

Rational Interaction in Dialogues: Ingredients for Success

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Abstract

In this paper, we discuss the question of closure conditions for dialogues in three different frameworks: W. C. Mann's DMT framework, Vanderveken's illocutionary theory of discourse and Asher and Lascarides SDRT approach. We are interested in formal frameworks that aim to describe the logical structure of conversations between diversely bounded agents who are to some extent rational, intelligent, linguistically competent and who possess some awareness of their environment and some knowledge of the circumstances of their interactions. We use the notion of closure conditions as a benchmark for theory comparison.

Introduction

It is a common feature of many kinds of verbal interaction that the participants understand quite clearly when the interaction reaches a stage where it is finished or completed. This is so because a large number of verbal exchanges are purposeful and in different ways, goal-oriented. In order to play their roles in a purposeful dialogue, the participants must know what it means for the interaction to be successful. We use the term *closure conditions* to designate a list of clauses that must be satisfied in order for a dialogue to be successful, complete or felicitous. We observe that these closure conditions are spelled out in different ways in different frameworks. There is an intuitive notion of dialogue success that is part of our semantic/pragmatic competence and we claim that an adequate logic of conversation should analyze this competence. We take this intuitive requirement as a benchmark for intertheory comparison. In the complete version of this paper, we review various approaches that describe the logical structure of discourse, comparing whatever falls close to the concept of closure conditions.

Closure conditions

Bill Mann's typology of goal status

William C. Mann has written extensively on the theme of dialogue game theory in various papers that date back to the 1970s and 1980s. (Mann 1988). More recently, he has proposed a new method for describing the organization of

certain kinds of dialogues. This method is called Dialogue Macrogame Theory (DMT). The main goal of DMT is to provide a description of the coherence of a wide variety of natural dialogues. In this framework, a dialogue is said to be coherent if an external observer would have the impression that every part of the dialogue contributed to the remainder." (Mann 2002), p.132. So each non-initial utterance is expected to be relevantly connected to other contributions in the discourse context. Dialogue coherence arises from the intentions of the dialogue participants. In DMT, these intentions are identified with sets of attributes. The mode of combinations of intentions, in particular, their grouping, is the founding mechanism that permits the coordination of participants.

Mann has done empirical analysis of dialogues, his typology of goals status is well worked out and has been empirically validated. In Mann's theory, all the individual participant's goals have the following attributes: partialness, priorness, tacitness, immediacy, interaction-configuring, intended to be recognized, structured, complementarity, conventionality. DMT is well-equipped to track goal seeking and subgoal structures in dialogue. Mann points out that goal pursuit is not the only thing that happens in a dialogue. He recognizes that there are some unilateral actions (*Unilaterals*) in addition to cooperative or strategic interaction. With this background information, we can state how his framework addresses the question of closure conditions. The prominent notion of closure condition in DMT is goal achievement or disposal and acceptance of the termination of a dialogue game.

Vanderveken's Illocutionary Theory of Discourse

The formal theory of speech acts of Searle and Vanderveken (FIL) is found in (Searle and Vanderveken 1985). Searle and Vanderveken maintain that the proper semantic value of illocutionary acts is not *truth* but *success*. In fact there are three distinct and irreducible semantic values in the formal semantics of illocutionary logic : *truth*, *success* and *satisfaction*. The resulting formal semantics for speech act theory has been investigated by Vanderveken in (Vanderveken 1990 91).

In subsequent work, (Vanderveken 2001), Vanderveken

has established the groundwork for the illocutionary theory of discourse (ITD) by putting forward a complete account of the types of possible discursive goals that speakers can attempt to achieve by way of conversing. His framework provides resources by which the conversation types can be defined in terms of previously defined concepts of illocutionary logic: the mode of achievement of a discursive goal, the thematic conditions, the background conditions and the sincerity conditions. These aspects of dialogue are in line with similar components from the analysis of speech acts in FIL. The basic uses of language are few in number, in fact they can be separated according to four possible directions of fit: downward or word-to-world, upward or world-to-word, the double direction of fit such as is appropriate for declarations and the empty declaration of fit characteristic of expressive discourses. Accordingly, there are four basic types of discourses: descriptive, deliberative, declarative and expressive discourses. All other discourse types are more complex and their logical form can be generated by combining the components of simpler discourse types. In this theory, speakers succeed in holding a conversation of a certain type in making their successive utterances in a speech situation if and only if first, the theme of their conversation satisfies the thematic conditions of their discourse type, secondly, they achieve the discursive goal of that discourse type on the theme with the required mode of achievement, thirdly, they presuppose that the required background conditions obtain and finally they express all the mental states required by the sincerity conditions of their discourse type. (Vanderveken 2001), p. 253. Such is the ITD model. With respect to the question that we are asking in our inquiry, we note that the closure conditions in speech act theory are the success conditions that must be satisfied according to each discourse types. Our own efforts in (Paquette 2010) extends this framework by translating the key notions of IDT in epistemic models for games.

Asher and Lascarides' SDRT

One of the distinctive feature of Asher and Lascarides monumental *Logic of Conversation* is its dynamic semantics of rhetorical relations. (Asher and Lascarides 2003) In this context, rhetorical relations are connections between information states; narration, explanation, elaboration and consequence are examples of rhetorical relations. The aim of SDRT is to describe the meaning of discourse at the surface level and to account for a variety of phenomenon that are of interest to linguists and logicians such as anaphoric relations. The semantics spells out when these discourse relations hold. The analysis of the rhetorical structure of discourse appears is very different from the approaches of Mann or Vanderveken in that it does not place emphasis on discourse as being primarily or most importantly a goal oriented activity. The authors agree that goals cannot be ignored but attempt to incorporate illocutionary contributions by defining them as relations between a given utterance, antecedent utterances and the discourse context.

The study of rational interaction in dialogues is normally closely related to the pursuit of discursive goals. SDRT approaches rationality as a part of the cognitive modeling re-

quired for discourse interpretation. The framework of SDRT does not seem to provide a direct answer to the question of closure conditions for various discourse types. They do not even show up on the agenda. The fact that the SDRT framework can enroll many different logics to provide a multi-dimensional theory of discourse interpretation is certainly a notable achievement. SDRT invites us to shift our attention from the structure of goals to the phenomena of discourse coherence. Although we have no indication to the contrary, it seems doubtful that coherence conditions could yield closure conditions in and by themselves.

Conclusion

We raised a question about definitions of closure conditions in the theory of discourse. We addressed this question by reviewing the necessary conditions for a formal definition of success and comparing them with the implicit notion of success in the game-theoretic account of dialogues and the truth-conditional semantics of rhetorical relations in the SDRT account of the logic of conversation. By design, the speech act analysis of illocutionary acts and its extension to dialogues has been engineered to account for success/failure in speech and discourse. On the other hand, the many wonders of the semantical approach of SDRT redirects our attention towards entirely different structures of discourse that have little to do with goal seeking and goal achievement. As we have observed, most but not all logics of conversations are concerned with goal-oriented interaction.

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