Transgressing the binary: A computational sociolinguistic approach to gendered language practices

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Gendered language practices and the pronominal system of English

Novel Twitter celebrity corpus enables large-scale understanding of these practices

Results from computational analysis locate rates of affirming name and pronoun usage

Disparity in affirming usage rates explained through linguistic aspects of cisnormativity
Background
Gender as a dialogic construction

• Precept of gender self-determination (Ackerman 2019; Zimman 2014)

• Gender is also performed and interpreted (Butler 1990)
  • Thus, gender identity is a dialogic construction (Bucholtz & Hall 2004)

• Behavioral and linguistic mechanisms by which gender is ratified/rejected

• Across the world, languages are changing to account for transgender and nonbinary lived experiences (Sendén et al. 2015, Hord 2016, Borba 2019, Kosnick 2019)
Creation of cisnormativity

• **Cisnormativity** centers a rigid gender binary (Borba & Milani 2017)
  • Like other ideologies, it’s both produced and productive (Gal & Irvine 2019)

• Under cisnormativity, transgender identities must be erased or explained away
  • To maintain sex-gender correspondence, coherence, and stability (Ericsson 2018)

• Recent work has begun to explore how cisnormativity is enforced (and subverted) through language practices (Zimman 2017)
Harmful language practices

- Third-person pronominal **misgendering** (Conrod 2019)
  - Misgendering trans TV character associated with implicit attitudes (Conrod 2018b)
  - More negative sentiment in Tweets misgendering Chelsea Manning (Conrod 2017)

- **Deadnaming** is the use of a transgender person’s former name – often, one given to them at moment of sex assignment at birth (Sinclair-Palm 2017)
  - Deadnaming comments on Urban Dictionary focused on Caitlyn Jenner’s anatomical features and characterized her using binary gender terms (Turton 2021)
Inspecting cisnormativity

• Proper name and third-person pronoun specification are among the first acts of linguistic self-determination trans individuals make (Konnelly & Cowper 2020)

• Misgendering and deadnaming function to perpetuate cisnormativity
  • Lead to negative mental health outcomes (McLemore 2015; Olson et al. 2016)

• Research on these practices is extremely recent (Conrod 2020; Turton 2021)
Pronouns enmeshed

• Rapidly changing gender notions are pushing us towards new pronominal organization to accommodate for singular they (Konnelly & Cowper 2020)
  • Nonbinary they to represent nonbinary identities (Conrod 2019, Hekanaho 2020)

• Negative attitudes towards they predicted by:
  • Sexist and transphobic attitudes (Bradley 2020; Hekanaho 2020)
  • Prescriptivist ‘grammarian’ ideologies (Hernandez 2020; Bradley 2020)

• Positive attitudes towards they predicted by:
  • Younger age (Conrod 2019; Camilliere et al. 2021)
  • Transgender identity/experience (Konnelly & Cowper 2020)
Methods
Present Study

**RQ 1:** Does the uptake of gender-affirming pronouns differ by listed pronoun suite? How do documented coming-out events mediate the uptake of affirming (pro)nominals?

**RQ 2:** Do potential disparities in affirming pronoun and proper name usage between groups co-occur with socio-lexical patterns?

- Computational analysis of social media corpus: 7m tweets discussing...
  - Two trans celebrities who use binary pronouns - **trans-binary** group
  - Two nonbinary trans celebrities who use nonbinary *they* - **trans-nonbinary** group
  - Three celebrities who use binary pronouns with no COE - **comparison** group
# Data set celebrities

