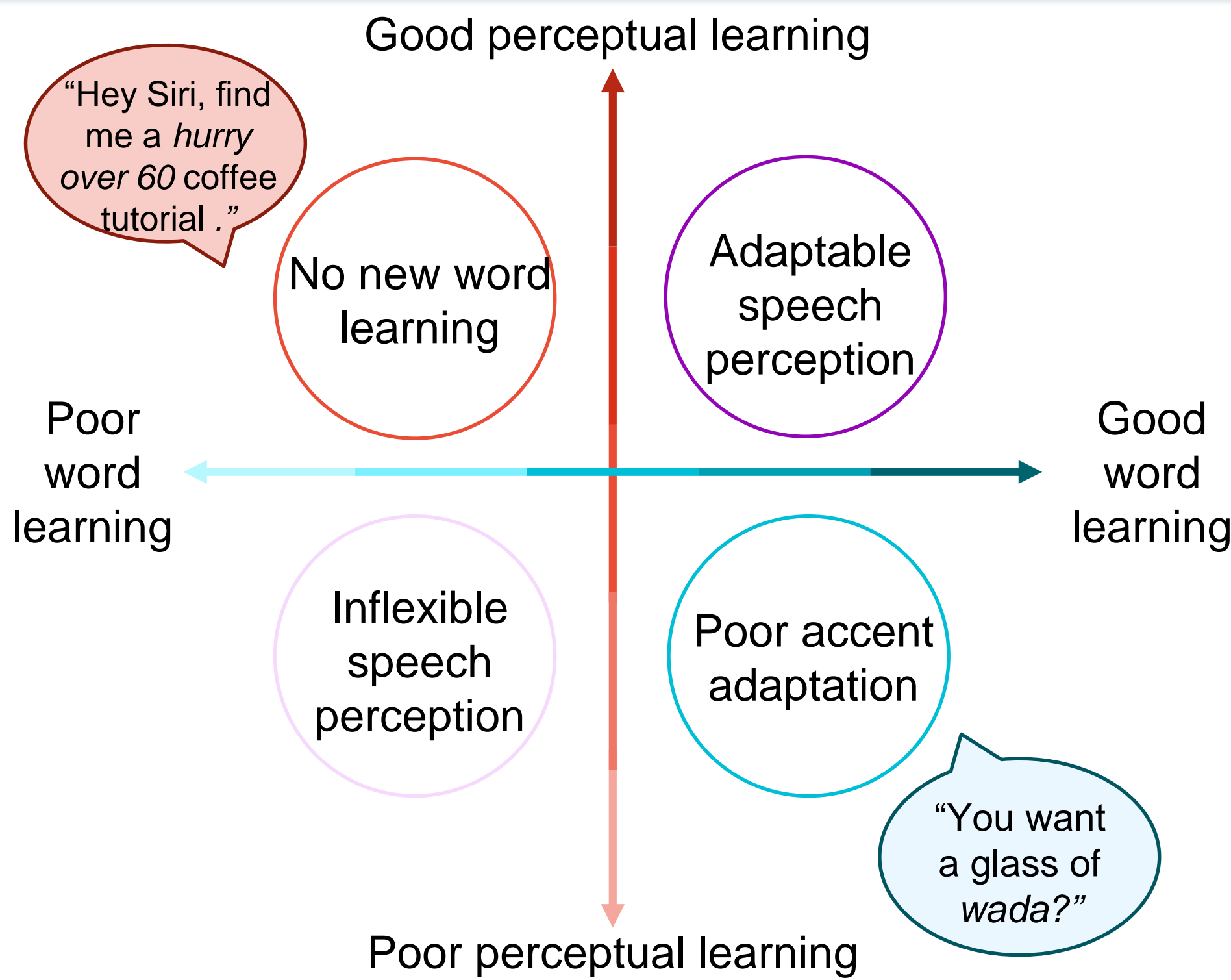


Flexible speech perception in response to multiple learning objectives

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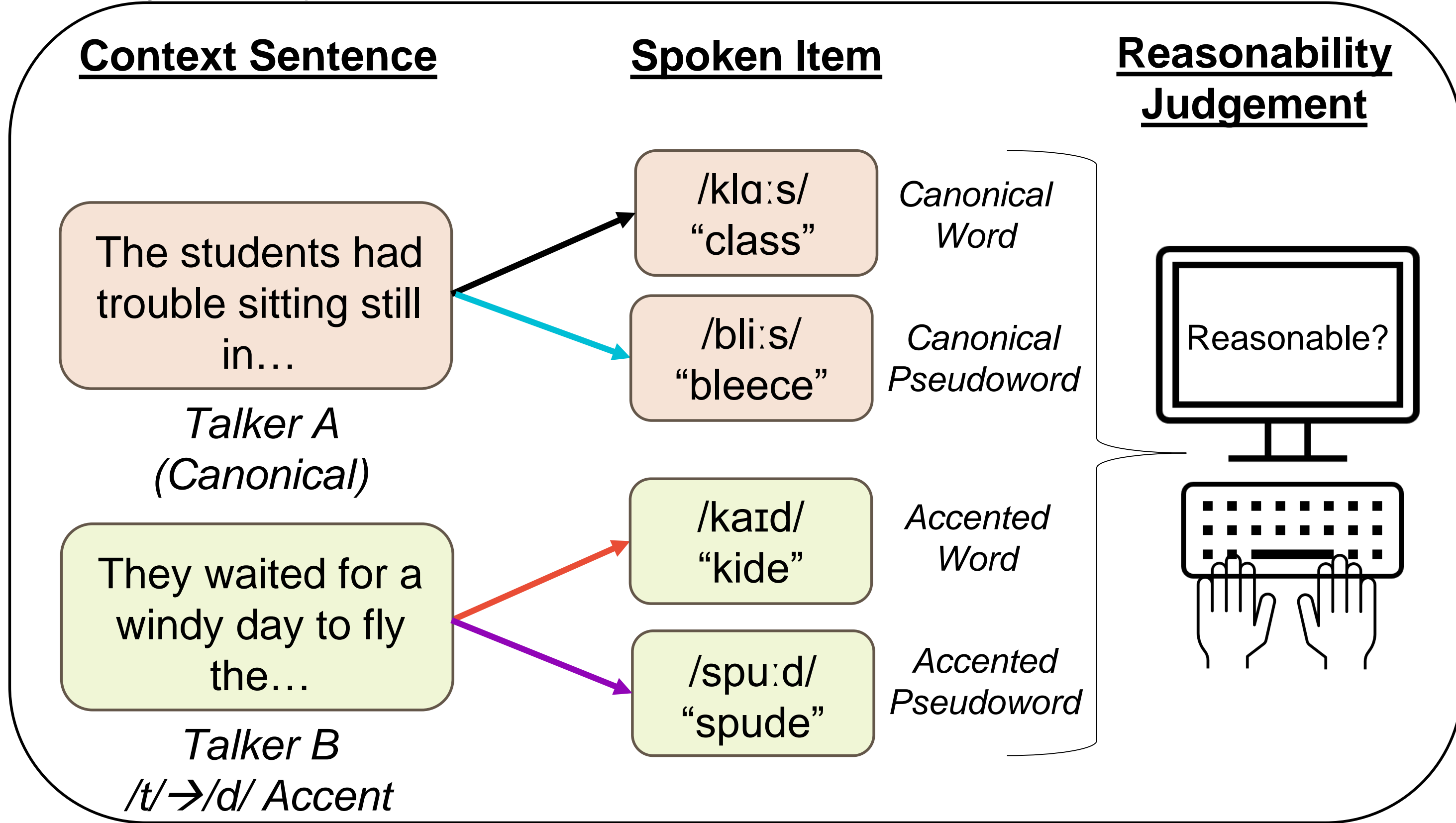
Introduction – Perceptual Learning & Word Learning

- Striking a balance between **perceptual learning** and **word learning** is essential for understanding non-canonical speech.
- How well can listeners **simultaneously** engage in both learning processes?
- Does reliance on each process vary by **type** versus **token** frequency?



Methods: Training Phase

- Online participants read sentence stem pairs followed by spoken presentation of either a **pseudoword** or predicted **word**.
- Spoken items were pronounced by either a **canonical** or **accented** talker.
- Participants were asked to judge reasonability of each spoken item.
- Group 1 (n = 22) heard 120 unique sentence pairs (i.e., types), while group 2 (n = 12) heard 60 unique sentence pairs presented twice (i.e., twice as many tokens).



