



Interpreting an Interpretive Illusion: What the Dative Illusion Tells Us about Processing

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Research Question

- Dative verbs can occur in **double object (DO)** and **prepositional dative (PD)** constructions.
- Give-type verbs** require recipient goals in DO and PD. [1]
- Send-type verbs** require recipient goals only in DO.

- John gave { Mary / #Davis, CA } a package. (DO)
 - John gave a package to { Mary / #Davis, CA }. (PD)
- John sent { Mary / #Davis, CA } a package. (DO)
 - John sent a package to { Mary / Davis, CA }. (PD)

- Do comprehenders enforce thematic role restrictions on arguments in the same way in **simple sentences** and **sentences where the argument is extracted**?

Background

- Semantic type coercion is easier across clauses (e.g., *The secretary began the memo* vs. *The memo that the secretary began...*). [2]
- Processing of backgrounded information may be shallow or merely “good-enough” (e.g., the Moses Illusion). [3, 4, 5, 6]
- Do these findings extend to thematic restrictions on arguments?

Materials & Methods

- Plausibility rating task (1 = low, 7 = high) on Amazon MTurk.

- Exp. 1:** 20 items in a 2x2x2 design crossing VERB-TYPE, CONSTRUCTION, and GOAL EXTRACTION; N = 48.

- Jane { loaned } { the countertop some keys } { threw } { some keys to the countertop }.
- The countertop that Jane { loaned } { threw } some keys { - } { to } is all the way across the room.

- Exp. 2:** Same 20 items as exp. 1 w/o verb-type manipulation; N = 64. Sentences broken into 2 chunks, but did not appear to affect results.

- Added STRICT/LENIENT instruction manipulation
- Added 10 ill-formed controls: 5 missing prepositions, 5 typos

- The train that Zack was waiting *for* was delayed due to an accident.
- The new *care* that Chuck got at the dealership had expensive leather upholstery.

Conclusions

- Exp. 1:** Goal extraction improved ratings for *send*-type, DO items more than for *send*-type, PD or *give*-type items.
- Exp. 2:** Participants showed no evidence of correcting the syntax of *send*-type DO items with goal extraction compared to controls.
- The verb-type difference points against shallow semantic processing of embedded material. The difference between experimental items and controls points against a syntactic correction account.
- Key idea: What goes wrong is the processing of the the mapping between syntax and semantics.**
- This is easiest to account for if verbs themselves place restrictions on their arguments, in contrast to constructions or functional heads.
- For future research: why do these kinds of sentences lead to difficulty enforcing the syntax/semantics mapping? Can the Dative Illusion be extended to other cases?

Exp. 1 Results

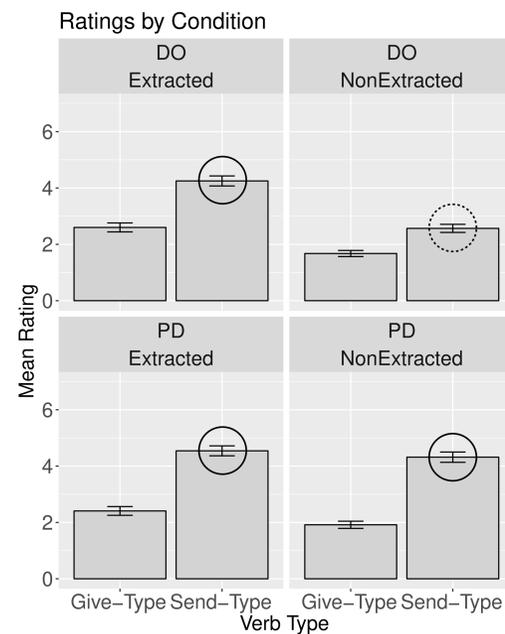


Figure 1: Exp. 1 Mean Ratings

Findings:

- Three-way interaction:** *send*-type, DO items improve with goal extraction more than *send*-type, PD items or *give*-type items ($F_1 = 7.62, p < 0.05; F_2 = 6.44, p < 0.05$).

Conclusions:

- Recipient restriction was not enforced for *send*-type verbs with goal extraction, but was for *give*-type verbs. This is the **Dative Illusion**.
- Correction could be responsible: *send*-type, DO items with goal extraction can be corrected by inserting a preposition [cf. 7, 8, 9]. This doesn't work for *give*-type verbs or simple items.

Exp. 2 Results: Dative Items

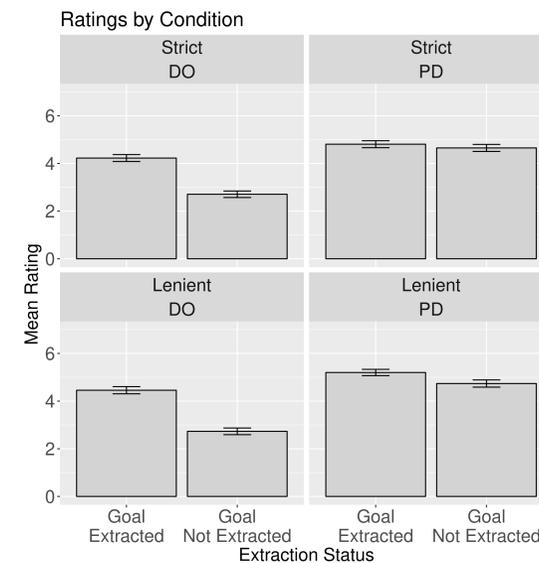


Figure 2: Exp. 2 Mean Ratings (Dative Items)

Overview:

- Exp. 2 tested a correction-based account of the Dative Illusion.
- STRICT/LENIENT instruction manipulation tested whether the apparent illusion was a result of conscious correction in comparison to other sentences missing prepositions. (No *give*-type verbs used.)

