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A *semantic* account of the selectional restrictions of some (anti-)rogative verbs

SALT 27
WORKSHOP ON MEANING AND DISTRIBUTION
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CLAUSE-EMBEDDING VERBS

Some verbs take **both** declarative and interrogative complements:

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	selectional restrictions	selectional flexibility
type distinction	✓	✗
uniformity	✗	✓

OUTLINE

Today I will:

1. discuss a **challenge** for type-distinction-based accounts
2. sketch a **uniform** treatment of clause-embedding
3. propose an account of the selectional restrictions of **anti-rogatives**
4. review an account of *wonder*that*

TYPE-BASED ACCOUNTS

- **Most previous work** assumes a type distinction:

  Karttunen (1977); Heim (1994); Dayal (1996); Beck and Rullmann (1999); Lahiri (2002); George (2011); Spector and Egré (2015); Uegaki (2015); among others

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- Account for **selectional restrictions** of (anti-)rogatives:
  - anti-rogatives **only take** complements of type $\langle s,t \rangle$
  - rogatives **only take** complements of type $\langle \langle s,t \rangle ,t \rangle$

PROBLEM: TYPE-SHIFTING

John **knows** that Mary arrived and he **knows** what she brought

$\langle s,t \rangle$ $\langle \langle s,t \rangle,t \rangle$

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A type-based account cannot directly capture the selectional restrictions of **both** rogatives and anti-rogatives **at once**.

PART 2

A *uniform* treatment of clausal complements

SENTENCE MEANINGS IN INQUISITIVE SEMANTICS

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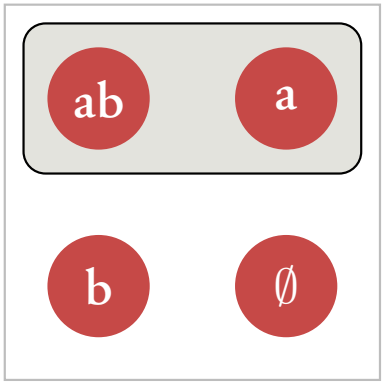
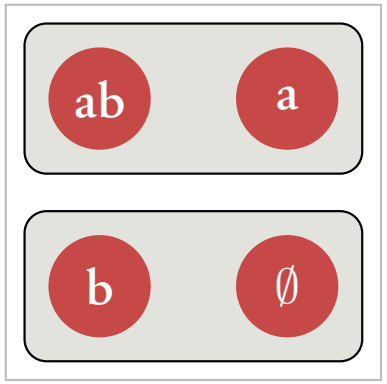
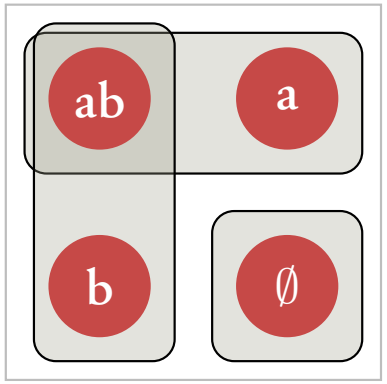


Ann left.



Did Ann leave?



Who left?

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(5) Mary is certain whether John left.

$$\rightsquigarrow \textbf{True} \text{ in } w \text{ iff } \exists p \in \left\{\begin{array}{l}\{w \mid \text{ John left in } w\},\\ \{w \mid \text{ John didn't leave in } w\}\end{array}\right\} \text{ s.t. } \textsc{dox}^w_m \subseteq p$$

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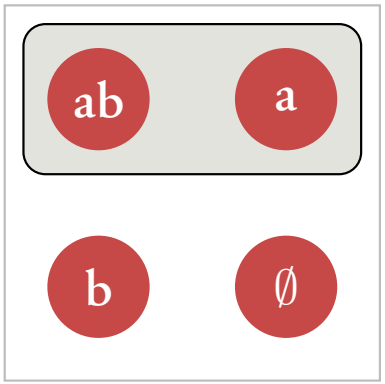

