Chapter 13
Dialogue Analysis: Pragmatic and Rhetorical Aspects

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13.1 Introduction

This article describes a set of analytical tools for dialogue, focused on the pragmatic and rhetorical aspects that we consider fundamental to a dialogue hermeneutic. We begin by reviewing the necessary theoretical background for our purposes, then describe the analytical tools and apply them to a case of dialogue to illustrate their richness and scope. Of course these tools can always be paired with others for a more focused analysis.

We start with the assumption that agents interacting in a dialogue share their representation of the world, and that this representation is influenced by their action on it through the dialogue: it is pragmatics that accounts for this level of articulation between language and action. We present our model of pragmatic analysis in terms of three levels:

- Action supported by the dialogue
  - Thematic structure of the task
  - Goals of the task
- Dynamic advancement of the dialogue
  - Dialogue goals and acts
  - Strategies
- Articulation of pragmatics in the dialogue
  - Rhetorical relations
  - Structuring role of the topic

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M. Rebuschi et al. (eds.), *Interdisciplinary Works in Logic, Epistemology, Psychology and Linguistics*, Logic, Argumentation & Reasoning 3,
DOI 10.1007/978-3-319-03044-9_13,

In this article, we are especially interested in the dynamic advancement of dialogue and the articulation of pragmatics, levels which are of most interest in our approach to dialogue. The level of action will not be addressed here, as it essentially leads to a cognitive analysis of the task, which is beyond the scope of this article.

13.2 Dialogue Goals and Strategies

Dialogue is generally considered to be a conversational game embedded in an action framework (Vernant 1997). The participants are engaged in a dialogue with the intention of achieving several goals. Every dialogue has an interactional side and an interlocutionary side, to which a third level is added, that of the knowledge constructed or exchanged in the course of the dialogue. The role of this newly-built shared knowledge is to fuel either the interlocutory side or the interactional side. The action that is undertaken, and which must both achieve and satisfy its goals, is a combined action—it develops simultaneously in the world and between the participants: this also means that, during the dialogue, the participants must agree on the conditions for achieving these goals (i.e., who does what and how). The goals of the dialogue are thus subordinated to the goals of the combined action, which itself remains in the background of the dialogue. In this context, dialogue strategies are ways of conducting the dialogue as an activity of goal resolution (Caelen 2003).

Thus, to put it more simply, there are many kinds of action in the dialogue: those that are part of the framework of the conversational game itself, and those that relate to the background (world knowledge, etc.). We must therefore distinguish the dialogue goal, which is in the background (and which depends on the situation in the world of the task, social roles, etc.) from the conversational goal which is in the foreground, and which is necessarily shared since it relates to the type of dialogue being engaged in (if this goal is not shared, there is misunderstanding about the type of dialogue). For example, a salary negotiation implies both an external goal in the world (i.e., to obtain a raise for the employee, and to limit it for the employer) and a conversational goal, which is to conduct a true negotiation in the correct or socially acceptable form. Thus, the conversational goal can be satisfied without the ultimate goal necessarily being satisfied (the negotiation can proceed according to the rules—one could say by saving face, following Goffman—without the raise being obtained). The success of this dialogue in game theory would be measured by the difference between the salary increase that was obtained and that which was expected at the start of the dialogue. But this type of success does not arise from the dialogue analysis that we intend to perform in the following; rather, we would measure the gap between the conversational goal reached and that which would be expected in similar cases. In other words, we would like to know whether the conversational goal is met and how. To summarize our vision: the dialogue is presented as a game in which each speaker is trying to meet a goal while best adjusting to another goal—the conversational goal—in which he is engaged

(Caelen and Xuereb 2007). These two "games" are interwoven, making it necessary to sort them out in order to analyze them; we note that sometimes the dialogue goal and the conversational goal are one and the same when the dialogue is an end in itself. This will be the case in the example detailed in the article, which will show both the advantages and the limitations of our approach.

At the start of a dialogue, each conversation partner arrives with his or her own goals and knowledge in the context of a certain state of the world. We define the following terms to be used for the remainder of the article:

Initial goal of the dialogue: the state of the world or the mental state that one of the two speakers wishes to achieve a priori, either for himself (obtain information or directions, acquire knowledge, change the state of the world) or for his partner (share information, allow him to do something, give him advice, etc.).

Conversational goal: goal related to the type of strategy applied in the dialogue in order to reach its ends: convincing, dissuading, making an agreement, sharing, etc.

In what follows, we will use the term *goal* indiscriminately to refer to either a dialogue goal or a conversational goal. While this does not facilitate comprehension, it allows for generalization of the reasoning and encompasses both types of goals in the same formalism.

Exchange: a sequence of turns in speech during which a goal is maintained. The beginning of an exchange is marked by the appearance of a new goal; this goal may be transformed in the course of the exchange (for example, it can be clarified or broken down into sub-goals) and becomes an irreducible final goal upon which the exchange ends in a success or a failure. The successful outcome is one that obeys the double condition of being an *achieved goal* and a *satisfied goal* (Searle and Vanderveken 1985; Vanderveken 1997). An exchange, meanwhile, develops along two axes: the *managing* axis and the *incident* axis (Luzzati 1989).

Goal of the exchange: the goal that is kept in play during the exchange

Final goal: the state of the world or of the situation at the end of the exchange (it always ends, at least by the agreement of the two participants on the fact that there is a failure when there is one, e.g., "the unions and the employers separated with an admission of failure"). The final goal is not always predictable from the start.

Incidence (Luzzati 1989): an exchange whose effect is to challenge the dialogue goal or put it on hold (by change of subject, clarification request, request for details, etc.), but which does not challenge the conversational goal. The dialogue generally continues on this incident axis before coming back to the principal axis of the exchange. There may be several levels of incidence.

Dialogue: a dialogue is a sequence of *exchanges* and *incidences*. Several goals may be treated in the course of a dialogue.

Dialogue strategy: the way of managing turn-taking between interlocutors in order to guide an *exchange* or an *incidence*. The strategy should choose the best *direction of fit* for the goals at a given moment.

Table 13.1 Summary of properties of the strategies from the point of view of the hearer (H) in relation to the speaker (S)

Strategies	Non-inferential			Inferential	
Properties	Reactive	Directive	Constructive	Negotiation	Cooperation
Initiative	S	H	Mixed	Mixed	Mixed
Fit	g_S	g_H	Other	No	Reciprocal
Conv. goal	Maintenance	Maintenance	Detour	Maintenance	Maintenance
Concession	Max.	Min.	N/A	Min.	Max.
Role of H	Passive	Active	Neutral	Active	Active

Direction of fit: There are five possible directions of fit for goals, which lead to five types of strategies, presented from the perspective of the hearer H in a dialogue with the speaker S:

- H abandons his goal in favor of that of S (reactive strategy); in other words, H adjusts his goal toward S's goal (abbreviated as $g_H \rightarrow g_S$)
- H imposes his goal at the expense of S's goal (directive strategy); that is, he forces S to adopt his goal (abbreviated as $g_H \leftarrow g_S$)
- H and S each keep their goals (negotiative strategy); in other words, they do not attempt to adjust their goals a priori (abbreviated as $g_H \leftarrow g' \rightarrow g_S$) even if a compromise ($g'$) is found by the end of the negotiation.
- H and S each take into consideration the other's goal (cooperative strategy); that is, they try to adjust their goals to one another (abbreviated as $g_H \leftrightarrow g_S$)
- H and S both abandon their goals in favor of a third goal (constructive strategy) by taking a constructive detour (abbreviated as $g_H \rightarrow g' \leftarrow g_S$)

We adopt the following notational conventions:

- g_S: initial goal of speaker S,
- g_H: initial goal of the hearer H,
- g_f: final goal of the exchange,
- g_c: conversational goal, assumed to be shared by H and S.

