RESEARCH

Singular *they* in context

Keir Moulton[1], Chung-hye Han[2], Trevor Block[2], Holly Gendron[2] and Sander Nederveen[3]

[1] University of Toronto, Toronto, CA

[2] Simon Fraser University, Burnaby, CA

[3] University of British Columbia, CA

Corresponding author: Keir Moulton (keir.moulton@utoronto.ca)

There is a growing experimental and theoretical literature on singular *they*, much of it focusing on the nature of the antecedents it takes (Foertsch & Gernsbacher 1997; Bjorkman 2017; Doherty & Conklin 2017; Prasad 2017; Ackerman et al. 2018; Ackerman 2018a; Ackerman 2018b; Conrod 2018; Ackerman 2019; Camilliere et al. 2019; Conrod 2019; Konnelly & Cowper 2020). We conducted two experiments which, in contrast to earlier studies, manipulated whether the gender of the referent of singular *they* is known to the discourse participants and whether there is a linguistic antecedent for singular *they*. We found that the presence of an antecedent ameliorates the acceptability of singular *they*—even in a context where the gender of the referent may be known to the hearer. We interpret this novel finding as revealing how a linguistic antecedent can signal the irrelevance of gender in a discourse and thereby licenses singular *they*. We also find a trend, inversely correlated with age, toward higher acceptability of even deictic singular *they* in gender known contexts, partially bearing out findings in Bjorkman (2017), Conrod (2019), and Konnelly & Cowper (2020) about innovative users of singular *they*.

Keywords: singular *they*; experimental syntax-pragmatics

1 Introduction

There has been recent interest in the grammatical properties of the English pronouns *they/them/their(s)* and the reflexive *themselves* when used to refer to a single individual, so-called singular *they*. There is also a growing experimental literature on the acceptability and processing of singular *they/themselves* with various types of antecedents, including quantified phrases, proper names and noun phrases associated with different genders (Foertsch & Gernsbacher 1997; Bjorkman 2017; Doherty & Conklin 2017; Prasad 2017; Ackerman et al. 2018; Ackerman 2018a; Ackerman 2018b; Conrod 2018; Ackerman 2019; Camilliere et al. 2019; Conrod 2019; Konnelly & Cowper 2020). All of these previous studies, however, presented singular *they* with a linguistic antecedent. In this article we show that the very presence of a linguistic antecedent affects singular *they*, ameliorating its acceptability over a deictic use, possibly even in contexts that have been argued to resist singular *they*.

The experiments also investigate the effect of discourse context on the acceptability of singular *they*. It is often reported that for many speakers referential singular *they* is more acceptable when the male or female gender of the referent is unknown to the hearer (or the hearer and the speaker) and less acceptable when the gender of the referent is known to both the hearer and speaker.[1] We set out to test this intuition using formal experimental

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[1] We use the term "gender" in the sense of "conceptual gender", as described in Ackerman (2019: 10), that is, the gender "expressed, inferred, and used by a perceiver to classify a referent".

methods by presenting sentences in discourse contexts that manipulated whether the referent's male or female gender was known to the hearer or not.

What we found was unexpected given previous descriptions and reveals an additional factor that affects the use of singular *they*: whether it is anaphoric to a linguistic antecedent or not. In particular, when singular *they* appeared with a linguistic antecedent as in (1a), it was equally acceptable in a discourse context where the hearer knows the male or female gender of the referent as it was in a context where the hearer does not. In contrast, when singular *they* appeared without a linguistic antecedent as in (1b) the effect of context was evident: *they* was less acceptable than a singular gendered pronoun when the gender was known to the hearer.

(1)   a.   The reporter$_i$ said that their$_i$ cellphone was recording the whole interview.
        b.   They$_i$ said that their$_i$ cellphone was recording the whole interview.

We suggest that the presence of a linguistic antecedent like *the reporter* has an ameliorating role for singular *they* because it serves to reinforce the irrelevance of the gender of the referent. Without this ameliorating feature, deictic uses of singular *they* as in (1b) are relatively unacceptable for some speakers. In addition to an overall reduced acceptability of singular *they* in cases like (1b), we found evidence for inter-speaker variation in the acceptability of deictic singular *they* in terms of age (see Conrod 2019 for similar results for anaphoric singular *they*).

