

VP Anaphora

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Construction of sentence meanings vs. online incremental processing

Empirical observation suggests that language comprehension integrates information from linguistic utterances with information that is **antecedently or concurrently available from other sources**, as soon as the information becomes available to the processor.

The philosophical conception of sentence meanings that are

- constructed compositionally in the semantics, and are
- subsequently adjusted to contextual or background information

is hard to fit to empirical observation about the incrementality of language comprehension.

The classic division of labour

Compositional
sentence contents

propositions
(*truth conditions*)

SEMANTICS

Contexts →

Utterance
meanings

PRAGMATICS

Frege

Wenn mit dem *Tempus praesens* eine Zeitangabe gemacht werden soll, muß man wissen, wann der Satz ausgesprochen worden ist, um den Gedanken richtig zu erfassen. Dann ist also die Zeit des Sprechens Teil des Gedankenausdrucks.

(Der Gedanke, 1918)

Did he mean that, in order to capture the proposition, we must use knowledge from the utterance context?

David Kaplan integrates contextual information into the semantics

Character: Contexts \rightarrow Contents
sentence *propositions*
meaning

Content: Worlds \rightarrow $\{0,1\}$
proposition

This accounts for contextual saturation of explicit variables - typically for indexicals, like *I*, *you*, *here*, *now*, *etc.*

... but there's more to context dependence
(\rightarrow Graham Katz's talk yesterday)

Immediate context influence

Suppose we apply Kaplan's conception not to sentence meanings, but to meanings of **smaller constituents** - ultimately lexical items - as they become available consecutively during sentence processing.

We would then not any longer compute sentence meanings from lexical meanings, but **sentence denotations from denotations of constituents**

and context dependence is taken into account not at sentence level, but immediately, during processing.

Evidence from sentence processing would seem to support such a conception.

Visual world (1)

Hartmann & Katz 2005

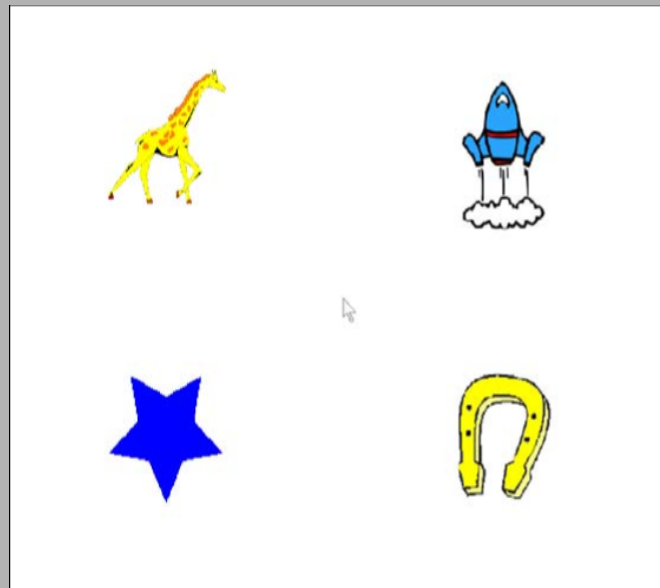
default NPs:

die Giraffe

die Rakete

der Stern

das Hufeisen

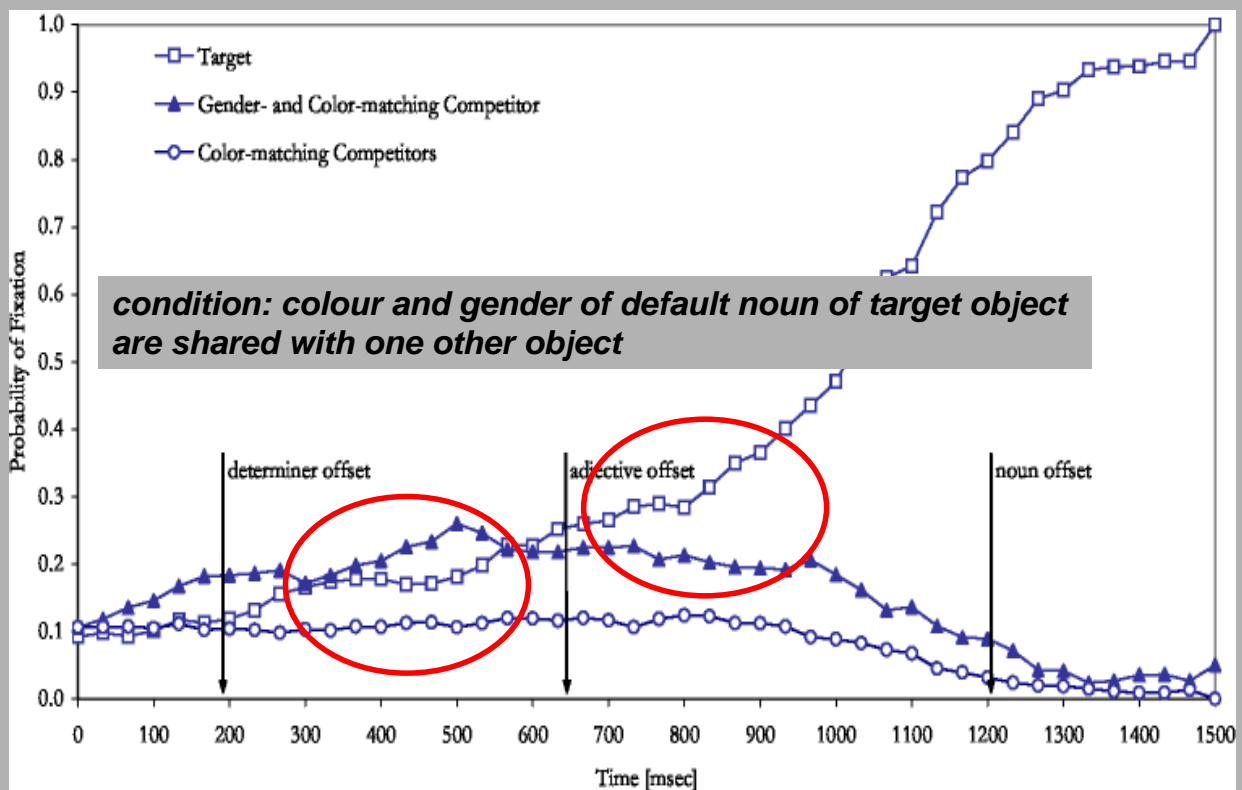


Klicken Sie auf die blaue Rakete.

click on ... [followed by a def. determiner, adjective, and noun]

Visual world (2)

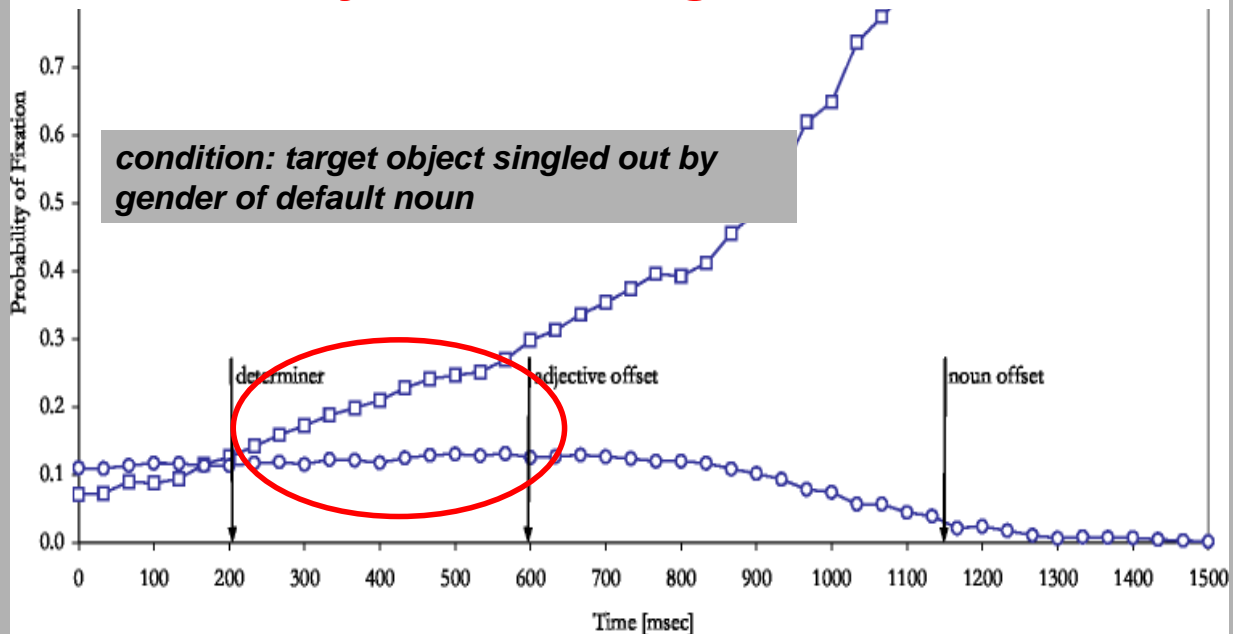
Hartmann & Katz 2005



Visual world (3)

