

The Right Frontier Constraint

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Plan

Introduction

Description of the RFC

Why the RFC?

Attentional focus and the RFC

Conclusion

References

Foreword

Typical of the influential approaches to parsing discourse structure [...] is that they contain a number of apparently unmotivated defaults or preferences.

Henk Zeevat, Discourse Structure in OT
Pragmatics

Introduction - I

- ▶ **Goal of this talk: discuss the status of the *Right Frontier Constraint* (RFC), see [Polanyi \(1985\)](#), [Webber \(1988\)](#) [Asher \(1993\)](#), [Asher et Lascarides \(2003\)](#).**

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- ▶ **Why should it be so?**

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- ▶ RFC = A discourse constituent must be attached on the right frontier of the ongoing discourse
- ▶ Why should it be so?
- ▶ **The proposed answer: RFC is a side-effect of a general avoidance of reference to non-active topics in discourse.**

The RFC - I

- ▶ **Polanyi 1985: two types of discourse relations**

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 1. α **and** β **elaborate a common discourse topic.**

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- ▶ Coordination vs. subordination DRs
- ▶ Coordination DRs between α and β : two main cases
 1. α and β elaborate a common discourse topic.
 2. β **refers to an eventuality posterior to** α .

The RFC – II

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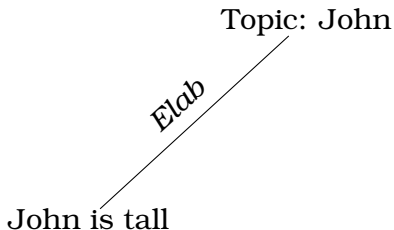
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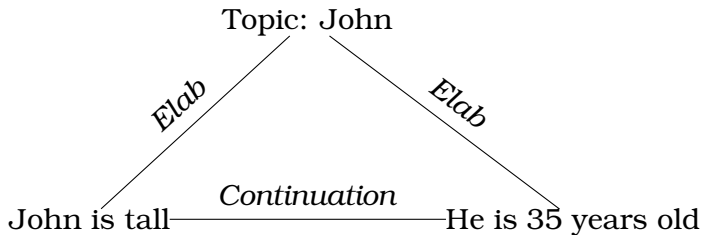
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The RFC – III

Hyper-graph version

Topic: John

The RFC – III

Hyper-graph version

Topic: John

John is tall

The RFC - III

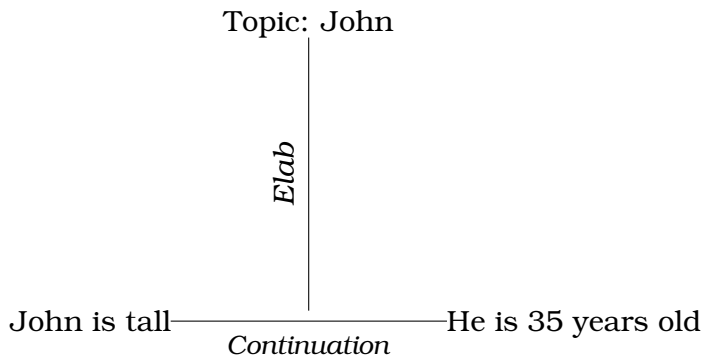
Hyper-graph version

Topic: John

John is tall ————— He is 35 years old
Continuation

The RFC - III

Hyper-graph version



The RFC – IV

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(1) Let Δ be a discourse structure with α the current (= last) constituent. A new constituent β can be attached by a DR to γ in Δ only if:

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- 1. $\gamma = \alpha$, or**
 - 2. α is subordinated to γ .**


The RFC – v

- (2) a. **John bought a new Toyota.**
He wanted to try a hybrid engine.
Then he bought an apartment

The RFC – v

- (2) a. **John bought a new Toyota.**
Explanation
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The RFC - v

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b. **Then he bought an apartment**
John bought a new Toyota.

He got it from a garage in Washington.

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b. **John bought a new Toyota.**

Elaboration

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He got it from a garage in Washington.

