

# Modeling argumentative activity in mediation with Inference Anchoring Theory: The case of impasse

MATHILDE JANIER

*Centre for Argument Technology, University of Dundee, UK*  
[m.janier@dundee.ac.uk](mailto:m.janier@dundee.ac.uk)

MARK AAKHUS

*School of Communication and Information, Rutgers, USA*  
[aakhus@rutgers.edu](mailto:aakhus@rutgers.edu)

KATARZYNA BUDZYNSKA

*Institute of Philosophy and Sociology, Polish Academy of Sciences,  
Poland*  
[budzynska.argdiap@gmail.com](mailto:budzynska.argdiap@gmail.com)

CHRIS REED

*Centre for Argument Technology, University of Dundee, UK*  
[c.a.reed@dundee.ac.uk](mailto:c.a.reed@dundee.ac.uk)

The goal of this paper is to model the moves mediators and disputants make in mediation activity. What is of interest here is the generic modeling of the moves in the discussion so that the insights of various theories of argumentation can be brought to bear. For this we turn to the Inference Anchoring Theory (IAT) approach. IAT, in particular, allows showing how sequences of utterances work together to form arguments in a dialogical context.

**KEYWORDS:** argumentative structure, Inference Anchoring Theory, mediation discourse

## 1. INTRODUCTION

Our interest is in modeling the moves mediators and disputants make to manage impasse in mediation activity. While mediation is conducted to repair a relationship, whether personal or professional, the activity of mediation itself can breakdown. That is, the negotiation or planning that

a mediator is helping disputing parties achieve can begin to go wrong or fail (Jacobs & Jackson, 1992). It is under the conditions of impasse when the breakdown of mediation activity becomes apparent. Aakhus (2003) has identified three sources of impasse that undermine the conditions for holding a critical discussion (or the approximation of such a dialogue in real life).

For present purposes we do not comment on whether mediation is a full blown institutionalized activity organized around the resolution of disagreement or whether it is a practice that varies considerably in terms of its formality and values for communication (e.g. (Jacobs & Aakhus, 2002; Greco Morasso, 2011, 2008). We do recognize and highlight that mediators play a role in shaping and conditioning the argumentative possibilities and qualities of discussions aimed at managing conflict. What is of interest here is the generic modeling of the moves by disputants and mediators to a relevant discussion so that the insights of various theories of argumentation can be brought to bear, just as Hamblin (1970), Walton and Krabbe (1995) or Prakken (2006) did for other types of dialogues. For that we turn to the Inference Anchoring Theory (IAT) approach (Budzynska & Reed, 2011). Indeed, IAT allows for the exploration of the link between argumentation and dialogical processes. It relies on the assumption that argumentation structures are anchored in the communicative process via illocutionary connectives related to the illocutionary force (Budzynska & Reed, 2011). The notion of illocutionary force, introduced in speech act theory (Austin, 1962; Searle, 1969), refers to communicative functions. In IAT the dialogical act “Bob says  $p$ ” is linked to the propositional content  $p$  via an illocutionary connection (here, *asserting*).

In this paper, we take up the task of accounting for the argumentative moves in dispute mediation by drawing upon and expanding the insights of Inference Anchoring Theory. A feature of this approach is its ability to remain agnostic about particular argumentation theories while incorporating many of the most important insights of pragmatic theories of argumentation. For these reasons, IAT seems well-suited to the challenge of modeling the moves of mediators and disputants. Dialogues analyzed in IAT are represented as graphs that make it possible to describe dialogue dynamics and structure in a very precise way. IAT also allows eliciting dialogical specificities that other theories fail to grasp, in particular how sequences of utterances work together to form arguments in a dialogical context even in the absence of obvious linguistic indicators (Yaskorska, 2014).

Disputants, along with the mediators, will generally face impasses throughout the mediation. Impasses refer to situations in which the discussion leads nowhere and nothing constructive comes out

of it. Aakhus (2003) studied the three main sources of impasse that can occur during mediation: irreconcilable facts, negative collateral implications and unwillingness to be reasonable. Irreconcilable facts are discussants' claims concerning their opponent's state of mind, or "unwitnessable events" that cannot be verified and are subject to digressions. Negative collateral implications refer to disputants' claims challenging their opponent's character or competence. Unwillingness to be reasonable refers to moments when a disputant recognizes that the opponent's argument is legitimate, but refuses to take it into account in the pursuit of the argument. Given that impasse threatens the discussion, strategies to manage the sources of impasse need to be developed. In (Aakhus, 2003; Greco Morasso, 2011) three such strategies are identified: redirecting, temporizing, and relativizing. Mediators relativize the assumptions by discounting the party's claims or actions; they temporize the dispute by fostering temporary arrangements when no agreement seems possible on key issues; finally, they redirect the discussion toward more relevant issues when it seems to lead nowhere.