We can thus define the following types of strategies according to the directions of fit described above (in the following, we continue to take the point of view of the hearer H, See Table 13.1).

13.2.1 Non-inferential Strategies

These strategies are called non-inferential insofar as the one who pursues them does not try to find a shared goal with his partner and therefore does not necessarily have to infer his goal.

13.2.1.1 Reactive Strategy

This strategy consists in delegating the initiative to S, either by getting him to take on H's goal (in the case of asking for help or assistance) or by adopting his goal (in the case of the helper or servant). The course of the dialogue then develops:

- By maintaining the goal of the exchange, but without taking the initiative,
- By abandoning his own goal or by making it dependent on g_H.

H is passive and S is active. This results in H opening up all of the types of strategies to his interlocutor S. The direction of fit is therefore $g_H \rightarrow g_S$.

13.2.1.2 Directive Strategy

This strategy consists in holding the initiative in order to guide the dialogue:

- By maintaining the goal of the exchange and holding the initiative,
- By imposing his own goal g_H (therefore trying to make $g_f = g_H$),
- By perhaps ignoring the goal of the speaker g_S, which is somehow considered not to exist.

This results in imposing a reactive or negotiated response on S, and thus limiting his available strategies. H is active and S becomes passive. The direction of fit is then $g_H \leftarrow g_S$.

13.2.1.3 Constructive (or Detour) Strategy

This strategy consists in temporarily displacing the current goal in order to trigger a detour (assumed to be constructive) which is not necessarily an incidence—for example, to point out an oversight or error, make a citation, restate a piece of old information, an experience, etc.:

- The current goal is put on hold, as well as the initial goals,
- A new goal g' is established,
- The initiative may be shared.

The direction of fit is then $g_H \rightarrow g' \leftarrow g_S$. In contrast to an incidence, a detour does not necessarily lead back to the initial exchange, and can put the conversation on hold or lead to another detour.

13.2.2 Inferential Strategies

These strategies are called inferential insofar as they require both partners to have a precise knowledge of their respective goals.

13.2.2.1 Cooperative Strategy

This strategy consists in taking into account the goal of one's interlocutor by proposing one or more solutions which lead both to achieve their goals, if they are not incompatible:

- This leads to the unfolding of a complex process—evaluating the situation, presenting an explanation and possibly relevant examples, support, or arguments, and offering a fixed choice (cognitively easier for decision-making), maximizing the concession space,
- By a process of searching for an optimum within a space of possibilities,
- By accompanying the partner to a solution,
- By expanding the conversational goal if necessary.

This results in opening all types of strategies to one's interlocutor. The direction of fit is $g_H \leftrightarrow g_S$.

13.2.2.2 Negotiative Strategy

Negotiation may occur in a situation where the goals are incompatible and (where) the participants want to minimize concessions. The negotiation proceeds according to a fairly standard pattern, by sequences of argumentation (argument/rebuttal) with a proposed sub-optimal solution until the partners reach either convergence or admission of failure. The local tactic is to:

- Try to impose one's goal or accept a compromise,
- Maintain the conversational goal,
- Push the negotiation as far as possible until reaching an acceptable goal g'.

This results in keeping one's interlocutor confined to this strategy. The direction of fit is then $g_H \leftarrow g' \rightarrow g_S$.

13.3 Speech Acts

The theory of speech acts is well known: each speech act is defined in terms of its illocutionary force F and its propositional content p, using the formalism of Searle and Vanderveken (1985). Thus every linguistic or physical action is expressed in the form of Fp.

The dialogue interaction moves forward with help from acts that have the general form Fp = illocutionary force + propositional content (Vanderveken 1990): an act has both preparatory conditions and effects. We will retain our own taxonomy of acts, as it is compatible with the notion of goal defined above: F^A, F^{FA}, F^{FK}, F^K, F^R, F^P. Certain acts are action-oriented (F^A = *perform an action*, F^{FA} = *cause to perform an action*) that is to say, the expected effect in the world (events, facts, accomplishment of a task). Other acts are epistemically oriented (F^K = *inform/cause to know*, F^{FK} = *cause to inform*), that is, they have an effect in the discourse or on (shared or private) knowledge. Finally, other acts are deontically oriented (F^R = *require/cause to have to*, F^P = *allow/cause to be able to*), that is, they create obligations (requirements) or offer choices (possibilities) for further dialogue. Such deontic acts regulate the interaction and can even change the rules of the game.

The table below summarizes these concepts: actions, in the left column, involve speakers A and/or B when they perform them, within a certain orientation, and have their source in the background and the private knowledge of each speaker (K_A denotes A's knowledge and K_B denotes B's knowledge). Their effects apply to a change in mutual knowledge K_{AB}, to plans and goals (development of plans and goals) and the world.

Acts	Involvement	Orientation	Background	Effects
$F^{FK}P$	A, B	Epistemic	World, K_A	K_{AB}
$F^K p$	A	Epistemic	World, K_B	K_{AB}
$F^P p$	A	Deontic	B	Plan
$F^R p$	B	Deontic	B	Goal
$F^{FA} p$	A, B	Action	Goal	World, K_{AB}
$F^A p$	A	Action	Goal	World, K_{AB}

We use the term *retort* for the category of acts that deny the interlocutor the right or ability to perform an action (strong challenges, questioning of roles, etc.). They are of the form "A does not accept that $F_B p$" or "A denies B the act $F_B p$", such as "What right do you have to ask me that?" or "Why should I answer you?", "You don't have the right to impose that on me", etc. A retort is denoted as $\neg Fp$ (to be distinguished from negations, which are of the form $F\neg p$).

The goal of a retort is to create a rupture in the convergence of the dialogue by challenging a conversational goal. It closes the current dialog and moves it to another area (the attack, interruption, evasion, etc.). It becomes impossible at this time for the interlocutor not to respond to this retort, especially if the challenge is accompanied by a personal attack. Retorts are possible following a F^{FK}, F^K, F^{FA}, F^A depending on the social relationship between interlocutors, but have no meaning after F^R and F^P, since in the case of F^R it is a social obligation that cannot be discussed, and in the case of F^P there is a free choice left to the speaker, which is not natural to challenge.

13.4 The Pragmatics of Dialogue

Semantics is not enough to model the interpretation of an utterance (especially due to the presence of phenomena such as coreference, indexicals, ellipses, and implicit elements in the discourse such as presuppositions and implicatures). Dialogue is constructed in action and interaction, and its interpretation requires anchoring the utterance in its actional context: this is the pragmatic level. After reviewing the definitions of presuppositions and implicatures, and that of *topos* in the work of Ducrot, we briefly describe SDRT.

13.4.1 Presuppositions and Implicatures

- **Presuppositions** are pre-propositions, implicit engagements of the interlocutors who share common knowledge. They can be indexically marked, for example for the verb *drink, drink(x)* generally presupposes *liquid(x),* but in the case of definite descriptions like *the king of France is bald,* the constraint holds over the existence of the subject referent.
- **Implicatures** are post-propositions. They are the results of inferences that a hearer is likely to make based on an utterance. They are calculated based on what is said or what is conventionally implicated. For Grice (1975), implicatures—called conversational—arise from the cooperative principle in which what is said is relevant (the principle of economy of speech).

