The dialectic of ambiguity

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In this chapter, two formally oriented proposals for dealing with ambiguity will be examined. Both theories are explicitly concerned with a notion of validity. The most important feature they share is that both model a defeasible presumption of meaning constancy. J. Mackenzie, the author of the first theory, expressly carries out Hamblin’s program for constructing a theory for raising points of orders. G. Vanackere, the author of the second, presents a logical theory about reasoning with expressions that might turn out to be ambiguous. Although his presentation is not dialogical, we will be able to construct a dialogical interpretation of it. According to this interpretation, Vanackere’s theory indirectly represents the action of raising a point of order against the misuse of ambiguity, as well as a way to discuss the correctness of such a point of order.

1. Mackenzie

Introduction

Mackenzie (Mackenzie 1988; Mackenzie 1990) proposes a dialogue model that deals with ambiguity. He calls his model system 4 in the last of these papers, but it will be referred to as MSA: Mackenzie’s System that deals with Ambiguity. This dialogue model, one of a series that Mackenzie has developed (Mackenzie 1981, Mackenzie 1990), deals with the exchange of arguments that may contain ambiguous expressions of a problematic nature.

Mackenzie carries out Hamblin’s program of approaching the issue of equivocation from the perspective of raising points of order. In MSA discussants may put forward a locution by which they raise the objection that an expression used by the interlocutor is equivocal. First, the general type of model in which these points of order have their place will be introduced. Second, Mackenzie’s view on the charge of equivocation will be examined.

Arguing and inconsistency

In MSA, there are two arguers, labelled Ann and Bob. The rules of dialogue are symmetric and apply equally to both players. Both Ann and Bob may present one or more statements that are in need of defence, so, in pragma-dialectical terms, the dialogues deal with mixed, non-mixed, single and multiple disputes (Van Eemeren and Grootendorst 1992, chapter 2). In order to keep the present exposition simple, we can focus on the type of discussion where Ann argues for a single statement $T$ and Bob challenges it, while Bob does not argue for a statement of his own.

With both players a commitment store is associated. If someone makes a statement then this statement is added to both commitment stores. If a party offers an argument \( \{T_1, \ldots, T_n\} \) so $S$, then the reasons $T_1, \ldots, T_n$, the warrant If $T_1, \ldots, T_n$ then $S$ and

\[ \text{113 However, supposedly, an asymmetric rule should be added that states which player starts the dialogue.} \]
the supported thesis \( S \) are all added to the commitment stores of both parties.\(^{114}\) Although it seems to be unfavourable to the listener to become committed to statements without making any statement himself, this is compensated for by giving the listener easy means for withdrawing statements from his commitment store. This arrangement implements the idea that if you do not object to statements you become committed to them yourself: "silence means assent" (Mackenzie and Priest 1990, 340).

MSA is governed by logic. With MSA, a set \( V \) of *preferred valid argument schemata* is associated. Different logics may govern dialogues, depending on the specifics of \( V \).\(^{115}\) MSA is a framework or skeleton for many specific models of dialogue. For the purpose of exposition, we may suppose that \( V \) contains at least the schema \( P, P \rightarrow Q \models Q \). It is supposed that exemplifications of preferred valid argument schemata are recognised as such by the discussants.

Three concepts, all of which are connected with the concept of *immediacy*, play a crucial role in the rules of MSA. These immediacy-concepts enable Mackenzie to construct a set of dialogue rules that reconciles two desiderata: (1) a logic governs the dialogue, while (2) it is not demanded of arguers to close their commitment store under deduction, which would be unreasonable and unrealistic. (A) If the premises of an argument \( \{ T_1, \ldots, T_n \} / S \) exemplify the premises of a preferred valid argument schema and if its conclusion exemplifies the conclusion of this schema, the conclusion \( S \) is called an *immediate consequence* of \( \{ T_1, \ldots, T_n \} \) and \( \{ T_1, \ldots, T_n \} / S \) is called an *immediately valid argument* (Mackenzie and Priest 1990). (B) A conditional statement is called a *logician’s conditional* if its antecedent is a conjunction, the conjuncts of which exemplify the premises of a preferred valid argument schema and, moreover, if its consequent exemplifies this schema’s conclusion. Due to our specification of \( V \), each sentence \( (T_1 \land (T_1 \rightarrow T_2)) \rightarrow T_2 \) is a logician’s conditional. (C) A set \( \Gamma \) is called *immediately inconsistent* if there is a statement \( S \) in \( \Gamma \) such that a subset of statements from \( \Gamma \), not containing \( S \) itself, has the denial of \( S \) as an immediate consequence. For instance, the set \( \Gamma = \{ T_1, T_1 \rightarrow T_2, \neg T_2 \} \) is immediately inconsistent, because \( V \) contains a preferred valid argument schema such that a subset \( \Gamma’ \) of \( \Gamma \), \( \{ T_1, T_1 \rightarrow T_2 \} \), has as an immediate consequence \( T_2 \), and \( \Gamma \) contains a member, \( \neg T_2 \), not being a member of \( \Gamma’ \), that is the denial of \( T_2 \).

MSA is not a highly idealised kind of discussion where the participants argue without making any logical mistakes. Participants may act inconsistently in two ways. First, Bob may become committed to a set of statements \( \Gamma \) that exemplifies the premises of a preferred valid argument schema, while he either withdraws commitment to, denies, or challenges a statement \( S \) that exemplifies its conclusion. For example, Bob is committed to \( A \) and \( A \rightarrow B \) but either retracts, denies or challenges \( B \). Ann may object to this kind of inconsistency by raising a *resolution demand of the immediately valid argument*. Second, Bob may commit himself to an immediately inconsistent set, for example to \( \{ A, A \rightarrow B, \neg B \} \). Ann may object to this kind of inconsistency by raising a *resolution demand of set \( \Gamma \)*. In MSA, Ann can object by raising a resolution demand only if Bob is inconsistent in either of the two indicated ways (which, as we shall see, does not imply that the inconsistency is real).

Participants are allowed to commit themselves to inconsistent positions, as outlined above, but they are not allowed to deny, withdraw or challenge a logician’s

\(^{114}\) In this section a subscript does not indicate a disambiguating reformulation.

\(^{115}\) \( V \) may contain a complete axiomatisation, or it may not.
Formal procedural accounts

conditional. Ann’s strategy in a discussion is to support statements by offering reasons, such that Bob is liable to a resolution demand if he accepts the reasons and its warrant (the conditional made up of the conjunction of reasons as its antecedent and the conclusion as its consequent). Bob may escape this liability by either withdrawing commitment to a reason or warrant of the argument, or by challenging a reason or warrant, or by objecting to equivocation. In order to illustrate the working of the model if ambiguity does not play a role, we can at first skip this last option.

Instead of stating all the rules that regulate the rights and obligations of the participants and the content of the commitment stores, we can illustrate the kind of dialogue that MSA enables by giving two simple examples, together with some comments.

Ann: A
To the commitment stores of both Ann and Bob, A is added.

Bob: Why A?
By this challenge, A is removed from Bob’s store, but it remains in Ann’s. Now Ann is obliged to give a reason.

Ann: B
Both B and B → A are added to Ann’s and Bob’s stores. Bob now is liable to a resolution demand, because he is committed to {B, B → A} and he has challenged A, while modus ponens is a preferred valid schema. He may escape liability by challenging, denying or withdrawing B or B → A.

Suppose V also contains the following two schemata: P ⊨ ¬¬P and ⊨ P ∨ ¬P (the second is an argument schema with an empty set of premises).

Ann: ¬¬(A ∨ ¬A)
(¬¬A ∨ ¬¬A) is added to the commitment stores of both Ann and Bob.

