

# Nonbinary pronouns in *X* (*Twitter*) bios: Gender and identity in online spaces

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**Abstract** – This study explores the usage of nonbinary pronouns on *X* (formerly known as *Twitter*), focusing on *THEY* and neopronouns like *ZE* or *XE* within the nonbinary community. Building on the increasing practice of sharing pronouns, especially in online spaces, the research collects 1,980 *X* accounts using *Followerwonk*. Despite ideological differences across U.S. regions, no substantial variations in pronoun usage are observed. Notably, a preference for rolling pronouns (e.g., *they/she*) emerges, with fewer instances of monoprone usage (e.g., *they*). When a single pronoun is chosen, it is often accompanied by the respective accusative form, while rolling pronoun users tend to omit the accusative. Users with binary pronouns often prioritize it as their first chosen pronoun. *THEY* remains the predominant nonbinary pronoun, with neopronouns being rare. The study highlights *X* profiles as valuable sources for understanding linguistic patterns related to social trends, particularly in the context of gender equality and network relations.

**Keywords** – nonbinary pronouns; singular *THEY*; neopronouns; gender-inclusive language; social media; *X* (*Twitter*)

## 1. INTRODUCTION<sup>1</sup>

The exploration of pronouns as tools for self- and other-reference has received considerable attention in recent decades, primarily through the lens of feminist inquiry (pioneered by Bodine 1975) and, more recently, queer perspectives (e.g., McLemore 2015; Zimman 2017; Bradley 2020; Konnelly and Cowper 2020). The pronoun *THEY* initially sparked debate due to its role as a singular gender-neutral pronoun, skillfully sidestepping gender assignment, as seen in examples like *someone lost their keys* (Balhorn 2009; Paterson 2014; LaScotte 2016; Loureiro-Porto 2020). However, its evolution expanded beyond gender neutrality to represent nonbinary identities (Bradley *et al.* 2019; Conrod 2019; Bradley 2020; Hekanaho 2020, 2024).

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Recent research highlights the discomfort of nonbinary individuals, who diverge from the gender binary, grammatically expressed by HE or SHE, resulting in intentional and unintentional misgendering (Simpson and Dewaele 2019: 105–106; Konnelly *et al.* 2024: 453–454). Responding to this, the groundwork laid by feminists for singular THEY made it the prime candidate to fill this void, leading to its recognition as the word of the year in 2019 by Merriam Webster (Harmon 2019).<sup>2</sup> Simultaneously, new alternatives, termed neopronouns, like ZE and XE, emerged to address this gap (Hegarty *et al.* 2018: 55), as illustrated in (1) and (2):

(1) *Clo loves zir mother.* (From Hekanaho 2020: 5)

(2) *Terry was going out but xe could not find zir keys.* (From Hekanaho 2020: 273)

The plethora of emerging pronominal possibilities underscores the complexity of transforming English into a more inclusive language. Nonbinary individuals, recognizing the pivotal role of pronouns in defining their identities, emphasize the significance of being referred to by pronouns that align with their sense of self. Some scholars, such as Zimman (2017: 156), advocate for an egalitarian approach, proposing that the most inclusive method for personal pronoun reference is to inquire directly about individuals' preferred pronouns. Conversely, some argue that certain LGBTQI+ individuals perceive gender pronouns as limiting in encapsulating their complex identities, leading to a call for the complete avoidance of gender-specific pronouns in reference to any individual (Dembroff and Wodak 2018: 372). These discussions illuminate the identity-building function of pronouns, emphasizing their role in intersubjective identity construction through discourse interaction (Bucholtz and Hall 2010; Hekanaho 2024).

In situations where individuals are not explicitly asked about their pronouns, they may choose to overtly state them, as observed in social networks like *X* (formerly *Twitter*), where users have at their disposal 160 characters to define their public profiles (known as bios), according to their own wishes.<sup>3</sup> A cursory examination of random profiles reveals a diverse array of pronoun claims and combinations, including binary pronouns, nonbinary (NB) pronouns, and a blend of binary and NB pronouns, commonly

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<sup>2</sup> Whilst we are writing this paper, the Spanish *Real Academia de la Lengua Española* (RAE 2023) announces that one of the new entries added to its electronic version 23.7 is precisely *no binario* 'nonbinary', which constitutes just another piece of evidence that standardizing institutions acknowledge the need to find specific vocabulary to refer to nonbinary individuals.

<sup>3</sup> Referring to those individuals by the pronouns they go by would then constitute an example of good manners, although the social network *X* has lately witnessed a sort of heated debate regarding this issue (Ingram 2023).

referred to as rolling pronouns (e.g., *they/he*; LGBTQ Nation 2022). Moreover, online spaces like *X* and *Tumblr* have been found to favor the diffusion of new pronouns (King and Crowley 2024: 79–82). These social media have also served as battlegrounds for intense discussions surrounding the ideological implications of adopting NB pronouns, as the act of disclosing one’s pronouns has “politicized as belonging to the left in current US politics” (King and Crowley 2024: 82). Against this backdrop, this paper conducts an analysis of NB pronoun usage in *X* bios in US-based accounts, considering various intra- and extra-linguistic features, detailed in Section 3 below, with the overarching goal of answering the following research questions:

**RQ1:** Which NB pronouns are predominantly used in *X* bios?

**RQ2:** Do NB pronouns coexist with binary ones, and if so, what is the prevalence of each pronoun?

**RQ3:** Does the claiming of pronouns allow for inflectional morphology (i.e., are non-nominative forms listed)?

**RQ4:** Are there discernible differences, considering the ideological value of NB pronouns, between individuals residing in cities with a tradition of Republican governments and those in cities with a tradition of Democrat governments?

**RQ5:** Does the assertion of NB pronouns correlate with specific profiles, such as activism of any sort?

To achieve these objectives, the following sections of the paper unfold as follows: Section 2 outlines the theoretical background, Section 3 explains the methodology, Section 4 reveals the findings, and Section 5 offers a comprehensive discussion. The paper concludes with key insights and conclusions in Section 6.

## 2. NONBINARY PRONOUNS IN ENGLISH

For over 150 years, English wordsmiths have attempted to establish a gender-neutral pronoun without success (Baron 2010: n.p.), in contrast with some languages that have recently embraced gender-inclusive language approaches and alternatives to binary pronouns have been established, such as *hen* in Swedish, which reflects a growing acknowledgment of gender diversity (Lindqvist *et al.* 2019). Despite the historical existence of non-conforming gender individuals, who have been marginalized and

persecuted for centuries (Herdt 1996: 11), they have faced a persistent lack of visibility and recognition. This is reflected in language, where the absence of an established third person singular genderless pronoun leads to misgendering (i.e., an erroneous attribution of gender, McLemore 2014: 53; see also Hekanaho 2020: 197) for those who do not conform to the gender binary. In this scenario Sections 2.1 and 2.2 review the pronominal choices available for nonbinary individuals and their relative success in recent years.

