Belief Report Basics

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General info

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Rough schedule for the week:
Monday: Possible worlds, de re vs. de dicto, Percus’s constraint
Tuesday: de re vs. de se, LF of de re, LF of de se, constraints on dreams
Wednesday: shiftability
Thursday: non-finite complements, dependent tense
Friday: embeddability, modal subordination, parenthetical, embedded speech acts

Questions throughout are very welcome!

1 Basic Analysis of Belief Reports

Truth alone is not enough to describe the semantics of embedded clauses.

(1)  a. John believes that it is raining.
     b. John believes that Brno is in the Czech Republic.

Possible worlds

Possible worlds are a concept to describe knowledge:

(2) A possible world is any imaginable complete state of knowledge.

(Philosophical views of possible worlds may differ).

Sentences can be characterized as sets of possible worlds (or equivalently, one place functions): Propositions
Intensional vs. Extensional Treatment of Worlds:

a. intensional, as a parameter of the evaluation procedure:
\[ \text{[—]}_{w,g} \text{ evaluation procedure with world parameter } \]
\[ [\text{raining}]_{w,g} = 1 \text{ iff. it is raining in } w \]
\[ [\lambda w'. [\text{XP}]]_{w,g} = [\lambda w'. [XP]]_{w',g} \]
b. extensional, syntactically represented:
\[ \lambda w \text{ it is raining}(w) \]

Believe
The knowledge of an individual can also be characterized as a set of possible worlds.

(5) \( \text{Dox}(x,w) = \{w' | \text{for all } x \text{ knows in } w, w' \text{ could be the actual world}\} \)

Possible worlds quantification analysis (Hintikka, 1962):

(6) intensional entry:
\[ [\text{believe}]_{w}^{x}(p) = 1 \text{ iff. } \forall w' \in \text{Dox}(x,w): p(w') = 1 \]

(7) extensional entry:
\[ [\text{believe}]_{x}(p)(w) = 1 \text{ iff. } \forall w' \in \text{Dox}(x,w): p(w') = 1 \]

Hyperintensionality
The possible worlds analysis predicts closure of beliefs under entailment.

(8) a. Kai believes that it’s raining and cold.
   b. Hence, Kai believes that it’s raining.

However, logical closure doesn’t hold for more complex inferences:

(9) a. Kai believes that the basic laws of arithmetic hold.
    b. #Hence, Kai believes that there are infinitely many prime numbers.

I put this aside since I don’t know how mathematical statements are conceptualized.
Individuals and Worlds

Kripke:

(10) an individual can be parts of multiple possible worlds

Lewis:

(11) an individual can only ever be part of one possible world; it may have counterparts in other worlds though

For concreteness, we follow Kripke for the time being.

2 de re-Interpretation

(12a) and (12b) would incorrectly entail that Ralph has contradictory beliefs:

(12) Quine (1956)
   a. Ralph believes that Ortcutt is a spy.
   b. Ralph believes that Ortcutt is not a spy.

Kaplan (1968)/[lewis79] analysis (with a “res-extraction”-syntax):

(13) a. intuition: Ralph believes of Ortcutt that he is (not) a spy.
    b. intensional: Ralph believes (Ortcutt) (λx ∧ that x is (not) a spy)
    c. extensional: λw Ralph believe(w) (Ortcutt) (λx λw' that x is (not) a spy(w'))

(14) A is an acquaintance relation if there is a definite description D such that ∀(x, w, y) ∈ domain(A): interpreted from x’s perspective [D] = y

(15) the man Ralph saw on the beach, the man Ralph saw in town, my mother

(16) [believe_{res}]^w(y)(P)(x) = 1 (intensional) or [believe_{res}]^w(y)(P)(x)(w) = 1 (extensional) iff.
   a. there’s an acquaintance relation A such that A(x, y, w) and for no y' ≠ y: A(x, y', w)
   b. and ∀w' ∈ Dox(x, w): ∃!y' A(x, y', w') and P(w')(y') = 1
The need for vivid acquaintance: (17a) and (17b) are not actually felt to entail (17c), but that is predicted be (16).

(17)  
   a. James is the shortest spy.  
   b. Ralph believes that the shortest spy is a spy.  
   c. #Hence, Ralph believes that James is a spy.

Kaplan’s fix:

(16)  
   c. the acquaintance relation A must be vivid

An acquaintance relation A is vivid for x if x be causally acquainted with the y' A selects in x's belief-worlds.

3  \textit{de dicto}-Interpretation

The \textit{de dicto}-interpretation doesn’t require any reference in the actual world:

(18)  
   a. Ralph believes that his guardian angel has a cold.  
   b. #Ralph believes of his guardian angel that he has a cold.

Indefinites also allow both a \textit{de re}- and a \textit{de dicto}-Interpretation:

(19)  
   a. Lina believes that a spy is the best man in her unit.  
   b. #Lina believes of a spy that he is the best man in her unit.

(20)  
   a. Ralph believes that a unicorn ate his flowers.  
   b. #Ralph believes of a unicorn that it ate his flowers.

The \textit{de dicto}-interpretation is represented intensionally as in (21a) and extensionally as in (21b).

(21)  
   a. Ralph believes \((a \text{ unicorn ate his flowers})\)  
   b. \(\lambda w \text{ Ralph believes}(w) (\lambda w' \text{ a unicorn}(w') \text{ ate}(w') \text{ his flowers}(w'))\)
Terminological remark

I have seen the following terms used:

(22)  
   a. instead of *de re*: transparent, wide scope  
   b. instead of *de dicto*: opaque, narrow scope

The transparent/opaque distinction is also used for cases like (23):

(23)  John seeks a unicorn.

