



Main Study

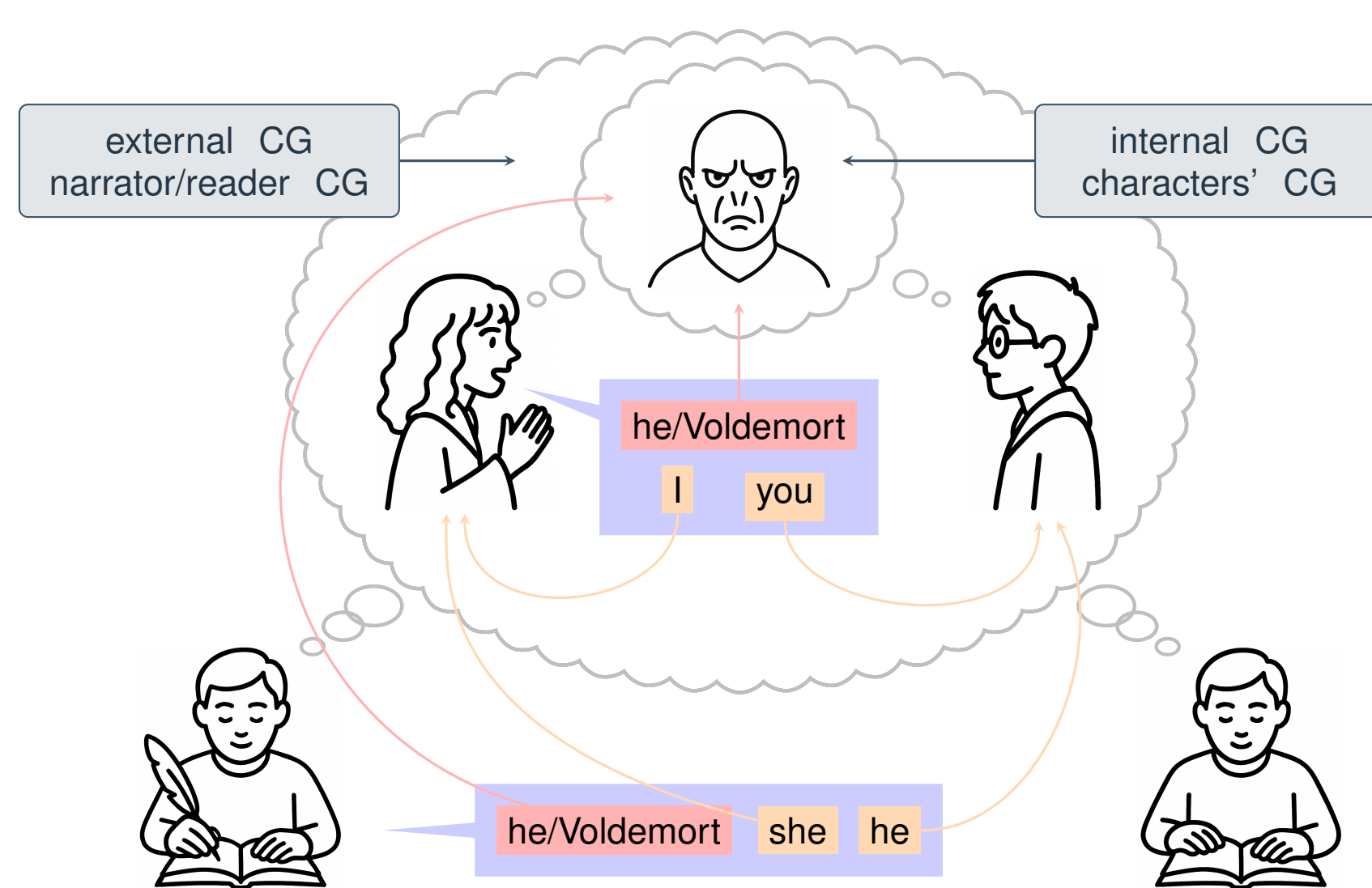
Referential choice

personal pronoun: if the referent is present and highly activated in the common ground (CG)

proper name: if the referent is uniquely identifiable under that name, but not necessarily highly activated

Gundel, Hedberg & Zacharski 1993. *Cognitive status and the form of referring expressions in discourse.*

External and internal CG



Research Question

Activation in which CG—internal, external, or both—determines the referential choice in direct speech of characters in a story?