We propose here a method for analyzing the structure of mediation discourse using the IAT framework, and focusing on impasse (when the discussion between parties is blocked) and the strategy that is directly deployed to overcome it. The mediator's role, through the deployment of strategies, exposes aspects of argumentation that are, in other contexts than mediation, usually implicitly managed by discussants. Given that impasse is a typical breakdown in the mediation session, the visibility of what mediators have to do to overcome it, make apparent aspects of dialogical argumentation. Applying IAT to mediation impasse improves the likelihood of capturing the non-obvious markers and indicators of argumentation in dialogue. This method aims at providing a generic modeling of mediation discourse for the comparison of patterns proper to mediation.

The analyses presented here were carried out on one single transcript of a mock mediation, where two of the three sources of impasse defined in (Aakhus, 2003) were found: negative collateral implications and unwillingness to be reasonable; we show that in reaction to these particular cases two different strategies are deployed: redirecting and temporizing. We will focus on these two sources of impasse and the strategies that are employed to deal with them. Our goal indeed is not to make general claims such as "this type of impasse is always/generally overcome by this particular strategy". Rather, we present a method for the analysis of mediation discourse and mediation strategies.

The paper is structured as follows. In Section 2, we will introduce the theoretical background (i.e. Inference Anchoring Theory). In Section 3

we show how IAT can be used to analyze impasse in dispute mediation. In Section 4 we show how IAT helps in modeling the features highlighted in Section 3. Finally we summarize and present the next steps of the research in Section 5.

## 2. AN INTRODUCTION TO INFERENCE ANCHORING THEORY

Inference Anchoring Theory (IAT) (Budzynska & Reed, 2011) is designed to show and explain how dialogues create arguments. The argumentative aspects of dialogues being rarely obvious, particularly because of the absence of obvious linguistic markers, IAT aims at deriving the arguments through the analysis of a dialogue. The theory explores the dialogical structure of a text to extract its argumentative structure and allows for the representation of the link between the two. An IAT analysis, thus, takes the form of a graph that elicits both dialogical and argumentative structures. All the IAT analyses presented in this paper were produced using OVA+ (Janier, Lawrence & Reed, 2014), a software tool for the analysis of arguments online, accessible from any web browser<sup>1</sup>. The tool was built as a response to the Argument Interchange Format theory (Chesveñar, McGinnis, Modgil, Rahwan, Reed, Simari, South, Vreeswijk & Willmott, 2006): it is a tool allowing what the AIF has advocated for, i.e. the standardized representation of arguments which gives the possibility to exchange, share and reuse argument maps. The system uses the framework provided by IAT, what allows for a representation of the argumentative structure of a text, and more interestingly, of dialogues. IAT indeed provides a theoretically well-founded counterpart to AIF. The analyses presented in this paper, plus many more, are available on the AIFdb-Corpora (Lawrence, Janier & Reed, this issue) webpage<sup>2</sup>. This interface allows gathering and sorting analyses made in OVA+ into corpora. The aim is to provide a framework where analyses can be shared and reused.

For a better understanding of IAT and OVA+, let's consider the example (1) and its IAT analysis in figure 1.

- (1)  
Participant1: *Scotland is the best country on Earth.*  
Participant2: *Why is Scotland the best country on Earth?*  
Participant1: *Sceneries are breath-taking.*  
Participant2: *Winters are too cold there.*

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<sup>1</sup> <http://ova.arg-tech.org>

<sup>2</sup> <http://corpora.aifdb.org>

The IAT analysis of example (1) illustrates the representation of both the dialogical and the argumentative structure of the dialogue:

- The right-hand side of the graph shows the dialogical structure with:
  - Locution nodes: the reports of the discourse events
  - Transition nodes: the transitions between the locutions or rules of dialogue (TA-nodes)
- The left-hand side of the graph shows the argumentative structure with:
  - Information nodes: the propositional content of each locution (in front of the corresponding locution node)
  - Relations of inference: the relations connecting premises to conclusions
  - Relations of conflict: the relations connecting conflicting information
  - Relations of reframing (two pieces of information which mean the same despite a different linguistic surface)
- The relation between the dialogical and the argumentative structure:
  - Illocutionary connections anchored in the locutions (such as *asserting, challenging, questioning, etc.*)
  - Illocutionary connections anchored in transitions (such as *arguing, explaining, disagreeing, etc.*)

