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Introduction

- **Agent** and **Patient**: relational categories, can be identified across a range of asymmetrical two-participant events.
- Languages systematically mark and distinguish Agents and Patients.¹⁻³
- Many proposals for how to define them in language.⁴⁻⁶

Agent and Patient roles are available in implicit non-linguistic tasks:

- Roles differentiated early in perceptual tasks^{7,8} and can be spontaneously extracted.⁹⁻¹¹
- Infants perceive role reversals in simple causal events¹² and perceptual features correlated with event roles.¹³
- Parallel findings in some non-human primates.¹⁴

Are Agent and Patient roles available in explicit non-linguistic tasks?

- Rissman and Lupyan (2022): Explicit access is not straightforward.¹⁵
 - Participants sorted images of two-participant events (red dot on Agent or Patient), testing how they would group scenes.
 - Exp. 1: only ~52% spontaneously sorted by event role in free sorting.
 - Exp. 2-4: when explicit training used, performance varied and was often influenced more by valence than role structure.

What can account for this gap?

1. Implicit-explicit gap account:

- R & L (2022) suggest “automatic extraction does not appear to guarantee awareness in explicit categorization tasks.”
- May not be sufficiently salient to support explicit reasoning
 - Except when task solved via language.

2. Ambiguity account:

- Many categorization strategies available and little to no scaffolding to point to a single strategy.
- Design may have led people to focus on each event participant, obscuring relational structure.

Research Questions

(1) Can people explicitly categorize event participants in a scaffolded, unambiguous forced-choice task? Can they generalize to novel events?

- Implicit-explicit gap account predicts **no**.
- Ambiguity account predicts **yes**.

