Split intensionality: a new scope theory of *de re* and *de dicto*

Ezra Keshet

Ling753/Phil 746 Presentation

Ekaterina Vostrikova and Pengbo Liu

March 3, 2015

Introduction: STI (the scope theory of intensionality) for DPs

STI – the traditional scope theory of intensionality (STI) for DPs (see Russell 1905; Montague 1973; Ladusaw 1977; Ogihara 1992, 1996; Stowell 1993), according to which a DP can have a de re reading with respect to an intensional operator only if it occupies a higher position at LF.

Several counterexamples led people to propose alternative mechanisms: world variables or situation pronouns (Percus 2000) or actuality operators (Kamp 1971; Cresswell 1990) in the syntax of DPs.

This paper defends the scope theory:

a) By bringing new data where high (de re) readings disappear when the movement is blocked.

b) By introducing into syntax an unpronounced type-shifting operator which creates an additional scopal position. This helps to explain the problematic for the traditional scope theory data.

c) By showing that the new theory – the split theory of intensionality – does not overgenerate unlike the world/situation variable theory.

1. Problems with the scope theory of intensionality

The STI system makes 2 predictions:

1) If a movement of a DP to a position higher than some operator is impossible, then this DP can only get de dicto reading with respect to this operator.

2) There are only 2 options: a DP can either have de re or de dicto reading with respect to an operator.

Both claims have been challenged in the literature.

1.1 Syntactic islands

A. Quantificational DPs cannot move out of finite clauses

(1) Some politician will address every problem.

every problem> some politician

some politician > every problem

(2) Some politician thinks that she will address every problem.

*every problem> some politician

some politician > every problem

However (3) has a reading compatible with Mary's rationality.

(3) Mary thinks that everyone in this room is outside.

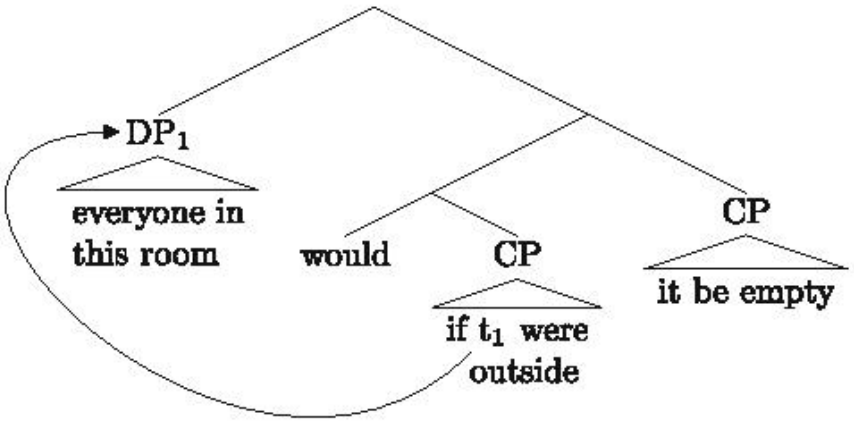
B. Things cannot move out of an *if*-clause:

(4) John will be happy if everyone gives him a present.
(5) *What will John be happy if everyone gives him?

(6) If everyone in this room were outside, the room would be empty.

Relaxing the movement requirement does not help:

(7)



Predicted meaning: every individual in this room is such that if she were outside, this room would be empty.
We need: the absence of the totality of people will make the room empty.

One possible solution: world or situation variables (Percus 2000, Keshet 2008).

(8) λw_0 [would w0 [λw_1 if [everyone in this room in w_0] were outside in w_1]] [λw_2 the room would be empty in w_2]

In all the worlds w' accessible from w_0 such that **everyone in this room in w_0** is outside in w', the room is empty in w'.

"Everyone in this room" takes scope below "would", but the predicate "ones in this room" is evaluated relative to the actual world.

1.2 The third reading

(9) Mary wants to buy an inexpensive coat. (Fodor (1970))

De re (Specific; Transparent): there is a specific coat that Mary likes and she wants to buy it.

De dicto (Non-specific; Opaque): Mary wants to buy any coat as long as it is inexpensive.

The third reading (Non-specific; Transparent): Mary wants an Old Navy coat, although she does not have one picked out yet. Old Navy coats are inexpensive,

although Mary may or may not know this.

