They is Changing: Pragmatic and Grammatical Factors that License Singular *they*

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Abstract

Singular *they* has become increasingly common as a personal pronoun of reference for non-binary individuals and in use with generic referents. While previous accounts of the licensing conditions of *they* are primarily syntactic, pragmatics may also play a role. By Maximize Presupposition (Heim 1991), speakers who use *they* rather than a more specific gender marked pronoun are potentially signaling that they do not know the antecedent's gender or that it is not relevant to their current goals. This would predict that socially close referents would be less felicitous antecedents for *they*. In this study, participants made judgments for nine types of antecedents. Gender marking, specificity, and social distance had reliable effects on acceptability. In addition, cluster analyses indicated that participants naturally fell into three groups, which align with those predicted by Konnelly and Cowper (2020). Individuals who were younger, more open to non-binary gender, and had more experience with non-binary individuals accepted *they* in more situations.

Keywords: Singular They; Pragmatics; Language

Introduction

Most modern style guides still recommend that *they* should only be used to refer to plural antecedents (e.g., The Chicago Manual of Style 2017). However, singular *they* is commonly used to refer to quantified antecedents, individuals of unknown gender, or nonspecific antecedents as in (1) (Balhorn 2004).

(1) a. Everyone$_i$ should turn off their$_i$ computer when they$_i$ leave.
b. Someone$_i$ forgot their$_i$ jacket in the classroom.
c. *(After answering the phone)* They must have had the wrong number.

Indeed, this usage dates back to at least the 1300s (Baron 2019). In recent years, a subset of English speakers seems to show acceptance of singular *they* when bound to a specific, definite antecedent of known gender (e.g. "the professor").

Additionally, singular *they* has emerged as the most common personal pronoun for individuals who identify as gender non-binary (Conrod 2020). The expanding distribution of singular *they* use among English speakers has raised questions regarding the syntactico-pragmatic features of singular *they*, and the nature of linguistic gender in English more generally.

Based on informant intuitions, Bjorkman (2017) claimed that there are two distinct groups of speakers that vary in their use of singular *they*. Individuals who accept *they* with singular, definite antecedents, as in (2), are considered innovative users, while those who reject singular *they* in those contexts are considered non-innovative.

(2) a. The professor$_i$ said that they$_i$ cancelled the exam.
b. Our eldest child$_i$ broke their$_i$ leg.
c. I'll let my cousin$_i$ introduce themselves$_i$.

For both groups, Bjorkman argues that *they* is grammatically incompatible with explicit gender marking. On this account, non-innovative users mandatorily mark specific antecedents with a binary gender feature, [MASC] or [FEM]. For innovative users, gender marking on specific antecedents is typically optional. An exception are antecedents such gendered kinship terms or names with a strong association to one gender, which are overtly marked for gender. Thus the examples in (3) are ungrammatical for both groups.

(3) a. Sophia$_i$ went to the store because they$_i$ needed apples.
b. My sister$_i$ went to the store because they$_i$ needed apples.

Konnelly and Cowper (2020) claim a third group exists for whom gender features are completely optional and non-contrastive, allowing *they* to be used even with grammatically

gendered antecedents. These super-innovative users would accept *they* in examples such as (3).

While these approaches begin to account for the expanding distribution of singular *they*, purely syntactic accounts assume that individuals' judgments will be categorical, in that the relevant features are either present or absent. This does not explain the apparent gradation of judgements within an individual, nor the variability of judgments within groups. One particular example given in Bjorkman was that, for some innovative speakers, judgments of *they* improved when using names that had associations that were both masculine and feminine (e.g. *Chris* or *Alex*) while these individuals did not accept *they* when used with names with strong gender associations (e.g *Janet* or *Thomas*) (Bjorkman 2017).