Heller & Brown-Schmidt 2023. *The Multiple Perspectives Theory of Mental States in Communication.*

Items

opening Bill pushed the plate of scones towards me.	
antecedent "Amy wants to sell the boat," he said.	
intervening speech "Finally," I said, picking up the dropped napkin. "The old rust bucket nearly sank twice this year, and the repairs cost half a fortune. I've promised never to set foot in it again."	intervening thought Finally, I thought, picking up the dropped napkin. The old rust bucket had nearly sunk twice this year, and the repairs had cost half a fortune. I had promised never to set foot in it again.
-reactivation I poured milk into the cups and sat next to Bill.	+reactivation Amy was cross and hadn't spoken to me since.
target "[She/Amy] is asking a fair price, no doubt," I said and rolled a warm scone between my cold hands.	

Task

intervening thought, +reactivation:

Bill pushed the plate of scones towards me.
"Amy wants to sell the boat," he said.
Finally, I thought, picking up the dropped napkin. The old rust bucket had nearly sunk twice this year, and the repairs had cost half a fortune. I had promised never to set foot in it again.
Amy was cross and hadn't spoken to me since.
" is asking a fair price, no doubt," I said and rolled a warm scone between my cold hands.

Amy

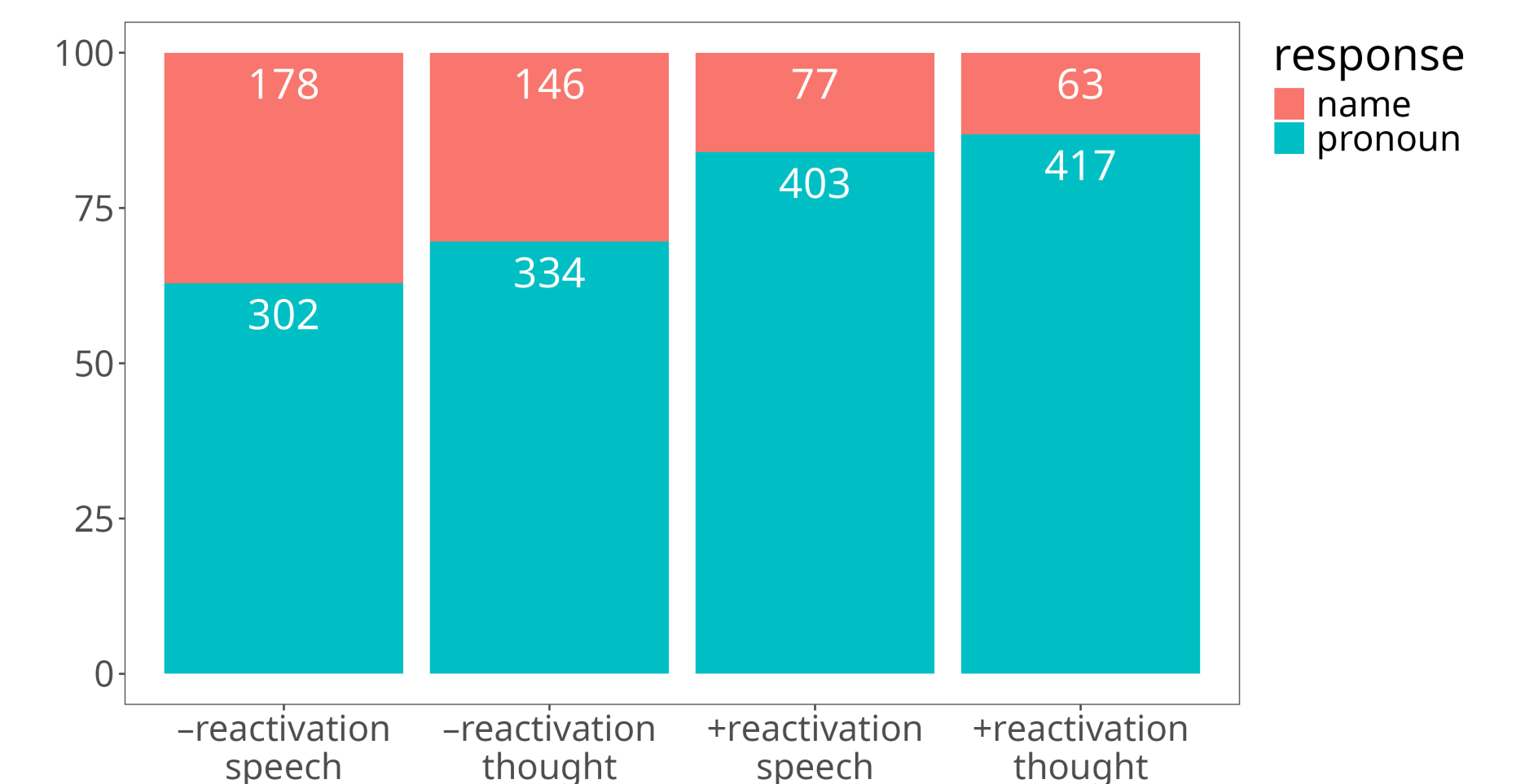
She

instructions: Click on the word – a name or a pronoun – that you think should go in the gap. Be sure to read the **entire** passage before making your choice.

Participants & procedure

- web experiment with Gorilla E. B.
- 24 items × 4 conditions; 32 fillers
- latin square design
- randomized order of trials
- comprehension questions after 18 trials
- 80 participants (59f/20m/1o) age 20–73
- recruited via Prolific, paid £7.50
- Prolific screeners used:
 - birth, residence & location: UK, USA, Ireland
 - English speaking monolinguals
 - no language related disorders
 - hobbies include Literature

Results



Mixed-effects logistic regression with random intercepts of participant and item:

thought/speech $\beta = 0.35$ $SE = 0.12$ $z = 2.88$ $p = .004$ **
 reactivation +/- $\beta = 1.36$ $SE = 0.13$ $z = 10.57$ $p < .001$ ***

Replication

Model specifications:

- using the ollama.chat method from the ollama library in python
- model: Llama3.1 8B
- temperature: 0.8
- distinct random seeds for each trial
- forget key value cache after each trial (keep_alive=0)

Procedure

- 24 items × 4 conditions = 96 stimuli
- no fillers
- no latin square design
- no randomization
- 20 trials per stimulus