Hartmann & Katz 2005

subjects decide about reference as soon as they have enough information



Eye tracking for reference resolution (1)

Karabanov, König, Bosch 2006

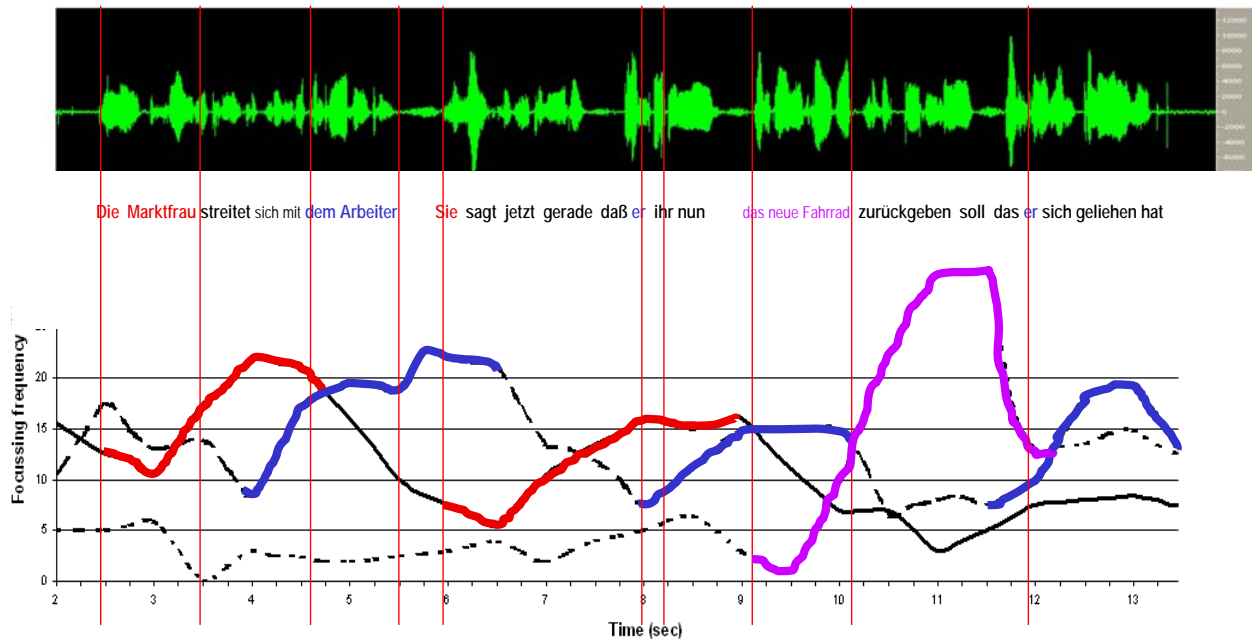


Heute ist Markt im Dorf. Die Marktfrau streitet sich mit dem Arbeiter. Sie sagt jetzt gerade, dass er ihr nun das neue Fahrrad zurückgeben soll, das er sich geliehen hat.

It's market day in the village. The market woman is qibbling with the worker. She's just saying that he should give the new bike back that he has borrowed.