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c. **John bought a new Toyota.**

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Motivating the RFC - I

“Only constituents at accessible nodes enjoy the formal status of ‘currently being constructed’ –all other constituents are considered for the purpose of discourse construction to have been completed, or, if left incomplete, to have been abandoned. They are not resumable. Should a speaker wish to say more ‘about’ the content of a closed constituent, a new constituent must be created and the link with the old unit made explicit” (Polanyi 1985, section 4.1).

Motivating the RFC - II

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- ▶ Polanyi's comment might be circular:
- ▶ Only constituents at accessible nodes can be integrated into new discourse structures.
- ▶ **But why should accessible nodes be located on the right frontier?**

Motivating the RFC

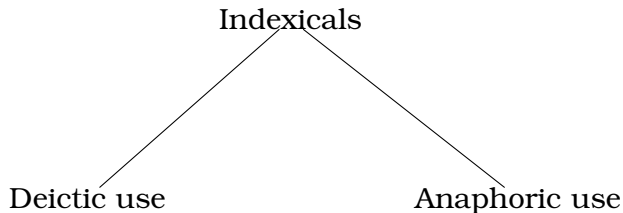
- ▶ **Cornish (1999:203-204): Asher's 1993 constraint on accessible constituents seen as a manifestation of discourse linking.**

Motivating the RFC

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- ▶ **Cornish's basic distinction**

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- ▶ Some expressions may be deictic or anaphoric (e.g. definite and demonstrative descriptions). Unaccented pronouns are deictic.
- ▶ **The high/low focus status can be assessed by different theories, e.g. *Centering* (Grosz et al. 1995).**

Motivating the RFC - IV

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 1. Non-abstract antecedents introduced at non-accessible constituents are non-accessible (Asher, Cornish).
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 3. **The fact that accessibility conditions for non-abstract antecedents are satisfied does *not* entail that the RFC is satisfied.**

Motivating the RFC - v

- ▶ **Observation 2 (Asher & Lascarides 2003:15-16).**

Motivating the RFC - v

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(3) One plaintiff was passed over for promotion three times

Another didn't get a raise for five years

These people were really badly treated

But the jury didn't believe **this**

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(3) → **One plaintiff was passed over for promotion three times**

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Motivating the RFC - VI

► **Observation 3**

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(4) **John** bought a new Toyota.

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Motivating the RFC - VI

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(4) **John** bought a new Toyota.

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Motivating the RFC - VI

► Observation 3

- (4) **John** bought a new Toyota.
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-
- The diagram consists of three lines of text. The first line is "**John** bought a new Toyota." The second line is "**Then** he bought an apartment." The third line is "**He** wanted to try a hybrid engine." A dashed black line forms a semi-circle on the left side, connecting the start of the first line to the start of the third line. A red arrow labeled 'c' points from the start of the second line to the start of the first line. A red arrow labeled 's' points from the start of the third line to the start of the second line.

Motivating the RFC – VII

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 - a. **Standard topics: abstract or non-abstract entities the discourse is about (Karamanis 2003, TL 2004).**

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- 1. The coordination vs. subordination distinction corresponds to two different kinds of topic:
 - a. Standard topics: abstract or non-abstract entities the discourse is about ([Karamanis 2003](#), [TL 2004](#)).
In general, coordinated sequences address at least one common standard topic.
 - b. **'C-topics' (topics corresponding to constituents), used by subordination.**

Motivating the RFC - VIII

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Motivating the RFC - VIII

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Motivating the RFC - VIII

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Motivating the RFC - VIII

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 - ▶ Actually, they are deictic in Cornish's sense.
 - ▶ **A DM points to a salient entity (eventuality, proposition) either in the utterance context or in the discourse. See [Jayez 2004](#), and [Zeevat 2004](#) for various related problems.**

Motivating the RFC - IX

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Motivating the RFC - IX

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Motivating the RFC - IX

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 - b. [Pointing to a glaring red car] Do you remember Paul? He used to love this kind of car **too**.
 - c. Paul bought a new ecological Toyota. **So**, you can ask him if you have questions about hybrid engines

Motivating the RFC - IX

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 - d. Paul bought a new ecological Toyota. He also bought a new apartment. **#So**, you can ask him if you have questions about hybrid engines