4  Syntactic representation

4.1  Locality?

On the intensional analysis, the *de re* interpretation must be captured by movement.

(24)  intensional: Ralph believes (Ortcutt) \((\lambda x \land \text{that } x \text{ is (not) a spy})\)

*De re* interpretations, however, seem unrestricted by locality:

(25)  Ralph believes that he would have died if Ortcutt had seen him.

(26)  The policewoman thinks Ralph believes a spy killed a philosopher.

4.2  Percus’s Constraint

The extensional approach unconstrained predicts unavailable readings (Percus, 2000):

**Scenario:** Participant A is the sky-high favorite in the race, while participant B is expected to come second. But, participant A injures himself just before the race and cannot participate. B wins the race. The next morning, John briefly skims the paper and sees the names of A and B, but doesn’t read on. He assumes that A won as expected, and B came second.

(27)  
   a. #John believes that the second-placed won.  
   b. John believes that the winner came second.

Unavailable extensional analyses:

(28)  \(\lambda w \text{John believes}(w) \lambda w' \text{ the second-placed}(w') \text{ won}(w)\)
Generalization:

(29) The world variable that a verb selects for must be coindexed with the nearest $\lambda$ above it.

Similar constraint with conditionals:

(30) If every semanticist owned a villa in Tuscany, what a joy this world would be.

(31) a. available: If all actual semanticists were villa-owners, . . .
    b. unavailable: If the actual villa-owners were all the semanticists, . . .

4.3 Further Constraints

Percus’s Generalization Y

Scenario: Participant A is the sky-high favorite in the race, while participant B is expected to come second. But, participant A injures himself during the race and limps through the goal supported by B. The referee council is still deliberating who should be considered the winner. The next morning, Mary briefly skims the paper and sees the names of A and B, but doesn’t read on. She assumes that A won as expected, and B came second.

(32) #Mary believes that the second-placed possibly won.

Unavailable extensional analyses:

(33) $\lambda w$ Mary believes($w$) $\lambda w'$ the second-placed($w'$) possibly($w$) $\lambda w''$ won($w''$)

Generalization (Percus, 2000)

(34) The world variable that an adverbial quantifier selects for must be coindexed with the nearest $\lambda$ above it.

Adjectives

(35) a. #John believes that an unsuccessful winner triumphed.
    b. #John believes that a successful looser triumphed.

Unavailable extensional analyses:

(36) a. $\lambda w$ John believes($w$) $\lambda w'$ an unsuccessful($w$) winner($w'$) triumphed($w'$)
    b. $\lambda w$ John believes($w$) $\lambda w'$ a successful($w'$) looser($w$) triumphed($w'$)

Generalization (Sauerland?):

(37) The world variable that an attributive adjective selects for must be coindexed with that of the noun it modifies.
**Number-Marking**

**Scenario:** Kai hears noises from the basement and assumes that there are two monsters in the basement. Actually, his mother is down there making the noises.

(38)  
   a. Kai believes the monsters are dangerous.  
   b. Kai believes his mother is dangerous.  
   c. #Kai believes the monster is dangerous.  
   d. #Kai believes his mothers are dangerous.

Generalization (Sauerland, 2003):

(39) The world variable that a number morpheme selects for must be coindexed with that of the noun it is attached to.

**References**


1 PRO and Other Logophoric Elements

Silent subjects of infinitives are interpretively restricted compared to overt pronouns Chierchia (1989):

**Scenario:** Silvio is presented with an anonymized report about a suspect in a current criminal investigation. Unbeknownst to him the report is actually about him. Upon reading the report, he forms the belief that the suspect is guilty. However, Silvio judgment about himself is that he is a good citizen possibly since he is affected by selective amnesia and self-righteousness.

(1) a. Silvio thinks that he is a criminal.
   b. #Silvio crede di essere un criminale.

(2) a. Silvio believes that he should be imprisoned.
   b. #Silvio wants to be imprisoned.
   c. ?Silvio wants himself to be imprisoned.

Castañeda (1966) and others: Beliefs about self are special. Two worlds could be exactly identical except for who the beholder is.

Lewis (1979): The complements of *believe* and other verbs should be analyzed as predicates rather than propositions:

(3) Silvio believes [\(\lambda w' \lambda x \text{ that } \text{should}(w') \lambda w'' x \text{ be imprisoned}(w'')\)]

(4) *De se-construal:* Binding by the \(\lambda x\) initiating the complement.

PRO: only *de se*, Pronouns: both *de se* and *de re*
Lexical Entries

New analysis of believe:

(5) a. \( \text{Dox}(x, w) = \{(w', x') \mid \text{for all } x \text{ knows in } w, \text{ his actual situation could be being } x' \text{ in } w' \} \)
b. \( \text{[believe]}(x)(P)(w) = 1 \iff \text{for all } (x', w') \in \text{Dox}(x, w): P(w')(x') = 1 \)

Sketch of an analysis of want (cf. Heim 1992):

(6) Silvio wants \([\lambda w \lambda x \text{ to } x \text{ be imprisoned } (w)]\)

Worlds-individuals pairs closest to \(x\)’s believe worlds where \(P\) holds are more desirable to \(x\) that the worlds where \(P\) doesn’t hold.