13.4.2 Topos in the Work of Ducrot

For Ducrot (1984), argumentation (which, for him, structures the text or the discourse) depends on the synthesis of three components: the *topical*, the *logical*, and the *encyclopedic*. These three elements are not always easily separable. For Anscombre and Ducrot, *topos* is "the guarantor that authorizes the passage from the argument A to the conclusion C" (Anscombre and Ducrot 1983). It is a general principle underlying a sequence of argumentation presented within a discourse. The *topical* component is the set of *topoi* or arguments that shape the discourse. The *topoi* are common beliefs that lead to results in the form of predicates; they contain rules or principles of inference which, starting from one or more singular facts and a generic hypothesis about reality, allow one to conclude the existence of another singular fact. The *encyclopedic* component is inseparable from the *topical* and *logical* components. It specifies world knowledge, the referential and cultural knowledge shared by the interlocutors. In a way, the concept of *topos* in Ducrot's work generalizes over both implicature and presupposition. Thus, for example, to

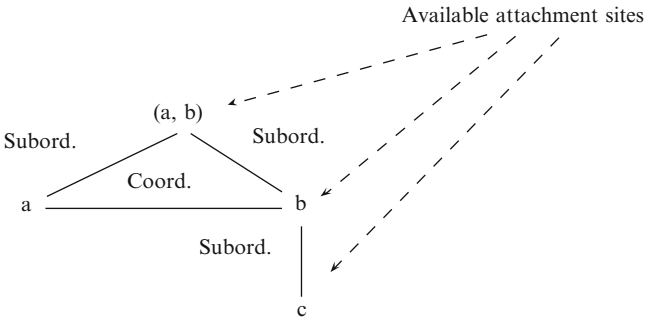


Fig. 13.1 Discourse structure and available attachment sites

say "Peter worked all day" is to produce the *topos* $\exists x : Peter(x) \wedge tired(x)$. The meaning of the verb *work* produces an aggregate of *topoi* from which the arguments are woven and the discourse is constructed.

13.4.3 SDRT

SDRT (Segmented Discourse Representation Theory) is a formal theory of the semantic-pragmatic interface. Bringing together the contributions of discourse analysis for the formalization of the structure of discourse, and dynamic semantics for the interpretation of utterances, it offers a model of discourse coherence based on linguistic and pragmatic knowledge. It extends DRT (Discourse Representation Theory) by adding a logical link between discourse segments. In SDRT, discourse analysis supplies a complex structure where discourse representation structures (DRS) are connected by discourse relations to form "Segmented Discourse Representation Structures" or SDRS (Asher and Lascarides 2003). In this hierarchical structure, relations are of the coordinating type (precedence relation, simple continuation of discourse) or the subordinating type (dominance relations such as Elaboration, Precision). On a graph, subordinating relations are shown with vertical lines, and coordinating relations with horizontal lines. This structure constrains the available attachment sites for a new discourse segment: it can only be attached at available attachment site. In terms of the representation conventions, these available attachment points are called the "the right frontier of discourse" as shown in Fig. 13.1.

In formal terms, an SDRS is a pair $< U, Cond >$, where

- U is a set of discourse referents of speech acts (DRS or SDRS labels π),
- $Cond$ is a set of conditions on the members of U. These are of the form:
  - $\pi : K$, where K is a DRS or an SDRS,
  - $R(\pi_1, \pi_2)$, where R is a discourse relation (rhetorical relation).

An utterance is therefore represented by a formula $\pi : K$, where π is the reference of the speech act (the label), and K is the formula for the act's discourse content. K is either a DRS formula, for simple constituents, or an SDRS formula, for complex constituents. The SDRS is thus a recursive structure.

13.4.3.1 Construction of the Logical Structure of Discourse

SDRT is based on the assumption of discourse coherence: in the SDRS, any constituent except the first utterance must be attached with a rhetorical relation to a constituent present in the context. The hierarchical structure of the SDRS introduces a level of constraint for accessing antecedents of anaphoric conditions: access is only possible for the referents of constituents that dominate the current component or those of the constituent immediately to the left. The discourse structure is updated by an incremental process:

- Construction of the DRS of the current sentence;
- Integration of this segment into the context of the previously constructed SDRS, by:
  - Deciding which discourse referent can be an attachment site,
  - Inferring the discourse relation which links the new DRS to an available attachment site,
  - Updating the resulting SDRS: resolving the sub-specifications, introducing new complex segments.

In case of ambiguity in the attachment site, the principle of Maximize Discourse Coherence allows a choice of the most relevant interpretation. The option with highest coherence is selected by maximizing the number of connections between discourse constituents, with emphasis on rhetorical relations that have the greatest cohesive power, by promoting the resolution of sub-specifications.

13.4.3.2 Rhetorical Relations

The types of rhetorical relations used in SDRT originate in RST (Rhetorical Structure Theory), Mann and Thompson (1988) and the work of Grosz and Sidner (1986). However, their number is reduced in SDRT, which uses discourse relations in terms of their semantic contribution. As such, the relation Elaboration, for example, has a temporal effect: the main event of the elaborating utterance is a part of the main event of the already elaborated event. The complete list of relations is not fixed, but instead should be defined on semantic criteria in terms of the modeled world. The relations described in SDRT the narrative discourse are: Narration, Background, Elaboration, Continuation, Topic, Result, Explanation, Consequence, Contrast and Parallel.

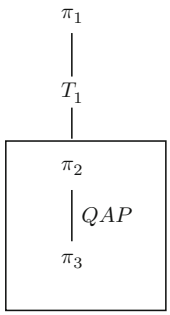
The calculation of rhetorical relations involves the current context (the current SDRS) and the semantics of the statement to be attached, as well as general pragmatic principles and (real-world) knowledge of the domain. SDRT is based on two distinct logical components: *glue logic* for pragmatic reasoning, and the *logic of information content,* for reasoning over the semantics. For each rhetorical relation that is described, the inference rules involve two groups of axioms: the triggering rules and the semantic effects. The triggering rules specify the linguistic clues that allow the speaker to signal the rhetorical relation between two propositions. They depend on the presence of lexical markers; for example, the French lexical marker *car* ('for') indicates a relation of *explanation*, while *puis* ('then') or *ensuite* ('afterwards') are clues for the relation of *narration*. The triggering rules can involve syntactic data: the relation *contrast* (π_1, π_2) is triggered by an isomorphism of structure together with a thematic contrast between the utterances $K\pi_1$ and $K\pi_2$. Semantic effects, on the other hand, specify the semantic contribution of the relationship, and serve to enrich the propositional content of SDRS. The semantic effect of $Narration(\pi_1, \pi_2)$ is that the main event of π_1 precedes the main event of π_2. The relationship $background(\pi_1, \pi_2)$ semantic result of requiring the main event of π_1 to temporally overlap that of π_2.

After the insertion of a constituent, the structure is updated. Coordinated relations, such as *narration* or *continuation*, require the introduction of a *topic* constituent which subsumes the underlying coordinated constituents. This is a complex constituent whose function is to generalize the information of attached constituents. For subordinating relations, the *topic* constituent is implicit, and is composed of a subordinated constituent.

13.4.4 Dialogue SDRT

SDRT has been shown to be a productive theoretical framework. We complete its description to account for the relations involved in acts of questioning. A question is formalized by the set of propositions in the world that constitute direct responses. An indirect response is a response that allows the hearer to infer the direct answer. The formalization of questioning involves the cognitive states of the dialogue partners, using operators over their beliefs and intentions. Extended SDRT includes the relations *Question-Answer-Pair* (QAP), *Partial Answer Question Pair* $(PQAP)$, *Indirect Question Answer Pair* $(IQAP)$, *Plan-Elaboration, Question Elaboration, and Acknowledgment.* SDRT exploits the fact that questions may be modified or contradicted later in the dialogue. Question-Answer relations are necessarily subordinated, and the *question* node remains available to other attachments even after the first answer (Prévot 2004). The update of the structure after the attachment of *question-answer* relations triggers the insertion of a topic constituent, which then receives the result of the application of the *answer* segment on the *question* segment. For example, the following dialogue

π_2: Where is room C?
π_3: At the end of the hall.
is represented by the schema seen here.