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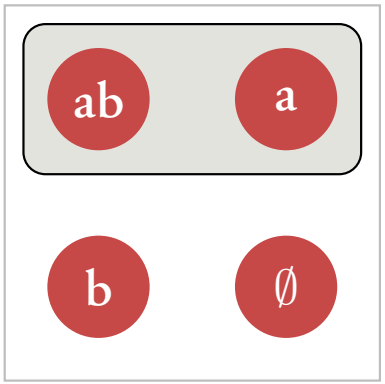

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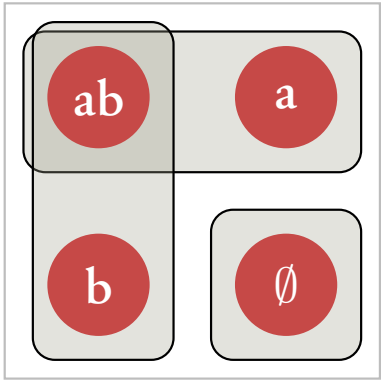

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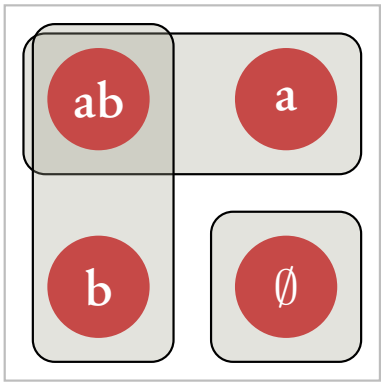

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Interrogative complement meanings contain **several alternatives**, which always **cover** the entire logical space.

This captures the intuition that interrogatives **request** but don't provide information.

PART 3

Selectional restrictions of *anti-rogative* verbs

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1. Attitude verbs: e.g., *believe*, *think*, *feel*, *expect*, *want*, *desire*
2. Likelihood verbs: e.g., *seem*, *be likely*
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Zuber (1982): **all neg-raising verbs are anti-rogative.**

NEG-RAISING VIA EXCLUDED MIDDLE PRESUPPOSITION

Neg-raising verbs come with an **excluded middle presupposition** (Bartsch, 1973; Gajewski, 2007).

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- Presupposed and asserted content logically **independent**.
- Together they **imply** that John believes Mary didn't leave.

STATUS OF THE EXCLUDED-MIDDLE PRESUPPOSITION

- Neg-raising is **defeasible** (Bartsch, 1973):

(9) Bill doesn't know who killed Caesar. Bill isn't even sure whether or not Brutus and Caesar lived at the same time. So, naturally, Bill **doesn't** believe Brutus killed Caesar.

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- It can't be a **semantic presupposition**.
- However, it can't be purely pragmatic either, since there is **no obvious semantic property** determining if a verb is neg-raising (Horn, 1978).

✓*want*/✗*desire*	✓*hope*/✗*hoffen*
(Horn, 1978)	(Gajewski, 2007)

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- Thus, they are more context-dependent than semantic presuppositions.
- Simons (2001)'s **explicit ignorance contexts:**

(10) I don't know whether Bill even participated in the singing contest, but if he won, he's surely over the moon.

(11) I don't know whether anyone watered the plants, #but if it is Mary who did it, she probably gave them too much water.

NEG-RAISING *BELIEVE*

$$[\![\text{believe}]\!]^w = \lambda P_{\langle \text{st,t} \rangle}.\lambda x : \underline{\textsc{dox}_x^w \in P \vee \textsc{dox}_x^w \in \neg P} . \textsc{dox}_x^w \in P$$

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The negation is **inquisitive negation:**

$$\neg P := \{p \mid \forall q \in P : p \cap q = \emptyset\}$$

For example:

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The effect of this presupposition depends on whether P is a declarative or an interrogative complement.

