

Champlion 2016 cont.

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1 Recap Exercises

1.1 Background on collective conjunction of individuals

(Winter 2001) develops an account of *collective conjunction of individuals* based on the idea that the core semantic contribution of *and* is boolean conjunction.

- (1) John, Mary, and Sue gathered in the hallway.

Winter’s account made use of four essential ingredients; generalized boolean conjunction is the meaning of *and*, whereas the other three ingredients are “type shifters”.

- Montague lift.
- (Generalized) boolean conjunction (i.e., set intersection).
- Minimization.
- Existential raising.

Step-by-step, the story is as follows:

1. Apply *Montague* lift to the type E coordinands (result: $(E \rightarrow T) \rightarrow T$).
2. Conjoin the resulting expressions using generalized boolean conjunction (result: $(E \rightarrow T) \rightarrow T$).
3. Apply minimization to the result (result: $(E \rightarrow T) \rightarrow T$).
4. Apply existential raising to create a quantifier over pluralities (result: $((E \rightarrow T) \rightarrow T) \rightarrow T$).
5. Apply the resulting quantifier to the collective predicate.

1.2 Exercise 1

Let's compute the meaning of "John, Mary and Sue gathered", in terms of *sets*.

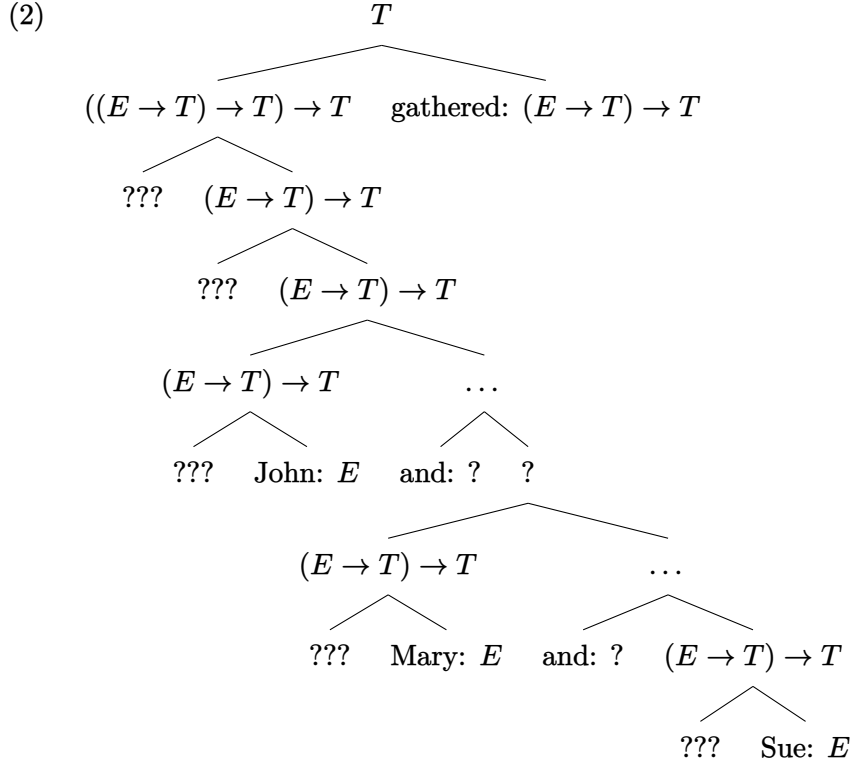
I'll provide you with the meaning of each atomic expressions:

- $\llbracket \mathbf{John} \rrbracket, \llbracket \mathbf{Mary} \rrbracket, \llbracket \mathbf{Sue} \rrbracket = j, m, s$
- $\llbracket \mathbf{gathered} \rrbracket = \{ x \in \mathbf{Dom}_E \mid x \text{ gathered} \}$
- $\llbracket \mathbf{and}(P_{ET})(Q_{ET}) \rrbracket = \{ x \in \mathbf{Dom}_E \mid x \in \llbracket P \rrbracket \text{ and } x \in \llbracket Q \rrbracket \}$

In addition, we'll need to make use of the following type-shifters:

- $\llbracket \mathbf{LIFT}(x_E) \rrbracket = \{ P \subseteq \mathbf{Dom}_E \mid x \in P \}$
- $\llbracket \mathbf{MIN}(Q_{(\sigma \rightarrow T) \rightarrow T}) \rrbracket = \{ P \in \llbracket Q \rrbracket \mid \forall P' [P' \subset P \rightarrow \neg(P' \in \llbracket Q \rrbracket)] \}$
- $\llbracket \mathbf{ER}(P) \rrbracket = \{ Q \subseteq \mathbf{Dom}_E \mid Q \cap \llbracket P \rrbracket \neq \emptyset \}$

You may assume the following structure for our collective coordination example.



- Fill in the missing type-shifters.
- Fill in the missing type-signatures, and verify that the structure is well-typed.
- Give the interpretation (as a set) for every non-atomic node (except for those labelled “...”).
- What are the truth-conditions for the sentence?

Now, provide a concrete *model* at which:

1. The sentence is true (explain why).
2. The sentence is false (explain why).

This involves specifying a concrete domain of individuals and an extension for the lexical constants.

1.3 Background on collective conjunction of predicates

(Champollion 2016) builds on (Winter 2001), by developing an account of collective conjunction of predicates, as in the following:

(3) Every **linguist and philosopher** who disagreed with each other walked in together.

- (Generalized) boolean conjunction (i.e., set intersection).
- Minimization.
- Existential raising.

