The Use of Themself to Refer to a Singular Antecedent

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The Use of *Themself* to Refer to a Singular Antecedent

A thesis submitted in partial fulfillment of the requirement for the degree of Bachelor of Arts in Linguistics from The College of William and Mary

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Abstract

The pronouns people use, and the pronouns used to address other people are influential in the formation and perception of gender identity. It is generally accepted in the linguistics literature that English pronouns like he and she are a closed class. But this can prevent individuals who do not identify with these binary identities from having pronouns that properly reflect their gender identity. A workaround that is often pursued is to adopt the use of singular they or themself to avoid gender specification. Historically, the use of they with singular, generic antecedents originated in the fourteenth century, and the use of gender-neutral pronouns in present times is important to help prevent misgendering of individuals. However, due to the fact that the frequent morphologically similar pronoun themselves is associated with a plural third person antecedent, there is some pushback to allow its morphological neighbor themself to refer to a singular subject whose gender is either unspecified or a subject that does not identify with the pronouns “he/him” or “she/her.” Recently, themself has increased in use to combat this plurality issue. It is possible that the believed incorrect grammaticality of its use is influenced by a political agenda that does not believe in the validity of non-binary, gender nonconforming, agender, genderfluid, or other identities. This thesis examines whether native speakers of English express inherent biases that may interfere with their general understanding and perception of the grammaticality of themself in reference to a singular, non-binary antecedent. To this end, I first review the current literature on the topic and then present the results of a socio-psycholinguistic experimental study designed to better understand how college-aged native speakers of English from different socio-political groups process and interpret contexts involving singular themself. This research goes beyond traditional work on pronoun usage by combining sociolinguistic approaches with psycholinguistic experimental methods. Overall, the results of this study suggest that the use of a singular nonbinary reflexive can be normalized and easily comprehensible in our grammar, as it is not a grammatical bias that inhibits acceptance but a social bias against the non-binary identity.
Acknowledgements

Of course, Professor Parker warned me to prepare for the unexpected. Linguistic experiments sometimes have bumps in the road, and do not always go the way the researchers intend or yield the results the researchers hope for. That being said, I can say with 100% certainty that I did not even for a moment consider that this bump in the road would be a global pandemic. Yet, onward we must go. I would like to thank Dan Parker for being an amazing advisor, for supporting my interest in this topic from the first time I casually brought it up to him my junior year, for lending so much of his time to help me achieve this thesis, for calming my many worries, and for helping me problem solve whenever necessary. I want to thank Professor Leslie Cochrane for giving me so many helpful sources, for supporting my research, for allowing me to pursue this subject in her courses, and for just being a positive role model. I would also like to thank my other committee members Professor Kate Harrigan and Professor Elizabeth Losh for being academic inspirations of mine and for lending their valuable time to this work. I would like to thank Jake Beardsley, for not only being a wonderful academic comrade who gave me some helpful sources, but for letting me into their world as someone who is nonbinary and also for clarifying the proper usage of some terms. I hope I can be of this help to you when you complete your honors thesis next Spring. A million thank yous to my friends, from college and elsewhere, who have always supported my academic endeavors, and who never complained when I would not shut up about my research for long periods at a time. I have to admit that in an ideal world I would be working on my thesis alongside my friends in the second-floor alcove in Swem, or possibly Aromas, but even though we are miles away you have still made me feel endlessly supported. And lastly, many thanks to my family, who have been a steady support system since the beginning of my academic career. My grandfather, Michael Cifelli, is in large part the reason I chose to apply to William and Mary in the first place, and he has always supported whatever interest I had, no matter how farfetched and I am forever grateful. A special thanks to my mom for lending me her desk when school went remote, this really helped me keep my sanity.

In loving memory of Patricia Cifelli.
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1. Introduction

In the English language, a reflexive is a pronoun ending in -self or -selves that refers to a noun or pronoun that was previously mentioned. Within the formal linguistics literature, research on reflexive pronouns has focused on the constraints that determine their syntactic distribution (i.e., where they can and cannot appear in a sentence). Recently, reflexives have entered a greater discussion involving what pronouns people are allowed to use, for their personal pronouns, and the pronouns used to address other people, as influential in the formation and perception of gender identity. Many studies have investigated how the human mind/brain implements the aforementioned formal constraints using experimental psycholinguistic methods. However, the time is ripe to integrate these experimental methods with sociolinguistic research on the social use of reflexives. An integrated approach to the study of how we process, interpret, and use reflexives could prove to be valuable to linguists and social scientists alike as the English language continues to evolve in its pronoun usage.

1.1 Binding Principle A

Binding Principle A concerns the syntactic relationship between an anaphor and its antecedent (Chomsky, 1981). It is argued, by Noam Chomsky, that this principle is a part of Universal Grammar (UG). This means that it is a structural rule innate to humans, as there is simply not enough input given to allow these principles to be learned. Binding Principle A requires that an anaphor, like a reflexive or reciprocal must get its meaning from another noun phrase in the sentence, and that it must match the subject of the clause in person, number, and gender (1).

\[(1)\]

a. **The man** promoted **himself**.

b. *The boy* asked the mother to cook **himself** dinner.
Every anaphor must have an antecedent and this antecedent must be local (Principle A: Chomsky, 1981). For English, pronouns, and by extension reflexives, are seen as a closed class, meaning that new words for this part of speech are not commonly accepted. This quality of pronouns is learned as speakers learn language specific information from input. That being said, English is missing a very important pronoun: a singular, gender-neutral third person pronoun. This need is not only for more commonly accepted reasons such as when a singular subject does not have a specified gender, but for when our language needs a pronoun that accurately reflects the gender identity of people that fall under the nonbinary umbrella. Having already existed in the English language for hundreds of years, singular they is a viable and realistic option for this missing link. If singular they is going to be the option for the missing pronoun, it needs a reflexive to match.

Due to the fact that themselves is commonly associated with a plural third person subject, there is some pushback to allow it to refer to a singular subject whose gender is either unspecified or a subject that does not identify with the pronouns “he/him” or “she/her”, particularly for reasons of grammaticality (e.g., the pronoun themselves requires a plural antecedent; see Pullum 2017). This pushback is a form of grammatical aversion. Recently, themself appears to be increasing in use to combat this plurality issue. Themself is not new to the English grammar. Similar to the pronoun you, which has the two reflexive forms yourself and yourselves, a singular and plural reflexive for they is possible in the English grammar. In fact, themself has been around since the 1300s and was the default until themselves was introduced around 1529. There is even an example from a letter written by author Emily Dickinson in 1881:

After infinite wanderings the little note has reached us…. Almost anyone under the circumstances would have doubted if [the letter] were theirs, or indeed if they were themself—but to us it was clear (Themself 2019)
Over time, *themselves* became the only used form; however, *themself* never completely left. This reflexive is beginning to grow in use once again to refer to someone whose preferred pronoun is singular *they*, even though it is widely considered nonstandard (*Themself* 2019). It is possible that the believed incorrect grammaticality of its use is influenced by a political agenda that does not accept the validity of nonbinary, gender nonconforming, agender, genderfluid, or other identities.¹ In addition, because the anaphor must always reference a person in the sentence, and not some outside person, readers should be able to comprehend whom the anaphor is referencing.