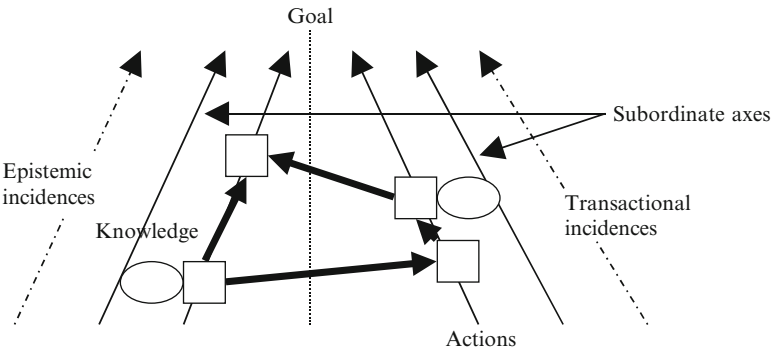


Fig. 13.2 The advancement of dialogue tales place along six axes: the main and subordinate actions, the main and subordinate knowledge, and the transactional and epistemic incidences

The answer π_3 is attached to the question π_2 by a relation QAP. The topic constituent T1 receives the information established by the combination of the question π_2 and the answer π_3. The established information then becomes available for an anaphoric reference in the dialogue that follows.

As we have seen in Sect. 13.2, dialogue is a conversational game embedded in an actional framework. The participants exchange knowledge in order to guide their joint action. The representation of the dialogue should contain more pragmatic information than what can come directly from the utterances, their presuppositions and implicatures, or Ducrot's *topoi*. It must integrate the dialogue context itself (see Fig. 13.2). Thus, the interaction develops on two levels: (a) communicative and (b) transactional. The communicative level is composed of the epistemic level and the deontic level (i.e., the *what to do* and *how to do it*). The deontic level articulates the epistemic level (the necessary knowledge and preparatory conditions for the *doing*) and the transactional level (the *doing together*). It sets up local tactics for moving from one level to another or for avoiding the problem (an *escape*). This is a level of internal regulation of the dialogue by the participants themselves. There is also a control level, external but implicit, about respecting the rules of the dialogue game:

the game ends if someone violates one of these rules. The effect of an action is twofold: on one hand the effect is on the world in the form of facts, and on the other, the effect is on shared knowledge.

A dialogue consists of interventions proceeding from turn-taking in speech. These interventions are formed of sequences of monologue or dialogue. Rhetorical relations of the monologic type are relations linking two acts of a single speaker, either in a single turn of speech or not, which are in relation (i.e., attached in the sense of SDRT) and which structure the discourse of this speaker in the situation of the present dialogue (i.e., here and now). They are of the same nature as in a narrative discourse. Rhetorical relations of the dialogic type, on the other hand, are relations linking two acts (by speaker A, then speaker B) which are in relation (i.e., attached in the sense of SDRT) and which structure the dialogue. They are of the form $Rd = (F_A p, F_B q)$—being in relation does not necessarily mean being consecutive.

Just below we give the list of rhetorical relations that we have retained as relevant to a pragmatic perspective on dialogue. The definitions and the scope of these relations will take on meaning progressively, following examples given and the complete demonstration.

13.4.4.1 Families of Rhetorical Relations in Dialogue

If we consider the different levels of dialogue diagrammed above, we can identify the following families of relations:

1. **The epistemic axis and its subordinate**

- **Question-answer pairs** (QAP): In a Question-Answer Pair, the response P is meant to provide information relative to the question Q; in this category, we also distinguish $PQAP$ (Partial QAP) and $IQAP$ (Indirect QAP). These questions and answers are relevant to the main (or managing) axis of the dialogue and work together to advance it.
- **Question Subordination** ($Q-Sub$): Question Subordination involves clarification requests about shared knowledge. These requests are in the background knowledge of the participants (and not on the level of discourse like the QAP). This class includes clarification requests, corrections, reformulations, etc. They are represented as $Q-Sub$:clarification, $Q-Sub$:correction, etc.
- **Elaborations of knowledge** ($Elab$): Elaborations are the contributions of mutual knowledge built during the dialogue game. These contributions can be made in many ways, both on the managing axis (constructive questions ($Elab_q$) and assertions, for example) and on the subordinate axis—in this case these are the clarifications, corrections, reformulations, etc., which are necessary for the speakers to understand each other. They are represented as $Elab$:clarification, $Elab$:correction, etc.

2. **The action axis and its subordinate**

   - **Request Answer Pair** (RAP): A delegation or request for action followed by concrete action(s) aimed at resolving the current goal. The action-answer can also be indicated as partial ($PRAP$) or indirect ($IRAP$). These relations are to the transactional level what the QAP are to the epistemic level,
   - **Plan Elaboration** ($P-Elab$): Contribution to the formation of a joint plan—this plan becomes the action framework in which the actors achieve resolution of the goal,
   - **Question elaboration** ($Q-Elab$): Contribution to the formation of a plan by a question,
   - **Request elaboration** ($R-Elab$): Action Elaboration—contribution to the formation of a goal—or to the clarification of this goal if it is already established. This transaction over the goal is on the subordinate axis.

3. **The divergents axes: incidences et retorts**

   - **Incidences (I)**: Acts which break the current topic by introducing a new topic. We distinguish incidences with a return the managing topic, or detour, from the incidences without a return to the topic (insults, for example). Detours are generally constructive acts, but indirectly and not immediately for the dialogue background,
   - **Retorts (R)**: These acts behave like closing coordinations. Indeed, one may only follow with an answer to the retort or an escape (opening of a new topic). Retorts do, however, allow changes in the rules of the dialogue, regulating turn-taking and exchanges, and challenging of roles. Their effect is to modify the actors' commitments. These are deontics that bear on the rules governing the coordination of actions in the dialogue game (elaboration of tactics), since the rules are implicitly given at the start and can not be negotiated in this way.

4. **Continuations (C)**: Acts that continue the discourse within the same topic. A subtype of continuations is acquiescences or agreements (*acquiescements*) (Prévot 2004), whose role is either to maintain the thread of dialogue (e.g., *hmm, yeah,* etc.) or to close a series of utterances under a single topic.

13.4.4.2 The Topic Constituent

In order to strengthen the role of pragmatics in the formalization of questioning, we extend the role of the topic constituent into not only a structural element of the dialogue, but also the repository of pragmatic representations being calculated (Xuereb and Caelen 2005). The topic is a complex constituent which is explicitly introduced, and which subsumes the underlying coordinated constituents. This is where the sub-specifications are resolved. During the SDRS update, the set of referents and predicates established in the underlying substructure is merged into the topic, after the presuppositions and implicatures are integrated. The global SDRS is

thus built up in the course of the dialogue through the progressive establishment of higher and higher topic levels (union of the coordinated elements, merging of subordinate elements), continuing up to the dominant topic, which consists of the set of all information established by the participants. Presuppositions are integrated in the form of discourse relations added to the context. The topic node is where any corrections are made (challenges, corrections, withdrawals, etc.). It also represents a unit of shared knowledge: in the course of advancing the dialogue, common knowledge is co-constructed by the participants. The branching structure of topics is where the information which is shared and accepted by both interlocutors is instantiated.