### 2.1. NB THEY

Despite the widespread belief that singular THEY is a modern linguistic innovation, its usage was prevalent in written English even before the twentieth century, with the first recorded instances dating back to Old English (Bodine 1975: 131; Curzan 2003: 70–71; Laitinen 2024: 36–38). However, the proscription against using singular THEY due to a lack of number agreement with the singular antecedent became prominent with the advent of prescriptive usage guides in 1770 (*HUGE-database, Hyper Usage Guide of English*; Straaijer 2014). This prohibition persisted until the twenty-first century, as seen in Batko (2004: 118–122), who cautioned against using “everyone...their” in formal speech or writing, advocating awareness of alternatives that adhere to prescriptive rules.

Amidst this prescriptivist landscape, the feminist movement of the 1960s, particularly second-wave feminism, played a pivotal role in revitalizing the usage of singular THEY. This resurgence aimed to combat linguistic sexism, bringing singular THEY into debate and gaining acceptance for referring to antecedents of unknown or irrelevant gender (Balhorn 2009; Paterson 2011, 2014; LaScotte 2016). Consequently, the trajectory of singular THEY being used with singular antecedents dates back to medieval times, where genderless or unknown antecedents were commonly referred to by singular THEY and combined with HE OR SHE (see Baron 2018, for example). Grammarians of that era criticized both options, deeming the first inaccurate due to a lack of number agreement and the second as “clumsy and pedantic” (Bodine 1975: 170; Paterson 2014: 123).

The prescriptive pressure on the use of singular THEY persisted over time, earning it the moniker of an “old chestnut,” frequently cited in usage guides (Tieken-Boon van Ostade 2020: 26; 58 out of 77 guides in the *HUGE-database* mention this issue). Nevertheless, the social rejection of generic HE in the late twentieth century, driven by the recognition that a pronoun cannot be simultaneously masculine and generic, led to a

shift in perception. Singular THEY, along with the combination of HE OR SHE, came to be viewed as gender-inclusive and, consequently, the preferred choice among speakers (LaScotte 2016: 63).

This capacity to denote singular antecedents whose gender is unknown or irrelevant likely facilitated the recent adoption of THEY as a choice for referring to nonbinary individuals. This category encompasses those who may not conform to the gender binary, identify with none or both genders, or reject the notion of having a gender identity (Matsuno and Budge 2017: 116). While resistance persists, possibly due to the blurred lines between grammar and social meaning (Konnolly and Cowper 2020: 16), studies have demonstrated the viability of THEY as a NB pronoun (Parker 2017; Lund Eide 2018; Bradley 2019; Hekanaho 2020; among many others). Notably, nonbinary THEY, encompassing inflectional forms such as *they*, *them*, *their*, *theirs*, and *themselves*, has gained official recognition from institutions such as the University of Vermont (Scelfo 2015: n.p.) and is listed as a NB pronoun in the 2019 edition of the *Merriam-Webster Dictionary* (Merriam-Webster 2019). It is essential to acknowledge, however, that THEY is not the exclusive contender for an established NB pronoun, as various alternatives have been proposed, as explored in Section 2.2.

## 2.2. Neopronouns

In addition to the emerging use of THEY as a NB pronoun, the linguistic landscape has seen the introduction of numerous newly coined pronouns in recent decades, collectively referred to as ‘neopronouns’. These innovative pronoun sets, still in the process of gaining widespread acceptance, are cataloged on reference sites like <http://www.pronouns.org/>. The existence of these neologisms could be considered to challenge the conventional belief that pronouns constitute a closed class (Huddleston and Pullum 2002: 425), and, although their success, unlike that of singular THEY, has been limited (Lund Eide 2018; Parker 2017, cited in Hekanaho 2020: 39; Bradley *et al.* 2019), this has not hindered speakers from engaging in continual linguistic innovation. Consequently, the list of neopronouns is extensive and subject to change over time. While acknowledging the absence of a comprehensive academic list, we present here a compilation of “artificial and proposed epicene pronouns” as found in Wikipedia as of 20 November 2023:

|                | Firstly attested | Nominative              | Accusative              | Dependent Genitive        | Independent genitive    | Reflexive                     |
|----------------|------------------|-------------------------|-------------------------|---------------------------|-------------------------|-------------------------------|
| THON           | 1884             | <i>thon</i> is laughing | I called <i>thon</i>    | <i>thons</i> eyes gleam   | that is <i>thons</i>    | thon likes <i>thonsel</i>     |
| E              | 1890             | <i>e</i> is laughing    | I called <i>em</i>      | <i>es</i> eyes gleam      | that is <i>es</i>       | e likes <i>emsel</i>          |
| AE             | 1920             | <i>ae</i> is laughing   | I called <i>aer</i>     | <i>aer</i> eyes gleam     | that is <i>aers</i>     | ae likes <i>aersel</i>        |
| TEY            | 1971             | <i>tey</i> is laughing  | I called <i>tem</i>     | <i>ter</i> eyes gleam     | that is <i>ters</i>     | tey likes <i>temsel</i>       |
| XE             | 1973             | <i>xe</i> is laughing   | I called <i>xem/xim</i> | <i>xyr/xis</i> eyes gleam | that is <i>xyrs/xis</i> | xe likes <i>xemsel/ximsel</i> |
| TE             | 1974             | <i>te</i> is laughing   | I called <i>tir</i>     | <i>tes</i> eyes gleam     | that is <i>tes</i>      | te likes <i>tirsel</i>        |
| EY             | 1975             | <i>ey</i> is laughing   | I called <i>em</i>      | <i>eir</i> eyes gleam     | that is <i>eirs</i>     | ey likes <i>emsel</i>         |
| PER            | 1979             | <i>per</i> is laughing  | I called <i>per</i>     | <i>per</i> eyes gleam     | that is <i>pers</i>     | per likes <i>persel</i>       |
| VE             | 1980             | <i>ve</i> is laughing   | I called <i>ver</i>     | <i>vis</i> eyes gleam     | that is <i>vis</i>      | ve likes <i>versel</i>        |
| HU             | 1982             | <i>hu</i> is laughing   | I called <i>hum</i>     | <i>hus</i> eyes gleam     | that is <i>hus</i>      | hu likes <i>humsel</i>        |
| E              | 1983             | <i>e</i> is laughing    | I called <i>em</i>      | <i>eir</i> eyes gleam     | that is <i>eirs</i>     | e likes <i>emsel</i>          |
| ZE, MER        | 1997             | <i>ze</i> is laughing   | I called <i>mer</i>     | <i>zer</i> eyes gleam     | that is <i>zers</i>     | ze likes <i>zemsel</i>        |
| ZE, HIR        | 1998             | <i>ze</i> is laughing   | I called <i>hir</i>     | <i>hir</i> eyes gleam     | that is <i>hirs</i>     | ze likes <i>hirsel</i>        |
| SIE, HIR       | 2001             | <i>sie</i> is laughing  | I called <i>hir</i>     | <i>hir</i> eyes gleam     | that is <i>hirs</i>     | sie likes <i>hirsel</i>       |
| SEY, SEIR, SEM | 2013             | <i>sey</i> is laughing  | I called <i>sem</i>     | <i>seir</i> eyes gleam    | that is <i>seirs</i>    | sey likes <i>Sem sel</i>      |
| FAE            | 2020             | <i>fae</i> is laughing  | I called <i>faer</i>    | <i>faer</i> eyes gleam    | that is <i>faers</i>    | fae likes <i>faersel</i>      |