2 Background

Singular *they* has been present in the English language for centuries, particularly as a bound variable pronoun, as exhibited in (2) from Bjorkman (2017). Many of the present-day English examples cited in the literature also involve co-varying interpretations for singular *they*, which are anaphoric to indefinites as in (3a)[2] or to generic-like definite descriptions as in (3b).

(2)   a.   Shakespeare (*A Comedy of Errors*, 1623)
              There's not a man I meet but doth salute me as if I were their well-acquainted friend[.]

        b.   Austen (*Pride and Prejudice*, 1813)
              Both sisters were uncomfortable enough. Each felt for the other, and of course for themselves[.]

(3)   a.   Bodine (1975: 139)
              When you call on a student, it's better if you can remember their name.

        b.   Balhorn (2004: 80)
              To operate it, the patient had to answer a series of questions, the final one asking if they wanted to die. If the patient answered yes, the machine would deliver a fatal dose of drugs. (*Lessons from Down Under* 2000)

Note that in some of the bound variable cases (such as in (2)), the male or female gender of the antecedent is explicit (*man, sister*). In contrast, referential uses of singular *they* are for some speakers more limited. These are more likely to be *epicene*, in which the gender of the referent is "unknown, indeterminate, or mixed" (Bjorkman 2017: 3). (See Bodine 1975; Matossian 1997; Balhorn 2004 and Foertsch & Gernsbacher 1997 for experimental evidence

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[2] These may be instances of E-type pronouns (Evans 1980).

comparing bound and referential *they*.) That is, it has been reported that for one group of speakers referential singular *they* is either not possible or at least degraded when the gender of the referent is "known to both the speaker and the hearer" (Bjorkman 2017: 5). So, for instance, the examples in (4) are degraded for many speakers when the hearer knows the male or female gender of the referent. We call this the *epicene requirement*. Bjorkman reports, further, that a number of *innovative* speakers do allow non-epicene singular *they* in such contexts (% signals inter-speaker variation).

(4)   Bjorkman (2017: 5)
        a.   %I really love their costume. (e.g. while pointing someone out)
        b.   %My friend left their sweater here.
        c.   %Your research assistant said they'll be joining the call later.

One of the most comprehensive experimental works to date on singular *they* is a large-scale acceptability judgment study by Conrod (2019). Conrod asked participants (N = 754) to rate singular *they* with different antecedent types (proper noun, generic (*the ideal student*) and quantified (*every student*)) and collected several participant variables (age, gender, and transgender identity). Conrod found evidence of a change-in-progress: younger participants gave higher ratings to singular *they* with proper noun antecedents (referential) than older participants, whereas there was no such age effect for the acceptability of singular *they* with generic or quantified antecedents. Additionally, Conrod's data revealed several complex interactions between age, gender and transgender identity, with non-binary and transgender participants generally rating referential *they* higher.

Konnelly & Cowper (2020) report that there is yet a third group of speakers—in addition to the non-innovative and innovative speakers identified by Bjorkman—who accept singular *they* with all antecedent types. In recent experimental work, Camilliere et al. (2019) provide evidence supporting Konnely & Cowper's (2020) claims. Further, they find that "social distance" has an effect on the acceptability of singular *they* across all speakers—*they* is more acceptable when referring to individuals who are not personally close to the speaker (e.g. *the dentist*) compared to individuals who are (*my friend*), presumably because the gender of the individual may be less likely to be known or relevant in the former case (the epicene requirement).

Using formal experimental methods, we set out to test the epicene requirement—that singular *they* is degraded for some speakers when the hearer knows the male or female gender of the referent—using explicit discourse contexts. We also tested the effect of a linguistic antecedent on the acceptability of singular *they*. For Bjorkman (2017) all three examples in (4) are predicted to pattern together. While the instances of singular *they* in (4b/4c) have linguistic antecedents (*research assistant, friend*), *they* in (4a) is deictic (taking *exophoric* rather than *anaphoric* reference). Given that the antecedents in (4b/4c) are themselves gender neutral, this might have the effect of promoting an epicene use of *they*.