First Person I

Matrix clauses are also initiated by a \(\lambda\)-operator that binds English \(I\) (when it is not bound by another occurrence of \(I\); see Heim to appear and others):

(7) a. \(I\) am in Brno.
b. \(\lambda w@ \lambda x@ . \ x@ \text{am in}(w@) \text{ Brno}\)

Subject representation

Subjectless representation for control infinitivals:

(8) Silvio wants \([\lambda w \text{ to be imprisoned } (w)]\)

However, binding by the infinite subject might require subject representation:

Scenario: In addition to above: Silvio is the chief imprisoner.

(9) Silvio wants to imprison himself.

(10) a. Silvio \(\lambda x x\) wants \([\lambda w \lambda y \text{ to } y \text{ imprison}(w) y]\)
b. Silvio \(\lambda x x\) wants \([\lambda w \text{ to imprison}(w) x]\)

German: Both \(sich\) and \(sich\) \(selbst\) allow \(de\) \(re\) and \(de\) \(se\):

(11) a. Silvio \(\text{will } \text{sich ins Gefängnis stecken.}\)
    Silvio \(\text{wants self in the prison put}\)
b. Silvio \(\text{wants sich selbst ins Gefängnis stecken}\)
    Silvio \(\text{wants self FOC in the prison put}\)

At this point, not certain whether specific \(de\) \(se\)-binding of lexical pronoun is available.
Logophoric Pronouns

Castañeda (1966) assumed that he himself is only de se (cf. Chierchia (1989) on proprio):

(12) ?Silvio believes that he himself is a criminal.

Muang (Hagège, 1974) and other African languages have logophoric pronouns:

(13) EWE (Clements, 1975, 160)
   a. kofi be yè-dzo
      Kofi say LOG-leave
      ‘Kofi said he (= Kofi) left.’
   b. kofi be e-dzo
      Kofi say he-leave
      ‘Kofi said he (≠ Kofi) would leave.’

Chinese: long-distance reflexive ziji is logophor (Huang and Liu, 2001):

(14) Zhangsan shuo pashou tou-le ziji-de pibao
    Zhangsan say pickpocket steal-PERF self-DE purse
    ‘Zhangsan said that the thief stole his purse.’


2 De Re

With Concept Generators

De re-Representation from yesterday:

(15) $\lambda w_@$ Ralph believe($w_@$) (Ortcutt) ($\lambda x' \lambda w'$ that $x'$ is a spy($w'$))

(16) $\langle \text{believe}_{\text{res}} \rangle (y) (P) (x) (w) = 1$ iff.
   a. there’s an acquaintance relation $A$ such that $A(x,y,w)$
   b. and $\forall w' \in \text{Dox}(x,w)$: $\exists y' A(x,y',w')$ and $P(w')(y') = 1$
   c. the acquaintance relation $A$ must be vivid

Wrapping $A$ into a function of $x$ (Percus and Sauerland, 2003a):
(17) \( \lambda w_@ \, \lambda x_@ \) Ralph believes\((w_@) \lambda F \, \lambda w' \, \lambda x' \) that \( F(\text{Ortcutt}(w_@))(w') \) is a spy\((w') \)

Definition of an Acquaintance Based Concept Generator (ABCG):

(18) \( F : D_e \to D_{(s,e)} \) is an ABCG for \( x \) in \( w \) iff.
   a. domain\((F) = \{ y \mid x \text{ is acquainted with } y \text{ in } w \} \)
   b. \( \forall y \in \text{domain}(F) \): there is a vivid acquaintance relation \( A \) such that
      (i) \( x \) holds \( A \) uniquely towards \( y \) in \( w \) and
      (ii) \( \forall (x', w') \in \text{Dox}(x, w) \): \( x' \) hold \( A \) uniquely towards \( F(y)(w') \) in \( w' \)

(19) a. \( [\text{believe}](w)(G)(x) = 1 \) iff. there is an ABCG \( F \) for \( x \) in \( w \) such that:
   \( \forall (x', w') \in \text{Dox}(x, w) \): \( G(F)(w')(x') = 1 \)
   b. \( [\text{Ortcutt}](w) = \) the unique salient person named ‘Ortcutt’ in \( w \)

Detour: Using Concepts as Referents

Sauerland (2007): Evaluation relative to set of individual (partial) concepts \( m \) rather than sequence of individuals. (cf. Heim 1998)

(20) “the man on the beach” selects the concept \( \chi \in m \) with
\( \forall w \in \text{domain}(\chi) : [\text{man on the beach}](w)(\chi(w)) \)

Assume now \( W_@ = \text{Dox}(\text{speaker}) \), \( W' = \text{Dox}(\text{Ralph}) \), \( W_@ \cap W' = \emptyset \):

(21) a. Ralph believes \( ^\wedge(\text{Ortcutt is a spy}) \)
   b. \( [\text{Ortcutt}]^m = [\lambda w : w \in W_@ . \text{the person named Ortcutt in } w] \)
   c. \( [\text{is a spy}]^w ([\text{Ortcutt}]^m(w')) \) is undefined for \( w' \in W' \)

Concept adjustment:

(22) a. If \( [\text{DP}]^m(w') \) is otherwise undefined, its interpretation can be: \( \xi(w') \) where \( \xi \)
   is acquaintance related to \( [\text{DP}]^m \) in \( m, w' \).
   b. \( \xi \) and \( \chi \) are acquaintance related in \( m, w \) iff. there is a definite description DP
   such that:
   (i) \( \exists D \subset W \) (\( \xi \upharpoonright D \in m \) and \( \forall w \in D : [\text{DP}]^{m,w} = \xi \))
   (ii) \( \exists D \subset W \) (\( \chi \upharpoonright D \in m \) and \( \forall w \in D : [\text{DP}]^{m,w} = \chi \))

Intensional account of worlds with concept based treatment of \textit{de re} derives:

(23) Only the world argument of an entire DP can be non-local and then all world
arguments in the DP must be coindexed.
3 Relationship of De se to De re

de dicto?