The world variable theory solution:

(10) λw_0Mary wants in w_0 [λw'[an inexpensive coat w_0]$_1$[PRO to buy t_1 in w']]

"An inexpensive coat" takes scope below the modal verb "wants" but the predicate "inexpensive coat" is evaluated with respect to the actual world.

1.3 The world variable system overgenerates.

Lets consider (11):

(11) Mary thinks my brother is Canadian.

"My brother" can have de dicto reading :

(12) λw_0 Mary thinks in w_0 [λw_1 my brother w_1 is Canadian w_1]

"My brother" can have de re reading:

(13) λw_0 Mary thinks in w_0 [λw_1 my brother w_0 is Canadian w_1]

However the system predicts an additional reading that does not in fact exists (Percus 2000).

(14) λw_0 [Mary thinks in w_0 [λw_1 my brother w_1 is Canadian w_0]

"If the sentence permitted a structure with this indexing, we would take the sentence to be true whenever there is some actual Canadian who Mary thinks is my brother — even when this person is not my brother in actuality, and even when Mary mistakenly thinks that he
is not Canadian. For instance, we would take the sentence to be true when Mary thinks that Pierre (the Canadian) is my brother and naturally concludes — since she knows that I am American — that Pierre too is American. But in fact we judge the sentence to be false on this scenario, and so there must be something that makes the indexing in [14] impossible".

Generalization X (Percus 2000): The situation pronoun that a verb selects for must be co-indexed with the nearest λ above it.

2. New Data for the Scope Theory

2.1 Syntactic Islands

The Scope Theory of Intensionality (STI) correctly predicts that a DP cannot receive *de re* reading when it is trapped in a syntactic island.

A. If-clause

(15) Mary thinks that if A, B and C were professors, the classes would be better taught.

Context: Mary sees three professors (A, B and C) giving presentations, but mistakes them for students. Mary thinks that if they were professors, the classes would be better taught.

(16) # Mary thinks that if three professors were professors, the classes would be better taught.

In this context, (15) is true but (16) is unacceptable. The DP "three professors" in (16) does not have *de re* reading. This fits nicely with STI, according to which to be interpreted *de re*, the DP "three professors" has to scope above the intensional operator "thinks". But in (16), the movement is blocked by the if-clause island.

B. Because-clause

(17) The teacher thinks John should be punished because Sally wrote papers A, B, and C.

(18) # The teacher thinks John should be punished because Sally wrote every paper he/John wrote.

C. NP complement

(19) Mary believes that there's a nasty rumor going around that A is a man.

(20) # Mary believes that there's a nasty rumor going around that a man in my class is a man.

D. Subject of a finite clause

(21) Yesterday, Bob thought that A, B, and C were outside.
(22) # Yesterday, Bob thought that everyone in this room was outside.

Possible Responses:

(a) "Everyone in this room" in (22) seems to have *de re* reading.
(b) We can construct comparable examples of the same structure that *de re* readings of the DP in islands *are* available.

(21) Mary thinks that if three professors were philosophers, the classes would be more fun.[1]

Context: Mary sees three history professors (A, B and C) giving presentations on Ancient Greek history, but mistakes them for students. She likes Plato, so she thinks the classes would be more fun if they were philosophers and talked about Plato's work.

Further Thoughts:

(a) *All* of Keshet examples contain apparently tautological or contradictory clauses ("if three professors were professors", "if everyone in this room were outside", "that a man in my class is a man"). But his point, i.e., unavailability of *de re* DP due to syntactic islands, is supposed to be fairly general. If *de re* reading is available in more normal cases, such as (21), then the unavailability of de re reading of (16) and alike is not due to islands *per se*, but is related to the apparent "weirdness" or unacceptablility of those clauses.

(b) Given sufficient contextual details, it seems we can come up with apparently paradoxical sentences of the same kind but *de re* reading of DP *is* available.

(22) Mary thinks that if any superhero friend of hers were a superhero, he would have saved the victim.

Context: Clark Kent and Bruce Wayne were poisoned by a villain, Gru, and have lost all their power. Now they finally reveal their secret identities to their friend Mary, but she doesn't believe them, for she saw earlier that neither of

[1] Keshet himself discuss an example like this. See section 4.1

them was able to save an innocent victim from Gru's attack. Gru and his friend Kevin, both know the identities of these men, are amused by the scene. Kevin asks, "So why doesn't Mary believe what they said?" Gru responds by uttering (22).