To test the epicene requirement using explicit discourse contexts, we presented participants with items such as (5), a Gender Known Context, where both characters (David and Lisa) are in the presence of the relevant referent (the server) and would be likely to share knowledge about the binary gender of the referent (male or female) if applicable. The target sentence involves one of the characters making a claim about the referent using *they*.

(5)   *Gender known context*
        David and Lisa are eating dinner at a new restaurant. When the server brings the
        food, Lisa is suspicious. She whispers to David:
        Target: "I think the server put their hair in my potatoes!"

This is contrasted with a Gender Unknown Context, (6), in which only one character, the speaker, is in the presence of the referent. In this context, the (absent) hearer is much less likely to know the male or female gender of the referent.

(6)   *Gender unknown context*
        Lisa is eating dinner at a new restaurant. When the server brings the food, Lisa is suspicious. She is tweeting about her meal and says:
        Target: "I think the server put their hair in my potatoes!"

In Experiment 1, we compared the acceptability of singular *they* in these two types of contexts, using sentences with singular gendered pronouns as a control. In Experiment 2, we compared anaphoric versus deictic singular *they* in Gender Known Contexts. Only in the latter experiment did we find a difference in acceptability consistent with the epicene requirement.

3 Experiment 1

Experiment 1 tested the naturalness of singular *they* in discourse contexts where the gender of the referent is known to both the speaker and the hearer, in comparison to contexts where the gender of the referent is unknown to the hearer. We predict that singular *they* in gender known contexts will be less acceptable than in gender unknown contexts, whereas the singular gendered pronouns will exhibit no such sensitivity to context.

3.1 Participants

40 native English speakers were recruited through Amazon Mechanical Turk and directed to the Ibex online experiment platform (Drummond 2013). Compensation was received upon completion of the experiment.

3.2 Task

Participants performed a sentence acceptability judgment task on a total of 44 items: 16 test items and 28 filler items. In each item a context was presented in black text followed by a target sentence, which appeared in blue text surrounded by quotation marks, to reinforce that these were the words of one of the discourse participants in the context. Participants were asked to evaluate each target sentence for naturalness in the given context on a seven-point scale, with 7 being the most natural and 1 the most unnatural. Approximately half of the trials were followed by a comprehension question.

3.3 Design and materials

The 16 item sets were created with a 2×2 factorial design: Context (KNOWN or UNKNOWN) and Pronoun (S/HE *he/his/she/her* or THEY *they/their*). Each item was comprised of two context sentences and a target sentence. The context set up a discourse such that in gender KNOWN conditions, the gender of the referent was likely to be known to both the speaker and the hearer. In gender UNKNOWN conditions, the gender of the referent was likely to be known to the speaker, but not the hearer. The participants were then presented with a target sentence containing the critical pronoun: either a singular gendered pronoun (*he/his* or *she/her*), or singular *they/their*. In all target sentences, the pronoun was anteceded by a definite description that employed a common noun with neutral gender bias in the sense of Doherty & Conklin (2017), who showed that these kinds of nouns readily license singular *they*. An example of gender KNOWN condition is given in (7), and gender UNKNOWN condition in (8).

(7)   David and Lisa are eating dinner at a new restaurant. When the server brings the food, Lisa is suspicious. She whispers to David:
     a.   "I think the server put her hair in my potatoes!"
     b.   "I think the server put their hair in my potatoes!"

(8)   Lisa is eating dinner at a new restaurant. When the server brings the food, Lisa is suspicious. She is tweeting about her meal and says:
     a.   "I think the server put her hair in my potatoes!"
     b.   "I think the server put their hair in my potatoes!"

In order not to reveal the experiment's objectives to participants, fillers of varying degrees of felicity were created, each with two context sentences and a target sentence. The fillers were divided into the categories *appropriate*, *inappropriate*, and *irrelevant*. Ten appropriate fillers contained contextually appropriate target sentences (9), ten inappropriate ones contained contextually inappropriate deictic elements (like *there* and *here*) in the target sentences (10), and eight irrelevant fillers contained target sentences that were irrelevant to the context sentences (11).[3]

(9)   Tegan and Max are shopping for flowers for their mother's birthday gift. Tegan goes to pick up a bouquet of daisies. Max says to Tegan:
    "I think Mom likes carnations more than daisies."