For variables de dicto doesn’t mean anything, but the features of pronouns exhibit the de re/de dicto ambiguity:

Scenario: Kai hears noises from the basement and assumes that there are two monsters in the basement. Actually, his mother is down there making the noises.

(24) a. Kai believes they are dangerous.
    b. Kai believes she is dangerous.

Lewis

Lewis (1979): de se is derived from de re-representation via self-acquaintance relation, (25) not indicative of de se-representation:

(25) Silvio believes that he is innocent.

Empirical Test 1

Testing whether de re-representation allows self-acquaintance:

Scenario: A group of drunken election candidates watching campaign speeches on television do not recognize themselves in the broadcast. John, the only confident one, thinks “I’ll win,” but does not recognize himself in the broadcast. Bill, depressive, thinks “I’ll lose” but is impressed by the speeches that happens to be his own and is sure “that candidate” will win. Finally, Sam thinks Bill will win.

(26) #Only Bill thinks that he’ll win.

Results confirms our general account of de re:

(27) a. There is one de re-representation and it can give rise to de se.
    b. Existential quantification over concept generators must take scope below the subject.
Empirical Test 2

Testing whether every \textit{de se}-representation also allows non-self-acquaintance:

\textbf{Scenario:} A group of drunken election candidates watching campaign speeches on television do not recognize themselves in the broadcast. John, the only confident one, thinks “I’ll win,” but does not recognize himself in the broadcast. Bill thinks “I’ll lose” but is impressed by the speeches that happens to be his own and is sure “that candidate” will win. Finally, Sam thinks John will win.

(28) Only John thinks that he’ll win.

Result (disconfirming Lewis’s suggestion):

(29) \textit{de se} is not always derived from the \textit{de re} representation.

Capturing the insight

The VP \textit{thinks that he’ll win} has both a \textit{de re} and a pure \textit{de se}-representation:

Direct \textit{de se} binding of pronouns Percus and Sauerland (2003a):

(30) $\lambda x_@ \lambda w_@$ Only John thinks$(w_@)$ $[\lambda x' \lambda w' \lambda x' \text{ will win}(w_@)]$

Possible alternative: Restriction to self-concepts (cf. Maier 2006):

(31) $[\ast](\chi) = \chi$, but adds a presupposition that $\chi$ is a self-acquaintance concept, i.e. $\chi = [\lambda (w, x) . x] \restriction \text{domain}(\chi)$

(32) $\lambda x_@ \lambda w_@$ Only John $\lambda y \ y$ thinks$(w_@)$ $[\lambda F \lambda x' \lambda w' \lambda F(y) \ast (x, w) \text{ will win}(w_@)]$

4 A Constraint on Dream Reports

The Asymmetry

Sentence (33) is true in Scenario 1, but false in Scenario 2 (Percus and Sauerland, 2003b):

(33) John: “I dreamed that I married my granddaughter.”
Scenario 1: John, in his old age, longs for his youth. It begins to affect his dreams. Often, when he has the opportunity to meet a young man in his prime, he dreams the following night that he is that person, and imagines the events in that person’s life from that person’s point of view. It happened the other day, after he received a visit from his recently married grand-daughter and her husband Bill. The couple had spoken a lot about their recent wedding, which John had not managed to attend. That night John dreamed that he was Bill, and imagined what the wedding must have been like from Bill’s perspective.

Scenario 2: John’s wife has recently lost her grandfather Bill, who played an important role in her life. As she tries to come to terms with the loss, she shares with John many old memories of hers, and John too begins to recall moments from his past in which Bill played a part. Soon, one image in particular begins to haunt him, and it is from his own wedding: Bill was visibly upset at the wedding, and John never found out why. Probably to wrestle with this question, one night John dreams that he is Bill, and dreams about what the wedding must have been like from Bill’s perspective. He sees the couple approaching the altar . . .

(34) a. de se ... de re: OK
b. de re ... de se: *

C-command matters: (35) is true in both scenarios.

(35) John: “I dreamed that my granddaughter was marrying me.”

(36) Oneiric Reference Constraint: A sentence of the form “X dreamed that … pronoun …” allows a reading in which the pronoun has the dream-self as its correlate only when the following condition is met: some pronoun whose correlate is the dream-self on the reading in question must not be asymmetrically c-commanded by any pronoun whose correlate is X.

Why Dreams?

(37a) and (37b) seem contradictory:

(37) a. John dreamed that Ortcutt is a spy.
b. John dreamed that Ortcutt is not a spy.

Scenario: John dreamed about his boss Ortcutt last night. In his dream, his boss was captured by spies and a Doppelgänger put in his place.

Constraint on dream-reports: Dream reports may involve only one concept-generator.
References


1 Kaplan’s Context Semantics

Problem with a pure intensional semantics

Possible lexical entry for I in an intensional system:

(1) \( \llbracket I \rrbracket^{(w,x)} = x \) (the center of \( w \))

(2) \( \llbracket I am happy \rrbracket^{(w,x)} \) could be used by a speaker if he is happy.

