Dialogue, Assertion and Inferentialism

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A dialogue

Ginzburg, 2011:

Example

(a) Emma: *We have a flat.*
(b) Robert: *Ah, I see*. (Pause) *Nice?* (Pause) *A flat. It's quite well established then, your . . . uh . . . affair?*
(c) Emma: *Yes*.
(d) Robert: *How long?*
(e) Emma: *Some time.*
(f) Robert: *But how long exactly?*
(g) Emma: *Five years.*
(h) Robert: *Five years?*
(p. 85, Harold Pinter Betrayal, Faber and Faber, London, 1991.)

Some features of dialogue

- "**Coherence**: each conversational move seems to cohere smoothly with its predecessor: questions are followed by answers which, in turn, raise new questions".
- "**Conciseness**: conversation is, by comparison with text, **a highly efficient medium**. Emma's affirmation of the well-established nature of the affair, Robert's wondering how long the affair has been going on, Emma's informing Robert that it has gone on for five years and Robert's astonishment at Emma's informing him this, all of this which takes 40 odd words of text to convey, takes a dozen words of dialogue."
- "**Radical Context Dependence**: Isolated from their occurrence in a dialogue many utterances lose most of their import. None of the utterances ((c)-(h)) could stand on their own in a text. Indeed, some utterances (e.g. ((d),(h)) resist a univocal sentential paraphrase. At the same time, in context, all these utterances seem readily comprehensible to the conversationalists."

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The example of a dialogue

Example

MEG's voice : Is that you, Petey? (*un temps*) Petey, is that you?
PETER : What?
LA VOIX DE MEG : Is that you?
PETER : Yes, it's me.
MEG : What? Are you back?
PETER Yes.
MEG :I've got your cornflakes ready. Here's your cornflakes. Are they nice?
PETER : Very nice.
MEG : I thought they'd be nice. You got your paper?
PETER : Yes.
MEG : Is it good?
PETER Not bad.
MEG : What does it say?
PETER: Nothing much.
MEG : You read me out some nice bits yesterday.
PETER :Yes, well, I haven't finished this one yet.
MEG : Will you tell me when you come to something good?
PETER : Yes.
MEG : Have you been working hard this morning?
PETER : No. Just stacked a few of the old chairs. Cleaned up a bit.
MEG : Is it nice out?
PETER : Very nice.

Is that you, Petey?$_{\overrightarrow{\xi}.0}$? (*Pause*) Petey, is that you?
Is that you?$_{\xi.0}$
What? Are you back?$_{\xi.0.1.0}$
I've got your cornflakes ready$_{\overrightarrow{\sigma}.0}$.
Here's your cornflakes$_{\overrightarrow{\sigma}.0}$.
Are they nice?$_{\sigma.0}$
I thought they'd be nice$_{\sigma.0.1.0}$.
You got your paper?$_{\tau.0}$
Is it good?$_{\tau.0.0.1}$
What does it say?$_{\tau.0.0.1.1.0}$
You read me out some nice bits yesterday$_{\mu.0}$.

Will you tell me when you come
to something good?$_{\mu.0.1.0}$
Have you been working hard this morning?$_{\lambda.0}$

Is it nice out?$_{\kappa.0}$

What?
Yes, it's me$_{\xi.0.1}$.
Yes$_{\xi.0.1.0.1}$.

Very nice$_{\sigma.0.1}$.

Yes$_{\tau.0.0}$.
Not bad$_{\tau.0.0.1.1}$.
Nothing much.$_{\tau.0.0.1.1.0.1}$.
Yes$_{\mu.0.1}$,
Yes, well, I haven't finished this one yet$_{\tau.0.0.1.1.0.1.0.1}$.

Yes$_{\mu.0.1.0.1}$.
No$_{\lambda.0.0}$.
Just stacked a few of the old chairs$_{\lambda.0.0}$.
Cleaned up a bit$_{\lambda.0.0}$.
Very nice$_{\kappa.0.1}$.