### 2. Discussion of Previous Literature

#### 2.1 Socio-Political Conversation

As Micah Rajunov and Scott Duane, editors of *Non-Binary Memoirs and Gender and Identity*, accurately describe, “before a child can learn complete sentences, they learn that gender is (if not *the*) primary characteristic that defines a human being. Personhood is contingent on the immediate categorization into a sex” (Rajunov & Duane 2019: xvi). Unfortunately, our view of gender is still incredibly binary, causing individuals who do not identify in either category to be judged and placed as either male or female. As stated by Young, the author of *They/Them/Their: a guide to nonbinary and genderqueer identities*, under this binary model of gender “it can be thought of as a choice between two options, with no space to occupy in between...a person can be only ever a woman or only ever a man, and neither the twain shall meet” (Young 2020: 19). This mindset not only causes discrimination and misunderstanding of individuals who do not fit into one of these binary categories, but it also prevents the research and education of these identities that fall outside the binary. As Young argues, “it’s an incontrovertible fact that

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¹ While there are many other gender identities outside the binary, such as genderqueer, gender nonconforming, agender, etc., nonbinary will be used throughout this paper as an umbrella term for simplicity reasons. There is debate between the use of the hyphen, as in non-binary, or no hyphen. For my thesis I will stick to no hyphen for consistency, as well as due to the advising of an academic peer who identifies as nonbinary.
transgender people do exist: to ignore them in pursuit of a cleaner, more all-explanatory theory would be unscientific” (Young 2020: 26). If academics wish to study language and identity honestly, this is a responsibility we must take on. Academics are changing, in large part for the better, expanding to study diverse populations and be more representative of minorities.

Nonbinary people are most likely raised as either male or female, but do not feel that either of these labels perfectly fits their gender identity. These feelings could be that “both or neither applies, that they are ‘male’ or ‘female’ on different days or depending on their environment or emotional state. They may feel uncomfortable with the concept of gender at all and wish to reject it categorically” (Young 2020: 22). Not to mention, the very concept of gender differs in societies all over the world depending on social expectations and values, proving that gender is very much a taught behavior (Young 2020: 24). If society has the power to create and enforce gender expectations, we certainly have the power to change them.

It is important to know that nonbinary individuals are not simply both male and female, neither male or female, or on some sliding scale between the two (Rajunov & Duane 2019: xix). As argued by Rajunov & Duane, nonbinary is best defined by what it is not, as the language of the nonbinary community is often used due to the “process of defining obsessed only in the opposition to what is already defined” (Rajunov & Duane 2019: xviii). Young describes their own gender identity as:

To put it very simply, my nonbinary gender identity means that I am neither a man nor a woman. Neither label describes me: I don’t feel comfortable with the gender I was assigned with at birth but neither am I simply transgender, desiring to move from one end of a polarity to another. I am not comfortable being called ‘he’ or ‘she’ in the third person - I like my friends and colleagues to refer to me as ‘they’ or simply by my name (Young 2020: 12)

The very idea that gender functions on a binary system denies the very existence of Young’s gender identity. This is a challenge that many nonbinary people experience when they simple try
to live their truth. Our binary language creates one of the biggest obstacles “to the social and legal acceptance, and perceived legitimacy, of nonbinary and genderqueer identities” (Young 2020: 43). In large part, our language enforces these binary restrictions, as there are currently no widely accepted pronouns that refer to a singular subject that does not identify as male or female. Stated by Young, “the way a language treats gender reflects and, to an extent, affects the gendered values of society in which it is spoken” (Young 2020: 48). The argument against the grammaticality of nonbinary pronouns is very much an argument against the legitimacy of nonbinary gender identities. Progress and change are possible, and it has already started in Sweden. Not only has the gender-neutral pronoun *hen* been successfully integrated into their grammar, but gender-neutral schools have opened up. These schools “along with encouraging students to cross conventional gender boundaries in activities and play, also exclusively use the gender-neutral pronoun *hen* to refer to students” (Young 2020: 50). Children in these schools are reportedly more likely to pursue interests and activities they favor, instead of having their behavior restricted by gender norms (Young 2020: 50).

In the year of 2019, singular *they* became the spotlight in a great amount of public discourse. After finding searches for *they* increased significantly by 313% on their website, Merriam-Webster named singular *they* the 2019 word of the year (Wakefield 2019). The Oxford Dictionary and Dictionary.com also added *they* as a singular pronoun for people who identify as nonbinary. Linguist scholars of the Linguistic Society of America even voted singular *they* as the word of the decade (*Singular ‘they’* 2020). A new report from the Pew Research Center confirms that the majority of Americans have heard of gender-neutral pronouns and roughly 18 percent know someone personally who uses them (Baron 2020: 2). Not to mention, well regarded celebrities such as Sam Smith and Johnathan Van Ness have publicly come out as nonbinary.
While this sudden increase in visibility comes with benefits, “genderqueer people have faced harassment, public ridicule and even violence from people who refuse to accept or try to understand us” (Young 2020: 7). In a study conducted by Stonewall in 2017, which recorded the experiences of lesbian, gay, bisexual, and trans pupils in Britain’s school systems, half of the nonbinary respondents reported that they have adjusted the way they have dressed out of fear of discrimination or harassment, one fifth of the nonbinary respondents experienced discrimination while looking for a house or apartment to rent or buy, and one in four of the nonbinary respondents do not feel comfortable enough to be open with their family about their gender identity (Young 2020: 40).

In August 2019, a California middle school teacher was disciplined for handing out an informational pamphlet about gender to their students. The teacher, Luis Davila Alvarado, uses the honorific “Mx.” and wanted to use the pamphlet as an age appropriate way to educate their students about their nonbinary gender identity. The pamphlet they used was from Trans Student Educational Resources and it explained gender and sexuality terminology in a child friendly way. After stopping by their class for the second period, the school principal saw the pamphlets and prohibited the teacher from handing them out. Some parents were even outraged, believing that their children should not be exposed to this information (Bollinger 2019). More recently, in February 2020, a professor of Religious Philosophy at Shawnee State University in Ohio refused to use a student’s requested preferred pronouns even after receiving an informal warning and a written warning for violating the school’s non-discrimination policy. The professor even went as far as suing the school, claiming that his free speech, freedom of religion, equal protection, and due process rights were violated. Fortunately, a federal trial court dismissed his claim, stating
that the misgendering of others is not a free speech protected in the Constitution (Bollinger 2020).

Even with all this pushback, singular *they* has been part of the English language for quite a while. It is only recently that English speakers have had hesitations to use it to refer to a singular antecedent. From a grammatical standpoint, as discussed by Balhourn, one of the main problems speakers of English have with this pronoun is that while it is agreed that it is the only third person pronoun that expresses animacy and non-specification of gender, it can be seen as not being able to match a singular antecedent as it is considered a plural pronoun (Balhourn 2004: 79). The need for a singular third person pronoun is not a new one, as can been seen from this quote in the *Newton Daily Republican* newspaper from 1892,

> Did it ever occur to anyone that there is a word missing from the English language? There is one, a very important one, too. The word wanted is a personal pronoun, third person singular number, common gender; the singular of they…. The person that invents a word to fill the vacancy will receive the benediction of other nations as well as this. -Anonymous (Baron 2020: 22)

The issue, in favor of singular *they*, was also discussed in the *New York Commercial Advertiser* on August 7th, 1884:

> Many persons who are by no means ignorant accept, in conversation at least, the plan of using the plural common gender pronouns, ‘they, their, theirs,’ etc., indifferently as singular or plural. And in this they are not without authority of good usage (Baron 2020: 195)

Lacking complex morphology, English is “missing” a pronoun to refer to a singular subject where the gender is either unknown or unimportant. A solution to this, as Balhourn cites, was derived in the 18th century when grammarians pushed for the use of the pronoun “generic he” to have a generic sex but still adhere to number agreement (Balhourn 2004: 80). This