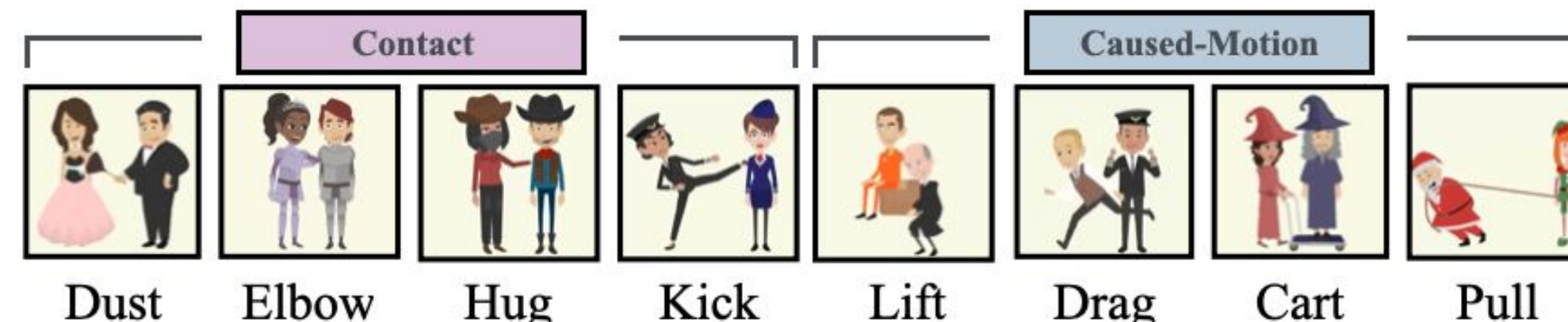
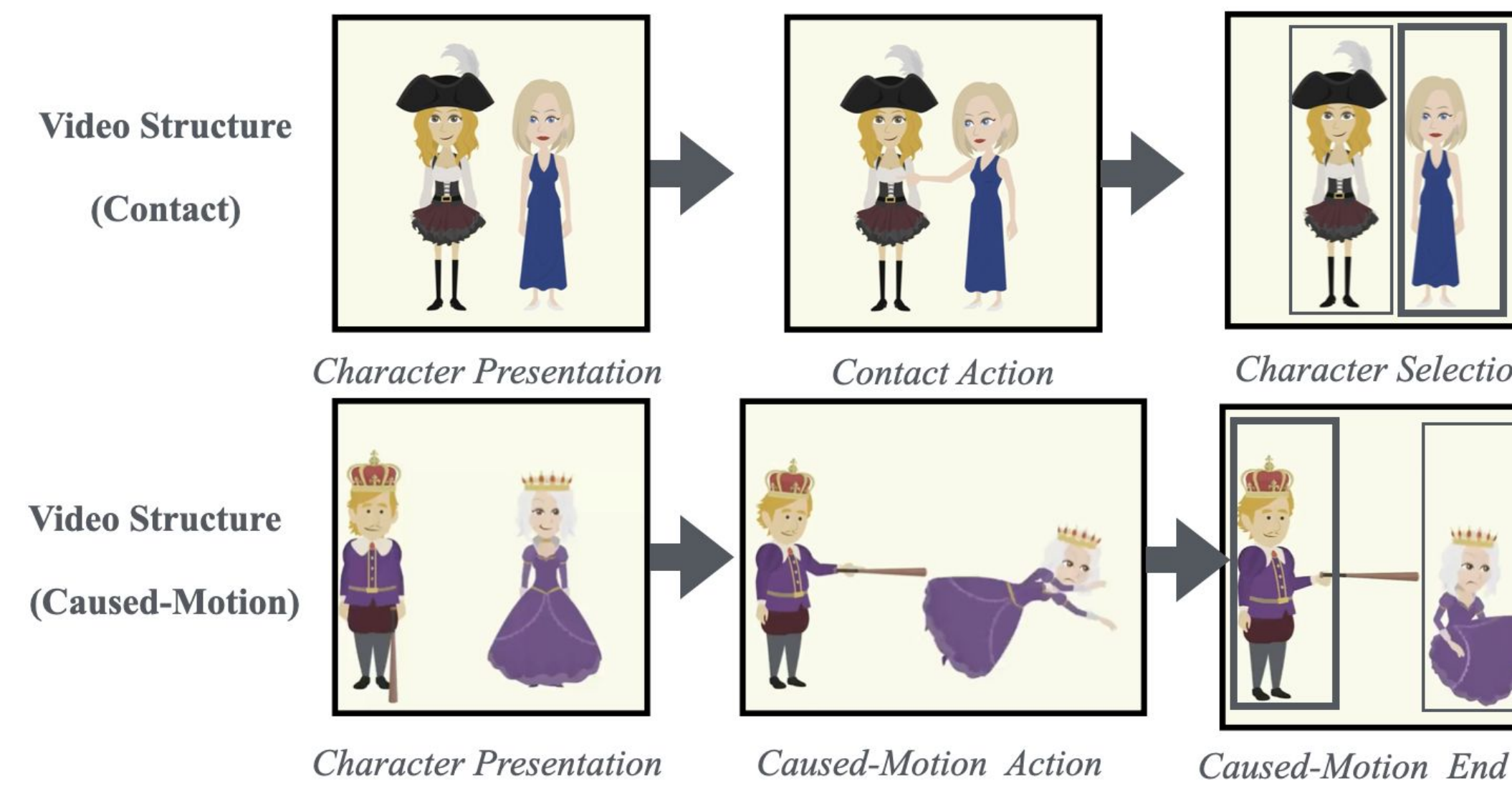