But, wrong from embedded occurrences:

(3) John believes that I am happy.

(4) \( \forall (w, x') \in \text{Dox}(w_0, \text{John}): \text{happy}(w')(x') = 1 \)

The Utterance Index

Kaplan (1977): Intensional semantics with two world-individual parameters: utterance index and evaluation index.

(5) \( \llbracket \lbracket \rrbracket^{(w_u,x_u),(w_e,x_e)} \)

The meaning of a sentence is not a proposition anymore, but a Character:

(6) \( \chi: D_s \times D_e \rightarrow (D_s \times D_e \rightarrow \{0, 1\}) \)

Diagonalization makes proposition out-of a character:

(7) \( \text{diag}(\chi) = \lambda (w, x) \in D_s \times D_e \chi(w, x)(w, x) \)

Felicitous assertion depends on the diagonalization:

(8) \( x_0 \) truthfully asserts \( S \) in \( w_0 \) iff. \( \forall (w, x) \in \text{Dox}(w_0, x_0): \text{diag}(\llbracket S \rrbracket)(w, x) = \llbracket S \rrbracket^{(w,x)} = 1 \)
Kaplanian Indexicals  Indexical like English personal pronouns depend on the utterance index:

\[(I)^{(w_u,x_u),(w_e,x_e)} = x_u\]

*De se* pronouns depend on the evaluation index:

\[(\text{pro}_{de\ se})^{(w_u,x_u),(w_e,x_e)} = x_e\]

Lexical entry for $\land$: Utterance index remains unchanged!

\[\land^{(w_u,x_u),(w_e,x_e)} = \lambda(w',x') \in D_s \times D_e : [S]^{(w_u,x_u),(w',x')}\]

believe:

\[\text{believe}^{(w_u,x_u),(w_e,x_e)}(P)(x) = 1 \text{ iff. } \forall (w',x') \in \text{Dox}(x,w_e): P(w',x') = 1\]

Correct meanings for (13a) and (13b):

(13)  a. John believes that I am happy.
       b. John believes that he is happy.

World Indexicals?  1st Candidate: *actually*. But it doesn’t necessarily refer to the utterance world (Cresswell, 1990):

(14)  a. John believes that Mary dreamed something that’s actually the case.
       b. If John believed something that was actually not the case, John was error.

2nd Candidate: The class of emotionally loaded expressions Potts (2003) treats as “conventional implicatures” (e.g. *damn*):

(15)  a. John believes that the damn Republicans will win.
       b. John believes that Mary dreamed that the damn Republicans will win.

Lexical entry from *damn*:

\[\text{damn}^{(w_u,x_u),(w_e,x_e)}(x) = 1 \text{ iff. } x_u \text{ in } w_u \text{ holds negative feelings towards } x\]

2  Monstrous Languages

Monster Prohibition

(17)  Empirical Claim: There are no sentence-embedding constructions in English, such that if “I am happy” is embedded, “I” does not refer to the speaker nor could there be.
Kaplan 1989, p. 510 (via Schlenker 2003): Are there such operators as ‘In some contexts it is true that’, which when prefixed to a sentence yields a truth if and only if in some context the contained sentence (not the content expressed by it) expresses a content that is true in the circumstances of that context? Let us try it:

(9) In some contexts it is true that I am not tired now.

For (9) to be true in the present context it suffices that some agent of some context not be tired at the time of that context. (9), so interpreted, has nothing to do with me or the present moment. But this violates Principle 2! [NB. Principle 2 states that ‘Indexicals, pure and demonstrative alike, are directly referential’. P.S.]. Principle 2 can also be expressed in a more theory laden way by saying that indexicals always take primary scope. If this is true – and it is – then no operator can control the character of the indexicals within its scope, because they will simply leap out of its scope to the front of the operator. I am not saying we could not construct a language with such operators, just that English is not one. And such operators could not be added to it.

Quotation/Direct Speech Quotation seems to allow “I” to refer to someone other than the speaker:

(18) John said “I am happy.”

However, quotation is generally assumed to be not transparent for semantics, but rather the whole quote refers to some expression.

Kaplan calls this the meaning vs. use distinction.

Amharic Indexical Shift

(19) Amharic (Schlenker, 2003, p. 68)

jon ḫogna noññ yil-all
John hero I-am 3M.say-AUX.3M

‘John says that I’m a hero.’ (or ‘John says that he’s a hero.’)

To show that these are not quotation:

(20) Amharic (Schlenker, 2003, p. 68) from Leslau (1979)

min amt’a ind-al-ə-ññ al-səmma-hu-mm
what bring.imper-2M COMP-say.PF-3M-1SO NEG-hear.PF-1S-NEG

‘I didn’t hear what he told me to bring.’

literally: ‘I didn’t hear what he told me you bring.’

