Why the small mug? Modifier-informed reasoning in reference interpretation

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THE UNIVERSITY of EDINBURGH

I’d prefer the red mug.

I’d prefer the red mug.

I’d prefer the small mug.

❓ Do listeners treat speakers’ choice as informative?

❓ Do listeners also infer from these choices?

Contrast-based inference

- Listeners use adjectives to infer the relevant dimension of contrast in a context.

(e.g., Bergey & Yurovsky, 2019; Horowitz & Frank, 2012)

Contrast-based inference

(Horowitz & Frank, 2012)

“This is a special kind of glorp. This is a red glorp.”

“This is a special kind of glorp. This is a tall glorp.”

Contrast-based inference

(Horowitz & Frank, 2012)

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Contrast-based inference

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“This is a special kind of glorp. This is a red glorp.”

“This is a special kind of glorp. This is a **tall** glorp.”

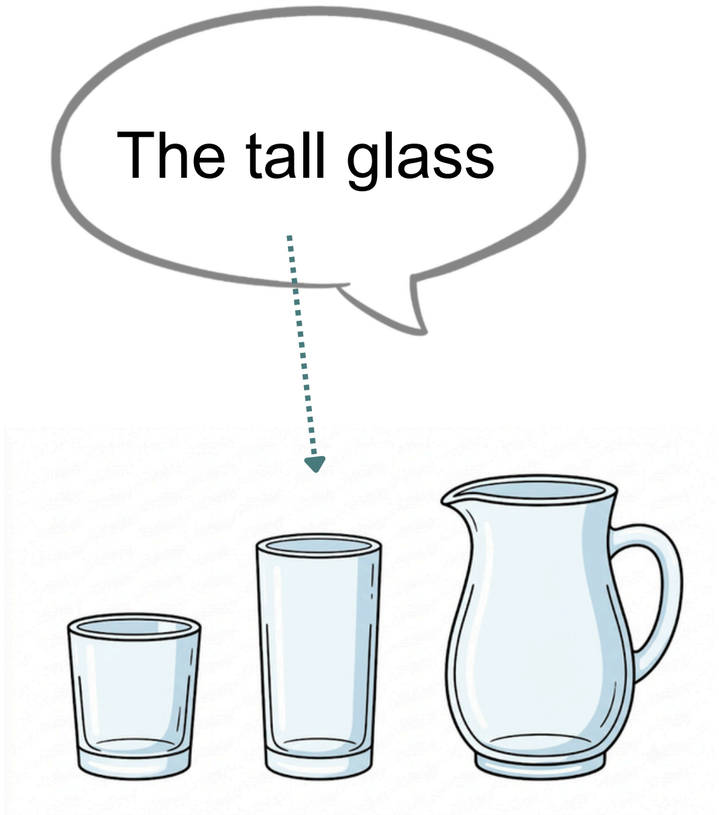
Possible color-size asymmetry

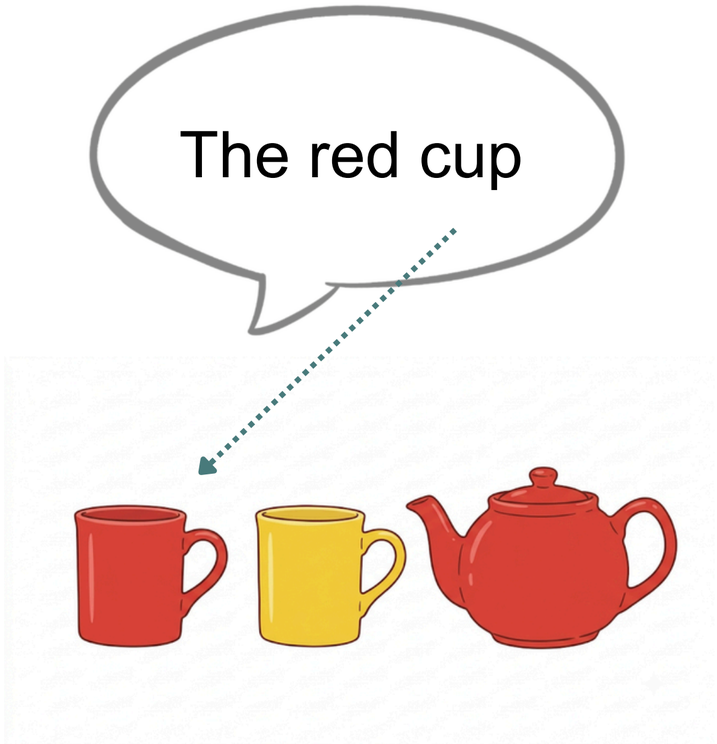
- Scalar adjectives reliably facilitate target identification when a relevant contrast is present, but findings for color adjectives are mixed.

(e.g., Aparicio, Xiang, & Kennedy, 2016; Ronderos, Aparicio, Long, Shukla, Jara-Ettinger, & Rubio-Fernandez, 2024; Sedivy, 2004; Sedivy, Tanenhaus, Chambers, & Carlson, 1999)

Possible color-size asymmetry

(Sedivy, 2004)





Discourse goals

❓ What else do listeners infer?

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- Referring expressions are typically produced in a broader discourse context
- Speakers mention what is relevant to the discourse goals

(Cheuk, Rohde, & Cummins, in prep.)

For serving espresso ... “**small**”

For the Christmas season ... “**red**”

❓ What else do listeners infer?

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- Speakers mention what is relevant to the discourse goals

(Cheuk, Rohde, & Cummins, in prep.)

For serving espresso ... “**small**”

For the Christmas season ... “**red**”

❓ Do they reverse-engineer and infer speakers’ discourse goals from modifier choice?

Research question

❓ **Do listeners infer speakers' discourse goals from modifier choice?**

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Research question

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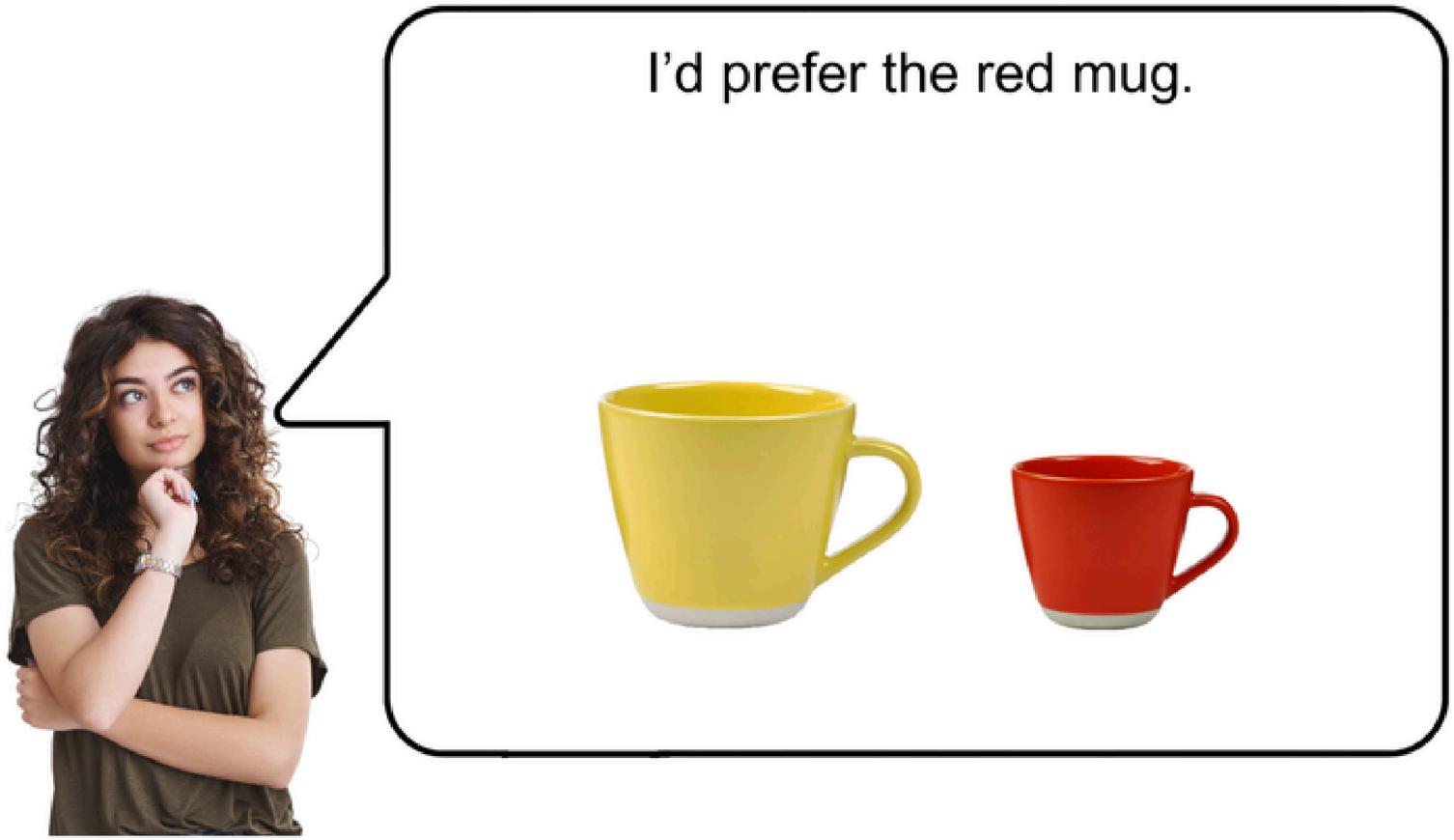
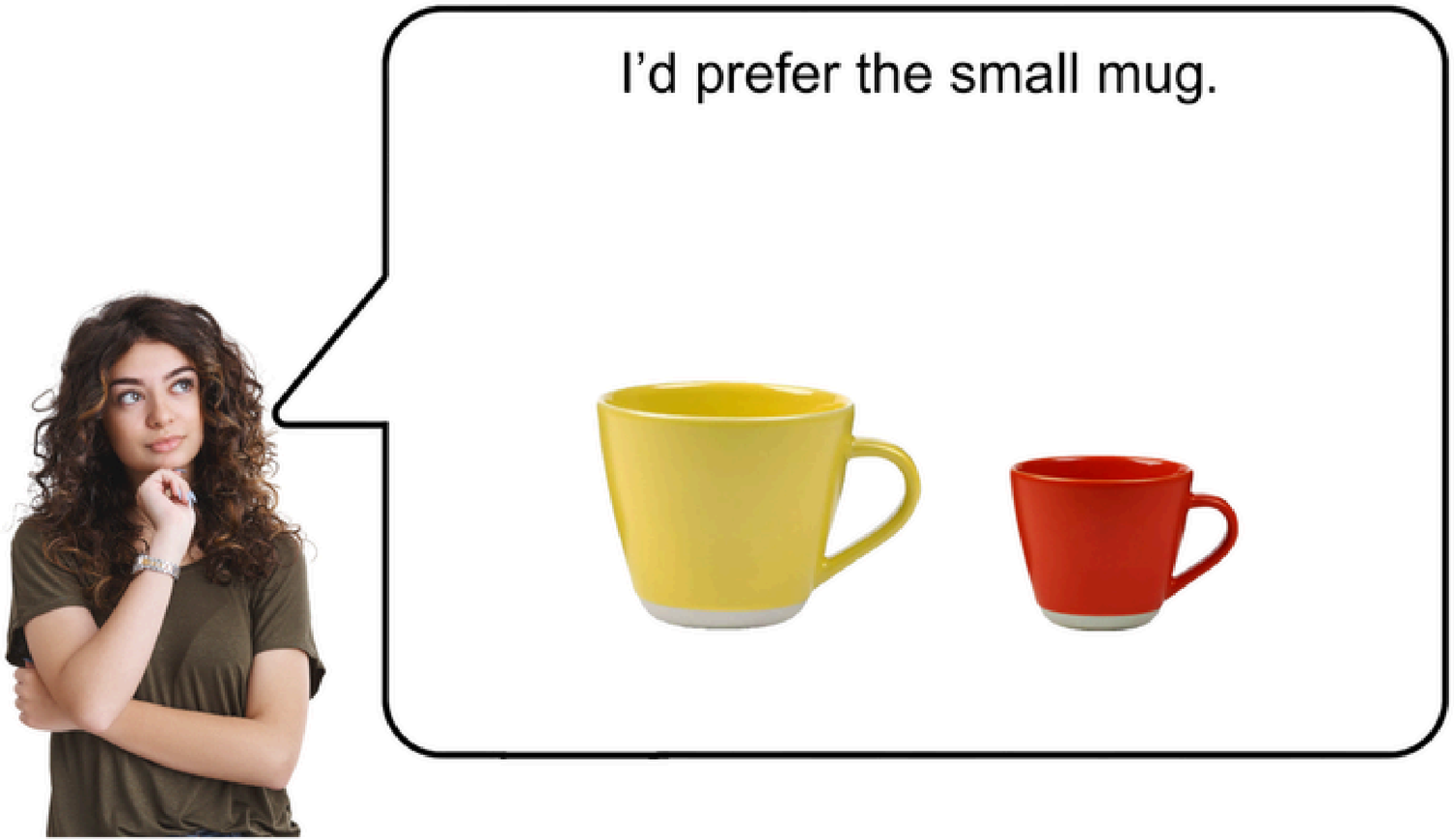
💡 We propose that listeners interpret modifiers as informative cues to infer why a speaker chooses a particular object