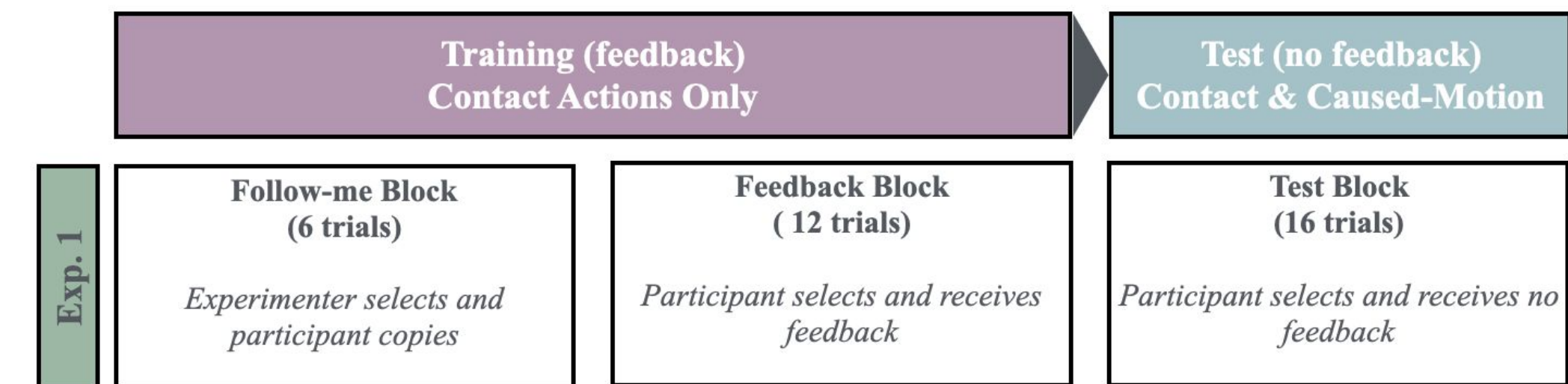
(2) Do participants use syntactic or semantic representations?

