Effect of Pronoun Change on Pronoun Misattribution

AUTHORS

Andrea Santiago, Erin Suh, and Elizabeth Rotchford

How does pronoun change affect the likelihood of pronoun misattribution?

01. Abstract

People are increasingly changing their assigned pronouns to use they/them pronouns, resulting in challenges with comprehension of "they" as a singular or plural pronoun and misgendering individuals with pronouns they do not identify with. The effect of linguistic processes and gender on the attribution of they/them pronouns have both been studied; how does pronoun change affect the likelihood of pronoun misattribution? Participants read short stories, like "Alex played Mario Kart with Liz. She had sore fingers at the end." Asking "Who had sore fingers?" would leave only 1 possible referent if Alex used they/them pronouns and Liz used she/her pronouns, but a past perception of Alex using she/her pronouns would create ambiguity for the participants' attribution of "she" between Alex or Liz. Pronoun change did not affect the likelihood of pronoun misattribution, perhaps due to the rather homogeneous sample of UNC undergraduate students who were native English speakers. However, participants who made mistakes in subject questions were more likely to misattribute the "she" pronoun to Alex instead of Liz. Our results suggest that more research on how an individual's gender constructs affect pronoun attribution, as well as expanding the research sample diversity, would give insight into the process of pronoun comprehension.

03. Methodology

Participants
- UNC Chapel Hill undergraduates from UNC Psychology & Neuroscience Listserv and class GroupMes.
  - Native English speakers
- Exclusion Criteria:
  - More than 1 pronoun check questions wrong in Part 1 or Part 2
  - 4 attention check questions wrong in each part

Materials and Design
- Explicit introduction to 4 characters: Liz (she/her), Riley (they/them), Will (he/him), and Alex (she/her for the changing pronoun condition, they/them for the unchanging pronoun condition) (see Table 2)
- Participants will then be asked to read short stories and answer two questions pertaining to the content and subject of the stories under the premise of how character connections affect short term memory recall.
- 2-between participant conditions, this was a within-item design, with two pseudorandom lists of 8 critical items that only differed by pronouns in Part 1 (4 critical items per part) and 20 fillers (8 fillers in part 1, 12 fillers in part 2) (see Table 1).

Procedure
- Survey conducted on Qualtrics
- Consent and demographic (at least 18 years old, native English speakers, UNC undergraduates) questions before main task
- Random assignment to changing pronoun and unchanging pronoun condition

Table 1. Example stimuli and critical questions

Story type	Example story	Subject question	Content question
Critical: Part 1: Changing Pronoun	Alex asked Will for a favor. She needed a ride to the airport.	Who needed a ride to the airport? ● Alex ● Alex and Will	Where did Alex need to go? ● The airport ● The bus stop
Critical: Part 1: Unchanging Pronoun	Alex asked Will for a favor. They needed a ride to the airport.		
Critical: Part 2	Alex played Mario Kart with Liz. She had sore fingers at the end.	Who had sore fingers at the end? ● Liz ● Alex	What did Alex and Liz play? ● Mario Kart ● Super Smash Bros
Inclusion: Pronoun check	Riley went grocery shopping. They needed sugar.	Who went grocery shopping? ● Riley ● Riley and Will	What did Riley need? ● Sugar ● Milk

