



Argumentum Ad Alia: argument structure of arguing about what others have said

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Abstract

Expertise, authority, and testimony refer to aspects of one of the most important elements of communication and cognition. Argumentation theory recognises various forms of what we call the *argumentum ad alia* pattern, in which speakers appeal to what others have said, including Position to Know scheme, Witness Testimony scheme, Expert Opinion scheme and the classical *ad verecundiam*. In this paper we show that *ad alia* involves more than merely an inferential step from what others (a person in position to know, a witness, an expert) have said, and that studying this type of argumentation requires going beyond the argument structure of propositional contents to account for different speech activities. We also demonstrate that using the words of others, attacking what has been said, and reasoning from how others reason constitute a rich repertoire of communication strategies which we need to model in order to be able to analyse them manually and to process them computationally.

Keywords Argument structure · Ethotic arguments · Argumentation from position to know · Argumentation from witness testimony · Reported speech · Speech activity

1 Introduction

The *argumentum ad alia*, is an argument structure that rests, in part, upon other speech activity. The name refers to a large class that encompasses a range of argumentation schemes (Walton et al., 2008) whose premises include speech activity (van Eemeren & Grootendorst, 1992): Argumentation from Position to Know, Argumentation from Witness Testimony, Argumentation from Expert Opinion and so on (*cf.* Goodwin, 2010, 2011; Wagemans, 2011, 2019; Visser et al., 2020; Budzyska et al., 2021). It

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further includes patterns of fallacious reasoning of arguments *ad* (Locke, 1690) that in contemporary analysis are usually regarded as instances of argumentation schemes in which the critical questions are not sufficiently answered—the *ad verecundiam*, where we infer the content of what has been said, is a prototypical example (cf. Goodwin, 1998; Koszowy & Walton, 2017, 2019; Walton, 2011).

These species of arguments are both rhetorically and cognitively important.¹ Social psychology considers the critical role that the sources of messages have when we process them (Petty & Cacioppo, 1986), whilst social epistemology sees testimony as “the most elementary and universal social path to knowledge” (Goldman, 1999, p. 103) with putative experts, who provide laymen with intellectual assistance,² being of pressing practical importance (Goldman et al., 2011; Leefmann & Lesle, 2020; Andersen et al., 2020; Hinton, 2001):

By verbally querying Q(P/-P) [question whether P or not-P is the case]³, a person tells a potential informant two things: (1) that he is ignorant of Q(P/-P), and (2) that he is interested in Q(P/-P). This indicates that an authoritative report of either P or not-P would yield a substantial veritistic increase for that receiver (Goldman, 1999, p. 107).

Once the response to such a query is accepted by the receiver, testimony-based belief is formed. This speech activity resembles what argumentation theory refers to as ethotic⁴ arguments (Brinton, 1986) or second-order arguments (cf. Wagemans, 2018; Visser et al., 2020). We will call this approach the standard account of *ad alia* structure.

Our focus in this paper is on argument structure of this type of argumentation rather than argument evaluation, thus we ignore the issue of determining conditions under which arguments *ad alia* are fallacious (cf. Hansen & Pinto, 1995), but rather tackle the more fundamental question of being able to unpack language structures that lie behind utterances in which speakers refer to others, i.e. argumentation which contains reported speech or quotations (cf. Clark and Gerrig, 1990; Brendel et al., 2011). Moreover, we are interested in the language structures used as building blocks in argumentation rather than how such structures are used to achieve a specific argumentative function (Smirnova, 2009), rhetorical function (Roberts, 2004), persuasive function (Shibata, 2021) or discursive role (Calsamiglia & Ferrero, 2003) of *ad alia* arguments. The former—structural—approach focuses on argumentation discourse units and relations between them, while the latter—functional—approach investigates the use of specific grammatical forms as well as syntactic and semantic characteristics of *ad alia*, such as analytic and formulaic modes, evaluative language, reporting verbs, as well as linguistic choices made, e.g., in the pre-citation segment where the reported *alia* are introduced.

¹ We recognise that the correct Latin declension is *argumentum ad alium* but the scope for misinterpreting as something garlicky is too great, hence this deliberate, if strictly ungrammatical, compromise.

² An argument structure is a relation between forms of utterances in which one utterance is a claim and the remainder is its support or attack (cf. Freeman, 2011).

³ Explanation added.

⁴ See (Herman, 2022) for an excellent conceptualisation and systematisation of ethos.

In their study of discourse containing *relata refero* in argumentation, Gobbo et al. (2022) draw a pessimistic conclusion that “current methods for representing argumentative discourse are centered around the notion of ‘argumentation structure’ and are therefore limited in scope” (*ibid.* p. 2). This is due to the fact that “existing approaches conceive the argumentation structure as monological in that it only represents the *argumentation*⁵ of the ‘author’ of the discourse and leaves out what others might have contributed” (*ibid.* p. 1). In consequence, Gobbo et al. (2022) abandon the method of argument structure and instead propose a method of Adpositional Argumentation trees extended with the notion of voice, building upon linguistic and literary studies. Although this method has significant expressivity, we believe that a robust structural model of *ad alia* argument still needs to be developed in order to be able to both understand the construction of discourse in which we refer to words of others and also to allow for its manual analysis and automatic processing in applications such as critical thinking (*cf.* Walton, 2006), argument mining (*cf.* Lawrence & Reed, 2019) and debating technologies (*cf.* Gurevych et al., 2016).

The goal of this essay is first to demonstrate that current formal accounts of arguments *ad alia* are not only limited in scope, but also lead to some theoretical problems, and to propose a solution that rests upon a model of speech acts (*cf.* Austin, 1962; Searle, 1969; Searle & Vanderveken, 1985) and dialogical argumentation (Budzynska & Reed, 2011) (Sect. 2). We then show how a new model not only handles complex arguments *ad alia* (Sect. 3), and explains the different ways in which re-use can be challenged (Sect. 4), but also provides a rich and nuanced account of how speech action in general, and argumentation in particular, can be re-used in subsequent discourse (Sect. 5). The result provides a new means to uncover complex cross-referential argumentation common to a sociopolitical environment in which referring to, rehashing, and rehearsing others’ arguments is as common as challenging, denying and claiming fakery over such re-use.

2 The trouble with the standard account of *ad alia* arguments

We start by considering the standard approach to argument structure of *argumentum ad alia* schemes in which a speaker builds his argument upon what another speaker (an expert, someone in a position to know, and so on) has previously said. In the literature, this type of argumentation is referred to as ethotic argument or second-order argument. According to the first approach, in *ad alia* we reason from the good character of a person to the recommendation that what this person has said should be accepted (*cf.* Walton et al., 2008, pp. 140–141). Second-order arguments, on the other hand, are defined as containing “at least one complex statement, the subject of which can be broken down into a subject and a predicate itself” (Visser et al., 2020, p. 115). Arguments *ad alia* correspond to the version of second-order arguments in which their premise is a locution which is “the result of reported speech” (*ibid.*, p. 116).

What is important for us in this paper is that the standard account assumes *ad alia* arguments to always have the same simple structure: a claim, *P*, is supported jointly

⁵ Emphasis added.

by two premises, “a person X said that P” (a minor premise in ethotic argument and a reported speech in the second-order arguments) and “X has a good character” (a major premise). The only difference amongst various types of *ad alia* arguments in this account is the grounds on which the speaker is assumed to be of good character: authority, expert opinion, position to know, witness testimony and so on. As a result, argumentation theory identifies different argumentation schemes: Argumentation from Authority, Argumentation from Expert Opinion, Argumentation from Position to Know, Argumentation from Witness Testimony. They are then further studied to provide more fine-grained models of these grounds: Groarke and Tindale (2008) specify the good character of the speaker as being knowledgeable, trustworthy and free of bias. In (Goodwin, 2011), the component of dignity is introduced to account for the key persuasive role of ethotic arguments. Zenker and Yu (2020) distinguish four sources of authority (epistemic sources, deontic sources, attractiveness and majority) and two speech act types of assertives and directives⁶ to obtain eight authority-argument types, along with a number of sub-schemes. This means that argumentation theory is not interested in different forms of *ad alia* argument structures, but in different contents of the major (ethotic) premise.

The simplicity of the standard account of *ad alia* is an inevitable advantage of argument representation as long as we do not try to apply it to argumentation that rests upon more than one *alia*. Such a problematic example was given in (Gobbo et al., 2022) (after: van Eemeren et al., 2002, pp.85–86) to emphasise the inadequacy of the standard structural approach. We borrow this example to explicate our criticism towards this account and then depict our solution at the end of the paper in Sect. 6. In this example, three parties/speakers are involved in an argument: (1) an author of the text a_0 ; (2) an opponent, editor John Lowell b_1 , who accuses Copernicus of plagiarism; and (3) dr. P. Smith c_2 whose words, according to a_0 , have been used by Lowell to back up his argument:

In his article “Plagiarism: A rich tradition in science”, editor John Lowell argues, referring to an article by dr. P. Smith, that Copernicus was also guilty of plagiarism: it appears that he “forgot” to mention that Aristarchos of Samos (310–230 BC) had already arrived at a heliocentric theory. It is, however, doubtful that Copernicus knew of this (Gobbo et al., 2022, p. 5).

The argument can be summarised as follows: a_0 first reports that b_1 argues that Copernicus committed plagiarism, because c_2 said so; and then a_0 counters this claim. According to the standard approach, the structure of the example is formalised as follows:

Claim 1: P, *because*

Premise 1.1: c_2 said that P

Premise 1.2: c_2 has a good character

Claim 2: *However*, Q

⁶ Assertive type of speech acts contains actions in which speakers declare their beliefs or opinions. Directive type of speech acts consist in speakers asking hearers to perform an action (cf. Austin, 1962; Searle, 1969).

where: c_2 is dr. P. Smith; P is “Copernicus was guilty of plagiarism”; and Q is “It is doubtful that Copernicus knew that Aristarchos of Samos had already arrived at a heliocentric theory”

There are several shortcomings of the expressivity of the standard structural representation. First, it does not capture who is the author of an argument, i.e. it does not include a_0 (author of Argument 1) and b_1 (author of Argument 2) in the argument structure of the example, but only the author of a reported speech, i.e. c_2 . As a result, in the subsequent move it is possible to attack the credibility of c_2 , but not the credibility of a_0 or b_1 . This means that we are able to capture a response to this text that c_2 is a liar, but neither that a_0 is a liar nor that b_1 is a liar.

Next, the standard account does not allow us to distinguish between the act of arguing and the act of reporting an argument. By looking at this representation, we do not have any indication that Claim 1 and Claim 2 have different owners, i.e. persons who put them forward. If we, in consequence, assume that they have the same owner, then we arrive at an awkward interpretation of the text that a person claims that P in order to subsequently counter it with Q .