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2 *It* will not be considered as a pronoun to fill the missing link as it takes away the animacy and human aspect. Referring to nonbinary people with the pronoun *it* disrespectfully dehumanizes them.
solution pervaded the English language for a brief amount of time before the inherent sexism was addressed. Not to mention, “generic he” becomes especially problematic when applied to laws, as it calls into question whether he can actually apply to women when interpreting written laws (Baron 2020: 6). A shift to a more gender-neutral language is in large part ascribable to the second wave feminist movement in the 1970s. Activists as part of this wave fought for, and in many aspects accomplished, a standard of non-sexist usage in legislation, the workplace, and even cultural productions, as well as actively advocated against the use of “generic he” (Wayne 2005: 85). As of late, transgender activists have become part of this fight, arguing that gendered pronouns such as he can never be generic, as they cannot be removed from indexing the gender of the antecedent as physically male and presenting as masculine. Further, using a generic she or even she or he to solve the missing pronoun solution is just as detrimental and not to mention binary. As argued by Wayne, gendered pronouns are extremely influential and “not only invested with gender, but with sex and sexuality such that the efficacy of several adjectives denoting the referent's human condition is compressed into a single powerful noun” (Wayne 2005: 85). This argument continues into the second wave feminist fight, as despite the arguments proposed by many grammarians, a gendered pronoun can never be neutral, and can never be without the gender identity that it indexes (Wayne 2005: 85). The hope of many current intersectional feminists is that the English language moves in a direction that not just eliminates male privilege and sexism from the language, but that sex distinction itself becomes irrelevant linguistically and therefore culturally (Wayne 2005: 86). In addition, many trans-activists advise that the binary pronouns he/she enforces linguistically a two-sex system in society that assumes a transgender antecedent must fit into the binary (Wayne 2005: 86). While there are many transgender people that wish to identify along the binary and go through extensive and difficult processes to do so,
this is not the case for every transgender person, and it should not be a requirement in our language. As brilliantly explained by Wayne,

A failed match between pronoun and person, they remark, is often treated as a defect of the person, for it is blamed on the individual's failure to express proper sex/gender identity instead of being seen as a deficiency of our restrictive pronoun system (86).

It should not be seen as a failure of the individual to fit along the binary, it should be seen as a failure of the English language and society in general that the language cannot properly reflect the identities of its users. Normalizing the use of singular they is an effective way to rebel against these binary expectations while solving the missing pronoun problem.

The plural they is actually a more recent grammatical identity for the pronoun they. According to extensive research by Mark Balhourn, singular they originated around the fourteenth century. Two studies (Matossian 1997; Newman 1997) on modern spoken English found that singular they with a generic antecedent is used more often than he in both formal and informal conversations. Singular they also frequently shows up in written English in classrooms and other texts that avoid prescriptive edits (Balhourn 2004: 80). Balhourn also cites that many great writers (e.g. Austen, Shakespeare) used they in their works. Examining the frequency in the Oxford English Dictionary, Balhourn found generic they to have a strong presence in the English language for centuries (Balhourn 2004: 81). Even with so much modern prescriptive thought working against the use of singular they, this anaphor has remained part of our grammar. With his research, Balhourn asks a common question, “How could a construction that violates a grammatical pattern so resilient and otherwise inviolable throughout the language, number agreement, become common and perhaps even indispensable?” (Balhourn 2004: 82). Balhourn argues that sex, not number, is the operative feature for forms of underspecified they. While they remains widely accepted as a plural pronoun, “it becomes the unmarked choice with human-
denoting, generic antecedents” (Balhourn 2004: 85). This can be seen in (2), which is commonly considered an acceptable sentence in standard English:

(2) Any teacher will lose their patience when under stress.

As importantly pointed out by Balhourn, gender is not even a grammatical category in Modern English, as English no longer uses a case system. Gender instead is a semantic category and while there are still some nouns in English that are gendered (e.g. actress/actor), the majority of nouns have a gender that is underspecified (Balhourn 2004: 86). Due to this, I argue that a gender specific anaphor is not necessary to refer to most antecedents in English.

Dembroff and Wodak argue that just as people have a duty to address transgender people with their correct binary pronouns, people also have a duty to not use binary gender-specific pronouns to refer to individuals under the nonbinary umbrella (Dembroff & Wodak 2018: 372). They take this even further, by suggesting that non-gender-specific pronouns should always be the default. This would help to prevent misgendering individuals, as well as to prevent individuals from uncomfortable situations where they must disclose their gender identity in a public manner (Dembroff & Wodak 2018: 373). Misgendering an individual, whether deliberate or accidental is extremely harmful. As explained by Dembroff and Wodak, the misgendering of a transgender or nonbinary individual “communicates disrespect of their already marginalized gender identity” (Dembroff & Wodak 2018: 376). This action not only has negative social implications but can also cause serious physical and psychological health problems (Dembroff & Wodak 2018: 376).
Tying this back to linguistics, as stated by Dembroff and Wodak, gender identity functions like other social categories (race, nationality, etc.) as it “provides others with a guide or a blueprint for interpreting and evaluating one’s behavior and speech” (Dembroff & Wodak 2018: 378). This subjects the misgendered victim to binary social expectations and causes people to place an inaccurate gender identity on the individual. Not to mention, Dembroff and Wodak point out that without the effort to change this behavior and normalize nonbinary pronouns as part of our lexicon, speakers reinforce the “ideologies that disrespect transgender and genderqueer individuals, deprive them of resources, and undermine their social intelligibility” (Dembroff & Wodak 2018: 379). This is an ideology that is already present in society, but the act of misgendering individuals strengthens this transphobic ideology (Dembroff & Wodak 2018: 379). Normalizing nonbinary pronouns and using them as a default pronoun is an effective way to fight the stigmatization against those that do not identify along the binary. This act would use nonbinary pronouns to refer to all individuals, not just the vulnerable population, unless it is completely necessary to use he, she pronouns (Dembroff & Wodak 2018: 378). While this step is
an extremely important individual step, it is important to keep in mind that institutional changes are necessary to have an effective and sustained impact on our grammar as a whole (Dembroff & Wodak 2018: 388). Concrete linguistic scholarly data is an effective way to convince institutions to implement changes.

2.2 Previous Experimental Studies

In the study *Introducing a gender-neutral pronoun in a natural gender language: The influence of time on attitudes and behavior*, researchers at Stockholm University, Gothenburg University, and Lund University respectively, analyzed data on the attitudes of the Swedish gender-neutral pronoun *hen* from 2012 to 2015, in order to prove that time influences the attitudes surrounding the introduction of a gender-neutral pronoun into the language (Sendén, Bäck, & Lindqvist 2015: 1). In Sweden in 2012, the pronoun *hen* was introduced as a third gender-neutral pronoun, in addition to the Swedish pronouns for she, *hon*, and he, *han*. Similar to singular *they*, *hen* is used “when gender is unknown or irrelevant, and as a transgender pronoun for people who categorize themselves outside the gender dichotomy” (Sendén, Bäck, & Lindqvist 2015: 1). Swedish is the only language so far that has introduced a new gender neutral singular third person pronoun that has received such wide exposure with the general population (Sendén, Bäck, & Lindqvist 2015: 1). They found that in 2012 the majority of the Swedish population had a negative attitude to *hen*, but as time passed there was a significant change to a more positive attitude of the word. This pronoun was first used in the 21st century by LGBTQ+ communities for people outside of the gender binary. With much push, the pronoun was then brought into the mainstream conversation, with many speakers for and against its use. In 2012, the Language Council of Sweden (Språkrådet), which provides official recommendations about Swedish language, publicly disapproved of the use of *hen* when it appeared in a children’s book.
and cited that it “could be irritating and conflict with the content in the text” (Sendén, Bäck, & Lindqvist 2015: 2). This is similar to the confusion argument many grammarians make against singular *they* in English, that “new” pronouns in the language are distracting and prevent understanding of the content. The goal of this study was to prove the opposite, that while a new pronoun might be awkward at first, it can be successfully implemented into the language over time.