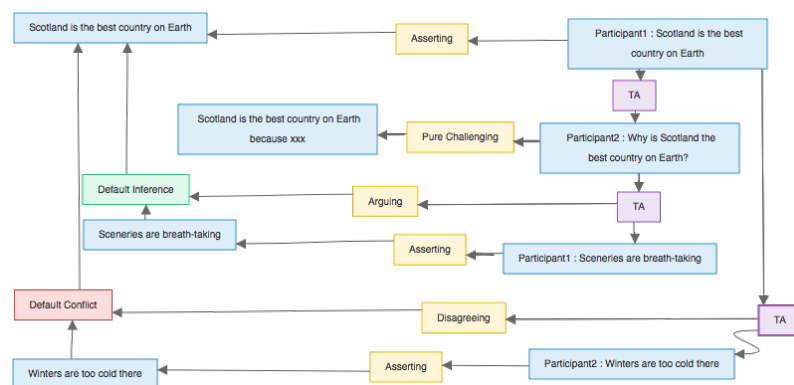


Figure 1. IAT analysis of example (1)

Figure 1 is to be read as follows: Participant 1 asserts that Scotland is the best country on Earth, and Participant2 asks her the ground for stating this. Despite the absence of conventional linguistic indicators such as 'because', the reader (or hearer, or analyst) understands that Participant1's second claim is actually supporting the

first one. It is in virtue of the very fact that “Sceneries are breath-taking” was uttered just after Participant2’s challenge (shown by the transition node between them) that we know that the latest claim acts as a premise to the first one. This is shown through the illocutionary connection of *arguing* anchored in the transition node. Participant2 in his turn asserts that Scotland is too cold during winters. Once again, it is in virtue of the very fact that this claim was pronounced after Participant1’s argument (shown by the third transition node) that we understand that Participant2 is disagreeing with Participant1, even if no linguistic indicator signals this. This is represented by the illocutionary connection of *disagreeing* that is anchored in the transition node and takes as a propositional content the conflict node between the participants’ claims.

### 3. ANALYZING IMPASSE IN MEDIATION

#### 3.1. Using IAT to annotate argumentative mediation discourse

Inference Anchoring Theory is designed to capture specific details of argumentation, however, not all of them: some characteristics of dispute mediation cannot be expressed. For example, non-verbal communication cannot be captured here. It is a good start, however, for analyzing dialogical argumentative discourse. This framework has proven particularly stable when used to study real-life argumentation such as debate (Yaskorska, 2014; Budzynska, Janier, Kang, Konat, Reed, Saint-Dizier, Stede & Yaskorska, this issue; Janier & Yaskorska, this issue) and already revealed useful to analyze many facets of mediation discourse (Janier, Aakhus, Budzynska & Reed, 2014; Janier & Reed, 20XX). For the purpose of this paper, we use IAT to analyze two specificities of mediation discourse: the sources of impasse and the strategies to deal with them.

To begin with, table 1 and 2 summarize the illocutionary connections provided by IAT found in mediation discourse.

<b>Illocutionary connection</b>	<b>Abbreviation</b>
pure question	PQ
assertive question	AQ
rhetorical question	RQ
assertive challenge	ACh
pure challenge	PCh
rhetorical challenge	RCh
assertion	A
ironic assertion	IA
popular concession	PCn

Table 1. List of illocutionary connections anchored in locutions in mediation

Table 1 provides the list of illocutionary connections anchored in locutions that were found in mediation discourse. Assertions and ironic assertions are used to communicate one's opinion, however, with an ironic assertion the speaker says (deliberately) the contrary of what she means and thinks. Popular concessions (PCn) are used to communicate general knowledge (e.g. "Everybody knows that p "). There are three types of question: pure questions (PQ) are used to ask about the hearers' opinion; assertive questions (AQ) and rhetorical questions (RQ) both convey an assertive intention, but when a speaker uses a rhetorical question, she does not expect any reply (contrary to assertive questions). The distinction between pure, assertive and rhetorical holds for challenges as well. Challenges are used to ask about the grounds for the hearer's opinion. The illocutionary connections anchored in transition nodes are presented in table 2.

<b>Illocutionary connections</b>	<b>Functions</b>
arguing	the speaker provides one or more premises to a conclusion
explaining	as above except that this time, all speakers generally know or agree on the conclusion
agreeing	the speaker agrees with another speaker
disagreeing	the speaker disagrees with another speaker
contradicting	the speaker contrasts or concedes

Table 2: List of illocutionary connections anchored in transitions in mediation discourse

For a more detailed explanation of IAT illocutionary connections, the reader can also refer to (Budzynska, Janier, Reed & Saint Dizier, 2013).

For the purpose of this paper, we will focus on impasses, the trickiest moments of a mediation session. The dialogues analyzed here are taken from the transcript of a mock mediation provided by Dundee's early dispute resolution center<sup>3</sup>. The mediation session involves two parties, Viv and Eric, and two mediators, George and Mildred. The transcript only captures a small part of an entire typical mediation session, but the video it is extracted from is used by training mediators, and we found two of the three sources of impasse presented by Aakhus (2003): negative collateral implications and unwillingness to be reasonable. For these reasons we think that this transcript contains realistic data and thus suits our needs. In the transcript, Viv initiated mediation because she is not happy with the way her boss Eric regards her work and she wants more acknowledgements.