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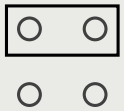
$P =$ 

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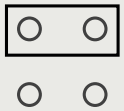
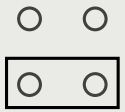
$P =$  $\neg P =$ 

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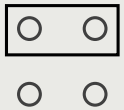
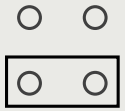
$P =$  $\neg P =$ 

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Soft presupposition: $\textsc{dox}_x^w \in P \ \vee \ \textsc{dox}_x^w \in \neg P$

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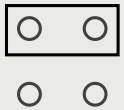
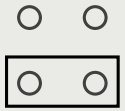
$P =$  $\neg P =$ 

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Soft presupposition: $\boxed{\textsc{dox}_x^w \subseteq q} \vee \textsc{dox}_x^w \in \neg P$

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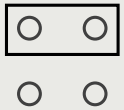
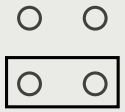
$P =$  $\neg P =$ 

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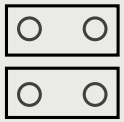
$P =$ 

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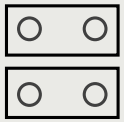
$P =$ 

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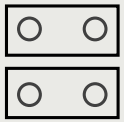
$P =$  $\neg P = \{\emptyset\}$

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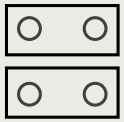
$P =$  $\neg P = \{\emptyset\}$

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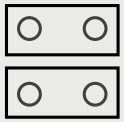
$P =$  $\neg P = \{\emptyset\}$

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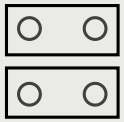
$P =$  $\neg P = \{\emptyset\}$

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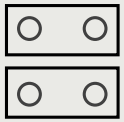
$P =$  $\neg P = \{\emptyset\}$

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Whenever $[\![\text{believe}]\!]^w(P)(x)$ is defined, it is true. In other words, its assertive content is trivial relative to its presupposition.

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- Gajewski (2002, 2008) proposes a notion to delineate systematic from non-systematic triviality: **L-analyticity.**
- L-analyticity, he argues, manifests as **ungrammaticality**:

  (13) There is a/***every** wooden table.

We need to distinguish between **logical vocabulary** and **non-logical vocabulary** (approximation: invariance conditions).

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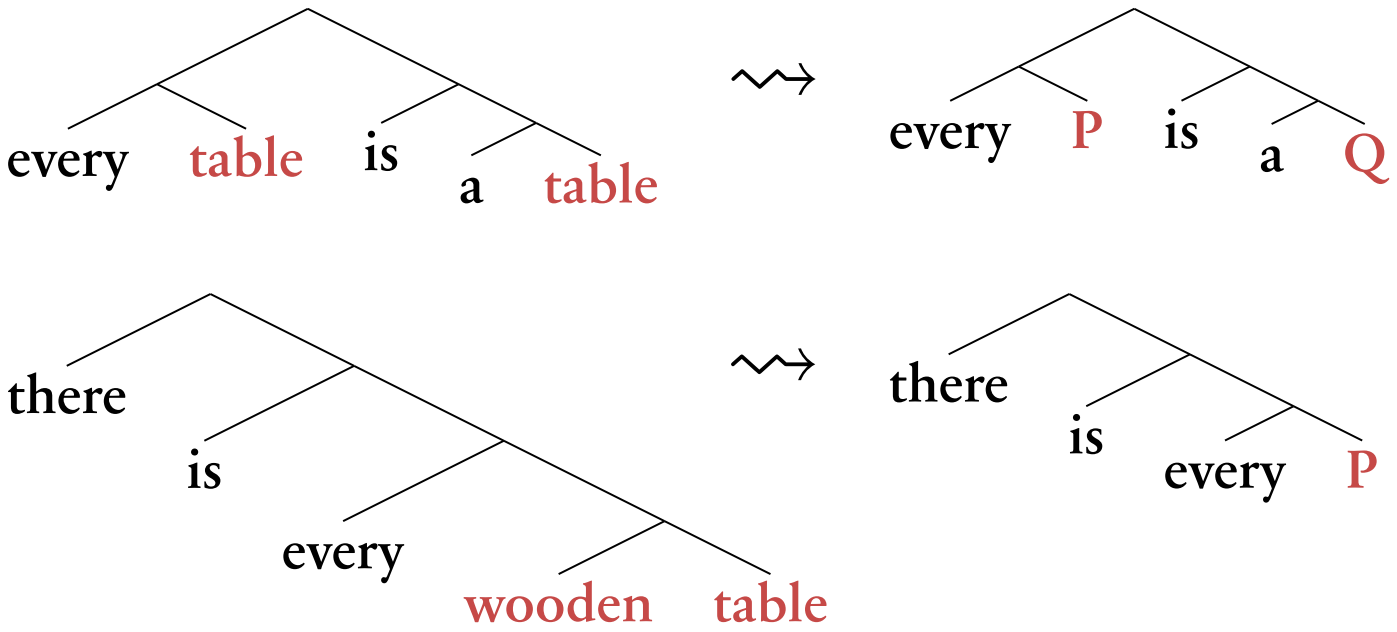