2.2 Polarity Items

The STI predicts that polarity items have limited numbers of intensional readings.

A DP whose determiner is a Positive Polarity Item (PPI) has to scope over negation; so (23) has *de re* reading.

(23) Mary doesn't want to buy **some inexpensive dress at Macy's** because she thinks it is expensive.

A DP whose determiner is a Negative Polarity Item (NPI) has to scope below negation; so (24) does *not* have *de re* reading.

(24) # My mother thinks I managed not to fail **any class** that I failed.

2.3 Subconstituents

The STI predicts the unavailability of *de re* reading of certain subconstitutents.

(25) John wants to meet the wife of the president.

Available Readings: wife *de dicto*, president *de re*; both *de re*; both *de dicto*
Unavailable Reading: wife *de re*, president *de dicto*.

On the STI, only the following structures can generate the unavailable reading:

(26) a. [the wife]$_x$ John wants to meet [x of the president].
b. [wife]$_x$ John wants to meet [the x of the president].

(26a) involves a subconstituent movement, which is illicit; (26 b) violates the Head Movement Constraint (HMC).

3. Split intensionality

3.1. Keshet's proposal:

Every intensional operator comes with an operator ^ (after the "up" operator in Montague 1970) that sits below it. This operator shifts the type of its sister from extensional to intensional.

We need a new rule:

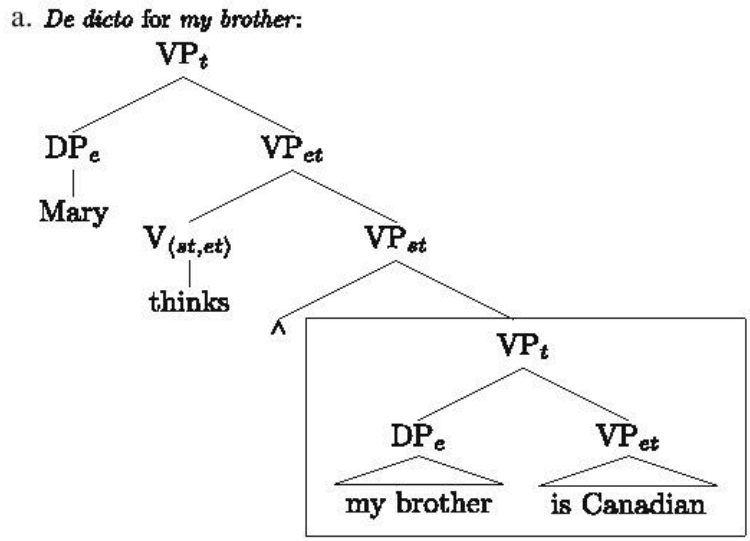
Intensional Abstraction: if α is a branching node and $\{\beta, \gamma\}$ is the set of its daughters, where β dominates only an ^ operator, then, for any situations s and variable assignment g $[[\alpha]]^{s,g}=\lambda s' \in D_s. [[\gamma]]^{s', g}$.

This operator basically is doing the job of the IFA rule (Intensional Functional Application) (the rule that allows to compose an operator that requires an argument of an intensional type with an argument of an extensional type by type-shifting the type of this argument from an extension to an intension).

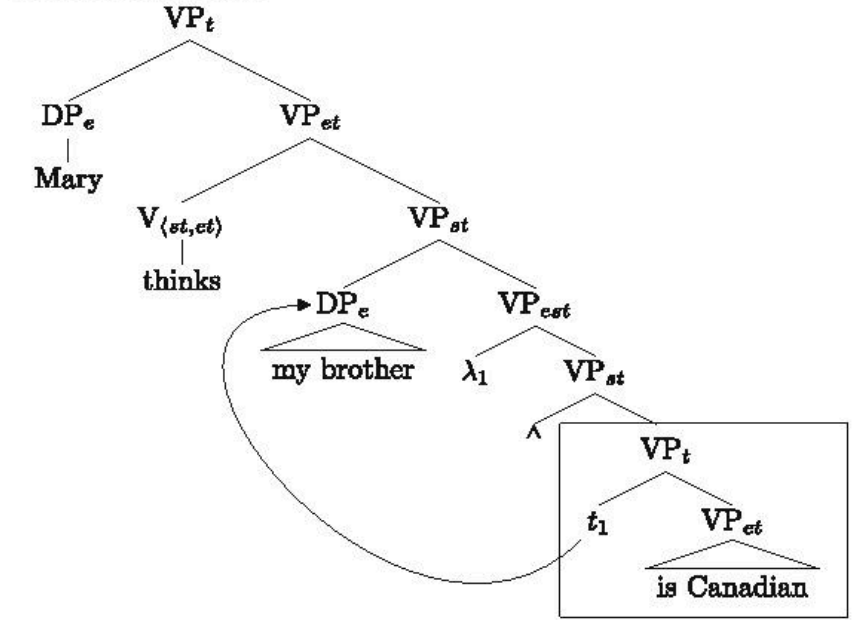
The difference is that this operator is in syntax and in order to get a de re reading a DP must move out of the scope of this operator.