With paper and pencil questionnaires, a group of participants were asked (each year from 2012-2015) about their attitude towards *hen*. In 2012, they were asked: “What is your opinion about the gender-neutral pronoun *hen* in the Swedish language?” (Sendén, Bäck, & Lindqvist 2015: 5). Responses were rated on a scale from 1-7, 1 being very positive and 7 being very negative. From 2013 and onward, participants were also asked if they were previously familiar with the word *hen*. Responses to this were also given on a scale from 1-7, 1 being no, never and 7 being yes, always. The researchers also found each participant’s level of sexism, political orientation, and gender identity, and asked them “how interested are you in general in gender issues?” Age and gender were also given by participants in a free-text response (Sendén, Bäck, & Lindqvist 2015: 5). They concluded that “new words challenging the binary gender system evoke hostile and negative reactions, but also that attitudes can normalize rather quickly” (Sendén, Bäck, & Lindqvist 2015: 1). These findings help show that time is truly key in helping to increase acceptance of a new pronoun in a language. While the pronoun may start off as a highly debated topic, it is mostly rejected due to language biases and dislike of language change. Over time, when awareness and use increases, a pronoun is able to be normalized and have its acceptance increased as a byproduct of this normalization.
The aim of the study, *Prescriptivism, personality, and pronouns: Factors influencing grammaticality judgements of gender-neutral language* is to clarify whether English speakers’ attitudes about gender roles influence the degree to which they accept gender-neutral third person pronoun usage. The researchers assessed English speakers’ attitudes toward gender roles and measured their grammaticality judgements of sentences that included various gender-neutral and gender-atypical pronouns, such as *they/them* and *ze/zir*. They used 54 sentences that used *she/her, he/his*, various gender-neutral pronouns, *it*, or the phrase *he or she* to refer to human antecedents that were either generic or specific. Sometimes these antecedents were unnamed (e.g. teacher) and sometimes they were given stereotypical male or female names. They had two control groups: 12 filler sentences that contained gendered pronouns that were obviously ungrammatical based on case agreement, and predictably grammatical sentences containing *he/she* referring to a specific person and *they/them* referring to a plural antecedent (Bradley, Schmid, & Lombardo 2018: 4).

The results were collected via an online survey, and respondents rated the sentences on grammaticality (“not at all”, “a little”, “somewhat”, “fairly”, “very”) and offensiveness (how offended or bothered were they by the sentence, stylistically or aesthetically?) (Bradley, Schmid, & Lombardo 2018: 5). Personality of the participants was assessed using a 44-item version of the Big Five Inventory (Bradley, Schmid, & Lombardo 2018: 4). Gender roles were assessed using the Gender Role Attitude Scale. Participants also indicated their age, gender, native language, education level, and their preferred pronouns. The study was completed using Qualtrics software over a period of two months (Bradley, Schmid, & Lombardo 2018: 5). The results indicate that singular *they* is largely acceptable when referring to a hypothetical person of unknown gender, consistent with its long usage history. Use of *they* to refer to specific
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individuals of unknown or nonbinary gender is considered less grammatical, but its acceptability is dependent on the listener’s personality and gender role attitudes. Alternatives such as ze/zir were less acceptable, even among those with more transcendent attitudes about gender, possibly due to a lack of awareness (Bradley, Schmid, & Lombardo 2018: 9). As suggested by many scholars, Bradley, Schmid, & Lombardo argue that this disapproval of singular they is less likely about number agreement and prescriptivist attitudes and more likely about “conservative and binary gender role attitudes” (Bradley, Schmid, & Lombardo 2018: 11). In general, English speakers appear comfortable with using singular they to refer to an ambiguous or unknown subject, as this use has been part of the English language for centuries. If speakers have a certain gender expectation, that expectation is normally binary; therefore, participants treated the grammaticality of gender non-specified subjects and nonbinary subjects differently (Bradley, Schmid, & Lombardo 2018: 10). This is a focus of my study, which I hope to explore more in depth by use of self-paced reading to compare real time processing data and grammaticality judgements with social variables.

In the study, ‘They’ in Australian English: Non-Gender Specific or Specifically Non-Gendered?, data was collected from 17 essays on Child Language Acquisition, written by Australian first years. Specifically, researchers looked at the use of they when referring to a singular antecedent (Strahan 2008: 22). It was found that singular they is used most commonly in four different ways. First, it was used when referring to a non-specific child, where the gender was unknown to the author and is indefinite or general (i.e. the general noun phrase a child is followed by the non-gendered pronoun they) (Strahan 2008: 24). Second, they is used to refer to a definite noun phrase when the gender of the child is known to the writer but it is not relevant to the subject matter (Strahan 2008: 24). Third, it was found that even when a noun phrase referring
to a certain child starts general in the introduction and becomes more specific throughout the paper, some students never felt the need to specify the gender and used singular *they*. Lastly, it was found that some students used *they* to refer to a specific noun phrase, the gender of which is known to both the writer and the reader (Strahan 2008: 25). This is known because the writers in these instances started with referring to a specific child with a non-gendered pronoun in the introduction, switched midway to a gendered pronoun, and then ended with a non-gendered pronoun (Strahan 2008: 26). Discussion with students showed that gender is not a feature they considered relevant to the analysis of Child Language Acquisition, and it was not used by students as a way to be politically correct or polite (Strahan 2008: 26). In summary, Australian speakers use *they* when the writer does not know the gender of the referent, when the writer is referring to a general meaning and not a specific referent (a child, not the child), and when the writer does know the gender of the referent but it is not relevant.

Using eye tracking, Eisenband, Brown-Schmidt, & Trueswell conducted two experiments where participants viewed images with two familiar cartoon characters of either the same or different gender. A text describing the picture’s contents was played, containing a pronoun that referred to either the first, more accessible, character or the second character while eye movements of the participant were recorded. These studies were aimed at investigating if gender cues are not automatically used during the early stages of pronoun processing and interpretation (Arnold et al. 2000: 13). There are two theories about online processing that the researchers address. The first theory argues that gender is the first factor used when processing a pronoun, as a referent may be assigned to a pronoun based on gender alone. Contrastingly, the Minimalist Hypothesis theory provides a different argument, suggesting that pronoun only interpretation occurs when there is one clear and accessible match for the antecedent. If this is not the case,
other cues such as “unambiguous gender will be used in a strategic, non-automatic fashion” (Arnold et al. 2000: 14). Previous studies have failed to collect consistent evidence that gender information is used first and foremost to the disambiguous pronoun referent, which could suggest that gender is not used primarily as a cue for sentence processing (Arnold et al. 2000: 15). With these theories in mind, the researchers used eye tracking methods to investigate whether gender information has rapid on-line effects during pronoun interpretation (Arnold et al. 2000: 15).

Experiment 1 involved recording the eye movements of participants while viewing an image and listening to text describing the image. Based on the information in the image, participants were tasked with judgement if the information given in the text was accurate by pressing a “yes” or “no” button. Each text for each image had four clauses, broken into two sentences: the first clause mentioned the two characters, the second clause mentioned another object in the image, the third clause used a pronoun that referred to one of the two characters, and the fourth clause gave some kind of concluding information but did not mention either character individually (Arnold et al. 2000: 17). By judging whether the description matched the image, participants also demonstrated whether they identified the correct antecedent for the pronoun (Arnold et al. 2000: 18). The experiment showed that listeners match the pronoun to the correct referent not just with gender cues, but also based on the order subjects mentioned (Arnold et al. 2000: 20).