Describing this structure by indicating who is the owner of a claim (i.e. P is claimed by b_1 and Q is claimed by a_0) does not solve the problem either, as it does not capture the difference in who uttered a claim. That is, it does not allow us to distinguish between the situation when Claim 1 is uttered by the owner himself (e.g. we hear that b_1 asserted it) and the situation when asserting Claim 1 is reported by someone else (i.e. we hear that a_0 is saying that b_1 uttered P). This distinction is important, if we want to allow for the representation of the common fallacy of the straw man, i.e. the fallacy of reporting what has been said by an opponent in such a way that it is easier to attack his standpoint. As a result, it is not possible to express here that someone reacts to this text by accusing a_0 of misrepresenting what b_1 has actually said, because a_0 is absent from the argument structure.

Finally, this account does not allow us to capture that Lowell’s argument is built upon what Smith argued rather than upon what Smith asserted. In other words, we are missing out the information that Lowell relies on a claim that is justified rather than on the unsupported claim of *alia*. Representing Smith’s full argumentation in the argument structure: R because S , and substituting P with R because S does not solve the problem either. The substitution means that we lose in the argument structure the representation of Lowell’s main claim that Copernicus was guilty of plagiarism, as Claim 1 would now stand for: Copernicus was guilty of plagiarism, because he forgot to mention Aristarchos of Samos.

The standard account not only suffers from these shortcomings, but also leads to several further problems. Let us go back to the scenario in which testimony-based belief is formed (see Sect. 1). How should we understand and formalise an interlocutor’s *response* to a query $Q(P/-P)$? We find an example of such a scenario in (Walton, 1996, p. 146) in which Passerby plays the role of informant and Tourist plays the role of receiver⁷:

- (1) a. Tourist: Excuse me, could you tell me how to get to the Convention Centre?

⁷ The terminology ‘informant’ and ‘receiver’ comes from Goldman (1999).

- b. Passerby: Yes. Just go straight down Portage Avenue in this direction [indicates]. It is about eight blocks or so. Then turn to the right on Edmonton Street. It is only three blocks or so from Portage.

Walton interprets the speech activity (1-b), i.e. a response to a query Q(P/-P) in (1-a), as *ad alia* argument structure, in particular, as Argumentation from Position to Know scheme⁸

Argumentation from position to know (fPtK) (Walton et al., 2008, p. 13)

Major Premise Source *X* is in position to know about things in a certain subject domain *D* containing proposition *P*.

Minor Premise *X* asserts that *P* (in domain *D*) is true (false).

Conclusion *P* is true (false).

On this interpretation, in (1-b) Passerby argues that Tourist should go in a specific direction, because Passerby says so and Passerby is in a position to know that. Such an interpretation of (1-b) has serious consequences. First, it implies that all simple assertions, i.e. *asserting P*, are in fact argumentation fPtK, i.e. *arguing from position to know that P*. If (1-b) is treated as the speech activity of arguing fPtK, then there is no reason not to assume that any other assertion, e.g. “It is raining”, “The moon is round”, “It is 10 o’clock”, is anything different. In other words, we would have to accept that there are no assertions at all and what looks like an assertion is in fact argumentation fPtK.

Moreover, by analogy to Williamson (2000)’s norm of assertion

One must: assert *P* only if one knows *P* (**K-A**),

we can formulate the putative Waltonian interpretation of (1-b) as a norm

One must : assert *P* only if one argues fPtK that *P*, using oneself as the PtK source (**Arg-A**).

We will show that assuming Arg-A to be true leads to contradiction, and therefore should be rejected. We start the proof (see below) with two assumptions: we assume norm Arg-A in **line 1** of the proof, and an axiom founded on the argument fPtK scheme (**line 2**): if a speaker *X* utters an argument fPtK that *P*, then *X* asserts its minor premise that a source *Y* asserted *P*. More specifically, this axiom expresses that (i) if *X* utters an argument, then *X* utters in particular its premises; and (ii) if *X* followed the scheme from position to know to conclude *P* (formally: fPtK(*X*, *P*)), then *X* asserted the premise of this scheme, i.e. *X* asserted that *Y* asserted that *P* (formally: assert(*X*, assert(*Y*, *P*))).

⁸ In fact, the choice of a specific scheme of *ad alia* does not change our argument, since schemes are differentiated from each other on the grounds of credibility of *alia* rather than the structure of *ad alia* arguments. For example, in (Walton, 2006, p. 188) a similar question–answer scenario is interpreted as Argument from Expert Opinion rather than Argument from Position to Know: “if I am consulting with my financial adviser, I might ask her different questions about which are the best buys among the stocks presently available, what are the latest government regulations on income tax, and so forth. In this kind of dialogue, the adviser tries to give you relevant information you need to arrive at a decision on what to do (...) Appeal to *expert opinion* is an important kind of *reasoning* used here” (Walton, 2006, p. 188).

1. $\text{assert}(X, P) \rightarrow \text{fPtK}(X, P)$	Arg-A
2. $\text{fPtK}(X, P) \rightarrow \text{assert}(X, \text{assert}(Y, P))$	Axiom from fPtK
3. $X=Y$	By definition from Arg-A
4. $\text{fPtK}(X, P) \rightarrow \text{assert}(X, \text{assert}(X, P))$	2, 3, instantiation
5. $\text{assert}(X, P) \rightarrow \text{assert}(X, \text{assert}(X, P))$	1, 4, hyp. syllogism
6. $\neg [\text{assert}(X, P) \rightarrow \text{assert}(X, \text{assert}(X, P))]$	regress
7. $\therefore \neg [\text{assert}(X, P) \rightarrow \text{fPtK}(X, P)]$	1, 5, 6, reductio \square

Next in **line 3** we state what is defined by norm Arg-A, i.e. that the arguer X is using himself as the position to know source, formally $X=Y$. This leads us to instantiate the formula in line 2 into the formula in **line 4** by simple replacing Y with X .

If we then apply hypothetical syllogism $(\alpha \rightarrow \beta), (\beta \rightarrow \gamma) \vdash (\alpha \rightarrow \gamma)$ to lines 1 and 4, we arrive at the formula in **line 5** in the following way. In line 1, we have $\alpha \rightarrow \beta$ where α is $\text{assert}(X, P)$ and β is $\text{fPtK}(X, P)$, and in line 4, we have $\beta \rightarrow \gamma$ where γ is $\text{assert}(X, \text{assert}(Y, P))$. Thus, in line 5 we arrive at $\alpha \rightarrow \gamma$, that is at: $\text{assert}(X, P) \rightarrow \text{assert}(X, \text{assert}(X, P))$.

The formula in line 5 leads to infinite regress. Let's replace P in the formula 5 with $\text{assert}(X, P)$. We will then have: $\text{assert}(X, \text{assert}(X, P)) \rightarrow \text{assert}(X, \text{assert}(X, \text{assert}(X, P)))$. We can repeat this procedure an infinite number of times, which would lead us to an infinitely long formula. This means that in asserting P , X performs an infinite number of nested assertions in which the final assertion takes P as a content. This is incoherent, so **line 6** states that the formula in line 5 is false.

In virtue of the *reductio ad absurdum*, the contradiction between line 5 and line 6 leads us to reject the initial assumption, which is stated in **line 7**. Hence, (1-b) cannot be interpreted as Passerby making an argument fPtK. In what follows, we show that (1-b) is just a simple assertion, and demonstrate how an argument *ad alia* is indeed created.

3 A new account of *ad alia* argument structure

To develop our account of *ad alia*, we begin with two straightforward observations. First, such arguments necessarily rest upon speech action, inasmuch as one of the premises refers to such speech action; and second, the actor responsible for that speech action is rarely the actor responsible for the (speech action of) arguing itself. Though true across the class, this is perhaps clearest in the Argumentation from Witness Testimony.

Argumentation from witness testimony (fWT) (Walton et al., 2008, p. 90)

Position-to-Know Premise Witness W is in position to know whether P is true or not.

Truth-Telling Premise Witness W is telling the truth (as W knows it).

Statement Premise Witness W states that P is true (false).

Conclusion P may plausibly be taken to be true (false).

In Example (2) (from Walton, 2006, p. 91), Dr. Zorba's testimony is merely that: testimony. It might have a special class of illocutionary force, such as *testifying* (Searle

& Vanderveken, 1985) or it might languish undifferentiated as simple *assertion*. This assertive speech action (or rather, a proposition that refers to such action) forms one of the premises of the scheme.

- (2) Dr. Zorba, a cancer specialist, is testifying in court in the case of a man who was bruised by his seat belt when he was rear-ended by another car. The man later contracted testicular cancer. Dr. Zorba testified that, in his opinion, the bruise from the seat belt was a causal factor in the development of the man's testicular cancer. The physician for the insurance company testified that there is no established medical evidence that bruises or trauma caused by seat belt restraints cause cancer.

The witness, however, is not making an argument from witness testimony. Indeed, in most legal systems, witnesses are expressly prohibited from making arguments. That responsibility lies solely with the prosecution and defence. When prosecution elicits testimony, they use that testimony as a premise in an argument supporting the veracity of the content of that testimony. That is, the scheme of argument fWT is being instantiated by prosecution, not by the witness. Such an observation is hardly contentious; quite apart from its clarity in jurisprudence, it is also well recognised in argumentation theory such as (Walton, 2008).

In other types of argument *ad alia*, this separation between arguer and reported speaker can be less clear. Yet in every case, including Argumentation from Expert Opinion, Argumentation from Position to Know, and so on, the arguer is almost always different from the reported speaker. It is possible to artificially construct an example in which the two actors are the same: *I said P, and I am an expert in the domain, so P*, but circularity looms large (Budzynska, 2013). But regardless of the identity of the two actors, the key observation from the previous section is that there is a distinction between the speech action that constitutes a premise, and the speech action of making the argument; and that, furthermore, the speech action that constitutes the premise is typically reported by the actor of the argument.⁹

From another perspective, this distinction is manifested in the two relations between the premise of an *ad alia* pattern (the premise that refers to an utterance) and its conclusion: one is inferential, and the other illocutionary. Thus for example in the scheme for Argumentation from Witness Testimony, the relationship between “The witness W asserts A” and “A” is a relationship of premise to conclusion. But at the same time, it is also just an instance of the more general pattern of relationship between “Someone, X, asserts something, P” and “P”, namely that the latter constitutes the propositional content of the speech act referred to by the former.

Any complete account of arguments *ad alia* must be then able to capture this duality explicitly. Our solution rests upon two techniques. The first is to recognise that propositional reports of discourse events—locutions—are just a special type of proposition; and the second, that any proposition (including such a propositional report

⁹ In Argumentation from Witness Testimony, things are a little more complicated because the arguer does not typically report the speech of the Witness; that testimony is instead available directly to the court. The principle remains the same, however, that there are two speech actions, the testimony-giving and the arguing, which need to be accounted for separately.

