

# Situated Communication

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# Background

## Deixis

Dissertation (December 2010): *Presuppositional Indexicals*

International scientific journals (Rang A):

*Journal of Semantics* (2013)

*Philosophical Studies* (2014)

Conference presentations and proceedings:

*Amsterdam Colloquium* (indexicals; 2005)

*Amsterdam Colloquium* (discourse properties of *now*; 2012)

# Background

## Discourse structure

Research projects: DiSCoR (NSF), Polymnie (ANR)

International scientific journals:

*Zeitschrift für Sprachwissenschaft* (parsing and DiSCoR corpus; 2007)

*Dialogue & Discourse* (speech reports; 2015)

Conference presentations and proceedings:

*SALT* (VP ellipsis; 2013 & at-issue content; 2016)

*Sinn und Bedeutung* (speech reports; 2016)

Ongoing work with L. McNally (GLiF, Barcelona) & B. Gehrke (CNRS):  
discursive effects on anaphoric behavior of weak definites and bare nominals

Conference organization: *SemDial 2016*

# Background

## Situated discourse

International scientific journals (Rang A):

*Semantics & Pragmatics* (accepted 2017)

*Linguistics & Philosophy* (accepted 2018)

Conference presentations, proceedings and summer schools:

IWCS (2015), LREC (2016), SemDial (2015)

NASSLLI (2016), ESSLLI (2017)

Conference organization: IWCS workshop 2017

Research project: **Strategic Conversation (STAC; ERC project)**

⇒ leading role in developing the situated corpus

# Situated Communication

## Weaving nonlinguistic events into discourse

Extend prior work on deixis and rhetorical structure to develop a **comprehensive model of situated discourse**.

STAC corpora suggest an unlikely but interesting starting point:

- ⇒ eventualities that contribute to discourse content without this being their *raison d'être*
- ⇒ perhaps even out of the control of the conversational participants

## Motivating example

(1) She was sent to her room.

(Me: *nod and glance over shoulder*)

(Husband: *spots new drawing on wall behind me, infers an event e.*)

(2) I was making dinner.

# Features of the drawing example

A nonlinguistic event appropriated as a discourse move

No linguistic unit that represents or describes the drawing event.

- serves not only to interpret the message but to **construct** it
- the proposition contributed functions like a discourse move
- but is not produced as part of the discourse

Nonlinguistic events must be *conceptualized* in a discourse-relevant way

- **someone drew on the wall.**
- **our daughter drew on the wall.**

# Starting point

Rhetorical structure captures interaction and conceptualization

Explanation, Narration, Contrast, Elaboration...

(1) She was sent to her room. (2') She drew on the wall.

⇒ Explanation(1,2')

⇒ (2')  $<_t$  (1)

Similarly for (1) and  $e$  (the drawing event):

⇒ Explanation(1, $\phi_e$ )

⇒ reasoning about the relation motivates inference from drawing to  $\phi_e$ : *our daughter drew on the wall*

Asher & Lascarides (2003), Hobbs et al. (1993), Mann & Thompson (1987)



## Three theses for *Situated Communication*

- ① The incorporation of nonlinguistic events affects **discourse structure, evolution, and interpretation** in nontrivial ways.
  - ⇒ philosophy of language, formal semantics, theories of discourse
- ② **Rhetorical structure guides conceptualization** of nonlinguistic eventualities.
  - ⇒ learning, Natural Language Processing (NLP), Human-Robot Interaction (HRI)
- ③ Insights from *Situated Communication* will shed light on **other types of multi-modal interactions**.
  - ⇒ models of deixis and gesture

# How do nonlinguistic events affect discourse structure, evolution & interpretation?

## The *Settlers* corpora

A collection of situated chats (chat moves + game moves)

- *Settlers of Catan*
- players use resources (wood, clay, ...) to build roads and settlements
- players get resources by rolling dice, trading, or stealing

Two phases: (i) chat only, (ii) chat + game moves

Game events described in game log; [disentangle claims 1 & 2](#)

## How do nonlinguistic events affect discourse structure, evolution & interpretation?

**dmm** anybody willing to give me a wood?

**i** can trade clay or ore for it

**gwfs** no woods sorry

**inca** sorry, none here

**ljay** ill have a clay for one

[game] dmm made an offer to trade 4 clay for 1 wood from the bank or a port.

