The Right Frontier Constraint as Conditional

Claudia Sassen[1] and Peter Kühnlein[2]

[1] Univ. Dortmund
claudia.sassen@uni-dortmund.de
[2] Univ. Bielefeld
p@uni-bielefeld.de

Abstract. The *Right Frontier Constraint* (RFC) claims that antecedents are only available for anaphoric reference if they are located at the right hand side of any level of a linearly ordered discourse parse tree. We show that this constraint does hold only under certain conditions — which, however, apply for most circumstances of everyday talk. The data of our analysis in which the RFC does not hold come from a corpus of chat communication. From our findings we argue that the RFC is best viewed as a conditional constraint.

Most theories of discourse employ one or another way of respecting the *Right Frontier Constraint* (RFC). Polanyi ([1988]) for instance already explicitly built her LDM to respect the RFC, as well as more recent grammars of discourse do (Gardent [1998], Asher and Lascarides [2003]).

An example where the RFC applies is the following short discourse:

(1) a. Max had a great evening yesterday.
      b. He had a great meal.
      c. He ate salmon.
      d. He devoured lots of cheese.
      e. He then won a dancing competition.

Example 1 has to be analysed as follows: (1a) is elaborated by (1b) and (1e), which in turn form a narration. (1b) is elaborated by (1c) and (1d), again a narrating sequence. Attempting to attach the sentence

(1) f. It was a beautiful pink.

to the discourse above intuitively and in accordance with the RFC results in a reduced acceptability. The only semantically adequate antecedent, *salmon* in (1c), is not at the right frontier of the discourse and, hence, blocked.

Sassen ([2005]) explored whether chat communication, as an instance of a non-traditional communication system makes an exception when it comes to the RFC. The data used for the analysis was taken from 28 logfiles of the Allegra Chat, a chit chat that has ceased to exist and 8 extracts from the advisory chat of the BeraNet (http://www.beranet.de/). The Allegra-Chat offers its users a whisper lounge, i.e. the opportunity to communicate privately, of which whispered messages could be integrated into the analysis.

In order to assess Sassen's procedure, it is helpful to have a rough understanding of Polanyi's LDM. According to Polanyi ([1988]), a discourse is made up from *discourse constituent units* (DCUs), which can either be atomic utterances or be recursively embedded. This results in discourse parsing trees which assign each discourse a structural description on a left-to-right and sentence by sentence base. These allow to make predictions about those discourse units which are structurally available and which are not available as an attachment point Polanyi ([1988]: 611).

For purposes of illustration, we render a Polanyi-type parse tree for the chat fragment (Table 1), see Figure 1. The Polanyi-type tree is an efficient way of representing and tracing violations of the RFC. The nodes of the tree are coordinated or subordinated with regard to others; these relations are the results of discourse relations that obtain.

Sassen ([2005]) applies Polanyi's LDM to chat communication on the explicit assumption of similarity between chat communication and traditional communication systems, in particular spoken language. This assumption, however, is largely undisputed (Yates [1996]). The application of the LDM to chat can also be maintained since Polanyi intended her model for the representation of arbitrary discourse scenarios such as question-answer sequences in service encounters or doctor-patient communication (cp. Polanyi ([1988]: 603)).

The distinction between two communicative units is important for Sassen's analysis of chat, viz. *chat contribution* (and *move.*) A *chat contribution* is an utterance framed by a preceding and subsequent carriage return and hence represents a formal unit. A *move* is a pragmatic unit constituted by its propositional content and illocutionary function, realised by at least one chat contribution. In Figure 1, which represents the parse tree of an advisory chat fragment from Sassen ([2005]) in Table 1, the leaves are contributions.