(10)   Mary and Tom are at the library studying for an exam. Tom takes out an apple. The librarian whispers to them that no food is allowed in the library. Mary says to Tom:
    "I think the librarian said that no food is allowed there."

(11)   Ruby and Jack are out rock climbing in Yosemite Park. Jack is afraid of heights and says to Ruby:
    "I forgot the keys to my office filing cabinet."

3.4 Procedure

Experiment 1 was carried out as an online experiment on the Ibex platform (Drummond 2013). The 16 test items were distributed across four lists in a Latin-square design along with 28 fillers. Both the items and the fillers were presented to each participant in a uniquely randomized order.

Participants received instructions to read through each story and rate the naturalness of the target sentence. For each trial, a seven-point scale was presented on which the ratings were provided. A high rating indicated a natural target sentence, whereas a low rating indicated an unnatural target sentence. Before the beginning of the experiment, participants completed two practice items, after which they were automatically directed to the experiment. After the experiment, participants were asked to fill out a demographic survey, providing information on age, language background, and gender. Participants were then prompted to enter their Amazon Mechanical Turk worker ID in order to receive compensation.

3.5 Findings

The mean ratings by condition are given in Figure 1.

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[3] All materials used in Experiment 1 and Experiment 2 are provided in the appendix in the supplementary file.
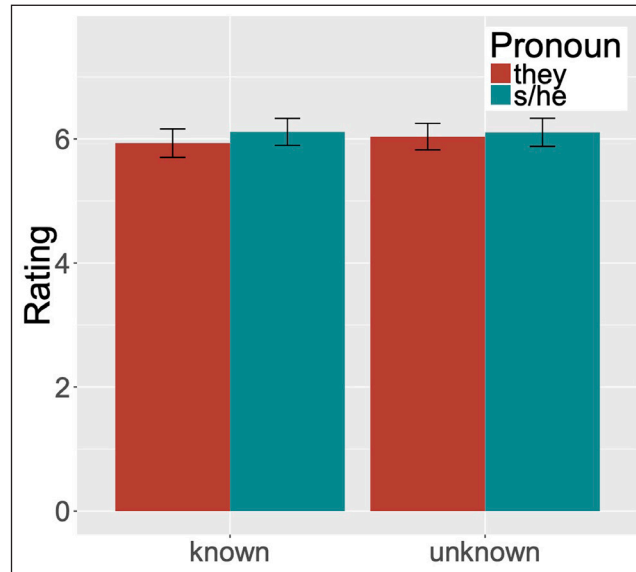
Figure 1: Mean ratings and standard errors, Experiment 1.

We analyzed the ratings by means of a mixed-effects model in R (R Development Core Team 2012). The lme4 package was used to fit the model (Bates et al. 2012), and the lmerTest package was used to obtain *p*-values (Kuznetsova et al. 2014). In analyzing the data, we fit a maximal random-effects structure with random intercepts and random slopes for participants and items, with the random correlation parameter for the interaction term removed for both participants and items (Barr et al. 2013). The predictors in all analyses reported here were sum coded, with one of the levels coded as 1, and the other as –1.

We fit a mixed model to the ratings with fixed factors of Context (KNOWN vs. UNKNOWN) and Pronoun (THEY vs. S/HE). We did not find any main effect or interaction. Ratings of all conditions were high, averaging at around 6.

3.6 Discussion

Bjorkman (2017) reports that non-innovative speakers can only use referential singular *they* if the gender of the referent is unknown to the hearer, while a set of innovative speakers can use referential singular *they* even when the gender of the referent is known to both the speaker and the hearer. We thus expected either an interaction between Context and Pronoun, such that the ratings of target sentences with *they* in the KNOWN condition would be the lowest, or a more bi-modal distribution across individual participant scores in the THEY-KNOWN condition reflecting inter-speaker variation. However, our results show that *they*-sentences were just as highly acceptable as singular gendered pronoun sentences regardless of whether the gender of the referent was known or unknown. Moreover, ratings for the THEY-KNOWN condition were consistently high across participants.