<table>
<thead>
<tr>
<th>Name</th>
<th>Pronouns</th>
<th>Gender Identity</th>
<th>Nationality</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam Smith</td>
<td>they/them</td>
<td>Nonbinary</td>
<td>British singer</td>
<td>66 weeks</td>
</tr>
<tr>
<td>Demi Lovato</td>
<td>they/them</td>
<td>Nonbinary</td>
<td>American singer</td>
<td>66 weeks</td>
</tr>
<tr>
<td>Caitlyn Jenner</td>
<td>she/her</td>
<td>Trans woman</td>
<td>American athlete</td>
<td>72 weeks</td>
</tr>
<tr>
<td>Elliot Page</td>
<td>he/they</td>
<td>Trans masculine</td>
<td>Canadian actor</td>
<td>66 weeks</td>
</tr>
<tr>
<td>Doja Cat</td>
<td>she/her</td>
<td>Cis woman</td>
<td>American rapper</td>
<td>27 weeks</td>
</tr>
<tr>
<td>Laverne Cox</td>
<td>she/her</td>
<td>Trans woman</td>
<td>American actress</td>
<td>103 weeks</td>
</tr>
<tr>
<td>Tom Holland</td>
<td>he/him</td>
<td>Cis man</td>
<td>British actor</td>
<td>27 weeks</td>
</tr>
</tbody>
</table>

6/3/22

Senko
Methods

• Tweets scraped using Twitter API v2 in Python between Dec 2021-March 2022

• Tweets pre-processed and submitted to extensive filtering process
  • Standardized across celebrity through token replacement

• For each tweet, I determined...
  • Affirming name and pronoun usage rate
  • Presence of listed pronouns or trans/LGBTQ+ pride flag in Twitter bio/location
  • Presence of lemmas from eight lexical categories
NAME pilot lexical associations

• Binary classifier (DEADNAME/AFFIRM) against general prior (Monroe et al. 2008)

• Hundreds of significant lexical correlations

• DEADNAME correlated with...
  • (dead) Twitter handle; binary gender, sex terms; humor (lol, 😂, 😄)

• NAME-AFFIRM correlated with...
  • General celebrity discussion; transgender identity terms

• These results serve as the basis for eight lexical category measures
Lexical categories

Transgender identity (12) – transgender, nonbinary, trans...
Binary gender (11) – woman, dude, female...
Gender/sex (3) – gender, gendered, sex
LGBTQ+ (7) – queer, lgbt, sexuality...
Coming-out event (17) – announce, transition, identify...
Biological essentialism (21) – chromosome, mutilate, implants...
Hate speech (13) – disorder, crazy, illness...
Pride/support (16) – pride, amazing, congratulation...
Filtering process

1. **DUP** Remove tweet if duplicate written by same author.
2. **NAME** Remove tweet if it does not contain (dead)name or (dead)handle
3. **PRON** Remove tweet if it does not contain third-person pronouns
4. **COREF** Remove tweet if it contains coreferential dependencies between a third-person pronoun and something that is NOT a celebrity token
5. **ALTENT** Remove tweet if it contains a proper name flagged by SpaCy named-entity-recognizer or in ‘alternate entity’ list compiled by hand
6. **ALTHAND** Remove tweet if contains a Twitter handle that is not a celebrity account handle

