

## Projection, Attachment and Ludics

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## Projective Material

- (1)
- a. Paul knows that the Earth is round.
  - b. Does Paul know that the Earth is round?
  - c. Maybe Paul knows that the Earth is round.
  - d. Paul doesn't know that the Earth is round.
  - e.  $\rightsquigarrow$  The Earth is round.  
*psp*

- Each of the utterances (1-a)-(1-d) entail (1-e)
- The content (1-e) is said to be **projected**

### Projection

A semantic content  $p$  is **projected** if it is conveyed by an utterance, even though it is embedded in a context that usually alters truth-conditions (e.g. negation, interrogation. . . )

# Projective types of contents

- Projectivity has traditionally been considered to be the hallmark of **presupposition**.
- Other types of material also show a projective behaviour:
  - Conventional implicatures (Potts, 2005):
    - (2) a. John, that bastard, took my handbook.  
b. John, that bastard, didn't take my handbook.  
c.  $\rightsquigarrow$  John is a bastard.
  - Conversational implicatures (Roberts & Tonhauser, 2011):
    - (3) [*The car's tank is almost empty.*]
      - a. There is a garage round the corner.
      - b. There might be a garage round the corner.
      - c.  $\rightsquigarrow$  A garage is a potential solution to the problem.
  - ...

# Traditional view

- Karttunen (1973): contexts can be divided between **holes** (that project presuppositions), **plugs** (that block projection) and **filters** (that affect/weaken the content)
- $\Rightarrow$  One and the same context always behave in the same way, e.g.
  - Factive verbs are holes: always project
  - Verbs of 'saying' (e.g. **say, accuse, mention...**) are plugs: they do not let presupposition through
  - Antecedents of conditionals are filters (cf. infra)

# Contents do not always project in the same way

## Karttunen (1977)

- (4) a. If Mary realizes that John has not told the truth, she will be angry.  
b.  $\sim\rightarrow$ John has not told the truth.
- (5) a. If I realize later that I have not told the truth, I will confess it to everyone.  
b.  $\nearrow$ I have not told the truth.

- This is problematic for any theory that postulates a fixed behaviour for a given type of linguistic context.
- **Solution:** The context of utterance must be taken into account.

# Projection and *at-issueness*

## Simons et al. (2010)

A content  $p$  is projected iff. it is not **at issue** regarding the Question Under Discussion (QUD, cf. Roberts (1996)).

- $p$  is **at issue**, if the speaker intends to address the QUD via  $p$ :
  - $p$  must be relevant to the QUD (i.e. contributes to answering it).
  - The speaker can expect the addressee to recognize his intention.
- In (4), the truth of the complement of **realize** is entailed by world opened by the QUD, it is therefore not at issue and thus projective.
- In (5), the nature of the antecedent makes it clear that the speaker does not know whether he told the truth: this entails that this content is not true in all the relevant possible worlds. It is thus relevant to the QUD, i.e. at issue and does not project.

## Projection and *attachment*

- Ducrot (1972): a key feature to identify a presupposition is that it cannot be used to establish a subsequent discourse relation.
- If  $A$  is an utterance that presupposes  $P$ , a discourse of the form  $AB$  cannot contain a discourse relation  $R$ , such that  $R(P, B)$ .
  - (6)
    - a. Paul stopped smoking, so he worries about his health.
    - b. #Paul stopped smoking, so he did not worry about his health.
- Jayez (2010): discursive attachment to a content is possible iff. the attachment also bears on the main content ( $R(A + P, B)$  is possible).
  - (7) Harry suddenly stopped smoking, so I guess that it was his wife who did not like it.
- Attachment is related to projection: to be able to establish a discourse relation means that the material must be accessible/projected.



# Taking stock

Requirements for a discursive theory of presupposition:

- 1 Handle the projection of material out of non-veridical contexts.
- 2 Tie the projection of the material to the context of utterance.
- 3 Provide an explanation for the impossibility to exclusively attach to non-main content.

# Ludics

- A theory of Logic based on the notion of **interaction** (Girard, 2001).
- Proofs emerge as the result of the interaction between two **designs**.
- Appears well-suited to model natural discourse (Lecomte & Quatrini, 2009, 2010, 2011b).
  - A speaker's contributions are represented by a design.
  - The addressee (possibly virtual) has a counter-design.
- A well-formed discourse is one such that the discourse participants actions match, i.e. such that their designs **converge**/are **orthogonal**.
- The meaning of the discourse comes from the interaction between the two designs: it is given by the set of designs with which the interaction converges.

