

The Mental Representations of Light Verbs

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QUESTION:

The Light Verb Construction gives us a window into the mental lexicon:

John takes a cup → agent=John, theme = a cup
John takes a walk → agent = John, theme=∅

THE LIGHT VERB CONSTRUCTION:

- The predicate associated with the **verb fails to express its full argument structure.**
- The predicate associated with the **nominalization preserves its original argument structure.**

Paul macht einen Spaziergang ≈ *Paul geht spazieren.*
 Paul makes a walk ≈ Paul walks.
Paul macht einen Kaffee ≠ **Paul kaffee-t.*
 Paul makes a coffee ≠ **Paul coffee-es.*

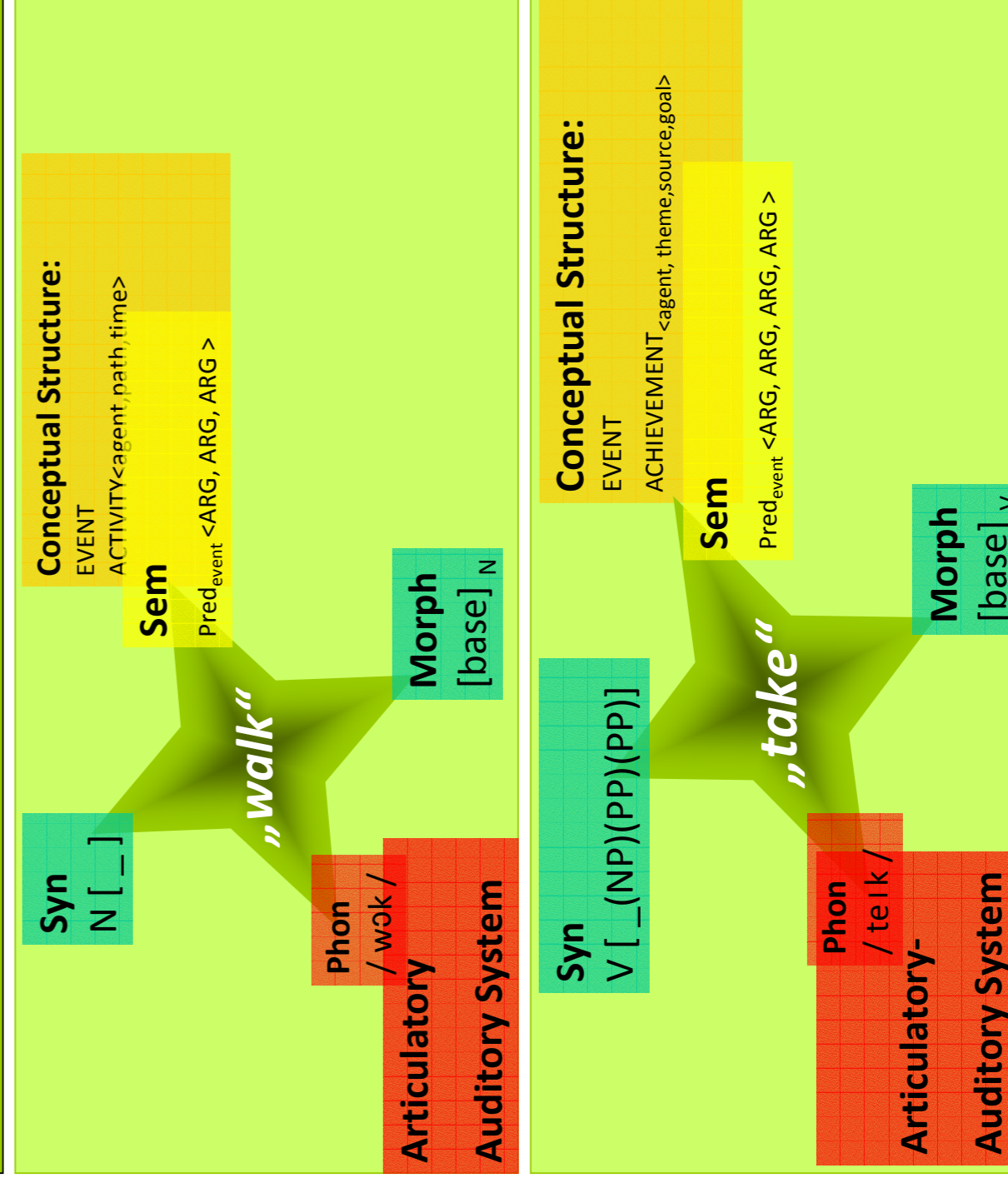
phrase structure in both examples: **[DP_{LP} V DP]]**
 semantic roles: *Paul* <agent>, *Kaffee* <patient>
Paul <agent>, *Spaziergang* <∅>