### *3.2. Negative collateral implications and redirecting. etc.*

Negative collateral implications refer to disputants who make claims that challenge their opponent's character or competence (Aakhus, 2003). In the specific example presented below, the source of impasse is followed by the strategy of *redirecting*; mediators redirect the dialogue by shifting the topic of the discussion towards more relevant issues. In our corpus (see example (2)), this source of impasse appears after one of the mediators pointed out the fact that the two parties Viv and Eric have a communication problem when they talk about a particular project they have to deal with. Eric, the boss, does not want to give some tasks to Viv because he is not sure she can deal with them.

(2)

a. Eric: *I'm just a bit reluctant to hand over to Viv at this early stage, because of the complexity and if you make a mistake, you waste such a lot of time. But I don't know whether Viv thinks that she's up to it or whether you think you could handle that project.*

b. Mildred: *What about if we perhaps separate it, had a bit of time and we spoke with each of you to look at the finance project and just see our different expectations and*

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<sup>3</sup> <http://dundee.ac.uk/academic/edr>



*what you would see dealing with that project and then perhaps when we had a picture from both of you, if both of you came back to discuss your different pictures. Do you think that would work?*

In example (2), Eric says that he does not want to hand over one of the projects to Viv because the task is very complicated. The first sentence highlights the complexity of the task and the cost of mistakes that could result from handing the project over to Viv too soon. The second sentence pushes the choice away from Eric to Viv, as though he is not the one to take the responsibility for the decision. Both sentences though seem to carry the implication that Viv is either not qualified or not yet ready or both. The mediator then opens a conversation to avoid this subject and shifts the topic of the discussion from whether Viv is qualified and whether Viv or Mildred should decide whether Viv is qualified, toward discussing the task itself and the expectations around it. Thus Viv's competence is taken out of the discussion. The IAT analysis of this excerpt is given in figure 2.

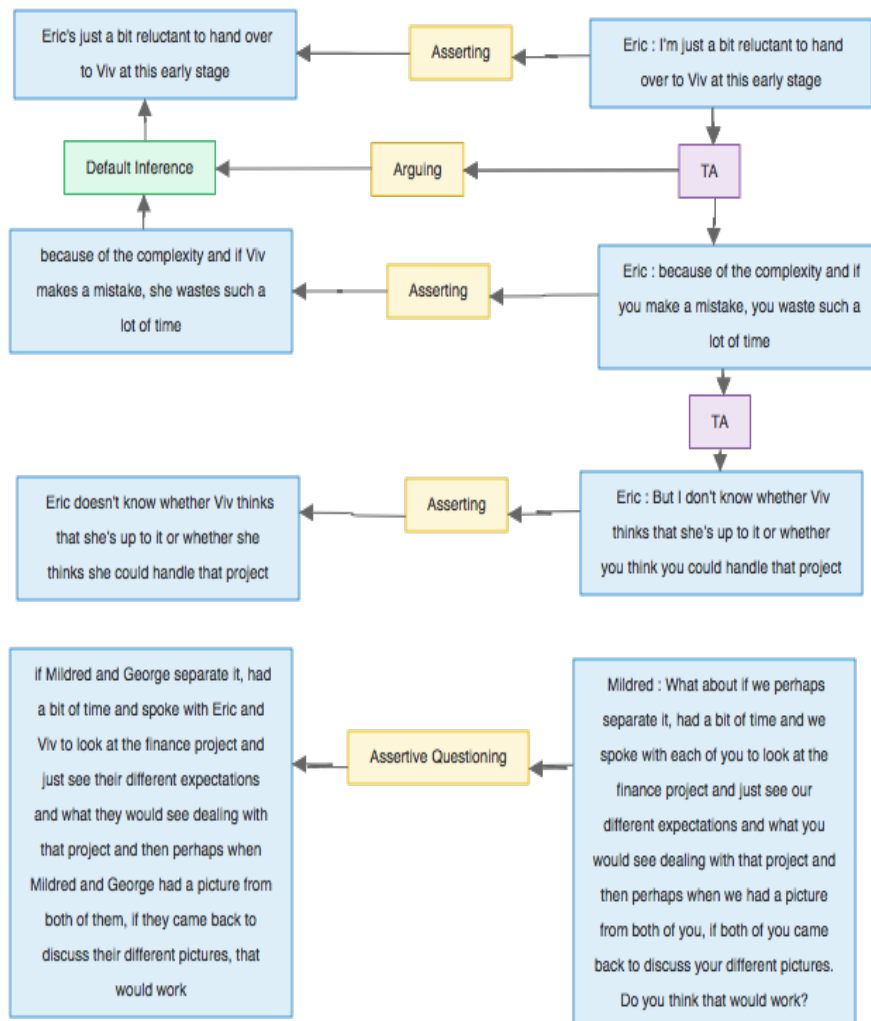


Figure 2. IAT analysis of example (2)