Step-by-step, the story is as follows:

- In order to avoid immediately deriving an intersective reading, the coordinated predicates are *existentially raised* (result: $(E \rightarrow T) \rightarrow T$).
- The resulting raised predicates are intersected via generalized boolean conjunction. (result: $(E \rightarrow T) \rightarrow T$)
- The resulting quantifier is *minimized*, in order to derive a predicate of collective individuals (result: $(E \rightarrow T) \rightarrow T$).
- The resulting predicate composes as the restrictor of a more type-general determiner.

1.4 Exercise 2

We'll go through the following example:

(4) An ill-matched linguist and philosopher gave a talk together.

We'll go through the composition of (4) in terms of sets. A couple of important assumptions:

- We'll treat "ill-matched" as a modifier of collective individuals, that is only true of *pairs* (type $((E \rightarrow T) \rightarrow T) \rightarrow (E \rightarrow T) \rightarrow T$).
- We'll treat "gave a talk together" as a predicate of collective individuals (type $(E \rightarrow T) \rightarrow T$).

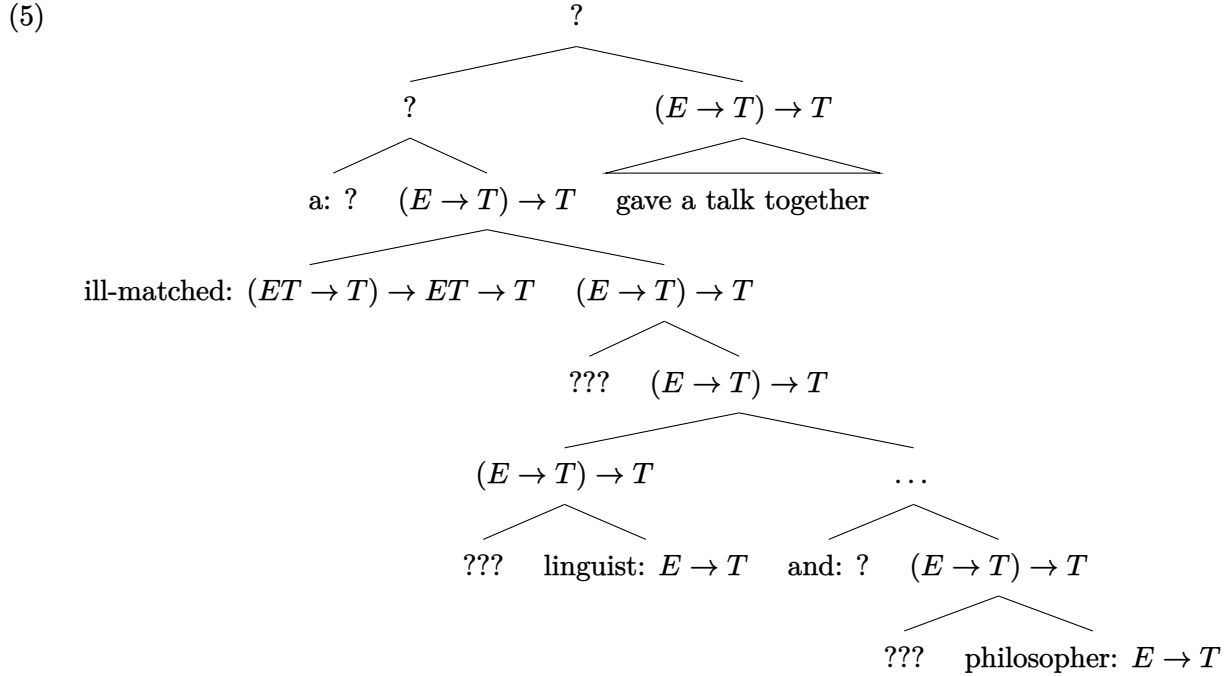
Here's the interpretation of the constants in terms of sets:

- $\llbracket \text{illMatched}(Q_{(ET \rightarrow T)}) \rrbracket = \{ P \in Q \mid P = \{x, y\} \text{ and } x \text{ doesn't match } y \}$
- $\llbracket \text{linguist} \rrbracket = \{ x \in \text{Dom}_E \mid x \text{ is a linguist} \}$
- $\llbracket \text{philosopher} \rrbracket = \{ x \in \text{Dom}_E \mid x \text{ is a philosopher} \}$
- $\llbracket \text{gaveTalkTogether} \rrbracket = \{ P \subseteq \text{Dom}_E \mid P = \{x, y\} \text{ and } x \text{ gave a talk with } y \}$

We'll also need a collective counterpart of the indefinite determiner *a*:

- $\llbracket \mathbf{a}(Q_{ET \rightarrow T}) \rrbracket = \{ Q' \subseteq \text{Dom}_E \mid Q \cap Q' \neq \emptyset \}$

Here's the structure you can assume for our example sentence:



- Fill in the missing type-shifters.
- Fill in the missing type-signatures, and verify that the structure is well-typed.
- Give the interpretation (as a set) for every non-atomic node (except for those labelled "...").
- What are the truth-conditions for the sentence?

Now, provide a concrete *model* at which:

1. The sentence is true (explain why).
2. The sentence is false (explain why).

This involves specifying a concrete domain of individuals and an extension for the lexical constants.

References

Champollion, Lucas. 2016. Ten men and women got married today - Noun Coordination and the Intersective Theory of Conjunction. *Journal of Semantics* 33(3). 561–622. <https://academic.oup.com/jos/article/33/3/561/1753639>.

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