# An example (Lecomte, 2011)

## Context

- $B$  has three houses that he can sell (1,2 and 3).
- $A$  wants to know whether  $B$  sells a house (numbered 1).
- If  $B$  is willing to sell 1,  $A$  wants to know the price.

## Interaction

- $A$  asks  $B$  which houses he has to sell, and foresees several possible answers.
- $B$  is prepared to answer questions about the houses he sells, and about their prices.

# Plan A

What  $A$  has in mind:

- $A$  first wants to ask  $B$  which houses he has to sell.
- Assuming that  $A$  knows that  $B$  has 3 houses to sell, he expects every combination of houses as possible answers.
- If  $B$  does not sell house 1,  $A$  will stop the conversation.
- Otherwise he will ask for the price of the house 1,
- and expect an amount as an answer, after which he'll stop.

$$\frac{\vdash 0.10.1 \quad \frac{\vdash 0.1.1.1, 0.2 \dots \vdash 0.1.1.n, 0.2 \quad \vdash 0.1.1.1, 0.2 \dots \vdash 0.1.1.n, 0.2}{0.1.1 \vdash 0.20.1.1 \vdash 0.3}}{\vdash 0.1, 0.20.1, 0.2}}{\vdash \langle \rangle}$$

## Plan B

- $B$  expects a question about the houses he has to sell.
- To this question, he plans an answer.
- He foresees possible questions about the price of the houses (or some other aspects).
- He plans his answers to these questions.

$$\begin{array}{c}
 \frac{0.1.1.n \mathbf{0.1.1.n} \vdash}{\vdash 0.1.1 \mathbf{0.1.1}} \quad \frac{\quad}{\vdash 0.1.2 \mathbf{0.1.2}} \quad \dagger \quad \frac{0.2.1.m \mathbf{0.2.1.m} \vdash}{\vdash 0.2.1 \mathbf{0.2.1}} \quad \dots\dots \\
 \hline
 0.1 \mathbf{0.1} \vdash \quad \quad \quad 0.2 \mathbf{0.2} \vdash \\
 \hline
 \vdash \mathbf{00} \\
 \langle \rangle \vdash
 \end{array}$$

# Interaction of the two designs

- $A$  and  $B$ 's designs interact:
  - It is possible to establish correspondences between dual loci in  $A$  and  $B$ 's designs (i.e. loci of opposite polarities).
  - By putting two loci in interaction, one can define a normalization process.
- Two designs are **convergent** if their normalization reduces to:

$$\frac{}{\vdash} \dagger$$

- If two designs diverge, the interaction fails and the agents might have to revise their designs.

# Negative and Positive actions

- Ludics distinguish between positive and negative actions inside a player's design:
  - **Positive** actions correspond to an active intervention on the part of the player.
  - **Negative** actions correspond to the anticipation of the speaker regarding some potential refutation, and to the recording of the addressee's interventions. They are deterministic: the player is not involved in any choice.

## Multiple assertions

(8) **E**: I was to be captain of the *Pharaoh*; I was to marry a nice girl.

- **E**'s utterance conveys two distinct parts.

$$\frac{0 \vdash \quad 1 \vdash}{\vdash \langle \rangle}$$

- All the information conveyed by the speaker is made available for further attachment: (8) conveys an information about a captainship and a wedding.
- As seen above this is undesirable for the case of presupposition (and projective material in general): not all conveyed contents should be placed on the same level of accessibility.
- $\Rightarrow$  Ludics handles the case of presupposition by means of **covert moves**.



## An example (Lecomte & Quatrini, 2011b)

- (9) a. A: Are you still smoking?  
b. B: Yes.

- A only expects answers that entail that B smokes.
- Presupposition are treated like covert questions answered by A:
  - The speaker asks and answers the question “*Did you smoke before?*”
  - The speaker asks the question “*Are you smoking now?*”, attached to the previously created locus.
  - The speaker expects either a *Yes* or a *No* answer and the addressee is committed to the presupposition if he wishes to remain convergent.

$$\frac{\frac{\frac{\vdash \mathbf{0.0.0.0} \vdash 0.0.0.0 \quad \vdash \mathbf{0.0.0.1} \vdash 0.0.0.1}{\mathbf{0.0.0} \vdash 0.0.0} \quad (-, 0.0.0, \{\{0\}, \{1\}\}) \quad (-, 0.0.0, \{\{0\}, \{1\}\})}{\vdash \langle \rangle \vdash \langle \rangle} \quad (+, \langle \rangle, \{0\}); (-, 0, \{\{0\}\}); (+, 0.0, \{0\}) \quad (+, \langle \rangle, \{0\}); (-, 0, \{0\})}{\vdash \langle \rangle \vdash \langle \rangle}$$