The use of IAT to analyze this extract allows for the detection of the different moves corresponding to the source of impasse and to the mediator's moves to deal with it. Here, Eric casts doubts on Viv's competence and provides an argument for this (see the illocutionary connection of *arguing* between his two first locutions: "I'm just a bit reluctant to hand over to Viv at this early stage" and "because of the complexity and if you make a mistake, you waste such a lot of time"). However, it does not make the discussion move forward since the other party, Viv does not answer to those critiques: this is the impasse. In (Jacobs & Jackson, 1992), the authors describe this frequent situation in dispute mediation i.e. when the parties make claims that have potential

argumentative strength but their relevance is lost by the fact that they appear in a moment when they do not serve the argumentative process. Here, Eric's argument is irrelevant considering the current discussion. The mediator is supposed to detect this and to restore the argumentative relevance (van Eemeren, Grootendorst, Jackson & Jacobs, 1993). This is what Mildred does in this extract: her question to shift the topic is redirecting around a highly probable source of impasse while at the same time giving her the possibility to propose a new way to broach the issue. This move is not surprising given it is acknowledged that most of the mediators' moves consist in asking questions. What is interesting is that the question appears as a very procedural comment (or meta-comment) on how to proceed with the discussion. It is very direct, which suggests that the mediator not only wants to know what the parties think about what she proposes (reflected by the question), but she also claims that this is how the discussion should unfold (reflected by the assertiveness of the question). The mediator has actually *redirected* the discussion: the question creates a space for a new conversation that directs the discussion towards a new way of tackling the issue. In IAT, transition nodes connect locutions that are related by rules of dialogue or by logical relations. The absence of transition node between Mildred's question and the previous locutions means, here, that this question has no relation to what was said before.

Note that the Eric's third locution could be interpreted in two different ways. We decide here to analyze it as a way for Eric to say that he will not take responsibility if Viv fails with the project. With this interpretation, there is obviously a link between Eric's first two locutions and the third one. It has however no argumentative function (hence the transition node without illocutionary connection). Another interpretation would be to see this third locution as a second support (premise) to Eric's reluctance: he is reluctant (first locution) because the task is complicated (second locution) and because he does not know if Viv feels she has the ability to handle it (third locution). Both interpretations are possible and correct, and they do not change the following of the analysis: in both cases, Mildred's question redirects the discussion and has no relation with Eric's standpoint.

### *3.3. Unwillingness to be reasonable and temporizing*

In (Aakhus, 2003) and (Jacobs & Aakhus, 2002), unwillingness to be reasonable is defined by parties refusing to reason together and resisting proposals. In our corpus, this happens in example (3), where the source of impasse is followed by the mediation strategy of *temporizing* i.e. temporary arrangements are proposed when no agreement seems possible on key issues.

(3)

a. Eric: *I don't know whether Viv could handle that she has the ability.*

b. Viv: *Well come on, you employed me, surely you thought I had the ability to, you know. But...*

c. Eric: *Well I did, so there is a way forward then. But I can also check on how she's doing the project and if she's succeeding with it and that will give me a milestone, an indicator of her.*

d. Viv: *I would quite like to just maybe take time out to look at what my job description was, actually, and from that, given what we've been talking about, it might signal up to me the key points that I want to clarify with you and see what your opinion is. Whether I've read it, whether it's been hieroglyphics to me, or whether I've got it right.*

e. George: *It's quite possible and again, it's our experience in this sort of situation, it's all about expectations and where your expectations and Viv's expectations match, you have happiness and a smooth life and everything works well. Where they don't, there is conflict, there is uncertainty, there is confusion and those are the sorts of things that contribute to having this sort of discussion. If what we can do today is to help you to get a degree of clarity about the expectations, then if you feel that would be useful...*

f. Eric: *Well, anything that, as I said at the start, anything that will give me more time back.*

This discussion between Eric, Viv and the second mediator, George, happens some time after the one in example (2). Here, Eric again casts doubts about Viv's ability to handle the project. However, this time, Viv answers to the critique and claims that if he employed her it is because he knew she was able to deal with it. Eric agrees with her but he does not take it into account; instead, he claims that time has passed since then and he needs to check if she actually can handle the project. Viv does not directly answer to this; rather, she proposes to have a look at her job description to check whether she understood what Eric expected from her. The mediator intervenes only then, by saying that Viv's proposal is a good idea, and Eric eventually agrees as well. The IAT analysis of this excerpt is presented in figure 3. For clarity and space purposes, only the most relevant moves of this dialogue are analyzed.