Motivating the RFC - x

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Motivating the RFC - x

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- ▶ Property 2 \Rightarrow they are presuppositionally similar to pronouns (see for instance [Geurts 1999](#)).
- ▶ **DRs not marked by DMs don't assign significant descriptive content either.**

Motivating the RFC - XI

- ▶ **Weak descriptive content** \rightsquigarrow **higher focus needed**
Strong descriptive content \rightsquigarrow **lower focus is enough.**

Motivating the RFC - XI

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Motivating the RFC - XI

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Motivating the RFC - XI

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Motivating the RFC - XI

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- ▶ **How do subordination and coordination interact with that in theories which make the distinction?**

Motivating the RFC – XII

- ▶ **Coordination maintains the discourse topic.**

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Motivating the RFC – XII

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 2. **subordination depth**

Motivating the RFC - XIII

- ▶ **E.g. (6a-b) is in general felt to be better than (6c-d):**

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Motivating the RFC - XIII

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 - c. **The dealers put their car two blocks away. Mary was quietly writing her paper. #So, they could approach more discretely**
 - d. **The dealers put their car two blocks away. Mary was quietly writing her paper. She wanted it to be ready by Thursday. #So, they could approach more discretely**

Motivating the RFC - XIV

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- ▶ **Natural attachments favor recent discourse topics.**

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Motivating the RFC – XIV

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- ▶ Natural attachments favor recent discourse topics.
- ▶ Subordination DRs may introduce new, ‘parasitic’, topics.
- ▶ **The feeling that a topic is parasitic or not depends, inter al., on its connection with the topic involved in the DR.**

Motivating the RFC - xv

- ▶ **An example with the French DM *en effet*: A *en effet* B \Rightarrow B accounts for A.**

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Motivating the RFC - xv

- ▶ An example with the French DM *en effet*: $A \text{ en effet } B \Rightarrow B$ accounts for A.
- ▶ Some speakers prefer (7b) to (7a).

- (7)
- a. **Marie est allée voir Paul.** ('Mary visited Paul')
- s* **Elle s'est rendue chez lui avec sa Porsche.** ('She went to his home with her Porsche')
- s* **En effet elle avait besoin de lui parler.** ('*En effet* she needed to speak to him')
- b. **Marie est allée voir Paul.** ('Mary visited Paul')
- s* **En effet elle avait besoin de lui parler.** ('*En effet* she needed to speak to him')
- s* **Elle s'est rendue chez lui avec sa Porsche.** ('She went to his home with her Porsche')
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Motivating the RFC - XVI

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(8) **Marie est allée voir Paul. ('Mary visited Paul')**

Elle s'est rendue chez lui avec sa Porsche. ('She went to his home with her Porsche')

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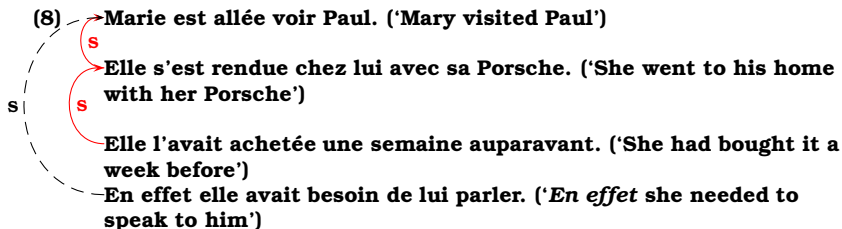
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- ▶ **Discourse attachment may correspond to indexicals (DMs) or not (lexically 'free' attachments where the DR is unspecified).**

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- ▶ Attachment targets are resolved (preferred) or accommodated.
- ▶ $(\text{RESOLVE} \vee \text{ACCOM}) \gg (\text{RESOLVE} \& \neg \text{ACCOM}) \gg (\neg \text{RESOLVE} \& \text{ACCOM})$
- ▶ **RESOLVE & \neg ACCOM displays an internal hierarchy.**

Attentional focus and the RFC - II

- ▶ One must find or construct a topic. Possibilities:
 1. **Use the specific C-topic provided by the last constituent.**

Attentional focus and the RFC - II

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5. **Manipulate context (by accommodation) to preserve recency.**