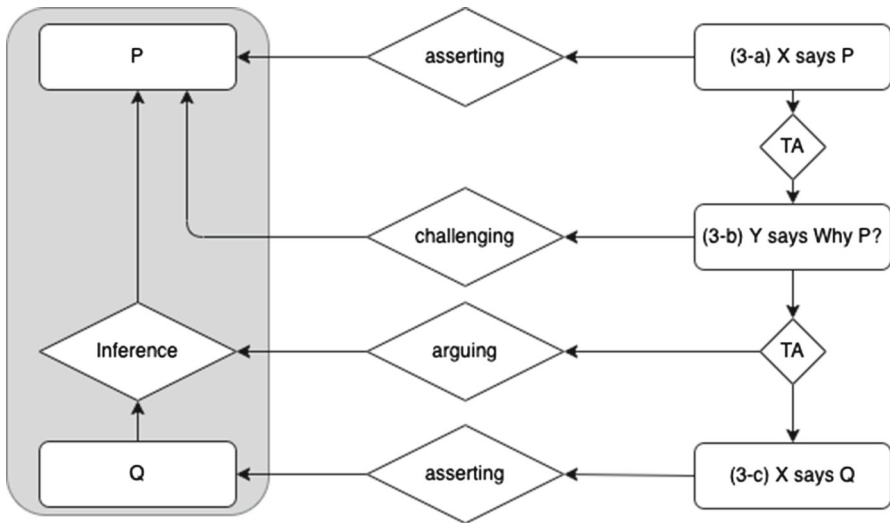


Fig. 1 A visual representation of a simple non *ad alia* argument, *P because Q*, in its dialogical version according to the new account of Inference Anchoring Theory (Example (3) is an instance of this IAT structure)

of a discourse event) can serve as the propositional content of an illocutionary act, or as a premise or conclusion in an argument. As a convenient framework, we use Inference Anchoring Theory, IAT (Budzynska & Reed, 2011), which allows us to decompose speech acts and, as a result, to represent nested propositional reports of discourse events which are then suitable to unpack reported speech and arguing *ad alia*.

We begin with a simple non *ad alia* argument in Example (3) in which Tourist offers directions to Wife (3-a); Wife then challenges in (3-b), asking for justification of the directions given; for which Tourist provides a justificatory reason in (3-c).

- (3) a. Tourist: We should go straight down Portage Avenue in this direction.
- b. Wife: Why this way?
- c. Tourist: It’s the quickest route.

Inference Anchoring Theory uses graph-based analysis of discursive events to clarify the structures it introduces. A directed labelled graph in Fig. 1 unpacks the structure of Example (3). It consists of two types of nodes: boxes represent propositions and diamonds represent relations between them. Symbols, Xs and Ps, replace natural language text to simplify the graph. IAT follows the standard of argument representation, the Argument Interchange Format, AIF (Rahwan et al., 2007) and AIF+ (Reed et al., 2010), which specifies relations as reified nodes rather than just arrows. As a result, operations can be executed both on propositions and on relations (see e.g. an undercutter in Sect. 5).

The nodes on the right-hand side capture the dialogical structures of Example (3): they represent propositions describing *locutions* (3-a)–(3-c) and *transitions*, i.e.,

relations between the propositions describing these locutions (diamonds labelled as TA,¹⁰ following notation introduced in AIF). Transitions capture the rules of a dialogue game or dialogue protocol (*cf.* Hamblin, 1970; Mackenzie, 1990) which specify what responses can be legally performed as a reply to a given locution. For instance, a rule of dialogue can determine that a move “Why P?” may be followed by a justification: P because Q.

The left hand side represents logical structures: *propositional contents* of locutions and *propositional relations* between the contents. IAT distinguishes three types of these relations: (i) inferences, such as argument fPtK and argument fWt described above; (ii) conflicts or attacks between propositions, when both propositions cannot be true at the same time; and (iii) rephrases which encompass two situations: (iii-a) when propositions have not the same but similar syntax or wording, and (iii-b) when a proposition provides an answer to a question. IAT assumes that an answer to a question is in fact a rephrase of the linguistic material of the question, hence the option (iii-b). For example, it is assumed that polar, information seeking questions, such as “Is it raining?”,¹¹ take as the propositional content the disjunction “It is raining or it is not raining” (P or not-P). Thus both possible answers to such a question, e.g. P, are a rephrase of P or not-P. For the purpose of this paper, it is for convenience that we follow IAT’s assumption of the question-answer relation being a rephrase: specifying it differently would not in any way affect our line of argument (see discussion about Fig. 3 at the end of this Section). Each of the relations (i)–(iii) in the IAT diagram represent instances of applications of specific rules (of inference, conflict or rephrase).

Finally, the middle of an IAT graph is occupied by *illocutionary connections* which hold between dialogical and logical structures. These relations are dialogical extensions of illocutionary forces, (*cf.* Austin, 1962; Searle, 1969; Searle & Vanderveken, 1985), tying together reports of discourse activity with their contents. In Example (3), locution (3-a) is linked with its propositional content through the illocution of asserting. The second locution takes the same content, but through a different illocution—the illocution of challenging.¹²

IAT allows modelling of the fact that not only propositions, but also propositional relations, are anchored in dialogue. In Fig. 1, inference is assigned to (anchored in) the second transition between Wife’s challenge and Tourist’s assertive response. Thus, the argument has been created precisely by virtue of the following of the dialogue rule by which challenges can be responded to with justifications. In this way, speech acts are decomposed into three elements which will be necessary to model *ad alia*: locutions, their propositional contents, and illocutionary connections that link the two.

Now our theoretical scaffolding is set up, we can return to arguments *ad alia*. Consider an extended version of the scenario in Example (1): after talking to Passerby, Tourist returns to his Wife and suggests which way to go. When challenged by Wife, he now decides to justify his assertion by referencing Passerby in (4-c). That is, he

¹⁰ We use the abbreviations TA in all figures to keep them less busy, as we do not distinguish patterns of transitions, i.e., transitions are always of a type TA.

¹¹ See Q(P/-P) in the notation of Goldman (1999).

¹² Once again an illocutionary connection is capturing the application of a rule of illocution—where inference rules may wrap up characteristics such as critical questions, here rules of illocution wrap up characteristics such as felicity conditions.

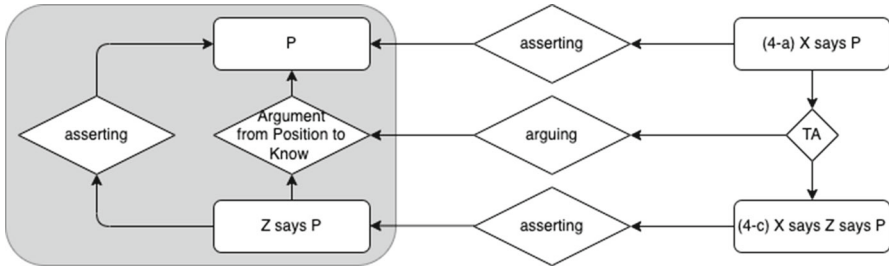


Fig. 2 A visual representation of a simple *ad alia* argument (according to the new account; Example (4) is an instance of this IAT structure)

decides to argue using an expert’s words rather than a fact, i.e., he gives an argument *ad alia*.

- (4) a. Tourist: We should go straight down Portage Avenue in this direction.
- b. Wife: Why this way?
- c. Tourist: Passerby said so.

IAT allows us to unpack the structure of this dialogue demonstrating the key difference between *ad alia* and simple arguments. The starting point is the same in Figs. 2 and 1: *X says P* anchors *P* through asserting.¹³ But Tourist’s response is now different, as *X says Z says P* anchors its content *Z says P* in Fig. 2 through asserting too, but the content of the response is in turn another locution (or more specifically—a report of this locution), and as such should be further unpacked for its content *P* through asserting. What is more, these two propositions are also connected through an inference, since Tourist is using Passerby’s words to provide a response to Wife’s challenge. The fact that the reported speech in (4-c) was used as an argument, gives us a structure in which there are two parallel paths linking *Z says P* and *P*: *illocutionary connection* between a locution and its content, and *inference relation* between a premise and a conclusion.

The new account allows us to capture that *ad alia* differs from other arguments through the existence of the duality of connection between a conclusion and a premise. In Example (4), the conclusion of *ad alia*: *P*, and its premise: *Z says P*, are connected not only through a propositional relation (Argument from Position to Know in Fig. 2), but also through an illocutionary relation (asserting in Fig. 2). In Example (3), the conclusion of non-*ad-alia*-argument: *P*, and its premise: *Q*, are connected solely through the propositional relation (Inference in Fig. 1). The difference between single and dual connection linking conclusions and premises of these arguments is highlighted by grey boxes in Figs. 1 and 2 which contain, respectively, one path and two paths that connect conclusions with premises.

Example (1) does not fit into this structure and creates a different one depicted in Fig. 3. We will follow the notation introduced in (Goldman, 1999, p. 107) and assume that Tourist formulated not the Wh-question, but a query *Q(P/-P)*, i.e. a polar,

¹³ Wife’s challenge is omitted in Fig. 2 for clarity of the presentation, as it has no impact on the representation of the *ad alia* structure.

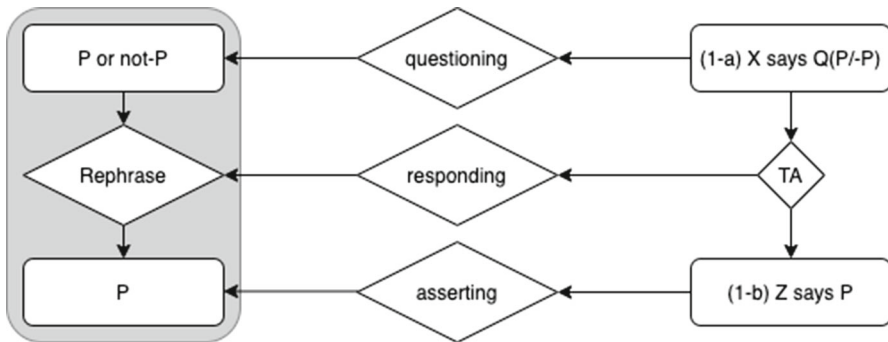


Fig. 3 A visual representation of the dialogical situation in which an actor, X, solicits a testimony of an informant, Z (according to the new account; Example (1) is an instance of this IAT structure)

information seeking question¹⁴: “Should we or shouldn’t we go straight down Portage Avenue in this direction?”. The content of this question is its expected response of either P or not- P . In locution (1-b), Passerby chooses to respond with the first disjunct: “You should go straight down Portage Avenue in this direction”. IAT allows that the content of a question and the content of its response are linked through the relation of rephrase (see Fig. 3), i.e. that the question-answering structure is a form of rephrase. In such a way, the new account allows us to capture that the Waltonian example does not introduce parallel paths and no *ad alia* argument is created.