Another possibility is that the acceptance of singular *they* is affected by pragmatic pressures. It is implicitly understood that cooperative speakers will make the strongest statements that are relevant to their goals and knowledge (Grice 1975). For pronouns, the relevant formalization of this maxim is Heim's Maximize Presupposition: Make your contributions presuppose as much as possible given your current communicative goals (1991, see also Sauerland et al. 2005). In English, the gendered pronouns *he* and *she* carry the presuppositions that the antecedent being referred to is male or female, respectively, while *they* is unmarked for gender. When a speaker chooses to use singular *they* to refer to a given antecedent, the addressee, reasoning according to Maximize Presupposition, should conclude that since the speaker did not use a pronoun with a more specific presupposition, that they must not know the gender of the antecedent, or that it is not relevant to their current conversational goals. The features (like gender) of individuals to whom the speaker is closer are more likely to be known and relevant to them. In turn this would predict that *they* referring to a specific individual would be less felicitous when referring to socially close antecedents (e.g. named referents, family member, friends). This idea finds some support in the observations of a recent twitter thread :

> So the last time I saw my parents, I noticed something odd. When I talk about nonbinary friends using singular "they," they don't bat an eye. Total comprehension, no complaints. When I talk about my nonbinary spouse using singular "they," they get CONFUSED...But they only do it for my spouse! ...When I use "they" to talk about a friend, they accept the distal stuff. "Leah is marking that friend as unimportant. I guess she must feel kinda distant from them." BUT THEY CAN'T DO THAT FOR MY SPOUSE They are INCURABLE ROMANTICS. They are SAPS. They cannot POSSIBLY accommodate the idea that I am marking my spouse as unimportant-to-me (Velleman 2019).

This account of the author's parents having difficulty with using singular *they* to refer to the author's spouse illustrates how particular social relationship may make the gender features of pronouns more salient in a discourse.

This study aims to investigate the particular environments in which singular *they* is licensed, and to investigate which pragmatic and grammatical features influence the acceptability of singular *they*. Additionally, we are interested in whether there are coherent subgroups of *they* users, and what social factors mediate the formation of these groups. Recent work has found that both age and familiarity with non-binary individuals was correlated with ratings of singular *they*. Conrod (2019) found that older participants rated singular *they* as less acceptable across antecedent types, and Ackerman et al. (2018) found that individuals who personally knew someone who was non-binary or transgender rated sentences with singular *they* as more acceptable. Bradley (2020) found that resistance to singular *they* was influenced by linguistic prescriptivism as well as sexism. The current experiment aims to investigate how these and other social factors are related to acceptability judgments of singular *they*.

Experiment

The current experiment had several aims (goals, methods, and exclusion criteria preregistered at Aspredicted.org). Two questions we were interested in were related to the properties of different antecedents that affect acceptability of singular *they*. First, how does gender marking and specificity influence judgements of singular *they*? Based on informant intuitions from Bjorkman (2017) and Konnelly and Cowper (2020), we expect that antecedents with explicit gender marking or strong gender associations will be judged as less acceptable than non-gendered antecedents. Another question was whether closer social distance between speaker and antecedent would result in degraded acceptability of singular *they*, as predicted by Maximize Presupposition. Additionally, we were interested to see if and how participant differences in age and attitudes towards gender would affect their acceptability judgements. A final question was whether there are multiple coherent clusters of *they* users, and whether or not these groups aligned with those proposed by Bjorkman (2017) and Konnelly and Cowper (2020). To investigate these questions, we presented participants with an explicit judgement task in which they were asked to rate how naturally *they* referred to a specific antecedent on a 7-point likert type scale.

Methods

Participants

A total of 160 participants were recruited to participate in an online experiment through Amazon's Mechanical Turk (*n* = 40) and Prolific.ac (*n* = 120). Participants were American, native English speakers, ages 18-51 who had completed at least 100 Human Intelligence Tasks (HITs), and who had an excellent performance record on previous HITs (minimum of 97% approval rating). Of the participants that fully completed the demographics survey, 77 reported their

gender as female, 66 as male, 2 as non-binary and 1 as other.

Materials and design

Participants read and judged a series of sentences in which a form of singular *they* referred back to some antecedent. The eight critical antecedent types are given in Table 1.

Table 1: Example conditions for the frame " ____ said that they would be coming late to dinner". Participants were asked to judge how naturally *they* referred to the antecedent.