Eye tracking for reference resolution (2)

Karabanov, König, Bosch 2006



Immediate evaluation

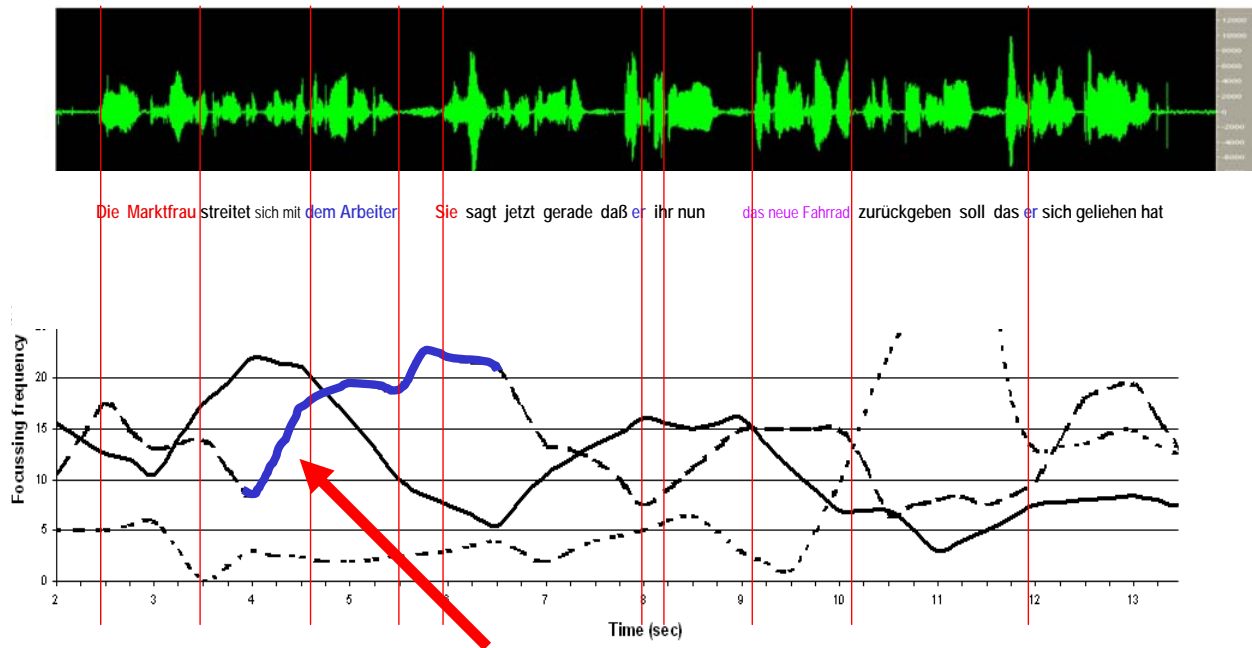
The experimental evidence shows that visual and linguistic input are processed simultaneously: Referential expressions are resolved to the utterance context immediately - before sentence meanings are computed.

Should this not also be the case for unsaturated expressions, like VP, V, etc.?

Anticipation effects, as in the Karabanov e.a. experiment, seem to suggest this.

Eye tracking for reference resolution (2)

Karabanov, König, Bosch 2006



Immediate evaluation

The experimental evidence shows that visual and linguistic input are processed simultaneously: Referential expressions are resolved to the utterance context immediately - before sentence meanings are computed.

Should this not also be the case for unsaturated expressions, like VP, V, etc.?

Are there contextual denotations of unsaturated expressions, like VPs?

And do they behave like this?

Consider VP anaphora

VP anaphora

Peter is working, and so is Fred.

Peter is working, and Fred _____ too.

Peter is working, and Fred is _____ too.

What are the relevant identity conditions between source and target?

In what terms are they defined?

surface expressions?

meanings?

LF-expressions?

Could it be denotations ?

What are the contextual denotations of VPs?

Where is Fred?

(1) *He's working.*

$WORK_i(\text{fred}) \rightarrow \varphi (\text{LOCATION}(\text{fred}))$

How can Fred afford these expensive holidays?

(2) *He's working.*

$WORK_k(\text{fred}) \rightarrow \psi (\text{WEALTH}(\text{fred}))$

The lexical meaning or lexical denotation of **work** is clearly insufficient.

What are the contextual denotations of VPs?

The variation is inferentially and hence truth-conditionally relevant.

Nothing follows about Fred's *location* when

Fred is working

is an answer to

How can Fred afford these expensive holidays?

What are the contextual denotations of VPs?

The variation is stable within the utterance context.

Fred is working and so is Pete.

cannot be interpreted as, e.g.,

Fred is in his office and Pete can afford expensive holidays.

What is this variation a variation of ?

- not of lexical meanings (characters)
(because the variation is productive and correlates with variation in the context)

character: context → content

- but of semantic values (contents)

I call these contextual values of predicate expressions

Contextual Concepts (CCs)

Cf. Frege's idea that the values of "predicates" are concepts.

