *a priori* those used in Practical Argumentation Theory), which specify precise conditions for the acceptability of theses. Because of its objectivity, truth does not depend on subjective agreement anyway; the weaker, indeed situation-dependent acceptability depends not only on the objective conditions but also on the limitedness of the relevant knowledge and thus on the amount of information available in each case (the less relevant knowledge is available, the less well-founded theses are still acceptable)—but not on the dialogic agreement of an addressee. (The consent of the addressee can, however, signal that his set of information has been well estimated and that the argumentation has been well directed.) The real problem in Walton's theory, which is why he puts forward the opposite thesis and defines the success of argumentation via the success in dialogue as well as formulating the critical questions, is that he has no epistemological principles for plausibilistic arguments. (By the way, Walton's theory is not the only theory with this problem; most normative argumentation theories have the same problem.) But such epistemological principles do exist. For probabilistic arguments, for example, the probabilistic epistemological principle applies.²⁹ In practical arguments for value judgements, the basic epistemological principles are the various definitions of "desirability," especially "intrinsic desirability" and above all "expected

²⁹ *Probabilistic epistemological principle*: "A probabilistic proposition *p* (with the database *d* is true if (1. *Conclusiveness*) *p* follows from elements of *d* according to the probability calculus, (2. *No better information, NBI*) if this inference (of *p* from elements of *d*) provides the strongest possible justification among the justifications for *p* within *d* or for a proposition incompatible with *p* (in short: if *d* contains no better information about *p*) and (3. *Rationality of d*) if the database *d* is rational (i.e., *d* is consistent and also contains the associated justifications for all elements of *d* that can be justified in principle)."

desirability.”³⁰ Whether the conditions of the probabilistic epistemological principle or of one of the “desirability” definitions are fulfilled in a concrete case for a specific judgement is again completely independent of a dialogue between the arguer and the addressee.

Ad 2: Situational adequacy without dialogue: If the standard function of arguments is to bring the addressee to a (rationally justified) true or acceptable belief—which Walton accepts, as has been noted (Walton and Sartor 2013, p. 111, Abstract; p. 122)—then they are instruments whose use, like that of many other instruments, may vary in adequacy for the standard function in different situations. In particular, the premises and the inferential relation must be epistemically accessible to the addressee; he must have justifiedly recognised them as acceptable.³¹ Therefore, one will and can, for example, argue differently to a well-informed addressee than to a layman in the field who lacks much relevant information. The presentation of even a valid argument can fail, remain epistemically unsuccessful, if it has not been used adequately. Does this make the argument dependent on dialogue? First of all, the adequacy of an argument for rational persuasion consists in the fact that it is addressed to an open-minded, rational, etc. addressee, who justifiedly believes in the premises and understands the meaning of the inferential relation. These are all conditions that have nothing to do with a dialogue. Even a completely (and for sure) one-sidedly communicated argument can be adequate, whether in a book, or possibly from past times, or in a media report, etc. The fulfilment of the adequacy conditions is thus independent of a dialogue; they can be fulfilled if there is no dialogue at all. However, argumentative dialogues, if they take

³⁰ Definition of “*expected desirability*,” simplified: “The expected desirability of p for the subject s is equal to the sum of (i) the intrinsic desirability of p for s and (ii) the sum of all intrinsic desirabilities of the consequences p_1, \dots, p_n of p relevant for s , each multiplied by their probability conditional on p .” (A bit more formally: $U_{exp}p,s = U_{int}p,s + (U_{int}p_1 \cdot P(p_1|p) + \dots + U_{int}p_n \cdot P(p_n|p))$.) (Cf. Bicchieri 1998, p. 824; Lumer 2014, pp. 8–10).

³¹ Conditions for the adequate use of deductive arguments for rational persuasion are presented e.g., in: Lumer 1990, p. 189, for practical arguments in: 2011a, pp. 13–14, for arguments in general in: 2005a, p. 236.

place at all, are designed, among other things, to help achieve adequacy or, conversely, to reveal an inadequacy of the argument. Does this make adequacy dialogical? (1) Embedding the argument in a dialogue can help to eliminate an initial inadequacy. An element of the argument that is incomprehensible to the addressee is clarified; or the arguer adds a new premise or a justification for a premise when asked, so that the extended argument is now adequate for the addressee. Dialogue thus *helps* to achieve adequacy; in such a situation, it helps to adapt the epistemic situation of the addressee and the argument to each other in such a way that, in the end, the addressee is provided with an adequate argument for the thesis in question. But the dialogue does not, in a quasi-magical way, *produce* the adequacy of the argument. Rather, the dialogue either changes the epistemic situation of the addressee (by providing additional information) in such a way that the (initial) argument is now adequate; or the dialogue leads the arguer finally to present a variant of the initial argument that is adequate. This adequacy consists mainly in the fact that finally premises and inferential relations are used that are justified and accepted by the addressee. However, this justified acceptance is not itself a dialogical fact. (2) Conversely, the dialogue—or more precisely: the critical pronouncements of the addressee—can also reveal the inadequacy of the argument: (2.1) The dialogue can reveal that the addressee already believes in the thesis or needs a higher level of justification than the argument presented can provide, or that the addressee is irrational, ignores the language used, is not open-minded or the like. (2.2) The dialogue makes clear that the arguer cannot provide a justification for a premise used in the argument that is epistemically accessible to the addressee (even if this premise is true and the arguer herself has a justification for it, but this justification may be epistemically inaccessible to the addressee). (2.3) In the case of an uncertain argument, the addressee provides new, undercutting information that extends the data base in such a way that the condition of best evidence is no longer fulfilled (with the data base extended by the new information, a stronger or equally well-founded conclusion can be justified that is incompatible with the thesis). (The difference between (2.2) and (2.3) is that in (2.2) the inadequacy is due to the lack of epistemic accessibility

of a premise (the addressee lacks information), whereas in (2.3) the inadequacy is due to an increase of information that no longer allows the use of the initial argument.) In all three cases, (2.1) to (2.3), the inadequacy of the argument presented is independent of the dialogue. The dialogue only *reveals* the inadequacy, makes it obvious. But the inadequacy existed from the beginning, it was just not recognisable.

Ad 3: Rational persuasion without dialogue: If an argument is used adequately for rational persuasion, then it usually also leads to success in persuasion. This normal case has already been dealt with in the discussion about the possible necessity of dialogue for the adequacy of an argument (Ad 2). Here, therefore, we are only concerned with the special case in which the argument does not lead to successful persuasion despite being used adequately. This can be because, for example, the argument must first “sink in” before the addressee can accept it; or the justified thesis contradicts fundamental or too many of his convictions, thus coherently requiring a great many consequential changes from which the addressee shrinks back. However, none of these are circumstances that dialogue would specifically create by asking critical questions and answering them. In this respect, it also applies to the rest of the (missing) success of persuasion that still needs to be clarified here, that it is not generated by dialogue.

The argument against a dialogical conception of the success of arguments just presented developed (suggestively) a positive counter-position to Walton’s approach; it relied heavily on basic ideas of the epistemological theory of argumentation. This may be unacceptable to some readers. I will therefore present a few more independent arguments against the dialogical conception of the success of in particular non-deductive arguments.

So, a further argument against Walton’s idea of answering the question of the criteria for good defeasible arguments by making recourse to dialogue is this. The quality, argumentative validity or acceptability of an *argument* and hence the truth, probability or acceptability of its conclusion can hardly be a question of dialogue and burden of proof because we can use these arguments privately, for ourselves or we can scrutinize written arguments of arguers who are unreachable for us (dead, staying in distant places etc.) for

epistemic purposes, that is for examining whether the thesis is true. In such cases there is no respondent and no burden of proof. We can also use the critical questions that others provide or that we develop ourselves individually when examining the arguments, but just as heuristic indications of possible weak points that should perhaps be examined particularly critically.³² The reason for this independence of arguments from dialogue is that argumentation is about forming true or at least acceptable opinions (as Walton also acknowledges: Walton and Sartor 2013, p. 111) by checking conditions for the acceptability of the propositions in question. Such a process of cognition, however, is essentially an inner-psychic cognitive process in which in particular information is compared. What others comment on the fulfilment of the conditions of acceptability, in their responses to an argument, is primarily irrelevant for the actual fulfilment of these conditions and thus for the acceptability of the proposition. Macagno and Walton write that plausibilist arguments differ from deductive arguments in that they do not simply transfer truth, but an attitude (Macagno and Walton 2014, p. 185). But deductive arguments also try to do this, viz. transfer a belief! Only they do so in such a way that they rely on

³² Ian Dove once replied to this objection that even if an adequate partner for a dialogue is missing this does not make dialogicity of argumentation problematic: one can imagine an ideal or abstract partner; Plato is not present to answer our critical questions, but we can figure out nonetheless whether an advocate of Platonism would be able to answer our critical questions. And if I myself am the argument's addressee, I can function as an arguer as well as an addressee (Dove 2011, p. 3). But this does not refute my argument. Of course, I *can* imagine such dialogues, but I *need* not and usually do not do so in order to check the acceptability of the thesis on the basis of the criteria mentioned in the argument. Furthermore, if I imagine how Plato would respond to an objection of mine, the objection that he did not take into account certain relevant side effects in a proposal, which make this proposal suboptimal, and I come to the conclusion that he cannot parry my objection because at that time such kinds of side effects were completely unknown, then the correctness of my own evaluation does not depend on Plato's "failure," but on whether these side effects actually exist and whether they are correspondingly negative etc., which today I can perhaps recognize better than he could in his time. The inclusion of others in the whole process of cognition only helps to get additional information, to be pointed towards possibilities of cognition and, vice versa, to mistakes in one's own cognition (Lumer 1988, 448–450). This inclusion does not make the argumentatively guided recognition, hence a mental process, dialogical.

the *deductive epistemological principle* (see above: “A proposition is true if it is logically implied by true propositions”). The addressee accepts the deductive argument and its conclusion precisely when he has recognised on the basis of the argument that the conditions of this principle for the conclusion in question are fulfilled in the way stated in the argument (the premises are true, and these logically imply the thesis). I have pointed out that Walton does not provide a plausibilistic counterpart to this deductive principle, which formulates the condition for the acceptability of the thesis and is itself again epistemologically (in the broad sense) justified. Therefore, he cannot explain rational persuasion through plausibilist arguments. The vague indication that the addressee could ask the arguer critical questions, which the latter would then have to answer, is no substitute for such an epistemological principle. For these critical questions, as we have seen, only aim at the individual elements of the arguments and thus at the conditions of the acceptability of the thesis, among other things at the conclusiveness of the argument (CT question), which would have to be summarised in such an epistemological principle. Whether the addressee actually asks a critical question and, if so, whether the arguer then answers it adequately, is primarily irrelevant for the actual fulfilment of the conditions of acceptability. Because Walton does not formulate such epistemological principles and show how their conditions are worked through in the argument, he lacks an explanatory approach to how arguments can guarantee acceptability. The reference to the possible dialogue (and its outcome) is, to repeat, not such an explanation, because it again refers to the conditions of acceptability. Dialogicity, per se, introduced by the critical questions is thus not an effective means of achieving the validity of the argument and the acceptability of the thesis (violation of AC1). Dialogue can help to achieve the acceptability of the finally believed thesis even more surely; but this presupposes an orientation of the dialogue towards, among other things, plausibilistic principles of knowledge, which are missing in Walton.