Attentional focus and the RFC – III

► **The hierarchy of constraints**

(specific DRs are not considered here: see [Zeevat 2006](#), [Jasinskaja 2007](#), [Zeevat and Jasinskaja 2007](#) for an application of OT to the hierarchy of DRs)

Attentional focus and the RFC – III

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- ▶ (**RESOLVE** ∨ **ACCOM**) ≫

Attentional focus and the RFC – III

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- ▶ (RESOLVE \vee ACCOM) \gg

- ▶ **CTXT-PLAUSIBILITY** \gg

Attentional focus and the RFC – III

- ▶ The hierarchy of constraints

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- ▶ (RESOLVE \vee ACCOM) \gg

- ▶ CTXT-PLAUSIBILITY \gg

- ▶ **RECENT-TOPIC** \gg

Attentional focus and the RFC – III

- ▶ The hierarchy of constraints

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- ▶ (RESOLVE \vee ACCOM) \gg

- ▶ CTXT-PLAUSIBILITY \gg

- ▶ RECENT-TOPIC \gg

- ▶ (\neg RESOLVE & ACCOM)

Attentional focus and the RFC – III

- ▶ The hierarchy of constraints
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- ▶ (RESOLVE \vee ACCOM) \gg
- ▶ CTXT-PLAUSIBILITY \gg
- ▶ RECENT-TOPIC \gg
- ▶ (\neg RESOLVE & ACCOM)
- ▶ **Forms: sequences of constituents, meanings: attachment networks**

Attentional focus and the RFC - IV

Form		Meaning
$f_1 =$	$\alpha = \textit{visit},$ $\beta = \textit{Porsche},$ $\gamma = \textit{intend to see}$	$m_1 =$ visit because intend to see visit with Porsche
$f_2 =$	$\alpha = \textit{visit},$ $\beta = \textit{intend to see},$ $\gamma = \textit{Porsche}$	$m_1 =$ visit because intend to see visit with Porsche
$f_3 =$	$\alpha = \textit{visit},$ $\beta = \textit{Porsche},$ $\gamma = \textit{bought recently}$ $\delta = \textit{intend to see}$	$m_3 =$ visit because intend to see visit with Porsche bought recently

Attentional focus and the RFC - v

Form		Meaning
$f_1 =$	$\alpha = \textit{visit},$ $\beta = \textit{Porsche},$ $\gamma = \textit{intend to see}$	$m_4 =$ Porsche because intend to see visit with Porsche
$f_3 =$	$\alpha = \textit{visit},$ $\beta = \textit{Porsche},$ $\gamma = \textit{bought recently}$ $\delta = \textit{intend to see}$	$m_5 =$ visit with Porsche bought recently because intend to see
$f_3 =$	$\alpha = \textit{visit},$ $\beta = \textit{Porsche},$ $\gamma = \textit{bought recently}$ $\delta = \textit{intend to see}$	$m_4 =$ visit with Porsche Porsche because intend to see

Attentional focus and the RFC - VI

Plausible interpretation: Mary visits Paul to see him.

pairs	RESOLVE ∨ ACCOM	CTXT-PLAUSIBILITY	RECENT-TOPIC
$\langle f_1, m_1 \rangle$	✓	✓	*
☝ $\langle f_2, m_1 \rangle$	✓	✓	✓
$\langle f_3, m_3 \rangle$	✓	✓	**
$\langle f_1, m_4 \rangle$	✓	*	✓
$\langle f_3, m_5 \rangle$	✓	*	✓
$\langle f_3, m_4 \rangle$	✓	*	*

Attentional focus and the RFC

- ▶ **Asher and Vieu (2005) and Prévot and Vieu (2005) contemplate the possibility for the same DR to be of different types (coordinating vs. subordinating).**

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Attentional focus and the RFC

- ▶ Asher and Vieu (2005) and Prévot and Vieu (2005) contemplate the possibility for the same DR to be of different types (coordinating vs. subordinating).
- ▶ At the moment, no precise mechanism has been offered to regulate these variations.
- ▶ **These possible elaborations of the theory depend on interpretations that are unstable.**

Attentional topic and the RFC - VII

- ▶ **Example from Asher & Vieu 2005**

Attentional topic and the RFC - VII

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(9) a. **Mary screamed**

Attentional topic and the RFC - VII

▶ Example from [Asher & Vieu 2005](#)