💡 If modifiers are informative → we expect listeners to reason about the mentioned property

💡 These inferences may also vary depending on the types of modifiers (e.g., color or size)



[color mention]



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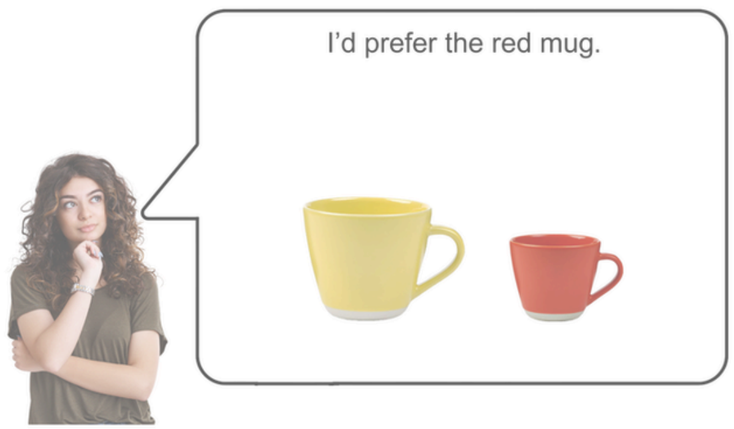


Prompt: Why do you think Ava prefers that mug?

- 18 critical (everyday objects) + 18 filler items
- Native British English speakers, n=60, recruited on Prolific