• outside of propositional attitude contexts, Amharic I must refer to the speaker
• in propositional attitude contexts, I can refer not to the speaker, but the attitude holder (shifted interpretation)
• when shifted, Amharic I allows only a pure de se interpretation (cf. Malamoud 2006)
The Monster  Non-monstrous say:

(21) \[
\left\langle \text{say} \right\rangle^S_{(w_u,x_u),(w_e,x_e)}(x) = 1 \text{ iff. for all } (w',x') \text{ compatible with the content of what } x \text{ is saying in } w_e: \left\langle \right\rangle^S_{(w_u,x_u),(w',x')} (w',x')
\]

Truly monstrous say (as in Anand 2006):

(22) \[
\left\langle \text{say} \right\rangle^S_{(w_u,x_u),(w_e,x_e)}(x) = 1 \text{ iff. for all } (w',x') \text{ compatible with the content of what } x \text{ is saying in } w_e: \left\langle S \right\rangle^S_{(w_u,x'),(w',x')} (w',x') = 1
\]

Prediction of truly monstrous say: All occurrences of I in its complement must be shifted.

(23) Slave (Anand and Nevins 2004, (18); based on Rice 1986)

sehlégé segha gon’ihkie rárulu yudeli
1.sg-friend 1.sg-for slippers 3.sg-will-sew 3.sg-want-4.sg

‘She\textsubscript{j} wants her\textsubscript{j} friend to sew slippers for her\textsubscript{j}.’

Anand and Nevins (2004) also discuss similar facts from Zazaki.

But also partial counterevidence from Amharic:


alottazzən\textsubscript{ŋ} al\textsubscript{9}
1sg-fut-neg-obey-1sg 3sg.m-say

‘He\textsubscript{i} said I\textsubscript{i} will not obey me.’ /*‘He\textsubscript{i} said I will not obey him\textsubscript{i}.’

(25) ‘John said my son will not obey me.’ (Anand, 2006)

‘John said his/my son will not obey him/me.’

Second person, however, behaves as expected in Amharic:

(26) ‘Mary said to Bill your son will not obey you.’

‘Mary said to Bill that his son will not obey him.’
‘Mary said to Bill that your son will not obey you.’

Anand’s Proposal: Amharic ‘I’ is ambiguous between logophor and indexical.
References


Postscript to *De Re/De Dicto*

Gillian’s homework: Show that *de re* and *de dicto* are two distinct representations.

**Scenario:** John and Bill are two policemen in Washington D.C. They are investigating a leak of secret information from the White House. One night, John is guarding a back exit of the White House. A man in a suit emerges with a folder full of secret files, who looks a lot like the president. John forms the belief that the president is a spy. He doesn’t know though that actually he is seeing the president’s father. The following night, Bill is guarding the same spot and again a man in a suit emerges with a folder full of secret files. Bill is sure that this is the spy they are looking for, but doesn’t recognize the person. This time it actually is the president.

(1) a. Only John thinks that the president is a spy.
   b. Only Bill thinks that the president is a spy.

Compare with Ellipsis test for ambiguity:

(2) John thinks that the president is a spy, and Bill does too.

1 Complement Selection

**The Issue**

Nominal Quantifiers place no restriction on VP-complement:

(3) Every student/dog/chair/…[VP]

Verbal Quantifiers select for specific types of clausal complement:

(4) She believes/desires/says/expects/discovers/regrets/sees/begins/persuades [XP]
2 Temporal Orientation

Future oriented vs. non-future oriented embedding verbs Katz (2001):

(5) a. Fritz expects that Arnim will like the gift.
   b. Fritz expects Arnim to like the gift.

(6) a. Fritz believes that Arnim will like the gift.
   b. Fritz believes Arnim to like the gift.

Three more differences:

1) Non-stative complements:

(7) a. Fritz expects Arnim to unwrap the gift.
    b. *Fritz believes Arnim to unwrap the gift.

2) Future adverbials:

(8) a. Fritz expects Arnim to be in Tübingen tomorrow.
    b. *Fritz believes Arnim to be in Tübingen tomorrow.

3) Non-Future finite complements:

(9) ? Arnim expects that Graham is/was writing an interesting paper.

Temporal de se (de nunc)

Scenario: John’s watch got stuck at 9 p.m. last night. He wakes up around sun-rise at 6 a.m. and looks at his watch. It says 9 p.m. He thinks he slept 15 hours longer than he actually did and that the sun is setting.

(10) a. At 6 a.m., John believed that the sun was setting.
     b. At 6 a.m., John believed the sun to be setting.

(11) At 6 a.m., John believed $\lambda w \lambda x \lambda t$ that the sun$(w)$ was$(t)$ setting$(w)$

(12) $\text{Dox}(x, w, t) = \{(x', w', t') \mid \text{being } x' \text{ in world } w' \text{ at time } t' \text{ is compatible with } x' \text{'s beliefs in } w \text{ at } t}\}$

Past tense must be uninterpreted in the embedded clause in (12a) (Ogihara, 1996).
Ambiguous *Expect*

For infinitival complement-taking *expect*, the future of the complement could be built into *expect*:

(13) John expects it to be dark.

(14) \[\textsf{[expect]}(w, t)(P)(x) = 1 \text{ iff. } \forall (w', x', t') \in \text{Dox}(x, w, t): \exists t'' > t': P(w', x', t'')\]

For finite complement-taking *expect*, however, the future cannot be part of *expect*:

(15) a. John expects that it will be dark.
    b. ??John expects that it is dark.