In conclusion, Passerby does not perform an argument fPtK; rather, (1-b) is primarily and discursively just a simple assertion. Yet someone’s words can be always re-used to create an argument fPtK, as in Example (4) when Tourist comes back to his Wife and relies upon Passerby’s testimony in forming his argument. In this case, he externalises in a discourse the internalised belief that is founded upon what Passerby said. In other words, we learn that Tourist formed *testimony-based* belief or, more precisely, *testimony-inferred* belief. While social epistemology is interested in where knowledge comes from, we are focusing, in what follows, on what speech acts are used to externalise our knowledge in discourse and on what linguistic evidence is given for this interpretation of speech acts.

4 Building argumentum ad alia

Belnap comments wryly, “Give a modal logician a little nesting and more is wanted,” (1991, p. 138) and the same might be said for philosophers of language. The account of the previous section depends upon a mechanism for representing reported speech of the form X says Y says P . But of course, this general pattern need not place an arbitrary limit on nesting. The approach here tackles the challenge by representing descriptions of the performance of speech acts *qua* propositions which themselves can form the propositional contents of illocutionary acts described by yet other such propositions.

¹⁴ The type of question does not influence the structure of the analysis, only the form of the propositional content of the question, which is irrelevant here. The same holds for whether we will assume that the relation between “ P or not- P ” and P is a rephrase or we will specify it as any other kind of relation.

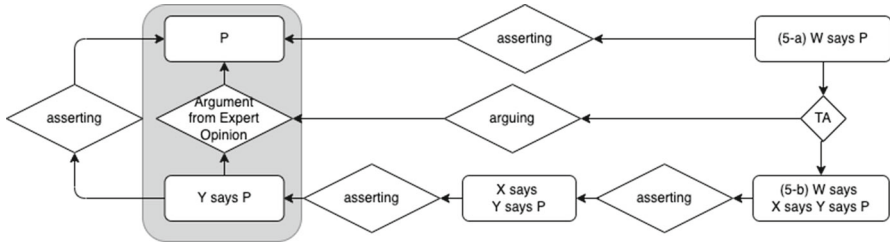


Fig. 4 Analysing Example (5): Using reported reported speech in an Argument From Expert Opinion

This offers significant expressive power in being able to capture quite precisely the relationships between the claims and claimed claims that characterise arguments *ad alia*. And although reported speech is a key mechanism in building *ad alia*, the latter is a more complex discourse activity: it involves *using* what others have said in a variety of ways *to justify* the speaker’s claim, even in cases when what others have said has been an argument as in *argumentum ad argumenta aliorum* (see Sect. 6).

Where Sect. 3 focuses on a single level of nesting, we can now extend this starting point to begin to flesh out a recursively general model. We first take a simple case of reported reported speech:

- (5) a. Wilma: P, because
- b. Wilma: X said that Y said P

This is a straightforward extension to our model: it just requires an extra level of nesting, as shown in Fig. 4. Wilma’s premise that *Y says P* used to argue that *P* comes from *X says that Y says P*. Both *W* and *X* are then subsequently reporting what *Y* said which is used as an Argument from Expert Opinion that supports *P*.

This structure captures a simplified version of the Copernicus example from Sect. 2: “In his article ‘Plagiarism: A rich tradition in science’, editor John Lowell argues, referring to an article by dr. P. Smith, that Copernicus was also guilty of plagiarism”. Assuming that the author of the text is making this nested *ad alia* argument, *W* in Fig. 4 is the author of the text, a_0 , *X* is John Lowell, b_1 , and *X* is dr. P. Smith, c_2 . This means that we are now able to overcome the shortcoming of the standard account of *ad alia* and express in the argument structure authors of the argument: a_0 and b_1 . As a result, we can make it clear what are the targets of attack on this *ad alia* structure. Wilma’s opponent, Bob, could challenge any of the propositional contents in Fig. 4 such as in Examples (6), (7) and (8) that constitute legitimate responses to Wilma’s (5-b)¹⁵:

- (6) Bob: It is not the case that P
- (7) Bob: Y didn’t say P

¹⁵ In fact, Bob can challenge any of the nodes in Fig. 4 whatsoever, but the attacks on illocutions (e.g., He didn’t claim it, he only suggested it) and on inferences (e.g., Just because Y said it doesn’t mean it’s true) are not germane to the discussion here, as they are not a result of this reported reported speech structure.

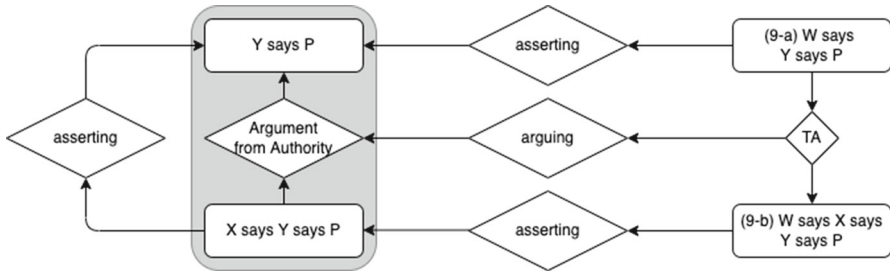


Fig. 5 Analysing Example (9): Using reported reported speech in an Argument from Authority for the reported speech

(8) Bob: X didn't say that Y said P

According to Example (6) Bob's reaction to nested argument *ad alia* in (5) would be to question the ultimate content of reported reported speech *P*, i.e. that Copernicus was guilty of plagiarism. According to (7) Bob reacts by saying that reported speech *Y said P* never actually took place, i.e. something like "Dr. P. Smith never said it!". Finally, according to (8)—with saying that reported reported speech *X said Y said P* did not happen, i.e. "Lowell didn't say it at all". We return to the varieties of attacks on *ad alia* in the next section.

Here we focus on the fact that in the structure of reported reported speech such as (5-b), four more *ad alia* structures become possible. In what follows, we will show that we can make an inferential step not only to reason (i) from *Y said P* to *P* as in Fig. 4 (see above), but also (ii) from the full reported reported speech *X said that Y said P* directly to the reported speech *Y said P*, see Fig. 5; and (iii) even more directly to *P* itself, Fig. 6. What is more, we can also reason from the reported speech *Y said P* to a property of (iv) the speaker *Y*, Fig. 7, or (v) the speaker *X*, Fig. 8. All the inferential steps in *ad alia* argument structures are highlighted by grey boxes in each figure.

We will now look in more detail how these structures of *argumentum ad alia* are built. First, Wilma could be arguing to *Y says P* as her conclusion (the structure of (ii)-type), or indeed from the reported reported speech to *P* directly ((iii)-type), as the following two examples (9) and (10) demonstrate.

- (9) a. Wilma: Y said P, because
- b. Wilma: X said that Y said P

Example (9) could be an abstraction of the following exchange between Wilma and Bob: she is saying "No Bob, dr. P. Smith really did say that Copernicus was guilty of plagiarism"; he challenges "Why?"; to which she responds "Smith saying it was reported in John Lowell's article 'Plagiarism: A rich tradition in science'". Its analysis in Fig. 5 makes clear that such an argument has precisely isomorphic structure to a normal argument *ad alia*, in this case, argument from authority. The only thing that is different is that the conclusion—i.e. *P* in Fig. 2—is in this case itself reported speech. In Example (9), Wilma is not arguing for (or indeed against) *P*—the focus of her argument is upon what Smith said. Thus, the grey box in Fig. 5 highlights the

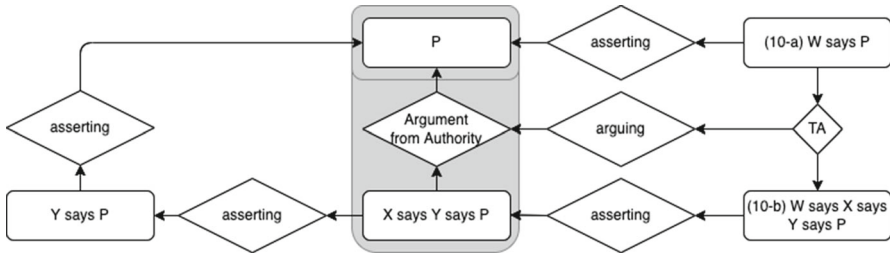


Fig. 6 Analysing Example (10): Using reported reported speech in an Argument From Authority for the content of the reported speech

inferential step from *X says Y says P* to *Y says P* rather than from *Y says P* to *P* such as in Fig. 4.

Such a nested reported speech allows the speaker to build yet another variation of argument *ad alia*: here P is supported by reported, underspecified reported speech:

- (10) a. Wilma: P, because
- b. Wilma: X said that some Y said P

Instead of using in her argument *ad alia* in Example (5) what Lowell said according to Smith, Wilma in Example (10) could say “Lowell’s article ‘Plagiarism: A rich tradition in science’ reported that someone or other said that Copernicus was guilty of plagiarism”. Wilma’s poor memory here is reflected in the structure of her argument, explicated in Fig. 6: for her, it doesn’t really matter who the original speaker of the claim was—it is enough for her that the speech was reported in Lowell’s article.

There is more to be said, however, because the reported speech—at whatever level of nesting—need not be used only as evidence to support the content of that reported speech. The following two examples show how reported speech can be used in alternative ways (the structures of (iv)- and (v)-type). The first, Example (11) rests upon using someone’s speech to argue about some property of them:

- (11) a. Wilma: f(Y), because
- b. Wilma: X said that Y said P

We will use two examples different from the Copernicus example to give better intuitions for these two structures. Imagine that Wilma argues to Bob: “Trump is

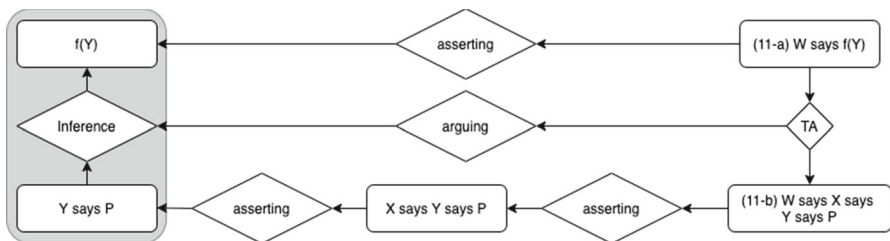


Fig. 7 Analysing Example (11): Reported reported speech in an argument about the speaker

such a buffoon”, because: “Apparently, *Fox News* reported today that Trump said: It’s going to disappear. One day, it’s like a miracle, it will disappear”. In Fig. 7, Wilma’s conclusion in (11-a) is the property of the speaker who has been reported, i.e. $f(Y)$, and it is Y ’s speech action (that has been reported) that is used as evidence in support of that conclusion (the inferential step is highlighted by the grey box in Fig. 7). This example clearly demonstrates that structures of *argumentum ad alia* are more than just argumentation schemes: in this case a support is just a general inference rather than an instantiation of Argument from Authority or Argument from Expert Opinion as in examples above.