He prefers the colour red

Maybe red is Karen's favourite colour

color-based

He prefers the colour red

Maybe red is Karen's favourite colour

color-based

Perfect for coffee shots

He likes espresso coffee

size-based

He prefers the colour red

Maybe red is Karen's favourite colour

color-based

Perfect for coffee shots

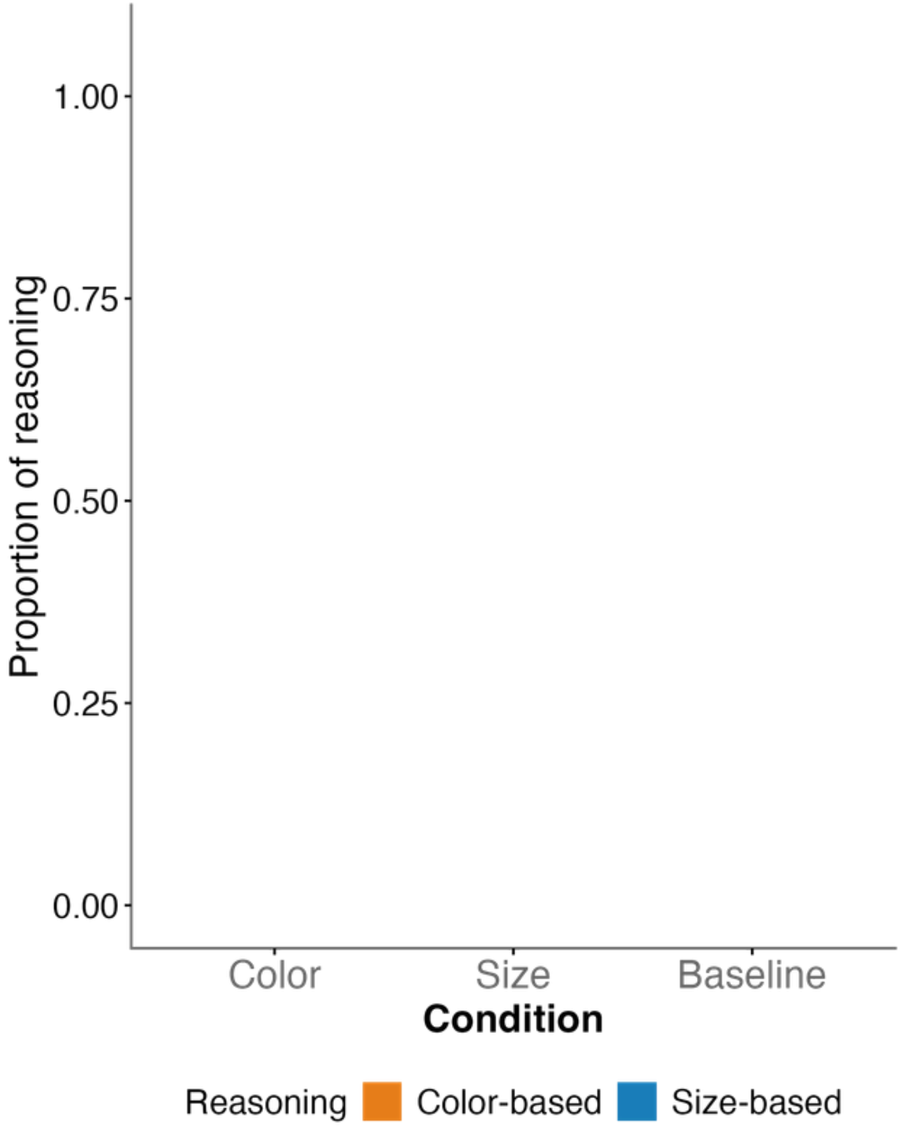
He likes espresso coffee

size-based

She is trying to make a healthier choice

Its very fashionable

other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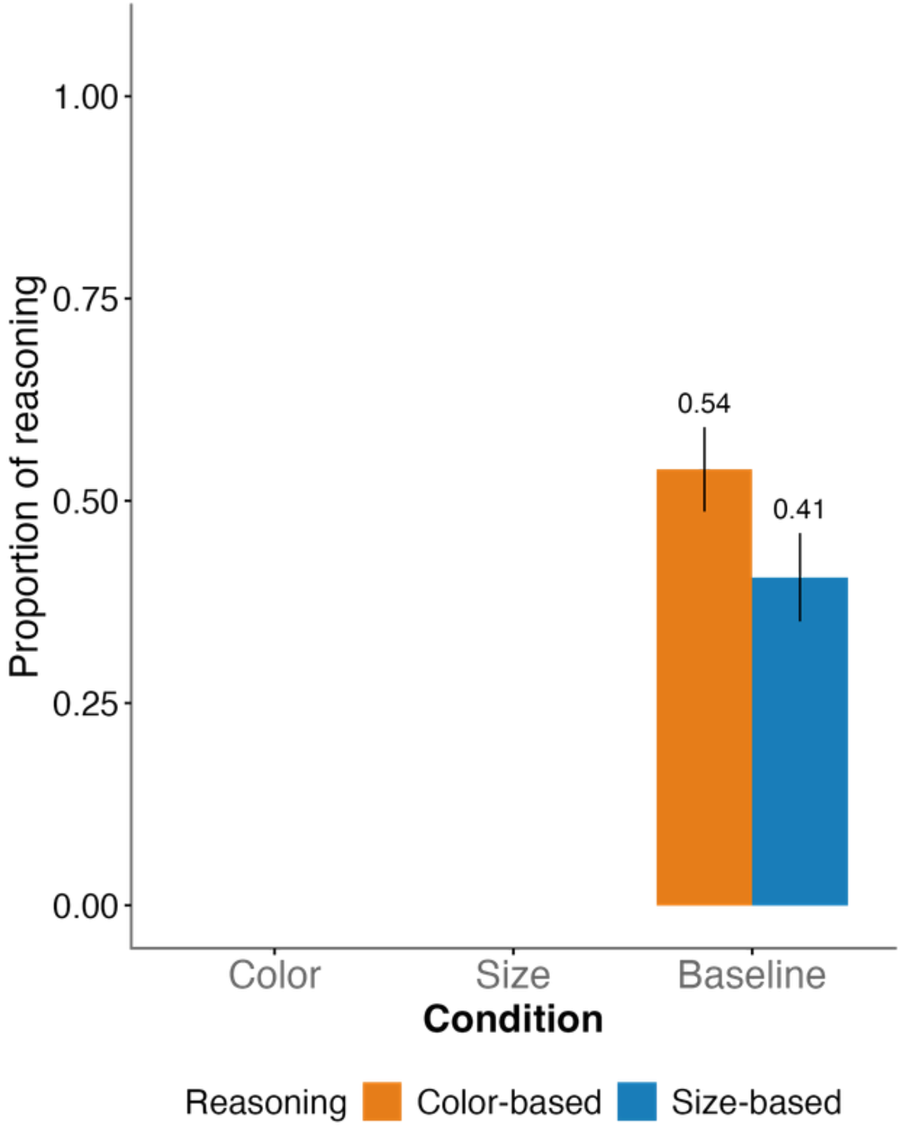
Proportion of reasoning
Color
Size
Baseline
Condition
Reasoning
Color-based
Size-based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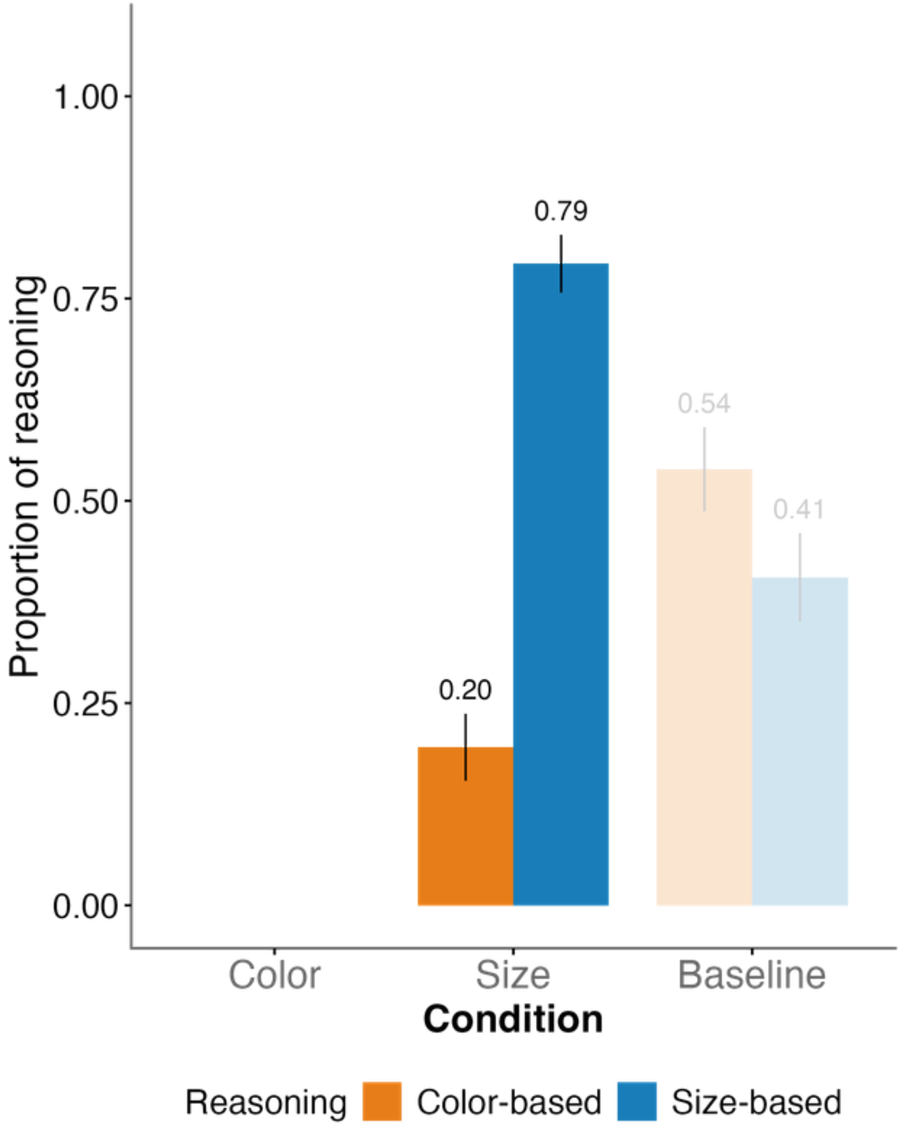
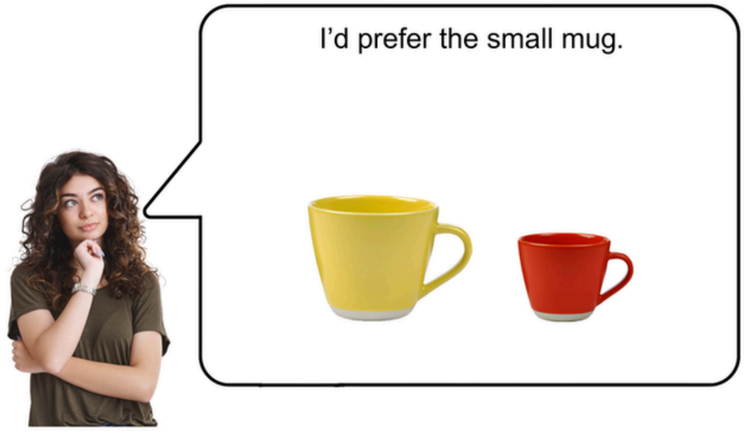
Size-based

[baseline]