One possible explanation for our results might be that all of our participants were innovative speakers, allowing singular *they* in non-epicene contexts. Another possible explanation, pointed out by an anonymous reviewer, is that none of the contexts made the gender of the referent of *they* explicit to the *experimental participants*, and this may have contributed to the high scores of *they*-sentences even in conditions that presumed hearer-knowledge of the referent of *they*. That is, the experimental participants may have rated the target sentences from their own points of view, rather than taking the perspective of the character speaking in each trial. The question then is to what extent experimental participants take the knowledge perspectives of the characters in the discourses in rating the naturalness

of what those characters say. We think this is a very interesting issue indeed, and it raises some general methodological questions about the task we chose. We can, however, glean some insight into whether our participants paid close attention to the contexts from the fillers, which required participants to take into account the perspective of the characters in the given discourse. The appropriate filler items were rated high, 6.53, while the inappropriate and the irrelevant filler items were rated relatively low, 4.63 and 3.02 respectively. These results are as expected, and thus lend some support to the validity of the results on the test items.

There is another possibility, however, which is related to the fact that each of our target sentences contained a gender neutral definite description (e.g. *the server*) as an explicit linguistic antecedent. It is possible that while the presence of a gender neutral antecedent may allow even non-innovative speakers to accept singular *they* when the gender of the referent is known, a deictic use of singular *they*, without an explicit linguistic antecedent, may be dispreferred in known contexts.

To test this hypothesis, in Experiment 2, we compared the naturalness ratings of singular *they* with and without antecedents in the gender known contexts from Experiment 1.

4 Experiment 2

Experiment 2 tested the naturalness of a deictic use of singular *they* without an explicit linguistic antecedent, in comparison to anaphoric use of singular *they* with a linguistic antecedent in the target sentence. These were presented in the same gender known contexts from Experiment 1, where the referent of the pronoun is known to the speaker and the hearer. If the presence of a gender neutral linguistic antecedent ameliorates singular *they*, even in gender known contexts, we expect deictic *they* will be less acceptable, at least for a set of speakers Bjorkman (2017) describes as non-innovative.

4.1 Participants

64 participants were tested. All were native English speakers recruited through Amazon Mechanical Turk and directed to the Ibex online experiment platform (Drummond 2013). Compensation was received upon completion of the experiment. None of them had participated in Experiment 1.

4.2 Task

Participants performed a sentence judgment task on a total of 44 items: 16 test items and 28 filler items (which were the same as the ones used in Experiment 1). The task was identical to Experiment 1.

4.3 Design and materials

16 item sets were created with a 2 × 2 factorial design: Antecedent (PRESENT or ABSENT) and Pronoun (S/HE *he/his/she/her* or THEY *they/their*).

As in Experiment 1, each item was comprised of two context sentences followed by one target sentence. The contexts were identical to the Gender Known contexts of Experiment 1, in which the gender of the referent in the target sentence is known to both discourse participants, the speaker and the hearer.

The target sentences were minimally different from those in Experiment 1, all beginning with a first person attitude report such as "I think". However, the sentences were manipulated so that the first mention of the target referent was either a definite description or a pronoun. The subject of the embedded clause was thus either a definite description serving as a linguistic antecedent or a deictic pronoun, the latter being either a singular gendered pronoun (half the items *she/her*, half *he/his*) or *they/their*. This was followed by

another pronoun: either a singular gendered pronoun or *they/their*. Crossing these two two-level factors created the four conditions in (12).[4]

(12)   David and Lisa are eating dinner at a new restaurant. When the server brings the food, Lisa is suspicious. She whispers to David:
       a.   "I think the server put her hair in my potatoes!"   PRESENT-S/HE
       b.   "I think the server put their hair in my potatoes!"   PRESENT-THEY
       c.   "I think she put her hair in my potatoes!"   ABSENT-S/HE
       d.   "I think they put their hair in my potatoes!"   ABSENT-THEY

The resulting target sentences thus tested singular *they* with an antecedent (12b) versus deictic singular *they* (12d). The sentences in (12a) and (12c) are singular gendered pronoun controls.

4.4 Procedure

Experiment 2 followed the same procedure as Experiment 1.

4.5 Findings

The mean ratings by condition are given in Figure 2.