<table>
<thead>
<tr>
<th>Celebrity</th>
<th>Total Tweets</th>
<th>F1: DUP</th>
<th>F2: NAME</th>
<th>F3: PRON</th>
<th>F4: COREF</th>
<th>F5: ALTENT</th>
<th>F6: ALTHAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elliot Page</td>
<td>267,027</td>
<td>263,666</td>
<td>253,842</td>
<td>76,217</td>
<td>42,683</td>
<td>37,843</td>
<td>22,619</td>
</tr>
<tr>
<td>Sam Smith</td>
<td>601,835</td>
<td>523,171</td>
<td>509,644</td>
<td>83,278</td>
<td>51,461</td>
<td>43,641</td>
<td>26,619</td>
</tr>
<tr>
<td>Demi Lovato</td>
<td>1,188,029</td>
<td>933,103</td>
<td>892,300</td>
<td>161,624</td>
<td>105,751</td>
<td>88,125</td>
<td>50,513</td>
</tr>
<tr>
<td>Caitlyn Jenner</td>
<td>2,613,733</td>
<td>2,452,601</td>
<td>2,250,303</td>
<td>547,483</td>
<td>409,054</td>
<td>320,698</td>
<td>293,513</td>
</tr>
<tr>
<td>Laverne Cox</td>
<td>252,725</td>
<td>238,466</td>
<td>218,372</td>
<td>30,207</td>
<td>23,667</td>
<td>20,026</td>
<td>17,221</td>
</tr>
<tr>
<td>Tom Holland</td>
<td>557,482</td>
<td>531,435</td>
<td>504,546</td>
<td>112,417</td>
<td>76,088</td>
<td>49,081</td>
<td>32,472</td>
</tr>
<tr>
<td>Doja Cat</td>
<td>1,585,396</td>
<td>1,498,778</td>
<td>1,365,809</td>
<td>264,372</td>
<td>170,071</td>
<td>149,071</td>
<td>84,201</td>
</tr>
</tbody>
</table>
Results & Discussion
Affirming Name Uptake across Weeks

- Jenner (POST)
  - Mean: **80.63%**
  - SD: 0.056

- Page (POST)
  - Mean: **84.3%**
  - SD: 0.041

- Deadnaming is statistically stationary post-COE
Name Regression Results

• Name-affirming tweets significantly predicted by...
  • **Affirming pronominal usage** ($\beta=1.177$, $p \leq 0.001$)
  • Presence of **listed pronouns** in tweet author’s bio/location ($\beta=1.936$, $p \leq 0.001$)
  • Presence of **pride flags(s)** in tweet author’s bio/location ($\beta=0.825$, $p \leq 0.001$)
  • **Greater follower** count ($\beta=0.217$, $p \leq 0.01$)
  • **Transgender identity** terms ($\beta=0.709$, $p \leq 0.001$)

• Deadnaming tweets significantly predicted by...
  • **Hate speech** terms ($\beta=-0.912$, $p \leq 0.001$)
  • **Binary gender** terms ($\beta=-0.739$, $p \leq 0.001$)
  • **Gender/sex** terms ($\beta=-0.37$, $p \leq 0.001$)
  • **Biological essentialism** terms ($\beta=-0.234$, $p \leq 0.01$)
Affirming Pronoun Usage Rate by Week

- **Trans-nonbinary (POST)**
  - Mean: 54.31%
  - SD: 0.086

- **Trans-binary (POST)**
  - Mean: 77.82%
  - SD: 0.074

- **Comparison**
  - Mean: 94.12%
  - Cisgender-SD: 0.028
  - Cox-SD: 0.063
Affirming Pronoun Uptake across Weeks

• Results from ADF tests indicate that uptake happens **immediately**

• No effect of time PRE- or POST-COE when looking at days
Pronoun Regression Results I

- For target groups, **misgendering** tweets significantly predicted by...
  - **Binary gender** terms (T-B: $\beta=-0.728$, $p\leq0.001$; T-NB: $\beta=-0.932$, $p\leq0.001$)
  - **Hate speech** terms (T-B: $\beta=-0.54$, $p\leq0.001$; T-NB: $\beta=-0.488$, $p\leq0.001$)
  - **Biological essentialism** terms (T-B: $\beta=-0.623$, $p\leq0.001$; T-NB: $\beta=-0.426$, $p\leq0.001$)

- For target groups, **gender-affirming tweets** significantly predicted by...
  - **Pronouns** in bio (T-B: $\beta=1.104$, $p\leq0.001$; T-NB: $\beta=1.295$, $p\leq0.001$)
  - **Pride/support** terms (T-B: $\beta=0.913$, $p\leq0.001$; T-NB: $\beta=0.157$, $p\leq0.001$)
  - **COE terms** (T-B: $\beta=0.546$, $p\leq0.001$; T-NB: $\beta=0.374$, $p\leq0.001$)
  - **Flag(s) in bio** (T-B: $\beta=0.631$, $p\leq0.05$; T-NB: $\beta=0.274$, $p\leq0.01$)
Pronoun Regression Results II