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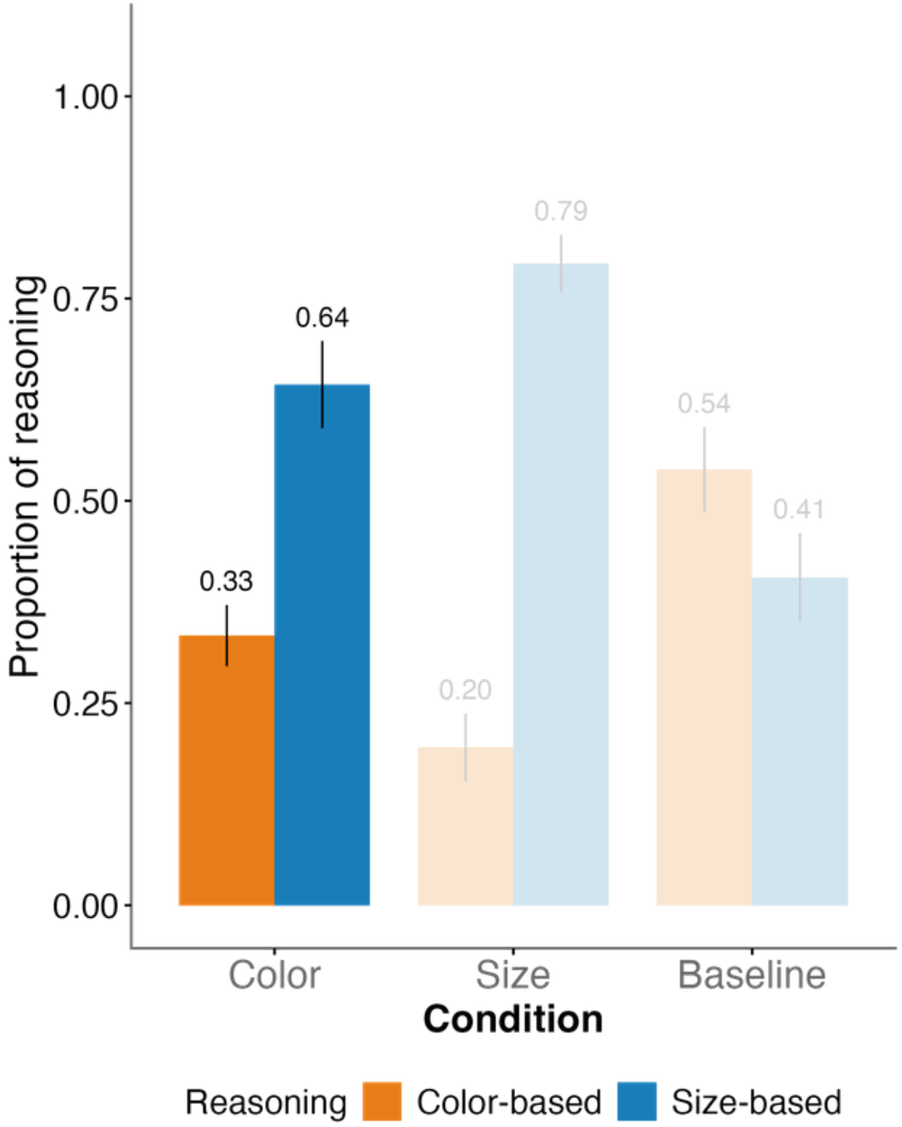
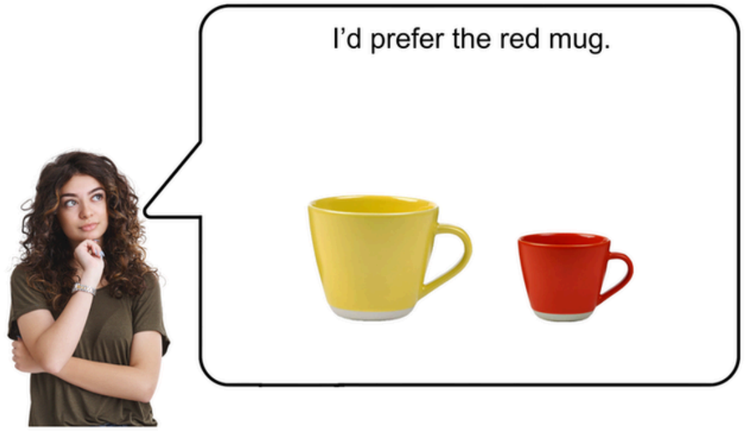
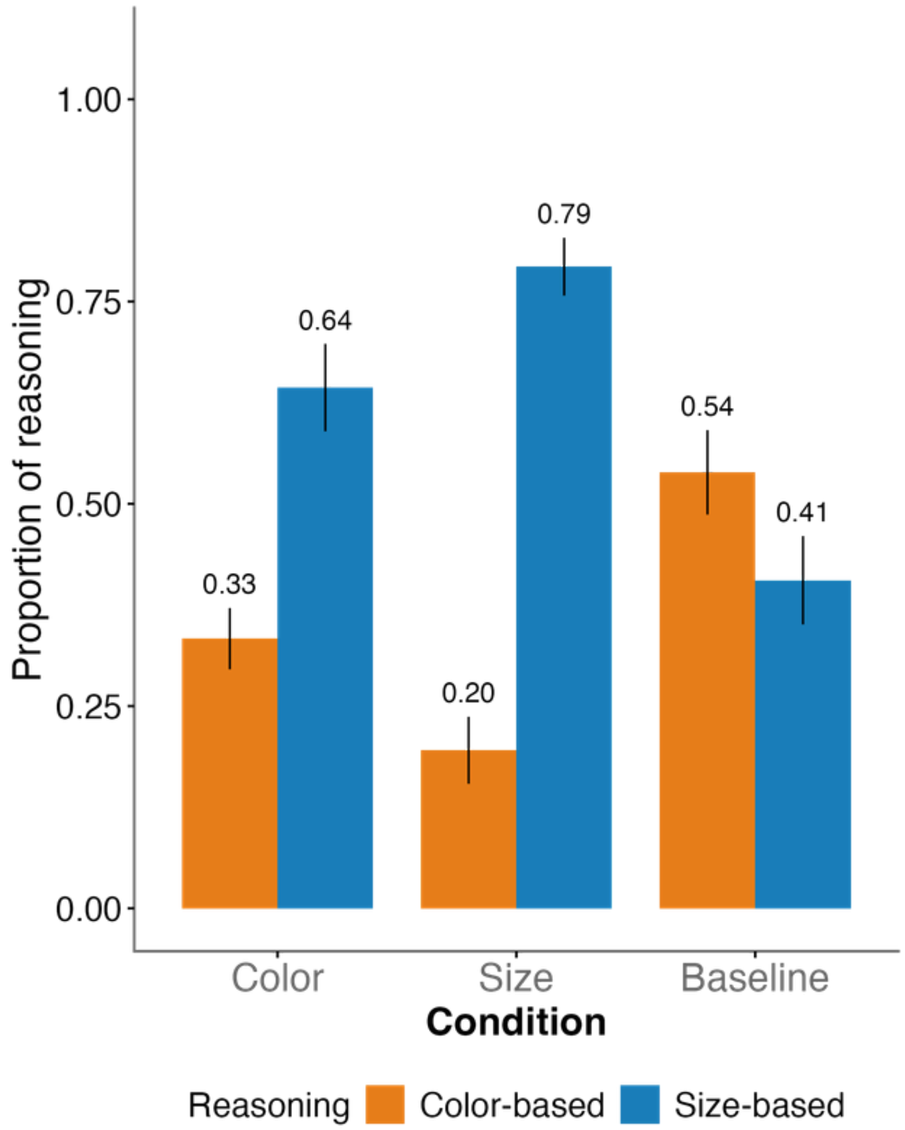


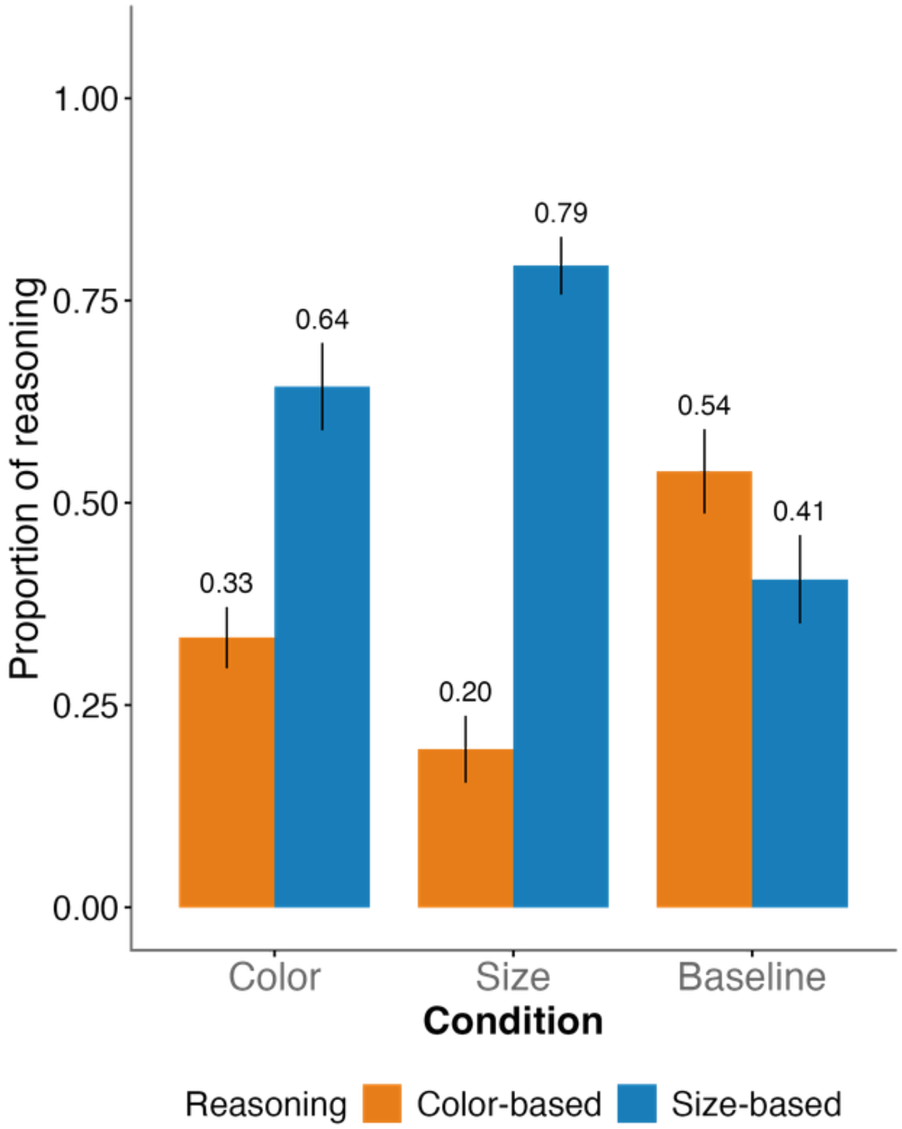


[color mention]



✅ Size elicits additional size-based reasoning

❎ Color doesn’t elicit additional color-based reasoning



✅ Size elicits additional size-based reasoning

❎ Color doesn't elicit additional color-based reasoning

❓ Color-size asymmetry

→ Possibly because color is often mentioned redundantly, whereas size is more selectively mentioned?

→ Puzzle: why does color show the opposite pattern?

Follow-up question

❓ Do listeners infer speakers’ discourse goals from modifier choice?