We fit a mixed model to the ratings with fixed factors of Antecedent (PRESENT VS. ABSENT) and Pronoun (THEY VS. S/HE). The random-effects structure of the model was as described for Experiment 1. We found a main effect of Antecedent (Est = 0.11, SE = 0.04, t = 2.97, $p < 0.01$) such that overall the sentences with definite description antecedents were rated higher than the sentences without antecedents, and a main effect of Pronoun (Est = –0.22, SE = 0.05, t = –4.58, $p < 0.001$) such that overall the sentences with gendered singular *he/his/she/her* were rated higher than the sentences with singular *they/their*. Crucially, we
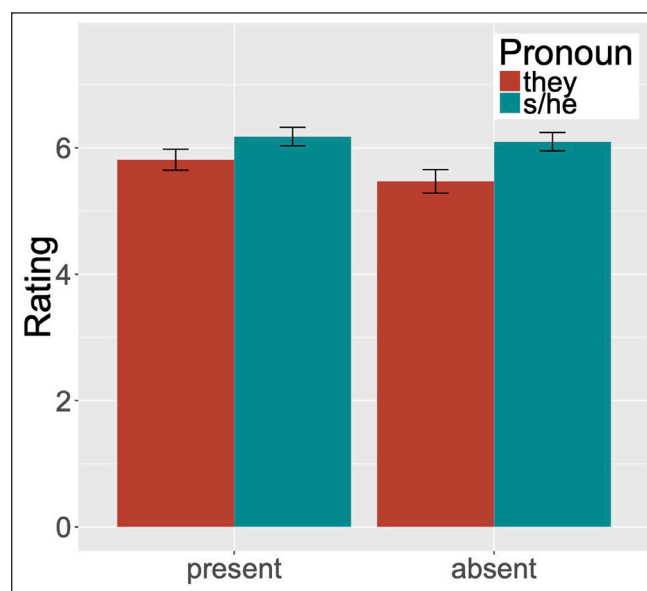

Figure 2: Mean ratings and standard errors, Experiment 2.

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[4] A reviewer observes a possible confound with the target sentences in that while our ABSENT-sentences contain two occurrences of the same pronoun (*they/their, she/her, he/him*), the PRESENT-sentences contain only one occurrence of the target pronoun. The reviewer notes that reading the same pronoun twice in a sentence might make the use of *they* more acceptable, and thus may have contributed to raising the mean rating of the ABSENT-THEY condition. They then suggest that changing the stimuli and contexts to avoid repeating the pronoun might sharpen the contrast. We thank the reviewer for this suggestion.

found an interaction between the two factors ($Est = 0.07$, $SE = 0.03$, $t = 2.08$, $p < 0.05$). This was due to the fact that sentences containing singular *they/their* without an antecedent received the lowest rating (5.45).[5]

4.6 Discussion

We found that the naturalness rating of referential singular *they* with a gender known referent is less acceptable when used deictically in comparison to when used anaphorically with a gender neutral antecedent. Previous studies report that singular *they* is acceptable with a gender neutral antecedent (Foertsch & Gernsbacher 1997; Doherty & Conklin 2017). What is novel is that (i) it is so acceptable when the gender is known to the hearer and (ii) deictic singular *they* is reliably less acceptable.

Looking more closely at individual responses, we found that six participants (out of 64) gave mean ratings of 4 or less for the condition testing *they*-sentences without an antecedent (the ABSENT-THEY condition). These participants, nevertheless, rated *they*-sentences with an antecedent (PRESENT-THEY) higher, as can be seen in Figure 3. That is, participants who found singular *they* to be degraded in naturalness without a linguistic antecedent found it to be acceptable with an antecedent.

These results taken together lend support to the claim that non-innovative speakers find singular *they* less acceptable than a singular gendered pronoun. But this effect only arises reliably when the pronoun is used deictically.