Bob: Why ¬¬(A ∨ ¬A)?
Ann’s statement can be challenged, because it does not, as it stands, exemplify schema P ∨ ¬P. By this challenge ¬¬(A ∨ ¬A) is removed from Bob’s store, but it remains in Ann’s. Now, Ann is obliged to give a reason.

Ann: A ∨ ¬A
(A ∨ ¬A) and (A ∨ ¬A) → ¬¬(A ∨ ¬A) are added to both Ann’s and Bob’s stores. Bob now is liable to a resolution demand, because he is committed to {(A ∨ ¬A), (A ∨ ¬A) → ¬¬(A ∨ ¬A)} and he has challenged ¬¬(A ∨ ¬A), while modus ponens is a preferred valid schema. Both commitments are, however, logician’s conditionals. Therefore, he is not able to escape liability to a resolution demand, unless Bob has a device to object to equivocation.

Equivocation

Bob may respond to a resolution demand by uttering an equivocation locution. The purpose of this location is to escape the predicament where Bob is liable to a resolution demand, and where the source of the predicament is to be found in an ambiguous statement. In the second discussion above, Bob’s commitment store at stage 3 seems to be inconsistent because he is committed to the reason and to the
corresponding argument step, neither of which can be retracted, while he has challenged the thesis. Even in such a situation, Bob must be able to object that the inconsistency is only apparent due to an ambiguity in the argument.

Mackenzie restricts this option for Bob by referring to ‘Grice’s razor’: “Do not multiply senses beyond necessity” (Mackenzie 1988, 475). Making a distinction between several meanings is only necessary if the discussant has to remove an apparent inconsistency to which the attention has been drawn. Therefore, if Ann raises a resolution demand, either of (1) a set $\Gamma$ of Bob’s commitments, or (2) of an argument $\Delta$ so $S$, then and only then, may Bob draw a distinction between the meanings of an expression.

The equivocation locution is the designation of a distinction: $E<a, J, f>$. In the distinction $<a, J, f>$, $a$ is an expression that occurs in the immediately inconsistent set $\Gamma$ or in the immediately valid argument $\Delta$ so $S$ that Ann demands to be resolved. $J$ is an index set $\{j, k, ...\}$, having at least two elements, that gives a division of meanings. A division is formally given by different indices, but in a natural language, a term such as bank can be specified by disambiguating phrases, such as in the sense of a financial house, or in the sense of a river edge. The following issue comes up and will be discussed later: you can always construct a index set, but there is no guarantee that it corresponds to a real difference in meaning in natural language. Bob is able to create mixed or crossed disambiguations where several occurrences of an expression get different interpretations at different occurrences within one and the same statement: Scrooge walked along the bank on his way to the bank.

If Bob draws a distinction at discussion stage $n+1$, then $f$ is a function from the index set $J$ to the set of all locutions in which $a$ occurs and that occur in either Bob’s and Ann’s store at stage $n$. A restriction, promoting the effectiveness of the distinction for resolving the apparent inconsistency, is that every part of the division must be associated with at least one occurrence of $a$ in the immediate inconsistent set $T$ or in the set of premises $T$ combined with the denial of its conclusion $S$ (Mackenzie 1988, 474). A surprising element in the $f$-function is that Bob changes Ann’s commitment store by indexing the occurrences of $a$ in it. However, this accords with the ‘silence means assent’-rule and is compensated for by the ease with which commitments can be withdrawn. The equivocation locution can be read as ‘There is an equivocation on the expression $a$, which may be understood in sense $j$, as in ..., or in the sense $k$, as in ..., ...’ (Mackenzie 1988, 474).\(^{116}\)

\(^{116}\) Mackenzie specifies a way in which a distinction differs from a stipulative definition: “A definition can only increase one’s liability to a resolution demand; a distinction can only reduce it” (Mackenzie 1988, 477) This must be qualified in the following respect. The thesis applies to Mackenzie’s use of artificial language: after an equivocation locution the ambiguous expression $a$ has been replaced by an expression $a_i$ that is wholly new to the language, and $a_i$ did not occur before the locution took place. However, in natural language we may very well use a disambiguating reformulation that has already been used in the discussion and therefore, introducing a disambiguating reformulation may produce a new inconsistency. Suppose, Bob has already said: I am not going to the bank, in its financial house sense. Then at a further stage Ann demands resolution of the argument Bob goes to the bank, if Bob goes to the bank he goes fishing, so Bob goes fishing. Then Bob makes a distinction, and changes the shared commitment to Bob goes to the bank into Bob goes to the bank, in its financial house sense. In such a case making a distinction increases the liability to resolution demands.
A further rule of dialogue is that, after making the distinction, a may not be used anymore without making clear in what sense it is to be taken. In the terminology to be adopted in chapter 7, a is disqualified.

MSA corresponds with the intuition of Lewis’s pessimist: no sentence can be disambiguated completely (Lewis 1982). If Bob indexes an occurrence of an expression a to ai this does not imply that ai has been disambiguated completely. Although Mackenzie does not mention the case, there is no rule in MSA that prohibits further disambiguation of ai into ai j. If Ann demands resolution of an immediately inconsistent set T or of an immediately valid argument in which ai occurs, this expression can be disambiguated further. Mackenzie points out that in order to guarantee the validity of an argument, it is not needed to disambiguate the argument completely: it will suffice that the relevant expressions are disambiguated in the same way.

Mackenzie stresses that Bob does not map the ambiguous expression a on expressions of an alternative, presumably univocal, language. By making a distinction “I am doing something to the language I am using, not to a language I am talking about” (Mackenzie 1988, 472): Bob extends and changes the language Ann and he are using. This is correct: if Ann and Bob continue their discussion with their newly indexed commitment sets their language has been changed. However, we should not misunderstand Mackenzie’s remark. At the very moment where Bob utters an equivocation locution he really is talking about the language they are using. Only if they return to, what we would call, the ground level discussion has the language been changed.

An omission in Mackenzie’s system is that it is not stated what kind of procedural rule prescribes univocal language, even though the equivocation locution is presented as a point of order.

MSA is too rigid. Equivocation locations can only be raised if they are (obviously) justified. Consequently, there is no burden of proof connected with the equivocation locution. Nevertheless, MSA offers an implicit way of criticising the relevance of a distinction (although not its linguistic acceptability). For instance, if Bob criticises the ambiguity of proper name c, distinguishing c1 and c2, Ann might be able to show that c1=c2. Or, if Bob criticises an ambiguity of a predicate P, distinguishing between P1 and P2, Ann might be able to show that ∀x(P1x↔P2x). Or, if Bob criticises an ambiguity of a sentence S, distinguishing between S1 and S2, Ann might be able to show that S1↔S2. If she succeeds in sustaining such a response she may resurrect her resolution demand that had prompted Bob’s equivocation locution. According to Mackenzie a non-formal restriction on the use of the equivocation locution should be that it is not possible for Ann to connect the distinguished readings in such a way as to be able to resurrect the resolution demand. If MSA is to be understood as having this extra restriction then MSA does not offer any way of criticising an equivocation locution.

In the account given in chapter 7 an alternative choice has been made: that proposal provides the parties with room for arguing about the correctness of an equivocation locution. We do not have to force the parties to raise such a criticism only when it is justified. Bob’s distinction between a1 and a2, P1 and P2, S1 and S2 might have seemed justified at the time that he raised it, because Bob was, at that stage, not yet committed to the statement expressing the synonymy of these expressions. Mackenzie’s non-formal restriction can then be seen as a strategic advice for Bob: if you cannot resist re-establishment of a connection between a1 and a2 which would enable Ann to resurrect her resolution demand, then it is probably pointless to
criticise the ambiguity. My proposal will be more permissive, so that we can specify the proper burden of proof for the equivocation locution and specify the circumstances in which such a point of order should be retracted.