Antecedent Type	Example
Plural Noun Phrase	*The dentists*
Quantified Noun Phrase	*Every dentist*
Socially distant, non-gendered	*The dentist*
Socially close, non-gendered	*My friend*
Socially distant, gendered	*The actress*
Socially close, gendered	*My sister*
Non-gendered Name	*Taylor*
Gendered Name	*Sophia*

Forty stimulus items were constructed. Each item consisted of a sentence frame in which a form of *they* referred back to an antecedent. Four forms of *they* (i.e. *they*, *their*, *them*, *themselves*) were equally represented across items. The sentence frames were constructed so that any of the eight noun phrase types could reasonably fit in the sentence as the antecedent. 15 additional sentences were constructed to create the filler condition of inanimate antecedents as in (4).

(4)   The cup$_i$ fell and they$_i$ broke.

Eight lists were constructed from these materials such that each list contained 55 items. Each participant saw 40 critical items, five of each experimental condition, distributed using a Latin square design, and the 15 inanimate control items.

Three conditions served as baselines and attention checks. Items in the plural noun phrase and quantified noun phrase conditions were expected to be rated as very natural by all participants. Items in the inanimate condition were expected to receive low naturalness ratings due to the conflict in animacy features between the *they* pronoun and a singular, inanimate antecedent.

The remaining conditions were designed to manipulate the two factors of experimental interest, social distance between the speaker and antecedent and the grammatical gender of the antecedent. Socially distant antecedents were those that indicated no particular relationship between the antecedent and speaker, and were either gender-specific ("the actress") or non-gendered ("the dentist"). Socially close antecedents were those whose meanings presuppose some level of familiarity between speaker and antecedent, and were either gender-specific ("my sister") or non-gendered ("my friend"). Personal names were considered to be socially close antecedents, as the use of a personal name as opposed to some other noun phrase indicates a high level of familiarity between speaker and antecedent. There were two name conditions, gendered ("Sophia") and non-gendered ("Taylor"); the bias of gendered and non-gendered names was determined in a previous norming study.

Procedure

Participants were randomly assigned to one of the eight stimulus lists by a counter set on the Ibex server. The 40 critical trials were presented on the screen in a Latin square design, and were pseudorandomly intermixed with the 15 inanimate fillers. Participants read the items word-by-word, and were asked to progress through each sentence by pressing the space bar at their natural reading pace. Reading times were collected for each word. After completing the sentence, a screen appeared that displayed the full sentence and a question asking "On a scale from 1-7, how naturally does 'they' refer to 'X'?". Participants responded on a scale that ranged from 1 (*Not naturally at all*) to 7 (*Very naturally*). Prior to the experimental trials, participants were given two practice trials in which they saw a sentence in the plural and the inanimate conditions; participants were given feedback stating that they should have given a relatively high naturalness rating to the sentence in the plural condition, and a relatively low naturalness rating to the sentence in the inanimate condition. The entire task took approximately 7-10 minutes to complete.

Attitudes and Demographics Survey

Following the experimental task, participants were directed to a Qualtrics survey that collected demographic information in addition to several measures of social factors. This survey consisted of four sections that were designed to assess various aspects of participants' social attitudes and beliefs that were potentially related to their ratings of *they* used in reference to a singular antecedent. The first section contained three subscales. The first subscale asked for judgements on the use of they in the context of a non-binary referent, the second subscale asked questions regarding the participants' gender identity and familiarity with individuals of non-binary genders, and the last subscale asked questions measuring acceptance of transgender and non-binary people. The second section asked participants to compare sentences in which singular *they* was used with either plural or singular verbs. The third section was the Trans Prejudice Scale from Davidson (2014). The fourth section was an adapted version of the Gender Essentialism Scale from Smiler and Gelman (2008), with all items asking about masculine or feminine traits.

Results

Participants' data were excluded if they did not satisfy preregistered criteria. Nine participants were excluded for reporting that their age of English acquisition was greater than age six. Data from seven additional participants were eliminated for failing to rate the plural condition as sufficiently different from the inanimate condition.