A further reason why dialogicity, especially the satisfactory responses of the arguer to the addressee’s critical questions, cannot explain or define the validity of the argument and the acceptability of the thesis, is this. If I present a bad argument to a clever or to a

simple-minded addressee where the latter accepts nearly everything and the former nearly nothing of my argument this does not change anything with regard to the quality of my argument and my thesis, whereas a necessary dialogicity of argumentation would put an element of arbitrariness into the argument: the quality of the argument would depend on how the respective respondent reacts. This is a violation of the reliability requirement, which is a consequence of the effectiveness condition (AC1, see above Sect. 3).

Not even the critical questions make the quality of the argument dependent on dialogue. For the fact that an arguer can pose the critical questions herself and then reply to them shows that for the critical process intended by Walton and his co-authors no dialogue partner is needed, neither a real nor an internalized dialogue partner. If I direct one of Walton's critical questions to myself this need not even mean that I try to figure out how other people will or would react, it can simply be part of a self-assurance about whether the thesis in question is really true. After posing the question I may again scrutinize the premises, the inference relation or, in the case of uncertain arguments, more directedly look for conflicting information—undercutters. That it is another person who makes an objection is not essential for questioning the truth; it is the objection's content, such as a hint that there is an error in an inference or a premise, or that there is information incompatible with the thesis etc. This, of course, does not preclude that someone else can contribute additional knowledge and more criticism—which is an epistemic improvement (see Lumer 1988, pp. 448-450). But that is a step beyond the original argument; and it does not make the validity of that argument dependent on the outcome of a dialogue: If the dialogue partner finds errors in the argument, then these errors were there before; the argument was argumentatively invalid from the start and will remain invalid, even if the arguer has not noticed this. This argumentative validity again depends solely on whether the argument correctly and truthfully states the conditions for the acceptability of the thesis. If, instead, the dialogue partner introduces new information that undercuts the argument or positively improves the information situation in such a way that a stronger argument now becomes possible, then this also does not refute the initial argument, does *not* make it *invalid*;

but it is now *no longer adequate* because of the extended information. In Walton's approach instead, posing critical questions and shifting the burden of proof presupposes real argumentation partners; and if the critical question is not posed or the burden of proof not shifted back the argumentation is successful.

After these general arguments against the dialogical conception of the quality of (plausibilist) arguments and the role Walton assigns to the critical questions in these dialogues, let us examine more precisely, with the help of an already considered scheme, what their function is, in particular the extent to which they can play the role of explaining and guaranteeing the plausibility of the thesis in orderly composed presumptive arguments. In doing so, we should keep in mind the possibly non-dialogical role of critical questions. The scheme for Arguments from Position to Know with the critical questions was:

1. ARGUMENT FROM POSITION TO KNOW

Major premise: Source s is in position to know about things in a certain subject domain f containing proposition p .

Minor premise: s asserts that p is true (false).

Conclusion: p is true (false).

CRITICAL QUESTIONS

CQ1: Is s in position to know whether p is true (false)?

CQ2: Is s an honest (trustworthy, reliable) source?

CQ3: Did s assert that p is true (false)? (Walton et al. 2008: 309, Variables changed to my system, C.L.)

Questions CQ1 and CQ3 only ask for the truth of the premises (PT question), which could be done for every premise of every argument. Hence, these critical questions do not add anything new regarding presumptive arguments.

(As a matter of fact, however, Walton and his co-authors give a special twist to CQ1 and CQ3. Regarding CQ1, they ask: What kind of expertise does s exactly have to be in a position to know about p ? And with CQ3, they ask: What exactly did s say that implies p ? But even this more specific understanding of CQ1 and

CQ3 only points to critical aspects of the premises, where their examination, if there was any, might have been superficial and the result false. Such hints can be useful, but this does not change anything with respect to the question of the schemes validity: They invite more careful attention in checking the premises' truth but they do not contribute anything to answering the questions whether, why, "to what degree" the conclusion is true if the premises are true.)

The only new point is touched upon in question CQ2: Is the source honest (trustworthy, reliable)? This is an undercutter (UC) question. An obvious objection regarding CQ2, however, is the—open—question, why the answer to this question has not been inserted into the argument as a further premise in the first place. The authors ask this question themselves (Walton et al. 2008, pp. 18-21; 32 f.), but they do not give a real answer to it. The reason may again be to want to stick to the enthymematic forms of real arguments (which has already been criticised in Section 5). So, let us assume that the judgement "*s* is an honest (trustworthy, reliable) source" is added to the above cited scheme as a further premise. This still does not make the scheme deductively valid; it remains an uncertain scheme. Now, however, no critical question is left over; the critical question approach of presumptive arguments has vanished, leaving behind a presumptive argument scheme without any theoretical approach to explain its argumentative validity, acceptability or quality.

As just noted, the scheme obtained by putting the further premise contained hidden in the critical questions in the scheme itself—

- P1 Source *s* is in position to know about things in a certain subject domain *f* containing proposition *p*.
- P2 *s* is an honest (trustworthy, reliable) source.
- P3 *s* asserts that *p* is true.
- Conclusion:* *p* is true.

—is neither deductively nor analytically valid. Even if someone is in a position to know about *p* he need not know whether *p*, even if he asserts that *p*: he may not have examined at all whether *p*; the verification may have been false nonetheless; he may have forgot-

ten the correct result, etc. And even if the source knows the truth about p and is generally honest and trustworthy, he may have a particular reason in this situation to tell lies. The facts stressed in the premises only make it *probable* that the source knows whether p and that he is truthful, thereby making p probable as well. This result, however, suggests an adequate reconstruction of the example as a probabilistic argument, such as:

Basic Probability Establishing Argument from Position to Know:

- P1 Source s is in position to know about things in the subject domain f of p .
- P2 s is an honest (trustworthy, reliable) source.
- P3 s asserts that p is true.
- P4 If an honest person asserts a proposition x which is in his sphere of competence then x is true in the vast majority (about 95%) of cases.
- (P5 NBI: The addressee has no better relevant information about s and p than that expressed in P1-P4.)
- T p is highly probable (has a probability of 0.95).

Such a probabilistic reconstruction provides a clear structure for the argument in question and a strong epistemological underpinning, namely probability theory. Probability theory would constitute the basis of an enormous wealth of probabilistic argument schemes. However, Walton's, Reed's and Macagno's compendium does not contain any probabilistic arguments.

Instead, Walton explicitly rejects this possibility of a probabilistic reconstruction of uncertain arguments like the Argument from Position to Know. Salmon (1964) had already made a proposal for a probabilistic reconstruction of Arguments from Position to Know—with similar critical questions as to those in Walton's conceptualization.³³ Walton argues that Salmon's proposal leads to problems: If the argument attributes a (high, greater than 0.5)

³³ The main difference of Salmon's scheme as compared to the reconstruction just given is that Salmon locates the uncertainty in the *transition* from the premises to the conclusion and does not qualify the *conclusion* itself as uncertain (e.g. by inserting a degree of probability smaller than 1 into it).

probability of l (from “likelihood”) to the proposition p , then, according to the axioms of the probability calculus, the probability of not- p is $1-l$. If, however, now another person (also in a position to know about p) asserts that not- p , then we have to assign to not- p also the probability l —which however with l being above 0.5 and, hence, $l \neq 1-l$, is impossible according to probability calculus. Therefore, such arguments are not probabilistic (Walton says “inductive”) (Walton 1996, pp. 64-65). However, first, it is a general rule in probability theory, that often remains unstated but has even been made explicit by Salmon, that only the best information at hand should be used as premises for a probabilistic inference. This rule has been made explicit as premise P5 (the No Better Information (NBI) premise) in my own reconstruction of the Argument from Position to Know; and Salmon, when explaining his argument scheme, explicitly says—without inserting this as an explicit premise into the argument—that the complete data (with respect to the considered case) has to be used as the inferential basis. So, Walton's extension of the example would violate both variants of the proviso (premise P5 as well as Salmon's rule of the complete data): The newly acquired information about the second person in a position to know asserting the contrary of p would obviously be relevant information, thus making the old argument obsolete or outdated and necessitating a calculation on the basis of the thus enlarged data base. (Often, however, if there is no possibility to discard or relatively devalue one of two sources' statements, the new data base no longer permits a conclusion about the respective topic or leads to medium, not very helpful, probabilities.) Second, Walton's argument against the (simplistic) probabilistic conceptualization of Arguments from Position to Know, *mutatis mutandis*, instead holds for his own argument scheme of Arguments from Position to Know. And this scheme does not contain any way out like my premise P5. Hence Walton's argument refutes his own scheme *really*. (Walton could insert a respective critical question (whether there are other persons in a position to know, in particular with an opposite statement), as he and his co-authors do for the Argument from Expert Opinion but, astonishingly, not for the Argument from Position to Know (Walton et al. 2008, pp. 309 f.). However, this would not tell us what to

do in the critical case that we get information about such a second person.)

Walton and his co-authors have not developed the critical questions systematically, neither the types of critical questions nor the lists for the individual schemes. However, an attempt at systematisation is instructive. At the beginning of Subsection 2.3 I had distinguished the following types of critical questions from the compendium: (1) PT, premise truth, (2) PJ, premise justification, (3) MP, missing premise, (4) CT, conclusiveness truth, (5) UC, undercutter, (6) RB, rebuttal. Following the question possibilities spanned by these questions and their combinations, two meaningful types of critical questions are still missing:

7. *TT, thesis truth*: “Is the thesis q true?” Does the addressee believe beforehand, independently of the argumentation, that the thesis is false? He could believe not- q directly, or he could believe in a proposition r incompatible with q but different from not- q . If he comes to the conclusion that he believes in such propositions r incompatible with q , he can next ask the RB question about possible rebuttals (“Are there reasons why the thesis is wrong?”), which then takes on a somewhat more specific thrust: “Are the reasons for r stronger than those for q ?” Basically, the RB question is a sub-question of the TT question.