Going off of the findings of Experiment 1, Experiment 2 investigated the use of gender for processing sentences that have greater contrast in accessibility of the referent (Arnold et al. 2000: 20). Interestingly, even though neither gender nor accessibility aided in this condition, participants were still having success (Arnold et al. 2000: 22). It was found that participants were able to use verb information to help their pronoun interpretations (Arnold et al. 2000: 23).
Overall, both experiments found that gender and accessibility affect the initial processing of pronouns. When there was not sufficient gender information or accessibility, the participants were unable to rapidly interpret the pronoun. The findings of this study are important for sentence processing, as they further show that gender and accessibility are used simultaneously. These findings show that gender information is not used prior to accessibility information and that gender information is not the only criteria used during special processing, strategic processing, or processing that occurs later when there is initial confusion in the sentence (Arnold et al. 2000: 25). These results are consistent with a “dynamic model of language processing, where multiple sources of information are used probabilistically to guide referential processing” (Arnold et al. 2000: 25). If there is gender ambiguity with singular they, people should be able to use accessibility instead to process the correct antecedent for the anaphor. Keeping in mind the conditions of Binding Principle A, like pronouns, reflexives will also be accessible. Especially keeping real life conversations in mind, social cues are another important source of information to utilize when processing sentences in real time.

Bjorkman examines the growing use of singular they currently, suggesting that while many speakers accept they when referring to a specific individual whose binary gender is known to the speaker and hearer (3a), they are less likely to accept sentences where the antecedent is also singular, definite, and specific, but a proper name or gender-specific noun is given (3b) (Bjorkman 2017: 2).

(3)   a. Our eldest child; broke their; leg.
      b. *Thomas; broke their; leg.

This acceptability contrast is becoming more apparent due to the increasing awareness of nonbinary individuals (Bjorkman 2017: 2). As noted by Bjorkman, it is surprising that while
innovative users can accept singular *they* in certain instances, it is still difficult to automatically accept sentences like 3b), even when Thomas’s nonbinary identity is known and deeming the sentence acceptable would validate this identity (Bjorkman 2017: 2). Clearly, this bias goes past simple prescriptivism values.

Bjorkman makes two arguments regarding the current status of singular *they* in the English language and its wide acceptance. First Bjorkman asserts that syntactically these “bound variables (optionally) instantiate fewer feature distinctions than their full referential counterparts,” due to the fact that the current requirement for bound anaphors does not necessarily account for the properties of singular *they* as it requires to match in gender and number (Bjorkman 2017: 2). Although, I argue that semantically singular *they* follows these constraints, this would of course require the person judging acceptability of the use to be accepting and aware of a nonbinary identity. Secondly, Bjorkman argues that innovative users, speakers that use singular *they* as part of their lexicon, do not consider gender as a contrastive feature on pronouns but instead an optional semantic feature (Bjorkman 2017: 2). That being said, Bjorkman states that even for the innovative speakers many still contain gender bias for certain proper names and gender-specific nouns, which prevents processing the anaphor as referring back to the antecedent that was previously specified for gender (Bjorkman 2017: 2). Additionally, singular *they* is used by speakers even when they self-report never using it, as found by studies such as Bate 1978 (Bjorkman 2017: 3).

As Bjorkman makes sure to clarify, there is plenty of evidence that throughout the modern English period, *they* has been available as a variable that could be bound with antecedents that were of indeterminate, mixed, or unknown gender (Bjorkman 2017: 5). Bjorkman consulted about 20 native English speakers for this paper and found that younger
speakers are more commonly accepting of the innovative use of singular *they*. Older speakers are more likely to rate this use as ungrammatical or difficult to understand (Bjorkman 2017: 5). This suggests that the language bias is changing, that singular *they* is becoming more widely accepted by English language speakers recently. This theory is a reason why I have included social variables like age in my study. Bjorkman even states that “confirmation of this age-grading, or further conclusions regarding possible regional or social factors, must await a larger scale study” (Bjorkman 2017: 5). My study helps to close this acknowledged empirical gap. Bjorkman hypothesizes that for innovative speakers, gender has become optional even for pronouns, especially as singular *they* becomes used comparatively to second person number-neutral *you* (Bjorkman 2017: 6).

From a grammatical standpoint, some pushback occurs because the innovative use of *they* is seen as unclear on what it is referencing for three reasons: it cannot be specified for number, as it is able to occur in both singular and plural contexts, it is not gender specific so it cannot specify the gender, and it cannot specify animacy because it can reference an inanimate and animate (Bjorkman 2017: 7). This pushback also brings in some social bias, as there is still such a strong pragmatic expectation that animate individuals have to be categorized as either masculine or feminine (Bjorkman 2017: 7). This binary pragmatic assumption in large part prevents speakers from accepting, and at times even understanding, when animate individuals do not fall into either category, whether it is because they are simply underspecified or because their identity is known, and it does not fall into either category.

Bjorkman proposes a syntactic representation where English gender features (masc/fem) are located on a higher head than number and animacy, making it an optional feature as seen in figure 2.
As explained by Bjorkman, bound variable pronouns can either agree with the full ΦP, structure that represents pronouns as bound variables, which would mean they will be specified for gender, number, in animacy, or to just NumP, meaning they are just bound by number and will not need any gender specification. This creates an optional gender to be placed on they. Not to mention, as argued by Bjorkman, “the simple fact that innovative speakers can use they for referents of known binary gender, interchangeably with he or she, is sufficient to demonstrate that for these speakers gender is no longer contrastive on pronouns” (Bjorkman 2017: 10).

It is also important to address the with singular gender-specific nouns or proper names, like actor and actress, speakers still struggle to reference with singular they even though they technically do not have a grammatical gender (Bjorkman 2017: 10). But, if we keep in mind that they functions as a pronoun that has an underspecified gender, it should be able to function as the default pronoun for any situation, even if its antecedent has a more expected gender feature (Bjorkman 2017: 10). The goal is to normalize they as a default pronoun, not bound by gender.

Using writing and speaking tasks, Darr conducted a sociolinguistic study to investigate the relationship between language perception and language production. In other words, what one
thinks they know about language usage versus what one actually knows about language usage. Darr found that both queer and non-queer participants used gender-neutral pronouns, but it depended on the referent. The background information questions included the question “What is a gender-neutral pronoun? Please elaborate in the remaining space.” This information was used to assess the perceptions of participants regarding gender-neutral pronouns (Darr 2016: 4).

Comparing the two participant groups, it was found that queer participants were less likely to use he/she for a gender inclusive pronoun than non-queer participants. Non-queer participants responded with he (37.44%) more often than they (28.12%), and the reverse is the case for queer participants, with 37.80% more likely to use they and 32.28% more likely to use he. Overall, participants used they more often in the object and possessive position than in the subject position (Darr 2016: 11). Participants also gave gendered pronouns 79.78% of the time for non-gendered names, 90.16% of the time for gendered names, and 58.47% of the time for generic nouns. Even when comparing queer and non-queer participants, Darr found that participants tended to use gendered pronouns more than neutral pronouns (Darr 2016: 17). These findings are not completely discouraging, though, as Darr points out that most participants used singular they at some point during the study (Darr 2016: 22). This suggests that there is some gender neutrality that exists in the English language, not exclusive to the queer community (Darr 2016: 22).

Using three eye moment experiments and an antecedent choice task, Cunnings and Sturt examined memory retrieval for reflexives in different contexts. These included:

1. Contexts where the reflexive and local antecedent are coarguments of the same verbal predicate:
   a. John heard the soldier₁ had injured himself₁.
2. “Picture noun phrases” with a possessor:
   a. John heard about the soldier’s picture of himself.

3. “Picture noun phrases” without a possessor:
   a. John heard that the soldier had a picture of himself.

For the antecedent choice task, the majority of participants chose the nonlocal antecedent, “John”, for both types of picture noun phrases; however, the eye movement experiment showed that participants actually interpreted the reflexive as referring to the local position, “soldier”, initially. This was determined by the longer reading times measured when the local antecedent mismatched in gender with the reflexive. With these results, Cunnings and Sturt concluded that locality constraints carry more weight for retrieval methods than gender agreement for coargument contexts. It was also found that compared to the coarguments of the same verbal predicate and phrases with a possessor, the phrases without a possessor saw delayed processing.