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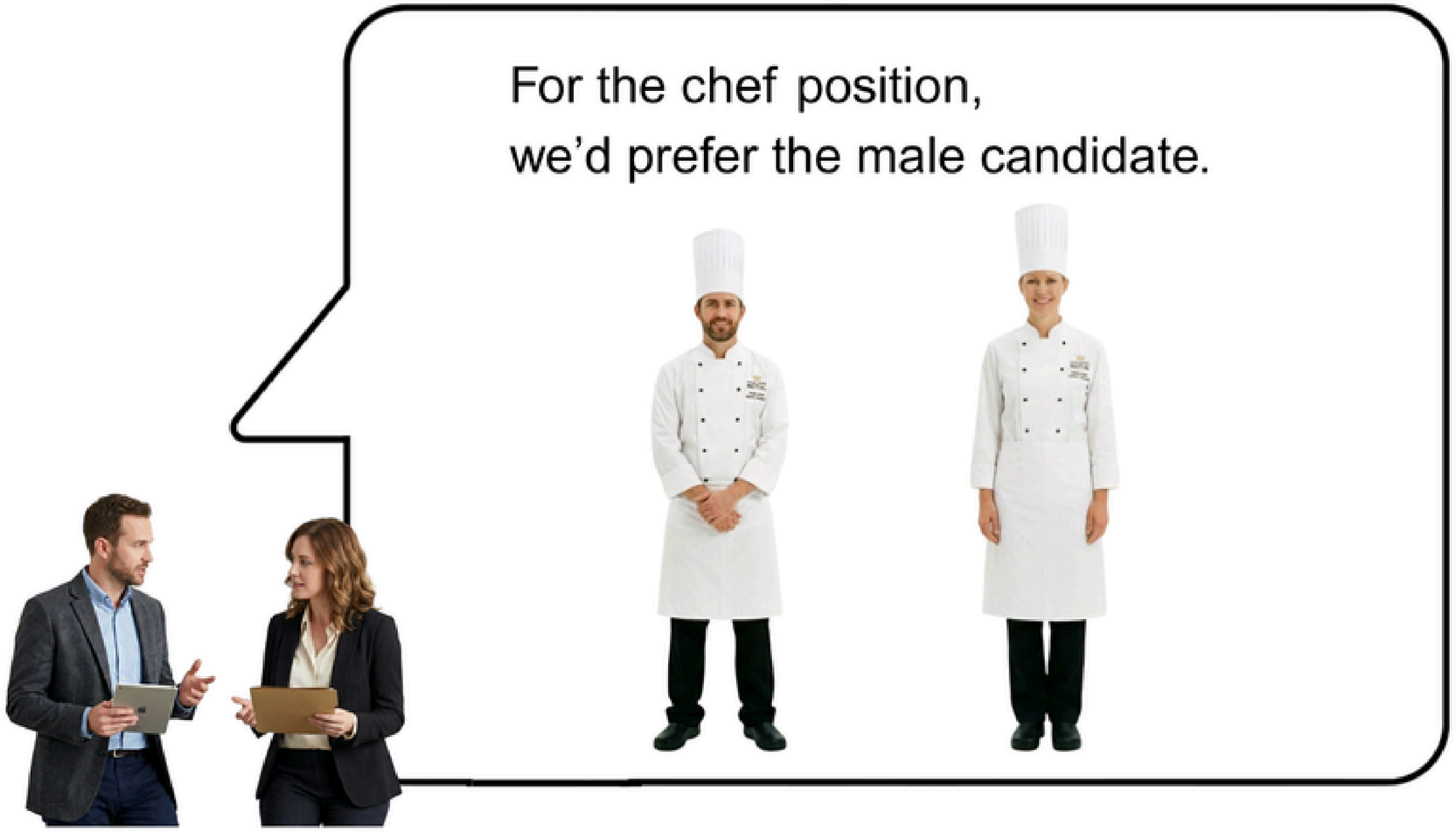
❓ Do these inferences generalize to social descriptions?



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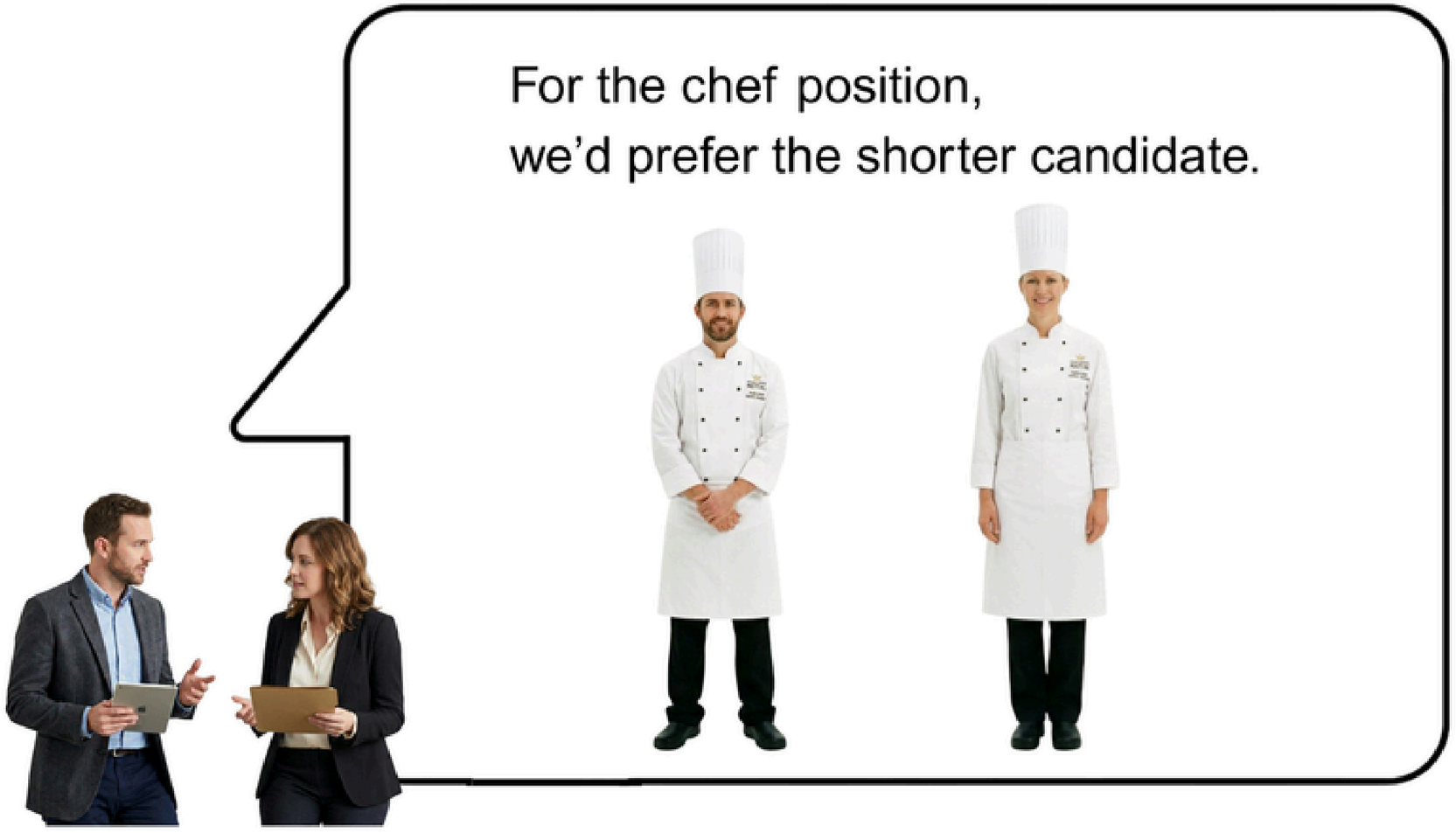