- Much larger effect of transgender terms for trans-nonbinary group
  - T-NB: ($\beta=1.455$, $p \leq 0.001$)
  - T-B: ($\beta=0.433$, $p \leq 0.001$)
  - Cox: ($\beta=0.411$, $p \leq 0.05$)

- Gender/sex terms predict gender-affirming for trans-nonbinary group but misgendering tweets for trans-binary group
  - T-NB: ($\beta=0.402$, $p \leq 0.001$)
  - T-B: ($\beta=-0.901$, $p \leq 0.001$)
Overview of Results I

**RQ 1:** Does the uptake of gender-affirming pronouns differ by listed pronoun suite? How do documented coming-out events mediate the uptake of affirming (pro)nominals?

- Disparity between analysis groups: T-NB **54.3%**, T-B **77.8%**, COMP **94.1%**

- Following a coming-out event (COE), affirming pronoun and proper name uptake happens *immediately* and remains *stable*
RQ 2: Do potential disparities in affirming pronoun and proper name usage between groups co-occur with socio-lexical patterns?

- Affirming usage predicted by pronouns/pride flags in bio; transgender, coming-out event, and pride/support terms

- Misgendering/deadnaming predicted by binary gender, biological essentialism, and hate speech terms

- Differences observed between T-NB and T-B groups for gender term valence and transgender term effect size
Discussion

• Patterns of deadnaming and misgendering co-occur with linguistic aspects of cisnormativity (Hornscheidt 2015; Borba & Milani 2017; Ericsson 2018, 2021)
  • Binary gender: *all individuals can be classified using man-woman binary*
  • Hate speech: *to fit ideological schema, trans identities must be erased*
  • Biological essentialism: *man-woman strictly corresponds to male-female sex*

• Cisnormativity as driving force behind disparities in users’ gender-affirming pronoun and name usage surrounding these celebrities
Thank you!

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QP Fest 2022
Works referenced I


Camilliere, S., Izes, A., Leventhal, O., & Grodner, D. J. (2021). They is changing: Pragmatic and grammatical factors that license singular they. In *Proceedings of the annual meeting of the cognitive science society* (p. 1542-1548).


Works referenced II


Discussion II

- Uptake of affirming (pro)nominals happens immediately and remains stable

- **Deadnaming** emerges as a **prevalent** and **targeted** discursive practice that is highly correlated with **hate speech** and **binary gender** terms
  - Cisnormative users interpret transness as violation of gender-sex correspondence

- **Pronominal misgendering** exhibits **similar lexical associations** for transgender celebrities but occurs at **varying rates** by **listed pronoun suite**
  - Compared to *she/he*, nonbinary *they* is blocked in production (Arnold et al. 2022)
    - *They* usage more dependent on explicit discussion of (trans)gender identity
  - Lexical patterns suggest social/ideological factors are motivating users along three-stage change in the English pronominal system (Konnelly & Cowper 2020)
  - Misgendering is correlated with lexical terms aligned with aspects of cisnormativity
  - Majority of users in subset remain at Stage 2, but this appears to be changing
Discussion I

**Sam Smith**
they/them  
COE: 9/13/19

- Pron: 45.72%  
- VADER: 0.015

**Demi Lovato**
they/them  
COE: 5/19/21

- Pron: 62.9%  
- VADER: 0.216

**Elliot Page**
he/they  
COE: 12/1/20

- Pron: 85.59%  
- P-VADER: 0.325
- Name: 84.3%  
- N-VADER: 0.227

**Caitlyn Jenner**
she/her  
COE: 6/1/15

- Pron: 85.59%  
- P-VADER: 0.115
- Name: 80.63%  
- N-VADER: 0.115

~2 yrs  
~5 yrs
Significant Pronoun Regression Effects

- + more likely to affirm
- - more likely to misgender
- All effects are binary

![Graph showing regression effects for various variables like prons_bio, flag_bio, trans_lex, binary_lex, gender_lex, lgbtq_lex, coe_lex, bio_lex, hate_lex, and pride_lex. The graph includes estimates ranging from -1 to 1, with different colors representing different groups like trans-nonbinary, trans-binary, comp-cox, and comp-cisgender.](image)
VADER Sentiment Analysis