Justified sequences

- the moves are the special action † and the actions (ξ', I) where every ξ' has some $\xi \in \Gamma$ as prefix, († and actions (ξ, I) where $\xi \in \Gamma$ are called **initial**)
- the polarity of the initial actions (ξ, I) is the one indicated by the base for ξ, and other polarities are deduced by alternation,
- the enabling relation is such that
  1. $(\xi, I) \vdash (\xi.i, J)$ for all $i \in I$
  2. $x \vdash y$ for each x negative initial action and y positive initial action

Definition

A **justified sequence** is a sequence of actions $\sigma = \sigma_0.\sigma_1....\sigma_n$, with **pointers** between the elements of the sequence which satisfies:

- for each non-initial σ_i, there is a unique pointer to a σ_j $(j < i)$ such that $\sigma_j \vdash_A \sigma_i$ (σ_j is called the **justifier** of σ_i),

Views and strategies

Definition

A **view** (also called **chronicle**) is a justified sequence such that:

- No two following moves have the same polarity
- for each pair of consecutive actions σ_i, σ_{i+1} such that $\lambda(\sigma_i) = +$ and $\lambda(\sigma_{i+1}) = -$, we have $\sigma_i \vdash \sigma_{i+1}$

Definition

A **strategy** is a prefix-closed set of views $\mathcal{D}$ such that:

- if $\sigma.m$ and $\sigma.n \in \mathcal{D}$ and $m \neq n$, then m and n are negative,
- if $\sigma.m$ is maximal in $\mathcal{D}$, then m is positive.

Example

Are they nice?$_{\sigma.0}$ Very nice$_{\sigma.0.1}$.

I thought they'd be nice$_{\sigma.0.1.0}$.

$$\dfrac{\dfrac{\dfrac{}{\vdash \Lambda}\ \ldots \quad \dfrac{\dfrac{\dfrac{}{\vdash \tau, \Gamma}\ \ldots}{\sigma.0.1.0 \vdash \Lambda}\ c^-}{\vdash \sigma.0.1, \Lambda}\ b^+}{\sigma.0 \vdash \Lambda}\ a^-}{\text{view from MEG}}$$

- after her question (positive move), she expects an answer (negative move : a^-)
- she elaborates on that answer **iff** this answer is positive ("very nice") (positive move : b^+)
- then she expects no new answer on σ, but plans a new QUD (c^-)

QUD

Definition

question under discussion or QUD : every sequence of loci $(a_\sigma)_{\sigma \in \mathbb{N}^*}$ such that:

- the σ's make a sequence ordered by the prefix order (μ immediately precedes ν if and only if there is an integer i such that $\nu = \mu.i$)
- the first σ is made of only one integer (odd rank, corresponding to a positive action)
- the last σ is of even length

Is that you, Petey?$\underset{\xi.0}{\rightarrow}$? (*Pause*) Petey, is that you?	What?
Is that you?$_{\xi.0}$	Yes, it's me$_{\xi.0.1}$
What? Are you back?$_{\xi.0.1.0}$	Yes$_{\xi.0.1.0.1}$.
I've got your cornflakes ready$\underset{\sigma.0}{\rightarrow}$.	
Here's your cornflakes$\underset{\sigma.0}{\rightarrow}$.	
Are they nice?$_{\sigma.0}$	Very nice$_{\sigma.0.1}$.

Convergence, closed net

$$
\dfrac{\dfrac{\dfrac{\cdots}{\vdash \Delta} \qquad \dfrac{\dfrac{\dfrac{..}{\vdash \Delta} \qquad \dfrac{\dfrac{\dfrac{\cdots}{\vdash \Lambda} \qquad \dfrac{\cdots}{\vdash \sigma.0.1, \tau, \Gamma}}{\sigma.0 \vdash \Lambda}}{\vdash \xi.0.1.0.1, \sigma, \Lambda}}{\xi.0.1.0 \vdash \Delta}}{\vdash \xi.0.1, \Delta}}{\xi.0 \vdash \Delta}}{\vdash \xi, \Delta}\ (+, \xi, \{0\})
$$

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dots}{\vdash \Lambda}\quad\dfrac{\dots}{\vdash \sigma.0.1, \tau, \Gamma}}{\sigma.0 \vdash \Lambda}}{\vdash \xi.0.1.0.1, \sigma, \Lambda}\quad\dfrac{\dots}{\vdash \Delta}}{\xi.0.1.0 \vdash \Delta}\quad\dfrac{\dots}{\vdash \Delta}}{\vdash \xi.0.1, \Delta}}{\xi.0 \vdash \Delta}}{\vdash \xi, \Delta}$$

"your cornflakes nice?"