Consider an example:

(27) Mary thinks my brother is Canadian.

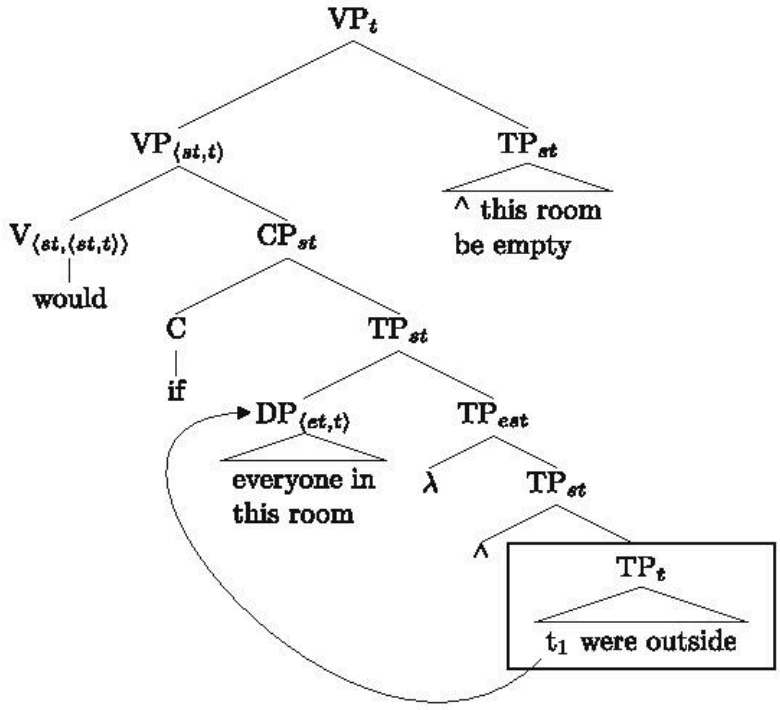


b. *De re* for *my brother*:



3.2. Solutions for the new data

(28) If everyone in this room were outside, it would be empty.



$[[\text{would}]]^{s,g} = \lambda P_{st} \lambda Q_{st}. \forall s'$ accessible from s. $P(s') \rightarrow Q(s')$

[[if [everyone in this room] λ_1 ^ t_1 were outside]]^{s,g} = λs'.everyone in this room in s is outside in s'

[[(28)]] ^{s,g}= 1 iff ∀s'where everyone in this room is s is outside in s', this room is empty in s'.

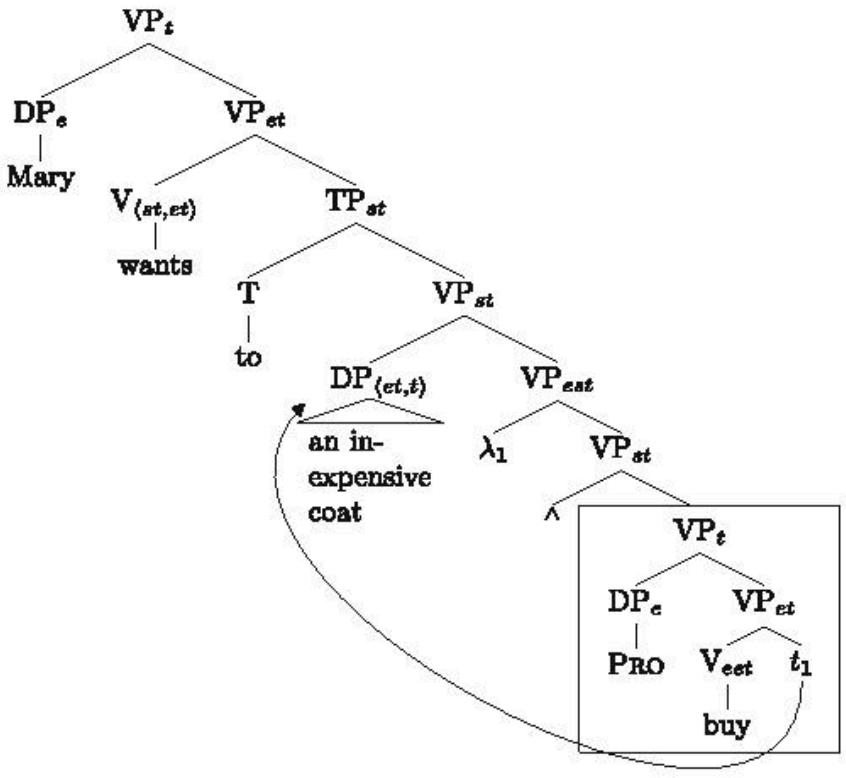
(29)