MSA is *too lenient* with respect to Bob, so Mackenzie admits. His reason is that the dialectical rules make the equivocation locution a device that is too powerful: it enables a party to play the *Scholastic’s Gambit* of making distinctions again and again, if that stands one in good stead. The equivocation locution is too powerful for real discussion, because in real dialogue it cannot always be sustained, even if it is used as a response to a resolution demand. However, in chapter 7 it will be contended that, if distinctions satisfy two conditions (a linguistic as well as a relevance condition), playing the scholastic’s gambit is dialectically appropriate.

My reason for judging MSA *too lenient* with respect to Bob is that *a* might not be ambiguous at all in the language Ann and Bob are using. According to Mackenzie, the equivocation locution is justified if there exist two different patterns of use for the expression *a*. He also wants to accommodate creative uses of the equivocation locution: “there is a place, after all, for nonce-distinctions (made for the occasion)” (Mackenzie 1988, 480). A divergence in meaning must have a first point of occurrence, and it would be reasonable to admit the equivocation locution at that point, where there do not yet exist several linguistic patterns for the expression. Thus, the existence of two patterns is not a necessary condition. Nonce-distinctions should be possible, but to my mind, there is a restriction on their use. For if there were not, Bob would be completely immune from resolution demands, which is, of course, not really the case. A restriction on justified equivocation locations pertaining to expression *a* should be that it may not make use of disambiguating reformulations of *a*, such that these reformulations can be rejected as linguistically inadmissible in the context of use. Different indices should correspond with a distinction between meanings of an expression that are not ruled out by a commonly accepted authority on semantics. Mackenzie does not mention such a linguistic restriction.

In another way, MSA is *too stringent* on Bob. Because Mackenzie restricts attention to the need of making distinctions in the case of an apparent inconsistency, he fails to take care of other situations where ambiguity can influence an argumentative dialogue. More in particular, he does not deal with the kind of situation where a listener simply finds herself in a quandary with respect to what reading could be meant, nor with the situation where listener and speaker attribute different readings to an ambiguous expression. Mackenzie does not deal with active ambiguities that lead to misunderstanding only.

The merits of MSA are that it models a defeasible presumption of meaning constancy as well as the way a point of order can be raised against a certain misuse of ambiguity. This provides a starting point for the account in chapter 7.

### 2. Vanackere's Ambiguity Adaptive Logic

**Introduction**

In 1997, Vanackere proposes a logical theory, called *ambiguity adaptive logic* or *ACL2*, that formalises the idea that if we come across an inconsistency within a set of premises, some natural language term within the set of premises must be ambiguous (Vanackere 1997). He offers a notion of semantic consequence as well as of logical
derivation. Vanackere’s express intention is to help bridging the gap between logic and argumentation by adapting logic in order to enable it to cope with ambiguities.

A way to test whether a term is ambiguous is to check whether the term can be clearly true and clearly false of the same thing (Quine 1960: 131, cf. Naess on truth conditional synonymy in section 3 of chapter 3, cf. Pinkal 1995). If someone says that an action is allowable as well not allowable, he may have good reasons to say so. It may be rather uncharitable to accuse him of an inconsistency: he presumably meant to say the action is allowable according to one set of rules, but that it ought not to be performed according to another set of rules. Presumably, if an expression is ambiguous there is a way to construct an apparently inconsistent set of statements. And conversely, if someone points out inconsistent statements in reasoning, then he might have exploited an ambiguity. Since there is this correlation between contradiction and ambiguity, it is worth while to examine what a dialectical interpretation of ambiguity adaptive logic would look like.

Adaptive logicians argue that classical logic works fine, except for premises that behave abnormally by failing to satisfy some presupposition of classical logic (Batens 1998). They further claim that every abnormality surfaces as an inconsistency within classical logic. In classical logic, the principle *ex falso sequitur quodlibet* holds: every sentence is a logical consequence of any set of inconsistent premises. However, adaptive logicians say, people do not actually argue that way from inconsistent information. When we reason from an inconsistent set of premises, we are able to isolate the possible sources of the inconsistency, and to make inferences from the remaining information, without thinking that we are allowed to infer everything. This feature is mirrored in adaptive logics.

Vanackere’s ambiguity adaptive logic is one of these adaptive logics. An assumption of classical logic (an assumption that is not defeasible) is that a recurrent expression has the same meaning at every occurrence. Ambiguity adaptive logic concerns sets of premises that are abnormal in that they may contain ambiguous expressions. If one comes across an inconsistency the assumption of meaning constancy should be dropped for at least some occurrences of an expression. The presumption of the constancy of meaning is defeasible when we use natural language. Vanackere adapts classical logic to accommodate this defeasibility.

**Pragmatization**

Barth calls the process by which a non-dialogical system of logic is transformed into a set of dialectical rules for the behaviour of discussants a *Naess-transformation* or *pragmatization* (Barth 1985, 383).\(^\text{117}\) Ambiguity adaptive logic will be transformed into a type of *rigorous persuasion dialogue* called RPD\(_{AA}\), *rigorous persuasion dialogue adapted for dealing with ambiguity*. Only the propositional fragment of Vanackere's predicate logic will be taken care of here.

A model for rigorous persuasion dialogue (Walton and Krabbe 1995), is a theory that enables us to distinguish between valid and invalid arguments by applying a set of conversational rules. In such a dialogue, the set of premises of an argument is represented as the opponent’s set of *initial concessions*. Its conclusion is represented as the proponent's *thesis*. In the dialogue, the opponent and proponent are testing

\(^{117}\) The term *Naess-transformation* is motivated by the fact that Naess, in the 1930’s, gave a dialogical interpretation of the ideas of some participants of the Wiener Kreis (Naess 1992).
whether the thesis can coherently be challenged by the opponent, given his initial concessions. If the proponent is able to show that the opponent cannot coherently challenge the thesis, then the proponent wins the dialogue. If the proponent has exhausted his options while not being able to show this, the opponent wins the dialogue. The notions of a valid and invalid argument are interpreted as the existence of a winning strategy for the proponent and the lack of existence of such a winning strategy.

In RPD\(_0\), a specific example of a dialogue system that corresponds with a constructive logic (Walton and Krabbe 1995, 154-163), it is the case that if the opponent concedes inconsistent sentences, then the proponent has a winning strategy for any thesis whatsoever.\(^{118}\) In order to transform ambiguity adaptive logic into a rigorous persuasion dialogue, we will have to get rid of this *ex falso quodlibet*-feature of RPD\(_0\).

In RPD\(_{AA}\), the players are White and Black. At the start of the dialogue White has the role of proponent defending a thesis. Black has the role of opponent who challenges White's thesis, while being committed to a (possibly empty) set of concessions. In the following account, \(S\) and \(T\) will be used as variables of (atomic or complex) sentences, and \(A\) as a variable of atomic sentences of a language \(L\). The adaptive approach will be helpful to an opponent who has conceded sentences that seem to be inconsistent.\(^{119}\)

**Points of order**

Let us take a look at the case that was presented in section 6 of chapter 4. The discussion in court (in a simplified version) can be reconstructed dialectically in the following way.