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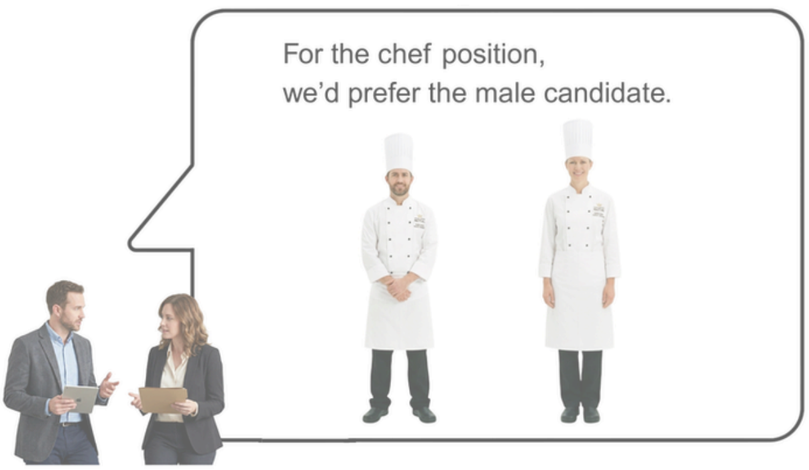
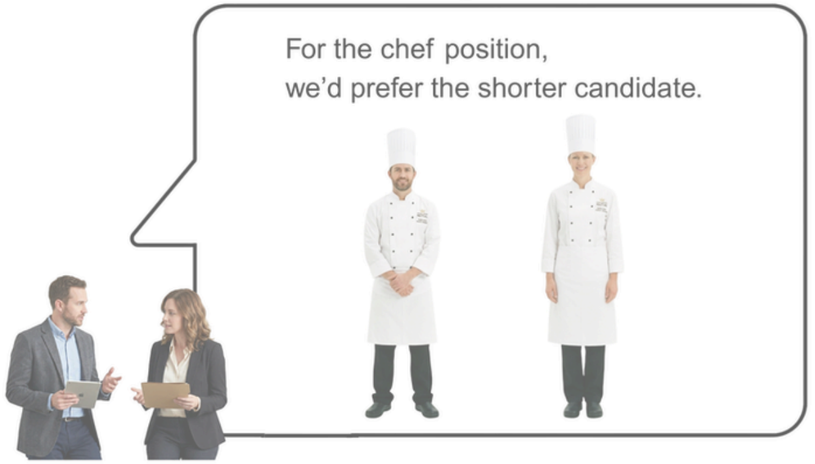
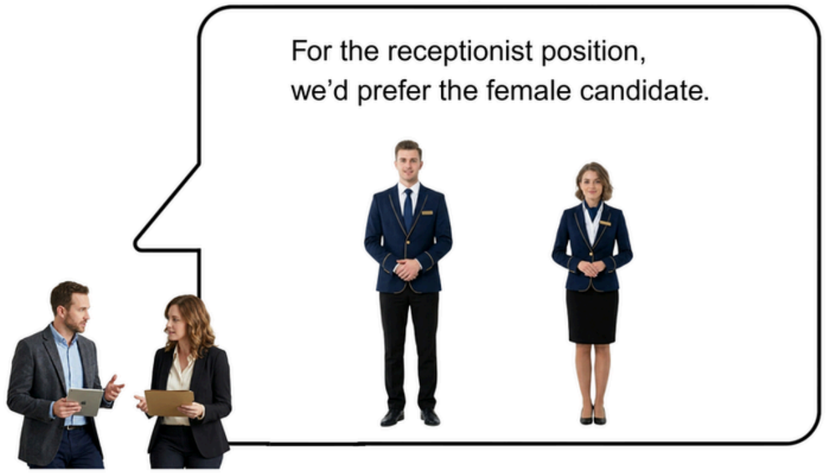
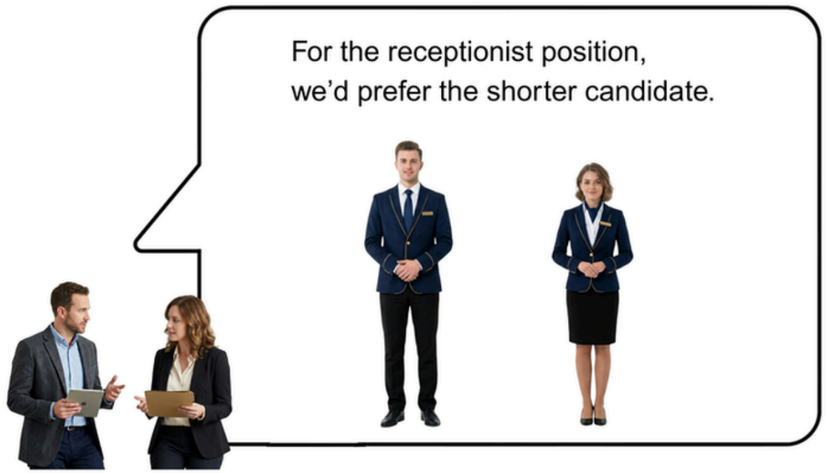


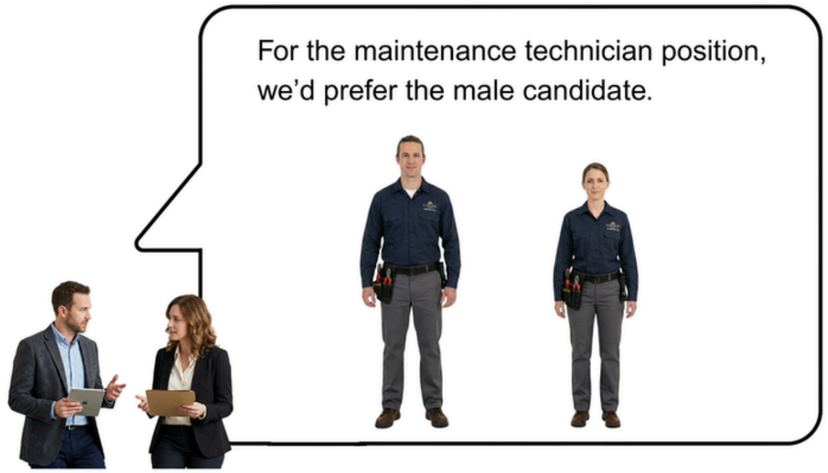


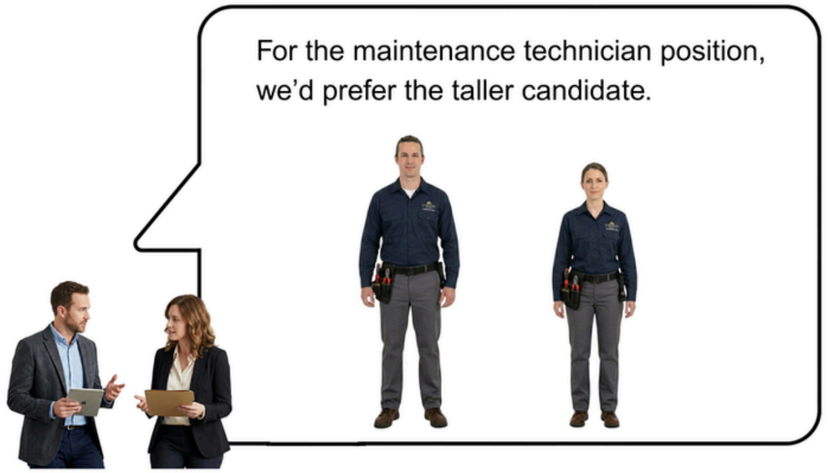
Prompt: Why do you think the managers prefer that candidate?





- 12 critical (common occupations at hotels) + 12 filler items
- Native British English speakers, n=60, recruited on Prolific





Head Chefs tend to be men

Men are seen as better chefs to manage the kitchen?

gender-based

Head Chefs tend to be men

Men are seen as better chefs to manage the kitchen?

gender-based

So his hat doesnt hit the ceiling

So they do not bump there heads on the cupboards above

height-based

Head Chefs tend to be men

Men are seen as better chefs to manage the kitchen?

gender-based

So his hat doesnt hit the ceiling

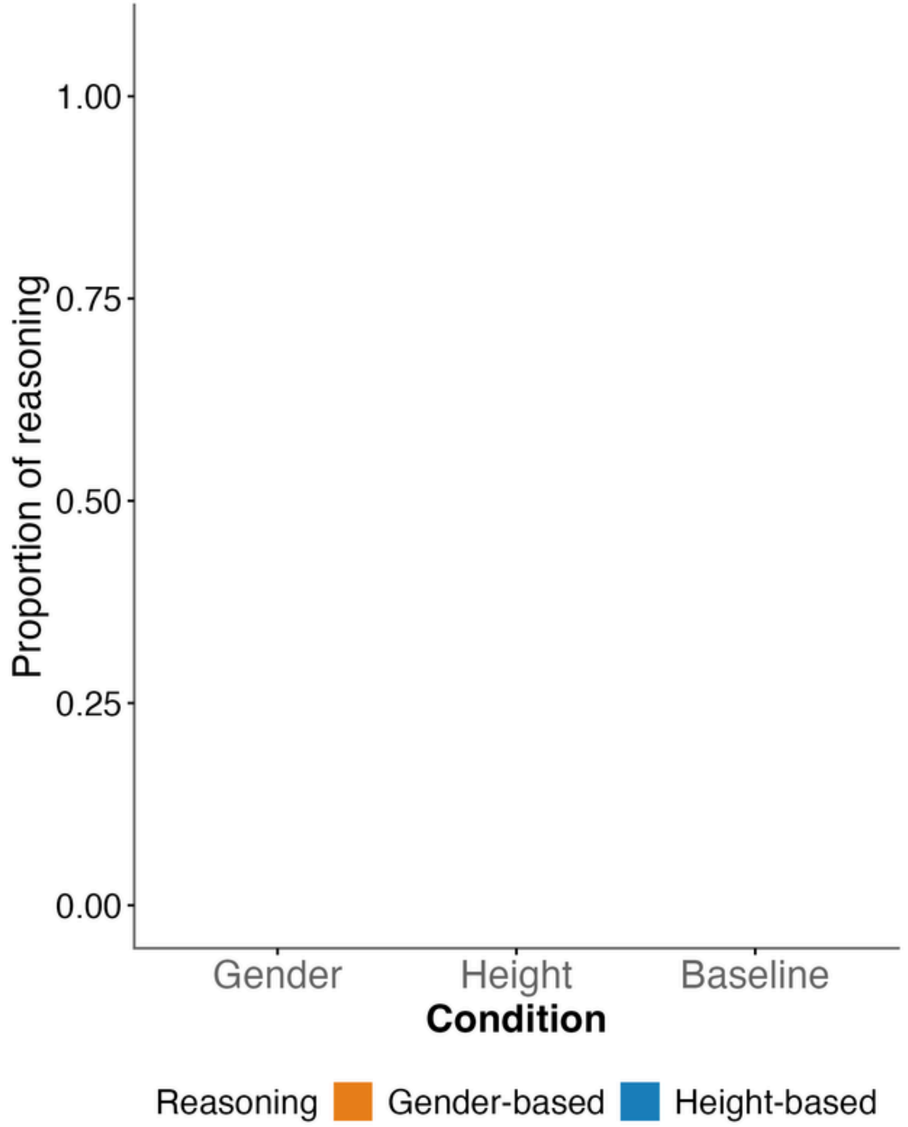
So they do not bump there heads on the cupboards above