Overall, this study’s findings show that there is retrieval ease when accessing the local antecedent, no matter the syntactic context (Cunnings & Sturt 2014: 117). These results support previous claims that cues to memory retrieval during language processing are not equally weighted, and that locality constraints carry more weight than gender for reflexives even in differing syntactic contexts (Cunnings & Sturt 2014: 136). Considering that themself will always have a local antecedent, the gender agreement confusion should not negatively affect the memory retrieval. These findings were later corroborated by Parker and Phillips (2017), who showed that while there is structural preference for the local antecedent, there nevertheless is evidence that gender information guides retrieval for reflexive processing. These studies demonstrate that grammatical constraints and social factors, such as knowledge of the subject's
gender, are both important constraints that affect a person’s processing on sentence information and meaning.

Researchers at Johns Hopkins University, Elaine Stotko and Margaret Troyer, collected data on the use of *yo* as a third person singular pronoun in Baltimore schools. Some examples of this usage are “*Yo* handin’ out papers,” meaning *she*, the teacher, is handing out papers and “*Peep yo,*” meaning “look at him.” Middle school and high school teachers that were enrolled in a linguistics graduate course mentioned this use of *yo* in the place of *he* or *she*. With this interesting language phenomenon happening unprompted, Stotko and Troyer went to Baltimore schools in 2004 and studied the occurrences of this new pronoun. With this data, they created a study with writing activities and sentence judgement tasks. They tested two separate schools in Baltimore, accessing responses from more than 200 students. The researchers were able to confirm with their findings that the students in these two schools use *yo* as a gender neutral third person singular pronoun, mostly in the subject position (Stotko & Troyer 2007: 262). Even though it is impossible to know how long this trend will last, or if it will even disappear as these current speakers grow older and leave the schools, teachers have noted that after this research was conducted, new words that function as singular third person pronouns, such as *youngin’* and *shorty* have found their way into the students’ grammar. This study, while closed off to a small, fairly homogenous population, shows the ability of speakers to implement and normalize a new pronoun usage that exposed speakers are not only able to understand but are able to integrate the pronoun usage into their own grammars. The findings from this study give hope that English speakers can integrate singular *they* and *themself* into their language.
3. Present study

3.1 Experiment

Based on the literature review, the constraint of gender does not carry the heaviest weight for the memory retrieval process. That being said, it is also clear that to increase the overall acceptability and use of singular they and its reflexive themself, speakers need to take the responsibility of changing their personal grammars. This is an effort that is not extremely taxing; it just takes consistent practice over time. If the speakers have the desire to respect the gender identities of people under the nonbinary umbrella, they must work to change their grammar in order to be accommodating. What we do not know is how this conscious effort affects real time processing.

While there are experiments currently being conducted of the public’s perception of singular they, these experiments are solely conducted using sociolinguistic methods. Mostly, these methods consist of asking people’s opinions on the use of singular they, having them rate its grammaticality through a survey, and comparing these results to the participants’ opinions on gender related issues. While this work is extremely important, conducting experiments that combine sociolinguistic methodology with psycholinguistic methodology could be extremely beneficial. The combining of these two linguistic fields is not commonly done in research, but it is rich with opportunity for interesting findings. Not to mention, there is little focus on the use of a singular gender-neutral anaphor. This is a very important and relevant social issue, as everyone deserves to have their gender identity respected. Overall, I want to verify whether the use of a singular nonbinary reflexive can be normalized and easily comprehensible in our grammar.

My experiment is in part inspired by the study *Prescriptivism, personality, and pronouns: Factors influencing grammaticality judgments of gender-neutral language*. While these
sociolinguistic methods of asking people’s opinions on the use of singular they, having them rate its grammaticality through a survey, and comparing these results to the participants’ opinions on gender related issues, is extremely important and yields useful results, conducting experiments that combine sociolinguistic methodology with psycholinguistic methodology could be extremely beneficial. To bridge the gap between these two fields of linguistic study, I used a self-paced reading experiment through Ibex. This will allow a comparison of people's opinions of the grammaticality of the use of themself with their actual perception of these sentences. Instead of sentences with the pronoun they, I focused on sentences with the reflexive themself referring to a singular antecedent.

The goal of the current experiment is to present participants with sentences using the singular reflexive themself in order to measure reading times and search for any disruptions. For this experiment, there are three possible outcomes:

1. Participants simply ignore the linguistic responsibility of using reflexives that accurately reflect the nonbinary gender of subjects, yielding uninteresting results.

2. Participants adopt the responsibility, but it involves reanalysis and revision. This is a measurable disruption in initial processing, but readers go back and fix their initial interpretation.

3. Participants integrate the responsibility enough that it impacts moment by moment processing, without the need for revision or reanalysis.

My hope was for the outcome of Prediction 3, as this suggests that speakers by and large are capable of recognizing the validity of singular they and successfully integrating it into their grammar.³

³ It is important to acknowledge that there is the possibility of participants simply reading through sentence errors as this is something that humans are proven to do. That being said, I hope that my instructions, which are given in the
3.2 Participants

This study uses responses from a total of 47 participants. The participants are undergrads at the College of William and Mary, all within the ages of 18-24 years old. For the gender identity distribution, 18.84% identify as male, 52.17% identify as female, 26.09% identify as cisgender (it is assumed that there is an overlap in female and male responses with this procedure section, help to make sure that participants are looking for these reflexives and reading carefully in order to prevent this phenomenon.)
response), 1.45% identify as nonbinary, and 1.45% identify as agender. While 45.83% identify as heterosexual and 31.94% identify as straight, there is still a variety of sexual orientations represented in the participant pool, as 6.94% identify as bisexual, 1.39% identify as pansexual, 2.78% identify as bicurious, 1.39% identify as monosexual, 2.28% identify as asexual, 1.39% identify as demisexual, 2.78% identify as questioning, 1.39% identify as grey asexual, and 1.39% identify as polyamorous. As for political ideologies, 64.29% align with the Democratic party, 11.9% align with the Republican party, 4.76% align with the Libertarian party, 4.76% identify as a Democratic Socialist, and 14.29% said their political ideology was not listed. The written in answers were mostly “n/a” and two participants that wrote in “independent.” For preferred pronouns, 69.57% of participants use she/her pronouns, 26.09% use he/him pronouns, and 4.35% use they/them pronouns. Lastly, 64.44% selected that they know someone personally who uses they/them pronouns, 20.00% selected that they know a person that uses they/them pronouns but not personally (e.g. the person is a well-known figure, a book character, etc.), and 15.56% selected that they do not know of anyone that uses they/them pronouns.

3.3 Materials

This study uses self-paced reading, which allows us to measure how long participants spend on each word during moment-by-moment processing. Importantly, self-paced reading is a widely used method in psycholinguistics that allows researchers to detect processing disruptions of the sort that will allow us to verify our experimental predictions.

3.4 Items

Experimental sentences consisted of the three conditions in (4).
(4)

A. Baseline: The student\textsubscript{1} introduced themself\textsubscript{1} to the class before the lecture started.

B. Nonbinary: Christopher\textsuperscript{4} identifies as nonbinary. *Christopher\textsubscript{1} packed themself\textsubscript{1} a snack to eat during work.