compositional problem:

no 1:1-correspondence between semantic and syntactic arguments!

PROPOSAL (I):

THE LEXICAL ITEM: AN INTERFACE SYSTEM



PROPOSAL (II): ARGUMENT SHARING

integration of verbal predicate's and nominal's arguments.
 ...rooted in syntax and semantics

...triggered by mismatch between semantic roles and syntactic arguments
 ...a "recycling" process: no new semantic roles.



THREE SOLUTIONS:

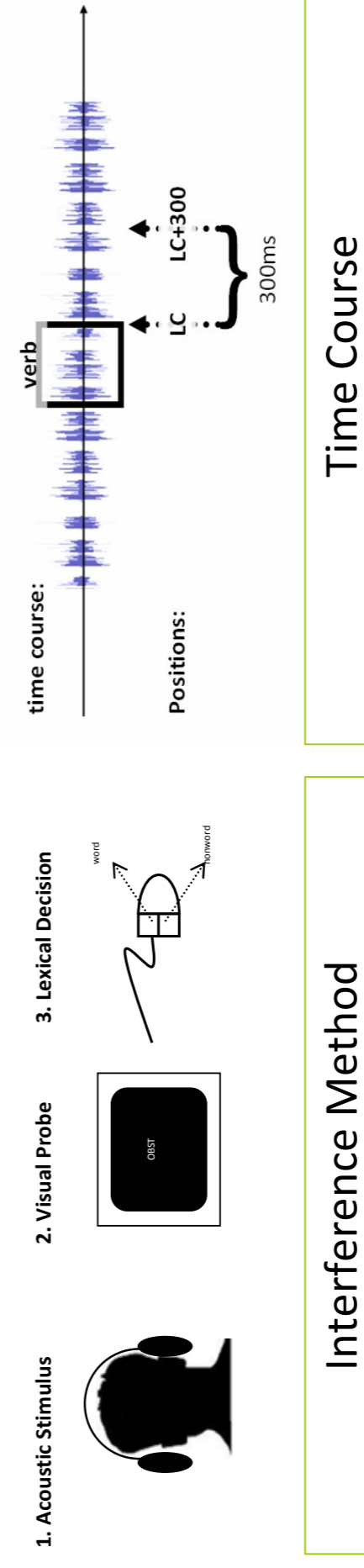
Non-Compositional:

- Compositional:**
- Syntax-driven
- Syntax&CS

→ **need to dissociate syntax and semantics!**

- syntax = immediate (LC);**
- semantics = slower to develop (LC+300)**

APPROACH: REAL-TIME COMPREHENSION



SAMPLE EXPERIMENTAL TRIAD

(1) Light:

Weil der Student seiner Kommilitonin vor dem Seminar **eine Zusammenfassung gab**, spendierte sie ihm letzte Woche einen Kaffee.
Because the student gave an abstract to his fellow student before class, she bought him coffee last week.

(2) Heavy:

Weil der Student seiner Kommilitonin vor dem Seminar **eine Zusammenfassung abschrieb**, spendierte sie ihm letzte Woche einen Kaffee.
Because the student copied an abstract to his fellow student before class, she bought him coffee last week.

(3) Dark:

Weil der Student seiner Kommilitonin vor dem Seminar **einen Kugelschreiber gab**, spendierte sie ihm letzte Woche einen Kaffee.
Because the student gave a pen to his fellow student before class, she bought him coffee last week.

PREDICTIONS:

Non-Compositional:
 RT at both LC and at LC+300:
 • RTs should be inversely proportional to frequency.