What is this variation a variation of ?

CCs are the contextual denotations of predicate expressions

They are truth functions that are defined for all arguments in the intended context

CCs are linguistically real.

They define the required notion of identity in

- VP anaphora, coordination, question-answer coherence
- they define units of counting

VP anaphora, VP ellipsis, Coordination

Fred is working and so is Pete.

Fred is working, and Pete too.

Fred is working and Pete is working.

+ Q-A relations

Counting

(talking of Fred, Pete, and a few others):

I wonder how many of them are working?

This is NOT identity of meaning, but identity of semantic value:

*Fred is working for **her**, and so is Pete.*

the referent of *her* must be the same for Pete and Fred and forms part of the specification of the CC ascribed to both Pete and Fred.

Multiple VP anaphora

[... Fred...]

*John revised his paper before the teacher did,
and so did Bill*

Denotations of the VP "revised his paper"

[...Fred...] John revised his paper.

lexical compositional VP denotation

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (y)) (\llbracket j \rrbracket)$ (no additional reading)

CC4 to revise y's paper

CC1, CC2, CC3 are sub-concepts of CC4

value from context assigned to free variable y

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (\llbracket j \rrbracket)$ John revised Fred's paper

CC1 to revise Fred's paper

free variable y bound by abstractor

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (\llbracket j \rrbracket)$ John revised his own paper

CC2 to revise one's paper

contextual inference: if CC2 is true of j it follows that

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (\llbracket j \rrbracket)$ John revised John's paper

CC3 to revise John's paper

Denotations of the VP "revised his paper" & VP anaphora

[...Fred...] John revised his paper before the teacher did.

lexical compositional VP denotation

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (y)) (\llbracket j \rrbracket)$

CC4 to revise y's paper

CC to be resumed

(completely identical to source)

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (\llbracket j \rrbracket)$

CC1 to revise Fred's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (z)),$

$(\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (\llbracket j \rrbracket)$

CC2 to revise one's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (\llbracket \text{p_of} \rrbracket (x)) (z)),$

$(\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (\llbracket j \rrbracket)$

CC3 to revise John's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (z)),$

$(\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

Denotations of the VP "revised his paper" & VP anaphora

[...Fred...] John revised his paper before the teacher did.

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$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (\llbracket j \rrbracket)$

CC1 to revise Fred's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (\llbracket j \rrbracket)$

CC2 to revise one's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (\llbracket j \rrbracket)$

CC3 to revise John's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

Denotations of the VP "revised his paper" & VP anaphora

[...Fred...] John revised his paper before the teacher did.

lexical compositional VP denotation

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (y)) (\llbracket j \rrbracket)$

CC4 to revise y's paper

y may now also be evaluated to $\llbracket t \rrbracket$:

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket t \rrbracket)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket t \rrbracket)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

y may be bound by higher abstractor:

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (z)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (z)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (\llbracket j \rrbracket)$

CC1 to revise Fred's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket f \rrbracket)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (\llbracket j \rrbracket)$

CC2 to revise one's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (x)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

$\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (\llbracket j \rrbracket)$

CC3 to revise John's paper

$\lambda z. (\llbracket \text{bef} \rrbracket (\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (z)),$

$(\lambda x. \llbracket \text{rev} \rrbracket (x, \llbracket \text{p_of} \rrbracket (\llbracket j \rrbracket)) (\llbracket t \rrbracket)) (\llbracket j \rrbracket)$

Denotations of the VP "revised his paper" & VP anaphora

[...Fred...] John revised his paper before the teacher did.

five readings derived by

- variable binding,
- contextual evaluation of variables,
- contextual inference,
- resumption of source CC by target VP

r2 & r5 have identical truth conditions, but ascribe different CCs - which matters for further VP anaphora

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{t}]))(z)),$
r1(TT) $(\lambda x. [\text{rev}](x, [\text{p_of}]([\text{t}])([\text{t}])([\text{j}])))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](z))(z)),$
r2 (JJ) $(\lambda x. [\text{rev}](x, [\text{p_of}](z)([\text{t}])([\text{j}])))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])(z)),$
r3(FF) $(\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])([\text{t}])([\text{j}])))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](x))(z)),$
r4(JT) $(\lambda x. [\text{rev}](x, [\text{p_of}](x)([\text{t}])([\text{j}])))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}])(z)),$
r5(JJ) $(\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}])([\text{t}])([\text{j}])))$

Denotations of the VP "revised his paper" & VP anaphora

[...Fred...] John revised his paper before the teacher did.