The dashed arrows in Figure 1 indicate the temporal order in which the contributions were logged from the advisor's perspective. The contributions are
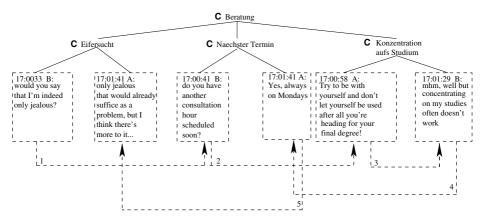

Fig. 1. Parse tree of an advisory chat from ([2005]), cf. Table 1. The labels assigned to the arrows indicate the original order of the contributions in the logfile

Table 1. Translated chat fragment from the advisory chat of the BeraNet A = consultant, B = the person consulted

17:00:33 B: would you say that I'm indeed only jealous?
17:00:41 B: do you have another consultation hour scheduled soon?
17:00:58 A: Try to be with yourself
after all you're heading for your final degree!
17:01:29 B: mhm, well, but concentrating on my studies often doesn't work
17:01:41 A: yes, always on Monday. only jealous that would already suffice as
problem, but I think there is more to it
17:01:57 A: For this reason, go to the advisory service

grouped according to the DCUs to which they belong. Hence, crossing dashed arrows indicate RFC violations.

What results from Sassen's analysis is that for the public part of the Allegra chat not one single RFC-violation could be diagnosed; however, one instance of an RFC-violation could be found in the whisper lounge. The advisory chat displayed a relatively high density of three RFC-violations compared to the small amount of DCUs communicated. An explanation of this phenomenon runs as follows: whisper lounges are designed for establishing particular contacts and so are advisory chats. Because of the written form of chat communication which is quite awkward compared to spoken interaction there are no backchannel signals. The initiation of a new DCU in order to avoid anticipating responses to the preceding DCU and to wait for the reaction of the interlocutor is an option to keep up the communication, bridge pauses and compensate for the missing backchannel options. In whisper lounges and advisory chats RFC-violations are apparently motivated by the desire to keep the communication channel open and to signal that the interlocutor is still there. For advisory chats this necessity is particulary evident.

In chats of a lower pressure to maintain contact, hardly any violations of the RFC could be located. It seems that in public chats there is a awareness of the communicative actions of the others and chatters pursue them. Whenever ambiguities affect the communication in which they participate, chatters seem to avoid simple pronominal reference and instead use more complex expressions.

The RFC is thus conceived as a conditional constraint that restricts possible antedecents of anaphora to sit on the right frontier only if there is low pressure to keep the communicative channel open. It operates, so conceived, at the interface between pragmatics, syntax and semantics. Accordingly, we re-write the right-frontier constraint as

$$\text{RFC}_c =_{def} cond \rightsquigarrow \text{RFC} \tag{1}$$

where *cond* expresses the condition "absence of pressure" and "RFC" (without subcript) is the "classical" RFC.

Asher and Lascarides ([2003]) discuss an example of RFC violation that is reminiscent of the cases Sassen found in her data. They propose to *modify availability in* SDRT to capture those *structures involving questions that make a strict*

right-frontier constraint unworkable. They *propose that full answers in a* single *turn recapitulate enough of the material in the question that they can attach* [via an indirect question-answer pair relation] *to any question node that was available at the start of the turn.* This proposal is unsatisfactory for two reasons: First, the sample chat fragment in Table 1 shows instances of answers to questions which do not in any obvious sense contain *enough of the material* that they could easily attach. Not a single word of the corresponding question is repeated in the answer *yes, always on Monday*. Second, the definition of the modification of availability makes in turn use of availability. According to the RFC at least, the question was blocked.

On the other hand, conceiving the RFC as a conditional constraint in the given sense helps explain why its violation in Asher's and Lascarides' example is tolerable:

(2) a. A: Where were you on the 15th?
     b. B: Uh, let me think.
     c. A: Do you remember talking to anyone right after the incident?
     d. B: I was at home.
        I didn't talk to anyone after the incident.

Surely, (2d) is a dialogue produced under pressure. In fact, it sounds like an example from an investigatory inquiry. Besides, the reading that B was at home on the 15th is not the only possible one. For an alternative, imagine the dialogue to consist only of the last three lines. Clearly, what B would be saying is that *after the incident* s/he was at home and there not talking to anyone. For the same effect, imagine a longer pause between B's first answer and the query about B's talking to anyone. But longer pauses are indicative exactly of low pressure to maintain the communication channel — and, thus, the presence of the condition that enables the right-hand side of the RFC_c.

To sum up, using data from a corpus of chat logs we have argued that the (classical) RFC does hold under certain conditions only. This has led us to the reformulation of the right frontier constraint as a conditional constraint that works at the interface of pragmatics, syntax and semantics.

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