The analysis shows that Viv disagrees with Eric's first claim and gives an argument. Eric agrees with Viv, however he does not take this argument into account. Note the contradicting node: after agreeing with Viv that he employed her because he thought she had the abilities, he says that he would like her to prove she can do well with the project. He implies that Viv's argument does not hold, although he agrees with her. This is the impasse: Eric is unwilling to be reasonable since he first agrees with his opponent but then refuses to take it into account. Viv then makes a proposal and provides an argument for this proposal (she wants to look at her job description because it may indicate key points she would like to clarify). George agrees with her; more precisely, with the premise of her argument i.e. that it may signal points that need to be clarified. Eric, in his turn, agrees with the conclusion of Viv's argument: he implicitly says that having Viv looking at her job description is a good idea because it will give him some time back. Viv, interestingly, is the one who reacted to the impasse: she made a proposal that concerns a particular issue (here, their expectations concerning Viv's abilities) and not the dispute itself. This is called *temporizing* (Aakhus, 2003). In (Greatbatch & Dingwall, 1997), the authors show that disputants very often manage to exit arguments without the intervention of the third-party. This is precisely what happens in example (3).

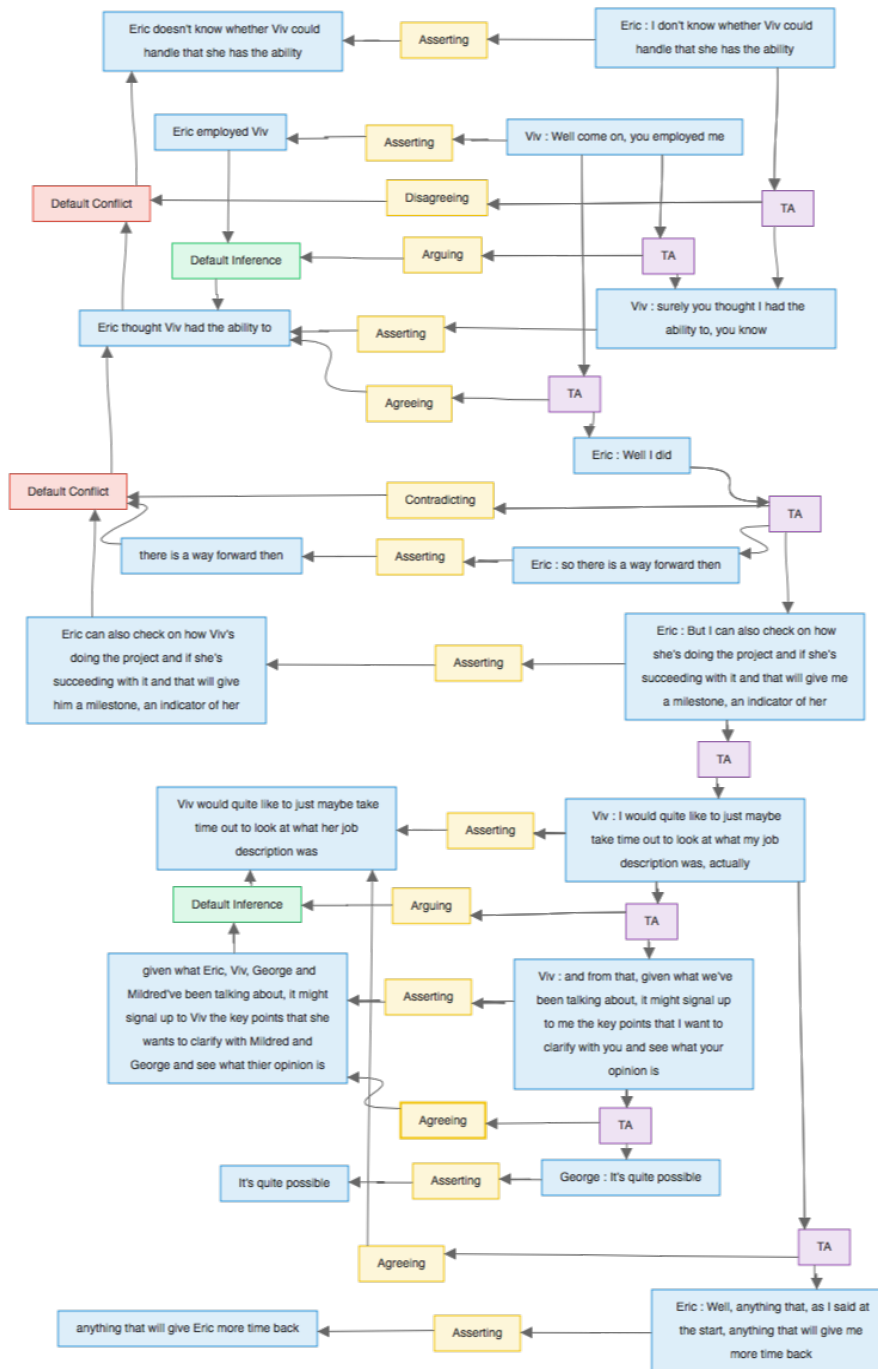


Figure 3. IAT analysis of example (3)