**Katz’s Account**

Finite complements denote set of temporal relations:

(16) a. \[\textsf{[will]}(P)(t, t') = 1 \text{ iff. } P(t') \text{ and } t' > t\]
    b. \[\textsf{[that it will be dark]} = \lambda (w, x, t, t'): t' > t \text{ and dark}(w, t')\]

*Expect* selects for futurous complements:

(17) \[\textsf{[expect]}(w, t)(R)(x) = 1 \text{ iff. } \forall (w', x', t') \in \text{Dox}(x, w, t): \exists t'' > t': R(w', x', t', t'')\]

Infinite complements denote relations where one temporal argument is vacuous:

(18) \[\textsf{[to be dark]} = \lambda (w, x, t, t'): \text{dark}(w, t')\]

**Decomposition Presuppositions**

Alternative attempt (cf. von Stechow, p.c.): *expect* presupposes that the complement can be decomposed into a future of some property:

(19) \[\textsf{[expect]}(w, t)(P)(x) \text{ presupposes that } \exists Q: \forall w, t, x : P(w, t, x) = \exists t' > t Q(w, t', x)\]

where defined: \[\textsf{[expect]}(w, t)(P)(x) = \textsf{[believe]}(w, t)(P)(x)\]

(20) ??John expects that it is dark.

Decomposition presupposition:
\( \lambda t \text{ it is dark}(t) \iff \lambda t \exists t' > t \, Q(t') \)

Attempt for \( Q \):

(22) it was dark: \( \lambda t' \exists t'' < t' \, \text{dark}(t'') \) – not equivalent

Account of infinitivals:

(23) \textbf{will} can be elided where it can be reconstructed from context

(24) a. John expects it to \textbf{will} be dark
    b. *John believes it to \textbf{will} be dark

Problem though:

(25) *Fritz believes Arnim to \textbf{will} be in Tübingen tomorrow.

**References**


Embeddability and Embeddedness

Uli Sauerland, ZAS — EGG Brno August 2007

P.S. to yesterday: Portner (1997) alternative approach
Question today: Can we characterize embedded clauses semantically?

1 Free Indirect Discourse (FID)

The Phenomenon
Temporal expressions shift, personal pronouns don’t (Doron, 1991; Sharvit, 2006), examples in the following from Sharvit’s paper:

(1) John bid me goodbye, and walked home. He would ask me to marry him today(, he thought).
    evoked scene: John to himself: “I will ask Yael to marry me today.”

In Bulgarian marked by reportative evidential.
In Ewe: Logophoric pronouns can occur unembedded in free indirect discourse.
German: “erlebte Rede”, marked by Konjunktiv I:

(2) Maria erzählte mir erst damals ihre Pläne: Morgen würde ich sie heiraten.
    Maria told me only then her plans: tomorrow would I her marry.

Unavailability of de re

Definite descriptions in FID must be interpreted de dicto (i.e. shifted):

Scenario: Mary met a guy at the faculty club last night. While talking with him, she thinks that he must have been shy in his childhood. She doesn’t know she is talking with the dean, who she knows wasn’t shy in his childhood.

(3) Mary believed that the dean was shy in his childhood.
(4) The dean was shy in his childhood(, thought Mary)

An example showing that gender features of a pronoun must be *de dicto*:

**Scenario:** Suppose John sees Bill (a male individual) in a dress, and mistakes him for a female individual. John mutters: "Really, she looks great, and she is staring at me."

(5) John was convinced that Bill was a woman. Really, she/#he looked great(, he muttered), and she/#he was staring at him.

**Exceptions: de se and Speaker Reference**

*I* and *you* must not shift. Furthermore, the gender features of *de se* pronouns don’t shift.

**Scenario:** Mary mistakenly thinks she is a man.

(6) a. *He would make an excellent bishop(, thought Mary).
   b. She would make an excellent bishop(, thought Mary).

**Analysis of FID as Temporal/Modal Monster**

FID Operator operates on characters (*c*<sub>u</sub> utterance index, *c*<sub>e</sub> evaluation index):

(7) a. Today he would ask me to marry him.
   b. FID<sub>John</sub>(λ(*x*<sub>u</sub>, *w*<sub>u</sub>, *t*<sub>u</sub>) λ(*x*<sub>e</sub>, *w*<sub>e</sub>, *t*<sub>e</sub>) . today(*t*<sub>u</sub>) *x*<sub>e</sub> would(*t*<sub>e</sub>) ask *x*<sub>u</sub> to marry(*w*<sub>e</sub>) him(*x*<sub>e</sub>)

Entry for FID (different from Sharvit’s):

(8) [FID<sub>y</sub>]<sup>(x<sub>u</sub>,w<sub>u</sub>,t<sub>u</sub>,x<sub>e</sub>,w<sub>e</sub>,t<sub>e</sub>)</sup> (χ) = 1 iff. ∀(*x*′, *w*′, *t*′) ∈ Dom(*y*, *w*<sub>e</sub>, *t*<sub>e</sub>): χ(*x*<sub>u</sub>, *w*′, *t*′)(*x*′, *w*′, *t*′)

**Agreement conventions:**

(9) In the scope of FID<sub>y</sub>

   a. *x*<sub>e</sub> must agree in gender and number with *y*
   b. *t*<sub>e</sub> must be realized as PAST
2 Modal Subordination

Modal subordination allows de re-Interpretations:

(10) Ralph gave a long speech. He will hunt down Ortcutt, the spy, to protect Ortcutt, the innocent citizen.

Insertion of parenthetical he said is compatible:

(11) Ralph gave a long speech. He will, (he said), hunt down Ortcutt, the spy, (he said), to protect Ortcutt, the innocent citizen.