Results – Training Phase

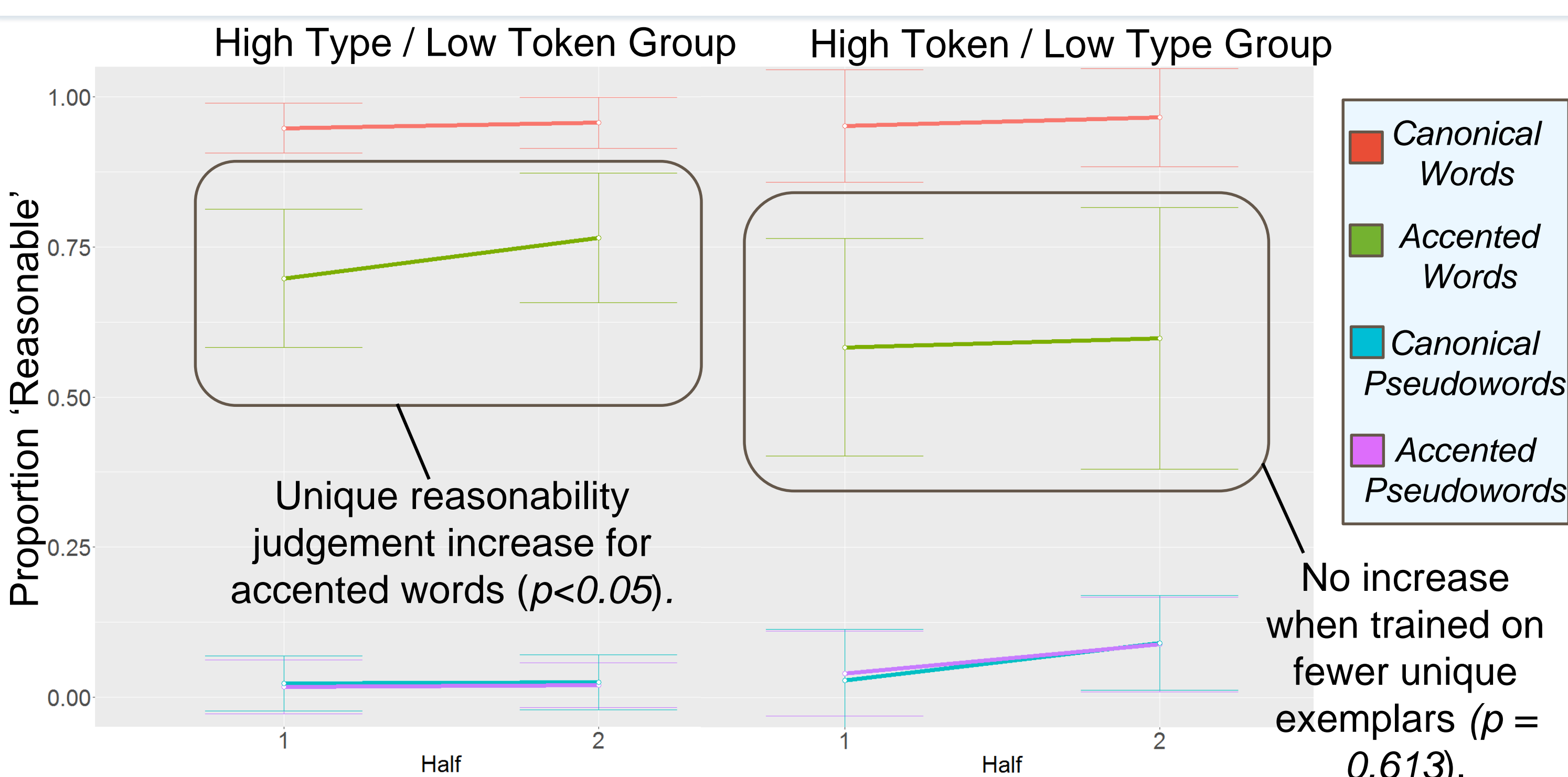