What properties do our readings r1 - r5 ascribe to John?

Five CCs are now available for further VP anaphora:

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{t}]))(z)),$
r1 $(\lambda x. [\text{rev}](x, [\text{p_of}]([\text{t}])([\text{t}])([\text{j}])))$

CCa to revise T's paper before T revised T's paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](z))(z)),$
r2 $(\lambda x. [\text{rev}](x, [\text{p_of}](z)([\text{t}])([\text{j}])))$

CCb to revise one's paper before T revised one's paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])(z)),$
r3 $(\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])([\text{t}])([\text{j}])))$

CCc to revise F's paper before T revised F's paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](x))(z)),$
r4 $(\lambda x. [\text{rev}](x, [\text{p_of}](x)([\text{t}])([\text{j}])))$

CCd to revise one's paper before T revised his paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}])(z)),$
r5 $(\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}])([\text{t}])([\text{j}])))$

CCe to revise J's paper before T revised J's paper

Denotations of the VP "revised his paper" & VP anaphora

[...Fred...] John revised his paper before the teacher did.

two of these CCs permit the derivation of two more CCs:

$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](z))(z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](z))([\text{t}])) ([\text{j}])$

CCb to revise one's own paper before T revised one's paper

if John has this property he also has this one (one variable contextually evaluated):



$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](z))(z)), \lambda x.([\text{rev}]) (x, [\text{p_of}](\text{j}))([\text{t}]))([\text{j}])$

CCg to revise one's own paper before T revised J's paper

$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](x))(z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](x))([\text{t}])) ([\text{j}])$

CCd to revise one's paper before T revised his paper

if John has this property he also has this one (two variables contextually evaluated):



$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](\text{j}))(z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](\text{t}))([\text{t}]))([\text{j}])$

CCf to revise J's paper before T revised T's paper

Denotations of VPs the full sentence

[...Fred...] John revised his paper before the teacher did and so did Bill
all seven CCs that can be derived from the source are now in place.
The **seven readings for the full sentence** are arrived at by simple resumption of these CCs:

CCa to revise the teacher's paper before the teacher revised the teacher's paper

J rev T's paper before T rev T's paper B rev T's paper before T rev T's paper

$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](\text{t})) (z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](\text{t})) ([\text{t}])) ([\text{j}])$

$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](\text{t})) (z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](\text{t})) ([\text{t}])) ([\text{b}])$ **Ra:TTTT**

CCb to revise one's paper before the teacher revised one's paper

J revised his paper before T revised his (J's) paper
& B revised his paper before T revised his (B's) paper

$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](z))(z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](z)) ([\text{t}]))([\text{j}])$

$\lambda z.([\text{bef}]) (\lambda x.([\text{rev}]) (x, [\text{p_of}](z))(z)), (\lambda x.([\text{rev}]) (x, [\text{p_of}](z)) ([\text{t}]))([\text{b}])$ **Rb:JJBB**

Denotations of VPs *the full sentence*

[...Fred...] *John revised his paper before the teacher did and so did Bill*

CCc *to revise Fred's paper before the teacher revised Fred's paper*

J rev F's paper before T rev F's paper B rev F's paper before T rev F's paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])(z)), (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])([\text{t}]))) ([\text{j}])$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])(z)), (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{f}])([\text{t}]))) ([\text{b}])$ **Rc:FFFF**

CCd *to revise one's paper before the teacher revised his paper*

J revised his paper before T revised his (T's) paper

& B revised his paper before T revised his (T's) paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](x))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}](x))([\text{t}])([\text{j}]))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](x))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}](x))([\text{t}])([\text{b}]))$ **Rd:JTBT**

Denotations of VPs *the full sentence*

[...Fred...] *John revised his paper before the teacher did and so did Bill*

CCe *to revise John's paper before the teacher revised John's paper*

J revised J's paper before T revised J's paper

& B revised J's paper before T revised J's paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}]))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}]))([\text{t}])([\text{j}]))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}]))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}]))([\text{t}])([\text{b}]))$ **Rd:JJJJ**