• VADER is a lexicon- and rule-based sentiment analysis tool
  • Designed for social media text

• Trans-nonbinary (POST)
  • Smith: 0.015
  • Lovato: 0.216

• Trans-binary (POST)
  • Jenner: 0.161
  • Page: 0.325

• Comparison
  • Cis: 0.084
  • Cox: 0.107

<table>
<thead>
<tr>
<th>Celebrity</th>
<th>PRE</th>
<th>PRON-AFFIRM</th>
<th>MISGENDER</th>
<th>DISCREPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans-nonbinary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smith</td>
<td>0.2928862</td>
<td>0.2272077</td>
<td>0.2123156</td>
<td>0.0148921</td>
</tr>
<tr>
<td>Lovato</td>
<td>0.1510316</td>
<td>0.2426199</td>
<td>0.02633819</td>
<td>0.21628171</td>
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<tr>
<td>Average</td>
<td>0.2219589</td>
<td>0.2349138</td>
<td>0.119326895</td>
<td>0.115586905</td>
</tr>
<tr>
<td>Trans-binary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jenner</td>
<td>0.2130364</td>
<td>0.2760341</td>
<td>0.1148471</td>
<td>0.161187</td>
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<td>Page</td>
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<td>0.298241375</td>
<td>0.1188066225</td>
<td>0.1794347525</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Celebrity</th>
<th>PRON-AFFIRM</th>
<th>MISGENDER</th>
<th>DISCREPANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transgender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox</td>
<td>0.4609984</td>
<td>0.3538285</td>
<td>0.1071699</td>
</tr>
<tr>
<td>Cisgender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doja</td>
<td>0.2106753</td>
<td>0.122494</td>
<td>0.0881813</td>
</tr>
<tr>
<td>Holland</td>
<td>0.2287218</td>
<td>0.1480358</td>
<td>0.080686</td>
</tr>
<tr>
<td>Average</td>
<td>0.21969855</td>
<td>0.1352649</td>
<td>0.08443365</td>
</tr>
<tr>
<td>Total Average</td>
<td>0.3001318333</td>
<td>0.2081194333</td>
<td>0.0920124</td>
</tr>
</tbody>
</table>
NAME fightin’ words results

- Binary classifier against general prior (Monroe et al. 2008)
- DEADNAME correlated with...
  - (dead) Twitter handle
  - Binary gender, sex terms
  - Humor (lol, 😂, 🤣)
- NAME-AFFIRM correlated with...
  - General celebrity discussion
  - Vanity Fair, TV shows, etc.
  - Transgender terms
- These results serve as the basis for lexical category measures
Transgender identity terms
  transgender, trans, pronoun, non, binary, nonbinary, misgender, misgendere, misgendering, enby, nb, transphobic

Binary gender terms
  woman, girl, male, female, man, boy, masculine, feminine, dude, chick, guy

Gender/sex terms
  gender, gendered, sex

LGBTQ+ terms
  straight, lesbian, gay, sexuality, lgbt, lgbtq, queer

Coming-out event terms
  come, out, revealing, reveal, announce, journey, formerly, transition, change, declare, identifie, identify, unveil, identity, embrace, introduce, news

Biological essentialism terms
  science, biological, surgeon, surgery, chest, penis, ball, pussy, tit, dick, chromosome, implants, vagina, implant, boob, breast, tuck, surgically, mutilate, remove, operation