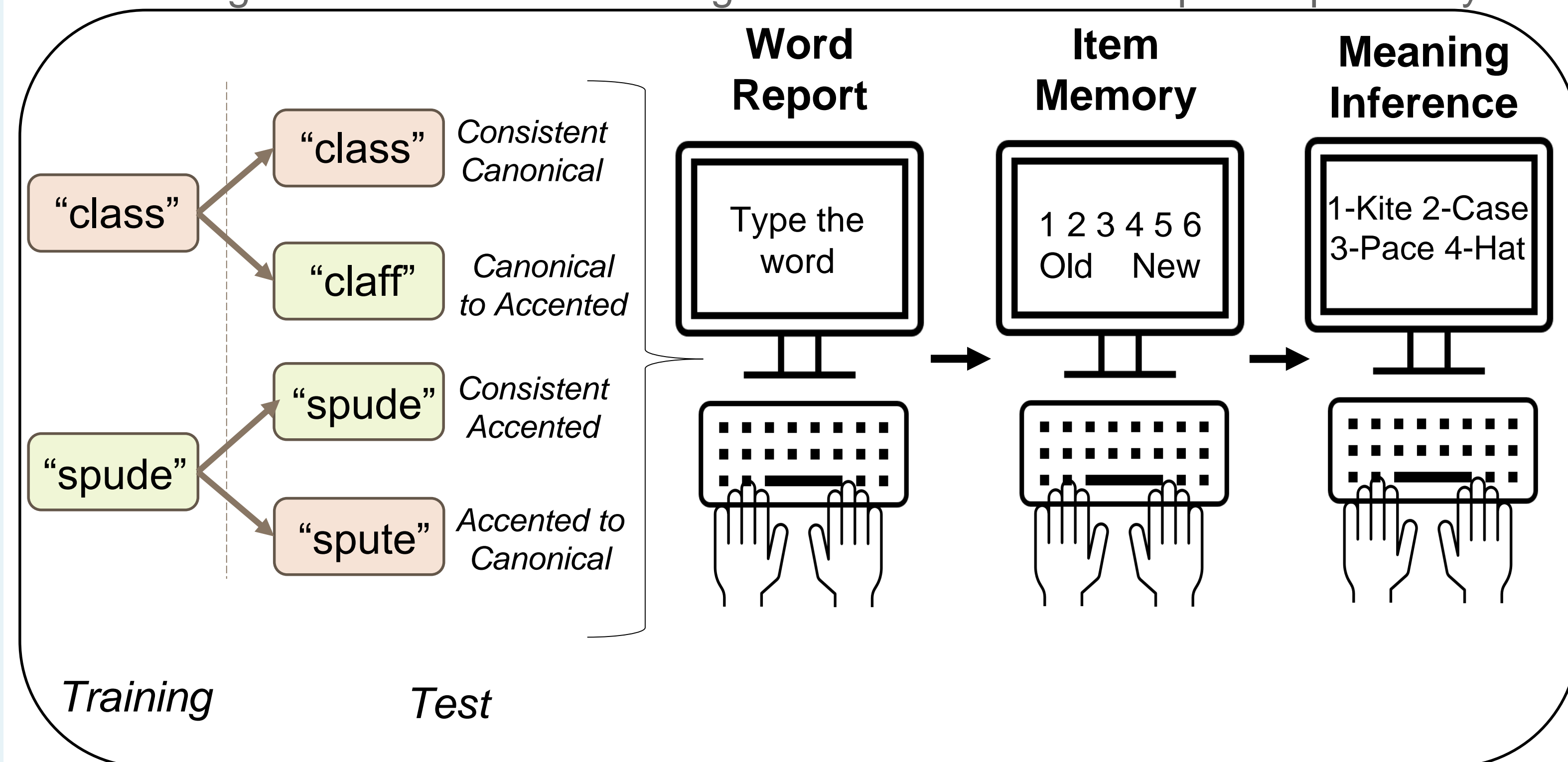