8. *CJ, conclusiveness justification*: “How is the alleged inferential relationship between premises and conclusion justified?” A layman cannot usually answer this question, even for deductive arguments. He will only be able to answer: “The thesis just follows from the premises.” The argumentation theorist (logician, decision theorist, probability theorist), however, can justify the question by referring to corresponding logical forms of inferences, possibly carrying out the proof for this form of inference. Walton, Reed and Macagno do not have any epistemologically viable conception of an answer to the CJ question for uncertain, plausibilist arguments, which they focus on in particular; hence there are no CJ questions in their approach. This is one of the most fundamental problems with their approach. The answer they actually give is, after all, only the completely unclear reference to the outcome of the dialogue, which, however, explains nothing. An epistemologically viable answer to the CJ question, on the other

hand, is, as already mentioned, the reference to corresponding epistemological principles, probabilistic or, in the case of practical arguments, decision and desirability theoretical ones, and, if necessary, their theoretical justification.

I have not added a question about the justification of the thesis (TJ question) here because the arguer has already answered the TJ question by presenting the argument (at least from his point of view). The RB question has just been assigned a special role in answering the TT question. The MP question and the UC question also have similar special roles. The MP question about possible missing premises is a sub-question to the CT question about the validity of the inference relationship: In a first round, it was found that the—at least implicitly asserted—inferential relation between the premises and the conclusion does not in fact exist; but perhaps it does exist if one adds to the explicit premises of the argument further premises that are acceptable to both the arguer and the addressee (and that can be constructed using the material in the explicit argument (more precisely: Lumer 2019, pp. 773-775)).

The UC question about possible undercutters that would lead to the inapplicability of the inferential relation used in the argument is really about the truth of the NBI premise in uncertain arguments: NBI: “The database d does not contain information that would allow a more strongly justified conclusion with respect to thesis q or equally strongly justified conclusions that are, however, incompatible with q .” Or the question is whether, if one adds new justified information to the database d (so that the database is now d^+), the NBI premise (more precisely, the NBI+ premise with d^+) is still true. The UC question would then be a question about the truth of a particular premise (PT), i.e. the NBI premise.

After these clarifications, the critical questions can be divided into two groups:

1. *Truth questions*, these are questions about whether the assertions made explicitly or implicitly in the argument are true: *directly*: premise truth (PT), truth, fulfilment of conclusiveness (CT), thesis truth (TT); *indirectly or more specifically*: undercutter (UC) as a question about the truth of the NBI premise, i.e., a special case of PT; missing premise (MP) as a sub-question to CT; rebuttal (RB) as a special case of TT.

2. *Justification questions*, these are questions about how the assertions made explicitly or implicitly in the argument are justified: justification of the premises (PJ), justification of the implicitly asserted inferential relation (CJ).

However, these groups of questions are addressed to different addressees. The addressee of the argument cannot direct the questions of truth at the arguer, for the latter has just asserted that the propositions in question are true. Rather, they are addressed to the *addressee himself*. In the course of checking the argument to find out whether it justifies the thesis, he has to check what the arguer has asserted. This is part of the recognition process guided by the argument. If the addressee has checked everything asserted in a complete argument, then he has at the same time checked all the conditions for the acceptability of the thesis; and if the result of this check was positive, then he has recognised the acceptability of the thesis. If, on the other hand, single results of this examination were negative in the sense that the addressee is of the justified opinion that they are false, then, if the possibility of argumentative dialogue is given, he will make a counter-assertion and justify it (in the case of violation of the NBI premise, in particular by bringing forward the undercutter) or, in adversarial language, *attack* the corresponding assertion of the arguer—“The thesis / this premise is false” or: “The inference is not valid”—but *not* pose a *question*. If the arguer cannot refute these counter-assertions and their justification, then her thesis / premise is considered unacceptable in the dialogue (or if the addressee has found an effective undercutter, the original argument may still be valid, but because of the now expanded data base it is no longer adapted to it, i.e., it is no longer adequate). Only if the addressee does not find an answer to the question whether the explicit or implicit assertion is true will he ask a question, namely the corresponding *justification question*. This justification question then does not show that the argument was invalid, according to the addressee, but that it was inadequate: the addressee cannot directly check the premise or inferential relationship with a positive result. On the basis of the question of justification, the arguer can then, at best, extend the argument in such a way that the new overall argument is adequate; and if she cannot do this, then the argument remains inadequate, which,

however, says nothing about its argumentative validity. This shows, however, that the formula of Walton and his co-authors for the success and failure of plausibilist arguments, viz., “If the respondent asks one of the critical questions matching the scheme and the proponent fails to offer an adequate answer, the argument defaults” (Walton et al. 2008, p. 9), cannot be true as it stands: The “respondent” addresses most of the critical questions to himself; and the absence of an answer to the justification questions only shows that the argument is inadequate vis-à-vis the addressee, not that it is argumentatively invalid. Only insufficiently parried and de facto true counter-assertions imply the invalidity of the argument. –All this is nothing new (cf. Lumer 1988, pp. 452-455; 457-461); it also applies to deductive arguments (except for the possibility of undercutters). Thus, the critical questions cannot solve the problem of argumentative validity, adequacy, or success of rational persuasion of plausibilist arguments. This is not the way to achieve the epistemic effectiveness of the argument scheme approach (see AC1). Instead, the solution to these problems lies in the special epistemological principles and forms of inference for these arguments.

7. The bottom-up approach—no theory and consequently problems with normativity

As outlined above (Section 2.4), Walton's methodological approach is empirical, inductive and bottom-up. A huge quantity of factually presented arguments is collected, groups of similar arguments are separated, of which a standard description is then given in the form of an argument scheme, which is supplemented with critical questions. Nevertheless, Walton makes a normative claim with these schemes; they are schemes of good arguments. Of course, one cannot arrive at normative statements on a purely empirical basis; this would be a violation of Hume's Law. What brings in normativity for Walton, and what he uses to distinguish good argument schemes from bad ones, is rather an evaluation of these schemes from “strong” to “fallacious” (Walton 2005, p. 8). This evaluation, however, remains apparently intuitive. Walton never tells us how the evaluation is done, what its criteria are; and

the approach does not provide such criteria, thereby leading, among others, to the (argumentative) invalidity problem. And the empirical origin of the schemes—their collection from certain data bases—explains the arbitrariness and incompleteness of the compendium (Dove 2011, p. 2).

One consequence of the bottom-up method is that the approach does not really contain a strong theory of argumentation. Such a strong theory would have to explain the arguments, their functioning and argumentative validity in a uniform way, in particular justify their normative function, bring them into a coherent connection and also, if possible, guarantee the completeness of the recognised types of arguments (cf. also above, fn. 17). The most obvious approach to such a normative theory is functionalist-instrumentalist: A valuable general function of arguments is posited; then argument types are developed that fulfil this function; for this development, existing (reasonably successful) arguments can provide valuable heuristic support. And finally, with the help of practical arguments, it would have to be shown that the types of arguments developed in this way are optimal, i.e., better than alternative variants and better than the types proposed in other theories (cf. Lumer 2020, pp. 8-12; 19-21). Walton, Reed and Macagno mention some functions of argumentation, namely, to alter the respondent's commitments from non-acceptance to acceptance of the conclusion (they call this "the probative function"), remove doubt, remove disagreement, settling an issue (Walton et al. 2008: 268 f.); and their approach is mainly consensualistic with rhetorical components. However, not all the functions mentioned are clear, but more than that, neither are the schemes developed on this basis (i.e., they are not designed purposefully to fulfil these functions), nor do the authors explain how the schemes could fulfil them. Hence, Walton, Reed and Macagno simply do not pursue a functional approach. And without a real and strong theory, neither the completeness (AC2) nor the simplicity (AC3) of a compendium of schemes can be achieved; furthermore, and most importantly, the argumentative validity or, more generally, the functional quality of the arguments can be neither achieved (AC1) nor justified (AC4) and new good arguments cannot be invented. As a consequence of the missing justification

of the argument schemes, the theory also cannot justify why a rational addressee should be convinced by an argument in accordance with Walton's schemes: believe in its conclusion and accept the thesis. In particular, Walton's approach does not try to guarantee the fulfilment of the epistemological function of arguments, i.e. to generate rationally justified belief (by leading an addressee in recognizing the fulfilment of sufficient conditions of the thesis' acceptability); this would have required a recourse to epistemology in the broad sense (including logic, probability theory and desirability theory), which is however missing in Walton's work.³⁴ Because the mode of operation of argumentation is to assert a specification of the conditions of general epistemological principles for the respective thesis as fulfilled, so that the addressee is prompted to verify compliance with these conditions (Lumer 2005a, pp. 221-224), valid arguments thus presuppose such epistemological principles to which they are oriented. Such epistemological principles, in turn, are directly truth definitions for certain types of propositions, or they are derived from truth definitions, or they are based on metatheories about truth and cognition. The epistemological principles of practical argumentation are the definitions of the various desirability concepts (e.g. "expected desirability"); the deductive epistemological principle is derived from the definitions of the logical operators and various other concepts (such as "logical implication"); the probabilistic epistemological principle is grounded in probability theory (more precisely it is instrumentally justified via the epistemic and practical value of the belief in probabilistic statements, whereby these instrumental justifications in turn refer back to the axioms of probability theory). It is through this recourse to the truth criteria that the epistemological principles can establish the acceptability of a thesis in the first place. This recourse to epistemological principles and their epistemological background is the core of the epistemological approach in argumentation theory, which also distinguishes it from half-hearted approaches with mere professions to

³⁴ Walton and Godden (2007) have defined a concept of knowledge adapted to the practice of uncertain arguments. Here, too, the reference to objective epistemological principles tied to truth is—quite deliberately (p. 12)—missing in the justification condition.

knowledge and truth. As I have argued, Walton's theory does not make recourse to epistemological principles.³⁵ Therefore, it cannot justify that its argument schemes fulfil the epistemic function of argumentation, nor do these schemes really fulfil the epistemic function. Also, the specific makeup of the single schemes is not justified in terms of such a functionality. As a consequence, even the precise details of the argument schemes are rather heterogeneous and seem to be quite arbitrary (e.g., whether the thesis includes a modifier like "plausible" and, if yes, exactly which one).

