Bias against "she" pronouns can be rapidly overcome by changing event expectations

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Changing expectations about a future event can manifest rapidly in language use. During the 2016 US presidential election, von der Malsburg et al. (2020) elicited Americans' production and comprehension preferences for pronoun references to the then-future next president, potentially a woman (Hillary Clinton) or a man (Donald Trump). Participants' pronoun production rates changed in close lockstep with expectations regarding the likely election winner, whereas reading times in comprehension were less labile. The study's main result, however, was a persistent disadvantage for "she" relative to "he" in both production and comprehension, even when the female candidate was expected to win. Since the male candidate won the 2016 election, this study could not address whether and how quickly this disadvantage for "she" pronouns might be overcome in case the female candidate won. Here we address this open question in the context of the 2020 U.S. Presidential election by examining pronoun references to the future *Vice* President (VP), either a woman (Kamala Harris) or a man (Michael Pence). Additionally, we widen the scope of inquiry with references to the future VP's race.

We collected data from 1611 US-based Mechanical Turk participants in two rounds: pre-election 10/30-11/2); and post-election (11/7-11/10, starting immediately after major news media projected a Biden/Harris victory). Each participant completed an **event expectation** task ("How likely do you think each candidate is to win?") paired in random order with either a Cloze **production** task or a **comprehension** task using the A-Maze paradigm (Forster et al., 2009; Boyce et al., 2020). Following von der Malsburg et al. (2020), participants in the production component read a context sentence, shown in (1), and completed a partial version of one of 12 target sentences, exemplified in (2). Pre-election, "she" references were much rarer than "he" references (Fig 2) even though the female candidate was expected to win (Fig 1), but "she" references were numerically more frequent post-election (effect of round: $p < 0.05$). Also following von der Malsburg et al. (2020), half the participants in the comprehension component read (1) followed by two target sentences on the pattern of (3–4), each with a "he", "she", or "they" pronoun reference. At the first pronoun, "she" references elicited much slower RTs than "he" or "they" (*pre*-election); but post-election, "she" was read faster than "he" (Fig 3; all $p < 0.001$ except pairwise she/he post-election $p < 0.1$). Pronoun 2 results: "she" references have faster RTs post-election than pre-election, and *he*-references have slower RTs post-election than pre-election (interaction $p < 0.05$). In order to widen the scope of inquiry to mentions of the future VP's race, half of the participants in the comprehension task were presented with either (5) or (6) after (1). We see an interaction between experimental round and mentioned race ($p < 0.01$), with faster RTs post-election to the word "black" than to the word "white" ($p < 0.05$), but no differences pre-election. Finally, following all comprehension components, participants indicated who they thought the writer would expect to become the next Vice President. "He" references yielded more "writer is unsure" responses than "she" references (Fig 6; $p < 0.05$), suggesting that comprehenders may be taking into account the production biases against "she" relative to the event expectations observed in Fig 1. **In conclusion,** this study reconfirms the large, persistent dispreference for using "she" pronouns in references to future office-holders even when explicit event expectations favor the female candidate. However, this dispreference can be rapidly reversed by sufficient changes in event expectations (here, the election outcome).

(1) January 20, 2021, is Inauguration Day for the next term of the vice president of the United States.

(2) Because the vice president breaks ties in the US Senate, if there is a 50–50 party split in 2021 then...

(3) Because the vice president breaks ties in the US Senate, if there is a 50–50 party split in 2021 then **she|he|they** may cast many tie-breaking votes.

(4) The vice president holds nuclear launch codes, which will be a great responsibility for **her|him|them** to carry as the second in command for the country.

(5) The vice president will be **black|white|Black|White** and this is likely to be mentioned in discussions of US race relations.

(6) The vice president will be a **black|white|Black|White** person and this is likely to be mentioned in discussions of US race relations.