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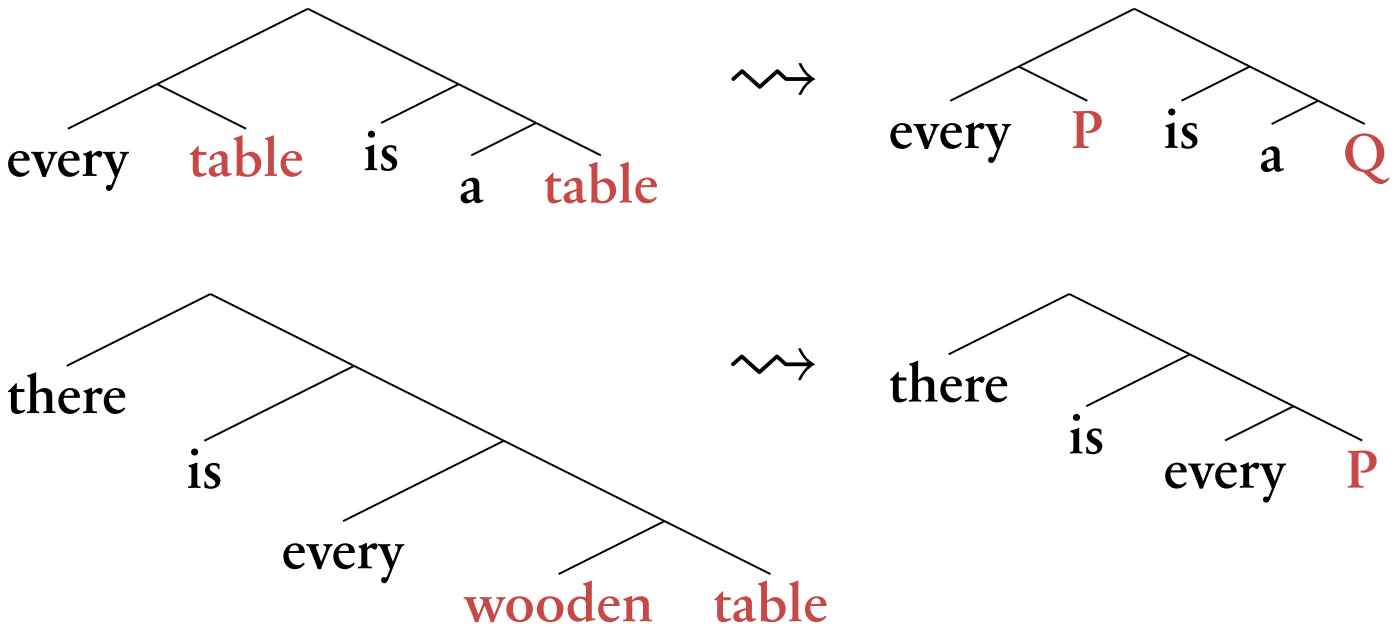

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S is **ungrammatical** if its LF contains an L-analytical constituent.