Walton has defended his approach against the charge of a lack of a real theory by pointing out that the schemes have been formalized for implementing them in a respective computer programme, Carneades, which has also been proved to be consistent (personal communication, 21.9.2012; cf. also Walton 2005, p. 9). And in a respective paper, he and Gordon try to show that ten characteristics of informal logic can be captured by a "formalization" inherent in the programme of the computer representation and application of argument schemes, viz., the linked-convergent distinction, serial arguments, relevance, acceptability of premises, sufficiency of premises, etc. (Walton and Gordon 2015). (1) Be that as it may, the fact that the application of argument schemes can be run on a computer and the fact that a computer programme has been designed for this purpose do not provide a theory which before was

³⁵ Godden and Walton (2007) have made a long, instructive attempt to justify the normativity of Walton's argument schemes. In their article, they also put forward the explanations already analysed here, without this leading to any new results. One of their statements about conclusiveness, however, in which they refer approvingly to Blair and Pinto, may explain why they do not look for epistemic principles but rely on the schemes: "A completely systematic justification of defeasible schematic arguments is ruled out by their non-monotonicity and the situational determination of their acceptability" (Godden and Walton 2007, p. 273). But this is a mistake: one can (and must), as just explained, justify argument schemes by recourse to uncertain forms of argument and epistemological principles. That their conclusion may be false, although all premises are true, is in the nature of things. Perhaps Godden and Walton do not distinguish here between the argumentative validity of a scheme and the adequacy of its use: If the premises are true, but one can otherwise prove that the conclusion is false, or if one has strong undercutters against the applicability of the argument, then the argument remains argumentatively valid, but its use is no longer adequate.

not present, it can only represent and implement as much theory as has been provided before. The argumentative validity of the schemes is *presupposed* and not proven during or as a consequence of the programming. Expressed differently, if the programme after having been fed with the required premises accepts or provides the respective conclusion of the pertinent argument scheme this does not come up to a new epistemic justification of the conclusion or of the scheme but represents or reproduces only so much epistemic justification as has already been provided as the basis of the schemes before they have been represented in the language of the computer programme. If an epistemically fallacious scheme were inserted into the programme itself the programme would not “oppose” it; the programme would allow all the usual applications, would ratify the false inference as it does with argumentatively valid schemes. (2) The formalization of schemes in terms of leaving variables for singular terms and the description of the schemes in the language of the lambda calculus is not yet a logical formalization, since the logical syntax is not formalized and still less proven as logically valid. Hence on this basis no logical proof is possible and undertaken; and the schemes are still material. (3) The representation of argument schemes on a computer does not provide the elements required for a real theory. In particular it does not provide the determination and practical justification of the function of argumentation and the proof or justification that the use of the proposed schemes leads to fulfilling this function or would guarantee some sort of acceptability of the theses, where this proof would also imply an explanation of the argumentation's way of functioning.

A few years after the publication of the compendium, Walton countered criticisms such as those just mentioned and made the claim that the argument schemes he had developed were instrumentally developed, namely functional for procuring true opinions, and that they were epistemologically justified (Walton and Sartor 2013). I think that this is not true, that this is rather an *ex post* rationalisation. Walton, in his instructive attempt at justification, has underestimated the requirements of such instrumental and epistemological development and justification. This will be shown in the following section.

8. Excursus: Walton's later attempt to provide an instrumental, epistemological justification of the schemes

In a more recent paper Walton tried to provide an epistemic justification of his defeasible argument schemes (Walton and Sartor 2013). Can it resolve the analyzed problems? The real justification of the schemes appears only in Section 8 of this paper (pp. 137–139). The strategy of this justification is, as the authors call it, “teleological” (pp. 111, 112) or “practical” (p. 124), one might also say: “instrumental” or “functional”: The justification must show that the schemes fulfil their usual purpose (‘argumentation schemes need to be justified by referring to the goals of the types of practical and truth-seeking activities where they are used’ (pp. 111–112)), that they are an adequate means to achieve the objective of the corresponding activity type (p. 141). And this goal is: to direct “a bounded cognizer to true belief and correct choices” (p. 111, similar: pp. 122, 140). This determination is close to what the epistemological approach says about the standard output and function of arguments, for example.: “to lead the argument’s addressee to (rationally) justified belief,”³⁶ though Walton never acknowledges this affinity. Previously Walton, without being very precise about this, had tended to consider winning a dialogue game as the goal of argumentation. As an advocate of the epistemological approach to argumentation, of course, I wholeheartedly welcome Walton’s epistemological turn. Sadly, Douglas Walton did not have the opportunity to show whether this change of mind would be permanent.

Before starting the discussion, some clarifications may be helpful. (1) From an epistemic point of view, what is important is not merely true belief, but *justified* true or acceptable belief: (i) In one sense, a justification is the *process* of acquiring the belief in an epistemologically qualified manner, namely by checking the fulfilment of acceptability conditions for the thesis; only justification in this sense leads onto a (halfway) certain path to true (or ac-

³⁶ Biro 1987, p. 69; Biro and Siegel 1992, pp. 92, 96; Siegel and Biro 1997, pp. 278, 286; Feldman <1993> 1999, pp. xiii, 12, 24; Goldman 2003, p. 58; Lumer 1990, pp. 43–47; Lumer 2005a, pp. 213–214; cf. also: Lumer 2005a, pp. 219–220; Lumer 2005b, p. 190.

ceptable) belief in the first place. (ii) In a second sense, a justification is a (psychic) *result*, viz. the memory of the most essential elements of the actual or the possible procedure of acquiring a belief. Justification in the first sense is necessary to come to true or acceptable beliefs; and in the second sense it is needed in the case of uncertainly justified beliefs if counter-evidence shows up, in order to be able to identify and then to revise the more weakly justified belief and all the beliefs dependent on it. (Lumer 2005a, 215; 1990, 30-41.) (iii) In a third meaning, a justification is the *presentation* of a justification in the second sense. (2) In Walton's and Sartor's justification (in the third sense of "justification": expounding a (possible) justification in the second sense) (Walton and Sartor 2013, 137-139) it remains an open question how the goal, i.e., (justified) true belief, is achieved. Later the authors only try to show that the theses of arguments which correspond to the schemes are presumably true. Although this—if it succeeds—is an important part of the required justification, it is not yet all that is needed; in particular an explanation of how the argument leads to true beliefs, a justification of the individual features of the scheme and, above all, the comparison with potentially better schemes would still be missing for a complete instrumental justification (cf. Lumer 2011c, pp. 24-25). (3) What a "correct choice" is—the second aim of the application of argument schemes—and how precisely it is related to truth, remains likewise unclarified. One possible solution would be that the correct choice is the choice of the best option, so that a good argument for a decision is an argument for the thesis that the action in question is the best option (Lumer 2014). But Walton and Sartor do not take this route and do not provide any clarification.

Before starting the proper justification of some argument schemes, Walton and Sartor try to solve a problem of circularity: teleological reasoning itself falls under and is regimented by the argument scheme Teleological Reasoning (Walton and Sartor 2013, p. 137); so if it is used in justifying argument schemes this could lead to a vicious circularity (p. 138). The authors' proclaimed strategy against this circularity is to ground the justification on basic inference schemes that are intuitively recognized by everybody and which perhaps are part of the basic equipment of

humans (p. 138). However, this strategy cannot work, for the universally given and accepted means of justification are too weak for this purpose: argumentation and thus argument schemes are not part of the basic human equipment. One can only, in a whole series of justification steps, one based on another and beginning with elementary cognition, justify more and more complex justification methods and thus escape the vertical Münchhausen trilemma (cf. Lumer 1990, pp. 437-447). This is the reason why the epistemological approach in argumentation theory relies on the results of more fundamental special epistemologies like deductive logic, probability theory and rational choice theory (cf. Lumer 2011c, pp. 11-26).

Walton and Sartor go on to announce their intention to use in their justification only (1) Pollock's five schemes of defeasible reasoning, (2) deductive inferences and (3) probabilistic inferences (Walton and Sartor 2013, p. 138). The use of probabilistic inferences would also be a turning point in Walton, that I can only welcome. However, *ad (1)*, most of Pollock's schemes (p. 113), and in particular the "planning scheme" actually used by Walton and Sartor, are, I think, unacceptable. And, *ad (2)*, many deductive and, *ad (3)*, all really probabilistic inferences are not basic. In fact, however, Walton and Sartor in carrying out their justification do not use probabilistic inferences, but instead some others they have not previously announced. They use, for example, (i) a kind of statistical transitivity ("Most *As* are *B*; most *Bs* are *C*; therefore, most *As* are *C*")—which, however, is not logically valid (it is even possible that no *A* is *C*: most of the *As* are in *B*, but these *As* in *B* are part of the minority in *B* which is not *C*; and still more is it possible that only a minority of the *As* is *C*)—and (ii) in particular a justification of evaluations by means of pointing to the good effects of the value object; what is recognizable in the text of this kind of argument is too primitive to be argumentatively valid. All this means that in Walton's and Sartor's justification, the foundation problem (that the premises, including the formal premises, must already be established) is not solved and that their line of justification can at best be valid if some of the used invalid inference schemes are replaced by similar but valid schemes, which lead to the same results.

Walton and Sartor's actual accomplishment of the justification of the schemes then consists only in *sketching* how *one* single, exemplary argument scheme could be justified: viz. the scheme Argument from Expert Opinion.

To justify the scheme of argument from expert opinion, we need to establish that the plan to use this scheme is indeed minimally good, i.e., that the expected utility of using it [...] is higher than the utility of not adopting it. In other terms, we need to establish that in general by reasoning in this way (by adopting the policy of listening to experts, and endorsing their conclusions, unless we have reasons against doing that) we better achieve our goals [...]. For [...] utility we need to establish that the use of the argument from expert opinion is truth-conducive and that truth is useful. The first aspect (truth conduciveness) can be established by pointing to the causal connection between expertise and having true beliefs, and to the fact that people usually say what they believe. The second aspect (utility of truth) can be established by considering (on the basis of induction and statistical syllogism) that choices based on true beliefs usually lead an agent capable of planning to useful outcomes. (Walton and Sartor 2013, p. 139)

A major problem of this sketch is that the actual argument is only adumbrated, so we can only guess what the complete argument would look like; and what the authors write is far from being sufficient to allow us to say with any certainty what their full argument would be. This complete argument could remain relatively primitive and hardly go beyond what is already written in the quote; but it could also be technically very sophisticated with probabilistic specifications, justifications of the principle of expected utility maximization, etc., that is, with a number of argument types that do not occur in the compendium of Walton, Reed and Macagno. I suspect, therefore, that the authors would rather go in the first direction. But that would be completely insufficient for a valid justification. Until Walton and Sartor actually will have executed their justification, one can say only that the complete argument of the authors would also contain the submitted pieces as essential elements. These would in fact also be essential parts in a valid justification of their scheme Argument from Expert Opinion. So far Walton and Sartor's sketch goes in the right direction. But, as I said, if the authors have to limit themselves to the compendium (in Walton et al., 2008), in fact, however, many differentiated

argument schemes required for a valid justification of the scheme Argument from Expert Opinion would not be available—for example: practical arguments for expected utility judgements (see e.g. Lumer 2014), practical arguments for theoretical theses (see e.g. Lumer 1997) (for resolving the induction problem and for being able to show the prognostic utility of statistically substantiated predictions) or arguments for statistical conclusions. And this again shows clearly the weakness of the compendium that many important argument schemes are not included in it. Even to try to justify it one must rely on resources from competing argument theories.