The final example, (12), of the ways in which reported speech can be used is particularly intriguing: using reported speech as evidence for some property of the utterer of that reported speech. This example comes from a hypothetical case of intelligence analysis where Bob says “So the Minister for Defense of Country C said today that Town T is not a military target”; Wilma responds “Well then I think we can still trust our mole there, Roger”; and she continues “Roger had told us that the Minister said T is not a military target”:

- (12) a. Bob: Y said P
- b. Wilma: So $f(X)$, because
- c. Wilma: X said that Y said P

Wilma’s argument in (12-b)-(12-c) is unpacked in Fig. 8, in which the property of the speaker—the trustworthiness of Roger—captured as $f(X)$, forms the conclusion of her argument. It is Roger’s testimony that is used by Wilma to support her claim about his trustworthiness. Note that the truth of the fact itself (in this example, whether T is a target or not) is immaterial to the success of Wilma’s argument (though one could reconstruct the illocutionary content of Y says P in Fig. 8, it would play no further role in the structure).

These examples demonstrate the richness of the approach in its ability to capture nuances of how responsibility for speech interacts with argument structure. In most cases, however, things are rather more murky: direct reported speech (except, perhaps in the news) is rather rare. Probably much more common is indirect speech, whereby

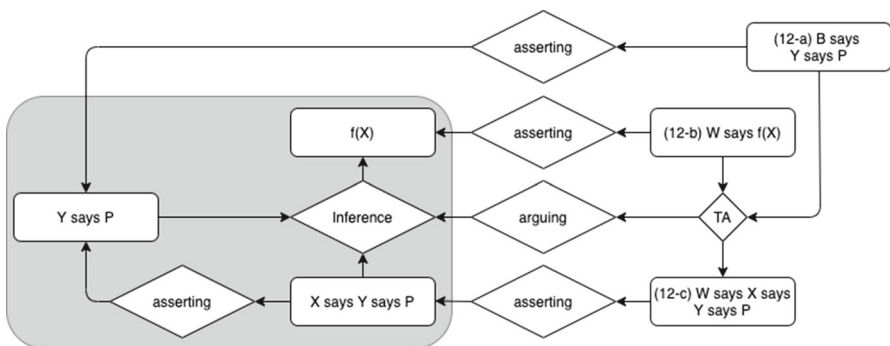


Fig. 8 Analysing Example (12): Reported reported speech in an argument about the reporter

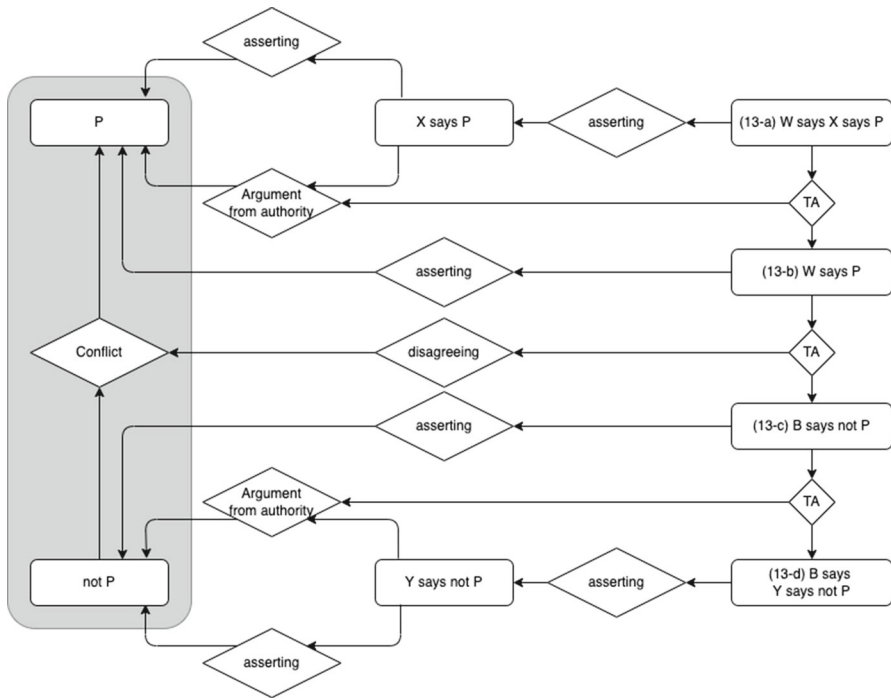


Fig. 9 Analysing Example (13): Rebutting one argument *ad alia* with another

the words that are put into the mouths of those being reported are not quite what was uttered. In such cases, the whole repertoire of attacks on *ad alia* is at our disposal.

5 Attacking *argumentum ad alia*

In this section, we demonstrate how simple *ad alia*: W says P because W says X says P (described in Sect. 2, see Fig. 2) can be attacked. We differentiate six possible argument structures of attacking the *ad alia*: (i) rebutting *ad alia*, i.e. attacking P, see Fig. 9; (ii) undermining *ad alia*, i.e. attacking X says P, Fig. 10; (iii) undercutting *ad alia*, i.e. attacking inferential step from X says P to P, Fig. 11; (iv) undermining *ad alia* by rephrasing, i.e. attacking X says P by saying *What X actually said was P'*, Fig. 12; (v) attacking the ethos of an arguer W, Fig. 13; and (vi) attacking the ethos of the alia X, Fig. 14. In all figures, the top half of the structure (above Conflict node) is always identical: it is the simple *ad alia* from Fig. 2. What differs in each case is the target of the attacking argument structure which is highlighted by a grey box in the figure.

We begin with three straightforward attacks on a proponent’s conclusion of an argument *ad alia* (i.e. the (i)–(iii) attack types)¹⁶. In Example (13), Wilma’s opponent,

¹⁶ The structure here is laid out slightly differently to Fig. 2 to aid interpretation, but the *ad alia* structures in the two figures are isomorphic.

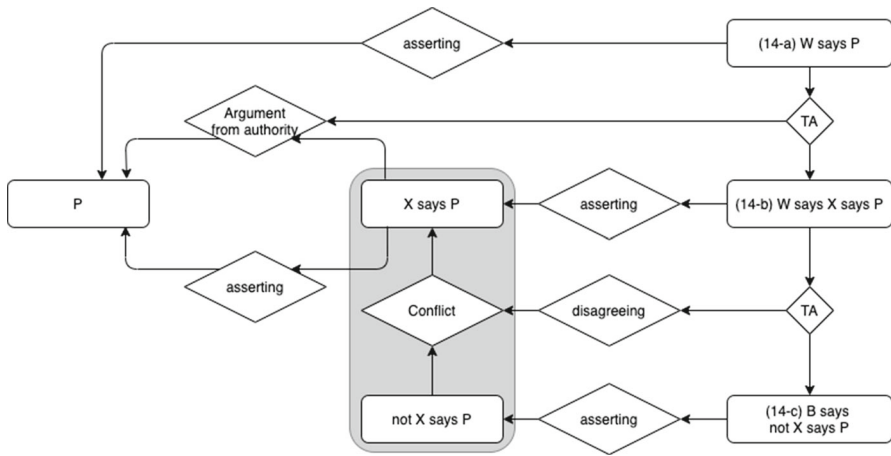


Fig. 10 Analysing Example (14): Undermining an argument *ad alia*

Bob, counter argues with an argument *ad alia* of his own, creating what Toulmin (1958), and later Pollock (1995), call a *rebutting* argument:

- (13) a. Wilma: X said P,
- b. Wilma: so P
- c. Bob: Not P, because
- d. Bob: Y said not P

The top half and the bottom half of Fig. (9) create simple *ad alia* structures described in Sect. 2 (see Fig. 2).¹⁷ The two arguments *ad alia*—Bob’s and Wilma’s—are connected by a transition that anchors the conflict between *P* and *not-P* that Bob is introducing (marked by ‘Conflict’) via an illocutionary act of disagreeing.

Another alternative open to Bob though, is to attack the foundation of Wilma’s *ad alia*, which in Prakken’s (2010) language is called an *undermining* argument:

- (14) a. Wilma: P, because
- b. Wilma: X said P
- c. Bob: X didn’t say that

Here, Bob’s disagreement introduces a conflict between Wilma’s reported speech premise and its explicit negate, as in Fig. 10. In the standard approach, (14-c) can be viewed as an attack brought in by the failure of an argument to fulfil a critical question associated with this scheme (Krabbe, 2002; Budzyska & Reed, 2012). Yet, the difference with undermining non-*ad-alia* arguments is that such an attack on *ad alia* undermines not only an argument, but also an illocutionary connection.

A further alternative is possible in response to *ad alia*: an attack to the passage from premise to conclusion of an *ad alia* argument, in Pollock (1995)’s language, an *undercutting* argument.

¹⁷ The structure here is laid out slightly differently to Fig. 2 to aid interpretation, but the *ad alia* structures in the two figures are isomorphic.

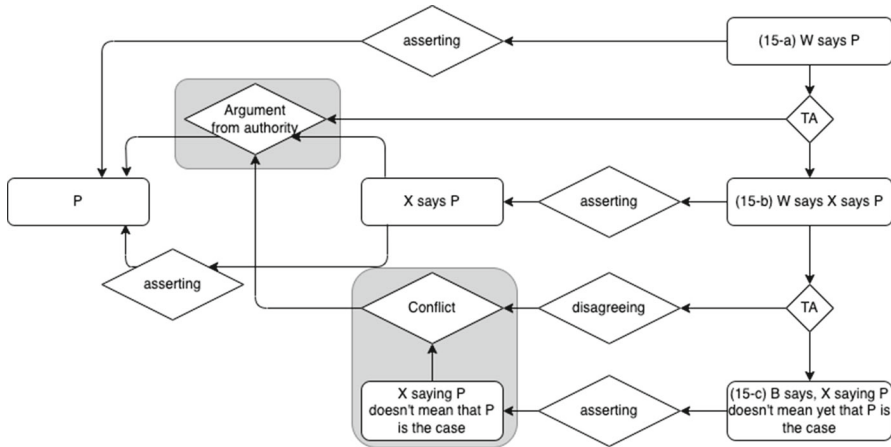


Fig. 11 Analysing Example (15): Undercutting an argument *ad alia*

- (15) a. Wilma: P, because
- b. Wilma: X said P
- c. Bob: Just because X said it, doesn't mean it's the case

There are many concrete instantiations of such undercutting arguments—in the case of arguments *ad alia*, they turn upon the veracity, honesty and reliability of the authority invoked. As explored in Rahwan et al. (2007) and Walton et al. (2008) argumentation schemes in general, and various types of argument *ad alia* in particular, capture these potential undercutters through critical questions. They all, however, follow the same general pattern expressed in Fig. 11 whereby a conflict is established on the application of the inference rule or argument scheme itself.