Our data moreover suggest that age is a factor in the naturalness rating of singular *they* with known referents. We conducted a linear regression analysis to examine the correlation between the participants' mean naturalness rating in the deictic singular *they* condition (ABSENT-THEY) and their age. The analysis revealed a marginal correlation ($R^2 = .05$, $t = -1.83$, $p = .07$) such that the older participants tended to assign lower ratings. No such correlation was found, however, in the singular *they* condition with a linguistic antecedent (PRESENT-THEY) ($R^2 = .03$, $t = -1.48$, $p = .14$). As noted by Bjorkman (2017), Conrod (2019), and Konnelly & Cowper (2020), the use of singular *they*
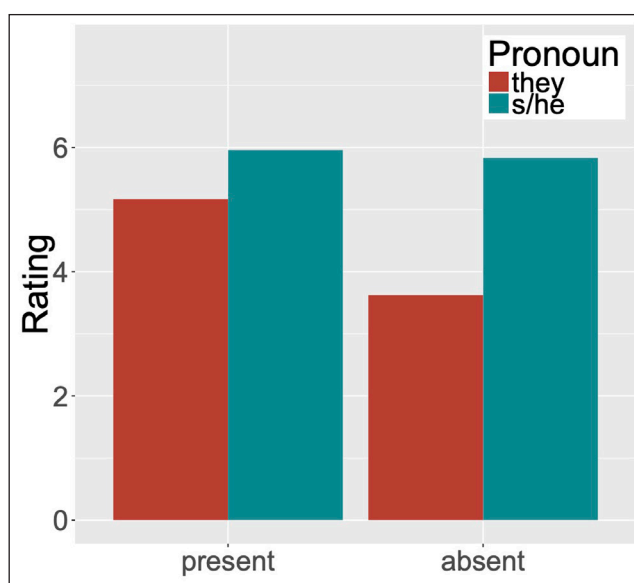

Figure 3: Mean ratings of participants with low naturalness rating in the ABSENT-THEY condition.

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[5] The results for fillers in Experiment 2 are similar to the ones in Experiment 1: the appropriate filler items were rated high, 6.40, and the inappropriate and the irrelevant filler items were rated relatively low, 4.89 and 3.19 respectively.

with gender known referents represents a change in progress, one more often adopted by younger speakers than older speakers. These observations are confirmed by our finding that age inversely correlates with the naturalness rating of singular *they* in gender known contexts, when the presence of a linguistic antecedent is controlled for.[6]

As discussed in connection with Experiment 1, it is possible that participants treated all conditions as gender unknown, as the male or female gender of the referent was not made known to the participants. This would elevate ratings across all *they* sentences and would not provide a reason why the ratings are degraded in the ABSENT-THEY condition.

5 General discussion

While Experiment 1 failed to find the predicted effect of the epicene requirement on the use of singular *they*, Experiment 2 found that the use of singular *they* was degraded in gender known contexts, but only when there was no linguistic antecedent for the pronoun. This only partially confirms the claim, often made in the literature, that for "conservative" speakers referential singular *they* requires that the gender of the referent be indeterminate or unknown to at least the hearer. The question is why the presence of a linguistic antecedent improves the acceptability of singular *they*, despite the fact that the gender is known.

Previous studies have demonstrated that the lexical content of the antecedent bears on the choice of pronoun: singular *they* is more acceptable with antecedents that are gender neutral (Foertsch & Gernsbacher 1997; Doherty & Conklin 2017). Those studies, however, do not allow us to discriminate between facts about the referent (their gender) and the linguistic form of the antecedent. This raises the possibility that the linguistic properties of the antecedent, *despite* the male or female gender of the referent, are crucial. This, we think, is exactly what we have found. When a speaker uses a gender neutral noun such as *server* or *driver*, over alternatives that may carry commitments to male or female gender, the speaker can be signaling—intentionally or not—the irrelevance of gender to the referent. Singular *they* is thus more acceptable, possibly even when the gender is known. Without a linguistic antecedent, there is not the same "signal" of the irrelevance of gender. In this case, the featural content of *they* will then have to play a more decisive role in establishing reference.

Several theories of singular *they* are compatible with these observations. Bjorkman (2017) argues that for a set of non-innovative speakers—those who drove the effect in our experiment whereby deictic *they* was given the lowest rating—gender features are contrastive. The absence of a gender feature implicates that gender is unknown or irrelevant—what we call the epicene implicature. In Experiment 2, if the gender is known to the discourse participants, this would leave only irrelevance as a licensing factor for non-innovative speakers. It seems, though, that irrelevance needs some boost for non-innovative speakers. In our cases, that boost comes from a gender neutral linguistic antecedent. For more innovative speakers, Bjorkman claims that gender features are not contrastive (Wiltschko 2008), which means their absence does not trigger the epicene implicature. There is no implication then that the gender is either unknown or irrelevant, hence no need to promote irrelevance through other discourse means. Our correlation analysis suggested that Experiment 2 included participants with such a grammar.