02. Introduction

- Nonbinary individuals have increasingly started using they/them pronouns, requesting others to refer to them with these pronouns as well. This has created a rather contentious phenomenon of misgendering individuals, or referring to someone with pronouns that they do not identify with.
- 2 major aspects: linguistic processes and gender constructs.
  - Influence of linguistic ambiguity in the interpretation of they/them pronouns.
    - Arnold, Mayo, and Dong (2021): factors in singular interpretation of they
      - explicit pronoun introduction
      - linguistic context
  - The role of gender constructs in the language processing of pronouns.
    - Doherty and Conklin (2017): gender-expectancy can influence language comprehension
      - High gender expectancy decreased the perceived naturalness of other gender options
      - 'Them' pronouns were ranked more unnatural than other pronouns unless there was a gender-known antecedent (ex: spokeswoman).
- We hypothesized that pronoun change would increase the likelihood of pronoun misattribution.
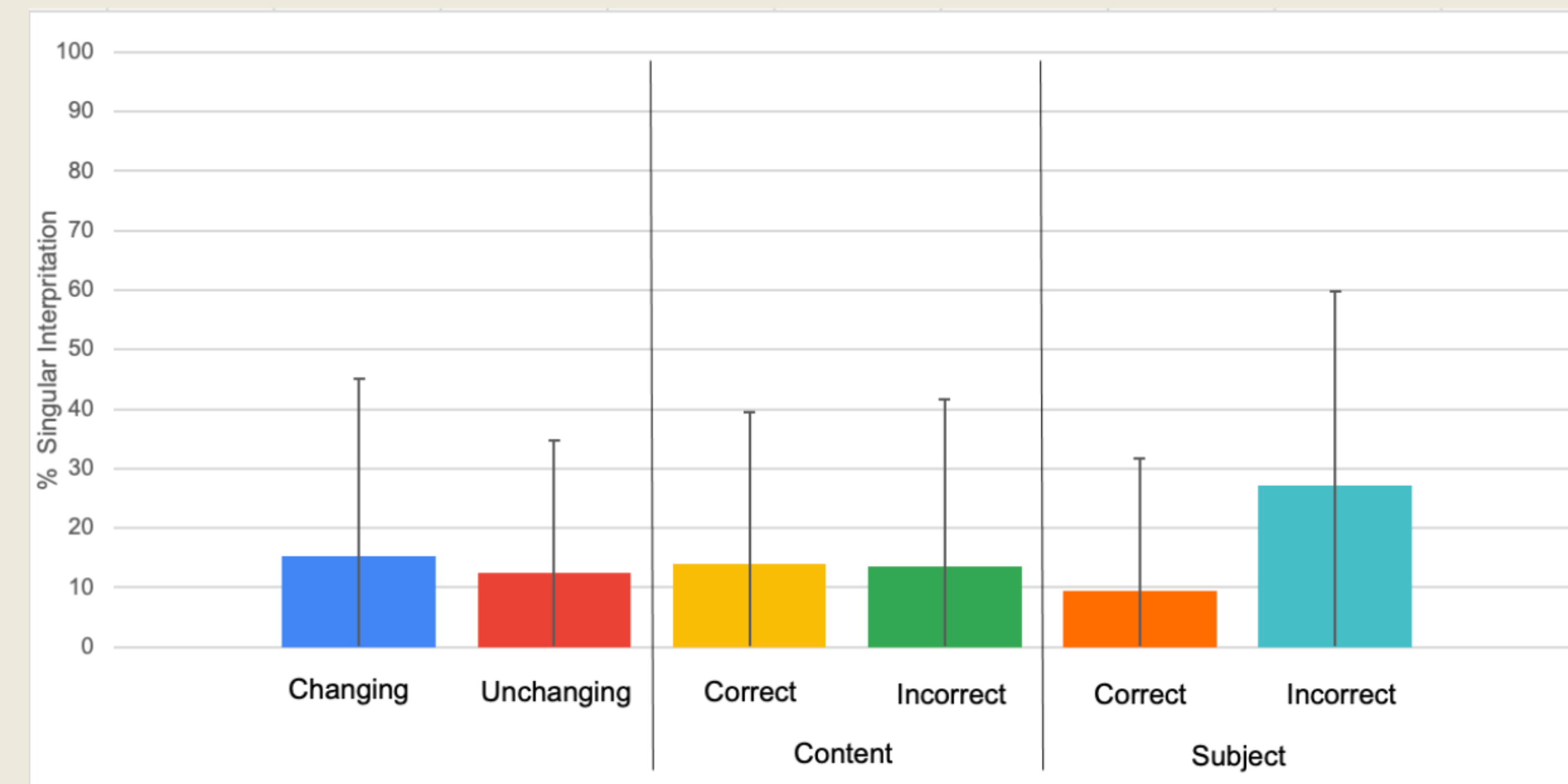
04. Results