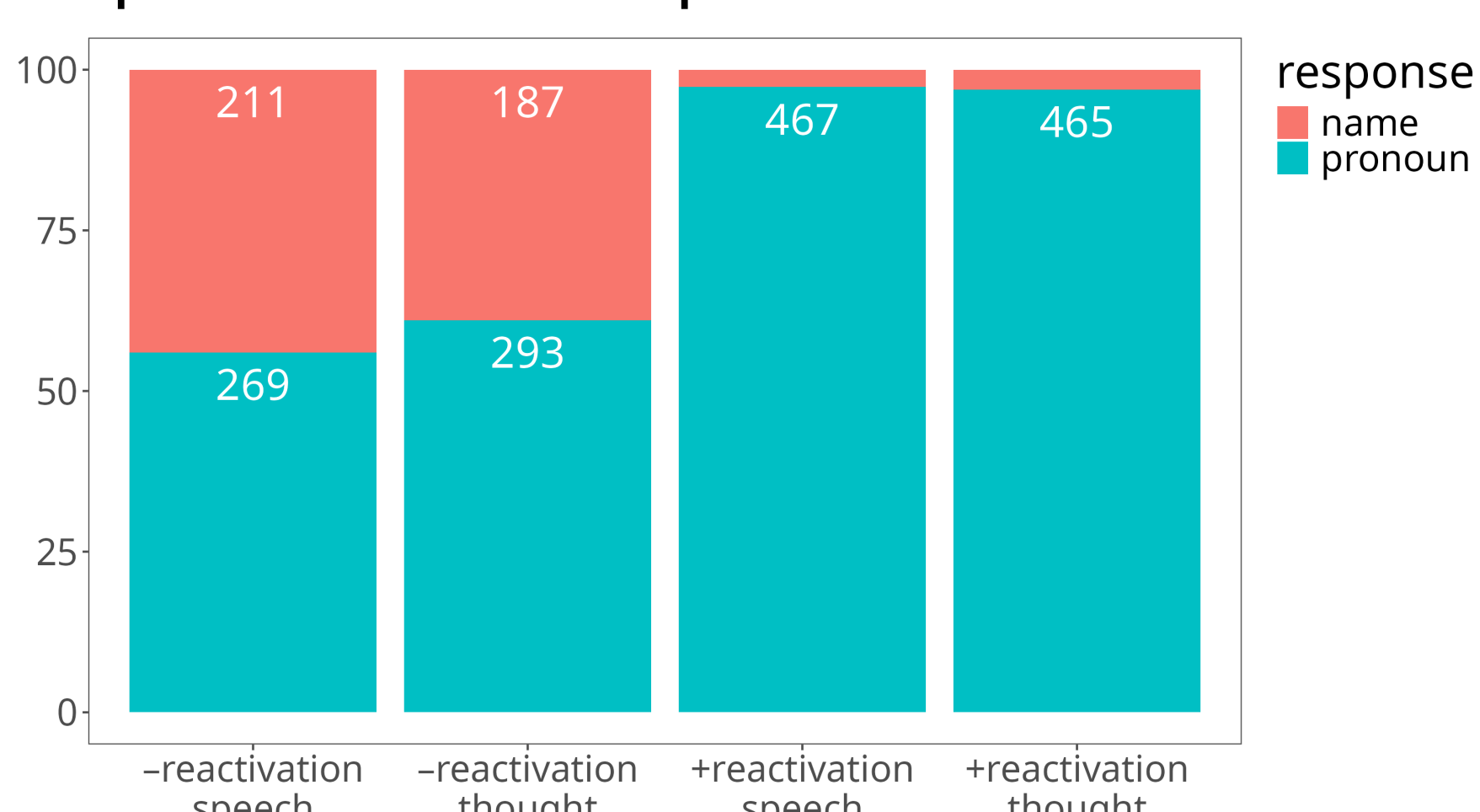
Zhang, Yu, Chong, Sicilia, Tomz, Manning, and Shi 2025. *Verbalized Sampling: How to Mitigate Mode Collapse and Unlock LLM Diversity.* <https://arxiv.org/pdf/2510.01171>

Questions

- Is this a reasonable method?
- Are the responses truly independent?
- Why does asking for an explanation produce more human-like results?
- Does the pattern in Experiment 2 show mode collapse and does asking for explanation help against it?
- Why more pronouns in human data?