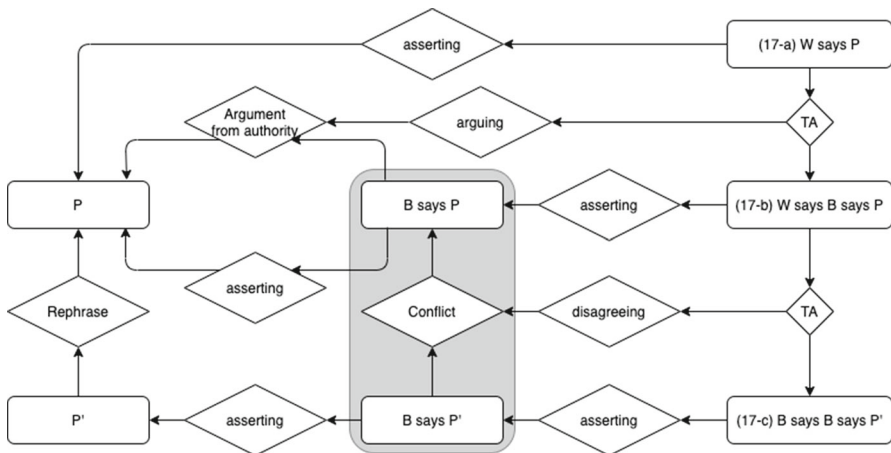


Fig. 12 Analysing Example (17): Attacking indirect reported speech

Perhaps the most stereotypical of attacks of the sorts (i)–(iii) are not when opponent and utterer of reported speech are different, but rather, when they are the same. This pattern is extremely common in natural discourse (see Janier and Reed (2017) for an extensive empirical study in the domain of mediation discourse, for example). In Example (16), we show such a setting for undermining *ad alia* (i.e. for the attack of the (i)-type) in which Bob responds to Wilma’s report of what he previously said.

- (16) a. Wilma: You said P
 b. Wilma: so P
 c. Bob: I didn’t say P

Unpacking Example (16) follows exactly the same pattern as Example (14), and the analysis is exactly isomorphic to that in Fig. 10, except that X is instantiated with Bob in every case.

In principle, whether or not reported speech is direct or indirect makes no difference to an analysis. Where significant changes arise is in the ways in which an arguer can be attacked—or rather, the potential for such attacks is very greatly increased when speech is reported indirectly. In order to take account of indirect reported speech, however, we need also to allow more subtle attacks than the out-and-out negation, or absolute rejection, of the examples (13)–(16) and argument structure of (iv)-type will be created. Again, the stereotypical (though not exclusive) pattern is for the attacker and the utterer of the speech that is reported to be the same individual:

- (17) a. Wilma: P, because
 b. Wilma: You said so
 c. Bob: What I meant was P’

Example (17) is such a common pattern in everyday argumentation that we present the analysis here in Fig. 12 explicitly, despite its inevitable similarities to Fig. 10. This structure allows us to capture the reaction to the fallacy of the straw man, that is, in his reaction Bob might call out that Wilma misrepresented what he has actually said to make it easier for her to attack Bob’s standpoint.

One slightly surprising conclusion that one can draw from the explication in Fig. 12 is that Bob is not necessarily contrasting P and P’. Of course, he may be doing that also, and such an interpretation could be captured with a further conflict between P and P’ created with an additional illocutionary act. Without further information, however, Example (17) does not support such an analysis. Consider, for example, an entirely reasonable continuation of (17) in (18-d) in which Bob explicitly marks his agreement with Wilma’s standpoint:

- (18) a. Wilma: P, because
 b. Wilma: You said so
 c. Bob: What I meant was P’
 d. Bob: But yes, P

Example (18) is in no way pragmatically incoherent, nor epistemically inconsistent, nor even terribly unusual.

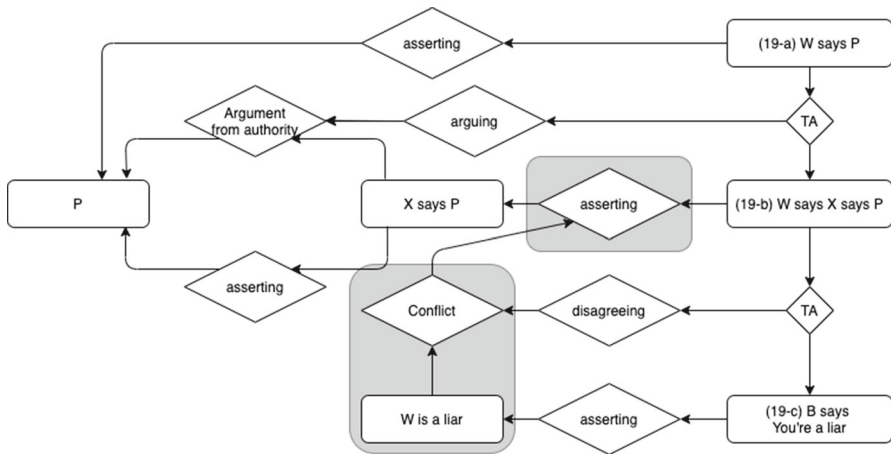


Fig. 13 Analysing Example (19): Attacking the ethos of an arguer

In general, it is also possible for opponents to attack the conditions not only of the material content of an argument (which Budzyska (2013) refers to as the *logotic* component, and Johnson (2003), the illiative core) but also the conditions on the illocutions of arguments (many of which are *ethotic* (Budzyska, 2013, p. 3192)) which will lead to the creation of attacks of type (v) and (vi). In arguments involving reported speech considered in this section, there are two such ethotic attacks possible which need to be teased apart. In Example (19), it is the arguer themselves that has their ethos attacked. This attack is targeted at the illocutionary act—sincerity, after all, is the focus of one of the constitutive rules of assertion (Searle, 1969). The conflict that is introduced by Bob’s disagreement at (19-c) is thus in Fig. 13 shown to be targeting Wilma’s illocution itself.

- (19) a. Wilma: P, because
- b. Wilma: X said P
- c. Bob: You’re a liar

In Example (20), on the other hand, Bob does not take issue with his arguer, but rather with her source—her “*alia*”. The shift in focus of the conflict to the illocution of that speaker becomes clear in Fig. 14. The conflict that is introduced performs two functions because it attacks the sincerity of the source X: that sincerity serves *both* as an (implicit) premise in the *Argument from Authority* *and* as a felicity condition on the illocutionary act. This dual role of the attack is unpacked in Fig. 14¹⁸.

- (20) a. Wilma: P, because
- b. Wilma: X said P

¹⁸ The analysis in Fig. 14 is simplified; as is hinted here, the fact of X’s sincerity should be represented explicitly, as it is this single fact that is attacked; this single fact that serves the two roles of licensing the illocution and serving as premise in the argument. Such unpacking of conditions of speakers’ *ethos* is explored in other work (Budzyska, 2013) (see also (Macagno, 2013)), but is not crucial to the exposition here, so we opt instead for this simplified version presented in Fig. 14.

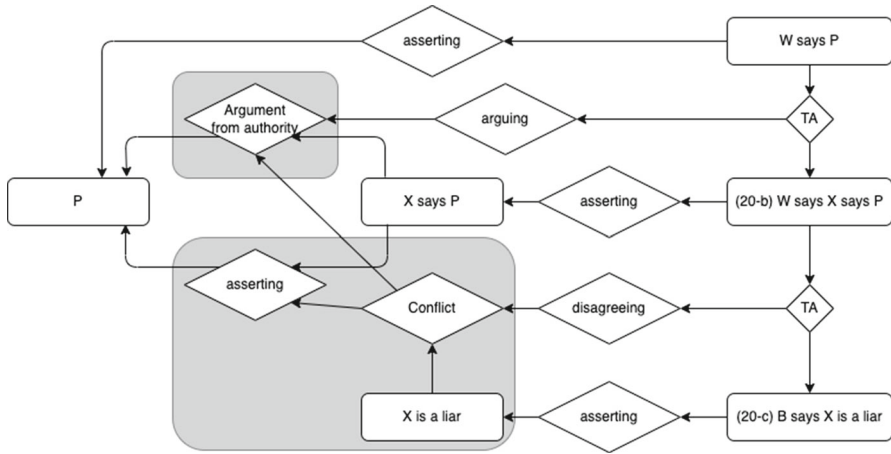


Fig. 14 Analysing Example (20): Attacking the ethos of the alia

c. Bob: X is a liar

6 Argumentum ad argumenta aliorum: re-using argumentum ad alia

So far, we have seen how a speaker’s arguments (specifically, arguments *ad alia*) can be built from raw materials that include the utterances of others and how they can be attacked. But there is a further challenge presented by situations in which a speaker refers to entire arguments of others—*argumenta aliorum*—and uses them in a new argument of her own: the *argumentum ad argumenta aliorum*.

Logical characterisations of arguments in natural language of the form, *P so Q*, are notoriously imperfect (Anderson & Belnap, 1976). Quite apart from whether material implication is the right model of such epistemic structures, there is also distinct vagueness in the expression of implication as opposed to entailment. What we are interested in here, however, is the way in which a speaker can refer to someone else’s argument, and in this case things are a little clearer, since *ex definitione*, we want to focus on descriptions of the passage from premises to conclusions—that is upon entailment—rather than on descriptions of rules, generalisations or implications.

A further complication is that we need to be careful to tease apart the different uses of *argumenta aliorum*: it may be that they are being adduced by a speaker to support their own position, or may be mentioned in order that the speaker can go on to attack them, or may simply be laid out with the speaker abstaining from opinion. We can begin by unpacking this third case: the mere mentioning of argument.

A minimal argument, in our analysis, is a complex involving a relation (specifically, a relation that encapsulates the application of a rule of inference in a given situation) between (at least) two propositions. Reporting an *argumentum aliorum* therefore necessarily involves the reporting of all the parts of that complex. It is a trivial observation that a single locution might anchor multiple speech acts: any linguistic conjunction

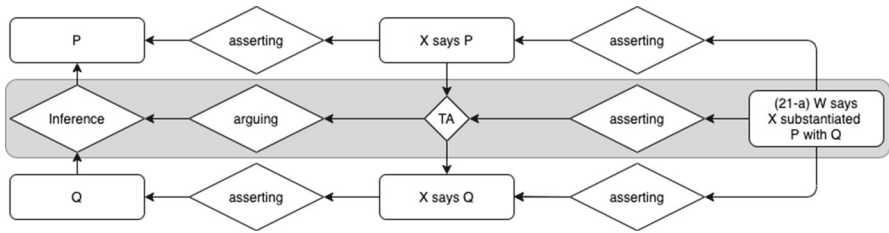


Fig. 15 Analysing Example (21): A reported argument

will serve to exemplify. Wilma’s assertion in 6 thus comprises three illocutions, one capturing X’s assertion of the premise, one capturing their assertion of the conclusion and the third capturing the step between. This final component (omitted in discourse analysis accounts such as Janier and Reed (2017)) has as its content the dialogical transition between the first two: it is not the argument that is being reported, but rather the rule-following act (Miller & Wright, 2002) of a specific speaker following the rule of dialogue by which that argument is created. In the language of Sect. 2, it is more correct to gloss the assertion in (21-a) as *X substantiated P with Q* (this also avoids the awkward ambiguity of the binding of the lexeme *so* which could be interpreted in such a way as to reduce Example (21) to Example (5)).