Table 1: List of proposed neopronouns (adapted from Wikipedia 2023)<sup>4</sup>

The pronouns listed in Table 1 exhibit varying degrees of popularity, with some receiving more attention on authoritative websites like [gendercensus.com](https://gendercensus.com) (2022). Notably highlighted are the following: (1) E (*e/em/eir/eirs/emsel*; known as ‘Spivak pronouns’);<sup>5</sup> (2) EY (*ey/em/eir/eirs/emsel*, known as ‘Elverson pronouns’);<sup>6</sup> (3) ZE (*ze/hir/hir/hirs/hirsself*); (4) XE (*xe/xem/xyr/xyrs/xemsel*); and (5) FAE (*fae/faer/faer/faers/faeself*) (gendercensus 2022; see also Venkatraman 2020). These pronouns do not only differ in popularity but also in phonological weight: E and EY contain vocalic sounds resonant with SHE and THEY while XE and ZE are sometimes pronounced as /zi:/ or /ksi:/ (Hekanaho 2020: 4).

<sup>4</sup> In fact, Wikipedia lists some sources for each of the pronouns, but many of them are debatable and, with the aim of keeping the explanation simple, we have decided just to include the first attestation date as currently found in the entry. The Wikipedia list of neopronouns is considerably shorter than that proposed by Baron (2020), which contains over 200 possibilities (Stormbom 2024: 416), as well as other compilations available on online platforms such as [Pronouns.page](#) (featuring 19 neopronouns) and [Pronouny](#) (which documents over one thousand neopronouns). Consequently, the 16 neopronouns outlined in Table 1 can be confidently regarded as the most commonly utilized sets of NB pronouns.

<sup>5</sup>The term ‘Spivak pronouns’ is attributed to the mathematician Michael Spivak, who first used *e/em/eir/eirs/emsel* in his book *The Joy of TEX: A Gourmet Guide to Typesetting with the AMS-TEX Macro Package* (see [Pronouns.page](#) 2024).

<sup>6</sup> This term originates from Christine M. Elverson, who won a contest in 1975 with the intention of offering an alternative to singular THEY (see [Pronouns.page](#) 2024).

Additionally, FAE stands out as it can be considered a nounself pronoun, a category of new pronouns typically derived from specific words, often nouns associated with individuals' identity. In the case of FAE, it is claimed to originate from an Irish old form of the word *fairy* (Miltersen 2016: 42). Nounself pronouns constitute a distinct class, allowing any noun or word to function as a pronoun based on individual preference. Miltersen (2016: 42) identifies examples like onomatopoeias (*tok*, *purr*), proper names, and clipped versions of nouns such as *bun/bun/buns/bunself* (from *bunny*) and *bi/bir/birs/birself* (from *bird*). However, it is crucial to note that none of these neopronouns are considered to hold the same status as singular THEY (Hekanaho 2024: 140). Their prominence may result from the rarity of introducing new members to a grammatical paradigm, especially within the context of pronouns being perceived as a closed class resistant to change (Huddleston and Pullum 2002: 425).

Navigating the vast array of neopronouns in use within the nonbinary community poses a considerable challenge, as emphasized by Hakanen (2021: 12), who, while examining XE, ZE, and ZIE in four extensive corpora, retrieved just over one hundred tokens (Hakanen 2021: 14). Given this difficulty, researchers often resort to surveys to elicit pronoun usage (e.g., Hekanaho 2020) or turn to online platforms like forums for data collection (e.g., Zimman 2019). Here, we propose an alternative avenue for exploration: social networks such as *X*, which have proven to be invaluable for investigating authentic language use in the digital sphere (e.g. Tyrkkö *et al.* 2021; Laitinen and Fatemi 2023; Louf *et al.* 2023, to name just a few). Although limited research has delved into NB pronoun usage on *X*, a few related studies have focused on pronoun self-disclosure. Some works reveal disparities and shared patterns among female, male, and nonbinary users (Thelwall *et al.* 2021), while others have gleaned insights into pronoun usage trends (Jiang *et al.* 2022; Tucker and Jones 2023).

These studies yield two primary conclusions: 1) a rising trend in the self-disclosure of gender pronouns on social networks in recent years and 2) the prevalence of SHE as a gender pronoun on *X*, both independently and in combination with others, such as SHE/THEY (Jiang *et al.* 2022; Tucker and Jones 2023). Furthermore, pronoun lists in profiles often intertwine with personal attitudes common among nonbinary *X* users, such as leftist affiliations, the acronym *ACAB* (i.e., *All Cops Are Bastards*), and identifications like *queer*, *trans*, and *pansexual* (Tucker and Jones 2023: 12). Our analysis below will shed more light on these aspects.

### 3. METHODOLOGY

Established in 2006, the social platform *X*, formerly known as *Twitter*, has evolved into a ubiquitous and influential platform, attracting a diverse user base, including both ordinary individuals and high-profile figures such as celebrities and politicians. With approximately 87 million monthly users in the United States (Semiocast 2023) and a reported usage rate of about 23 percent among U.S. adults (Pew Research 2022a). Thus, *X* has become deeply ingrained in the lives of a significant portion of the population, and this widespread impact positions *X* as a compelling and valuable tool for the scrutiny of human behavior.

*X* functions as a platform where users can articulate and exchange their ideas, fostering the creation of online conversational threads. Given its nature, *X* provides an ideal environment for investigating the spontaneous production and utilization of language, making it a common choice for linguistic studies (e.g., Zappavigna 2012; Friginal *et al.* 2018; Gonçalves *et al.* 2018; Clarke and Grieve 2019; Grieve *et al.* 2019; Page *et al.* 2022). The platform enables data collection through its Application Programming Interface (API) libraries (Campan *et al.* 2018: 3640). Additionally, analytics platforms like *Followerwonk* (Followerwonk 2022), which offers insights into *X* users, their followers, social authority, and various metrics, facilitate the extraction of valuable information.<sup>7</sup> While *Followerwonk* might not be the most prevalent analytics platform online, scholars have utilized it across different fields of study, ranging from assessing the visibility of financial institutions providing microcredit in Ecuador (Espinoza-Loaiza *et al.* 2017) to exploring pharmaceutical and medical purposes (Styczynski *et al.* 2023). Its versatility in analyzing and extracting meaningful information makes it a valuable tool for collecting data for this study.

The data for this paper was sourced from *X* bios, which are short profiles containing personal information provided by users (this information may include hobbies, place of residence and also icons or emojis). *Followerwonk* was employed for data extraction and the search focused on potential NB pronouns, specifically the nominative forms listed in Table 1, including *they* and others. The search specifically targeted the nominative forms

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<sup>7</sup> In 2023, after Elon Musk's acquisition of *Twitter* (and the change of its name to *X*), there have been significant changes in the landscape of *X* analytical platforms, including *Followerwonk*. The platform no longer remains operational with all the functionalities used for this study, as has been acquired by *Fedica* (i.e., <https://fedica.com/>).



as they represent the unmarked form, which may or may not be accompanied by oblique forms in *X* bios (e.g., *they/them*, *they/them/their*).