"are you back?"

"is that you?"

Convergence, closed net

$$\xi \vdash \quad \sigma \vdash \quad \tau \vdash \quad \mu \vdash \quad \lambda \vdash \quad \kappa \vdash$$

Designs:

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{}{\vdash \xi.0.1.0.1.0}\,\emptyset}{\xi.0.1.0.1 \vdash}}{\vdash \xi.0.1.0}}{\xi.0.1 \vdash}}{\vdash \xi.0} \qquad \dfrac{\dfrac{\dfrac{\dfrac{}{\vdash \sigma.0.1.0}\,\emptyset}{\sigma.0.1 \vdash}}{\vdash \sigma.0}}{\sigma \vdash} \qquad \textit{etc.}$$

$$\dfrac{\dfrac{}{\vdash}\,\dagger}{\xi \vdash}\,(-, \{\emptyset, \{0\}\})$$

Convergence, closed net

$$\xi \vdash \quad \sigma \vdash \quad \tau \vdash \quad \mu \vdash \quad \lambda \vdash \quad \kappa \vdash$$

Designs:

$$\dfrac{\dfrac{-}{\vdash \xi.0} \dagger \qquad \dfrac{\dfrac{\dfrac{\dfrac{\dfrac{-}{\vdash \xi.0.1.0.1.0}\emptyset}{\xi.0.1.0.1 \vdash}}{\vdash \xi.0.1.0}\text{“yes”}}{\xi.0.1 \vdash}}{\vdash \xi.0}\text{“yes it's me”}}{\xi \vdash}(-,\{\emptyset,\{0\}\}) \qquad \dfrac{\dfrac{\dfrac{\dfrac{-}{\vdash \sigma.0.1.0}\emptyset}{\sigma.0.1 \vdash}}{\vdash \sigma.0}\text{“very nice”}}{\sigma \vdash} \quad \textit{etc.}$$

Game and score

Suppose we have a set of counters or markers such that producing or playing one has the social significance of making an assertional move in the game. We can call such counters 'sentences'. Then for any player at any time there must be a way of partitionning sentences into two classes, by distinguishing somehow those that he is disposed or otherwise prepared to assert (perhaps when suitably prompted). These counters, which are distinguished by bearing the player's mark, being on his list, or being kept in his box, constitute his **score**. *By playing a new counter, making an assertion, one alters one's own score, and perhaps that of others.*

Asserting

Telling:

The swatch is red

is not simply submitting a proposition to an evaluation by “true” or “false”, but

- *playing it as a token in a game*,
- knowing that other players can ask for reasons for saying it,
  - either by challenging the choice of the name “swatch”
  - or by contesting that “it is red”.
- It is only after the game has come to an end that the assertion can be evaluated.

The Assertion Game - I

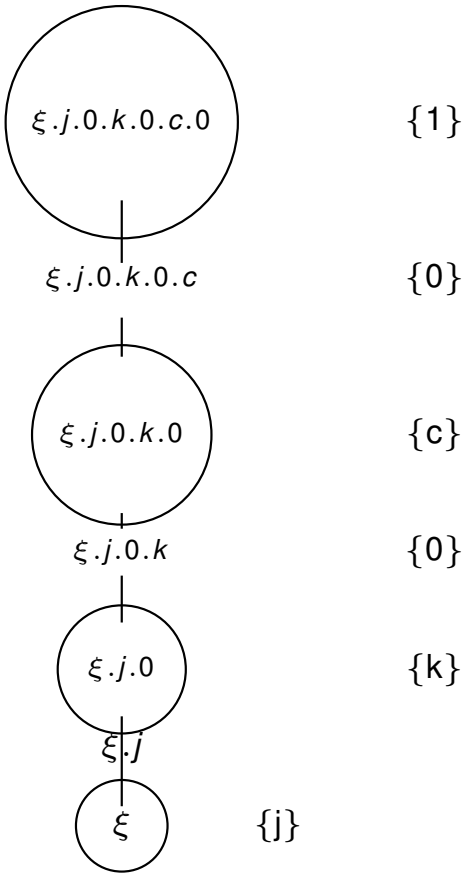
Let *A* be the speaker who asserts, for instance “The swatch is red”, and let *B* his interlocutor. We must always assume that:

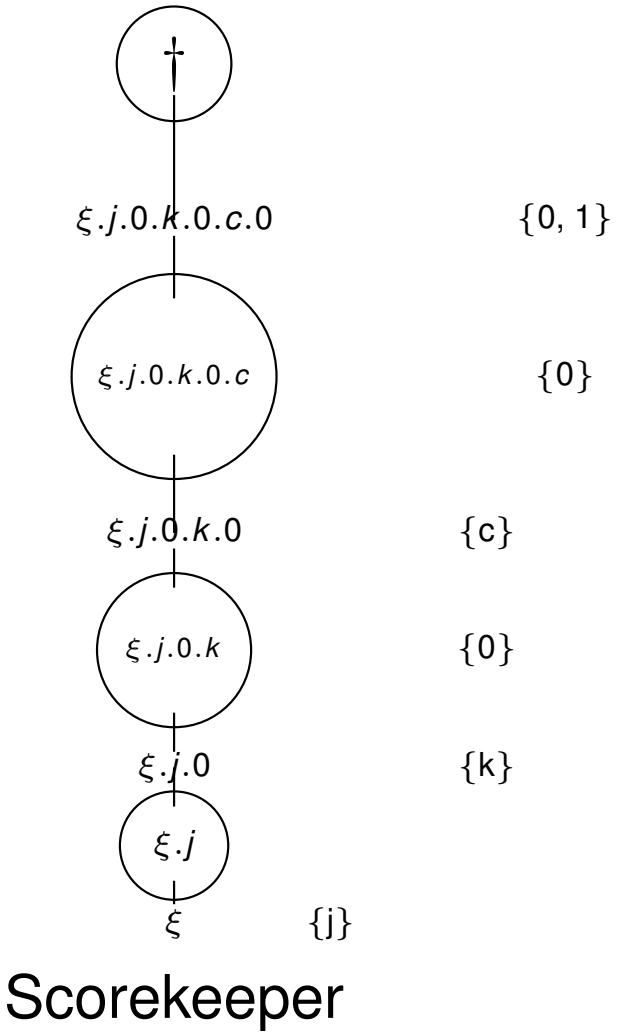
- the **commitment** is undertaken by *A* among a set of possibilities offered by *B*, as entitlements to undertake commitments,
- *A* associates a set (directory) of **entitlements** concerning the way in which *B* can react toward his commitment