- Use active and passive sentences to explore whether participants use syntactic or semantic representations during explicit categorization.

| | Actives | Passives |
|---------------------------|---------|----------|
| Syntactic Representations | success | failure |
| Semantic Representations | success | success |

Methods & Materials

Imitation Task: Series of non-linguistic animated videos. Through scaffolding, participants were trained to select the agent or patient and tested on their ability to generalize to **new actions** and a **new class of actions**.



- **Exp. 2** identical to Exp. 1 but **trained on caused-motion** actions and **tested on novel caused-motion and contact** actions.

| | Narrow Generalization | Broad Generalization |
|---------------------|---------------------------|---------------------------|
| Experiment 1 | New Contact Actions | New Caused-Motion Actions |
| Experiment 2 | New Caused-Motion Actions | New Contact Actions |

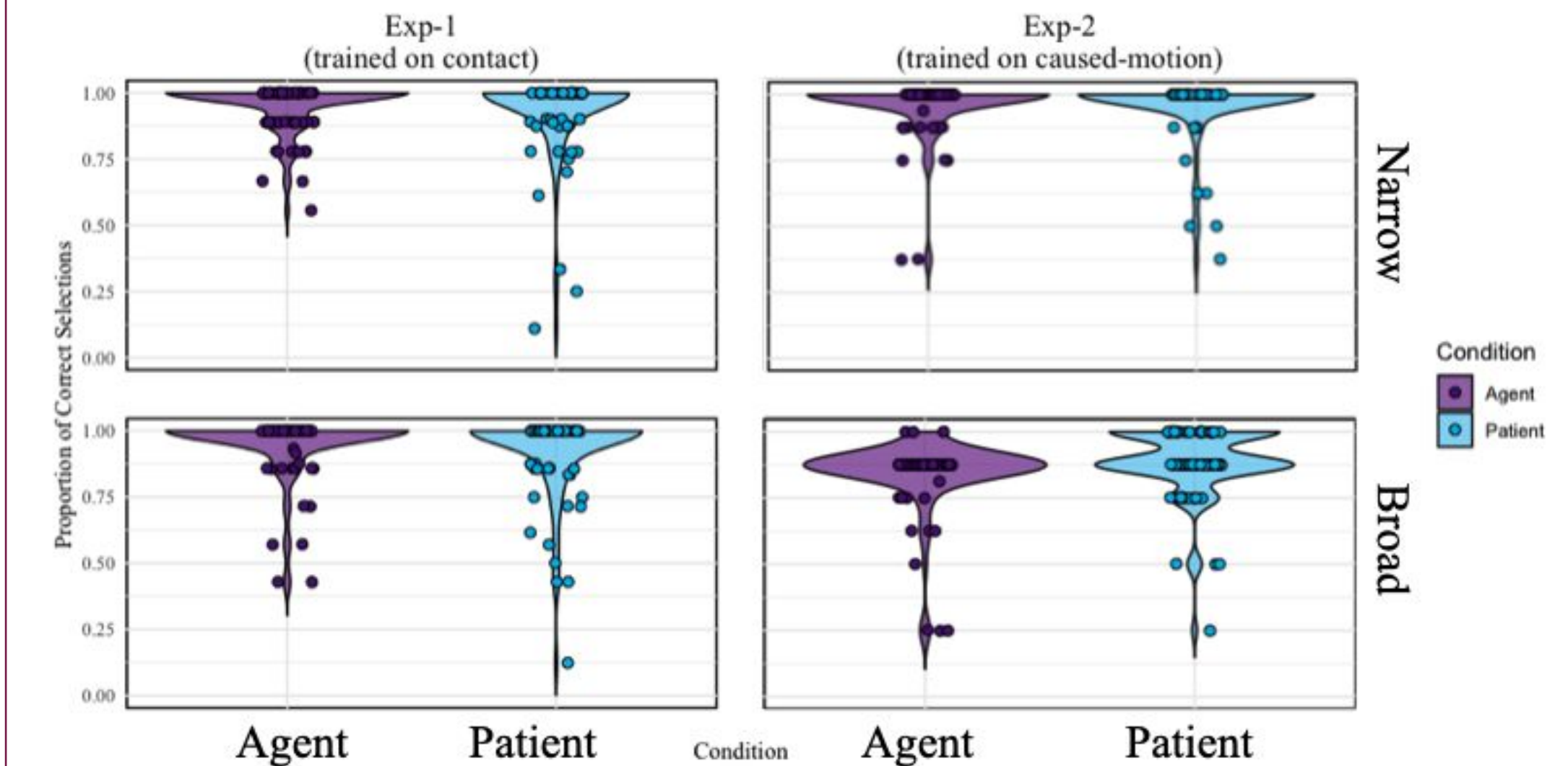
- In **Exp. 3** completed the training and test (from Exp. 1 & 2), then completed the **linguistic test block**.
 - Actions from training and non-linguistic test converted into verbs.
 - Block of ten active sentences and ten passive sentences (counterbalanced).

Participants

| | Exp 1: | Exp 2: | Exp 3: |
|--------------------------------|----------------|----------------|----------------|
| <i>N</i> (after exclusions) | 90 | 90 | 84 |
| <i>Demographics</i> | $M_{age} = 34$ | $M_{age} = 41$ | $M_{age} = 40$ |

Results & Discussion

Can people explicitly categorize event participants in a scaffolded, unambiguous forced-choice task? Can they generalize to novel events? Proportion of Correct Selections in the Test Phase by Verb Class and Study



Participants successfully learned to select Agents and Patients.