The platform's default presentation of results was organized based on the number of followers for each account. However, the list could be sorted using various metrics, such as the number of tweets, following accounts, account age (measured in days), and social mentions, along with their impact, as illustrated in Figure 1.

The screenshot shows the Followerwonk web interface. At the top, there's a navigation bar with the logo 'followerwonk A Moz App' and a user profile '@AllTruckJobsUSA'. Below the navigation bar are tabs for 'Search Bios', 'Compare Users', 'Analyze', 'Track Followers', and 'Sort Followers'. The main content area has a search bar with 'truck driver' entered and a 'Do It' button. Below the search bar, there's a section titled 'Twitter users with "truck driver" in their profiles' showing 16,162 results. The results are displayed in a table with columns for 'tweets', 'following', 'followers', 'days old', and 'Social Authority'. The table lists several users, including Eiji Arai (@AraiEij), Lone Star Medic (@LoneStar\_Medic), Mario O (@Mario\_O), GRUMPY TRUCK DRIVER (@r1965rainey), KEV (@K\_DUBB\_80), Joe Hill (@omegasax.ioe), Jon (@JonHendricks83), Snapping Turtle (@mclatterbu), and Jim Cooper (@TimCoop).

|   | tweets  | following | followers | days old | Social Authority |
|---|---------|-----------|-----------|----------|------------------|
| <b>Eiji Arai</b> @AraiEij               | 195,353 | 16,425    | 19,254    | 563      | 76               |
| <b>Lone Star Medic</b> @LoneStar_Medic  | 94,747  | 2,076     | 5,190     | 1,799    | 71               |
| <b>Mario O</b> @Mario_O                 | 92,739  | 5,242     | 5,190     | 945      | 69               |
| <b>GRUMPY TRUCK DRIVER</b> @r1965rainey | 144,990 | 5,003     | 4,452     | 2,732    | 68               |
| <b>KEV</b> @K_DUBB_80                   | 306,093 | 1,733     | 1,822     | 1,466    | 67               |
| <b>Joe Hill</b> @omegasax.ioe           | 53,068  | 30,303    | 30,722    | 1,321    | 67               |
| <b>Jon</b> @JonHendricks83              | 19,131  | 3,126     | 1,813     | 928      | 67               |
| <b>Snapping Turtle</b> @mclatterbu      | 90,605  | 1,309     | 2,714     | 1,339    | 66               |
| <b>Jim Cooper</b> @TimCoop              | 14,198  | 7,139     | 7,436     | 1,615    | 66               |

Figure 1: *Followerwonk* results view

The advanced filters provided by *Followerwonk* offer the flexibility to set minimum and/or maximum thresholds for the number of followers, tweets, and following accounts (Figure 2). Notably, the sorting feature by location is a particularly valuable tool. Given that one of the objectives in the study is to examine the potential influence of dominant political views on the choice of NB pronouns in specific regions, we utilized this feature to identify locations with traditions of both Republican and Democrat governments. This information was based on the classification provided by Tausanovitch and Warshaw (2014). The rationale behind the selection of accounts from these particular locations stems from the aforementioned discovery by King and Crowley (2024: 82), who observed

that NBs have played a significant role in shaping online political discussions. They are often perceived as aligning with left-wing ideological positions in the current landscape of US politics and are frequently targeted for ridicule by conservative users of platform X.

For the representation of territory with a tendency for liberal governments, New York was chosen as the focal city, because *Followerwonk* allowed us to conduct searches for each of its five boroughs, ensuring an adequate number of tokens for inclusion in our database. On the conservative side, multiple cities were selected. As these cities are not as populous as New York, their results were aggregated to achieve a balanced sample. The chosen cities were specifically identified as standing on the more conservative end of the political spectrum, including Colorado Springs, Fort Worth, Jacksonville, Oklahoma City, Omaha, and, for a larger city example, Miami.

The screenshot shows the Followerwonk search interface. At the top, it asks 'Who are you looking for? Whether it's new talent, customers, or just friends, we help find whom you're after.' Below this is a search bar containing 'journalist' and a dropdown menu set to 'search Twitter bios only'. A 'Do it' button is on the right. Below the search bar is a 'fewer options' link. The 'Advanced filters' section includes:
 

- Location: 'brighton' with a 'See example' link.
- Name: [empty] with a 'See example' link.
- URL: [empty] with a 'See example' link.
- Min following: [empty] and Max following: [empty].
- Min followers: '5000' and Max followers: [empty].
- Min tweets: [empty] and Max tweets: [empty].

Figure 2: Advanced filters in *Followerwonk*

Thus, each token included in our database was coded for the following extra-linguistic (1–2) and intra-linguistic variables (3–6):

1. **City:** New York, Miami, Colorado Springs, Fort Worth, Jacksonville, Oklahoma City, Omaha. In the case of New York, also **District:** with specification of the five New York districts: Brooklyn, Bronx, Manhattan, Queens, and Staten Island.
2. **Potential activism of the X user:** when other ideological keywords (not related to gender) were part of the bio, we noted that in our database (e.g., *climate change*, *Black Lives Matter*, *autism*).
3. **First pronoun mentioned:** In case users resort to rolling pronouns (e.g., *she/they*).

4. **Case** in which the NB pronoun is cited: nominative, accusative and genitive (e.g., *they/them*). Compound forms such as *themselves* are unsuitable candidates to feature in the reduced space allotted to bios in *Twitter*.
5. **Presence of binary pronouns** alongside NB ones: *he* or *she*.
6. **Gender-related keywords** in bios: e.g., *trans*, *queer*, *nonbinary*, *bisexual*, *cisgender*, *agender*, *intersex*, etc.

A comprehensive search using *Followerwonk* identified a total of 12,282 accounts featuring NB pronouns within the explored territories. Specifically, there were 6,432 accounts in New York and 5,850 in the other cities (with a tradition of Republican governments). From each group, a sample of approximately 1,000 accounts was systematically chosen by adjusting the sorting options of the analytics platform. That is, since the 12,282 accounts could not be downloaded from *Followerwonk* for randomization, the only feasible approach to selecting a somewhat random sample was to sort the accounts based on factors such as account age and social authority. These factors were deemed to have a negligible impact on the use of NB pronouns and were thus not expected to introduce bias into the results. As the summarized results presented in Tables 2 and 3 show, a total of 1,980 accounts were analyzed.

|                      | <b>Total number of accounts with NB pronouns</b> | <b>Accounts selected</b> |
|----------------------|--|--------------------------|
| <b>Bronx</b>         | 776  | 151                      |
| <b>Brooklyn</b>      | 3,502  | 418                      |
| <b>Manhattan</b>     | 955  | 176                      |
| <b>Queens</b>        | 1,038  | 230                      |
| <b>Staten Island</b> | 161  | 37                       |
| <b>Total</b>         | <b>6,432</b>                                     | <b>1,012</b>             |