Furthermore, Walton and Sartor's argument is only sketchy also in another respect, viz., that even the thesis remains rather unclear. It sketches only how something *similar to* an Argument from Expert Opinion can be justified; all the details of the argument scheme, in particular the features characteristic of Walton's approach such as the critical questions, the enthymematic form, plausibilism instead of probabilism, etc., are not even mentioned. Therefore, Walton's specific scheme Argument from Expert Opinion cannot be justified in this way. Given that it has not been developed on the basis of such epistemological considerations in the first place, but was a result of the bottom-up method, it would be astonishing if precisely this scheme also resulted from the epistemological method. And in any case the argument outlined by Walton and Sartor would be structurally too weak: Not only are other relevant possible consequences of arguing from expert opinion (other than having a true belief and using it in a decision) ignored; but also above all the adumbrated argument only tries to show that Walton's Arguments from Expert Opinion are better than nothing, not what would actually be needed, namely that they are better than competing schemes from other argumentation theoretical approaches. The next section (Sect. 9) instead tries to show that decision-theoretical versions of a practical argument designed on the basis of the epistemological approach are significantly better than Walton's corresponding scheme.

Therefore, the conclusion is that Walton and Sartor's attempt to provide an instrumental justification of argument schemes is indeed a major step forward towards an argumentatively valid justi-

fication of such schemes. However, for a really valid justification the tool used, namely Walton's Practical Argument Scheme, would have to be considerably expanded and refined. Finally, in any case, the justification of argument schemes presented and partially quoted above is developed only *ex post*. That is, so far it has not had any influence on the design of Walton's argument schemes, for as we have seen these were justified bottom-up and intuitionistically, which means that they lack a real practical, instrumentalist justification. We cannot know whether Walton would have stuck to the line of a practical justification. The paper by Macagno et al. (2017, in particular page 5), according to which the schemes are again purely inductively justified, tends to suggest the contrary.

9. Case study: The scheme “practical inference”—a critical assessment

As explained above (Sect. 7), argument types should be justified comparatively in a complex practical argument which shows that they are the best among the relevant options. Are Walton's argument schemes good or even the best as compared to their alternatives? The present section examines a major example of Walton's schemes with respect to this question, thereby paying particular attention to its epistemic value, which Walton also considers by now to be of paramount importance: Practical Inference. Lumer 2016 (Sect. 4, pp. 15-18) contains a case study of another very important of Walton's schemes, the Argument from Expert Opinion scheme, which is also analysed and criticised there from an epistemological perspective.³⁷ These examples represent quite

³⁷ Some results of this case study were: (1) Walton, Reed and Macagno work with several smaller variants of the Argument from Expert Opinion scheme and additionally discuss some larger variations, some of which also contain the main premise that builds the bridge from the singular premises to the singular conclusion. However, they decide arbitrarily, i.e. insufficiently justified, in favour of a strongly enthymematic version, i.e. one also without this main premise. (2) The thesis of their scheme Argument from Expert Opinion contains, depending on the variant, no qualification at all or an unclear one, e.g., “Plausibly *p*”, but in any case none that could express anything like different degrees of certainty about the thesis. These degrees of certainty should actually be provided by the

different fields in argumentation, and Walton has dealt with them extensively.

Practical arguments are (i) arguments whose thesis in some way implies, often only via a Gricean implicature, an invitation to perform a certain action (this type of practical argument is a *concluding practical argument*), or (ii) arguments whose thesis is a value judgement—in particular about an action—which then can be used as an independent part within a practical argument of the first type (*preparatory practical argument*). Practical arguments do not represent truth-functional relations between premises and a conclusion (like deductive arguments) nor are they (primarily) based on frequentist and probabilistic calculations (like probabilistic arguments). They are based instead on a “logic” of their own, hence making up a third big group of argument types. Since I can here only discuss one of Walton’s argument schemes somewhat more extensively and nonetheless want to cover a bit the wide variety of argument schemes, I have chosen Walton’s scheme Practical Inference as an object of more detailed analysis. A more specific reason for examining precisely a scheme of practical argumentation is that practical arguments (if only for historical reasons such as the demarcation of argumentation theory from logic) are generally quite neglected in argumentation theory—so here Walton’s exceptional status can and must be honoured by the present discussion—and that there is virtually complete silence about their theoretical basis.

The compendium contains several (altogether 21) practical argument schemes. The most important is scheme 22.1, Practical

main premise. (3) The scheme is conceived without any theoretical basis, so that the question of justifying why one should also believe in the thesis after having endorsed the premises is left open. Such a theoretical justification, in contrast, is provided by probability theory, so that a probabilistic reconstruction of the scheme Argument from Expert Opinion suggests itself with a probabilised or frequentist main premise, which then also leads to a probabilised thesis, whose probability in turn expresses something like the degree of certainty sought. (4) Walton, Reed and Macagno’s scheme Argument from Expert Opinion does not meet the adequacy conditions approximate maximum epistemic effectiveness (AC1) and practical justification of the argumentation criteria (AC2). It is easy to use, but still not efficient (AC3) because it does not have the desired epistemic effect in the first place.

Inference, which is the first sub-version of the group of schemes 22, Practical Reasoning (which includes six sub-schemes: 22.1-22.6) (Walton et al. 2008, pp. 323-325). Further practical schemes are: 23-25, 26.2, 33-39 (pp. 325-335).

22.1. Practical Inference

Major Premise: I have a goal *g*.

Minor Premise: Carrying out this action *a* is a means to realize *g*.

Conclusion: Therefore, I ought (practically speaking) to carry out this action *a*.

Critical Questions

CQ1: What other goals that I have that might conflict with *g* should be considered?

CQ2: What alternative actions to my bringing about *a* that would also bring about *g* should be considered?

CQ3: Among bringing about *a* and these alternative actions, which is arguably the most efficient?

CQ4: What grounds are there for arguing that it is practically possible for me to bring about *a*?

CQ5: What consequences of my bringing about *a* should also be taken into account?

(Walton et al. 2008, p. 323; variables adjusted to my system, C.L. With insignificant modifications the scheme is also quoted in: Walton and Sartor 2013, pp. 121-122.)

The scheme itself, in the philosophical tradition also called “practical syllogism,” ultimately is taken from Aristotle (cf., e.g. Aristotele, *NE* 1147a29-31; explanation: 1112b; *De motu animalium* 701a10-12, 19 f.). Some well-known problems of Aristotle’s practical syllogism are: (i) The goal itself is not justified; (ii) there may be conflicting goals, (iii) better alternatives for realizing the goal, (iv) or relevant negative consequences of carrying out the proposed action; (v) the “inference” is neither logically nor analytically valid, so what is its justification? Walton has tried to resolve some of these problems by adding the critical questions to the

scheme itself. In line with what has been said above, the answers to most of these questions should be inserted into the argument scheme as further premises. This holds for: CQ1 (conflicting goals), CQ2 (alternatives for reaching g), CQ3 (most efficient action), CQ5 (further relevant consequences). (CQ4 (reasons for the feasibility assumption) instead is only a request to justify a somewhat implicit part of the Minor Premise; hence the answer to this question is not part of the core argument, but is a sub-argument of its own, which should not appear in the Practical Inference Scheme.) For the argument in favour of action a to be adequate, the answer to the questions CQ2 and CQ3, put together, should be: “ a is the best (not only the most efficient) option for realizing g .”, for otherwise one would have to argue in favour of, say, alternative b , which is the best.

The problems begin with CQ1 and CQ5. If the answer to both questions is unproblematic, i.e., there are no conflicting goals and no further relevant consequences, then the scheme does not create any particular problems; if, however, there are conflicting goals or further relevant consequences, which is mostly the case, the scheme does not tell us how to deal with them. Competing goals or further relevant consequences do not necessarily mean that the action a rationally must be discarded. It may mean that, but it does not have to. Whether the action is rationally recommendable depends on the importance or desirability of the various goals and of the further consequences. More generally, the scheme in no way considers importance, values, desirabilities, i.e., (vague) quantitative considerations about the values of actions and their implications. Therefore, it is not able to handle them, to weigh them up against each other in cases of conflict and to give recommendations in these cases whether to execute a or not. And there is no other scheme in the compendium that would resolve this problem. Next, that a is the “most efficient means” to realize g , probably is intended to mean that a generates the lowest costs (of whatever kind: money, labour, material resources) among the effective means. To generate costs, however, is already a *consequence*, so that the efficiency question (CQ3) is already included in the question regarding the relevant consequences (CQ5). This, though, is a rather small and technical problem of the scheme. More important

is that the scheme does not consider that the high efficiency of a means *a* can be outweighed by the additional positive consequences of an alternative but less efficient means *b*. And more generally, the relevant consequences of the *alternative* options are not considered at all in the scheme. The same holds for possible but *uncertain* (in particular, probabilistic) consequences and realizations of the goal. The scheme does not speak of desirabilities either and cannot justify value judgements in terms of desirabilities (or utilities). Nor can it justify the adoption of goals. It is true that the scheme itself does not have to be able to provide these justifications; after all, it cannot justify every kind of these. However, the compendium does not contain any other argument scheme which could provide such justifications. And it does not contain any argumentatively valid scheme by which unrestricted value judgements (“*p* is good” or “*p* has a desirability of *x*”) or value judgements about functional objects (e.g., “*k* is a good bread knife”) are justified. Much of what I have just criticized in the Practical Inference Scheme, can be summarized by saying that this scheme provides no means to weigh up various aspects of various options. And one reason for this is that the scheme is mainly qualitative and extremely one-sided (in that it considers only one aspect, i.e., that one goal could be reached, leaving out other aspects: further consequences and alternatives) and does not try to quantify those aspects, which would permit one to weigh them up against each other.³⁸

³⁸ Later, Macagno and Walton (2018) tried to solve some of the just listed limitations of their practical argument schemes and especially of the scheme Practical Inference by a hierarchical combination of several of the practical schemes (*first level*: Argument from Practical Reasoning, Argument from Consequences, and Argument from Rules; *second level*: Argument from Values and from Consequences to Evaluation; *third level*: Argument from Classification (pp. 538–542)). But apart from the fact that this combination makes the overall argumentation rather unwieldy, it does not solve the problems of trade-offs mentioned last, because it continues to dispense with quantification. In more detail: (1) alternative, possibly better actions are not considered; (2) only positive consequences of the action are taken into account; thus the problem of weighing consequences is circumvented; (3) probabilities are not taken into account anyway; (4) the moral problem of weighing the interests of different persons is not even considered.