<table>
<thead>
<tr>
<th>Prosecutor</th>
<th>Defending counsel</th>
</tr>
</thead>
<tbody>
<tr>
<td>W.B. is liable to punishment.</td>
<td>Why?</td>
</tr>
<tr>
<td>W.B. drove a car while his license was suspended. Therefore, W.B. is liable to punishment.</td>
<td>Your argument is based on an active ambiguity. That W.B. drove a car is only acceptable if <em>drove a car</em> is interpreted as <em>moved a car forward while able to determine it's direction</em>. That W.B. drove a car is only supporting the thesis if <em>drove a car</em> is interpreted more narrowly as <em>moved a car forward while sitting at the driver's seat</em>.</td>
</tr>
</tbody>
</table>

In the first three stages, the prosecutor and the defending counsel are discussing the issue whether W.B. is liable to punishment by making *topic points* (Hamblin 1970, 283). In the fourth stage, the defending counsel starts a discussion about the quality of

\(^{118}\) Suppose the opponent concedes the sentences \(S\) and \(\neg S\). Then the proponent can defend any thesis \(T\) successfully by questioning first the concession of \(\neg S\). In order to question this, the proponent has to assert \(S\) for the sake of argument. The opponent then is obliged to react directly to the proponent's last move, either by conceding the absurd statement, which will lead to an immediate loss, or by challenging \(S\). If the opponent chooses the latter option he challenges a sentence he has also conceded, which leads to an immediate loss as well.

\(^{119}\) My intention is to make it plausible that RPD\(_{AA}\) is complete and correct with respect to ACL2, but I do not offer a proof.
the prosecutor's argument by making a point of order: a move not directly contributing to the issue but to the shape of the dialogue. It comments on the way topic points are advanced and starts a metadiscussion. The part of the dialogue in which topic points are exchanged is the ground level discussion.

Because it is not feasible to ban the use of ambiguous expressions from critical discussion or persuasion dialogue, discussants should have the means to make appropriate points of order about the way arguments are formulated. They are in need of such devices in order to avoid pseudocommunication or equivocation. Since one raises a point of order by putting forward an assertion, there is a burden of proof associated with this act. The defending counsel has to argue for his assertion that a certain expression is actively ambiguous (as he actually does in the example above).

By raising a point of order against the use of an allegedly ambiguous expression the critic switches off, as it were, the presumption of meaning-constancy with regard to the expression at issue. In RPDAA the presumption of meaning constancy can be withdrawn for an expression if the opponent commits himself to an inconsistent set of statements: he allegedly has stated his position in an ambiguous way. The procedure must be such that by resolving the ambiguities, one resolves the inconsistency.

**Ambiguity adaptive persuasion dialogue**

*Preparatory stages*

Before the discussion starts, the discussants have to prepare themselves by going through two preparatory stages. In the first preparatory stage White expresses her thesis by a sentence $T$, while Black expresses his initial concessions by a set of sentences $\Gamma$. By doing so, White and Black express their initial conflict of opinions.

In the second preparatory stage, Black traces the different occurrences of the atomic sentences that occur within the sentences he conceded and in the thesis that White will defend. This is made public by supplying every occurrence of an atomic sentence in his concessions with a different index number, which results in an completely indexed set of concessions $\Delta$. If he wants to, he may supply some or all occurrences of the atomic sentences in White's thesis with an index number, which results in a (partially) indexed thesis $T$.

This will enable Black to express that different occurrences of an atomic sentence $A$ express different propositions. For example, the concession of $A \land \neg A$ might not contain a real contradiction. After Black has changed the concession into the indexed sentence $A_1 \land \neg A_2$ he is able to hold that $A$ at its first occurrence, $A_1$, does not mean the same as $A$ at its second occurrence, $A_2$.

Along the lines of Vanackere's terminology the set of indexed concessions would be called a *maximally ambiguous interpretation* of Black's concessions. However, different indices just indicate different occurrences. Because it is at this stage not yet decided whether an atomic sentence within the initial concessions is actually ambiguous, this set can better be called the set of *indexed concessions*. It is perfectly possible that differently indexed occurrences of $A$ are synonymous. Whether different occurrences of the same atomic sentence mean something else will become apparent in the course of the dialogue. The sentences presented in the first preparatory stage do not play any direct role within the discussion, only the sentences presented in the second preparatory move will.
If we analyse our example within this format, we can picture the preparatory stages as follows:

<table>
<thead>
<tr>
<th>Defending counsel: opponent</th>
<th>Prosecutor: proponent</th>
</tr>
</thead>
<tbody>
<tr>
<td>My initial concessions are: W.B. drove a car. If W.B. drove a car then he's liable to punishment. But it's not the case that W.B. is liable to punishment. As I will probably need to refer to different occurrences of some atomic sentences I will mark my initial concessions in the following way: (W.B. drove a car)(^1). If (W.B. drove a car)(^2) then (he's liable to punishment)(^1). But it's not the case that (W.B. is liable to punishment)(^2).</td>
<td>Main thesis: W.B. is liable to punishment.</td>
</tr>
</tbody>
</table>

Discussion moves

The discussion proceeds according to Locution Rules, Structural Rules, Commitment Rules and Win-and-Loss Rules (cf. Walton and Krabbe 1995, chapter 4). The rights and obligations for White and Black at a certain stage depend partly on which role, opponent or proponent, they have at that stage in the dialogue. Statements made by an opponent are concessions, statements made by a proponent are assertions. An opponent can challenge an assertion, a proponent can question a concession.

Black starts the discussion proper by two successive moves. In his first move Black has a right (but not the obligation) to express for some or all atomic sentences \(A^i\) that occur in his set of indexed concessions or that occur in White’s thesis, that these sentences do mean the same, as far as he is concerned. He does so by conceding the synonymy sentences associated with \(A^i\), that is sentences of the form \(A \leftrightarrow A^i\)\(^{120}\). So, if he wants to concede that \(A^1\) and \(A^2\) are synonymous he has to concede both \(A \leftrightarrow A^1\) and \(A \leftrightarrow A^2\). The synonymy sentences conceded by Black are added to his set of commitments (concessions) and can be used by White in order to defend \(T\). The left-hand atomic sentence \(A\) in \(A \leftrightarrow A^i\) should not be confused with the occurrences of \(A\) in the initial index-free concessions of Black. An occurrence of \(A\) without index in the thesis, and an occurrence of \(A\) without an index in a synonymy sentence, express the same proposition by rule.

Black can leave open the possibility of an ambiguity in \(A\) by refraining from conceding a synonymy sentence associated with an indexed occurrence of \(A\). In many situations (but not in all, see below), it is opportune for Black not to concede any synonymy sentences in his first move.

In Black's successive second move he challenges White's thesis. From now on the parties move alternately.

A presumption of the dialogue is that all occurrences of an atomic sentence are synonymous, in spite of their different index numbers. White may exploit this presumption by requesting Black to concede a (not yet conceded) synonymy sentence that is associated with an indexed atomic sentence \(A^i\) occurring in a concession or in the thesis. In principle, Black should respond positively by conceding \(A \leftrightarrow A^i\). However, Black has a right to explicate his set of commitments as a consistent set.

\(^{120}\) Instead of ‘synonymy sentence’ Vanackere uses the complementary notion ‘\(\neg (A \leftrightarrow A^i)\)’ that he calls an ambiguity.
Thus, White's use of this presumption can be carried too far. In some situations Black is confronted with a request to concede a particular synonymy sentence, such that conceding it would make his set of concessions (the indexed concessions together with the already conceded synonymy sentences) inconsistent. In order to react adequately to this (RPDAA)-dialectical flaw by White, Black has to raise a point of order: he should protest against White's request.

The central idea of a RDAAA dialogue is that Black should concede as many synonymy sentences as possible, but not so many that his set of concessions becomes inconsistent. In Vanackere's terminology, Black's set of concessions should be maximally normal.