Table 2: Number of accounts collected from New York boroughs and the total number of results in *Followerwonk*

|                         | <b>Total number of accounts with NB pronouns</b> | <b>Accounts selected</b> |
|-------------------------|--|--------------------------|
| <b>Colorado Springs</b> | 446  | 122                      |
| <b>Fort Worth</b>       | 717  | 131                      |
| <b>Jacksonville</b>     | 811  | 122                      |
| <b>Miami</b>            | 2,652  | 296                      |
| <b>Oklahoma City</b>    | 606  | 131                      |
| <b>Omaha</b>            | 618  | 166                      |
| <b>Total</b>            | <b>5,850</b>                                     | <b>968</b>               |

Table 3: Number of accounts collected from US cities with a tradition of Republican governments and the total number of results in *Followerwonk*

## 4. RESULTS

### 4.1. Monopronouns and rolling pronouns

$X$  users have the option of self-definition through a single pronoun (e.g., *they*), termed ‘monopronoun’ use, or a combination of pronouns (e.g., *they/he*, *she/they/xe*), known as ‘rolling pronouns’ — defined as “the use of multiple pronouns that can be used alternately or shift over time” (LGBTQ Nation 2022). Interestingly, rolling pronouns emerge as the prevailing trend in our dataset: as illustrated in Table 4, 65 percent of the scrutinized accounts in New York opt for multiple pronouns to articulate their gender identity, while 35 percent identify as monopronoun users. This statistically significant difference<sup>8</sup> also holds for the other cities (65.6% of accounts exhibiting rolling pronouns vs. 34.4% of accounts showing monopronouns), suggesting a consistent pattern of pronoun usage.

|                        | New York accounts | Other cities accounts | Total         |
|------------------------|-------------------|-----------------------|---------------|
| Monopronouns users     | 354 (35%)         | 333 (34.4%)           | 687 (34.7%)   |
| Rolling pronouns users | 658 (65%)         | 635 (65.6%)           | 1,293 (65.3%) |
| <b>Total</b>           | <b>1,012</b>      | <b>968</b>            | <b>1,980</b>  |

Table 4: Monopronoun and rolling pronoun users by community

The choice between a monopronoun and rolling pronouns significantly impacts the prevalence of inflectional forms other than the nominative in our dataset. Notably, monopronouns are frequently accompanied by non-nominative forms (98%),<sup>9</sup> while rolling pronouns exhibit a lower proportion in this regard (90%), as illustrated in Table 5. This significant<sup>10</sup> contrast between monopronouns and rolling pronouns can be attributed, in part, to the character limit (160) imposed on bios in  $X$ . Users employing rolling pronouns often prioritize conciseness due to character constraints, limiting the inclusion of additional inflectional forms in favor of other aspects of their personal profile. Nevertheless, ten percent of rolling pronoun users do include additional forms, as exemplified by constructions such as (i) *he/him they/them she/her* or (ii) *they/them xe/xem*. In contrast, monopronoun users predominantly opt for the nominative/accusative form, potentially reflecting a formulaic expression signaling the use of pronouns for

<sup>8</sup> The test applied to these data is the Z score test, which calculates the value of  $z$  (and associated  $p$  value) for two population proportions. This test compares the observed frequency with the expected frequency; the  $z$  score is the number of standard deviations from the mean frequency, in such a way that the higher the  $z$  score, the lower the likelihood that only chance is affecting the distribution (McEnery et al. 2006: 57). In this case, the value of  $z$  is 19.2599. The value of  $p$  is  $< .00001$ . The result is significant at  $p < .05$  (<https://www.socscistatistics.com/tests/ztest/default.aspx>)

<sup>9</sup> On most cases, the non-nominative form is in the accusative, because the genitive form has shown to be anecdotal with only 39 cases from almost 2,000 tokens from the dataset.

<sup>10</sup> The value of  $z$  is 35.029. The value of  $p$  is  $< .00001$ . The result is significant at  $p < .05$ .

gender identity purposes rather than as components of a broader linguistic structure. In essence, constructions like *they/them*, *ze/zim/zer* have become conventional ways of conveying one’s preferred pronouns (pronouns.org 2023).

|                        | Only nominative form | Other inflectional forms | Total        |
|------------------------|----------------------|--------------------------|--------------|
| Monopronouns users     | 14 (2%)              | 673 (98%)                | 687          |
| Rolling pronouns users | 1,164 (90%)          | 129 (10%)                | 1,293        |
| <b>Total</b>           | <b>1,178 (59.5%)</b> | <b>802 (40.5%)</b>       | <b>1,980</b> |

Table 5: Presence of inflectional forms other than the nominative with monopronouns and rolling pronouns

An important finding in our analysis is that monopronoun users overwhelmingly favor singular *they* (Table 6). Specifically, only 21 accounts opt for a single neopronoun, with nine choosing *ze*, nine selecting *xe*, and three opting for *ey* —each accompanied by distinct non-nominative forms. All other neopronouns examined in this study are found within rolling pronouns, predominantly led by *they* (49%). Following this are *she* (29.5%), *he* (20.4%), and neopronouns collectively, constituting a mere 1.1% of all accounts with rolling pronouns. Notably, there are minimal discrepancies between territories, with *they* being more frequent in New York than in the other cities analyzed (51.7% vs. 46.3%). Conversely, *she* exhibits a higher frequency in other cities (32.1% vs. 27%), as shown in Table 6:

| First chosen pronoun | New York     | Other cities | Total        |
|----------------------|--------------|--------------|--------------|
| THEY                 | 523 (51.7%)  | 448 (46.3%)  | 971 (49%)    |
| HE                   | 205 (20.3%)  | 199 (20.6%)  | 404 (20.4%)  |
| SHE                  | 273 (27%)    | 311 (32.1%)  | 584 (29.5%)  |
| Neopronouns          | 11 (1%)      | 10 (1%)      | 21 (1.1%)    |
| <b>Total</b>         | <b>1,012</b> | <b>968</b>   | <b>1,980</b> |

Table 6: First pronoun chosen by *X* users in rolling pronouns: New York vs. other cities

The incorporation of gendered pronouns alongside NB pronouns is a prevalent phenomenon in our dataset, since a total of 1,254 accounts feature either *he*, *she*, or a combination of both, as illustrated in Table 7:<sup>11</sup>

|              | Raw Frequency | Percentage  |
|--------------|---------------|-------------|
| HE           | 482           | 38.4%       |
| SHE          | 712           | 56.8%       |
| HE AND SHE   | 60            | 4.8%        |
| <b>Total</b> | <b>1,254</b>  | <b>100%</b> |

Table 7: Nonbinary users in our dataset with at least one gendered pronoun

<sup>11</sup> Out of these 1,254 accounts that list gendered pronouns alongside NB ones, 28 also list neopronouns, while 1,226 only list THEY and SHE, HE or HE and SHE.

