

# Context as Assumptions

## Some Desiderata for the Modeling of Linguistic Context Dependence

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# Overview

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- 3 Summary & Open Problems

## Indexicals

The semantic content of indexicals depends on the deictic center: speaker, location of speaker, body alignment of speaker, time of utterance, place of utterance.

## Contextuals

What is commonly taken as the semantic value of a contextual cannot be fixed without resorting to contextual factors.

- 'Pure', automatic indexicals: I, yeah
- Indexical contextuals: tenses, now, here, there, this, that, you, we
- Nonindexical contextuals: tall, enough, ready, QDR

Lit. Perry (1998, 2005), Bach (2005, 2007), Mount (2008), Rast (2009)

# Philosophical Positions

- ① Contextualism I: semantic content of indexicals and contextals is a function from context to intension
- ② Contextualism II: semantic content of indexicals and contextals is a function from context to intension, pragmatic factors play crucial role during composition
- ③ Minimalism: semantic content of indexicals is a function from context to intension, contextals are context-invariant
- ④ Relativism: semantic content of indexicals and possibly some contextals is a function from context to intension, other expressions have context-invariant semantic content that varies with the index/assessments
- ⑤ Occasionalism: semantic content of all linguistic expressions depend on their use

Lit. Stanley & Szabó (2000), Stanley (2002), Recanati (2004), Bach (2005, 2007),

MacFarlane (2007, 2008), Lasersohn (2005), Travis (2008)

## Utterance Context

The utterance context comprises those features of the deictic center that are a condition for the saturation of indexicals.

## Doxastic Context

The doxastic context comprises the epistemic states and assumptions of discourse participants insofar as they are relevant for the interpretation of utterances.

- CG: shared mutual assumptions
- beliefs of discourse participants

Lit. Kaplan (1989), Stalnaker (1978, 2002)

# D1 - Two sorts of context are needed

☞ Utterance context cannot be reduced to doxastic context and vice versa when semantic and pragmatic adequacy is desired.

- The UC partly determines the truth-conditional contribution of indexicals independently of the epistemic states of the discourse participants.
- The missing ingredient of a contextual, if there is any, is not determined by a shared context.

## Example

(1) *Situation: It is 13 o'clock. Alice believes it is 12 o'clock, Bob believes it is 12 o'clock.*

Alice: It is now 12 o'clock.

- Semantic Constraint: The time of utterance of (1) must be a subinterval of the time interval denoted by *now* in (1).
- Alice's and Bob's interpretation of *now* in (1) is incorrect.
- Both sender and recipient may be wrong about the truth-conditional contribution of the use of an indexical.

Lit. Rast (2007, 2009)

# D1.2 - DC not reducible to UC

Attempts to reduce DC to UC and replies:

- ① Put aspects of doxastic states into a context parameter.  
Ad: Doxastic states do not determine missing ingredients of contextuials.
- ② Explain contextual variation accross interpretations/agents using different parameters.  
Ad: This strategy requires doubling of context parameters, one for the actual context and the other encoding an agent's interpretative assumptions.
- ③ Fix semantic content/values of contextuials by resorting to speaker intentions.  
Ad: Resorting to speaker intentions makes incorrect predictions.



## D1.2 - DC not reducible to UC (continued)

### Examples

(2) *Situation: Once again, John has skipped the breakfast. Somebody has just claimed that John has never had breakfast in his life.*

Alice: John had breakfast.

(3) *Situation: Alice points to the K2 and intends to refer to the Mount Everest.*

Alice: This is the highest mountain on earth.

- Interpretation is optional in (2) and involves defeasible assumptions.
- Referential intentions are clearly inadequate for determining the semantic content in (3).

Lit. Bach (2005), Bach (2009), Rast (2009)

## D2 - Knowledge is not indexical (digression)

☞ If strong knowledge is context-dependent, then it is not context-dependent in the same way as indexicals.

Trivial:

- Let  $c_s$  be the strong epistemic context and  $c_w$  be a weak epistemic context and assume the embedded proposition  $p$  is not sensitive to epistemic contexts.
- Contextualist assumption:  $c_w \models Kp$  and  $c_s \models \neg Kp$ .
- By factivity of knowledge from  $c_w \models Kp$  it follows that  $c_w \models p$ .
- Since by assumption  $p$  is not sensitive to  $c_w$  and  $c_s$ , we can conclude  $c_s \models p$ .
- This suffices as a justification for  $c_s \models Kp$ .
- This contradicts to the contextualist assumption.