As I said above, the compendium contains many practical argument schemes. But none of them resolves the problems just raised; and *none* is valid—in the sense of giving a good rational advice on the basis of considering what is relevant for such a decision. They all leave out much important information that should influence the rational choice. Most of these schemes deepen some *aspect* of practical deliberation and decision—such as that someone has several sufficient means at her disposal, or that the goal is also supported by one’s values, or that an action would contribute to realising a goal—but they are much too special to cover everything that should be considered in a rational decision. It is surprising, however, that Walton, Reed and Macagno did not try to lump these schemes together into one big scheme that would consider at least all relevant aspects of a decision that the authors know of. An explanation of this omission may again be that the authors stick too much to what they find empirically and do not tackle practical arguments from a theoretical point of view. According to the above criticisms (in particular: no probabilities, no desirabilities, no justification of goals), the just suggested more comprehensive scheme assembled from the parts of the presented schemes would still be insufficient but it would constitute enormous progress. That the compendium does not contain a more comprehensive scheme of this kind is also astonishing for another reason: Walton in his book *Practical Reasoning* (1990) had already provided a more comprehensive systematisation of practical reasoning. This book does not contain an argument scheme of Practical Reasoning, instead its core is a normative flow-chart about how to rationally deliberate and how to take into account which information on the way to a decision (p. 112). This flow-chart could, however, be translated into an argument scheme by putting together all the information collected on the way to the final verdict about the action and by taking this information as the scheme’s premises. The final verdict of the flow-chart is: ‘Carry out this action!’ hence an imperative, not a thesis. But the information collected on the way to this verdict can be summarized as leading to the thesis: “ a_1 is the best among the options known by subject s , by which s ’s most preferred goal g will be realized (and which does not conflict with any other intention).” The resulting

scheme would be an improvement with respect to the schemes of the compendium. However, it would still be quite incomplete and far from being a good practical argument scheme. It would again not contain desirabilities and probabilities. And many important questions for which the scheme should provide a *justified* answer, in the flow-chart are “resolved” merely by a *fiat*, e.g.: “Select the best action in the knowledge base” or: “Select one intention as priority candidate” (p. 112.), without providing any hint how these selections should be carried out rationally and on what informational basis.³⁹

A further fundamental problem of Walton and his co-authors' way of dealing with practical argument schemes is that they do not provide any theoretical justification of them. Why is it that after having collected certain information about an action, which is listed in the argument's premises, we should perform the action? After all, this step is neither truth-functional, nor an analytic inference, nor probabilistic. Why then should it be considered to be justified? Why is all the information considered relevant, why is no further information relevant? And why should the subject of the action *a*, after having accepted all the premises, obey the impera-

³⁹ In 2015, Walton published another book on practical arguments (*Goal-Based Reasoning for Argumentation*, Walton 2015) (an intermediate trial in the same vein was: Walton 2007 (in particular p. 215)). Its most important innovations are in the consideration of group decisions and the implementation in computer programs. In the respect relevant here, however, this book has not changed much: The result of the most complex treatment of practical arguments (p. 27) is again simply a flow chart with few improvements and some deterioration compared to the 1990 flow chart; the dismissal of alternative courses of action is now based on the qualitative criterion that they have ‘intolerable’ consequences, while the problem of quantitatively weighing up desirabilities and probabilities is not even seen. With regard to the theoretical background of this model, the following passage is revealing: “There are two different philosophical theories about how practical reasoning should be modeled,” viz. Walton's own “commitment-based argumentation approach” (Walton and Krabbe 1995) and Bratman's belief-desire-intention theory (Bratman 1987) (Walton 2015, p. 9). This short list does not even contain the most important philosophical *traditions* (not to mention particular theories) of practical reasoning, such as the decision theoretical (e.g., Bicchieri 1998; Gärdenfors and Sahlin 1988) and the full-information approach (e.g., Brandt 1979, part I (= pp. 1–162)). This may, by the way, explain why Walton's own model appears to be compiled ad hoc and literally says nothing about the philosophically relevant questions.

tive and execute the action?

In terms of the adequacy conditions, this critique can be systematised as follows:

AC1, effectiveness: Because there is no theoretical basis for the schemes with which the rationality of the final recommendation for action could be justified and the addressees motivated to heed it, there is no reason for them to follow the recommendation. The theoretical basis would also have to clarify why which information and considerations are relevant in a deliberation and therefore have to be taken into account in the practical argument, how the transition from the information to the recommendation for action works, etc. Many of the relevant components are simply missing from Walton's practical argument schemes, which is why the deliberations and recommendations for action resulting from them are irrational. The goals of practical argumentation are thus completely missed.

AC2, completeness: None of the considered schemes of practical arguments is complete in itself, nor does Walton provide argument schemes for all practically relevant reflections. For instance, arguments on the justification of intrinsic value judgments, on the way of considering probable consequences, and on the balancing of interests of different persons are missing.

AC3, efficiency: The Practical Inference scheme itself is simple, but utterly unsound. And the molecular arguments and flow-charts are very confusing.

AC4, justification: A theoretical justification is completely missing.

One may doubt that at the present state of the art such a foundation of practical arguments can be provided and that such a foundation would be sufficiently strong to construct good practical argument schemes. But such foundations have been developed, firstly, in economically oriented rational decision and game theory and, secondly, in philosophical theories of practical rationality, where the latter in turn integrate results of rational decision theory and reinforce them with additional philosophically justified rationality requirements. The intersubjective, social weighing of the interests of different individuals, instead, is a central theme of philosophical ethics. If one wants the strongest possible theoretical

basis for practical arguments, then one should stick to philosophically reinforced and refined rational decision theories, which in turn are based on psychological decision theory (cf. e.g., Brandt 1979, part 1; Lumer 2009, pp. 128–548).⁴⁰ Psychological decision theory reveals that people choose what they think is the best action—which includes the possibility that they believe that the action considered optimal according to the current state of knowledge, is probably not really the best action, but only a relatively very good action, but that it is worse (more costly) to continue searching for the really best action (e.g. Payne et al. 1993; philosophical discussion: Lumer 2005c). In this vein in the epistemological theory of argumentation practical argument schemes have been developed in which the conclusive thesis is an optimality judgement about the action to be performed (Feldman <1993> 1999, pp. 351–354, 420; Lumer 1990, pp. 319–433; Lumer 2014). In my own approach, the schemes try to include all the information necessary for a rational decision, which is then summarized in the thesis, which is a personal optimality judgement about a particular action from a set of available options (“Among the available set of actions, a_1 is the best for subject s ”), explicitly or implicitly recommended for execution.⁴¹ In this theory, which

⁴⁰ The most commonly used rational decision theory refined by economists, such as that developed by von Neumann and Morgenstern, is too weak for present purposes. While it is precise, it is (i) only axiomatically founded, where these axioms are mostly of a technical nature and often hide their critical content rather than being philosophically substantial. (ii) It also aims only at coherence, without providing broader criteria for criticising existing preferences (critique and alternative approach: Lumer 1998).

⁴¹ Many theorists see a contrast between theoretical arguments, in which, for example, empirical questions of fact are at stake, and practical arguments; they hold that the former aim at truth, the latter at a practical ought; they thus see an is–ought divide here. Walton and his co–authors also write that practical arguments aim at a practical ought (Walton et al. 2008, p. 95)—though without saying that theses about this practical ought are not truth–apt. However, as the identification of the optimality judgement as the thesis of concluding practical arguments shows, there need not be a divide here. Optimality judgements can perfectly be truth–apt, if only the concept of desirability they contain (after all “optimality” means “maximum desirability”) is defined clearly enough. However, optimality assertions are pragmatically, per implicature, often additionally inviting or prompting illocutions. If the conclusion of a practical argument were

types of information are included in the definition of such optimality judgements, and how, depends on the way in which which types of information can *empirically* influence decisions (Lumer 2009, pp. 133–218). The trade-off and quantification problem is solved by considering quantitative desirabilities, which themselves are based on a theory of intrinsic desirability, and probabilities in the style of rational decision theory (Lumer 1990, pp. 319–366; 2014). The basis is a philosophically justified theory of prudential desirability (Lumer 2009, pp. 260–548).

According to these considerations, Preparatory Practical Arguments can be schematised (approximately) as follows:

Preparatory Practical Argument:

P1.1-P1.n: (On the data base d) the probability that the consequence c_i accompanies (in particular: is caused or symbolically or legally implied by) the event e is p_i .

The argument contains any number of premises of this form, but at least one premise of this form ($n \geq 1$). e can in particular be an action of the evaluation subject s .

P2.1-P2.n: (On the data base d) the (exact) prospect or to-tadesirability of the consequence c_i for the subject s is u_i . For each premise P1.i, the argument contains a matching premise P2.i.

not truth–apt, then one could not argue in favour of it in epistemic terms either. For epistemically oriented arguments aim at the addressee’s rationally justified belief in the thesis, i.e., believing it to be true. (Lumer 1990, pp. 141–158; Lumer 2005a, pp. 213–215; Lumer 2005b, p. 190.) The difference between practical and theoretical theses therefore does not lie in their truth–aptness; rather, it lies in the fact that concluding practical theses must be defined in such a way that they *motivate* rational persons at least to some extent to act in the way distinguished by the thesis. This is achieved by decision–theoretically defined optimality judgements about action options in such a way that the concept of desirability used in them (“optimality” means maximum desirability) is defined by reference to the basic preferences of the action subject—corresponding roughly to the following idea: p is desirable to the extent d for s iff the application of the desirability criteria contained in the basic preferences of s to p yields a value that becomes d by means of a suitable positive–linear transformation. (Lumer 2009, pp. 260–427; 1998; 2005c; 2007; 2014.)

- P3: (On the data base d) the consequences c_1, \dots, c_n are all the relevant consequences of e .
- P4: The intrinsic desirability of e for s is u_e .
- P5: The sum of (e 's intrinsic desirability) u_e and of all the products of the relevant consequences' c_i desirabilities u_i and their respective probabilities p_i is equal to u ($u_e + \sum_i u_i \cdot p_i = u$).
- T: (On the data base d) the (rounded prospect) desirability of event e for subject s is u . (Cf., Lumer 2014, pp. 11–14, in particular p. 12.)