The Assertion game - II

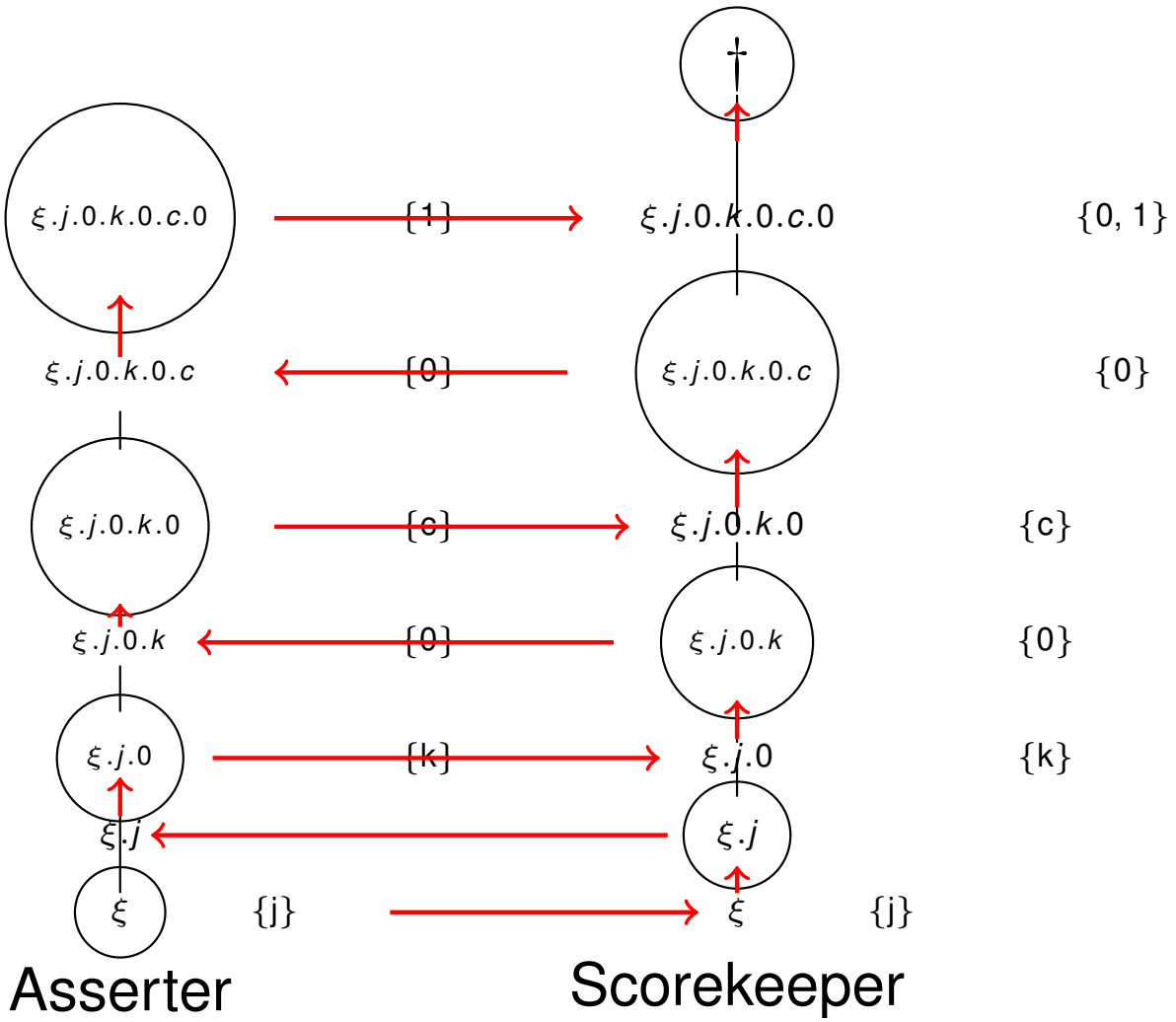
1. the speaker chooses an object j in some set I_i, which is provided as *entitlements* to address some *theme*, by the interlocutor (even if she is a virtual speaker),
2. having chosen to speak of some definite object (here by means of a singular term), the speaker implicitly entitles his interlocutor to treat this object as concerned by a range of properties, naturally associated with that object,
3. the interlocutor entitles the speaker to choose a property among this range,
4. the speaker chooses a property and entitles his interlocutor to treat this property as concerned by a range of *values*,
5. the interlocutor entitles the speaker to choose a value,
6. the speaker chooses a value and entitles his interlocutor to treat is according to a set of modalities (maybe simply *true* and *false*),
7. the interlocutor entitles the speaker to choose a modality
8. the speaker chooses a modality and waits for an acknowledgement

Assertion game





interaction



The interaction as Dynamics of proofs

$$\dfrac{\vdash \xi_1, \ldots, \quad \dfrac{\dfrac{\ldots, \vdash \xi.j.0.k, \ldots}{\xi.j.0 \vdash}(-, \{\{1\}, \ldots, \{k\}, \ldots, \{m\}\})}{\vdash \xi_j}(+, \xi.j, \{0\}) \quad , \ldots, \vdash \xi_n}{\xi \vdash}\mathcal{N}$$

with, on the locutor's side:

$$\dfrac{\dfrac{\dfrac{\xi.j.0.k \vdash}{\vdash \xi.j.0}(+, \xi.j.0, \{k\})}{\xi.j \vdash}(-, \{\{0\}\})}{\vdash \xi}(+, \xi, \{j\})$$

Then, the interlocutor still records the answer and continues the interaction by providing the range of values and so on.