- (9) a. **Mary screamed**
 b. **So the burglar ran away**

Attentional topic and the RFC - VII

▶ Example from [Asher & Vieu 2005](#)

- (9)
- a. **Mary screamed**
 - b. **So the burglar ran away**
 - c. **Max woke up**

Attentional topic and the RFC - VII

▶ Example from [Asher & Vieu 2005](#)

- (9)
- a. **Mary screamed**
 - b. **So the burglar ran away**
 - c. **Max woke up**
 - d. **#She also got a sore throat**

- ▶ **Intended: Mary screamed and this caused the fact that the burglar ran away and the fact that she got a sore throat.**

Attentional topic and the RFC - VII

- ▶ Example from [Asher & Vieu 2005](#)

- (9)
- a. **Mary screamed**
 - b. **So the burglar ran away**
 - c. **Max woke up**
 - d. **#She also got a sore throat**

- ▶ Intended: Mary screamed and this caused the fact that the burglar ran away and the fact that she got a sore throat.
- ▶ **(9d) would be anomalous because we have the following structure:**

Attentional topic and the RFC – VIII

- ▶ **Standard assumptions: *Result* and *Narration* are coordination DRs, *Parallel* is a subordination DR.**

Attentional topic and the RFC - VIII

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- (10)**
- a. Mary screamed**
 - b. So the burglar ran away**
 - c. Max woke up**
 - d. She also got a sore throat**

Attentional topic and the RFC - VIII

- ▶ Standard assumptions: *Result* and *Narration* are coordination DRs, *Parallel* is a subordination DR.

- (10) a. **Mary screamed**
 Result
 b. **So the burglar ran away**
 c. **Max woke up**
 d. **She also got a sore throat**

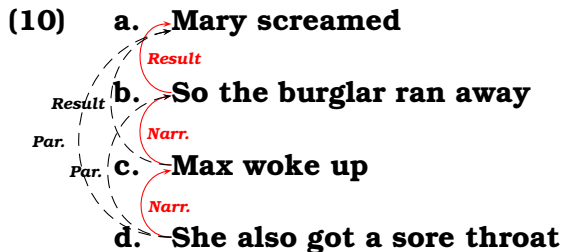
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- ▶ Standard assumptions: *Result* and *Narration* are coordination DRs, *Parallel* is a subordination DR.

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- Result b. **So the burglar ran away**
- Narr. c. **Max woke up**
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-

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Attentional focus and the RFC - IX

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 1. **It is not that clear that (c) cannot be a result of (a). It depends on two assumptions: the RFC (!) and the coordinating character of *Result*.**

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Attentional focus and the RFC - IX

- ▶ In fact, several parameters interact.
 1. It is not that clear that (c) cannot be a result of (a). It depends on two assumptions: the RFC (!) and the coordinating character of *Result*.
 2. The contribution of *also* might play a role since it 'parallelizes' screaming and a possible consequence (sore throat), but ...
 3. **Causes and effects are not to be parallelized (*John fell #he also broke his leg*)!**

Attentional topic and the RFC - x

- ▶ **(11) is in general judged better.**

Attentional topic and the RFC - x

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(11) a. Mary produced a huge knife

Attentional topic and the RFC - x

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- (11) a. **Mary produced a huge knife**
 b. **The burglar ran away**

Attentional topic and the RFC - x

▶ (11) is in general judged better.

- (11)
- a. **Mary produced a huge knife**
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Attentional topic and the RFC - x

- ▶ (11) is in general judged better.

- (11)
- a. **Mary produced a huge knife**
 - b. **The burglar ran away**
 - c. **She also called the police**

- ▶ **If (b) is a result of (a), we should not connect (c) and (a).**

Conclusion

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1. **interactions between constraints**

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- ▶ Its effects can be described more precisely in a framework that, like biOT, takes into account:
 1. interactions between constraints
 2. the form vs. meaning/message pairs
- ▶ **In addition, because of its strong links with cumulative non-monotonic logics (Besnard et al. 2003), OT is a good starting points to study multi-constraint systems for (i) representing discourse (Karamanis 2003) and calibrating experimental protocols on discourse perception.**

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