The introduction of a linguistic antecedent may have also promoted the acceptability of singular *they* in gender known contexts because of its number features.[7] The use of an unambiguous *singular* definite description promotes the salience of a singular individual. If, for some speakers, *they* more strongly seeks plural antecedents (see Sanford & Filik 2007),

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[6] As pointed out by a reviewer, other factors such as speakers' attitudes towards and familiarity with gender diversity can affect their acceptance of singular *they* (Hernandez et al. 2018; Ackerman et al. 2018).

[7] We thank a reviewer for pointing this out to us.

then in the absence of a super-salient singular linguistic antecedent the reader may be more likely to attempt a search for a plural referent. In the deictic case, no such antecedent can be found, and this may lower perceived acceptability.

There is another interpretation of our results that deserves mention as well. A reviewer suggests that perhaps anaphoric *they* has an advantage over deictic *they* because it might be bound, pointing out that 10 of our 16 stimuli use possessive *their* with a clause-mate antecedent in a c-commanding position. These might involve binding in a reflexive-like configuration (English simply does not lexicalize the reflexive/non-reflexive distinction in possessors). The reviewer points out that if the reflexive pronoun is bound, then its high acceptability in these cases might reflect the fact that bound singular *they* is independently more acceptable than referential *they* (Foertsch & Gernsbacher 1997; Conrod 2019) and that it has a long history of use in English (as discussed in the introduction). We certainly think this possibility deserves further experimental attention, which would require directly comparing bound variable singular *they* with reflexive singular *themselves/themself*. It could be that both types of anaphors pattern alike. It is also possible, however, that the advantage singular *they* has as a variable bound by a quantifier is due to the semantics of co-variation, not a binding relationship alone. Reflexives only share the latter property with bound variables. Furthermore, we compared the mean ratings of the 10 items where *they* could be a reflexive-in-disguise (mean rating: 5.85) to the six items where singular *they* cannot have this analysis (mean rating: 5.76) and found no statistical difference (p > .05). Nonetheless, we agree with the reviewer that this interesting distinction deserves further investigation.

We surely have not exhausted the set of discourse-pragmatic factors that license singular *they*, an avenue also recently explored by Camilliere et al. (2019) in terms of "social distance". We might also ask about the relative influence of speaker vs. hearer knowledge and the contextual relevance of male or female gender for the communicative goals of the speaker. Nonetheless, we are confident that the words the speaker uses to refer to an individual in the antecedent phrase has a subtle impact on the acceptability of singular *they*, perhaps even independently of gender of the referent and the hearer's knowledge state.

6 Conclusion

A number of studies have demonstrated that singular *they* is sensitive to the type of antecedent it takes (Foertsch & Gernsbacher 1997; Doherty & Conklin 2017; Ackerman 2018b). We have shown that the very presence of a linguistic antecedent affects the acceptability of singular *they*. In particular, the presence of a linguistic antecedent can ameliorate the acceptability of singular *they* even in a context where the male or female gender of the referent may be known to the hearer. Without that antecedent, singular *they* does exhibit reduced acceptability in such contexts (in-line with the epicene requirement) especially among older participants. Our results add to the experimental literature by dis-entangling the contribution of the antecedent's form (the gender properties associated with the common noun) and the referent's gender itself. The gender neutral antecedent can promote the irrelevance of gender and thereby act as a discourse licensor for singular *they*. We think there are likely to be a variety of other factors that contribute to the felicitous use and acceptability of singular *they*. Controlled studies that manipulate discourse contexts are a profitable way to uncover them, as are corpus and production studies (Conrod 2019).

Additional File

The additional file for this article can be found as follows:

- **Supplementary file 1.** Appendix to "Singular *they* in context". DOI: https://doi.org/10.5334/gjgl.1012.s1

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Competing Interests

The authors have no competing interests to declare.

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