DECOMPOSING ATTITUDE VERBS

To show that the systematic triviality of *believe*wh* is a case of L-analyticity, we assume that:

1. Interrogative complements are headed by the **interrogative marker ?**:

$$[\![?]\!]^w := \lambda P_{\langle \mathrm{st,t} \rangle}.P \cup \neg P$$

e.g. $[\![?]\!]^w \left(\begin{array}{|c|c|}\hline \circ & \circ \\ \hline \circ & \circ \\ \hline \end{array} \right) = \begin{array}{|c|c|}\hline \circ & \circ \\ \hline \circ & \circ \\ \hline \end{array}$

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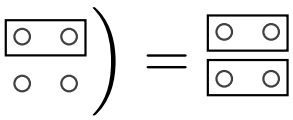
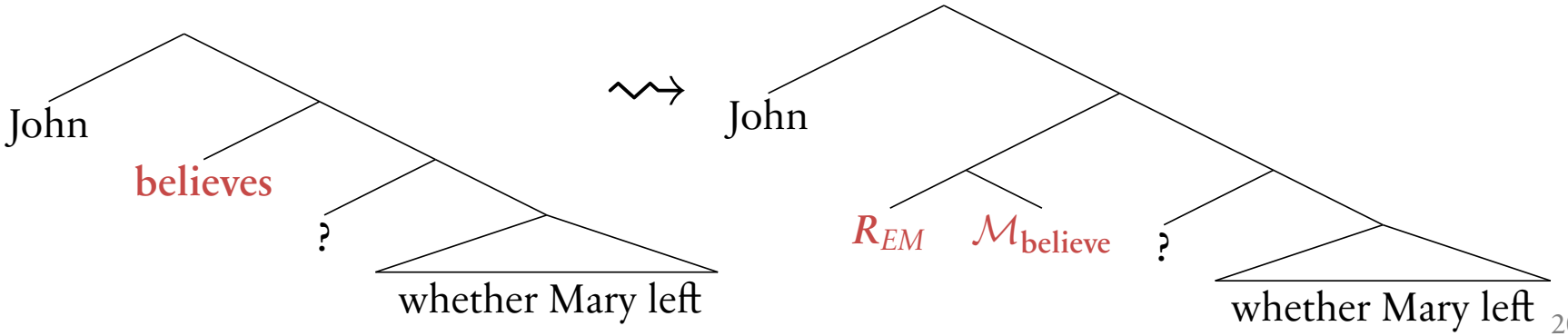
e.g. $[\![?]\!]^w$ 

2. Neg-raising attitude verbs are **decomposed** at LF into two predicates: R_{EM}, which is common to all neg-raising attitude verbs, and $\mathcal{M}_V$, which is specific to the respective verb:



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$\mathcal{M}_V$ is a function mapping an individual x to a **modal base.**

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$\mathcal{M}_V$ is "contentful", hence **non-logical.** R_{EM} is **logical.**

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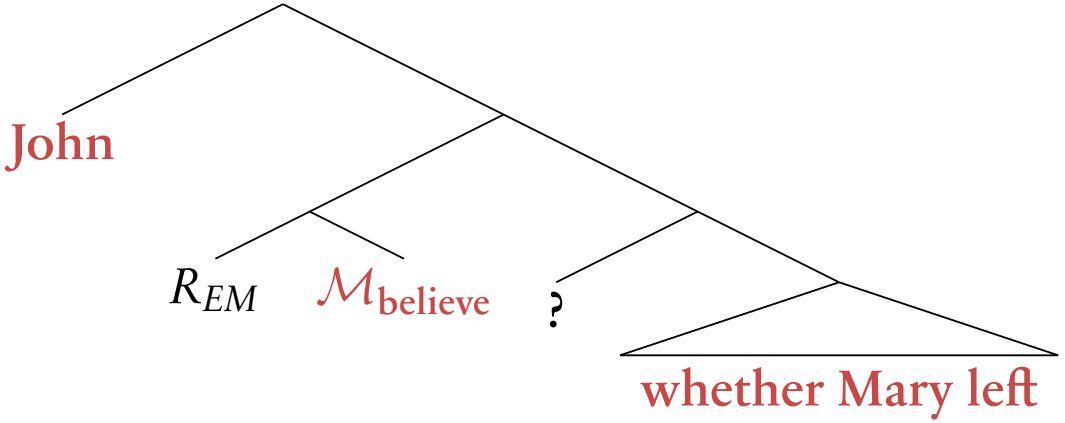