[game] dmm traded 4 clay for 1 wood from the bank.

**ljay** or not

[game] dmm ended their turn.

**dmm** oh well

(The corpus contains a wide variety of chat/game interactions to view the corpus: <https://www.irit.fr/STAC/corpus.html>)

# How do nonlinguistic events affect discourse structure, evolution & interpretation?

Lessons from the *Settlers* corpus (Hunter et al., S&P):

- **structure**: previously unexplored discourse structures
- **evolution**: interaction of discourse salience and real-world salience
- **interpretation**: dynamic update not only of information, but of real world changes

*Situated Communication*:

1. In-depth study of *Settlers* corpora
2. Corpora with different types of discourse and goals (e.g., AMI, CID)

# How does discourse structure influence conceptualization?

In general, events and objects in the nonlinguistic context can be individuated and described in many different ways.

- **what objects or eventualities are relevant** in a discourse
- **how to describe them** to achieve discourse purposes

Lots of ambiguity without linguistic expressions

# How does discourse structure influence conceptualization?

NLP and HRI: referring to or naming images or nonlinguistic entities

*Sit. Communication*: rich theory of situated discourse structure to predict conceptualization in the absence of explicit linguistic description/reference.

- e.g., an agent explains rather than describes an action she performs
- natural learning/communication environment

⇒ External evaluation of the discourse theory developed in *Situated Communication*

Deepen knowledge of NLP and HRI methods to facilitate collaboration

# How does *Situated Communication* bear on other multi-modal phenomena?

## Deixis

(4) Our daughter was sent to her room for *this*. *It* happened while I was cooking dinner.

- work on claims 1 and 2 will shed light on deixis, too
- close tie between anaphora and rhetorical relations (Kehler 2002)  
⇒ extend to deixis and nonlinguistic events (cf. Stojnic et al. 2013)

# How does *Situated Communication* bear on other multi-modal phenomena?

## Co-verbal gesture

**Two-way flow of information** between gesture interpretation and gesture/speech relations

- challenge for formal semantic approaches (Hunter, 2018).
- gesture meaning vastly under-determined; made more precise by surrounding discourse (cf. Lascarides & Stone, 2009; Goldwin-Meadow & Brentari, 2017)

*Situated Communication*: how insights gleaned from other linguistic/nonlinguistic interactions generalize to the study of co-verbal gesture

Complement with empirical work (e.g., Aix, Bielefeld, Grenoble)



## Conclusion and laboratoires de recherche

*Situated Communication*: extend work on rhetorical structure to develop a model of multi-modal interactions

### **CLLE (UMR 5263) ERSS, Université de Toulouse–Jean Jaurès**

- S'caladis: semantics, from lexical semantics to discourse  
extensive corpus-driven work on discourse structure
- CARTEL: computational approaches to the study of language

### **IRIT (UMR 5505), Université Paul Sabatier, Toulouse**

- MELODI: computational approaches to language  
extensive work on discourse structure, including the STAC project
- SAMoVA: work on audio and video documents

Also collaborations with LAAS (UMR 8001), e.g., LinTO;

Long history of collaborations between teams at ERSS and IRIT

Thank you!

## Professional Service (since Ph.D.)

- 2017 Joined editorial board of *Semantics & Pragmatics*.
- 2017 Organizing committee for ESSLLI 2017, Toulouse.
- 2017 Advisor for 6 undergraduate theses, Universitat Pompeu Fabra.
- 2016 Program Co-Chair for SemDial, Rutgers University, USA.
- 2016 Examiner for the thesis proposal of Kata Wohlmuth, 'Plural Quantification in Context'. Dir.: Louise McNally, Barcelona.
- 2011 Co-organizer of the international conference *Speaking of Possibility and Time II*, Lichtenberg-Kolleg & Georg-August-Uni., Göttingen.

Reviews: *The Amsterdam Colloquium, Discourse Processes, Erkenntnis, Glossa, The Journal of Greek Semantics, The Journal of French Language Studies, The Journal of Linguistics, The Journal of Semantics, Language and Speech, Lingua (now Glossa), Linguistics & Philosophy, Mind, Mind and Language, Natural Language and Linguistic Theory, Philosophical Studies, \*SEM, Semantics & Pragmatics, SemDial, Synthese, and Topoi. Generative Linguistics in the Old World.*