Figure: A's treatment of presupposition in (9)

## Consequences for presupposition projection

The previous analysis has various desirable consequences for the treatment of presupposition and projection in general:

- 1 Attachment is managed by way of loci:
  - The loci open by the last positive move represent the set of questions under discussion.
  - The addressee necessarily has to react on one of these questions whose content corresponds to the main content of the speaker.
  - All open loci integrate the presupposition in their structure, so the addressee's reaction can also use this information.
- 2 A material  $p$  can be considered to be projected if it is part of all the open loci, i.e. each integrates the covert question in its structure.
- 3 If a given material is at issue, it will not be included in every open loci ( $\sim$  the material is not true in all considered branchings/worlds).

## The proviso problem

- (10)
- If John comes, he will bring his diving gear.
  - $\underset{psp}{\rightsquigarrow}$  John has diving gear.
  - If John is a diver, he will bring his diving gear.
  - $\underset{psp}{\rightsquigarrow}$  If John is a diver, he has diving gear.
- Depending on the content of the antecedent, conditionals can either act as holes (10-a) or filters (10-c).
  - I assume that conditionals are treated as such:
    - First a covert question about the truth of the antecedent is asked.
    - From each resulting location, loci are opened relative to the consequent.

## Different projection behaviours

(11) If John comes, he will bring his diving gear.

$$\frac{\vdash 0.0.0.0 \quad \vdash 0.0.0.1.0.0 \quad \vdash 0.0.0.1.0.1}{\vdash \langle \rangle} \Phi$$

Where:  $\Phi = (+, \langle \rangle, \{0\}); (-, 0, \{\{0\}\}); (+, 0.0, \{0\});$   
 $(-, 0.0.0, \{\{0\}, \{1\}\}); (+, 0.0.0.1, \{0\}); (-, 0.0.0.1.0, \{\{0\}, \{1\}\})$

$$\frac{\vdash 0.0.0.0.0.0.0.0.0.0 \quad \frac{\vdash 0.0.0.1.0.0.0.0.0.1.0.0.0.0.1.0.0 \quad \vdash 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0}{\vdash 0.0.0.1.0.0.0.1}}{\vdash \langle \rangle}$$

- First, the presupposition is handled: nothing in the considered contents would entail it, so it is accommodated at the highest level.
- The next branching relates to the truth of the antecedent.
- Then a question about him bringing the gear is open, with potential

## Different projection behaviours (II)

(12) If John is a diver, he will bring his diving gear.

$$\frac{\frac{\frac{\vdash 0.0 \vdash \mathbf{0.0}}{\vdash 0.1.0.0.0.0} \quad \frac{\frac{\vdash 0.1.\mathbf{0.0}.0.0}{}{\vdash 0.1.0.0.0.1} \quad \frac{\vdash 0.1.\mathbf{0.0}.0.1}{\vdash 0.1.\mathbf{0.0}.0.1}}{\vdash 0.1.0.0}}{\vdash \langle \rangle}}{\vdash 0.0 \vdash \mathbf{0.0}}$$

- Here, the presupposition is entailed by the truth of the antecedent and world-knowledge.
- It is only considered in the corresponding branching ( $\sim$  locally bound)
- No further loci are open on the address 0.0: considering the context, there is no reason to assume John has gear if he's not a diver.
- The presupposition is handled locally, and is not present in all loci: it is not projected (or under a weakened form).

## Different projection behaviours (III)

- (13)
- a. If Mary realizes that John has not told the truth, she will be angry. =(4-a)
  - b. If I realize later that I have not told the truth, I will confess it to everyone. =(5-a)

- The approach is essentially the same as for the previous examples.
  - The proposition “**I have not told the truth**” in (13-b) is only entailed in the case the antecedent is true (mainly because of the use of the first person).
  - This is not valid for (13-a), so both open branchings are equal regarding the truth of the presupposition, and there is no reason to assume it is only verified in only one of the alternatives.