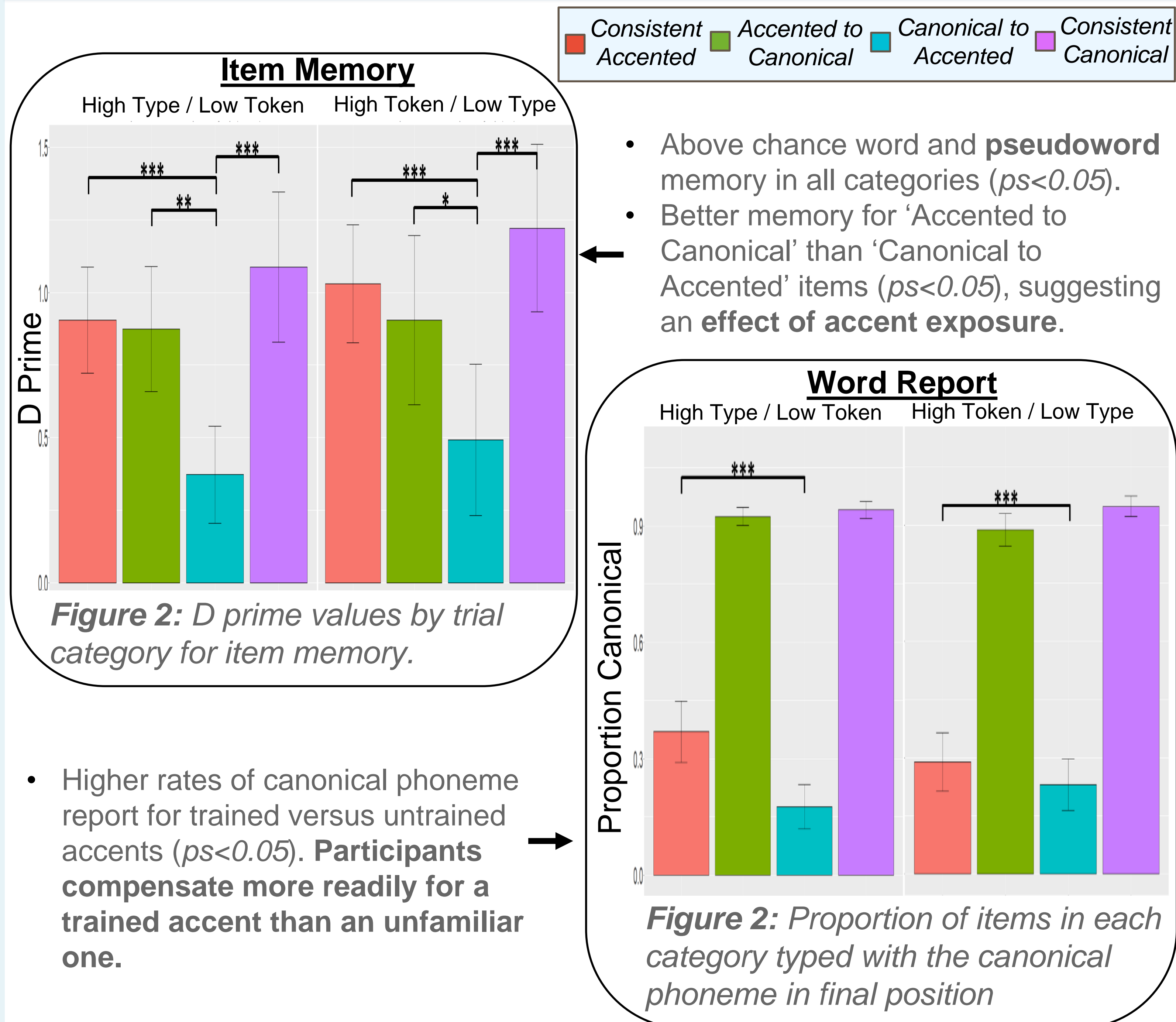
Figure 1: Proportion of participants' judgements of spoken items as reasonable, split by time period. Actual analyses conducted using a continuous time measure.

Methods: Test Phase

- Participants heard 120 old and new word forms, either from a consistent speaker and accent condition or a different speaker and accent condition.
- They then completed word report, item memory, and (for pseudowords) meaning inference tasks. Meaning inference results not reported presently.



Results – Test Phase



- Above chance word and **pseudoword** memory in all categories ($p < 0.05$).
- Better memory for 'Accented to Canonical' than 'Canonical to Accented' items ($p < 0.05$), suggesting an **effect of accent exposure**.

- Higher rates of canonical phoneme report for trained versus untrained accents ($p < 0.05$). **Participants compensate more readily for a trained accent than an unfamiliar one.**

Conclusion & Next Steps

- Listeners can flexibly engage in both perceptual and word learning in the same set of trials.
- Increasing the number of unique types during training may facilitate better perceptual learning.
- In contrast, increasing token count seems to improve word learning outcomes.
- Further behavioural work aims to replicate pilot results in a larger sample.
- A multi-day MEG study will assess the impact of overnight consolidation on perceptual learning, word learning, and their interaction.