## D3 - Deep interpretation is sometimes optional

👉 Lexicon entries and semantic composition rules need to do justice to the fact that contextuials don't always have to be interpreted deeply.

(4) Alice is tall.

(5)  $\lambda u \lambda s. Tall(s, a, f(u))$  **inadequate**

(6)  $\lambda u \lambda s. Tall(s, a, C)$

(7)  $\lambda u \lambda s. \exists C (Tall(s, a, C))$

(8)  $\lambda u \lambda s. Tall(s, a, C_0)$ , where  $C_0$  is a constant

When an agent considers (7) in response to (4) this is the result of *shallow interpretation* (on the basis of 'existential completion'), when he considers (8) this is the result of *deep interpretation*.

Lit. Bach (2005), Asher/Lascarides (2003)

## D3.2 - Deep interpretation is sometimes optional (continued)

### Examples

- (9) Alice bought a car. [from Bob, for 800€]
- (10) Alice arrived last week. [in Lisbon on Wednesday]
- (11) Alice has eaten. [sushi at nearby restaurant]

- $\lambda u \lambda s. s < u \wedge \exists xyz (Car(x) \wedge Seller(y) \wedge Price(z) \wedge Buy(s, a, x, y, z))$
- $\lambda u \lambda s. s < u \wedge weekbefore(s, u) \wedge \exists x Place(x) \wedge Arrive(s, a, x)$
- $\lambda u \lambda s. s < u \wedge \exists x (Meal(x) \wedge Eat(s, a, x))$



# D4 -Doxastic Context as Assumptions

☞ Doxastic context consists of communicative assumptions of discourse participants, because presuppositions can be accommodated.

However, there doesn't seem to be any way to 'accommodate contextuials.' The hearer can only ever arrive at the best interpretation available to him at a given time.

## Examples

(12) I am sorry that I am late. I had to take my daughter to the doctor.  
(von Fintel)

(4) Alice: John is tall. *Alice: tall for a basketball player*

*Bob: tall for an American ↗ Bob: tall for a basketball player*

## Two Possibilities:

- ① Model assumptions as a prima facie independent modality:
  - $\not\models Ap \supset AAP, \not\models \neg Ap \supset A\neg Ap, \not\models Ap \wedge A\neg p$ , but e.g.  
 $\models A(p \wedge q) \supset (Ap \wedge Aq).$
  - Standard *KD* modality? (not taking into account revision)
- ② Generate assumptions at a time:
  - Revise first-order beliefs of recipient by his second-order beliefs about what the sender believes.
  - Interpret existentially completed utterance content with respect to these assumptions.

# Suggestion: Preference Ordering for Deep Interpretation

☞ A preference relation over propositions generates the preferred interpretation on the background of given assumptions.

- Simplification: Suppose  $R_a, R_{ab}$  are accessibility relations for  $a$ 's first-order beliefs  $a$ 's beliefs about  $b$ 's beliefs respectively, and  $R_1 * R_2$  is the result of revising  $R_1$  by  $R_2$ .
- Existential completion  $\textcircled{1} := \lambda u \lambda s \exists C [Tall(s, a, C)]$
- $\lambda P \lambda u \lambda s \forall s' \exists u' [((R_a * R_{ab})(s, s') \wedge (R_a * R_{ab})(u, u')) \supset P(u')(s')](\textcircled{1})$
- The desired ranking by plausibility must warrant in this particular case that for all  $S_1, \dots, S_n \subseteq \{s'' \mid (R_R * R_{RS})(s, s')\}$  there is a smallest  $S_i$  s.t. for all  $e \in S_i$  and some  $C_0$ ,  $\llbracket Tall(s, a, C_0) \rrbracket^{g[s \rightarrow e]}$  is true.

# Summary

- Both utterance context and doxastic context are needed.
- Utterance context cannot be reduced to doxastic context and vice versa.
- Knowledge is not indexical.
- Contextuals are often interpreted, but deep interpretation of contextuals is optional.
- Doxastic context needs to be based on assumptions.
- Assumptions may be generated by revising first-order beliefs with second-order beliefs about what the speaker believes.
- Some mechanism for ranking possible interpretations according to their subjective plausibility is needed.



- Are there contextualls with mandatory deep interpretation?
- Revision of higher-order attitudes non-trivial, especially in a higher-order setting.
- It can be argued that assumptions must be further restricted in dependence of the *discourse topic*.
- Danger of 'vacuous modeling': from where does the agent get the preferences? (connection to formal epistemology)
- Lots of work to do: implementation of revision, dynamizing, etc.