If White requests Black to concede a synonymy sentence this can be paraphrased as: "in order for your set of concessions to be maximally normal, you should also concede that $A \leftrightarrow A'$". Black can respond in two ways. He can concede the sentence asked for. Or, if he suspects that conceding it makes his set of commitments inconsistent, he can answer: "Your request is inappropriate, for if I concede this, there is no model anymore for my concessions, that is, $\bot$ can be derived from it". In this way, Black is able to raise a point of order against White's request. Moreover, he has already supported his point of order by giving a reason: "if someone would concede this synonymy sentence together with all other concession I have made, someone else would have a winning strategy for $\bot$". 121

In order to examine this meta-issue White and Black have to swap roles, so that Black takes the role of proponent and White the role of opponent. Black must show that if an opponent is committed to (1) Black's initial concessions, (2) the synonymy sentences Black has already conceded during the dialogue and (3) the controversial synonymy sentence, then this opponent's position is inconsistent. Thus, for the sake of argument, White concedes all indexed concessions of $\Delta$ made by Black, all synonymy sentences conceded by Black at the preceding stages and the contested sentence $A \leftrightarrow A'$. For the sake of argument, Black asserts $\bot$ as a thesis. If Black defends $\bot$ successfully, he has shown to White that he did not have to concede $A \leftrightarrow A'$. If White wins this subdiscussion (i.e. if she can maintain the consistency of her concessions), White has shown that Black should have conceded $A \leftrightarrow A'$.

The stages before the role reversal takes place are part of the ground level discussion. From the stage where the role reversal takes place, the stages of the dialogue are part of the metadiscussion. It is perfectly possible that at the end of the dialogue no role reversal has taken place, so that the dialogue consists of a ground level discussion only.

If we analyse our example within this format, we can picture the way the discussion might develop from a ground level discussion (normal font) to a meta level discussion (bold) as follows.

---

121 *Falsum*, $\bot$, can be interpreted dialectically as 'the position of the opponent is absurd' (Krabbe 1991, 107).
I concede the following synonymy sentence: *W.B. is liable to punishment if and only if (W.B. is liable to punishment)*. I mean, the sentence *W.B. is liable to punishment* you used in your main thesis means the same as the sentence I used when I committed myself to *W.B. is not being liable to punishment.*

Please, defend your thesis that W.B. is liable to punishment.

I will proceed by questioning you. Are *W.B. drove a car* and *(W.B. drove a car)* synonymous?

They are.

What about *W.B. drove a car* and *(W.B. drove a car)*?

They are synonymous.

What about *(W.B. is liable to punishment) ↔ (W.B. is liable to punishment)*?

That's an inappropriate request. If I concede that then my position becomes inconsistent. So, that is not how my concessions are to be read. I am willing to defend this thesis. Let's change seats, so that from now on I will defend that *Your position is absurd*, while you are, for the sake of argument, committed to all my previous concessions and to the synonymy sentence that I resist to concede.

Prosecutor: opponent

Defending counsel: proponent

**Concessions:**

*(W.B. drove a car)*.

If *(W.B. drove a car)* then *he's liable to punishment*. But it's not the case that *(W.B. is liable to punishment)*.

W.B. is liable to punishment if and only if *(W.B. is liable to punishment)*.

*(W.B. drove a car)* if and only if *(W.B. drove a car)*.

W.B. is liable to punishment if and only if *(W.B. is liable to punishment)*.

**Thesis:**

*Your position is absurd.*

Winning the discussion

White's aim in the ground level discussion is to get Black to concede a sentence *S* that he also challenges, or to get Black to admit that his position as an opponent is absurd, that is to get him to concede *⊥* in the ground level discussion (if Black asserts *⊥* after swapping roles, this does not count as a concession to *⊥*). If White achieves her aim in the ground level discussion, she has defended her initial thesis successfully by
showing that Black was not able to criticise the thesis in a way that is coherent with Black's set of concessions. If White succeeds in the ground level discussion, she has won the dialogue as a whole.

Black's aim in the ground level discussion is to criticise White's assertions until there is no legal move available for White anymore. If Black succeeds, he has shown that a critical stance towards White's thesis is coherent with his set of concessions. If Black succeeds in the ground level discussion, he has won the dialogue as a whole.

But if, before someone has won the dialogue, a metadiscussion starts, then the discussion will be decided in the metadiscussion. Black's principal aim in the metadiscussion is to get White to concede a sentence $S$ that she also challenges, or to get White to admit that her position as an opponent is absurd. If Black succeeds, he has defended his point of order successfully. If Black succeeds in the metadiscussion, he has won the dialogue as a whole.

White's principal aim in the metadiscussion is to criticise Black's assertions until there is no legal move available for Black anymore. If White succeeds in this part, she has shown that Black cannot defend his point of order successfully. If White succeeds here, she will have won the dialogue as a whole.

If the defending counsel does not make a fatal blunder he will be able to force the prosecutor to admit the incoherence of his critical position, for instance as follows.

**Prosecutor: opponent**

<table>
<thead>
<tr>
<th>:</th>
<th>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(W.B. is liable to punishment)$^2$</td>
<td>:</td>
</tr>
<tr>
<td>Why(W.B. is liable to punishment)$^2$?</td>
<td>:</td>
</tr>
</tbody>
</table>

**Defending counsel: proponent**

<table>
<thead>
<tr>
<th>:</th>
<th>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>You said so yourself!</td>
</tr>
</tbody>
</table>

**Formal description of RPD$_{AA}$**

In this section RPD$_{AA}$ will be presented in a more formal fashion. RPD$_{AA}$ is constructed by changing RPD$_0$ so that it corresponds with ambiguity adaptive logic.\[122\]

**Location rules**

The language of RPD$_{AA}$ is $L$, that is $L \cup L^I$.

$L$ is the customary language for propositional language, build up from:
- the infinite set of sentence letters $S$: $S_0, S_1, ...$
- the logical constant that expresses that the opponent's position is absurd, $\bot$, and,
- the connectives $\neg$, $\lor$, $\rightarrow$, $\leftrightarrow$ and $\land$.

$L^I$ is obtained from $L$ by replacing the set of sentence letters $S$ by $S^I$. $S^I \in S^I$, for $i = 1, 2, ..., \text{iff } S \in S$.

Sometimes it is convenient to refer to sentences from $L$ with the index 0: $A^0$.

Permitted locutions are of the following types, $0 \leq i$, where $S$ and $T$ stand for (simple or complex) sentences of $L$ and $A$ for atomic sentences of $L$:

---

\[122\] The following description uses many of the formulations Walton and Krabbe use in their presentation of RPD$_0$ (Walton and Krabbe 1995, 154-163).
Each move consists of a locution of a type listed above, put forward either by Black or by White.

**Commitment rules**

1. Each participant has a commitment store. The elements of a commitment store are sentences of $\mathbf{L}$. It contains two types of commitment: normal commitments and synonymy sentence commitments. White's commitment store is denoted as $C_{\text{White}}$. Black's commitment store is denoted as $C_{\text{Black}}$. In order to speak of the commitments of the opponent or proponent, whatever participant plays that role in that stage of the dialogue, $C_{\text{prop}}$ and $C_{\text{opp}}$ will be used.

2. Each participant has a set of potential defences or answers. The elements of a set of potential defences or direct answers are sentences of $\mathbf{L}$. White's set is denoted as $D_{\text{White}}$, Black's is denoted as $D_{\text{Black}}$. At the start of the dialogue both sets are empty. In order to speak of the potential defences or answers of a participant in the role of opponent or proponent, whatever participant has that role in that stage of the dialogue, $D_{\text{prop}}$ and $D_{\text{opp}}$ will be used. $D_{\text{prop}}$ consists only of defences, $D_{\text{opp}}$ consists only of answers. Commitment rule 10 determines how an opponent may answer questions, and how a proponent may defend a challenged assertion.