Furthermore, our analysis of *X* accounts reveals that when users opt for gendered pronouns alongside NB pronouns, they predominantly choose *he* or *she* as their first pronoun before specifying their NB pronoun. Table 8 illustrates this trend, indicating that 74.3 percent of users prefer HE (e.g., *he/they*), mirroring the 75.5 percent of users who opt for SHE (e.g., *she/they*).

| First chosen pronoun | Bios with HE | Bios with SHE | TOTAL        |
|----------------------|--------------|---------------|--------------|
| HE                   | 403 (74.3%)  | 27 (3.5%)     | 430          |
| SHE                  | 14 (2.6%)    | 583 (75.5%)   | 597          |
| THEY                 | 123 (22.7%)  | 161 (20.9%)   | 284          |
| Neopronouns          | 2 (0.4%)     | 1 (0.1%)      | 3            |
| <b>Total</b>         | <b>542</b>   | <b>772</b>    | <b>1,314</b> |

Table 8: First pronoun in set of rolling pronouns that include (binary) gendered HE and SHE

Table 8 also highlights the infrequent occurrence of neopronouns within rolling pronouns that include gendered *he* or *she*. However, a comprehensive examination of the entire set of rolling pronoun options in the analyzed accounts reveals that neopronouns are not uncommonly selected as second or subsequent options by *X* users: For instance, examples such as 1) *they (ey/em/eir)*, 2) *she/he/they/xe/xim*, and the most elaborate instance in our dataset, 3) *he/ him /his /she /her /sher /hershey's /zhe/zher /zir/xyr/they/them/thems/they're/their/there/thon/fae/I/me/you/your/you're/us/y'all/we/wumbo/it/that/this/thit/pronoun*. The specific frequency of neopronouns in comparison to *they* is detailed in Section 4.2 below.

#### 4.2. Type of NB pronoun: *THEY* and neopronouns

Table 9 shows the frequency of all NB pronouns found. The data clearly shows the prevalence of *they* (95% of all cases). As mentioned, these pronouns could appear in any position in the users' bios, since neopronouns hardly ever appear as monoproneouns and, for that reason, the total number of tokens surpasses the number of accounts analyzed.

|                      | New York     | Other cities | Total        |
|----------------------|--------------|--------------|--------------|
| <i>They</i>          | 982          | 952          | 1,934 (95.%) |
| Nounself pronoun     | 18           | 5            | 23 (1.1%)    |
| <i>Xe</i>            | 10           | 10           | 20 (1%)      |
| <i>It</i>            | 9            | 8            | 17 (0.9%)    |
| <i>Ze</i>            | 11           | 2            | 13 (0.6%)    |
| Foreign pronouns     | 8            | 4            | 12 (0.6%)    |
| <i>Fae</i>           | 6            | 1            | 7 (0.3%)     |
| <i>Any</i> (pronoun) | 2            | 3            | 5 (0.3%)     |
| <i>Ey</i>            | 2            | 2            | 4 (0.2%)     |
| <b>Total</b>         | <b>1,048</b> | <b>987</b>   | <b>2,035</b> |

Table 9: Distribution of NB pronouns in the dataset

In addition to reinforcing the nonbinary status of *they*, Table 9 also arranges the neopronouns from Table 1 as follows: nounself pronouns exhibit the highest prevalence (23 tokens in total, e.g., *pup* or *neigh*), followed by *xe* (20 tokens), *ze* (13), *fae* (7), and *ey* (4). Furthermore, Table 1 includes other pronominal forms discovered incidentally (as a second or later option in rolling pronouns). These include the pronoun *it* (17), foreign pronouns such as *elle* (from Spanish)<sup>12</sup> or *sie* (from German) (12), as well as *any*, a concise form standing for *any pronoun* (5), suggesting a clear flexibility in the users' choice of pronouns. The presence of nounself pronouns is noteworthy, considering their diverse nature, with almost none repeated (e.g., *thude*, *neon*, or *bruh*; exemplified in *he/they/neigh/bruh/skull/neon*), except for *fae*, which occurs several times and could be included in this category. The NB pronoun *it* also appears with relative frequency, despite assertions that it may be dehumanizing and perilous (Norris and Welch 2020: 9). Some users express comfort with being referred to with this pronoun alongside other NB pronouns (e.g., *they/it*; *they/it/ze*; or *xe/they they/jze/it*). Additionally, *X* users have incorporated NB pronouns from other languages, such as *elle*, proposed in Spanish, and *sie*, representing the third person singular feminine and also the plural in German (e.g., *he/they El/Elle*; *they/sie/them*), serving as anecdotal evidence of the multilingual nature of the social network, despite its overwhelming English-speaking majority (Grandjean 2016: 6). Regarding differences between political territories, due to the overall small number of neopronouns, no statistical test can be applied, and the distinctions between territories traditionally ruled by Democrats and Republicans do not seem to be relevant.

### 4.3. Keywords in bios

The final result concerning the variables in our dataset (outlined in Section 3 above) pertains to the presence of lexical keywords in *X* bios related to gender identity, sexuality (e.g., *queer*, *trans*, *bisexual*), or various forms of activism related to different causes (e.g., *climate change*, *Black Lives Matter*, *autism*). After the manual examination of the 1,980 accounts analyzed, the findings indicate that 26.7 percent of *X* accounts (n= 529) incorporate keywords reflecting their sexual or gender identity (as depicted in Figure 3),

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<sup>12</sup> The pronoun *elle* is often listed as a NB in Spanish (e.g. López 2019), which has led us to consider this a NB in this context (instead of the homograph French feminine pronoun).

whereas the inclusion of personal and political keywords is slightly lower, accounting for 13.6 percent ( $n= 270$ , as illustrated in Figure 4).

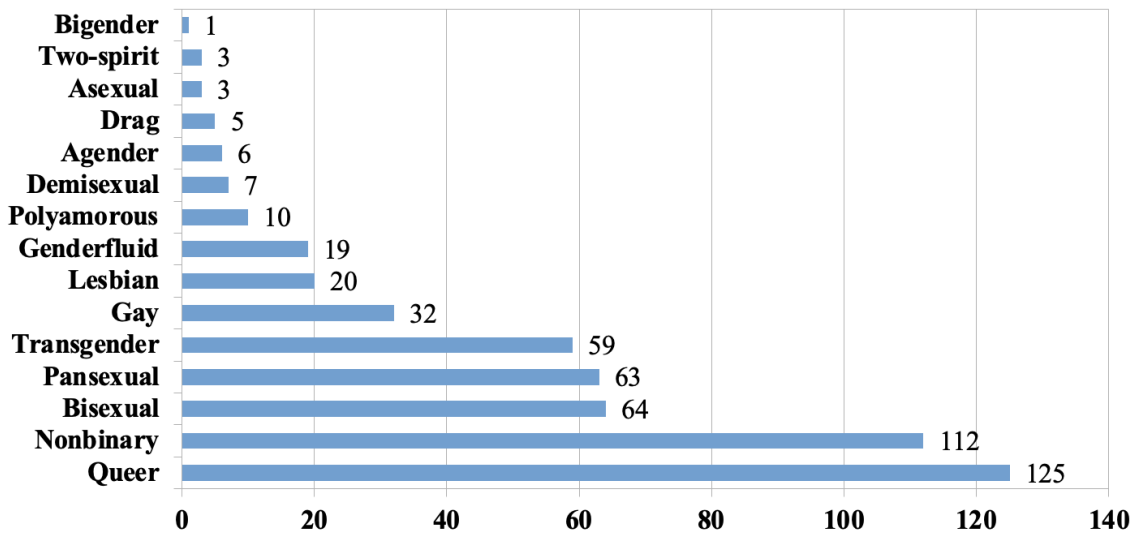


Figure 3: Keywords related to gender identity or sexuality that accompany NB pronouns in our dataset