#### 4. TOWARDS A DETAILED ACCOUNT OF THE STRATEGIES FOR OVERCOMING IMPASSESSES

The application of IAT to mediation discourse has allowed for the analysis of the structure of mediation discourse with respect to two sources of impasse and the strategies to resolve them. The analyses present the argumentative elements of mediation discourse in a graphical manner; it is then possible to associate a sequence of argumentative specificities to each source of impasse and to each strategy. The goal is to define the patterns proper to the sources of impasse along with the patterns of the strategies. This is a fundamental step towards the formal modeling of the dialogical structure and its recognition. On one hand, modeling mediation impasse presents a challenging task, while on the other hand it shows that IAT is a viable means for capturing specificities of argument in dialogue; in particular it improves the capacity to discover how those specificities and patterns are recognized and responded to. We illustrate this potential in the following sections.

Table 3 and table 4 below present the argumentative moves of example (2) and example (3) revealed by the IAT analyses. Those tables capture every feature highlighted by the graphs. The first column of the tables represents the locutions in order of appearance in the dialogues (and in the analyses). In the second column, *party*<sub>1</sub> and *party*<sub>2</sub> stand for Eric and Viv respectively; *mediator* is used without distinguishing Mildred and George. The transitions between locutions appear in the third column (e.g. *Loc*<sub>1</sub>; *Loc*<sub>3</sub> means there is a transition node from the first to the third locution). The illocutionary connections anchored in the locutions and the ones anchored in the transitions appear in the fourth column;  $\emptyset$  is used when there is no illocutionary connection to a transition node or when there is no propositional content. Finally, the letters in the fifth column symbolize the propositional contents of each locution (a different letter for each different propositional content). Note that every table is independent from the other: e.g. when the letter *a* appears in one single table, it symbolizes the exact same propositional content; this does not hold if *a* appears in e.g. table 1 and in table 2. The notation *default inference (a,b)* means that there is an inference from *a* to *b*; similarly, *default conflict (b;[a,c])* means that *b* is in conflict with both *a* and *c*.

##### 4.1. Patterns of example (2): negative collateral implications and redirecting

In Section 2, we have seen that in example (2) the source of impasse was negative collateral implications and that the mediator dealt with it

through redirecting. All the argumentative and dialogical features of this passage are presented in table 3.

LOCUTION	PARTICIPANT	TRANSITION	ILLOCUTIONARY CONNECTION	PROPOSITIONAL CONTENT
<i>Loc</i> <sub>1</sub>	<i>party</i> <sub>1</sub>		A	a
		<i>Loc</i> <sub>1</sub> ; <i>Loc</i> <sub>2</sub>	arguing	default inference ([b,c];a)
<i>Loc</i> <sub>2</sub>	<i>party</i> <sub>1</sub>		A	b
		<i>Loc</i> <sub>2</sub> ; <i>Loc</i> <sub>3</sub>	∅	∅
<i>Loc</i> <sub>3</sub>	<i>party</i> <sub>1</sub>		A	c
<i>Loc</i> <sub>4</sub>	mediator		AQ	d

Table 3. Negative collateral implications and redirecting

We see that *party*<sub>1</sub> argues (see the *arguing* illocutionary connection in the fourth column) but *party*<sub>2</sub> does not answer i.e. she does not take part in this discussion. This represents the impasse since only one party is actually arguing. Moreover, we see that the mediator uses an assertive question (bottom of the fourth column) that is not connected at all to any of the precedent moves: *Loc*<sub>4</sub> does not appear in the TRANSITION column. This represents the strategy of redirecting: the fact that there is no relation between her question and the previous moves (e.g. no sequence such as *Loc*<sub>3</sub> ;*Loc*<sub>4</sub>) shows that she shifted the discussion to another topic. In other words, there is no link between *Loc*<sub>4</sub> and another locution because the mediator has redirected the discussion. In this particular case, we cannot claim from table 3 solely that the source of impasse presented in this table is negative collateral implications: a pragmatic, linguistic and semantical analysis is necessary to see that *party*<sub>1</sub> is challenging his opponent character. The fact that *party*<sub>2</sub> is not taking part in the dialogue however is a strong indicator of impasse in the dialogue.

#### 4.2. Patterns of example (3): unwillingness to be reasonable and temporizing

In example (3) Eric was unwilling to be reasonable and Viv reacted to this source of impasse by proposing temporary arrangements. Let's represent this in table 4.