Affirmation, negation and modalities

It is important here to note the last action which consists of selecting a focus (here the colour which is chosen, $c.0$), then selecting a supplementary digit, here limited to 0 or 1. We may assume for instance that 0 is the **negation** of the predicate, and 1 its **affirmation**. We may also envisage a wider range of digits, for instance expressing **modalities**.

The Asserter

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\xi.j.0.k.0.0.0.0 \vdash}{\vdash \xi.j.0.k.0.0.0}(\textit{chooses false})\ (+,\{0\})}{\xi.j.0.k.0.0 \vdash}\text{“}\textit{kind}''\ \textit{accepted}}{\vdash \xi.j.0.k.0.0}(\textit{chooses “kind''})\ (+,\{0\})}{\xi.j.0.k.0 \vdash}\text{“}\textit{kind}''\ \textit{vs}\ \text{“}\textit{nasty}''\ \textit{accepted}}{\vdash \xi.j.0.k.0}(\textit{chooses “kind'' vs “nasty''})}{\xi.j.0.k \vdash}\ j\ \textit{accepted}}{\vdash \xi.j.0}}{\xi.j \vdash}(\textit{chooses}\ j)}{\vdash \xi}$$

the speaker chooses the value *kind* with negative modality 0, and then stops.

Results in : *she is not kind*

The scorekeeper

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{}{\vdash \xi.j.0.k.0.0.0.0}\dagger \quad \dfrac{}{\vdash \xi.j.0.k.0.0.0.1}\dagger}{\xi.j.0.k.0.0.0 \vdash}(-,\{\{0\},\{1\}\}) \quad \dots}{\vdash \xi.j.0.k.0.0} \quad \dfrac{\dots}{\vdash \xi.j.0.k.0.1}}{\xi.j.0.k.0 \vdash}(-,\{\{0\},\{1\}\})}{\vdash \xi.j.0.k} \quad \dots}{\xi.j.0 \vdash} \quad \dots}{\vdash \xi.j} \quad \dots}{\xi \vdash}$$

On the contrary...

An illegal move...

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\xi.j.0.k.0.1 \vdash}{\vdash \xi.j.0.k.0.0.0.0.0}(+, \xi.j.0.k.0, \{1\})}}{\xi.j.0.k.0.0.0.0 \vdash}}{\vdash \xi.j.0.k.0.0.0}}{\xi.j.0.k.0.0 \vdash}}{\vdash \xi.j.0.k.0}(+, \xi.j.0.k.0, \{0\})}}{\xi.j.0.k \vdash}}{\vdash \xi.j.0}}{\xi.j \vdash}}{\vdash \xi}$$

Need to replay (backtracking)

- If the scorekeeper's viewpoint stays the same, **normalization** would lead to change the "slice" of the paraproof, playing on a branch which, after the previous normalization steps, has been removed. In ordinary Ludics, normalization fails in such a case.

In Ludics **with repetitions** (which amounts to **adding exponentiels**), that would be possible.
cf. Balsadella & Faggian (2009), K. Ranalter (september 2010), ...

Forms of negation

Example

"she is not kind, on the contrary, she's very nasty"

Ducrot, 1984:

- descriptive negation ("she is not kind") *vs*
- **controversial** negation ("she is not kind, on the contrary she is very nasty")

Conclusion

- what are we *doing* when we use some specific words or expressions? (*but, on the contrary, ...*), what *move* in a play? (cf. O. Ducrot, 1984)
- **typing**: the result of interactions (type = behaviour = $\mathcal{D}^{\perp\perp}$, where $\mathcal{E}^{\perp} = \{\mathcal{G}; \mathcal{E} \perp \mathcal{G}\}$)
- **material implication = subtyping**, $A \Rightarrow_m B$ iff $\mathcal{A}^{\perp\perp} \subset \mathcal{B}^{\perp\perp}$ or $\mathcal{B}^{\perp} \subset \mathcal{A}^{\perp}$ (every counter-strategy for $\mathcal{B}$ is also a counter-strategy for $\mathcal{A}$)

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