Figure 3 provides an overview of the frequency of keywords associated with gender identity and sexuality that co-occur with NB pronouns in our dataset. The observed keywords can be categorized into four primary blocks. Firstly, *queer* emerges as the most prevalent term in *X* profiles, appearing 125 times, closely followed by *nonbinary* with 112 instances. In the second block, the triad of *bisexual* (64), *pansexual* (63), and *transgender* (59) takes precedence. The third block comprises terms such as *gay* (32), *lesbian* (20), and *genderfluid* (19). Lastly, we encounter less frequent terms like *polyamorous* (10), *demisexual* (7), *agender* (6), *drag* (5), *asexual* (3), *two-spirit* (3), a characteristic term within the Native American community and *bigender* (1).

Figure 4 highlights the prevalence of additional keywords in our dataset that offer insights into users' profiles. At the forefront is the acronym *BLM*, which stands for *Black Lives Matter*, appearing in 120 accounts. Following closely is another acronym, *NSFW* (*Not Suitable/Safe for Work*), present in 90 accounts, often associated with explicit or inappropriate material rather than specific political affiliations. In the third and fourth positions, we encounter terms that bring visibility to minority groups: 9 instances of *neurodivergent* and 13 of *disabled*. The list continues with politically charged labels, including *ACAB* (*All Cops Are Bastards*) in six accounts, *Free Palestine* in four, and three instances each of *Pan-Africanism* and *Feminist*, and two of *Abolitionist*. The significance of these figures lies more in their qualitative implications than their quantitative



representation. As demonstrated in prior studies (e.g., Tucker and Jones 2021), data hint at a connection between actively articulating one’s nonbinary identity and expressing overt support for specific social causes.

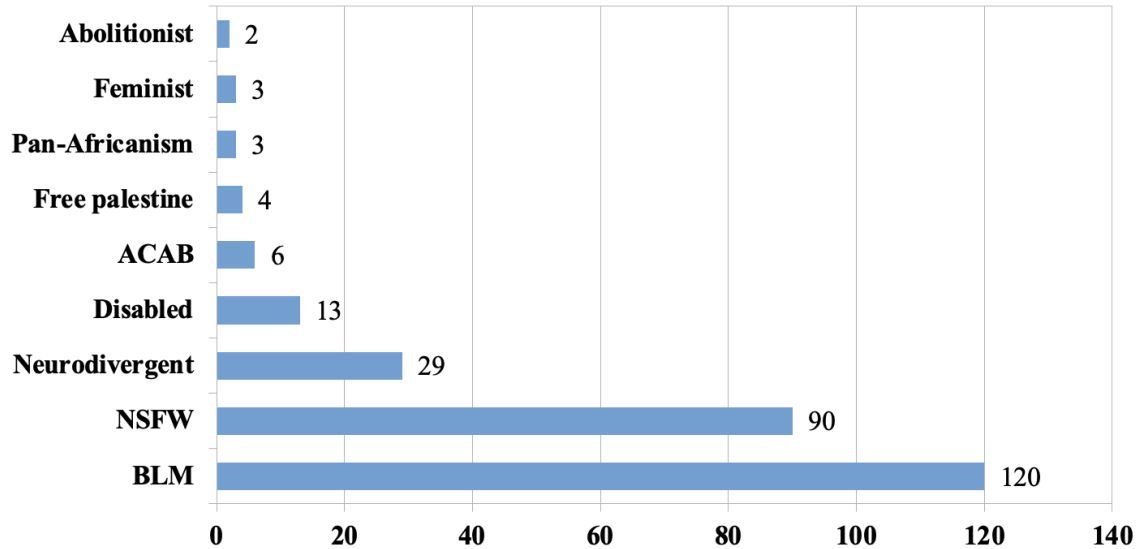


Figure 4: Keywords related to some kind of activism on  $X$  that accompany NB pronouns in our dataset

## 5. DISCUSSION

This paper has studied the presence of NB pronouns in  $X$  profiles, with the aim of determining the factors that might condition the variation among the myriad of NB pronouns available as of 2023 (see Table 1). One such factor was considered to be the place of residence of  $X$  users, and for that reason data were collected (using the extinct  $X$  analytics platform *Followerwonk*) based on geographical or political factors. Two samples were taken from a city traditionally ruled by Democrats, namely New York, and several cities traditionally ruled by Republicans. The results do not conclusively establish a correlation between political affiliations of a territory and pronoun choices by the citizens. Thus, our results show no significant differences between users in both kinds of territory regarding aspects such as the frequency of monoproneouns and rolling pronouns (Table 4), the pronoun that occupies first position in rolling pronouns (Table 6), or the particular frequency of THEY and the neopronouns (Table 9). This can very well be interpreted as the result of the global character of online communities, which tend to behave alike regardless of their particular geographical location, as has been previously found for K-pop communities (Malik and Haidar 2020: 11). Thus, although notable differences have been found in previous literature between the use of  $X$  by Republicans

(17%) and Democrats (32%) (Pew Research 2022b), one cannot conclude either that i) all *X* users living in a city ruled by one party follow their political views, or that ii) the main political view of a geographical territory is the only influence on netizens in an increasingly globalized world. Therefore, it looks as if the once claimed true democratic nature of social networks (e.g., Orr *et al.* 2009), where everyone had a voice and social differences were erased is still at work among NB individuals on *X*.

The unequivocal dominance of the pronoun **THEY** emerges as a defining characteristic within the dataset. This overwhelming usage (1,953 out of 1,980 accounts) supports the argument that **THEY** is the most widely accepted NB pronoun, overshadowing neopronouns in popularity (also noted by Hekanaho 2020: 222). The closed nature of the pronoun system, where new forms like neopronouns struggle for acceptance, contrasts with the smoother transition provided by **THEY**, which despite having been proscribed in usage guides for over two centuries has found its way into standard varieties of English very much thanks to the non-sexist language reform initiated by second-wave feminism in the 1960s (Paterson 2020: 261–264). Thus, in the battle for non-sexist language feminists defended the use of singular **THEY** or combined **HE OR SHE** and both were consistently neglected by the gate-keepers of the language, on the basis that the former violates number agreement with its antecedent and the latter leads to a cumbersome style. In the twenty-first century, however, and among nonbinary individuals, the otherwise proscribed **THEY** is considered as “more reasonable” than the neopronouns (Hekanaho 2020: 222), as it is seen as more familiar and easier to educate family and friends on the reference towards nonbinary individuals (McGlashan and Fitzpatrick 2018: 12; Cordoba 2020: 58). Among neopronouns, according to our results, nounself pronouns head the list, on most occasions with nonce forms such as **THUDE**, **NEON** or **BRUH**, and they are followed by **XE**, **IT**, **ZE**, foreign pronouns, **FAE**, **ANY** and, finally **EY** (see Table 9). The multiplicity of options available reveals i) that linguistic creativity has no boundaries, ii) that gender identity is very complex and multifaceted and individuals enjoy the possibility of choosing how they want to be referred to, and iii) that we may be in the midst of a case of language variation that will end up in the survival of one or several pronominal forms if such forms manage to seamlessly integrate into the linguistic paradigm. The higher their integration, the higher their accessibility for individuals outside the LGBTQI+ community, and among these **THEY** is said to be clear winner (Hekanaho 2020: 222), as our results support.