Figure 1. Average percentage of pronoun misattribution in changing and unchanging conditions and other correlational analysis

Table 2. Introduction Stories

Condition	Introduction Story
Part 1: Changed	Liz (she/her), Riley (they/them), Will (he/him), and Alex (she/her) met their freshman year at UNC and became fast friends. They all lived in the same dorm so they would see each other often. Liz and Riley would go visit Alex at her job as a barista every weekend, and she would sneak them free snacks while Liz and Riley worked on their chemistry assignments. Will was in a dance group, so Alex and Liz would go watch and support him whenever his team had a performance.
Part 1: Unchanged	Liz (she/her), Riley (they/them), Will (he/him), and Alex (they/them) met their freshman year at UNC and became fast friends. They all lived in the same dorm so they would see each other often. Liz and Riley would go visit Alex at their job as a barista every weekend, and they would sneak them free snacks while Liz and Riley worked on their chemistry assignments. Will was in a dance group, so Alex and Liz would go watch and support him whenever his team had a performance. Riley was an out of state student, but they felt welcomed by all their new friends.
Part 2: Changed	After a summer filled with internships, vacations, and work - Liz, Riley, Will, and Alex were ready to start their sophomore year. Over the break, Alex made some realizations about their identity. "I identify as non-binary and want to start using 'they/them' pronouns", Alex told their friends. Liz (she/her), Riley (they/them), and Will (he/him) were receptive of their choice and thrilled to finally see their friend again. Alex also told their boss that they would like to include pronouns next to their name on their name tag. Alex's new name tag at the coffee shop included the pronouns (they/them) after their name.
Part 2: Unchanged	After a summer filled with internships, vacations, and work, Liz, Riley, Will, and Alex were ready to start their sophomore year. Over the break, Alex decided to tell their boss about their pronoun preferences. "I identify as non-binary and want to start using 'they/them' pronouns", Alex told their boss. Liz (she/her), Riley (they/them), and Will (he/him) were receptive of their choice and thrilled to finally see their friend again. Alex told their boss that they would like to include pronouns next to their name on their name tag. Alex's new name tag at the coffee shop included the pronouns (they/them) after their name.

05. Discussion

Hypothesis: pronoun change would increase the likelihood of pronoun misattribution.
- No statistically significant difference in performance between participants in the changing and unchanging conditions (see Table 3 and Figure 1).
  - pronoun misattribution that occurred was not because of Alex's pronoun changes or lack thereof.
- Potential influence of the homogenous sample: age, education, exposure to nonbinary identities of UNC undergraduates

- Content Question Accuracy:
  - No statistically significant difference between groups that correctly and incorrect answered content questions (see Table 3 and Figure 1).
    - pronoun misattribution that occurred cannot be attributed to participants' lack of attention

- Subject Question Accuracy:
  - Statistically significance between correct and incorrect subject groups performance
  - participants who incorrectly answered subject questions were more likely to commit pronoun misattribution when referring to Alex (see Table 3 and Figure 1).
    - Someone with lower ability to understand subject references is more likely to misattribute pronouns

Table 3. Results of t-tests in comparing pronoun misattribution

Condition	Average Pronoun Misattribution (Attribution of "she" pronoun to Alex)	SD	df	p
Changing (N=23)	15.2%	0.299	47	0.720
Unchanging (N=26)	12.5%	0.226		
Correct Content (N=36)	13.8%	0.257	47	0.960
Incorrect Content (N=13)	13.5%	0.282		
Correct Subject (N=37)	9.5%	0.223	47	0.040
Incorrect Subject (N=12)	27.1%	0.328		