[All error bars are standard errors of the mean.]
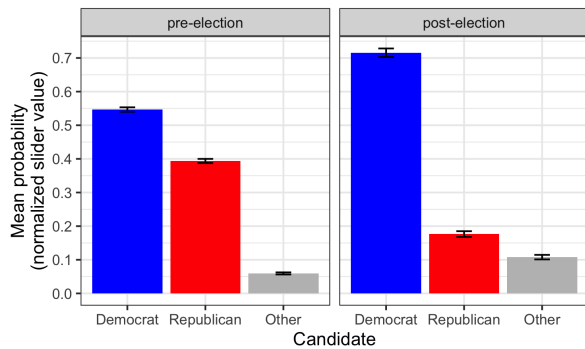

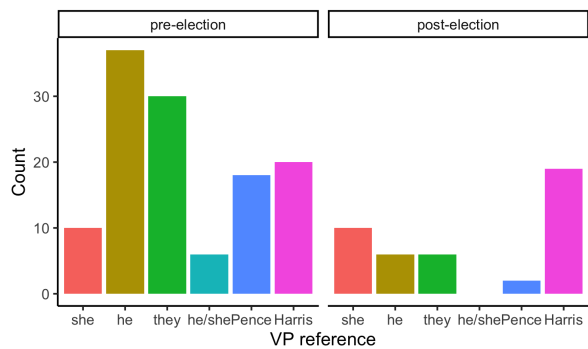Fig 1: Event expectations

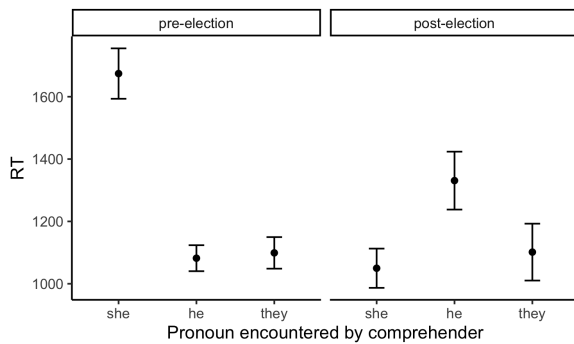Fig 2: Cloze continuation VP references
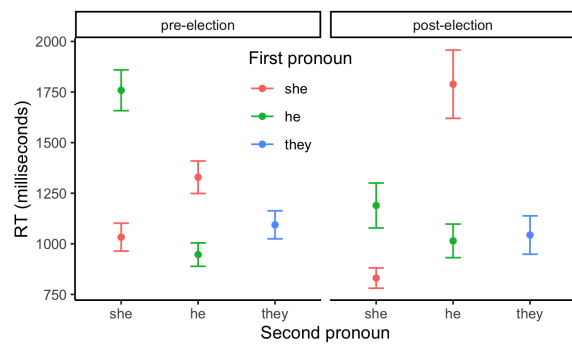

Fig 3: A-Maze RTs at pronoun 1
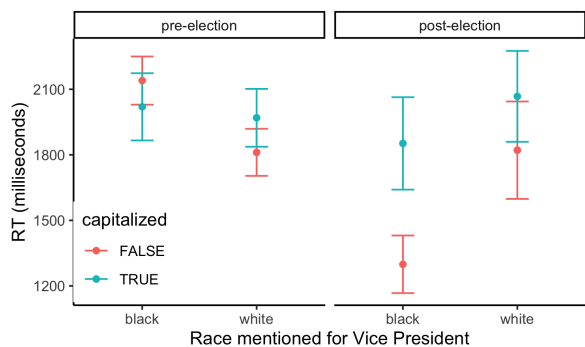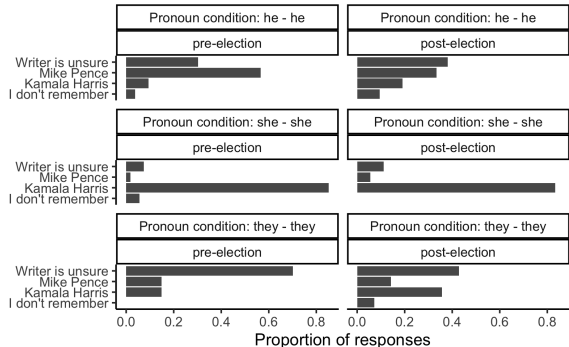

Fig 4: A-Maze RTs at pronoun 2

Fig 5: A-Maze RTs at mention of VP race

Fig 6: Inferred writer's expectations of next VP