(21) a. Wilma: X said Q so P

In Fig. 15, this observation is unpacked: the bottom path represents Wilma’s asserting of X’s asserting the premise *Q*; the top path describes Wilma’s asserting of X’s asserting the conclusion *P*; and the middle path captures that Wilma also asserted that X created a step from *Q* to *P*. The inferential step ascribed to X in Wilma’s report is anchored via the illocutionary connection of arguing in a dialogical event of the transition between *X saying P* and *X saying Q*. The structure of the transition being anchored via asserting in Wilma’s locution captures the fact that this dialogical event of rule following did not necessarily take place, but it is only uttered by Wilma. As a result, the report of an argument can be attacked in the similar manner as for any other reported speech activity as described in Sect. 5.

With our protagonist reporting X’s argument, how now can she make use of it? By simple analogy to the arguments *ad alia* from Sect. 4, she can use X’s expression of the conclusion to support her own, as in Example (22). This is effectively a regular argument *ad alia* such as (5) that is simply contextualised by the *argumentum aliorum* that precedes it: this is clear from the structure of *argumentum ad argumenta aliorum* in Fig. 16.

(22) a. Wilma: P, because
 b. Wilma: X substantiated P with Q

But it is the potential for dialectical interaction with arguments *ad argumenta aliorum* that demonstrates the richness of the account. First, let us distinguish between an attack against the argument itself, as in Example (23) and an attack against the discursive activity that created the argument, as in Example (24). In direct analogy to

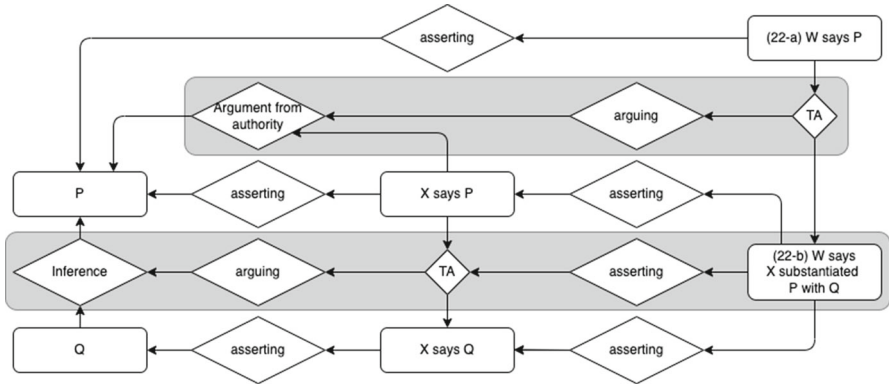


Fig. 16 Analysing Example (22): A simple argument *ad argumentum aliorum*

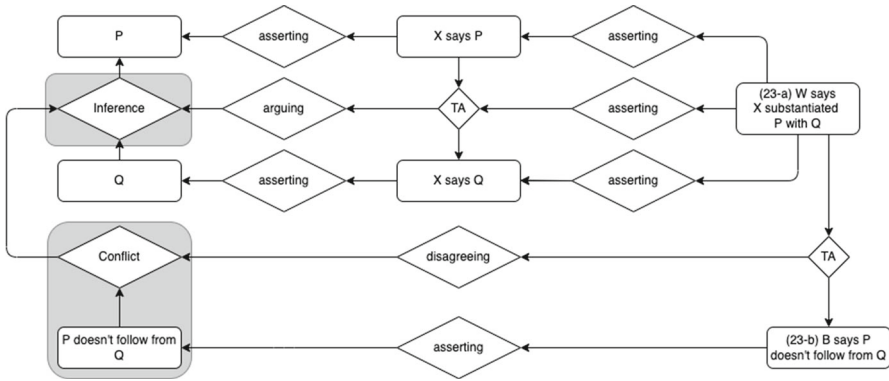


Fig. 17 Analysing Example (23): Attacking *argumentum aliorum*

Examples (15) and (16) in Sect. 5, the most common and stereotypical configuration of argument of this latter form is when it is the interlocutor that is the speaker referred to, as in (25), which is structurally identical to (24): both are analysed in Fig. 18.

- (23) a. Wilma: X substantiated P with Q
- b. Bob: In fact, P doesn't follow from Q

In Fig. 17, the three top paths are the same as in the structure described in Fig. 15. The content of Bob's response, i.e. *P doesn't follow from Q*, is in conflict with the inferential step between *Q* and *P*. This creates a structure of the undercutter on the argument *Q so P*, similarly to Example (15) unpacked in Fig. 11. In other words, Bob attacks in this case *argumentum aliorum*, i.e. an argument ascribed to X in Wilma's report. Yet another counter is available for Bob here too:

- (24) a. Wilma: X said Q so P
- b. Bob: X never substantiated P with Q

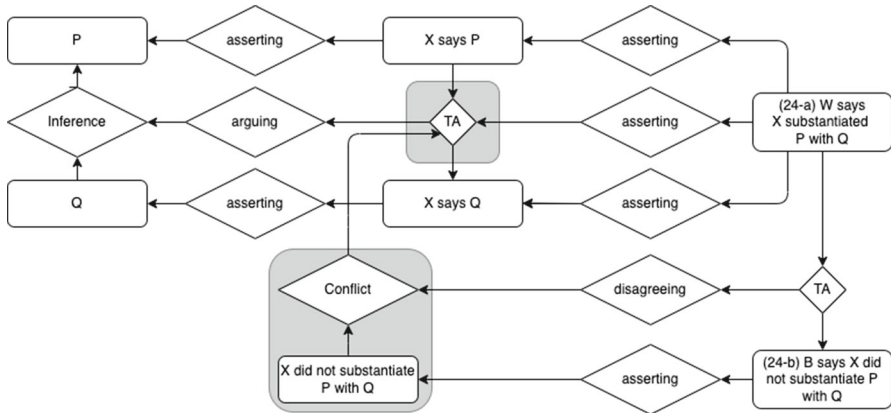


Fig. 18 Analysing Examples (24) and (25): Attacking *argumentum ad argumenta aliorum*

- (25) a. Wilma: You said Q so P
- b. Bob: I never substantiated P with Q

In Fig. 18, the three top paths are again the same as in Fig. 15, but the content of Bob’s response, i.e. *X never substantiated P with Q* (or in the same way: *I never substantiated P with Q*), is in conflict with the transition between *X says P* and *X says Q* (or between *I said P* and *I said Q*). This means that Bob disagrees that the discourse activity, which created the argument *Q so P*, did actually take place. As a result, this time he undercuts *argumentum ad argumenta aliorum*.

The difference between structures in Figs. 17 and 18 is subtle, and might be glossed as the difference between, on the one hand, the argument from *Q* to *P* isn’t good, and, on the other, the argument from *Q* to *P* never happened. In either case, interlocutors might nevertheless (and coherently) agree not only that *P* and *Q* were said, but furthermore that they might agree with them—only that the argument itself defaults or despite being uttered, *P* and *Q* were never, in fact, arranged into an argument.

We can now go back to the Copernicus example described in Sect. 2. We split the text into three locutions performed by the author of the text, a_0 (we follow the notation from Gobbo et al. 2022). In the first locution, a_0 reports that the editor, John Lowell b_1 , argues that Copernicus was guilty of plagiarism; in the second locution, a_0 reports that b_1 builds his argument upon an argument presented by dr. P. Smith c_2 ; and in the third locution, a_0 introduces his own argument against what has been said:

- (26) a. a_0 : In his article “Plagiarism: A rich tradition in science”, b_1 argues that Copernicus was also guilty of *plagiarism*¹⁹
- b. a_0 : b_1 refers to an article by c_2 who argues that Copernicus was guilty of *plagiarism*: it appears that he “*forgot*” to mention that Aristarchos of Samos had already arrived at a heliocentric theory.
- c. a_0 : It is, however, *doubtful* that Copernicus knew of this.

¹⁹ Italic indicates variables used in Fig. 19.

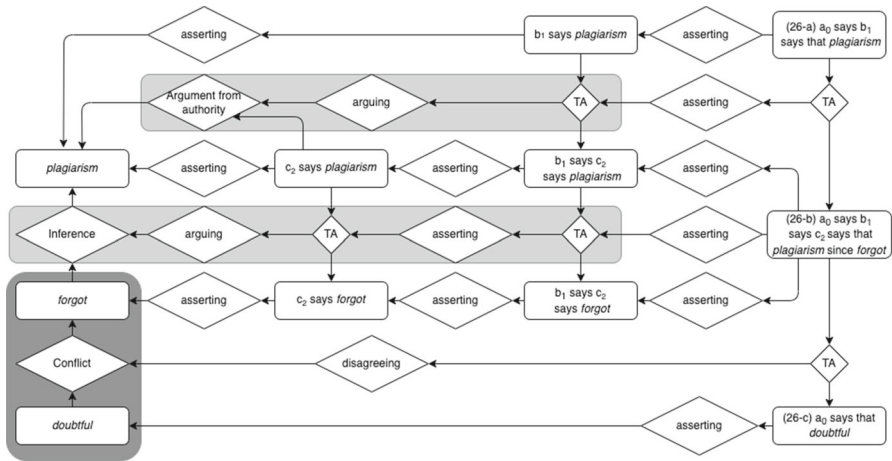


Fig. 19 Analysing Example (26): a reported *argumentum ad argumenta aliorum* (top and middle grey boxes), and an attack on the premise of *argumentum aliorum* (dark grey box)

In Fig. 19, two light grey boxes indicate *argumentum ad argumenta aliorum* which corresponds to the argument in Fig. 16. In contrast to Fig. 16, however, in Fig. 19 the additional nodes to the right of the grey boxes express that this argument has not been uttered by b₁ himself, but was reported by a₀. Further, the dark grey box represents an attack on *argumentum ad argumenta aliorum*. The difference between this attack and the attacks in Figs. 17 and 18 lies in the component of *argumentum ad argumenta aliorum* which is now targeted: while in Fig. 17 the inference has been attacked and in Fig. 18—the transition, in Fig. 19—it is the premise of *argumentum aliorum*.