Participants were excluded on this basis if their mean rating for Plural items was not at least one point higher than their mean rating for Inanimate items. Too similar ratings of these conditions indicates a failure to understand or attend to the task. One participant was eliminated for completing the task too quickly. They were more than three standard deviations faster than the median. Data are reported for the remaining 148 participants.
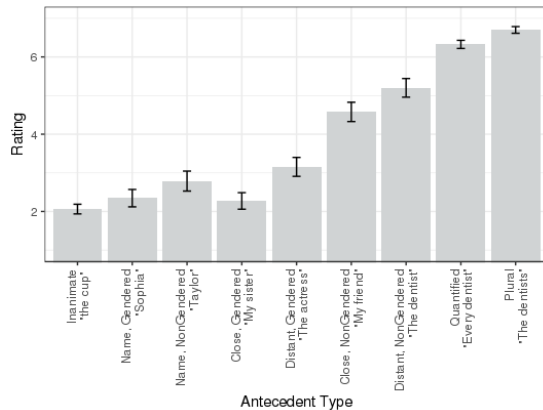

Figure 1: Mean naturalness ratings across conditions for Experiment 1. Error bars indicate 95% confidence intervals.

Gender and Social Distance Effects

The data were modeled with linear mixed effect regression using the lmer function in the lme4 package within the statistical language R (Bates et al, 2014b) and all models contained the maximal random effects justified by the data and the design (Bates et al. 2014a; Barr, et al. 2013). The categorical predictors Social Distance and Gender were sum coded. To focus on the predictors of social distance and gender, a subset of the conditions was used in the modeling; the conditions included socially distant, non-gendered antecedents; socially close, non-gendered antecedents; socially distant, gendered antecedents; and socially close, gendered antecedents.

Results were consistent with the prediction that both grammatical gender and social distance influence acceptability judgments of singular *they*. Mean naturalness ratings across all participants showed that gendered antecedent conditions were rated as less natural than non-gendered conditions, and conditions in which the antecedents were more socially close to the speaker were rated as less natural than conditions in which the antecedent was more distant as shown in Figure 1.

The model revealed a significant effect of gender with non-gendered antecedents receiving higher naturalness ratings than gender-marked antecedents ($\beta = 1.09$, $SE = 0.06$, $t(87) = 17.18$, $p < .001$), as well as a significant effect of social distance, with socially distant antecedents receiving higher naturalness ratings than socially close antecedents ($\beta = 0.37$, $SE = 0.05$, $t(39) = 7.52$, $p < .001$). There was no interaction between gender and social distance ($\beta = -0.06$, $SE = 0.05$, $t(35) = -1.32$, $p =.194$).

Social distance effects were also highly significant when looking at a model containing only socially close, non-gendered and socially distant, non-gendered conditions ($\beta = 0.31$, $SE = 0.08$, $t(36) = 3.92$, $p < .001$) and a model containing the socially close, gendered and socially distant, gendered conditions ($\beta = 0.44$, $SE = 0.06$, $t(34) = 6.83$, $p < .001$).

Individual Difference Effects

In order to investigate the effects of individual differences on acceptance of singular *they*, a second model was constructed which included the five individual difference measures recorded in the exit survey as predictors of rating. These continuous independent variables were centered around their mean in order to make the model coefficients more interpretable. Only the six critical antecedent conditions were used in this model. Two participants failed to submit responses for the Qualtrics survey; response data for 146 participants are included in this model.

The model showed effects of age, familiarity with non-binary genders, and acceptance of non-binary genders on ratings of singular *they*. Results are given in Table 2. There was a negative relationship between age and rating, with older participants rating singular *they* as less acceptable. Participants with more familiarity with non-binary genders rated singular *they* as more acceptable overall, and participants who scored higher on the scale of non-binary acceptance also rated singular *they* as more acceptable. There were not significant effects of participants' transgender prejudice scores or gender essentialism scores.

Table 2: Results of linear mixed effect model for rating of singular *they* predicted by individual difference measures.