# Attachment

- As said before, attachment is only possible on the last open loci, attachment to a presupposition alone is not possible; e.g. in the smoking example:

$$\frac{\frac{\frac{\vdash 0.0.0.0}{0.0.0 \vdash}}{\vdash \langle \rangle}}{\frac{\frac{\vdash 0.0.0.1}{0.1 \vdash}}{\vdash 0}}{\langle \rangle \vdash}$$

- Discursive attachment is subject to other constraints, one of the most famous one being the **Right Frontier Constraint** (Asher & Lascarides, 2003).

## Right Frontier

- (14)
- $\pi_1$  Max had a great evening last night.
  - $\pi_2$  He had a great meal.
  - $\pi_3$  He ate salmon<sub>*i*</sub>.
  - $\pi_4$  He devoured lots of cheese.
  - $\pi_5$  He then won a dancing competition.
  - $\# \pi_6$  It<sub>*i*</sub> was a lovely pink.
  - $\pi'_6$  Afterwards, he also enjoyed dessert.

- Antecedents for anaphora cannot be found outside the right frontier.
- Available attachment points are located on the right frontier:  $\pi'_6$  cannot attach to  $\pi_4$ .



# Right Frontier (II)



# Ludics and the Right Frontier

$$\frac{\frac{\frac{\frac{0.1.0 \vdash \pi_5}{\vdash 0.1}}{0.0.1.1.0 \vdash 0.1} \pi_4}{\vdash 0.0.1.1, 0.1} \pi_3}{\vdash 0.0.1.0, 0.0.1.1, 0.1} \pi_2}{\frac{\frac{0 \vdash \pi_1}{\vdash \langle \rangle}}{0.0.1 \vdash 0.1} \pi_2}{\vdash 0.0, 0.1} \pi_1} \frac{\frac{\frac{\vdash 0.0.1.0.0}{0.0.1.0 \vdash} \emptyset}{\vdash 0.0.1} \pi_3}{\vdash 0.0.1} \pi_2} \frac{\frac{\vdash 0.0.1.1.0}{0.0.1.1 \vdash} \emptyset}{\vdash 0} \pi_4}{\langle \rangle \vdash} \frac{\vdash 0.1.0}{0.1 \vdash} \pi_5$$

- In the counter-design the actions labeled by  $\emptyset$  are interpreted as incentives to remove a QUD from the stack (Lecomte & Quatrini, 2011a; Lecomte, 2011).
- Once a QUD has been focused, it is not possible to switch to a different one (cf. the counter-design).

# Conclusion

- Ludics give a flexible and intuitive framework to represent various phenomena related to presupposition.

**Projection** is equated to the presence of a given content in all open loci.

**Attachment** is captured via open loci:

- one cannot ignore the last loci when attaching material, but it is possible to integrate information contained in the structure of the locus.
- one cannot freely switch between QUD: it is necessary to “close” a QUD before being able to attach to a different one.

- The question of the locality of presuppositions can be accounted for, but there is (yet) no principled way to promote some designs over others.

⇒ It remains to see how to manage the compositionality and triggering of presuppositions.

Thank you

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# Denial

- If a speaker refuses to converge, he must make it linguistically explicit: a mark of refutation is necessary.
- The so-called monadic **but** is such a mark:

- (15) a. A: I regret that Mary cannot come.  
b. B: % (But) she's already there.

- In ludics terms, the monadic **but** is a mark that the addressee wants the speaker to revise his design, for example by allowing him access to previously inaccessible loci.

## An example (Lecomte & Quatrini, 2010)

- (16) a. *E*: I was to be captain of the *Pharaoh*; I was to marry a nice girl.  
 b. *F*: Did someone had an interest in you not becoming captain?  
 c. *E*: Only one man: Danglars.  
 d. *F*: Now, tell me about the girl you were supposed to marry.

$$\begin{array}{c}
 \frac{0.1.1.1 \quad 0.1.1.1 \vdash}{\vdash 0.1.1 \quad 0.1.1} \quad (16-c) \quad (16-c) \\
 \frac{0.1 \quad 0.1 \vdash}{\vdash 0 \quad (E) \vdash 0 \quad (E)} \quad \frac{0.2.1}{0.2 \quad 0.2 \vdash} \quad (16-a) \quad (16-a) \\
 \frac{\dagger 0.2.1 \vdash 0}{\vdash 0.1.1.1, 0.2 \quad 0} \\
 \frac{0.1.1 \quad 0.1.1}{\vdash 0.1, 0.2 \quad 0} \\
 0 \vdash (F) 0 \vdash
 \end{array}$$

Figure: Ludics representation of the dialogue in (16-a)-(16-d)