13.5 Construction of Dialogue SDRS

13.5.1 Inference of Rhetorical Relations

The inference of rhetorical relations involves the illocutionary force of speech acts and its propositional content. We focus on the pragmatic effects of the dialogue structure and we consider semantic representations of utterances to be given. We will use the predicate *Answer* to denote the resolving answer to a question. An answer is considered 'resolving' if it provides the elements to achieve the underlying action in the world of the task. The answer is direct if it provides all the elements necessary to achieve this action, and indirect if inferences are still needed to provide all the elements necessary to achieve it. An answer is considered partial if it provides some of the elements necessary (it reduces the range of possible answers). We take into account the presuppostions, knowledge shared, and the world of the task. We now briefly detail the inferences put into practice in all dialogue-based rhetorical relations, organized into five groups.

13.5.1.1 Question-Answer Pairs: QAP, $PQAP$, $IQAP$

For these three relations, the first act of the pair always has an illocutionary force F^{FK}; a question may be answered with an assertion or an action:

$F_A^{FK} \rightarrow F_B^K or F_A^{FK} \rightarrow F_B^A$.
QAP(**p**, **q**): *Question-Answer Pair* (i.e., complete answer) Answer(p, q)
Both polarity questions and wh-questions are included in QAP.
PQAP(**p**, **q**) : *Partial Question-Answer Pair* (i.e., partial answer)
$q \subset r \wedge \ Answer(p, r)$
IQAP(**p**, **q**): *Indirect Question-Answer Pair* (i.e., indirect answer)
$q \Rightarrow r \wedge \ Answer(p, r)$

13.5.1.2 Subordinate Questions: $Q - Sub$

These are follow-ups to dependent questions, each of which may be answered (subordination leaves each *question* node open). The semantics for this relation is refined by distinguishing:

Q-Sub:clarification(p, q): question about part of p
Q-Sub:incidence(p, q): question unrelated to the contents of p (nor any sub-part of p, and is also not an elaboration), but staying within the same theme. In this case it is a *detour* and not an *escape*.

13.5.1.3 Knowledge Elaboration: $Elab$:Clarification, $Elab$:Correction

The relation **Elaboration**(p, q) involves a whole/part relation between the main elements of K_p and K_q. We then refine this relation with the following distinctions:

Elab$_q$ $(\mathbf{p}, \mathbf{q})$: q is an elaborating question about the contents of p (question about a detail of p)[1]
Elab : **Explanation**$(\mathbf{p}, \mathbf{q})$: there is a semantic relation of explanation between p and q. This semantic relation may be expressed by specific lexical markers (*for, since, because,* etc.).
Elab : **Correction**$(\mathbf{p}, \mathbf{q})$: q contributes a correction of the semantics, by substituting a part of p.
Elab : **Clarification**$(\mathbf{p}, \mathbf{q})$: q contributes a clarification or further detail about the contents of p, without adding information or modifying p.

13.5.1.4 Delegations or Requests for Action: RAP, $PRAP$, $IRAP$

These relations formalize questions on the level of action. The first act of the pair is always request for action F_{FA} or an offer of action F_P. The hearer may answer it either with an action or with a contribution of information in order to prepare the action: $F_A^{FA} \leftarrow F_B^A ou F_A^{FA} \leftarrow F_B^K; F_A^P \leftarrow F_B^A ou F_A^P \leftarrow F_B^K$

RAP$(\mathbf{p}, \mathbf{q})$ *Request-Answer Pair*
$Answer(p, q)$
PRAP$(\mathbf{p}, \mathbf{q})$ *Partial Request-Answer Pair*
$q \subset r \wedge RAP(p, r)$
IRAP$(\mathbf{p}, \mathbf{q})$ *Indirect Request-Answer Pair*
$q \Rightarrow r \wedge RAP(p, r)$

[1]Unlike Asher and Lascarides (2003), we do not distinguish elaborations characterized by a request. Here, $Elab_q$ includes $Elab_r$ as defined in Asher and Lascarides (2003).

13.5.1.5 Relations Linked to Planning

The relations $Q - Elab$, $P - Elab$, $R - Elab$ involve a level of planning or transaction, formalized with the following elements:

- The goal g associated with A's utterance p,
- The answer p' to p that A expects,
- The plan a to be implemented in order to achieve the goal g,
- The shared knowledge of A and B, K_{AB}, and B's private knowledge, K_B.

The speaker A seeks knowledge p' of the type "plan" (that is, *how to do*) from which he may reach a situation where he can infer that, by following through on the plan a implicit in p', he will reach his initial goal g. This plan may not be inferred by the shared knowledge of A and B before the response of B (Prévot 2004). In what follows, we use the predicate Executable(p) which denotes an executable action p.

We distinguish:

Q − Elab(p, q) *Question Elaboration*
$Answer(q, p') \wedge p'$ supplies a plan a (or a sub-plan) which participates in the resolution of the goal g associated with p.
R − Elab(p, q) *Request Elaboration*
g is the goal implicit in p, $Executable(q) \wedge F_A^A(q)$ participates in achievement(g). The execution of the answer q supplies A with a goal that he must achieve in order to achieve b.
Plan − Elab(p, q) *Plan Elaboration*
q constitutes an element of the plan a necessary to achieve the goal associated with p. q is an assertion.

For these three relations, Asher and Lascarides (2003) bring in the cognitive level and the modeling of goals, plans, beliefs and intentions of the speakers. In the context of the completed dialogue, it is best to avoid modeling intentions and beliefs. These relationships are inferred from real-world knowledge of the task, specific to the domain of application and purpose of the current activity.

13.5.1.6 Continuation C

is a coordinating relation. In its dialogue form, when it links the pairs in $QAPs$, it represents the linking of Q/A coordinates, that is, Q_i/A_i sequences and not $Q_1 \ldots Q_i/A_1 \ldots A_i$ sequences. In its monologue form, it links acts of the same type in succession on the same theme (e.g., enumeration of a list). This relationship requires the introduction of a topic which subsumes the coordinated constituents.

13.5.2 Pragmatic Effects: Construction of the Structure

Each rhetorical relation has a specific effect on the SDRS, in particular via its influence on the structure of the topic.

- $QAPs$ and $RAPs$ introduce a *Topic Question.* This topic will receive the result of the application of answer segment to the question segment (Prévot 2004). Thus the sets of coordinated questions and answers link respective QAP pairs under a single *Topic Question.* In the case of linked answers, the dominant topic question will contain the union of assertions obtained by applying the answers to their respective questions,
- $Elabs$ (Elab$_q$, $Elab$:correction, $Elab$:clarification, $Elab$:explanation...) introduce a subordinate topic which, once resolved, is merged into the dominant topic,
- An A closes the topic,
- An I stays within the same topic (with the restriction on incidence types indicated above).

13.6 Analysis of a Doctor-Patient Dialogue

The analysis proceeds in two steps:

- The annotation,
- The statistics.

13.6.1 Annotation of the Dialogue

For each dialogue act, we annotate:

1. The illocutionary force of the dialogue act Fp,
2. The goal of the dialogue act (the dialogue goal, subject to the goal of the task)—some acts don't have a goal other than maintaining the progression of the dialogue (here especially for the psychoanalyst): these are phatics,
3. The doctor's goal G_D and the patient's goal G_P,
4. The strategy: S = directive, reactive, negotiated, constructive, cooperative,
5. The rhetorical relation RR,
6. The topic T.

To simplify the presentation, we will analyze the dialogue strategies (S) of the doctor only, and the rhetorical relations (RR) for only the patient's utterances. A final

SDRS schema is given for a fragment of the dialogue. In the presentation below, the doctor's interventions are justified to the left and those of the patient justified to the right.

13.6.1.1 Analysis Tableau

Analysis Tableau

Doctor (D) Patient (P)

.....