Experiment 1

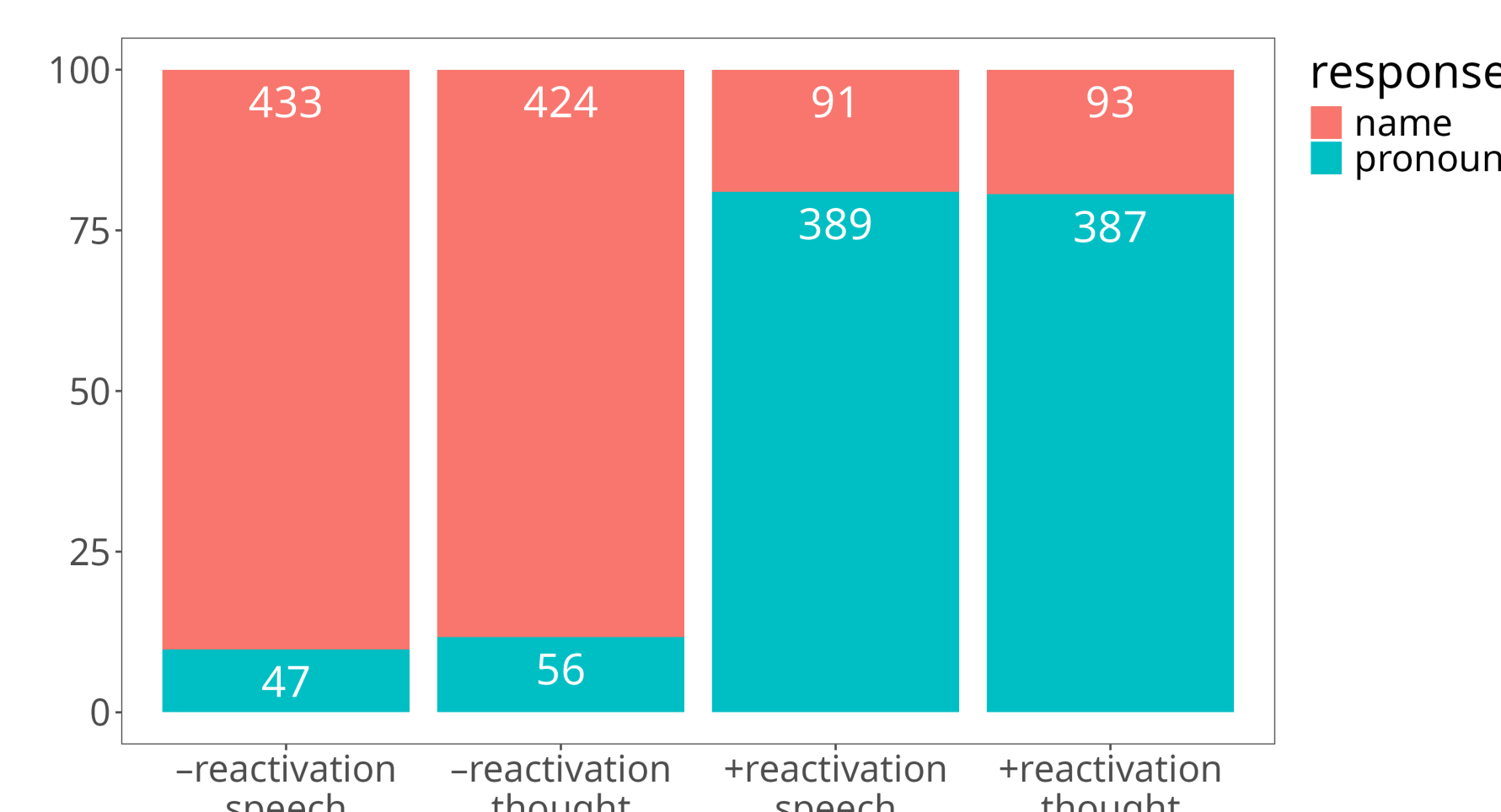
prompt: This is a passage from a novel. Would you use the name or the pronoun in place of [Amy/She]? Respond only in this format "Amy, name" or "She, pronoun". No explanation.



thought/speech $\beta = 0.19$ $SE = 0.13$ $z = 1.43$ $p = .153$
 reactivation +/- $\beta = 3.34$ $SE = 0.21$ $z = 16.02$ $p < .001$ ***