3. At the outset of the discussion (that is, after the preparatory stages), $C_{\text{Black}}$ consists of Black's initially indexed concessions and contains no synonymy sentences. $C_{\text{White}}$ contains one sentence at the start of the discussion: White's initial thesis.
4 In his first move of the dialogue Black has the right, but not the obligation, to state for some or all of the sentence letters $A^i$, $i \geq 1$, that occur in $C_{\text{Black}}$ or $C_{\text{White}}$, the synonymy sentences that are associated with them. These sentences are then added to $C_{\text{Black}}$.

5 Each sentence asserted or conceded during the dialogue is placed in the speaker's commitment store.

6 Each challenge by a participant in the role of opponent refers to the unique sentence of $C_{\text{prop}}$. This sentence is then removed from $C_{\text{prop}}$. The structural protective defences associated with this challenge are entered into $D_{\text{prop}}$. The structural protective defences are determined by the logical rules (see rule 10).

7 A question refers to an element of $C_{\text{opp}}$. This sentence is not removed from the commitment store of the opponent. The direct answers associated with the question are entered into $D_{\text{opp}}$. Direct answers are determined by the logical rules (see rule 10).

8 An assertion or concession that does not accompany a challenge or a question must be either a defence move, or a direct answer or a concession of a synonymy sentence. The asserted sentence (in case of a structural defence move) or conceded sentence (in case of a direct answer) is added to the speaker's commitment store, and is removed from the set, $D_{\text{prop}}$ or $D_{\text{opp}}$, of the speaker's potential defences or answers. $D_{\text{opp}}$ is emptied after using an element from it, but unused potential defences stay within $D_{\text{prop}}$ until they are used by the proponent.

9 If Black raises the point of order, \textit{Inappropriate!}, this can be read intuitively as, \textit{You can't force me to add $A \leftrightarrow A^i$, for that makes my set of concessions inconsistent}. After uttering \textit{Inappropriate!} a role reversal takes place at the next stage. In the subsequent metadiscussion, Black is the proponent and White the opponent. The content of the different sets of commitments is changed as follows. $C_{\text{Black}}$ will contain exactly one sentence, $\bot$, which is Black's initial thesis in the metadiscussion. $C_{\text{White}}$ will contain (1) all indexed sentences that were elements of $C_{\text{Black}}$ in the initial conflict description, (2) all synonymy sentences that Black has conceded in the ground level discussion, and (3) the controversial synonymy sentence that White has used in her last move.

10 The logical rule for challenge by the opponent and defence by the proponent has two parts. The proponent can assert sentences and has to defend these against the opponent's challenges. The opponent concedes sentences and tries to maintain a coherent position while answering the proponent's questions. (Answering a question by conceding $\varphi$ has the force of 'my position, even with $\varphi$ added, is still coherent'.)

<table>
<thead>
<tr>
<th>Element of $C_{\text{prop}}$ challenged</th>
<th>Form of challenge</th>
<th>Structural protective defence move(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S \rightarrow T$</td>
<td>$(S \rightarrow T)$?? $S$</td>
<td>$T$</td>
</tr>
<tr>
<td>$S \leftrightarrow T$</td>
<td>$(S \leftrightarrow T)$?? $S$</td>
<td>$T$</td>
</tr>
<tr>
<td>$S \leftrightarrow T$</td>
<td>$(S \leftrightarrow T)$?? $T$</td>
<td>$T$</td>
</tr>
<tr>
<td>$\neg S$</td>
<td>$(\neg S)$?? $S$</td>
<td>$T$</td>
</tr>
<tr>
<td>$S \lor T$</td>
<td>$(S \lor T)$??</td>
<td>$S$, $T$</td>
</tr>
<tr>
<td>$S \land T$</td>
<td>$(S \land T)$?? $S$?</td>
<td>$T$</td>
</tr>
<tr>
<td>$S \land T$</td>
<td>$(S \land T)$?? $T$?</td>
<td>$T$</td>
</tr>
<tr>
<td>$A^i$</td>
<td>$A^i$??</td>
<td>(none)</td>
</tr>
</tbody>
</table>

\textit{Logical rule for challenge by the opponent and defence by the proponent}
Chapter 6

<table>
<thead>
<tr>
<th>Element of $C_{opp}$ questioned</th>
<th>Form of question</th>
<th>Direct answer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S \rightarrow T$</td>
<td>$(S \rightarrow T)'$ $S$</td>
<td>$T$</td>
</tr>
<tr>
<td>$\neg S$</td>
<td>$(\neg S)'$ $S$</td>
<td>$\bot$</td>
</tr>
<tr>
<td>$S \lor T$</td>
<td>$(S \lor T)'$</td>
<td>$S$, $T$</td>
</tr>
<tr>
<td>$S \land T$</td>
<td>$(S \land T)'$ $S'$</td>
<td>$S$</td>
</tr>
<tr>
<td>$S \leftrightarrow T$</td>
<td>$(S \leftrightarrow T)'$ $T'$</td>
<td>$T$</td>
</tr>
<tr>
<td>$S \leftrightarrow T$</td>
<td>$(S \leftrightarrow T)'$ $T'$</td>
<td>$S$</td>
</tr>
</tbody>
</table>

Logical rule for question by the proponent and answer by the opponent:

**Structural rules**

1. In the first preparatory move, the parties express their dispute. In the second preparatory move, Black provides a complete indexation of his set concessions, while providing a partial or complete indexation of White’s thesis.

2. In the first move, Black is allowed, but not obliged, to concede some or all synonymy sentences that are associated with indexed atomic sentences occurring in $C_{opp}$ or $C_{prop}$.

3. The second move contains Black’s challenge of White’s initial thesis. From now on, the parties move alternately. Black takes the role of proponent and White of opponent until the end of the discussion, except if commitment rule 9 is applied.

4. In each of its moves, a proponent either defends a challenged assertion, using an element of $D_{prop}$ (a structural protective defence move, determined by the logical rules), questions an element of $C_{opp}$ (according to the logical rules), makes a final remark, or, provided that White is the proponent, requests Black to concede a synonymy sentence $con(A \leftrightarrow A')$.

5. White, and only White, if she has the role of proponent, is allowed to make a move $con(A \leftrightarrow A')$, but only if $A \leftrightarrow A'$ is not already an element of $C_{Black}$, and if the sentence $A'$ occurs either in White's initial thesis or in Black's set of initial concessions.

6. If White requests Black to concede a synonymy sentence $A \leftrightarrow A'$, White must either concede it by stating $A \leftrightarrow A'$, or raise the point of order.

7. In each of his or her moves the opponent either answers a questioned concession using an element of $D_{opp}$, challenges the (one) element of $C_{prop}$ (according to the logical rule), concedes a synonymy sentence in answer to a request $con(A \leftrightarrow A')$, raises the objection *Inappropriate!*, or makes a final remark of the type *I give up!* (In all these cases, $C_{prop}$ will be empty after the move, so if an opponent wants to challenge an assertion he or she should do so immediately.)

8. Each challenge by the opponent initiates a new local discussion focusing on the challenged assertion as its local thesis. If and only if within the same part of the dialogue (either in the ground level discussion or in the metadiscussion) the same sentence figures or has figured as a local thesis (and, consequently, has been challenged within that part of the discussion) and occurs in $C_{opp}$, the proponent can make the final remark *You said so yourself!* If and only if $\bot$ is an element of $C_{opp}$ the proponent can make the final remark *Your position is absurd!*

9. A question or request by the proponent such that one of its direct answers is already in $C_{opp}$ is not permitted.

10. A sentence that has already functioned as a local thesis in some earlier local discussion of the same part of the dialogue (ground level or metadiscussion) may not
be put forward by the proponent as an assertion in that part of the dialogue, unless some element was added to $C_{\text{opp}}$ after completion of that earlier local discussion.