a. Mary thinks that everyone in this room is outside.

b. Mary thinks [that [everyone in this room]$_i$ [^ t_i is outside]]

The third reading:

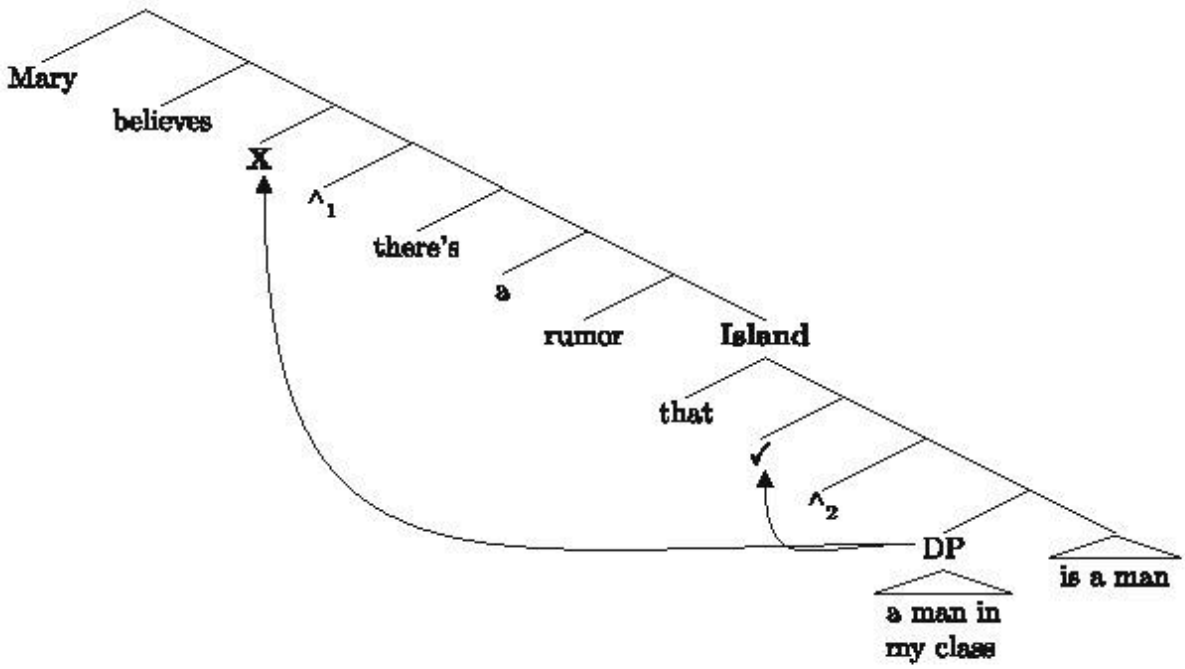
(30) Mary wants to buy an inexpensive coat.



(30') In all of Mary's desire worlds w, there's an x such that x is an inexpensive coat in the real world and Mary buys x in w.

This theory makes a prediction: whenever the movement of a DP is illegal, there will be no higher scope reading of this DP.

(31) #Mary believes that there's a nasty rumor going around that **a man in my class** is a man.



3.2. Some remarks about the system

A: The system by itself does rule out the problematic reading of (32):

(32) Mary thinks my brother is Canadian.

(33) Mary thinks [that [Canadian]$_1$ ^ [my brother is T_1]]

The restriction should follow from the fact that predicates do not move.