Compositional:

syntax-driven:
 RT at LC
 • Lexical ambiguity of the verb should provoke processing cost at LC, but not at LC+300

syntax&semantics:
 RT at LC:
 • No effect at LC (syntactically, all three conditions are the same)
 • LVCs harder to process at LC+300: Argument Sharing is semantic

RESULTS

Licensing Position (LC): LIGHT = DARK = HEAVY

RT_L vs. RT_H vs. RT_D: F(2, 816) = 0.08, p=0.91)

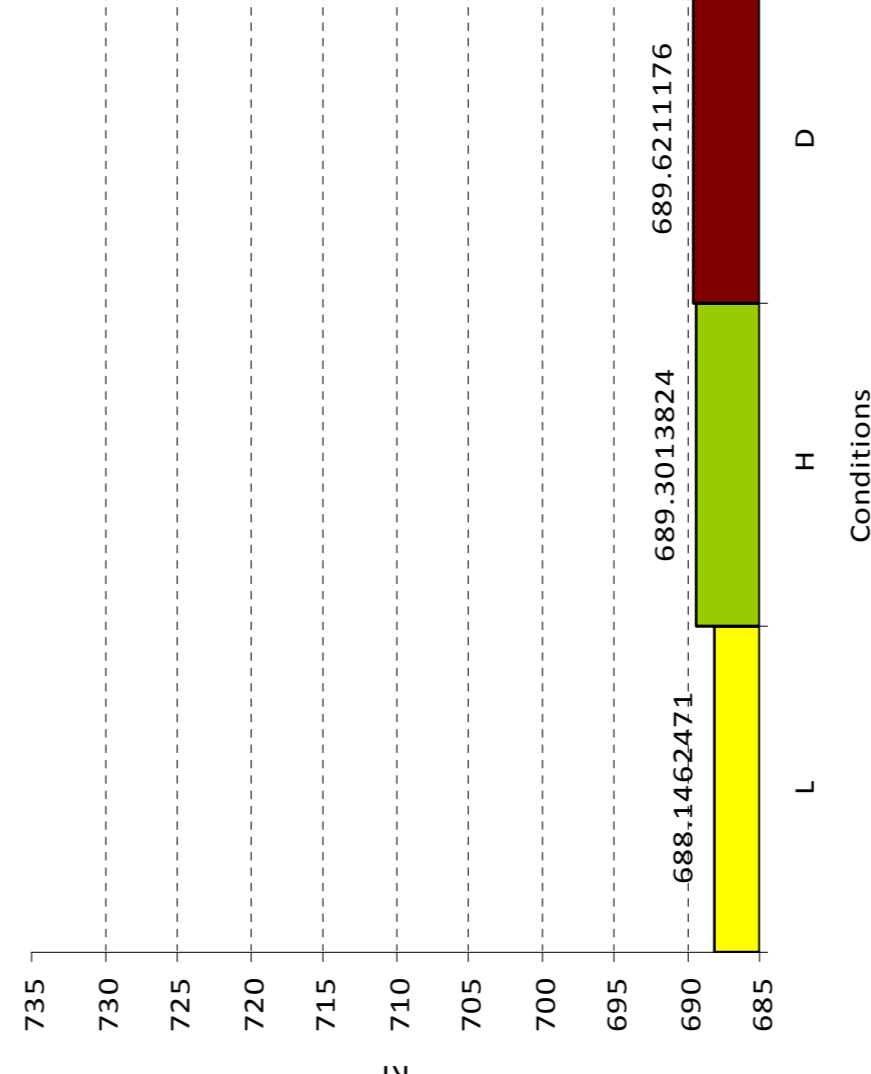
LC+ 300 msec: LIGHT >> DARK/HEAVY

RT_L vs. RT_H vs. RT_D: F(2, 798) = 3.23, p= 0.04)

RT_L vs. RT_H: F(1, 532) = 4.64, p= 0.03)

RT_L vs. RT_D: F(1, 532) = 4.87, p= 0.03)

LC: Aggregated Means



CONCLUSIONS

Composite argument structure in light verb constructions results from a **compositional process: argument sharing.**

Argument Sharing is an organizing principle in the **mental lexicon:** Our results support a **lexical representation** that dissociates syntactic and semantic information, and a **process of composition** that integrates these independent kinds of information.