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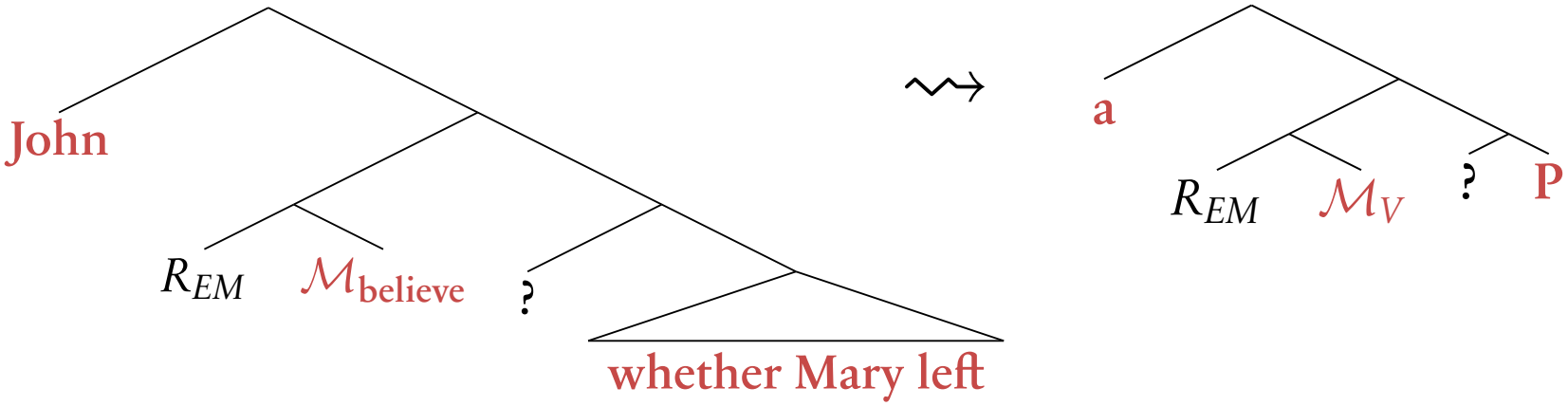

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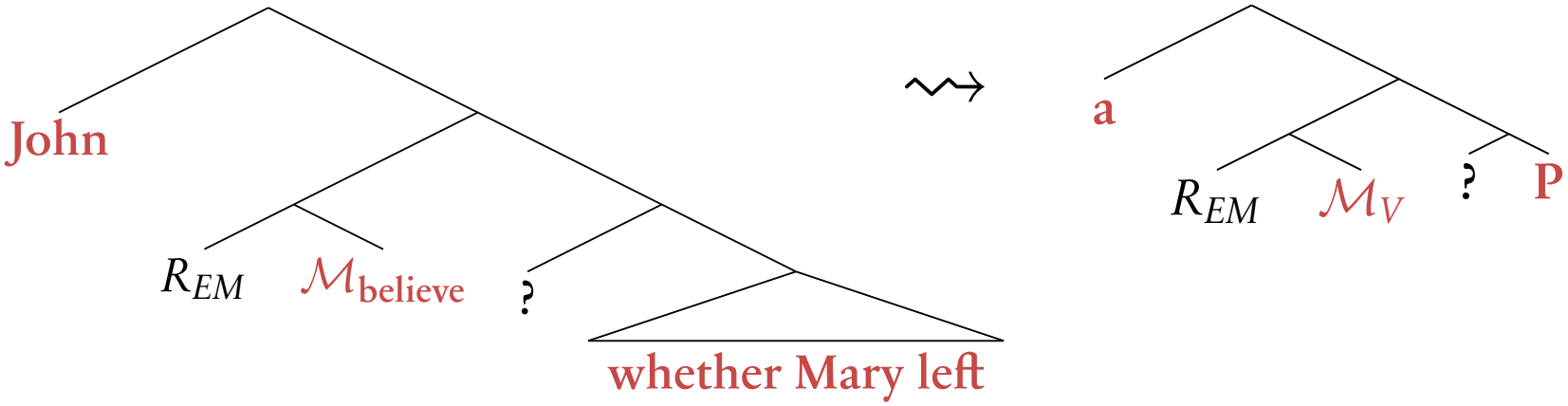