LOCUTION	PARTICIPANT	TRANSITION	ILLOCUTIONARY CONNECTION	PROPOSITIONAL CONTENT
<i>Loc<sub>1</sub></i>	<i>party<sub>1</sub></i>		A	a
		<i>Loc<sub>1</sub>;Loc<sub>3</sub></i>	disagreeing	default conflict (c;a)
<i>Loc<sub>2</sub></i>	<i>party<sub>2</sub></i>		A	b
		<i>Loc<sub>2</sub>; Loc<sub>3</sub></i>	arguing	default inference (b;c)
<i>Loc<sub>3</sub></i>	<i>party<sub>2</sub></i>		A	c
		<i>Loc<sub>3</sub>;Loc<sub>4</sub></i>	agreeing	c
<i>Loc<sub>4</sub></i>	<i>party<sub>1</sub></i>		∅	c
		<i>Loc<sub>4</sub>:[Loc<sub>5</sub>,Loc<sub>6</sub>]</i>	contradicting	default conflict ([d,e];c)
<i>Loc<sub>5</sub></i>	<i>party<sub>1</sub></i>		A	d
<i>Loc<sub>6</sub></i>	<i>party<sub>1</sub></i>		A	e
		<i>Loc<sub>6</sub>; Loc<sub>7</sub></i>	∅	∅
<i>Loc<sub>7</sub></i>	<i>party<sub>2</sub></i>		A	f
		<i>Loc<sub>7</sub>;Loc<sub>8</sub></i>	arguing	default inference (g;f)
<i>Loc<sub>8</sub></i>	<i>party<sub>2</sub></i>		A	g
		<i>Loc<sub>8</sub>;Loc<sub>9</sub></i>	agreeing	g
<i>Loc<sub>9</sub></i>	mediator		A	h
		<i>Loc<sub>7</sub>;Loc<sub>10</sub></i>	agreeing	f
<i>Loc<sub>10</sub></i>	<i>party<sub>1</sub></i>		A	i

Table 4. Unwillingness to be reasonable and temporizing

Table 4 shows that *party<sub>2</sub>* disagrees with *party<sub>1</sub>* and that she provides an argument (see the third, fourth and fifth columns); *party<sub>1</sub>* agrees with it but discards it immediately after: this is the *unwillingness to be reasonable*, represented in table 4 by the illocutionary connection of *contradicting* that follows the one of *agreeing*. The transition *Loc<sub>6</sub>;Loc<sub>7</sub>* only shows the continuity of the dialogue: the transition does not anchor any illocutionary connection (note the symbols ∅ that follow in the last two columns). *Party<sub>2</sub>* argues later on: (see the Transition *Loc<sub>7</sub>;Loc<sub>8</sub>* that anchors *arguing*). This is the strategy of temporizing: *party<sub>2</sub>* continues the dialogue (and argumentation) by proposing temporary arrangements. This is shown by *party<sub>2</sub>* introducing an argument (*Loc<sub>7</sub>;Loc<sub>8</sub>*) that relates to the discussion (*Loc<sub>6</sub>;Loc<sub>7</sub>*) but that does not attack or support *party<sub>1</sub>*'s moves (hence the empty transition: ∅). The table also shows that the mediator agrees with her argument (*Loc<sub>8</sub>;Loc<sub>9</sub>*), and that *party<sub>1</sub>* agrees with the proposal (*Loc<sub>7</sub>;Loc<sub>10</sub>*).

## 5. CONCLUSIONS

Mediation discourse has not been subject to a lot of attention, even less its argumentative facet. Fine-grained analyses of the argumentative structure prove necessary to highlight how argumentation in dispute mediation progresses. This context helps us reveal specificities about arguments that are important for argumentation theory in general. We have shown, for example, a means for modeling the relationship between dialogue and arguments in a context where conventional and obvious indicators of argumentation are not always present.

In this paper, we have illustrated that Inference Anchoring Theory enables the analysis of mediation discourse argumentative structure. The analyses presented in Section 2 make it possible to grasp the subtleties of mediation strategies when sources of impasse occur. This allowed us to relate dialogical features to argumentative strategies. The analyses were then used in Section 3 for the definition of the patterns of the sources of impasse and the strategies to overcome them. By comparing analyses from different cases of the same source of impasse and the strategies deployed in those cases, it becomes possible to model argumentative sequences of moves and to verify whether such sequences generalize to all mediation sessions. As an example, we could check if all the analyses of *redirecting* present the same features, namely that the mediator interrupts the discussion via an assertive question that has no link with the topic addressed just before (Sections 2 and 3). Applied to several entire mediation sessions, this method will lead us towards the definition of a dialogue protocol in mediation that could be implemented in a tool designed to support mediators during their training.

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