height-based

More willing to work flexible hours

Because he is more qualified

other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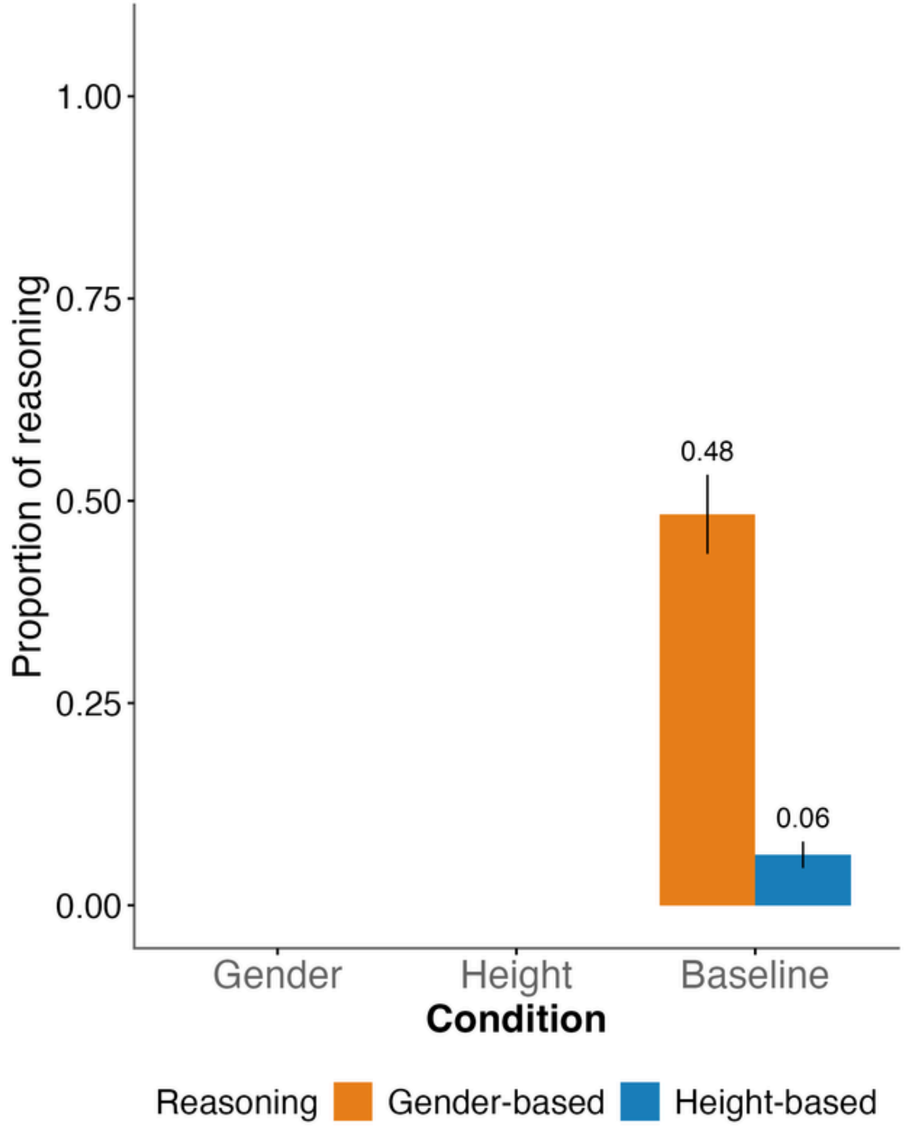
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Proportion of reasoning
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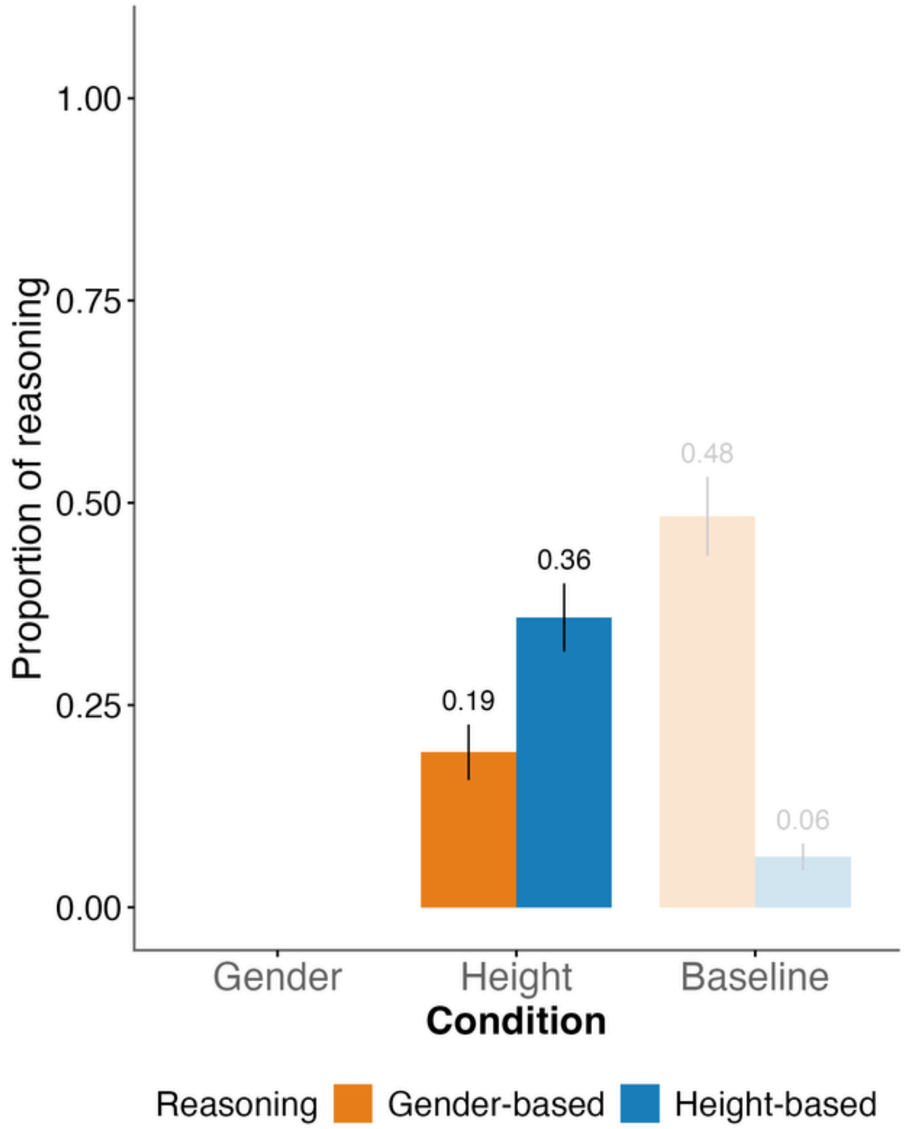
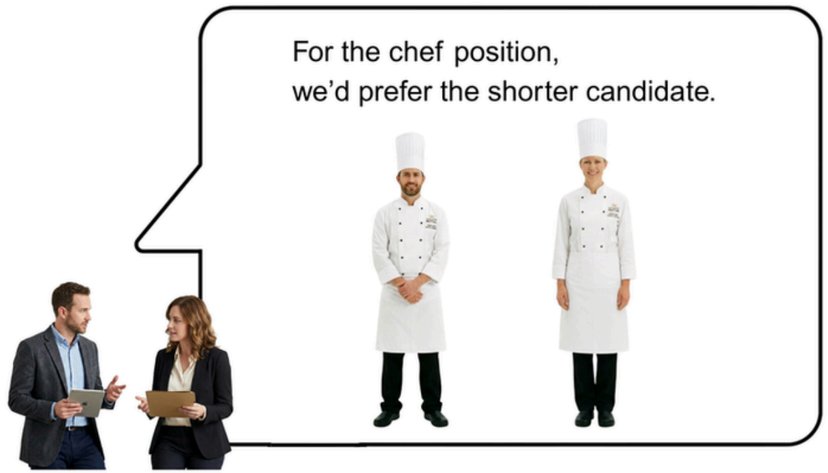
Gender
Height
Baseline
Condition
Reasoning
Gender-based
Height-based


For the chef position...

[baseline]





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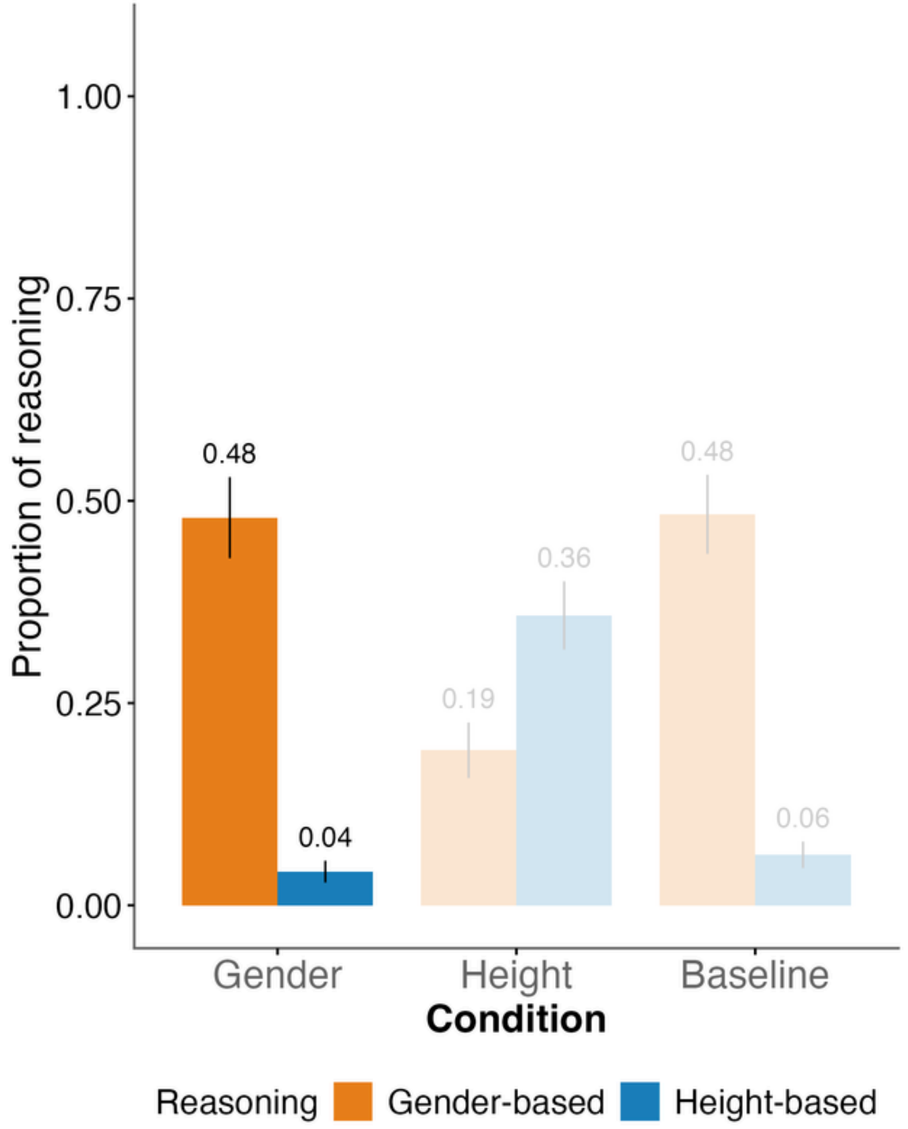