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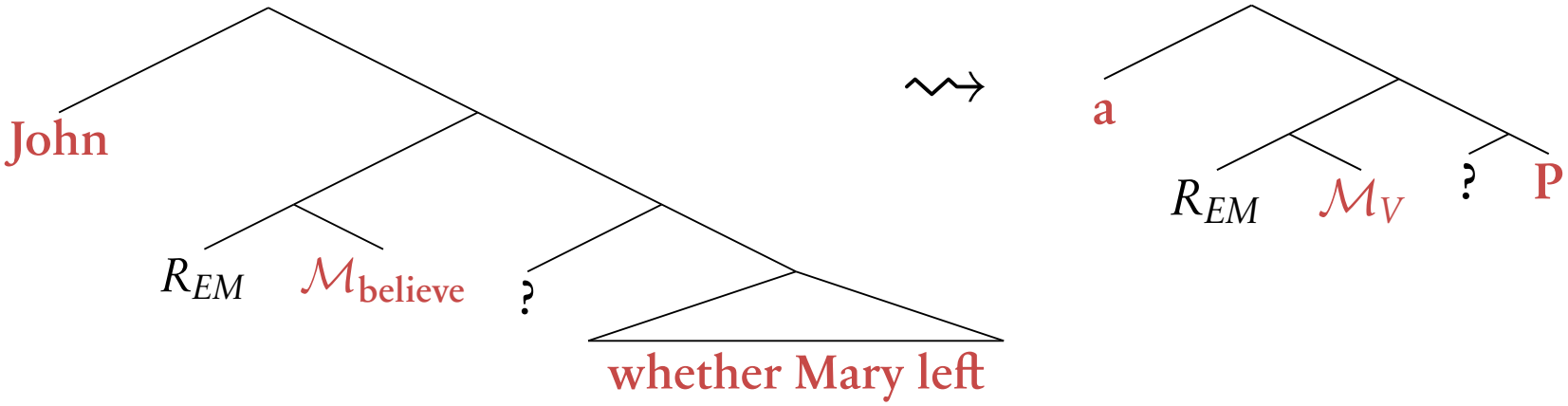

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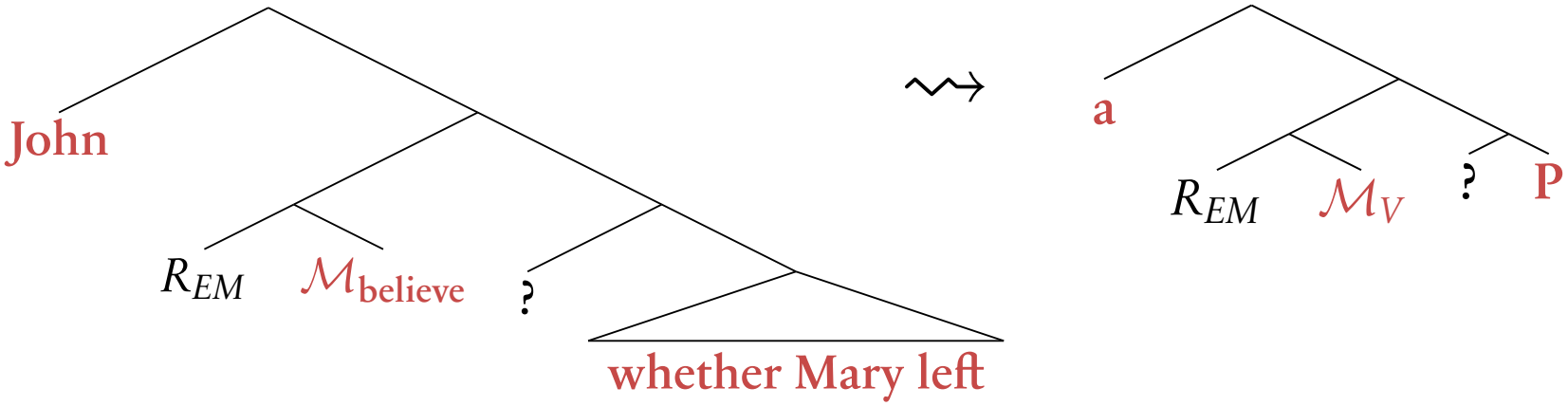