$G_p = 0$

Good morning, please sit down. Were you told that you would see me this morning?
G_D = "*to get the patient to talk about himself*" = $F_P^{FK}P$
S = Directive

Yes.

Alright, so I'm listening.
S = Directive

But they didn't tell me why, sir. They told me, they told this morning that I was supposed to have a consultation downstairs and that's all.
$RR = R - Elab$
Topic = Consultation

And that's all.
Phatic

And that's all.

Alright then, just talk to me about whatever comes to mind.
S = Cooperative

Uh, what do you want me to talk (to you) about? About my illness? About... about... I really don't see... on what subject? I mean now, you just leave me... Talking to you puts me in an awkward position. If you give me a topic, then I'm perfectly capable... but just like that, on the spot, well I don't really know what to say, no. Ask me some questions and..., and we'll see. I can't really say anything more.
$RR = Q - Elab$
Topic = $\exists\neg G_D$

Completely stopped?
S = Constructive

Completely, no, but after all, that wouldn't do any harm, you know! It would just be pointless, futile things that I could tell you about.
R = Q – Sub

Pointless, futile?

Yeah. I could just tell you anything. So if there's not a topic to discuss, or even a question to ask, what do I tell you? You ask me right away if... what do I... "talk to me!" but about what? It's exactly the same; I don't get it, or I just pick a subject and then just talk to you. No. You're putting me in an awkward position, honestly!
RR = Elab: clarification

What happens when you feel awkward?
S = Directive

Well, I'm a little ashamed, precisely.
RR = QAP

Ashamed?
Phatic

Ashamed... When one is taken by surprise like that, in front of an audience, a very friendly one, but still...
RR = Elab: explanation

Friendly?
Phatic

Yes. But still, you know, I feel taken by surprise. I wasn't expecting this when I came, you understand. I hadn't prepared myself for it.
RR = Elab: correction

You hadn't prepared yourself?
S = Reactive

That's it!
RR = QAP

And, not being prepared, what does that feel like?
S = Cooperative

Not being prepared, that makes me look like a fool! It leaves me kind of looking stupid in front of you, in front of...
RR = Elab: explanation

You have this impression?
S = Directive

I have the very clear impression because... well... of being sort of an imbecile, of not knowing what to say.
RR = Elab: explanation

But you tell me that it's up to me to ask you questions?
S = Constructive/Detour

Yes. Yes because you told me "talk to me!". That's all you told me. You asked me the question "talk to me!". Yes, but about what? That's fine with me to talk just like that, about one subject or an... but just about this and that, it's...
RR = QAP

So you'd like it to me who chooses? why shouldn't it be you?
S = Constructive

Ah! If I may! You tell me "talk to me!", but about what? Anything?
Retort

Why shouldn't it be you who chooses?
S = Cooperative

Oh sure, but about some random topic.
RR = R – Elab

Hm!
Phatic

An a priori mark of satisfaction The goal has been reached, and the patient begins to talk about himself End of the opening phase of the dialogue (long in this example), which is to establish the goal and topic of conversation. To reach this point, a set of strategies have been implemented by D(doctor)

$G_P = F_D^K P$
Topic1 = context (health, socio-familial)

For example, why I checked into the hospital... I checked into the hospital for observation for a prepyloric ulcer I've had for ten years, which hasn't been going very well, at least recently, and I went under observation for tests to see if they have to operate on me or not. I've been seeing Dr. Mignon for ten years. Not for ten years but for a few years, at least, always in the same department, since before it was Professor Vilain, before... now Professor Bonfils, and what can I say, I'm waiting for the results to know if they'll operate on me or not. On top of that, I have a bad gall bladder and I'm diabetic. Not much, one twenty, but still, I'm a little diabetic. It's hereditary, my father had it, my mother had it, my father died of it... there you go!
RR = Elab

Topic = Stay(me, hospital) ∧ Illness(me, ulcer+gallbladder+diabetes) ∧ Heridity(me, father)

(**M1**) Your father died of it?
S = Constructive

He died diabetic; he was 82 years old after all. (**P1**)
RR = QAP

Topic+ = Death(father, age 82) ∧ Illness(father, diabetes)

After all?
S = Reactive

It's a pretty good age. My mother is 86, she's still alive, and me, I'll be 55 at the end of the year and I'm retiring. (**P2**)
RR = Elab

Topic+ = Alive(mother, age 86) ∧ Alive(me, 55ans) ∧ Plan(me, retirement)

You're retiring?
Phatic

On the trains, we retire at 55. (**P3**)
RR = *Elab*: clarification
Topic++ = Profession(me, SNCF)

On the trains?
Phatic

So I'm going to leave Paris, to go get some fresh air in the countryside. I have a house in the countryside, in Saumur, and I can't wait to get out of Paris, because gets suffocating and I hope it will do me good because every time I go there, I feel much better than staying here. I feel alive, in the countryside, and I never have stomach pains like when I come back to Paris after my weekends, or well, whenever I come back to Paris. There it is, it's starting again, twisting me up... Well it's... Well it doesn't hurt much, but well, let's say it's heavy, it's... I feel heavy, while in the countryside, it doesn't bother me... what do you want me to say? And that's all. (**P4**)
RR = *C*
Closing of first Topic T1. New Topic T2 = (me, health, countryside, Paris, suffocation)

Yes.
Phatic

Refining of Topic "health"

Well, now, what do you want me to talk about? There would be plenty for hours to just say anything... What would you like me to tell you, sir! I think they won't operate on me, because it's never pleasant. If I have a treatment... I followed it before, you know, more or less. It's sort of my fault, treatment for the stomach, there were some times, two or three months, where I did not take bismuth because I did not feel bad, then you understand that...
So, if it's really necessary, as Professor Vilain said, that it was for life with bismuth, I'll take it for life, but now, if he talks about operations, well then I have no idea. In any case, if they don't operate on me, I decided to retire, not to take on any more. My wife will leave too since I live at the hospital, my wife is at the hospital; she's an administrator by the way and she will try to retire at the same time as me. That's why, with both of us civil servants, we'll manage very well, we'll have a good retirement. I don't know, it's been 8 years that I've lived at Bichat, you know, I'm starting to... (**P5**)
RR = *Elab*
Topic+ = Health(me, treatment+operation)
Appearance of another Topic. Context(Spouse)
Topic3 = Profession(spouse, administrator) ∧ Residence(me+spouse, hospital) ∧ Plan(spouse, retirement)

(**M6**) That you've been living at Bichat?
S = Cooperative

Digressions on places/pollution

Yes, I'm starting to... I feel that it's still not the air I need, to know about all that happens here, we know quite a bit about it. (**P6**)
RR = I
New Topic T4= Bichat

(**M7**) It's not the air you need?
S = Reactive

Well, you know, it's still the air in Paris anyway, you know! (**P7**)
RR = IQAP

All that happens there, you were saying?
S = Directive

Well, it's a real city here, it's just as... After all, you see, there were at least four or five hundred cars; there are at least three thousand, the fifteen hundred people who pass through the hospital every day. It's a real city, if you count the patients, the..., the..., the nurses, everyone, it's a real town, this hospital! So you know, it's like if we were in Paris, it's sort of fouled. (**P8**)
RR = Elab: clarification

Fouled?
Phatic

With all these cars around, I can't even... Sometimes I can't even find a parking space, so, I'm telling you! I just put the car anywhere, it's unbearable... What else to tell you? I have a sedentary job, in the offices, so, you know, the air in Paris, like I told you, it's... then on top of that in the overheated offices... that's why I'm hoping to retire, then leave for the countryside. (**P9**)
RR = Elab: explanation

(**M9**) You talk a lot about the air, the fouled air, the air in the offices!
S = Directive
Sub-goal "get the patient to talk about himself using his pet subjects"

Yes, because we're in the polluted air and it's true, it's true! I had an experience once coming back from Paris by car, with a blue sky but then when we looked toward Paris, the sky was grey. It's an experience I had. Maybe I'm not alone in having had it, but when you look at Paris, you see a completely grey sky while above you, the sky is blue. So obviously the air is polluted or fouled and we're all affected by it. (**P10**)
RR = QAP
Topic 4 Context(Pollution)
Topic4 = Pollution(Paris, air)

There's some bad stuff out there!
Phatic

Pardon?