Concluding Practical Arguments, on the other hand, can be schematised (approximately) as follows.

Concluding Practical Argument:

- P1.1-P1.m: The action a_i , that the subject s does A_i , (on the data base d) has the (rounded prospect) desirability u_i .
The argument contains at least two premises of this kind ($m \geq 2$); one of the actions evaluated in these premises can also be the null action that s does nothing.
- P2: a_1 to a_m are all relevant (i.e., on the data base d , for s optimal or near-optimal) of s 's feasible courses of action.
- P3: u_1 is greater than (or at least equal to) u_2 to u_m ($u_1 \geq u_2, \dots, u_m$).
- T: (On the data basis d) a_1 is the best for s (i.e., with the highest (rounded prospect) desirability) among the available actions. (Cf. Lumer 1990, pp. 404-406.)

The premises P1.i can, of course, be justified with the help of the Preparatory Practical Arguments—that is what these arguments are for—thus giving rise to molecular arguments. These two schemes are schemes for *ideal* practical arguments. In everyday life, instead, for example, the quantities are replaced by qualified indications of magnitude (“very good / probable,” “quite bad / probable,” ...); many premises are omitted, and the actually expressed premises and theses are simplified. An example of such a simplified argument is this: “(At a party:) It’s best we go home now (= a_1). Because we’re both tired and we have to get up early

tomorrow morning. And not much is going to happen here.” (a_2 is to still stay at the party. The relevant consequences and their evaluations are all only hinted at. “We’re both tired,” for example, is supposed to mean: “If we stay longer at the party, we will also experience (increasing) unpleasant tiredness for longer ($=c_{2.1}$). And that’s bad ($=u_{2.1}$).”) For such a simplified argument to be valid, however, the associated ideal version must be valid; its premises must hence be true.

These two practical argument types fulfil the adequacy conditions of Section 3: Because of the orientation towards precise desirability criteria from rational decision theory (which the learned reader will also recognise as the guideline for constructing the argument scheme) and the guidance of the addressee in checking that these criteria are fulfilled, they are *epistemically effective* and certainly more effective than argumentations that do not rely on such criteria (AC1). They are *complete* in the sense that they cover the whole spectrum of the kinds of possible practical questions that individuals ask when making decisions, at least at the top level (AC2), thereby making further practical argument types (at the main level) unnecessary. Combining the answers to all the main-level questions of deliberations into two argument types that contain no concepts other than the concepts of optimality judgments, minimises the number of argument types and makes them concise and in this way the range of argument types *efficient* (AC3) (compare this with Walton’s unfinished large set of practical argument schemes). The principles on which these arguments are based, namely the definition of “expected desirability” and the criterion of the optimal course of action, and which in a sense represent the inference forms of these argument types, are *practically justified* by philosophical rational decision theory (AC4). Because this decision theory in turn relies, among other things, on decision psychology to ensure that subjects of action who believe that the rationality criteria of the theory are fulfilled for a certain action are also motivated to carry it out, these arguments are also motivationally effective, i.e., *practically effective*, because of this meta-theoretical justification.

The argument schemes just presented show that on the basis of the appropriate theoretical foundation, namely a philosophically

reinforced rational decision theory, one can certainly develop argument schemes that fulfil the adequacy conditions introduced above and are thus better in epistemic and in practically rational terms than the practical argument schemes of Walton and his co-authors. Walton in any case overlooks the theoretical foundations of practical argumentation, and in particular he overlooks the fact that there are other theoretical foundations of arguments than logic and theories of inductive reasoning; in this respect, however, he is in line with the general trend of current argumentation theory.

10. Conclusion

Walton, as we have seen, developed a new and important approach to resolving in particular the problem of the foundations, validity and exact setting of uncertain arguments. The particular path he followed is an argument schemes approach, which combines enthymematic argument schemes with critical questions. Methodologically the approach is based on an extensive analysis of a huge data collection of empirically found arguments, classification of these arguments and their intuitive assessment. The wealth and richness of the material provided and of the observations about it are really impressive.

On the other hand, however, the analysis undertaken in this paper has revealed a series of defects of this approach. The main methodological problem is the bottom-up method used, which leads neither lead to a real theory nor to an epistemological or practical justification of the schemes (against AC4, justification). With respect to contents, the main problem (at least until and during the time of establishing the compendium) is that no function of arguments is determined, which prevents an instrumental construction of criteria for valid arguments which would fulfil this function. If one accepts an epistemological determination of the function of arguments, as more recently Walton also did, most of the argument schemes in the compendium are not argumentatively valid, i.e., do not guarantee the acceptability of the thesis because they are not based on epistemological principles (against AC1, effectiveness). And the schemes' abundance notwithstanding, the compendium is quite incomplete in not including many important

argument types—which is due to the concretist approach of working with argument schemes instead of argument forms and validity conditions for argument classes (against AC2, completeness, and AC3, efficiency).

In the course of the paper I hope to have shown on several occasions that one can do better in these respects by basing the construction of criteria for valid arguments on epistemological theories and principles like deductive logic, probability theory and rational decision theory. Because of this I have welcomed Walton's recent openness to epistemological considerations. Sadly, Doug Walton was not able to develop this approach further and we cannot see how he might have further reshaped and reformed the argument schemes with his tireless zeal for work and improvement.

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References

- Battersby, Mark E. 1989. Critical thinking as applied epistemology. Relocating critical thinking in the philosophical landscape. *Informal Logic* 11: 91-100.
- Bicchieri, Cristina. 1998. Decision and game theory. In *Routledge encyclopedia of philosophy*, ed. Edward Craig, Vol. 2: 823-835. London; New York: Routledge.
- Biro, John I. 1987. A sketch of an epistemic theory of fallacies. In *Argumentation, analysis and practices. Proceedings of the 1986 Amsterdam Conference on Argumentation*, eds. Frans H. van Eemeren [et al.], 65-73. Dordrecht: Foris.

- Biro, John I. and Harvey Siegel. 1992. Normativity, argumentation, and an epistemic theory of fallacies. In *Argumentation Illuminated*, eds. Frans H. van Eemeren et al., 85-103. Amsterdam: SicSat.
- Biro, John I. and Harvey Siegel. 2006. In defense of the objective epistemic approach to argumentation. *Informal Logic* 26(1): 91-101.
- Blair, J. Anthony. 2001. Walton's argumentation schemes for presumptive reasoning. A critique and development. *Argumentation* 15(4): 365-379.
- Blair, J. Anthony. 2007. Relevance, acceptability, and sufficiency today. *Anthropology & Philosophy* 8(1-2): 33-47. Reprinted in: Idem. *Groundwork in the theory of argumentation*. Dordrecht: Springer 2012: 87-100.
- Brandt, Richard B. 1979. *A theory of the good and the right*. Oxford: Clarendon.
- Cooley, J. C. 1959. On Mr. Toulmin's revolution in logic. *The Journal of Philosophy* 56: 297-319.
- Dove, Ian J. 2011. Commentary on "Argument schemes. An epistemological approach" by Christoph Lumer. In *Argumentation: cognition and community. Proceedings of the 9th International Conference of the Ontario Society for the Study of Argumentation (OSSA), May 18-21, 2011*, ed. Frank Zenker, 1-5. Windsor, ON: University of Windsor, Scholarship at UWindsor.
URL:<<https://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1016&context=ossaarchive>>.
- Eemeren, Frans H. van and Rob Grootendorst. 2004. *A systematic theory of argumentation. The pragma-dialectical approach*. Cambridge: Cambridge University Press.
- Feldman, Richard. <1993> 1999. *Reason and Argument*. 2nd Edition. Upper Saddle River, NJ: Prentice-Hall.
- Feldman, Richard. 1994. Good arguments. In *Socializing epistemology. The social dimensions of knowledge*, ed. Frederick F. Schmitt, 159-188. Lanham, MD: Rowman and Littlefield.
- Gärdenfors, Peter and Sahlin Nils-Eric (eds.). 1988. *Decision, probability, and utility. Selected readings*. Cambridge: Cambridge University Press.
- Garssen, Bart J. 1997. *Argumentatieschema's in pragma-dialectisch perspectief. Een theoretisch en empirisch onderzoek. Ph.D.thesis University of Amsterdam 1997-12-16*. Dordrecht: ICG printing.
- Garssen, Bart J. 2001. Argument schemes. In *Crucial concepts in argumentation theory*, ed. Frans H. van Eemeren, 81-99. Amsterdam: Amsterdam University Press.

- Garssen, Bart J. 2002. Understanding argument schemes. In *Advances in pragma-dialectics*, ed. Frans H. van Eemeren, 93-104. Amsterdam; Newport News, Virginia: Sic Sat / Vale Press.
- Godden, David and Douglas Walton. 2007. Advances in the theory of argumentation schemes and critical questions. *Informal Logic* 27(3): 267-292.
- Goldman, Alvin I. 1997. Argumentation and interpersonal justification. *Argumentation* 11: 155-164.
- Goldman, Alvin I. 1999. *Knowledge in a social world*. Oxford: Clarendon.
- Goldman, Alvin I. 2003. An epistemological approach to argumentation. *Informal Logic* 23(1): 51-63.
- Govier, Trudy. 2000. *A practical study of argument*. Belmont, California: Wadsworth
- Govier, Trudy. 1987. *Problems in argument analysis and evaluation*. Dordrecht; Providence: Foris.
- Govier, Trudy. 1992. What is a good argument. *Metaphilosophy* 23: 393-409.
- Govier, Trudy. 1999. *The philosophy of argument*, John Hoaglund (Ed.). Newport News, VA: Vale Press.
- Grennan, Wayne. 1997. *Informal logic. Issues and techniques*. Montreal; Buffalo: McGill-Queen's University Press.
- Habermas, Jürgen. 1981. *The theory of communicative action. Vol. 1: Reason and the rationalization of society*, translation by T. McCarthy. Boston: Beacon Press 1984.
- Hacking, Ian. 2001. *An introduction to probability and inductive logic*. Cambridge: Cambridge University Press.
- Hansen, Hans V. 2011. Using argument schemes as a method of informal logic. In *Proceedings of the 7th Conference of the International Society for the Study of Argumentation*, eds. Frans H. van Eemeren, Bart Garssen, David Godden, Gordon Mitchell, 738-749. Amsterdam: Rozenberg; Sic Sat. CD-ROM.
- Hansen, Hans V. 2020. Argument scheme theory. In *Reason to dissent. Proceedings of the 3rd European Conference on Argumentation. Vol. 2*, eds. Catarina Dutilh Novaes, Henrike Jansen, Jan Albert van Laar, Bart Verheij, 341-355. College Publications.
- Hansen, Hans V. forthcoming. Aspects of Walton's theory of argumentation schemes. *Journal of Applied Logics*.
- Hastings, Arthur C. 1963. *A reformulation of the modes of reasoning in argumentation. Unpublished dissertation. Northwestern University, Evanston, Ill.*