C. Binary: *Logan\textsubscript{1} drove themself\textsubscript{1} through morning traffic to get to class.

Each nonbinary condition was introduced with the sentence “______ identifies as nonbinary”, so participants were clear on the gender identity. The underspecified subject was chosen for the baseline, as the reflexive themself is more widely agreed as an acceptable anaphor for a subject with unknown gender. A variety of names were chosen, some more gendered and others more ambiguous. This was decided as the most realistic option, as many nonbinary people still have names that are perceived as having a gender bias. I also used two types of filler sentences, ones that have nouns with clear gender bias, and ones with specified nonbinary subjects that use the pronoun singular they to refer to the antecedent.\textsuperscript{5}

An initial test for gender neutrality was run on the web-based experimental platform Ibex (http://spellout.net/ibexfarm) to confirm the assumed gender neutrality of the baseline subjects. Participants were given the baseline subjects and asked to rate each one as more male, more female, or either. The first attempt at this survey yielded these results:

\textsuperscript{4} A variety of gendered names (like Christopher, which most would agree is male) as well as a variety of more gender-neutral names was chosen for this condition. This is due to the fact that many nonbinary people have what can be considered gendered names, and the choice to include a variety of each kind is the most realistic.

\textsuperscript{5} Full list of fillers in 6.4 Appendix D.
Any noun that was over 20% male or female was deemed not neutral enough and unusable for my study. As can be seen, there were very little nouns deemed as truly gender neutral. Some of these results surprised me, one explanation being that because there were no fillers included, participants felt the need to change up their answers, as answering “either” for every noun might have felt wrong. To fix this issue, I sent out another survey similar to the first one, but with the inclusion of filler words that have a clear gender stereotype as well as more gender-neutral words to test in order to ensure success for the second round. The second attempt yielded more promising results:
Figure 5.

With this information, I was able to develop the final list of test items, and used a Latin square format for my experimental design.\(^6\)

### 3.5 Procedure

The experiment was delivered remotely on Ibex. This method allows participants to complete the study by clicking on the given link. This was successful because Linguistics Professors of LING 220 sent the experiment link to their students, who were required to participate in student research for part of their class grade. After they were given instructions on the self-paced reading activity, participants were given a brief description (5) of what it means to be nonbinary to clear up any knowledge gaps:

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\(^6\) Full list of items in *Appendix A*
(5) 
You are going to read a set of sentences about events for people that are binary and nonbinary. Binary is defined as someone who either identifies as strictly male or strictly female and uses he/his or she/her pronouns. Nonbinary is defined as someone who does not identity as exclusively male or exclusively female and uses they/them pronouns. Some gender status of the subjects will be unspecified. It is crucial to pay attention to gender status, as that will impact your interpretation of the sentences.

For the task, participants are instructed to read the sentences silently, one sentence at a time. At first, the subject will just see dashes on the screen (6), each dash representing a word in the sentence.

(6) 
___  _______  __________  ________  __  ___  ___  ______  ___  ______  _______.

When they press the spacebar once, the first word of the sentence will appear on the first dash (7).

(7) 
The  _______  __________  ________  __  ___  _____  ______  ___  ______  _______.

When they press the spacebar again, the second word will appear, and the first word disappears. This makes it so they only ever see one word on the screen at a time. Participants were prompted after each sentence to rate its grammaticality with “yes” or “no.” After completing the self-paced reading task they were directed to the Qualtrics survey to obtain their social variables. My social variables include age, gender, sexuality, political ideology, and if the participant knows someone who identifies as nonbinary.
3.6 Results and Discussion

A graph of the critical regions can be seen in (6). The underspecified referent (Condition A) is represented by the green line with circles, the nonbinary referent (Condition B) is represented by the purple line with squares, and the mismatched referent (Condition C) is represented by the red line with triangles. As can be seen, there is a clear baseline in the pre-critical and critical conditions due to the fact that there is not a significant difference between the conditions. When the reflexive in question is encountered by the reader, there is an immediate change among the spill-over regions 1 and 2. It can be seen that there is a processing disruption (i.e., increased reading times) for the mismatched referent (red) as compared to underspecified referent (green). This disruption likely reflects the feature mismatch between the reflexive and antecedent (e.g., a singular, feminine-marked subject requires a singular, feminine-marked reflexive). More importantly, looking at our test condition (purple), the disruption is reduced when there is a clear nonbinary referent. This finding suggests that social cues regarding gender are in fact able to override grammatical constraints, as measured by the reduced processing disruption associated with the grammatical violation.

![Figure 6. Self-paced Reading Times](image_url)

*Conditions*
- A-green circles
- B-purple squares
- C-red triangles
While the social variables are not varied enough to affect the analysis, I argue that the fact that 64.44% of the participants responded that they know someone personally who uses they/them pronouns is influential to the success of the data. Knowing someone who is affected personally not only makes the grammar adjustment more of a priority, it means that the use of singular they is most likely normalized in their grammar, making them more likely to rate the nonbinary condition sentences as acceptable.

4. General Discussion

These findings show that not only is it possible to change our current grammar, but they show that speakers are already doing so successfully. It is clear that the speakers of this study recognize the responsibility to acknowledge the validity of nonbinary gender identities by using their preferred pronouns and are successfully integrating this knowledge in their moment by moment processing. These results are a significant addition to previous studies on singular they as they show that this nonbinary pronoun and its reflexive are already familiar to speakers and there is no significant confusion present as to what is the antecedent of the anaphor. This shows that Binding Principle A is applicable to themself, making gender not the only feature that speakers consider when processing and that the locality constraint carries weight for memory retrieval.

This work fills an important empirical gap, as it shows the application of syntactic constraints to accommodate grammatical innovation, as well as a sociolinguistic responsibility to use a grammar that accurately represents the gender of all its speakers. My work expands on previous research regarding singular they by rounding out the grammatical paradigm to
reflexives. Not only this, but it also fills a research gap by using psycholinguistic methods to address a sociolinguistic question. This method of combining linguistic fields has been proven useful and will hopefully inspire future studies to do the same. These results are extremely interesting and give home for the future of our language to be representative of the identity of all its speakers. While *themself* is not considered standard quite yet, the English language is changing all the time, with many speakers who communicate non-standardly but are still able to be understood by the population at large. It is clear that young adult speakers are in fact innovative, making positive change to the language a possibility. While integrating *themself* into our grammar may come with mistakes and criticism, it is ultimately an easy yet effective act of validating the identity of nonbinary people while beginning to pushback against the injustices they face every day.

**Future Studies**

After receiving sufficient training with the eye tracker, I was able to start testing participants through this method. Unfortunately, I was only able to test five participants before the William and Mary campus was evacuated due to Covid-19. The eye tracker obviously cannot be used remotely, so it was decided that the best plan of action was to script up a self-paced reading experiment through Ibex. This method proved successful for analysis, but it is of course not as precise at measuring reading times as the eye tracker. A future study that uses the eye tracker has the potential to produce extremely interesting results, especially considering the eye tracker can show participant look backs and revision clearly. Also, I need to acknowledge that the population I used for the study is fairly homogeneous, as can be seen by the reported social variables. To really expand this analysis, a future study will need to test many different
populations outside of a group of undergrads from a liberal arts university in order to accurately test language change and the innovation of English speakers as a whole. Lastly, it could prove useful to test *themself* with other singular non-gender-specific possibilities that exist in our lexicon, such as *themselves* and *theirself*.

**Possible Community Outreach**

It is clear that there is a need for more education about nonbinary gender identities. This obvious lack of public education also makes the coming out process for nonbinary people even more difficult, as “many people still do not believe in the existence of genders outside male or female” (Young 2020: 22). In large part, it is possible to combat discrimination with education; however, education about gender is not something that is typically part of a school curriculum. To help solve this problem and give back to the nonbinary community, I want to propose the creation of a children’s picture book. This book will follow the story of a nonbinary child and will be filled with information about gender identity to give the perspective of a young child realizing that they are nonbinary. There will be two versions of the story, one with a child who was born male and one with a child who was born female. This way, a greater number of children can feel represented. In addition, linguistically, this book will also aim to introduce children to different nonbinary pronouns, as well as practice on how to use them, in order to normalize them in their English grammar. Children are highly adaptable when it comes to language and introducing them to nonbinary pronouns as grammatically correct could be extremely effective.