Experiment 2

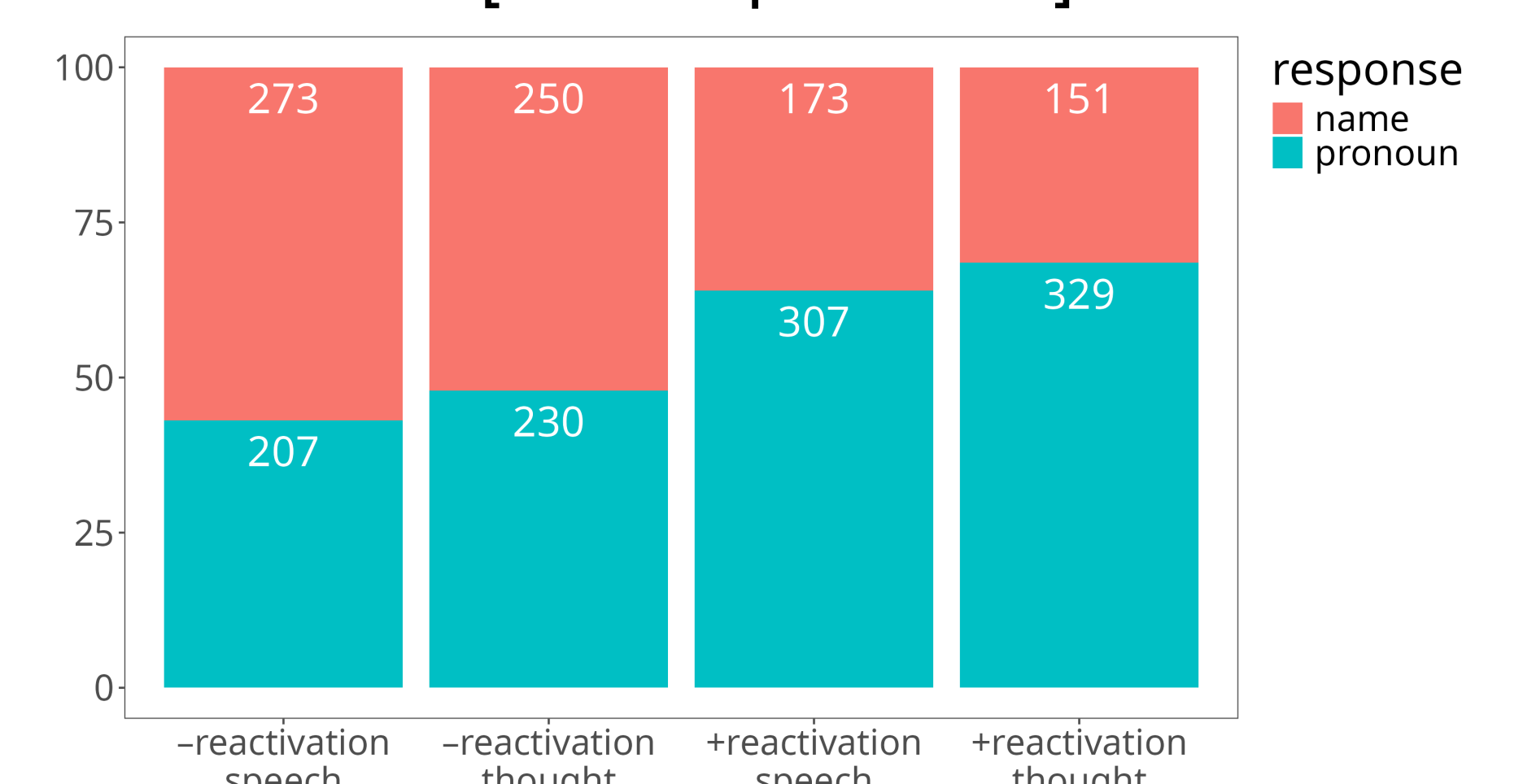
prompt: This is a passage from a novel. Which word would you use in place of [Amy/She]? Respond only with one word, either "Amy" or "She". No explanation.



thought/speech $\beta = 0.07$ $SE = 0.14$ $z = 0.48$ $p = .629$
 reactivation +/- $\beta = 4.16$ $SE = 0.17$ $z = 24.88$ $p < .001$ ***

Experiment 3

prompt: This is a passage from a novel. Which word would you use in place of [Amy/She]? Respond only in this format: either "Amy # [Your explanation]" or "She # [Your explanation]".



thought/speech $\beta = 0.24$ $SE = 0.10$ $z = 2.33$ $p = .0199$ *
 reactivation +/- $\beta = 1.04$ $SE = 0.11$ $z = 9.87$ $p < .001$ ***