- Hitchcock, David. 2010. The generation of argument schemes. In *Dialectics, dialogue, and argumentation*, eds. Chris Reed and Christopher W. Tindale, 157-166. Milton Keynes: College Publications.
- Kienpointner, Manfred. 1992a. *Alltagslogik. Struktur und Funktion von Argumentationsmustern*. Stuttgart: Frommann-Holzboog 1992.
- Kienpointner, Manfred. 1992b. How to classify arguments. In *Argumentation Illuminated*, eds. Frans H. van Eemeren, Rob Grootendorst, J. Anthony Blair, and Charles A. Willard, 178-188. Amsterdam: Sicsat; International Society for the Study of Argumentation (ISSA) 1992.
- Lumer, Christoph. 1988. The disputation. A special type of cooperative argumentative dialogue. *Argumentation* 2: 441-464.
- Lumer, Christoph. 1990. *Praktische Argumentationstheorie. Theoretische Grundlagen, praktische Begründung und Regeln wichtiger Argumentationsarten*. Braunschweig: Vieweg.
- Lumer, Christoph. 1997. Practical arguments for theoretical theses. *Argumentation* 11: 329-340.
- Lumer, Christoph. 1998. Which preferences shall be the basis of rational decision? In *Preferences*, eds. Christoph Fehige and Ulla Wessels, 33-56. Berlin; New York: de Gruyter.
- Lumer, Christoph. 2005a. The epistemological theory of argument. How and why? *Informal Logic* 25(3): 213-243.
- Lumer, Christoph. 2005b. The epistemological approach to argumentation. A map. *Informal Logic* 25(3): 189-212.
- Lumer, Christoph. 2005c. Intentions are optimality beliefs – but optimizing what? *Erkenntnis* 62: 235-262.
- Lumer, Christoph. 2007. An empirical theory of practical reasons and its use for practical philosophy. In *Intentionality, deliberation and autonomy. The action-theoretic basis of practical philosophy*, eds. Christoph Lumer and Sandro Nannini, 157-186. Aldershot: Ashgate.
- Lumer, Christoph. 2009. *Rationaler Altruismus. Eine prudentielle Theorie der Rationalität und des Altruismus. 2nd, supplemented ed.* Paderborn: mentis.
- Lumer, Christoph. 2011a. Probabilistic arguments in the epistemological approach to argumentation. In *Proceedings of the 7th Conference of the International Society for the Study of Argumentation*, eds. Frans H. van Eemeren, Bart Garssen, David Godden, and Gordon Mitchell, 1141-1154. Amsterdam: Rozenberg; Sic Sat. CD-ROM.
- Lumer, Christoph. 2011b. Tre tipi di teorie filosofiche. In *Analisi. Anuario e Bollettino della Società Italiana di Filosofia Analitica (SI-FA) 2011*, ed. Richard Davies, 45-75. Milano; Udine: Mimesis.

- Lumer, Christoph. 2011c. Argument Schemes—an epistemological approach. In: *Argumentation, cognition, and community. Proceedings of the 9th International Conference of the Ontario Society for the Study of Argumentation (OSSA), May 18-22, 2011*, ed. Frank Zenker, 1-32. Windsor, Canada: University of Windsor. CD-ROM, ISBN 978-0-920233-66-5.
URL:<<http://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=1016&context=ossaarchive>>.
- Lumer, Christoph. 2014. Practical arguments for prudential justifications of actions. In: *Virtues of argumentation. Proceedings of the 10th International Conference of the Ontario Society for the Study of Argumentation (OSSA). Windsor, Ontario, May 22-26, 2013*, eds. Dima Mohammed and Marcin Lewiński, 1-16. Windsor, Canada: Ontario Society for the Study of Argumentation (OSSA). CD-ROM, ISBN: 978-0-920233-66-5.
URL:<<https://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=2077&context=ossaarchive>>.
- Lumer, Christoph. 2016. Walton's argumentation schemes. In *Argumentation, objectivity, and bias. Proceedings of the 11th International Conference of the Ontario Society for the Study of Argumentation (OSSA), 18-21 May 2016*, eds. Patrick Bondy and Laura Benaquista, 1-20. Windsor, Canada: University of Windsor.
URL:<<http://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=2286&context=ossaarchive>>.
- Lumer, Christoph. 2019. Recognizing argument types and adding missing reasons. In *Proceedings of the Ninth Conference of the International Society for the Study of Argumentation (ISSA). [Amsterdam, July 3-6, 2018.]*, eds. Bart J. Garssen, David Godden, Gordon Mitchell, and Jean H.M. Wagemans, 769-777. Amsterdam: SicSat.
URL: <http://cf.hum.uva.nl/issa/ISSA_2018_proceedings.pdf>.
- Lumer, Christoph. 2020. A theory of philosophical arguments. In *Evidence, persuasion and diversity. Proceedings of Ontario Society for the Study of Argumentation Conference, Vol. 12 (2020)*, ed. OSSA, Ontario Society for the Study of Argumentation, 1-36. Windsor, ON: University of Windsor. URL: <<https://scholar.uwindsor.ca/cgi/viewcontent.cgi?article=2487&context=ossaarchive>>.
- Lumer, Christoph. forthcoming. Argument schemes – an epistemological approach. (Enriched version of: Lumer 2011c).
- Macagno, Fabrizio. 2015. A means-end classification of argumentation schemes. In *Reflections on theoretical issues in argumentation theory*, eds. Frans H. van Eemeren and Baart Garssen, 183-201. Springer.

- Macagno, Fabrizio and Douglas Walton. 2014. Argumentation schemes and topical relations. In *Language, reason and education*, eds. Giovanni Gobber and Andrea Rocci, 185-216. Bern: Peter Lang.
- Macagno, Fabrizio and Douglas Walton. 2018. Practical reasoning arguments. A modular approach. *Argumentation* 32(4): 519-547.
- Macagno, Fabrizio, Douglas Walton and Chris Reed. 2017. Argumentation schemes. History, classifications, and computational applications. *Journal of Logics and Their Applications* 4(8): 2493-2556.
- Payne, John W., James R. Bettman and Eric J. Johnson. 1993. *The adaptive decision maker*. Cambridge: Cambridge University Press.
- Perelman, Chaim. 1982. *The Realm of Rhetoric*. Translated by William Kluback. Introduction by Carroll C. Arnold. Notre Dame: University of Notre Dame Press.
- Perelman, Chaim and Lucie Olbrechts-Tyteca. 1958. *The new rhetoric. A treatise on argumentation*. Translated by John Wilkinson and Purcell Weaver. Notre Dame; London: University of Notre Dame Press 1969.
- Reed, Chris and Douglas Walton. 2005. Towards a formal and implemented model of argumentation schemes in agent communication. In *Argumentation in multi-agent systems*, eds. I. Rahwan, P. Moraitis, and Chris Reed, 19-30. Berlin: Springer.
- Reiter, Raymond. 1980. A logic for default reasoning. *Artificial Intelligence* 13: 81-132.
- Rescher, Nicholas. 1976. *Plausible reasoning. An introduction to the theory and practice of plausibilistic inference*. Assen; Amsterdam: Van Gorcum.
- Rescher, Nicholas. 2006. *Presumption and the practices of tentative cognition*. Cambridge: Cambridge University Press.
- Salmon, Wesley. 1964. *Logic*. Englewood Cliffs, NJ: Prentice-Hall.
- Siegel, Harvey and John Biro. 1997. Epistemic normativity, argumentation, and fallacies. *Argumentation* 11(3): 277-292.
- Walton, Douglas N. 1987. *Informal fallacies. Towards a theory of argument criticism*. Amsterdam; Philadelphia: John Benjamins.
- Walton, Douglas N. 1989. *Informal logic. A handbook for critical argumentation*. Cambridge: Cambridge University Press.
- Walton, Douglas N. 1990. *Practical reasoning. Goal-driven, knowledge-based, action-guiding argumentation*. Savage, MD: Rowman & Littlefield.
- Walton, Douglas N. 1995. *A pragmatic theory of fallacy*. Tuscaloosa, Alabama; London: The University of Alabama Press.
- Walton, Douglas N. 1996. *Argumentation schemes for presumptive reasoning*. Mahwah, New Jersey: Erlbaum 1996.

- Walton, Douglas N. 1997. *The appeal to expert opinion. Arguments from authority*. University Park: Penn State Press.
- Walton, Douglas N. 2002. *Legal argumentation and evidence*. University Park: Pennsylvania State U.P.
- Walton, Douglas N. 2005. Justification of argumentation schemes. *Australasian Journal of Logic* 3: 1-13.
- Walton, Douglas N. 2006. *Fundamentals of critical argumentation*. Cambridge: Cambridge U.P.
- Walton, Douglas N. 2007. Evaluating practical reasoning. *Synthese* 157: 197-240.
- Walton, Douglas N. 2012. Using argumentation schemes for argument extraction. A bottom-up method. *International Journal of Cognitive Informatics and Natural Intelligence* 6(3): 33-61.
- Walton, Douglas N. 2015. *Goal-based reasoning for argumentation*. New York: Cambridge U.P.
- Walton, Douglas N. and David M. Godden. 2007. Redefining knowledge in a way suitable for argumentation theory. In *Dissensus and the search for common ground*, eds. Hans V. Hansen et. al., 1-13. Windsor, Canada: OSSA. CD-ROM.
- Walton, Douglas N. and Thomas F. Gordon. 2015. Formalizing informal logic. *Informal Logic* 35(4): 508-538.
- Walton, Douglas N. and Erik C. W. Krabbe. 1995. *Commitment in dialogue. Basic concepts of interpersonal reasoning*. Albany; New York: SUNY Press.
- Walton, Douglas N. and Chris Reed. 2001. Applications of argument schemes. In *Argumentation and its applications. Proceedings of the 4th Conference of the Ontario Society for the Study of Argumentation (OSSA 2001)*, eds. Hans V. Hansen, Christopher W. Tindale, J. Anthony Blair, Ralph H. Johnson, and Robert C. Pinto. CD-ROM. Windsor, Canada.
- Walton, Douglas, Christopher Reed and Fabrizio Macagno. 2008. *Argumentation schemes*. Cambridge: Cambridge U.P.
- Walton, Douglas N. and Giovanni Sartor. 2013. Teleological justification of argumentation schemes. *Argumentation* 27(2): 111-142.