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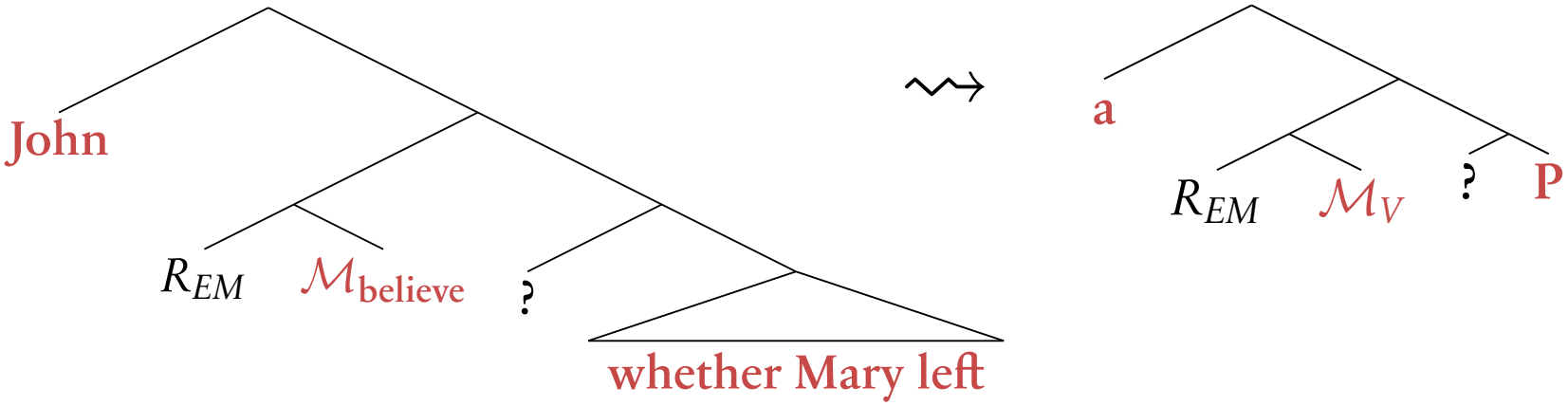

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So, if truth-assessing verbs take a complement which covers the entire logical space, this results in systematic triviality, too.

PART 4

Accounting for *wonder*that*

ROGATIVE VERBS

At least three subclasses within the class of rogative verbs (cf., Karttunen, 1977):

1. **Attitude verbs:** e.g., *wonder*, *be curious*, *investigate*
2. **Speech act verbs:** e.g., *ask*, *inquire*
3. **Verbs of dependency:** e.g., *depend on*, *be determined by*

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- For example:

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Intuitively:

- **First conjunct:** x **isn't certain that** p,
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If *wonder* takes a declarative complement, the two conjuncts in the entry for the verb always become contradictory.

This contradiction is systematic too, but is it also L-analytical?

CONCLUSION

- Assuming a **type distinction** between declarative and interrogative complements is **not necessary** for capturing the selectional restrictions of clause-embedding verbs.
- We have seen several examples of how these restrictions can instead be **derived** from the interplay between:
  - the semantic properties of the respective **complements** and
  - independently motivated features of the **embedding verbs**.

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