**Win-and-loss rules:**

1. If a participant states *I give up!*, he or she loses the dialogue, and the other participant wins.
2. If the proponent makes a statement *You said so yourself!* or *Your position is absurd!* the party that has the role of proponent at that stage wins the dialogue (whether it occurs in the ground level discussion or in the metadiscussion) and the party having the role of opponent loses the dialogue.

**A strategic consideration**

When Black in his first move extends his set, $C_{\text{Black}}$, with synonymy sentences, the proper strategy is to avoid conceding synonymy sentences that make $C_{\text{Black}}$ inconsistent. Thus, he should not grant too many synonymy sentences. However, he should also be on his guard not to admit too few synonymy sentences in the first move.

Why is it that Black in his first move must beware not to concede too few synonymy sentences? Suppose that Black has initially conceded $A^I$ and $\neg A^2$, that White’s initial thesis (partially indexed) is $A$, and that $C_{\text{Black}}$ contains no synonymy sentence after Black’s first move. Then White has the option to request $\text{con}(A \leftrightarrow A^I)$? Black has two options. (1) He may concede it. In that case he will have to admit that $A$ is true. For the reason that he concedes something that he has also challenged he loses the discussion. (2) Black can respond by saying *Inappropriate!* In that case he will have to defend $\bot$ on the basis of White’s new concessions $A \leftrightarrow A^I$, $A^I$ and $\neg A^2$. Provided that White does not make a blunder Black will lose in that case as well, because the set of concessions is not inconsistent. But if Black, in his first move, conceives $A \leftrightarrow A^2$, he does have a winning strategy. Because if White asks $\text{con}(A \leftrightarrow A^I)$? Black is able to criticise this question by making the move *Inappropriate!* Black is able to win the ensuing metadiscussion because the set of statements that White must concede, $A \leftrightarrow A^I$, $A \leftrightarrow A^2$, $A^I$ and $\neg A^2$ is inconsistent. Thus, as a matter of strategy, it sometimes appears to be advantageous for Black to concede a synonymy sentence.

**Three abstract examples of RPDAA discussions**

In the following example White does not have a winning strategy for $\neg S \lor T$ if Black grants that $S^I$ and $\neg S^2$. $T$ is not supported, except by the seemingly contradictory sentences. $\neg S$ is not supported, except by $\neg S^2$, while Black may choose $S$ to be heteronymous with $S$ as in occurs in $\neg S^5$. 

121
Example 1:

<table>
<thead>
<tr>
<th>OPPONENT</th>
<th>PROPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>( S, \neg S )</td>
<td>( \neg S \lor T )</td>
</tr>
<tr>
<td>( C_{\text{Black}} = { S^1, \neg S^2 } )</td>
<td>( C_{\text{White}} = { \neg S \lor T^1 } )</td>
</tr>
</tbody>
</table>

\( S \leftrightarrow S^1, T \leftrightarrow T^1 \)

\((\neg S \lor T^1)??\)

\( \neg S \)

\((\neg S)?? S \)

\( S^2?? \)

Inappropriate!

<table>
<thead>
<tr>
<th>OPPONENT</th>
<th>PROPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td>( C_{\text{White}} = { S^1, \neg S^2, S \leftrightarrow S^1, T \leftrightarrow T^1, S \leftrightarrow S^2 } )</td>
<td>( C_{\text{Black}} = { \bot } )</td>
</tr>
</tbody>
</table>

\( \bot?? \)

\((\neg S^2)?? S^2 \)

\( S^2?? \)

\((S \leftrightarrow S^2)?? S \)

\( S^1?? \)

\((S \leftrightarrow S^1)?? S^1 \)

\( S^1?? \)

You said so yourself!

In the following example there is a winning strategy for \( T \lor U^1 \) given that Black conceded \( S^1, \neg S^2, \) and \( T^1 \). \( T \) can be argued for without making use of the seemingly contradictory sentences.

Example 2:

<table>
<thead>
<tr>
<th>OPPONENT</th>
<th>PROPONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>( S, \neg S, T )</td>
<td>( T \lor U )</td>
</tr>
<tr>
<td>( C_{\text{Black}} = { S^1, \neg S^2, T^1 } )</td>
<td>( C_{\text{White}} = { T \lor U^1 } )</td>
</tr>
</tbody>
</table>

\( S \leftrightarrow S^1, T \leftrightarrow T^1, U \leftrightarrow U^1 \)

\((T \lor U^1)??\)

\( T \)

\( T^1?? \)

\( (T \leftrightarrow T^1)?? T^1 \)

\( T \)

You said so yourself!

The next example illustrates how Black may lose a metadiscussion.
Example 3:

<table>
<thead>
<tr>
<th>OPPONENT</th>
<th>PROONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Black</strong></td>
<td><strong>White</strong></td>
</tr>
<tr>
<td>S, ¬S, T</td>
<td>T</td>
</tr>
<tr>
<td>$C_{\text{Black}} = { S^1, \neg S^2, T^1 }$</td>
<td>$C_{\text{White}} = { T }$</td>
</tr>
</tbody>
</table>

$\emptyset$

$T$??

$\text{con}(T \leftrightarrow T^1)$

**Inappropriate!**

<table>
<thead>
<tr>
<th>OPPONENT</th>
<th>PROONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White</strong></td>
<td><strong>Black</strong></td>
</tr>
<tr>
<td>$C_{\text{White}} = { S^1, \neg S^2, T^1, T \leftrightarrow T^1 }$</td>
<td>$C_{\text{Black}} = { \bot }$</td>
</tr>
</tbody>
</table>

$\bot$??

$(T \leftrightarrow T^1) T^1$

$T$

$(\neg S^2)$ $\bot$

**I give up!**

The semantics of ambiguity adaptive logic

$\text{RPD}_{\text{AA}}$ is a dialectical interpretation of Vanackere's ambiguity adaptive logic, ACL2. In this section the semantics of the propositional fragment that has been used in the last sections will be presented (for proof theoretical considerations, see Vanackere 1997).

The language $L$ of the propositional fragment is constructed in the usual way from the set $S^I \cup S$. $S$ is the set of sentence letters of propositional logic. $S^I$ is the set of indexed sentence letters, i.e. $S^i \in S^I$, for $i = 1, 2, \ldots$, iff $S \in S$. $S$, $T$, $U$ and $V$ will be sentences of $L$.

$S$ is an $\text{ACL2-semantic consequence}$ of $\Gamma$ iff $S$ is true in all ACL2-models of a maximally ambiguous interpretation $\Delta$ of $\Gamma$. A $\text{maximally ambiguous interpretation}$ of a set of formulas is a representation of this set in which each occurrence of an atomic sentence $A$ has a different index $i$ ($i>0$). Thus, a maximally ambiguous interpretation of the set $\{ D, \neg D, \ W \}$ is $\{ D^i, \neg D^2, W^j \}$.

An $\text{ACL2-model}$ of $\Delta$ is a classical model that is $\text{maximally normal}$. That means that in an ACL2-model as many of the synonymy sentences as possible are true, or as Vanackere would express it, in which as few ‘ambiguities’ as possible are true. The set of $\text{true synonymy sentences of a classical model}$ $M$ is the set of expressions $A \leftrightarrow A^i$ such that $V_M(A \leftrightarrow A^i) = 1$. That $M$ is a $\text{maximally normal}$ model with respect to $\Delta$, means that $M$ is a classical model of $\Delta$ and that there is no classical model $M'$ of $\Delta$ such that the true synonymy sentences of $M$ are a proper subset of the true synonymy sentences of $M'$.