Hate speech terms
  faggot, illness, psychotic, mental, delusional, crazy, tranny, bizarre, fag, disorder, disgusting, transvestite, bitch

Pride and support terms
  proud, pride, support, happy, joy, celebrate, beautiful, gorgeous, amazing, love, happy, congrat, congratulation, equality, confidence, respect
Introduction

• As ideas about gender change, so too does language
  • Specifically, the components of language that encode gender features

• Ongoing gender-inclusive language reforms in English
  • Entered English mainstream in last decade – ‘transgender moment’ (Zimman 2020)
  • Changes in pronoun and practice

• Present study utilizes computational methods to provide large-scale data identifying the distribution and lexical content of (pro)nominal usage on Twitter
Gender and English

• Proper names, nouns, and lexical items can carry gender information and/or features in English (Corbett 1991) through notional gender (McConnell-Ginet 2014)

• Gender notions are shifting as part of ‘transgender moment’ (Zimman 2020)

• In English, we observe changes in practice and pronouns
  • Listing of pronouns as part of introductions or on social media profiles (Jones 2021)
  • Shift in the scope of they (Conrod 2019) represents most recent in long line of changes in English pronominal system (Bodine 1975; Silverstein 1985)
Full lexical categories

Transgender identity terms
  transgender, trans, pronoun, non, binary, nonbinary, misgender, misgendere, misgendering, enby, nb, transphobic

Binary gender terms
  woman, girl, male, female, man, boy, masculine, feminine, dude, chick, guy

Gender/sex terms
  gender, gendered, sex

LGBTQ+ terms
  straight, lesbian, gay, sexuality, lgbt, lgbtq, queer

Coming-out event terms
  come, out, revealing, reveal, announce, journey, formerly, transition, change, declare, identifie, identify, unveil, identity, embrace, introduce, news

Biological essentialism terms
  science, biological, surgeon, surgery, chest, penis, ball, pussy, tit, dick, chromosome, implants, vagina, implant, boob, breast, tuck, surgically, mutilate, remove, operation

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  faggot, illness, psychotic, mental, delusional, crazy, tranny, bizarre, fag, disorder, disgusting, transvestite, bitch

Pride and support terms
  proud, pride, support, happy, joy, celebrate, beautiful, gorgeous, amazing, love, happy, congrat, congratulation, equality, confidence, respect
Cross-linguistic evidence

• Nonbinary / gender-unmarked ‘TA’ in written Mandarin (Sluchinsky 2019)
• Use of _ as gender-inclusive morpheme in Slovene (Popič & Gorjanc 2018)
• Arrival of neopronoun *hen* in Swedish in the early 2010s (Sendén et al. 2015)
  • Both as a generic (epicene) and a way to represent nonbinary identities
  • Rapid change in attitude towards *hen* over 3-year span: 2012-2015
    • However, uptake in usage consistently lagged behind attitudes
• Innovations are often met with ideological opposition (Hord 2016)
  • X morpheme in Brazilian Portuguese incited ‘linguistic guerilla war’ (Borba 2019)
  • Militaristic response of grammarians towards *écriture inclusive* (Kosnick 2019)
**Terminology**

**Biosocial gender:** individual’s internal experience of gender (Ackerman 2019)

**Gender expression:** appearance and behavior in relation to gendered material

**Conceptual gender:** others’ gender that is interpreted and then assigned

**Gender identity:** individual’s sense of self, given alignment of above three

**Misgendering:** use of third-person pronoun that does not align with referent’s asserted pronoun suite (Conrod 2019)

**Deadnaming:** use of a proper name that is the former, dead name of a transgender individual – one often assigned at birth (Turton 2021)

**Listing pronouns:** act of conveying one’s pronoun suite for uptake by others

**Coming-out event (COE):** moment of declaration by the trans celebrities in this study that aligns biosocial gender and gender identity (Zimman 2009)
Filtering effectiveness – precision vs. recall