The Parenthetical Use

Urmson (1952): Several embedding verbs also have a parenthetical use:

(12) Parenthetical Use:
   a. the complement clause contains the main assertion
   b. the embedding verb serves to mark evidence source or degree of certainty
   c. syntactically, embedding verb is free

(13) a. He said it’s just started to rain.
   b. It’s just, he said, started to rain.
   c. It’s just started to rain, he said.


Tag questions can related to the ‘embedded clause’:

(14) I think it just started to rain, didn’t it?

Idea for an Analysis

Minimal witness set of a universal quantifier:

(15) M(Q) is the smallest set such that Q is true of the characteristic property of that set
(16) M([\{\text{every student}\}]) = \{x \mid x \text{ is a student}\}

Presupposition of parentheticalized embedder:

(17) [\text{PAR(John believes)}]^{u,e} \text{ presupposes that } e \text{ is in the minimal witness set of } [\text{John believes}]^{u,u}
3 Speech Acts Embedding

Root Transformations
Emonds (1969): certain transformations may occur in the root clause.

Negative Constituent Preposing

(18) Never in my life have I seen such a crowd.

Tag Question Formation

(19) The square root of nine is three, isn’t it?

Embedded Root Phenomena in English
Hooper and Thompson (1973): Root transformations can be applied in embedded clauses, if and only if they are assertions. Assertability is determined by the embedding verb/adjective.

Verb classes looked at [p. 473–474]

(20) Nonfactive:
   A: say, report, exclaim, assert, claim, vow, be true, be certain, be sure, be obvious
   B: suppose, believe, think, expect, guess, imagine, it seems, it happens, it appears
   C: be (un)likely, be (im)possible, be (im)probable, doubt, deny

(21) Factive:
   D: resent, regret, be sorry, be surprised, bother, be odd, be strange, be interesting
   E: (semi-factives): realize, learn, find out, discover, know, see, recognize

Classes A, B, and E allow embedded root transformations, C and mostly D don’t.

(22) a. I exclaimed that never in my life had I seen such a crowd.
    b. I suppose falling off the stage was quite embarrassing, wasn’t it?
    c. I found out that never before had he had to borrow money.

(23) *He was surprised that never in my life had I seen a hippopotamus.
Embedded V2

V2 generally only in matrix clauses, but German allows V2 in complements of certain verbs (cf. Julien (2007) on Swedish and Norwegian, Biberauer (2007) on Afrikaans):

(24) Ich glaube er hat recht
    I believe he has right

Meinunger (2006): about the same class of verbs that licensed embedded V2 as root transformations.
Blümel (1914): negation blocks V2.

(25) Ich glaube nicht, *er hat recht / dass er recht hat.
    I believe not, *he has right / that he right has

    ‘I don’t believe he’s right.’

Meinunger (2006):

(26) Correspondence alignment: Those predicates and grammatical phenomena that block V2 in German subordinate clauses trigger subjunctive mood in Romance.

Embedded Evidentiality

Embedded evidentiality has a different distribution:
Sauerland and Schenner (2007): Evidentials can occur in some embedded clauses in Bulgarian.


(28) a. Marija rezbra če imalo burja v Ispanija
    Maria discovered that is-REP storm in Spain
    b. *Marija vjarva če imalo burja v Ispanija
    Maria believes that is-REP storm in Spain

Distribution of German sollen compared with V2 (M. Schenner, p.c.):
(29)  a. sollen OK, but V2 not: seltsam sein ‘be strange’, interessant sein ‘be interesting’, sich erinnern ‘remember’


(30)  a. Er erinnerte sich, dass Ortcutt ein Spion sein solle.
    he remembered self that Ortcutt a spy be solle
    ‘He remembered that Ortcutt was allegedly a spy.’

b. ??Er erinnerte sich Ortcutt ist/sei ein Spion.
    He remembers self Ortcutt is/were a spy

(31)  a. #Er hoffte, dass Ortcutt ein Spion sein solle.
    he hoped that Ortcutt a spy be solle

b. Er hoffte Ortcutt sei ein Spion
    he hoped Ortcutt were a spy
    ‘He hoped that Ortcutt would be a spy.’

**Testing for de re/de dicto**

Embedded V2 allows both *de re* and *de dicto*:

**Scenario:** John and Bill are two policemen in Washington D.C. They are investigating a leak of secret information from the White House. One night, John is guarding a back exit of the White House. A man in a suit emerges with a folder full of secret files, who looks a lot like the president. John forms the belief that the president is a spy. He doesn’t know though that he actually is observing the president’s father. The following night, Bill is guarding the same spot and again a man in a suit emerges with a folder full of secret files. Bill is sure that this is the spy they are looking for, but doesn’t recognize the person. This time it actually is the president.

    John believes the president be a spy.

b. Bill glaubt der Präsident sei ein Spion.
    Bill believes the president be a spy.

But embedded *sollen* blocks a *de re*-construal:

**Scenario:** Secret files are missing from the White House. Detective Bill interrogates a witness. This woman saw someone climb out a window of the White House at night, and she claims that this person was a spy. Bill concludes that her claim must be right: she saw a spy. Actually, though, the president was guy climbing out of the window because he wanted to play a trick on his security staff.
(33) #Bill glaubt, dass der Präsident ein Spion sein soll.
Bill believes that the president a spy be soll

Controls that show that the conspiracy of sollen and de re is to blame for the oddness of (33):

(34) a. Bill glaubt, dass der Präsident ein Spion ist.
Bill believes that the president a spy ist
b. Bill glaubt, dass der Fensterkletterer ein Spion sein soll
Bill believes that the window climber a spy be should

References