Individual Difference Measure	β	SE	t	p
Age	-0.045	0.006	-7.01	**<.001**
Gender Identity & Familiarity	0.19	0.05	3.93	**<.001**
Non-Binary Acceptance	0.14	0.04	3.15	**<.01**
Transgender Prejudice	0.001	0.005	0.249	0.804
Gender Essentialism	0.005	0.01	0.479	0.634

Clustering Analyses

Both Bjorkman (2017) and and Konnelly and Cowper (2020) posit that there are multiple, distinct groups of *they*-users that differ in their acceptance of singular *they* with various antecedents. To explore these claims, a set of clustering analyses were performed. First, each participant was assigned to a nine dimensional space using a vector of their condition averages. Then agglomerative hierarchical clustering algorithm was applied to determine whether coherent groups of participants emerged in the data based on the similarity of

their responses. To establish how many clusters best describe the resultant data , we used the nbclust package in R (Charrad et al. 2014). This package applies 26 separate diagnostics to identify the optimal number of clusters. If Bjorkman is right, then participants should naturally cluster into two groups. If Konnelly and Cowper are right, three clusters should emerge. It is also conceivable that participant behavior is sufficiently graded and variable that one or many clusters would emerge.

Thirteen of the twenty-six indices indicated that three clusters best fit the data. The next closest candidates were 5 and 10 clusters (the maximum possible), which were favored by 3 indices each (Figure 2). This strongly indicates that there are three coherent groups in the data set.
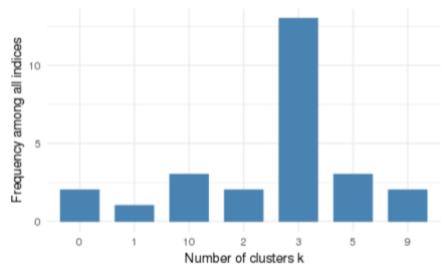

Figure 2: Optimal number of clusters of participants in Experiment 1 as determined by nbclust function.

Hierarchical clustering was implemented with the hclust function within the cluster package in R (Maechler et al. 2019), and the function cutree was used to examine the group membership of participants when specified for k=3 groups. The resulting groups are identified below as Cluster 1 (n=43), Cluster 2 (n=89), and Cluster 3 (n=16). The mean naturalness ratings for these clusters are shown in Figure 3. Age and gender information for each cluster are given in Tables 3 and 4.

Table 3: Mean age and age range of participants by cluster.

	Mean age	Age range
Cluster 1	31.4	19-15
Cluster 2	29.0	19-48
Cluster 3	27.1	18-34

Table 4: Gender breakdown of participants by cluster.

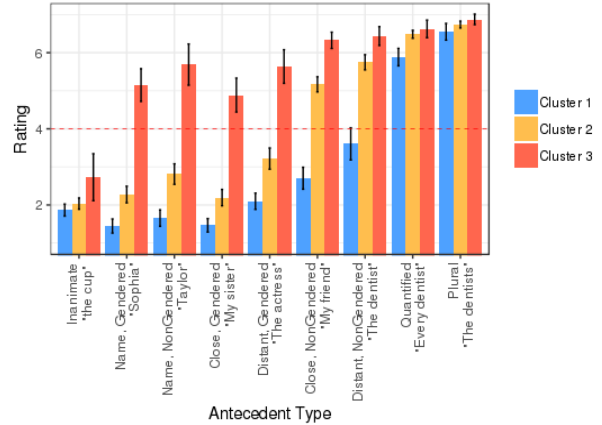|	Female	Male	Non-binary	Other
Cluster 1	25	16	0	0
Cluster 2	44	45	0	0
Cluster 3	8	5	2	1

Figure 3: Mean naturalness ratings by cluster for Experiment 1. Error bars indicate 95% confidence intervals

If we take mean judgments above the midpoint of the scale as acceptances and those below it as rejections, the three clusters mirror the distribution of responses predicted by Konnelly and Cowper's three stages of singular *they* users. Cluster 1 patterned like non-innovative users, in that they only accepted *they* in the quantified and plural conditions, but not when *they* was used to refer to any singular, definite antecedent. Cluster 2, the innovative users, accepted singular *they* in the quantified and plural conditions as well, but additionally accepted *they* when used with non-gendered, singular, definite antecedents (e.g., "My friend" and "The dentist"). As predicted by Bjorkman (2017), innovative users rejected gendered antecedents and personal names. Cluster 3 behaved like the super-innovators described by Konnelly and Cowper (2020), accepting singular *they* in all conditions except for the inanimate antecedent controls.