Despite this preference for *THEY*, we have also seen that a vast majority of *X* users define their identity by rolling pronouns, highlighting a preference for multiple pronouns over a single one. This term encompasses individuals who may alter their pronouns based on context or employ them regularly, indicating the fluidity of gender identity expression. The prevalence of rolling pronouns users may be attributed to factors like gender fluidity or the comfort nonbinary individuals feel using multiple pronouns during transitional phases (McGlashan and Fitzpatrick 2018: 9; Jiang *et al.* 2022). This is in fact supported by the fact that gendered pronouns exhibit a much higher frequency than expected (1,254 tokens in our dataset include either *HE* OR *SHE* in the list of pronouns of choice alongside other NB pronouns). However, we acknowledge that more qualitative investigation will be necessary to understand specific preferences in different contexts.

The analysis of rolling pronouns in *X* bios also revealed that inflectional forms other than the nominative tend to be absent (90% of the times, as seen in Table 5), while it is overwhelmingly present in monoproneouns (98%). A potential explanation for the absence of oblique forms is the 160-character limit in *X* bios, but that does not explain its practically total presence in the case of monoproneouns. In that case, we believe that the near-formulaic nature of the combination of nominate and accusative or genitive forms (e.g., *they/them* or *they/them/their*) constitutes a well-established linguistic chunk associated with the communication of gender identity.

As expected, the use of NB pronouns correlates largely with the presence of lexical terms related to gender and sexuality (Figure 3). Likewise, political ideologies and personal beliefs find expression on *X*, with left-wing ideologies prominently represented through keywords like *BLM* and *ACAB* (as already mentioned by Tucker and Jones 2023: 11). Our results list these and other politically oriented key terms (Figure 4) and also highlights the inclusion of *NSFW* as a prevalent keyword, which suggests a shift in online discourse, reflecting a growing inclusion of explicit content. Additionally, the emergence of keywords related to neurodivergence, such as *autistic*, aligns with the notion that certain nonbinary individuals may have a higher likelihood of being neurodivergent (McClurg 2023). This intersectionality hints at the complex interplay between gender identity and neurodiversity, urging further exploration within this intersection.

## 6. CONCLUSIONS

Transforming English into a more inclusive language is a challenging task and nonbinary individuals find on social networks, such as *X*, a way of expressing their identity freely. A key strategy for claiming identity involves the selection of personal pronouns. This paper has contributed to the ongoing discourse on NB pronouns by scrutinizing the pronouns chosen by users in 1,980 *X* accounts. The analysis aimed to uncover sociolinguistic patterns among the myriad of NB pronouns available, considering both extra-linguistic and intra-linguistic variables. In the examination of extra-linguistic variables, we have scrutinized the role played by municipal political government, reflecting the overall Democrat or Republican majority in various cities. Additionally, we assessed the potential activism of users by considering the presence of lexical keywords related to specific political issues. Within intra-linguistic variables, we examined firstly the order of pronouns, particularly in cases where more than one pronoun was chosen — a prevalent occurrence in 65.3 percent of all cases, exemplified by rolling pronouns like *they/xe*. Secondly, we investigated the presence of inflectional forms beyond the nominative, such as *they/them*. Finally, the analysis also encompassed the presence of binary gendered pronouns, *he* and/or *she*, and the selection of lexical gender-related vocabulary within the *X* bio.

Through a meticulous examination of 1,980 *X* accounts, a distinct pattern emerged, overwhelmingly favoring the use of *they* among nonbinary users, evident in 1,953 instances (RQ1). This prevalence constitutes a case of (quasi-)standardization, challenging traditional proscriptions that survived until the twenty-first century (as an example, Batko's 2004 usage guide still considers singular *THEY* a mistake when used with singular antecedents such as *everyone*). Beyond *they*, the dataset reveals the presence of other NB pronouns, frequently embedded in rolling pronouns. Nounself pronouns (Miltersen 2016), including *THUDE*, *NEON*, and *BRUH*, take the lead, followed closely by *XE*, *IT*, *ZE*, foreign pronouns, *FAE*, *ANY*, and, ultimately, *EY*. Despite this diversity, all neopronouns collectively constitute only five percent of the entire set of NB pronouns in our dataset (Table 9). This observation suggests that the path paved by feminists in the non-sexist language reform has predominantly favored the acceptance of singular *THEY*, a usage that has persisted since medieval times.

The prevalence of *THEY*, however, coexists with the utilization of (binary) gendered pronouns (*HE* and/or *SHE*), collectively appearing on 1,254 occasions (RQ2) within the

context of rolling pronouns. This co-occurrence suggests a transitional phase for some individuals, as tentatively interpreted in line with McGlashan and Fitzpatrick (2018: 9) and Jiang *et al.* (2022).

The distinction between rolling pronouns and monoproneouns significantly influences the presence of inflectional forms beyond the nominative (RQ3). While rolling pronouns predominantly manifest in the nominative form in 90 percent of instances, monoproneouns exhibit an oblique form 98 percent of the times. This discrepancy is interpreted as a consequence of the formulaic nature of the nominative/oblique form of the pronoun, showcasing a conventionalized way of expressing one's identity.

The political traditions of the cities where the *X* users reside (RQ4) has proven to be a non-significant factor in explaining the variation among NB pronouns. This uniform behavior exhibited by *X* users, irrespective of territorial factors, is attributed to the difference-erasing role of social networks. Profiles tend to conform more with the globalized nature of the internet than with specific geographical neighbors.

Addressing RQ5, our work reveals a remarkable correlation between the presence of NB pronouns and lexical keywords related to gender and sexuality on one hand, and political activism on the other. This correlation suggests that individuals on the social network utilize NB pronouns as part of a broader strategy for activist purposes, aligning with a trend to increase visibility and assert their rights as citizens.

In conclusion, the comprehensive analysis of NB pronoun usage on *X* offers valuable insights into the intricate connections between language, identity, and online dynamics. The dominance of THEY, the emergence of rolling pronouns users, and the challenges faced by neopronouns underscore the nuanced nature of gender identity expression in digital spaces. Our study is subject to certain limitations, including the restricted sample size of *X* accounts examined, the potential bias introduced by *Followerwonk*, and the focus solely on US-based accounts. Consequently, it is important to refrain from interpreting our findings as indicative of the global English-speaking community's perspectives on *X*. Instead, they should be regarded as a gateway to further exploration of online spaces. Thus, other avenues should be explored, like the intersectionality of gender identity, political expressions, and linguistic choices, providing a rich foundation for future research within the LGBTQI+ community.

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