B: We need to move NPIs, but we have no evidence that they can move.

(34) My mother doesn't think that I managed to pass **any class that I passed**.

"Any class that I passes" has a de re reading here and this is why it has to move to the position below negation but above ^ .

(35) (from Homer 2011)

a.*It's impossible that someone stole anything.
b. It's impossible that anyone stole something.

"Anyone" cannot move at LF and be above "something" in (35a).

C: An example for discussion (based on example from Angelika Kratzer's Spring 1999 lecture notes))

(36) John thinks that every linguist in this room wrote **a paper that she did not write**.

The question: can "every linguist" have a de dicto reading?

Scenario: John is at a seminar, which he thinks is a linguistics seminar (actually it is a philosophy seminar). He thinks that he is surrounded by linguists. He also thinks that each of them wrote a paper: a person A wrote PTQ, a person B wrote "Situations, worlds, and contexts" etc.
Can this sentence be true in this scenario?

C: The system predicts that an indefinite DP in a finite clause (like in (37)) can only have de dicto and the third reading.

(37) Mary is upset because she thinks that John bought **some inexpensive coat**.

This sentence can mean that there is a specific coat that John bought that made Mary upset. However, according to Keshet, finite clause is an island and "some inexpensive coat" cannot move above "think" (but can move above ^). We need some special mechanism to explain specific readings of indefinites.

4. Remaining Issues

4.1 Belief Reports and Conditionals

(38) The dean thinks if everyone in this room learns to get a little better with others, there won't be any major conflict over the hiring.
(uttered in the context of a secret meeting that the dean does not know about)

Problem for Split Intensionality: the theory predicts only a *de dicto* reading, but a de re reading *is* available.

Keshet: (38) might have an LF in which if-clause scope above *think*, for (38) is "almost synonymous" to (39); semantically, if-clause restricts the dean's thought worlds.

(39) If everyone in this room learns to get on a little better with others, the dean thinks there won't be any major conflict over the hiring.

Our responses:

(a) They don't seem to be synonymous; in any case, this strategy doesn't work for (40), which requires the object of *think* to be a conditional proposition.

(40) The dean thinks if everyone in this room learns to get a little better with others, then there won't be any major conflict over the hiring.

(b) We might adopt a more conservative semantics: the if-clause in (38) undergoes a covert movement by (something like) QR to the top, which leaves a propositional trace *p*.

4.2 Definite Descriptions

(41) When I last visited my friend, he had two children: a six-year-old and a ten-year-old. The six-year-old graduated from med school two years ago.

(42) John wrote some amazing papers over the course of last semester. They made me laugh and they made me cry. They were so good, if fact, that his teacher didn't believe he wrote them. She thinks that John should be punished because Sally wrote those papers he wrote.

Problem for Split Intensionality: the theory wrongly predicts that "the six-year old" is evaluated at the actual world and utterance time, i.e., referring to the salient person who is *now* six year old. (the situation pronoun approach does not have this problem.); it also wrongly predicts that "those papers he wrote" are evaluated with respect to the teacher's *thought worlds*.

Keshet: These descriptions are used referentially, not attributively (Donnellan 1966), to pick out the object previously referred to by the same phrase.

But it is unclear how to implement this idea in the compositional semantics.

Bibliography:

Cresswell, M. (1990). *Entities and indices*. Boston: Kluwer Academic Publishers.

Donnellan, K. (1966). Reference and definite descriptions. Philosophical Review, 75(3), 281–304.

Fodor, J. (1970). *The linguistic description of opaque contents*. PhD thesis, Massachusetts Institute of Technology.

Homer, V. (2011) *Polarity and Modality*, PhD thesis, UCLA

Montague, R. (1970). English as a formal language. In B. Visentini (Ed.), Milan: Edizioni di Comunita`. Linguaggi nella Societa e nella Tecnica (pp. 189–223).

Ogihara, T. (1992). Temporal reference in English and Japanese. Indiana University Linguistics Club.

Ogihara, T. (1996). *Tense, attitudes, and scope*. Dordrecht: Kluwer.

Percus, O. (2000). Constraints on some other variables in syntax. Natural Language Semantics 8(3), 173–229.

Russell, B. (1905). On denoting. Mind, 14(56), 479–493.

Stowell, T. (1993). Syntax of tense. Ms., UCLA.