Across all conditions (excluding the inanimate condition), the super-innovative users in Cluster 3 rated *they* as fairly or highly natural. This suggests that for these users, *they* is either no longer less specific than *he/she* because gender features are no longer contrastive for them, or that it is simply no longer relevant for these users to specify gender with grammatical information. In either case, we would expect super-innovative speakers to feel less pragmatic pressure to use a gendered pronoun, and thus exhibit smaller social distance effects. However, when examining within cluster ratings, it can be seen that each cluster exhibits reliable effects of social distance (β = -2.54, SE = 0.18, $t(143)$ = -14.2, $p < .001$) with no interaction between cluster and social distance (β = 0.17, SE = 0.13, $t(252)$ = 1.34, p =0.183). This could suggest that this is a transitional stage for all or some of these speakers. Examining implicit processing could further inform this question, as explicit acceptance of *they* coupled with a processing cost could indicate that there is some adjustment happening within the grammars of these individuals. Alternatively, if the processing costs were apparent in non-innovative and innovative users but absent in super-innovative users, it could suggest that this cluster has a stabilized new grammar.

Discussion

The current experiment found that naturalness ratings for singular *they* depended on the morphosyntactic gender of the antecedent, as well as the perceived social distance between the speaker and antecedent. Overall, individuals were more likely to rate singular *they* as acceptable when it was being used in reference to an antecedent without explicit gender marking or strong associations to a specific gender. Antecedents with explicit gender marking, such as "the actress" or "my sister", and names with strong gender associations (e.g. "Sophia") were rated as less natural than their non-gendered counterparts. Closer social distance between speaker and antecedent also elicited lower naturalness ratings, suggesting that participants were adhering Maximize Presupposition and calculating an implicated presupposition that was inconsistent with the level of social closeness conveyed by these antecedents.

Clustering analyses revealed that there were three coherent groups of participants who differed in the conditions in which they found singular *they* acceptable. These groups align with Konnelly and Cowper's predicted distributions of *they* users, patterning as non-innovative, innovative, and super-innovative in terms of their responses to the gendered and non-gendered conditions. While Konnelly and Cowper did not report predictions for differential effects of pragmatic pressures on the three clusters' acceptability judgements, we expected social distance to have a smaller effect within the super-innovative group, as a result of a change in their grammar that makes specifying gender completely optional and potentially less relevant in many situations. Interestingly though, even participants in the super-innovative group demonstrated social distance effects, suggesting that this group's grammar is still in transition.

In addition to grammatical and pragmatic features of the antecedent, individual differences between participants influenced naturalness ratings of singular *they*. As found in Conrod (2019), age was correlated with rating responses, with older participants giving lower naturalness ratings to singular *they* in critical conditions, and younger participants showing more acceptance of *they* across conditions. Participants who reported higher levels of familiarity with and acceptance of individuals of non-binary genders also tended to rate singular *they* as more natural in reference to singular definite antecedents (Ackerman et al. 2018, Bradley 2020). These trends could be indicative of a greater shift in the acceptability of singular *they* in future generations of English speakers. Additionally, the finding that exposure to individuals of different gender identities and experience using non-binary pronouns seems to influence explicit judgements of the use of singular *they*, suggests that grammatical acceptance of singular *they* is flexible and a usage that can be trained.

Further, clustering analyses found empirical support for Konnelly and Cowper's contention that there are three coherent groups of speakers that have different grammars for singular *they*. An interesting finding was that even the super-innovator group exhibited social distance effects despite the prediction that this group would feel less pragmatic pressure to use a gendered pronoun. This could be indicative that *they* is in a transitional state and is still grammatically stabilizing even among super-innovators. Though reading times were collected in this experiment, that was not the main aim of these studies and no reliable patterns were evident across conditions. Future work should look more closely at measures of implicit judgement of *they* within each group in order to discern whether or not processing costs are present.

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