There's some bad stuff out there.

Well, all of it together, gasoline, factories, we already have quite a lot around Bichat, in Saint-Ouen, the smoke, all of it, you know!

RR = *Elab*: explanation
Topic+ = Pollution(Bichat, air)

What's still difficult or painful..., for you? What was there that's still difficult or painful for you?
"Pet subjects" goal satisfied ⇒ Return to main goal,
S = Directive

For me, personally?

$RR = Elab_q$

Mm-hm!
S = Reactive

That requires some reflection. I don't know what to say just like that. I can't answer you because... difficult, everything is difficult, life is difficult, uh... I can't, I won't be able to explain to you how I feel, what I feel.

RR = *IQAP*

How you feel?
S = Cooperative

Yes... it's difficult. I can't really say anything, I can't find the word.

Change of context Topic = Context(Memory)
RR = *Elab*: explanation

Yes, what do you mean?
S = Directive

Yes, a lot. It's a fault of mine, it has been for several years already.

RR = *Elab*: explanation

How so?
S = Directive

Well, I could express myself very clearly before, but for a while now, there's... words elude me. Just like that, yep! Even simple words sometimes!

RR = *C*

For a while now, words elude you?
S = Reactive

Oh, for a while now, yes, for several years already.

RR = *C*

How does that happen?
S = Directive

Well... you notice, the... the... these are actually pretty complicated words, but sometimes, I find I just don't know how to say... a table, an ashtray. I... I'm looking for the word. But there are times! It happens to me once in a while.

RR = *C*

And so now, to describe a little bit what's happening within you, you lack the words, when I talk about difficult or painful things?
S = Cooperative

There's so much! There's so much! What do..., I'm not an orator!
RR = R

You've lived through a lot.
S = Directive

Yes, since the age of sixteen, yes.
RR = IQAP

Do the words to talk to me still escape you? How is it going with me since the beginning?
S = Directive
Sub-goal, get the patient to talk about himself using the situation

Well, you're embarrassing me, because...
RR = R

Explain that a little!
S = Directive

Well you're embarrassing me because... you're embarrassing me because, I'll tell you, because we haven't had a precise topic, a topic to discuss. You told me to talk to you, I repeat myself again... so now! Caught off guard.
RR = Elab: clarification

You don't like being caught off guard?
S = Reactive

No, no! I like to know what's happening... This morning, I didn't count on coming here, oh no!
RR = QAP

Does this remind you of something, this idea of being caught off guard, or the way it happens here?
S = Constructive

No.
RR = QAP

It's never happened to you?
S = Negotiated
The doctor, not satisfied with this complete answer, reformulates the question to work around the *QAP*.

Nothing comes to me at the moment. Maybe, but it's not coming to me. Maybe there are some cases, but...
RR = PQAP
This time the patient's partial answer leaves an opening for exploring the theme.

So, at the beginning, you found yourself caught off guard, embarrassed, not knowing what topic to discuss, and you have the impression that it's still the same thing? That you're still embarrassed?
S = Cooperative

Yes. Yes, because we always end up at the same place. What do you want me to talk about. Since... Let's say you want me to tell you about everything starting from the age of three... well, up until the age of fifty-five years, ok then, I can talk to you for two hours, if you want... About things that.... it wouldn't make any sense.
RR = QAP

It wouldn't make any sense?
Phatic

Well yeah, why would that interest you, from the age of three, what I've done until now? How would that interest you?
RR = Elab$_q$

But it would.
S = Reactive

For your profession surely, but for me, what would that get me?
RR = I

[..... continuation of the dialogue] (**M20**) I'm going to ask you one more thing, to tell me about a dream, the kinds of dreams that we have at night while we sleep.
Main goal
S = Directive
Introduction of a new topic by the psychoanalyst.

Yes. I don't dream very much, but when I dream, then, it's exactly like my father, I'm always flying!
RR = QAP
(**P20**)
Topic = Dream(me, flying) ∧ Dream(father, flying)

Yes.
Phatic

I feel myself leave.
RR = C
(**P21**)

(**M21**) Yes. But do you remember an anecdote from one of these dreams?
S = Directive

No. It's always the same. I feel myself flying and saying... having the impression of always being above the trees, you know, soaring like that, and it's always the same. Otherwise, I don't dream much. I don't have nightmares.
(**P22**)
RR = QAP

Fine. Well, I'm going to let you go back upstairs.
S = Directive

Goodbye, ladies and gentlemen, I'm sorry if...
RR = R
Closing of the Topic

.....

13.6.2 Analysis

We begin by showing some statistics of the doctor's acts, over a total of 47 interventions:

	Directive	Reactive	Coop.	Const.	Negotiated	Phatic
Number	16	7	6	5	1	12
%	35	15	13	5	0.02	26

The doctor uses a lot of phatics to support his strategies, with a mainly directive approach. The further the dialogue advances the more directive it becomes (i.e., with a greater proportion of directives toward the end of the dialogue).

Regarding his goals:

The first goal—to get the patient to talk about himself—is only reached after 16 interventions, which is relatively long. To achieve this first goal, the doctor starts by being directive but does not succeed, and must vary his strategies by being more cooperative or constructive, as shown in the following table.

	Directive	Reactive	Coop.	Const.	Negotiated	Phatic
Number	4	1	3	3	0	5
%	25	1	21	21	0	32

The doctor then lets the patient talk about himself for nine dialogue turns (taking a mainly reactive strategy with phatics), and orients him toward a first sub-goal "get to know his pet subjects" which he achieves in two interventions (directive and phatic). After this, he aims for a second sub-goal "get to know his difficulties" which he achieves in nine interventions (essentially still in a directive style), then finally he approaches a third sub-goal "get to know the feeling of the situation" of the patient with the same strategy, which has by now been well established. Towards the end of the dialogue, the doctor sets up and achieves a final goal "hear about a dream" with a completely directive approach, and quickly concludes the dialogue by a single and somewhat abrupt directive.

All the goals of the dialogue are satisfied for the doctor, who has put into place a progressively dominant directive strategy. As is often the case in psychoanalysis, he uses phatics to encourage the patient when he is on a path that satisfies the doctor. In this analysis, we recognize a lot of "classic" behavior for this type of doctor during a consultation.