That a set of (non-indexed) premises $\Gamma$ is $\text{ambiguous}$ (in Vanackere's terminology) means that $\Gamma$ is inconsistent. In such a case, $\Gamma$ has no model, but $\Gamma$'s maximally ambiguous interpretation $\Delta$ does have a classical model and therefore also at least one ACL2-model. But not every classical model of $\Delta$ is necessarily an ACL2
model of it, since a classical model may verify fewer synonymy sentences than is possible for a model verifying $\Delta$.

The following argument illustrates the introduced concepts. In order to derive the conclusion, one does not need to use the apparent contradiction within the set of premises.

W.B. does drive a car and W.B. does not drive a car. The police officer arrested W.B. Therefore, the police officer arrested W.B.

The scheme of reasoning is: $A$, $\neg A$, $B / B$. The maximally ambiguous interpretation of the premises is: $A^1$, $\neg A^2$, $B^1$. Synonymy sentences associated with atomic sentences occurring in the set of premises are: $A \leftrightarrow A^1$, $A \leftrightarrow A^2$, $B \leftrightarrow B^1$. The following truth table fragment describes all classical models in which the indexed premises are true.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>$A^1$</th>
<th>$A^2$</th>
<th>$\neg A^2$</th>
<th>$A \leftrightarrow A^1$</th>
<th>$A \leftrightarrow A^2$</th>
<th>$B \leftrightarrow B^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M_1$</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>$M_2$</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>$M_3$</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>$M_4$</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Only $M_1$ and $M_3$ are ACL2-models. $M_2$ is disqualified by virtue of the fact that there is a classical model, $M_1$, in which all synonymy sentences of $M_2$ are true, and even other synonymy sentences are true, and an analogous observation holds for $M_4$.

A RPD$_{AA}$-dialogue can be described in semantic terms. In the dialogue, White has to show that thesis $T$ is true in all ACL2-models in which the indexed premises $\Delta$ are true. Black may try to find an ACL2-model that is a counterexample to $\Delta / T$, that is, an ACL2-model in which the indexed premises are true and in which $T$ is false. Therefore Black may, in his first move, concede as many synonymy sentences as he likes. White may see to it that the model that Black chooses is indeed maximally normal. She does so by requesting him to concede further synonymy sentences. Because Black has a right to find a model for $\Delta$, he may object to such a request if adding that sentence makes his set of concessions inconsistent. White then has the right to test the correctness of this objection in a metadiscussion.

The proof theory that Vanackere presents, that we will not deal with any further, has a surprising feature. The person who tries to construct a proof from $\Delta$ to $T$ also tries to disqualify lines in the proof if they are dependent on ambiguities. In a dialogical setting this is represented in an intuitively plausible way by the role reversal. After reversing roles the opponent of the initial thesis (Black) tries to disqualify an element of the proof that the proponent of it (White) is constructing.

**Evaluation**

RPD$_{AA}$ is too lenient with respect to Black

What is attractive about ACL2, according to Vanackere, is that it is tolerant as well as normative. In my view, RPD$_{AA}$ is too lenient with respect to Black. That the presumption of the univocality of a sentence $S$ leads to inconsistencies in a discussion provides insufficient ground for concluding that $S$ is ambiguous. Withholding a
concession of $A \leftrightarrow A'$ is not reasonable if sentence $A$ actually does mean the same at all occurrences. Discussants may commit themselves to the meaning or meanings of $A$, for example by (implicitly) agreeing to some (lexical or stipulative) definitions in a preparatory stage or by committing themselves to a semantic authority such as a dictionary. An opponent is allowed to disambiguate her commitment set $\{S, \neg S\}$ to $\{S', \neg S', S \leftrightarrow S', \neg (S \leftrightarrow S')\}$, provided that the discussants did not (implicitly) adopt $S$'s univocality. This is a reasonable restriction because sometimes critics do, in fact, entangle themselves in real contradictions. A proponent should be able to criticise an opponent's refusal to concede an identity expressing concession $A \leftrightarrow A'$ by pointing out the lack of ambiguity of sentence $A$ as uttered in this context.

**RPD$_{AA}$ does not cover one-occurrence cases of active ambiguity.**

In addition to logical validity, another criterion is important for evaluating argumentation: the acceptability of the basic premises. A premise with a single occurrence of atomic sentence $A$ can be ambiguous in the sense that the opponent's response to it depends on the interpretation of $A$. Moreover, in real life argumentation, warrants often remain implicit and a term that occurs only once in an argument can be actively ambiguous by making the reasoning an instance of the fallacy of equivocation. RPD$_{AA}$ does not accommodate one-occurrence cases of active ambiguity.

**RPD$_{AA}$ is too hard on Black.**

Another limitation of RPD$_{AA}$ is that a set of (indexed) concessions contains an ambiguity if and only if the non-indexed set of initial concessions is inconsistent. But ambiguity sometimes only surfaces as falsehood, derived from acceptable premises that do not contain any inconsistency. If an opponent has been forced to concede a sentence that he does not agree with, he might distinguish between different meanings of different occurrences of an expression in his set of concessions. Thus, disambiguation should not be restricted to situations where a set of concessions is inconsistent.

Vanackere himself offers an example of such an argument. "Girls are roses, roses are plants, hence girls are plants". Because no inconsistencies surface yet, the proponent would have a winning strategy for it in a version of RPD$_{AA}$ that accommodates predicate logic. The gap between conceding a contradiction and conceding something Black conceives as false could be repaired by inserting an extra rule in RPD$_{AA}$: when Black has been forced to concede something unacceptable to him, he is allowed to add a sentence to his set of concessions that is the denial of the unacceptable sentence. The disadvantage of such a version is that White never has a winning strategy, for Black will always be able to add the negation of White's initial thesis if he is in trouble. However, within such a dialogue White is able to let Black express his opinions more completely.

**RPD$_{AA}$ as a model to represent and evaluate real dialogues.**

After examining these drawbacks of RPD$_{AA}$, it is time to call attention to its worth. Ambiguity adaptive logic, unlike a theory such as supervaluationism, admits of a very plausible dialectical interpretation. RPD$_{AA}$ satisfies some of the central theoretical requirements that we have outlined for an adequate procedural account of ambiguity.
Chapter 6

The theory implements some of the features that we are after: it models a defeasible principle of meaning constancy; the presumption can defeated by raising a point of order; it makes a distinction between a ground level discussion and a metadiscussion; it provides a clear burden of proof for raising a point of order; and it provides the means for swapping roles. All these features will be adopted in the model for persuasion dialogue in chapter 7.

3. SUMMARY

MSA and RPDAA share several features that we are looking for in order to carry out Hamblin’s program. MSA is an express attempt to carry out this program and explicitly models the act of raising a point of order, the act of disambiguating statements, and the workings of a defeasible presumption of meaning constancy. RPDAA satisfies even more desiderata: the act of raising a points of order, the working of a defeasible presumption of meaning constancy, the distinction between ground level and metadiscussion, the burden of proof assigned to a point of order, and the swapping of roles. All these features will be adopted in some form in the model for persuasion dialogue in the next chapter. But we will have to avoid the main defect of both RPDAA and MSA: we should not link inconsistency and ambiguity too closely.

Another feature of both theories will be taken up in the next chapter: in order to accommodate for active ambiguity we do not per se need to modify the notion of validity that is implemented in rigorous persuasion dialogue. In ambiguity dialectic, the parties may check the validity of an argument, by having a RPD0-dialogue. The issue of ambiguity can be raised and examined within the permissive parts of the discussion (see section 6 of chapter 1 for an account of complex persuasion dialogue). It only makes sense to check the validity of an argument if no party supposes an expression in the argument to be actively ambiguous. Therefore, if the permissive parts of a persuasion dialogue provide the discussants with adequate means to cope with active ambiguities, we do not have to change the concept of validity, and consequently, we do not have to implement a special kind of rigorous persuasion dialogue that accommodates active ambiguities.