CCf *to revise John's paper before the teacher revises the teacher's paper*

J revised J's paper before T revised T's paper

& B revised J's paper before T revised T's paper

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}]))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{t}]))([\text{t}])([\text{j}]))$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{j}]))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}]([\text{t}]))([\text{t}])([\text{b}]))$ **Rf:JTJT**

Denotations of VPs *the full sentence*

[... Fred...] *John revised his paper before the teacher did and so did Bill*

CCg *to revise one's own paper before the teacher revises John's paper*

*J revised his own paper before T revised J's paper
& B revised his own paper before T revised J's paper*

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](z))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}](j)))([t]))([j])$

$\lambda z. ([\text{bef}] (\lambda x. [\text{rev}](x, [\text{p_of}](z))(z)), (\lambda x. [\text{rev}](x, [\text{p_of}](j)))([t])) ([b])$

Rg:JJBJ

steps in the derivation

[...Fred...] *John revised his paper*

*before the teacher
revised his paper*

and so did Bill

	binding	apply to j	reading source 1	abstract CC	apply to goal 1	reading source 2	abstract CC	infer CC	reading complete
lex					eval	1	CCa		TTTT
lex					bind	2	CCb		JJBB
lex						2	CCb	CCg	JJBJ
lex	eval		1	CC1		3	CCc		FFFF
lex	bind		2	CC2		4	CCd		JTBT
lex						4	CCd	CCf	JTJT
lex		infer	3	CC3		5	CCe		JJJJ

CCs - a note on their ontological status

Ontologies represent **sorts** (types) of entities. These may be **things** (saturated) or **properties** (unsaturated).

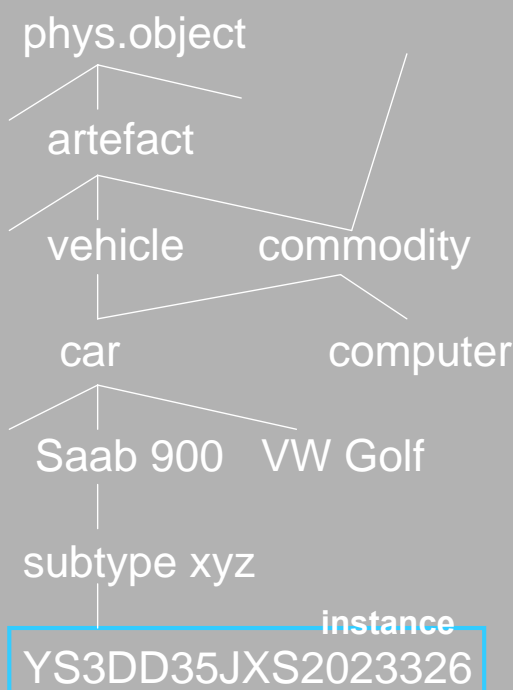
Individual entities are **instances** of these sorts (tokens of these types). They can, in principle be named, like elements of a set.

Representations of instances may be incomplete: We may simply not know (or not be interested in) all the sorts, which an instance is an instance of or all its attributes.

Representations of sorts are always fully specified (their identity is given by their representation)

Discourse referents are things: instances or sorts;
Contextual Concepts are sorts.

CCs in an ontological subsumption hierarchy



accomplishment

$\lambda x \text{ [[say]]}(x, p)$

$\lambda x \text{ [[say]]}(x, \text{[[fool]]}(y))$

$\lambda x \text{ [[say]]}(x, \text{[[fool]]}(x))$

$\lambda x \text{ [[say]]}(x, \text{[[fool]]}(\text{[[Peter]]}))$

$\lambda x \text{ [[last_night]]}(\text{[[say]]}(x, \text{[[fool]]}(\text{[[Peter]]}))$

[indefinitely more subtypes, but no instances]

Summary (1)

- There is reasonable experimental evidence for immediate evaluation of referential expressions to the intended context.
- There are indications that immediate contextual evaluation may not be restricted to referential expressions, but that also unsaturated expressions are evaluated immediately.
- I am proposing Contextual Concepts as contextual semantic values of unsaturated expressions.

Summary (2)

- CCs are constructed compositionally from lexical denotations and the currently available context knowledge
- CCs are the entities VP anaphora refers to - if you like the "discourse referents" for VPs.
- In VP anaphora, CCs as VP denotations in source and target are completely identical in all cases - no sloppy identity, similarity, higher order unification or discourse coherence accounts are required.