The patient, meanwhile, has no particular goal in the beginning, and takes time to understand and accept the physician's goal before definitively adopting it. In this first part, his rhetoric is based on elaborations ($Q-Elab$, $R-Elab$, $Elab$, $Q-Sub$), a few partial responses (QAP), and a Retort that seems to challenge the questioning of the doctor. In the second part, the patient essentially constructs his discourse by elaboration of a series of topics, mainly QAP and $Elab$:explanation (see Fig. 13.3). We will note that there are not many digressions (I), which may be a

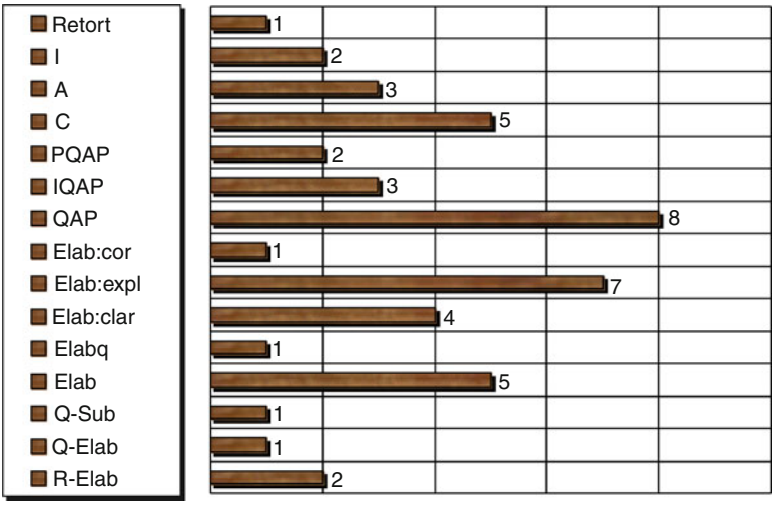


Fig. 13.3 The distribution of rhetorical relations is a sign of a certain behavior in the dialogue

sign that the patient is not psychotic, but it would be imprudent to assert this without being a specialist. The patient does not make many corrections either.

The Structure of the Dialogue Is the Following

Opening: Topic0 = Consultation
Negotiation of goals $G_p = 0$, $G_D = F^{FK} pP$
Body of the dialogue
Topic1 = Context (Health, socio-familial)
Topic1 = Stay(me, hospital) $\wedge$ Illness(me, ulcer+gallbladder+diabetes) $\wedge$ Heredity(me, father)
Topic+ = Death(father, age 82) $\wedge$ Illness(father, diabetes)
Topic+ = Alive(mother, age 86) $\wedge$ Alive(me, 55ans) $\wedge$ Plan(me, retirement)
Topic++ = Profession(me, SNCF)
Topic2 = Health(me, suffocation)
Topic2 + = Health(me, treatment+operation)
Topic3 = Context(Spouse)
Topic3 = Profession(spouse, administrator) $\wedge$ Residence(me+spouse, hospital) $\wedge$ Plan(spouse, retirement)
Topic4 = Context(Pollution)
Topic4 = Pollution(Paris, air)
Topic4 + = Pollution(Bichat, air)
Topic5 = Context(Memory)
. . . . . .
Topic6 = Context(Dream)
Topic6 = Dream(me, flying) $\wedge$ Dream(father, flying)
Closure: Closing of the Topic

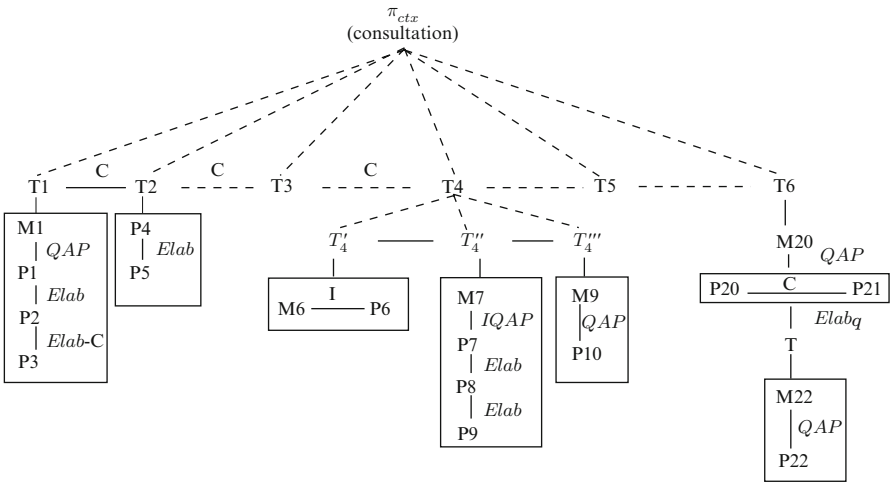


Fig. 13.4 SDRS of the dialog

It is made up of an opening, a negotiation phase, the body of the dialogue proper as a series of exchanges related to different topics, and finished with a relatively brief closing. There is no re-activation of topics during the dialogue, so the sequence is linear.

13.6.2.1 The Global SDRS

For better readability, we present only four topics in detail: T1, T2, T4, T6.

The SDRS (see Fig. 13.4) is composed of six topics T1 to T6, coordinated by relations of Continuation. Topics T1 and T2 are formed mainly by sequences of subordinate elaborations by the patient on his own statements. The topic is developed "in depth". Topic T4 is itself composed of three coordinated sub-topics. At the end of dialogue, topic T6 contains more resolving answers (QAP relations). It consists of two question-answer pairs connected by an elaboration.

13.7 Discussion and Conclusion

The analysis in terms of dialogue goals and strategies clearly allows the process underlying the entanglement of dialogue and action to emerge. It highlights the process underlying the dialogue, the source of which is in the action (praxeology), but which is implemented in dialogue with a specific 'dialogue game'. Avoiding recourse to fixed rules of a dialogue schema, or any model of beliefs and intentions,

this analysis of dialogue as a strategic game shows that dialogue is in itself an action-oriented practice. Thus, we show two interlocking games:

- The dialogue game (or conversational game)
- The action game (the world)

The strategies implemented in the dialogue game are subordinated to the pursuit of the action game, the psychological consultation; we cannot model the dialogue game without completely immersing it in the context of this action game in which it originates, and where its effects are produced. The dynamic of interaction, highlighted by the analysis of the participants' goals and strategies, reveals their tactics, along with their role. The structure of the topics shows the progressive co-construction of shared knowledge (what is said, negotiated, accepted or denied), while the arrangement of rhetorical relations reveals the details of this construction (the "how").

The structure of the dialogue shows the evolution of the action and its phases; the dialogue acts are the building blocks whose distribution can also be illuminating. Thus, by recalling Wittgenstein (1953) (on the purpose of language-games), "the speaking of language is part of an activity, or a form of life.", we can see that it is possible starting from a pragmatic analysis of a dialogue, to trace this activity back to a form of life (here, the consultation), which articulates the dialogue game as the "form of life" in which it is always immersed.

It is also interesting to note that a "classical" method of linguistic analysis (syntax, lexicon) of the same dialogue led to the following conclusions Pouder (1977, 1997): "The discursive polarities in relation are clearly differentiated at all levels, lexical, syntactic, inter-sentential—the therapist's speech exhibits specific features that distinguish it very clearly from the speech of patients. In certain aspects (e.g., syntactic), it resembles the speech of other interviews. In fact, it additionally turns out to be very specialized on the lexical level as soon as it goes beyond repetitions of patients' words. With respect to the spoken registers of modern French, the patient's discourse is similar to unplanned dialogues between middle class French speakers (common lexical and syntactic aspects): the patient speaks "like everyone" or at least like most people. The common claims of psychosomaticians concerning the language deficiencies of their patients are not substantiated at the linguistic level. We can not even relate the linguistic code of these patients to the restricted code of B. Bernstein. These discourses are all centered on the first person, exhibiting various levels of hierarchical structure. On the other hand, reality seems to pose a real problem for these patients, judging from the general arrangement of their stories. It is here that we run up against the inadequacy of a purely linguistic analysis; indeed, the deficiency of the language of psychosomatic patients is not properly characterized as a linguistic deficiency, but as a "functional" deficiency, but as such, it does not favor the integration of libidinal energies. In addition, it is usually analyzed in comparison to the 'richness' of other forms of discourse."

This concludes in favor of a pragmatic analysis of dialogue.

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