- Max precision: data set consists **only** of tweets which contain pronouns that actually refer to celebrity under analysis
- Max recall: data set consists of **all** tweets which contain pronouns that actually refer to celebrity under analysis

<table>
<thead>
<tr>
<th>Celebrity Group</th>
<th>COREF over PRON</th>
<th>ALTENT over COREF</th>
<th>ALTHAND over ALTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comparison</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox</td>
<td>6.09%</td>
<td>1.64%</td>
<td>2.12%</td>
</tr>
<tr>
<td>Holland</td>
<td>5.95%</td>
<td>10.91%</td>
<td>4.36%</td>
</tr>
<tr>
<td>Doja</td>
<td>6.49%</td>
<td>1.84%</td>
<td>5.21%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>6.18%</strong></td>
<td><strong>4.80%</strong></td>
<td><strong>3.90%</strong></td>
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<td>Target, Pre</td>
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<td></td>
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</tr>
<tr>
<td>Jenner</td>
<td>-39.79%</td>
<td>-25.57%</td>
<td>-5.92%</td>
</tr>
<tr>
<td>Page</td>
<td>-20.76%</td>
<td>-11.04%</td>
<td>-16.19%</td>
</tr>
<tr>
<td>Smith</td>
<td>-12.86%</td>
<td>-10.70%</td>
<td>-16.07%</td>
</tr>
<tr>
<td>Lovato</td>
<td>-20.15%</td>
<td>-8.28%</td>
<td>-3.69%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>-23.39%</strong></td>
<td><strong>-13.90%</strong></td>
<td><strong>-10.47%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pronouns</th>
<th>AFFIRM-RATE</th>
<th>ALT-RATE</th>
<th>THEY-RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cox</strong></td>
<td><em>she/her</em></td>
<td>0.837</td>
<td>0.043</td>
</tr>
<tr>
<td><strong>Doja</strong></td>
<td><em>she/her</em></td>
<td>0.747</td>
<td>0.063</td>
</tr>
<tr>
<td><strong>Holland</strong></td>
<td><em>he/him</em></td>
<td>0.781</td>
<td>0.049</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>0.788</strong></td>
<td><strong>0.052</strong></td>
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</tbody>
</table>
Results I

• **NAME** results indicate that deadnaming occurs in around **17.5%** of tweets post-COE

• **PRONOUN** results indicate that Twitter users pronominally affirm the gender identities of the **comparison group** at the highest rate (**94.12%**)
  • Users affirm the **trans-nonbinary group** at about half the rate (**54.31%**)
  • The **trans-binary group** falls in-between (**77.82%**)

• **Misgendering/deadnaming** tweets significantly correlated ($p<0.05$) with hate speech, biological essentialism, and **binary gender** terms

• **Gender-affirming** tweets significantly correlated ($p<0.05$) with **listed pronouns, pride flags, transgender terms, and COE terms**
## Interrelated misgendering and deadnaming

<table>
<thead>
<tr>
<th></th>
<th>Mean affirming name rate</th>
<th></th>
<th>Mean affirming pronoun rate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pr-Aff</td>
<td>Pr-Mix</td>
<td>Pr-Mis</td>
<td>N-Aff</td>
</tr>
<tr>
<td>Jenner</td>
<td>0.9182809</td>
<td>0.5605776</td>
<td>0.3199732</td>
<td>0.8937198</td>
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<tr>
<td>Page</td>
<td>0.9560607</td>
<td>0.6942159</td>
<td>0.3768535</td>
<td>0.9642512</td>
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<tr>
<td><strong>Average</strong></td>
<td><strong>0.9371708</strong></td>
<td><strong>0.62739675</strong></td>
<td><strong>0.34841335</strong></td>
<td><strong>0.9289855</strong></td>
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</tbody>
</table>