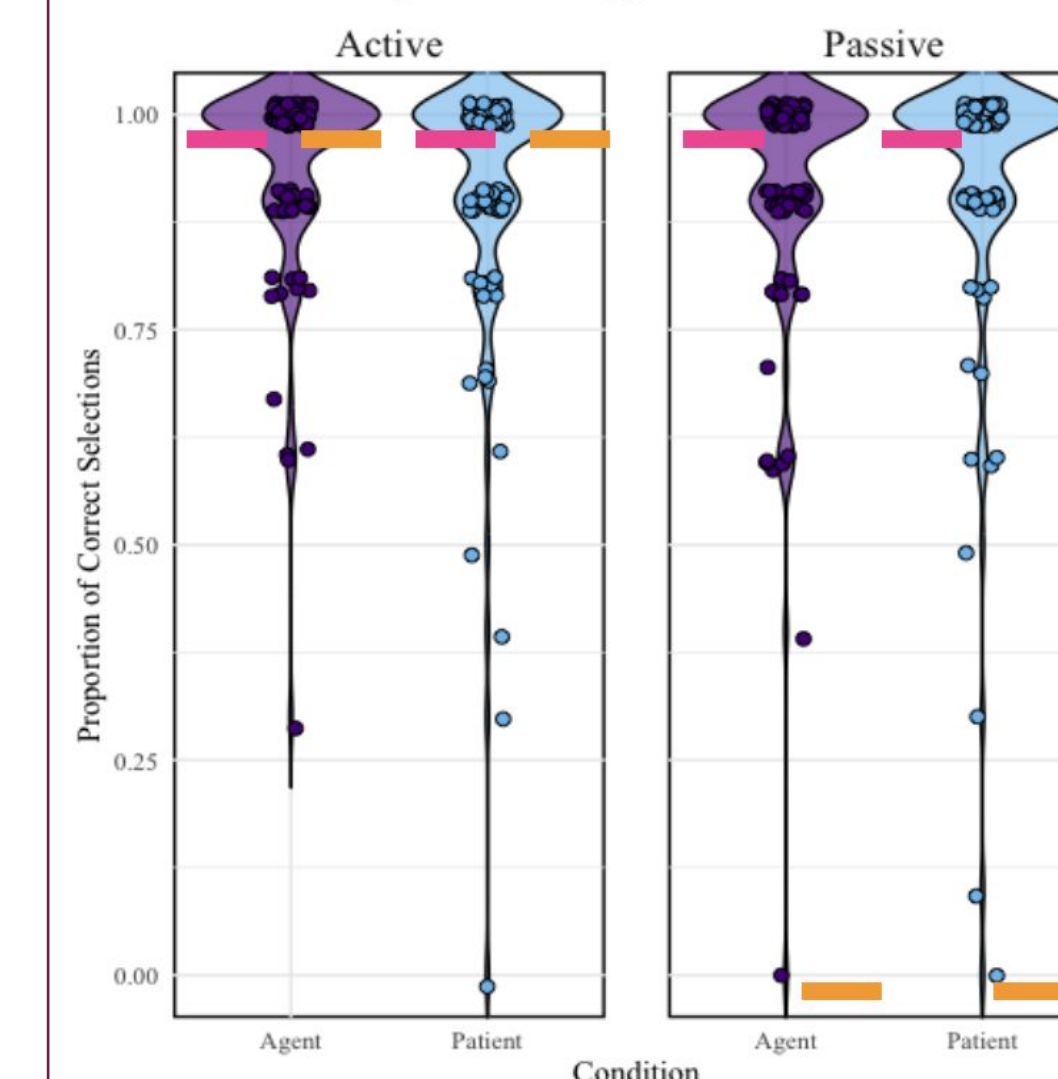
- Exp 1: $M = 95\%$, $\beta = 4.30$, $SE = .30$, $p < .001$
- Exp 2: $M = 92\%$, $\beta = 4.84$, $SE = .38$, $p < .001$

Extend from narrow action class used during training to broad action class introduced during test.

- Exp 1 (contact → motion): $M = 95\%$, $\beta = 4.74$, $SE = .55$, $p < .001$
- Exp 2 (motion → contact): $M = 87\%$, $\beta = 3.82$, $SE = .50$, $p < .001$

Do participants use syntactic or semantic representations?

Proportion of Correct Selections in the Linguistic Test Phase by Sentence Type and Condition



Participants successfully generalize to active and passive sentences.

Actives: $M = 93\%$, Passives: $M = 93\%$, no difference between sentence type, $\beta = -.14$, $SE = .18$, $p = .44$

Participants use **semantic encoding** to categorize event participants across Exp. 1 - 3.

Syntactic predictions in orange and semantic predictions in pink.

Ongoing work: exploring whether there is conceptual overlap between the roles used by Agent-Patient verbs and psych verbs.

- If Stimulus = Agent, expect equivalent transfer to fear-type and frighten-type verbs.
- If *only* frighten-type verbs have causal agents, expect asymmetric transfer.

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