This representation allows us to overcome the shortcomings of the standard account described in the introduction. First, authors of each text/location are explicitly represented. Although they are also captured in Gobbo et al. (2022), here the representation is included into standard-like model of argument structure rather than in the model of Adpositional Argumentation trees. As a result, we can now capture that the subsequent move can attack the credibility of all speakers involved in this argument: both the *alia* and the arguer rather than just the *alia* as it is the case in the standard account:

(27) Bob: c₂ is a liar (this attack can be captured in the standard account as well)

(28) Bob: b₁ is a liar

(29) Bob: a₀ is a liar

While Example (27) corresponds to Fig. 14 and Example (28) corresponds to Fig. 13, Example (29) creates a new argument structure where an attack is targeted at Asserting node between what a₀ has said and what has been said by a₀.

Next, we are now able to distinguish between an argument *ad argumenta aliorum* such as depicted in Fig. 16 and its report such as in Fig. 19. In the latter case, *argu-*

mentum ad argumenta aliorum (light grey boxes) is created as a content of what a_0 asserted (nodes to the right of light grey boxes). As a result, it is clearly indicated that Claim 2: *doubtful*, has a_0 as its owner, while Claim 1: *plagiarism*, has b_1 as its owner. Yet since the node “ b_1 says *plagiarism*” is still the content of the locution “ a_0 says b_1 says *plagiarism*”, this means that the ownership has been only reported by a_0 . In other words, the attack (29) captures an accusation that a_0 committed the straw man fallacy and misrepresented b_1 's argument.

Finally, we can capture that Lowell's claim is built upon Smith's argument rather than upon Smith's assertion. This is distinguished by using the argument structure of *argumentum ad argumenta aliorum* (such as Fig. 16) instead of the structure of *argumentum ad alia* (such as Fig. 2). In Fig. 19, we are able to express that b_1 argues *ad alia* that *plagiarism* because c_2 said so (the top grey box), but also that b_1 argues *ad argumenta aliorum* that c_2 said that *plagiarism* because *forgot* (the middle grey box). As a result, we can precisely indicate targets of a variety of attacks on such arguments such as in Fig. 19, but also in Figs. 17 and 18. The account proposed in this paper is thus rich and nuanced enough to be able to represent a repertoire of argument structures in which argumentation of *alia* is used, re-used and attacked.

7 Conclusions

The goal of this paper has been to provide the analytical insight and formal expressivity to unpack and understand how the words of others can be adduced in argumentative discourse in structures we call arguments *ad alia*. We have demonstrated that the approach allows for overcoming the shortcomings and problems of the standard accounts of *argumentum ad alia*. Through a series of cases, we have shown that the approach provides in addition a straightforward framework for explaining the interactions between structures of argument and structures of reported speech. Finally, the analysis techniques developed here can be used to unpick complex uses of entire arguments of others when used in combination with one's own: *argumentum ad argumenta aliorum*. Throughout, it is the variety of ways in which a protagonist's arguments can be attacked that is used to explore the variations and expressivity of the formal analysis.

The analytical rigour and robustness of the model of interactions between reported speech and argumentation means that it can be used in earnest in both large-scale linguistic annotation as well as automated computational processing. This provides the theoretical underpinnings opening the path for understanding, e.g., how fake news nests reporting information to hide its original sources and how misinformation can be built on misreporting and misquoting.

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References

- Andersen, L., Andersen, H., & Sørensen, H. (2020). The role of testimony in mathematics. *Synthese*, 199(1–2), 859–870.
- Anderson, A. R., & Belnap, N. D. (1976). *Entailment: The logic of relevance and necessity*. Princeton University Press.
- Austin, J. L. (1962). *How to do things with words*. Oxford University Press.
- Belnap, N. (1991). Backwards and forwards in the modal logic of agency. *Philosophy and Phenomenological Research*, 51(4), 777–807.
- Brendel, E., Meibauer, J., & Steinbach, M. (2011). *Understanding quotation*. Mouton series in pragmatics. De Gruyter.
- Brinton, A. (1986). Ethotic argument. *History of Philosophy Quarterly*, 3, 245–257.
- Budzynska, K. (2013). Circularity in ethotic structures. *Synthese*, 190(15), 3185–3207.
- Budzynska, K., Koszowy, M., & Pereira-Fariña, M. (2021). Associating ethos with objects: Reasoning from character of public figures to actions in the world. *Argumentation*, 35(4), 519–549.
- Budzynska, K., & Reed, C. (2011). *Whence inference*. Tech. rep.: Technical Report, University of Dundee.
- Budzynska, K., & Reed, C. (2012). The structure of ad hominem dialogues. *Computational Models of Argument-Proceedings of COMMA*, 245, 410–421.
- Calsamiglia, H., & Ferrero, C. (2003). Role and position of scientific voices: Reported speech in the media. *Discourse Studies*, 5(2), 147–173.
- Clark, H. H., & Gerrig, R. J. (1990). Quotations as demonstrations. *Language (Baltimore)*, 66(4), 764–805.
- Freeman, J. B. (2011). *Argument structure: Representation and theory*. Springer.
- Gobbo, F., Benini, M., & Wagemans, J. H. M. (2022). More than Relata Refero: Representing the various roles of reported speech in argumentative discourse. *Languages*, 7, 59.
- Goldman, A. I. (1999). *Knowledge in a social World*. Oxford University Press.
- Goldman, A. I., & Whitcomb, D. (Eds.). (2011). *Social epistemology: Essential readings*. Oxford University Press.
- Goodwin, J. (1998). Forms of authority and the real ad verecundiam. *Argumentation*, 12, 267–280.
- Goodwin, J. (2010). *Trust in experts as a principal-agent problem*. College Publications.
- Goodwin, J. (2011). Accounting for the appeal to the authority of experts. *Argumentation*, 25, 285–296.
- Groarke, L., & Tindale, C. (2008). *Good reasoning matters!* (4th ed.). Oxford University Press.
- Gurevych, I., Hovy, E. H., Slonim, N., & Stein, B. (2016). Debating technologies (Dagstuhl seminar 15512). In: Dagstuhl Reports, (vol. 5, pp. 18–46).
- Hamblin, C. (1970). *Fallacies*. Methuen.
- Hansen, H. V., & Pinto, R. C. (Eds.). (1995). *Fallacies: Classical and contemporary readings*. Pennsylvania State University Press.
- Herman, T. (2022). Ethos and pragmatics. *Languages*, 7(3), 165.
- Hinton, M. (2001). Why the fence is the seat of reason when experts disagree. *Social Epistemology*, 33(2), 160–171.
- Janier, M., & Reed, C. (2017). I didn't say that! Uses of SAY in mediation discourse. *Discourse Studies*, 19(6), 619–647.
- Johnson, R. H. (2003). *Manifest rationality: A pragmatic theory of argument*. Lawrence Erlbaum.
- Koszowy, M., & Walton, D. (2017). Profiles of dialogue for repairing faults in arguments from expert opinion. *Logic and Logical Philosophy*, 26(1), 79–113.
- Koszowy, M., & Walton, D. (2019). Epistemic and deontic authority in the argumentum ad verecundiam. *Pragmatics and Society*, 10(2), 151–179.

- Krabbe, E. (2002). *Profiles of dialogue as a dialectical tool* (pp. 153–167). Sic Sat and Vale Press.
- Lawrence, J., & Reed, C. (2019). Argument mining: A survey. *Computational Linguistics*, 45(4), 765–818.
- Leefmann, J., & Lesle, S. (2020). Knowledge from scientific expert testimony without epistemic trust. *Synthese*, 197, 3611–3641.
- Locke, J. (1690). An essay concerning human understanding.
- Macagno, F. (2013). Strategies of character attack. *Argumentation*, 27, 369–401.
- Mackenzie, J. (1990). Four dialogue systems. *Studia logica*, 4(49), 567–583.
- Miller, A., & Wright, C. (2002). *Rule-following and meaning*. McGill-Queen's University Press.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. Springer.
- Pollock, J. L. (1958). *The uses of argument*. Cambridge University Press.
- Pollock, J. L. (1995). *Cognitive carpentry*. MIT Press.
- Prakken, H. (2010). An abstract framework for argumentation with structured arguments. *Argument and Computation*, 1(2), 93–124.
- Rahwan, I., Zablith, F., & Reed, C. (2007). Laying the foundations for a world wide argument web. *Artificial Intelligence*, 171, 897–921.
- Reed, C., Wells, S., Budzynska, K., & Devereux, J. (2010). Building arguments with argumentation: the role of illocutionary force in computational models of argument. In P. Baroni, F. Cerutti, M. Giacomin, & G. Simari (Eds.), *Proceedings of the 3rd international conference on computational models of argument (COMMA 2010)* (pp. 415–426). IOS Press.
- Roberts, K. G. (2004). Liminality, authority, and value: Reported speech in epideictic rhetoric. *Communication Theory*, 14(3), 264–284.
- Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language*. Cambridge University Press.
- Searle, J., & Vanderveken, D. (1985). *Foundations of illocutionary logic*. Cambridge University Press.
- Shibata, M. (2021). Reported speech as persuasion: A discourse analysis of Japanese journalism. *Japanese Studies*, 41(2), 221–239.
- Smirnova, A. (2009). Reported speech as an element of argumentative newspaper discourse. *Discourse & Communication*, 3(1), 79–103.
- van Eemeren, F. H., & Grootendorst, R. (1992). *Argumentation, communication and fallacies*. Erlbaum.
- van Eemeren, F., Grootendorst, R., & Henkemans, F. (2002). *Argumentation: Analysis and evaluation*. L. Erlbaum.
- Visser, J., Lawrence, J., Reed, C., Wagemans, J., & Walton, D. (2020). Annotating argument schemes. *Argumentation*, 35, 101–139.
- Wagemans, J. (2011). The assessment of argumentation from expert opinion. *Argumentation*, 25(3), 329–339.
- Wagemans, J. (2018). Assertoric syllogistic and the periodic table of arguments. In: *Argumentation and Inference: Proceedings of the 2nd European conference on argumentation*. London: College Publications, (pp. 573–588)
- Wagemans, J. (2019). Four basic argument forms. *Research in Language*, 17, 57–69.
- Walton, D. (1996). *Argumentation schemes for presumptive reasoning*. L. Erlbaum Associates.
- Walton, D. (2006). *Fundamentals of critical argumentation*. Cambridge University Press.
- Walton, D. (2008). *Witness testimony evidence: Argumentation, artificial intelligence, and law*. Cambridge University Press.
- Walton, D. (2011). Defeasible reasoning and informal fallacies. *Synthese*, 179, 377–407.
- Walton, D., Reed, C., & Macagno, F. (2008). *Argumentation schemes*. Cambridge University Press.
- Williamson, T. (2000). *Knowledge and its limits*. Oxford University Press.
- Zenker, F., & Yu, S. (2020). A new typology for arguments from authority. *Proceedings of the Ontario Society for the Study of Argumentation Conference*, 12, 1–16.