Findings:

- Two-way interaction:** goal extraction improved ratings for DO but not PD items ($F_1 = 60.26, p < 0.05; F_2 = 27.36, p < 0.05$). No interaction with instruction type.
- The Dative Illusion was replicated: restrictions on extracted DO goal arguments not enforced, regardless of instructions.
- No effect of instructions on plausible/improbable fillers (not shown).

Exp. 2 Results: Controls

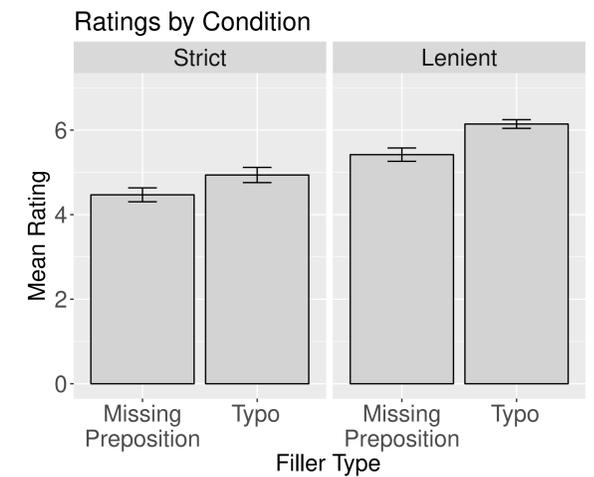


Figure 3: Exp. 2 Mean Ratings (Controls)

Findings:

- Participants rated ill-formed controls higher with lenient instructions ($F_1 = 36.86, p < 0.05; F_2 = 28.61, p < 0.05$).

Conclusions:

- Participants' ratings depended on instruction type for ill-formed controls. This did not occur for the DO goal extraction condition, despite the fact that the proposed repair strategy should be the same for both cases (insert a preposition).
- This supports the view that experimental items are not subject to repair processes, while controls are.

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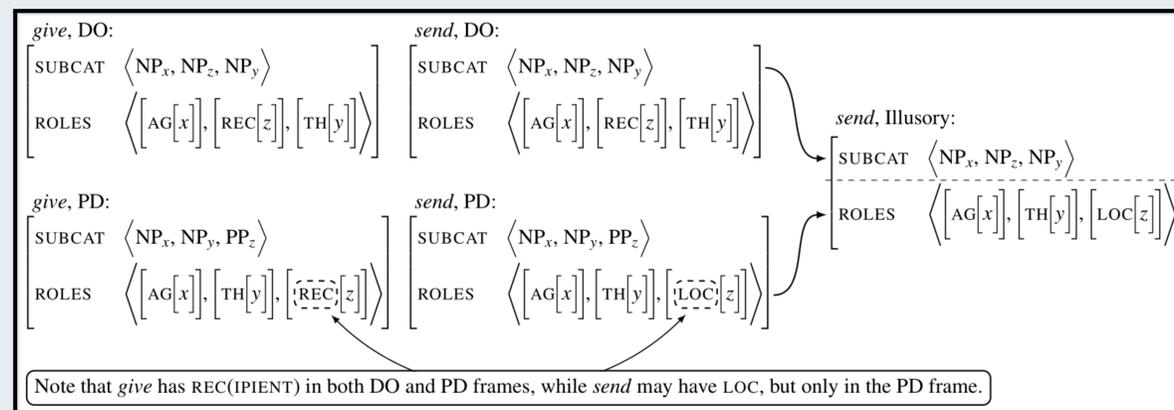
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Theoretical Analysis



- If the verb allows an argument structure that would permit mapping the extracted goal to a plausible role, the Dative Illusion occurs.
- A **lexicalist** approach: illusory *send* blends the syntactic SUBCATegorization properties of DO *send* and the semantic ROLES of PD *send*.
- Syntax and lexical semantics are processed deeply on their own, giving rise to the verb-type and experimental/control differences.

Alternative approaches:

- A **neo-constructionist** approach: the goal restriction might be in a functional preposition selected by *give* but not *send*. This wouldn't explain the experimental/control item difference: reinserting a preposition should work the same for both. Encoding the restriction as a presupposition of *give*-type verbs is a notational variant of a lexicalist approach.
- A **constructionist** approach: we have to allow the PD caused motion construction to have a caused possession reading via a metaphorical mapping. This must be forced only for *give*-type verbs, which boils down to a lexicalist approach.