My proposed outreach, while with the goal of giving back to the nonbinary community, is aimed at any family with younger children. This book is meant to be read by parents with their children, as a way to educate all parties. This will not only help nonbinary children dealing with
dysphoria, but also hopefully increase acceptance of nonbinary gender identities among cisgender children and parents. This book, by spreading information, could help to prevent discrimination caused by misunderstanding. It will also come with a guide, specifically for parents to read, on how to spot if a child is dealing with gender dysphoria and how to support them, as well as how to open up the conversation of gender identity at home.
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6. Appendices

6.1 Appendix A -- Gender Neutral Test for Baseline Conditions, Trial 1

1. Professor
   a. Male
   b. Female
   c. Either

2. Assistant
   a. Male
   b. Female
   c. Either

3. Teacher
   a. Male
   b. Female
   c. Either

4. Parent
   a. Male
   b. Female
   c. Either

5. Student
   a. Male
   b. Female
   c. Either

6. Neighbor
   a. Male
   b. Female
   c. Either

7. Customer
   a. Male
   b. Female
   c. Either

8. Runner
   a. Male
   b. Female
   c. Either

9. Author
   a. Male
   b. Female
   c. Either
10. Designer
   a. Male
   b. Female
   c. Either
11. Patient
    a. Male
    b. Female
    c. Either
12. Musician
    a. Male
    b. Female
    c. Either
13. Salesperson
    a. Male
    b. Female
    c. Either
14. Lawyer
    a. Male
    b. Female
    c. Either
15. Comedian
    a. Male
    b. Female
    c. Either
16. Politician
    a. Male
    b. Female
    c. Either
17. Chef
    a. Male
    b. Female
    c. Either
18. Child
    a. Male
    b. Female
    c. Either

6.2 Appendix B -- Gender Neutral Test for Baseline Conditions, Trial 2

1. Uncle
2. Patient
3. Policeman
4. Nurse
5. Parent
6. Author
7. Student
8. Child
9. Customer
10. King
11. Mother
12. Businessman
13. Neighbor
14. Cashier
15. Bartender
16. Pilot
17. Librarian
18. Baker
19. Photographer
20. Celebrity
21. Secretary
22. Football player
23. Teenager
24. Babysitter
25. Toddler
26. Tour guide
27. Author
28. Grandparent
29. Tenant
30. Congressman
31. Person
32. Ballerina
33. Waiter
34. Scholar
35. Adult
36. Landlord
37. Queen
38. Employee
39. Friend
40. Soldier

6.3 Appendix C -- Test Items
1a The student introduced themself to the class before the lecture started.
1b Sam introduced themself to the class before the lecture started.
1c Sarah introduced themself to the class before the lecture started.
2a The friend packed themself a snack to eat during work.
2b Christopher packed themself a snack to eat during work.
2c Nick packed themself a snack to eat during work.
3a The employee drove themself through morning traffic to get to class.
3b Finely drove themself through morning traffic to get to class.
3c Logan drove themself through morning traffic to get to class.
4a The parent made themself a cup of tea before they got ready for bed.
4b Taylor made themself a cup of tea before they got ready for bed.
4c Emma made themself a cup of tea before they got ready for bed.
5a The student embarrassed themself because they tripped while getting on the school bus.
5b Connor embarrassed themself because they tripped while getting on the school bus.
5c Charlie embarrassed themself because they tripped while getting on the school bus.
6a Charlie embarrassed themself because they tripped while getting on the school bus.
6b Jess introduced themself to the new family that moved in.
6c Josh introduced themself to the new family that moved in.
7a The customer bought themself a book about pronouns.
7b Rowan bought themself a book about pronouns.
7c Alan bought themself a book about pronouns.
8a The neighbor hurt themself while going for a morning run.
8b Max hurt themself while going for a morning run.
8c Carrie hurt themself while going for a morning run.
9a The author took themself to the library to do research on pronouns.
9b Lennon took themself to the library to do research on pronouns.
9c Caroline took themself to the library to do research on pronouns.
10a The photographer ordered themself a magazine about non-binary fashion.
10b Blake ordered themself a magazine about non-binary fashion.
10c James ordered themself a magazine about non-binary fashion.
11a The patient hurt themself and needed stitches for the wound.
11b Mary hurt themself and needed stitches for the wound.
11c Brady hurt themself and needed stitches for the wound.
12a The musician taught themself how to play the piano.
12b Sophia taught themself how to play the piano.
12c Jackson taught themself how to play the piano.
13a The baker prepared themself a sandwich to eat at the office.
13b Liam prepared themself a sandwich to eat at the office.
13c Lea prepared themself a sandwich to eat at the office.
14a The scholar dressed themself in nice clothing for the presentation.
14b Casey dressed themself in nice clothing for the presentation.
14c Anna dressed themself in nice clothing for the presentation.
15a The adult mocked themself during their comedy routine.
15b Caden mocked themself during their comedy routine.
15c Olivia mocked themself during their comedy routine.
16a The person incriminated themself during the stressful interview.
16b Sophia incriminated themself during the stressful interview.
16c Charlotte incriminated themself during the stressful interview.
17a The chef burned themself while taking the food out of the oven.
17b Jess burned themself while taking the food out of the oven.
17c Michael burned themself while taking the food out of the oven.
18a The child rewarded themself for doing well on the difficult test.
18b Aria rewarded themself for doing well on the difficult test.
18c John rewarded themself for doing well on the difficult test.

6.4 Appendix D -- Filler Items

1. Gender stereotyped nouns with binary reflexives
   a. The firefighter hurt himself while saving the child from the fire.
   b. The librarian drove herself to work in the morning.
   c. The nurse ordered herself new scrubs for work.
   d. The surgeon accidentally cut himself during the surgery.
   e. The doctor introduced himself to the patient’s family.
   f. The police officer drove himself to work early in the morning.
   g. The babysitter made herself dinner after the children went to bed.
   h. The secretary dressed herself in professional clothes for work.
   i. The construction worker bought himself a sandwich during the lunch break.
   j. The interior designer taught herself how to decorate houses.
   k. The boss blamed himself for the failure of the company.
   l. The scientist bought himself a new microscope for the experiment.
   m. The software engineer was proud of himself for creating the popular app.
   n. The accountant thought of himself as an asset for the company.
   o. The dancer injured herself during the long rehearsal.
   p. The seamstress made herself a fancy dress for the party.
   q. The veterinarian introduced herself to the pet’s family.
   r. The football player hurt himself during the homecoming game.
   s. The flight attendant made herself a cup of coffee before the flight.

2. Non-binary identity, but with pronouns instead of reflexives
   a. Aiden bought their textbook online for a good price.
   b. Ava saw their friend at the coffee shop.
   c. Isabella brought their lunch to eat after class.
d. Grayson loved their class schedule for fall semester.

e. Riley turned their paper in before the deadline.

f. Lucas cleaned their bathroom before the guests arrived.

g. Amelia read their book on the back porch.

h. Mason ate their dinner alone in the dining room.

i. Mia found their lost sock in the dryer.

j. Oliver ordered their headphones online for a good deal.

k. Elijah called their grandma to share the exciting news.

l. Zoe burned their hand while taking the cookies out of the oven.

m. Carter wore their favorite swimsuit to the pool party.

n. Carrington completed their homework at a reasonable hour.

o. Ethan wore their favorite shirt to the party.

p. Hannah burned their hand on the hot stove.

q. Hugh made their lunch before going to class.

r. Ryan cleaned their house before the guests arrived.

s. Susie wore their hair in a ponytail for the gym.