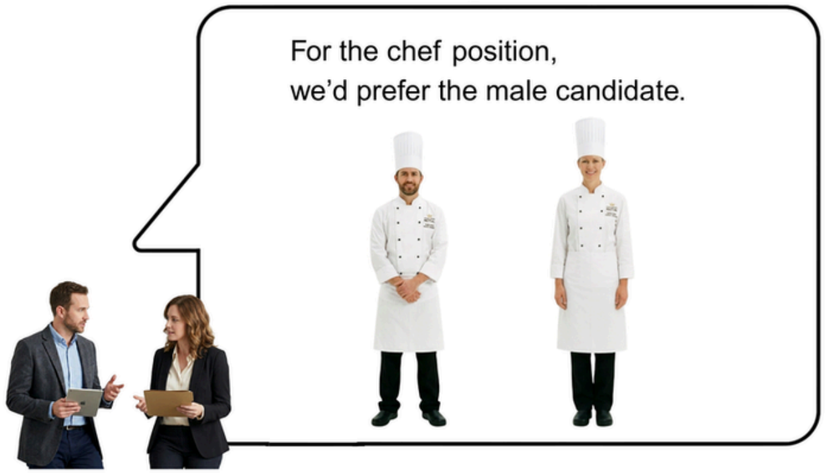

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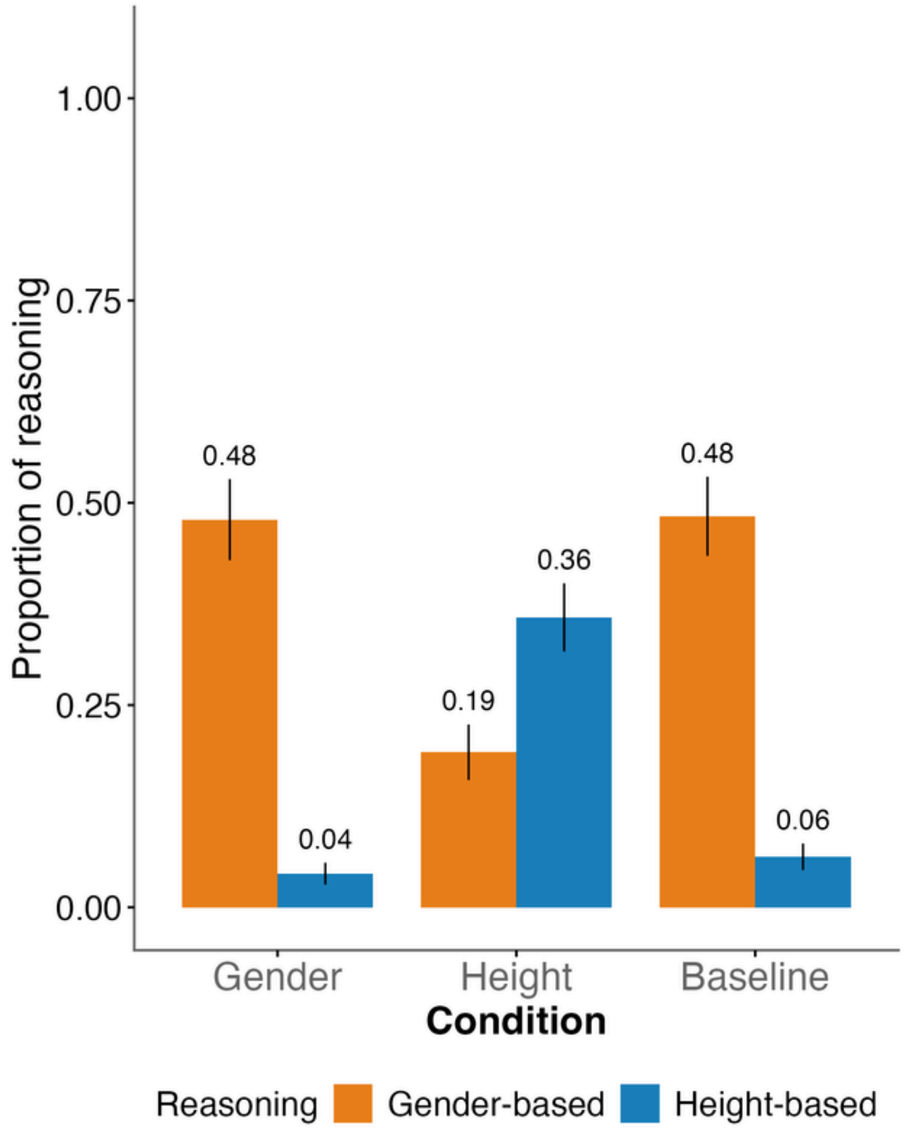

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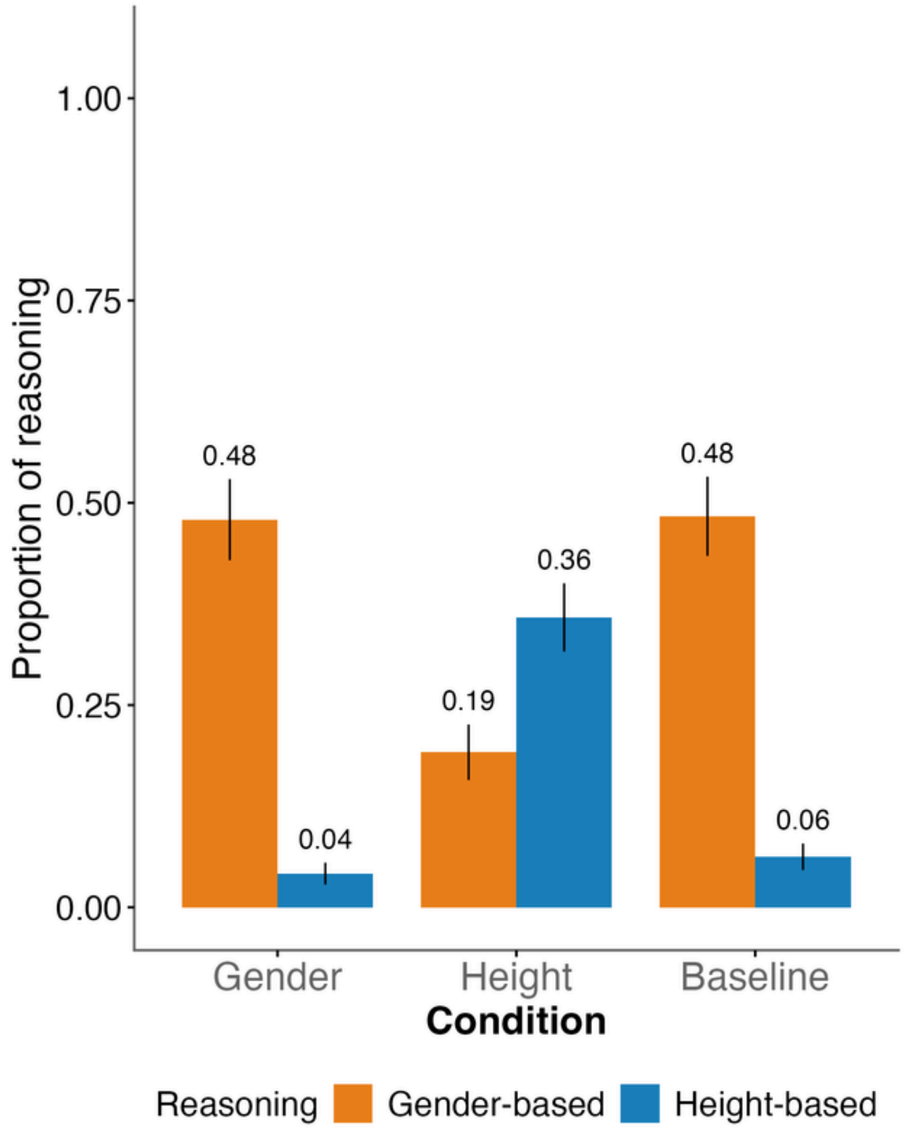

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❓ Gender-height asymmetry

→ Possibly because gender is a default aspect of how we describe people?

Conclusion

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- Color and gender seem to provide weaker cues

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✳️ Future studies: compare two low-frequency dimensions, or other socially relevant modifiers

References

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Thank You ☺