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

Michael Senko
Northwestern University
QP Fest 2022

Agenda

- 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

Sam Smith
they/them
Nonbinary
British singer
66 weeks

Demi Lovato
they/them
Nonbinary
American singer
66 weeks

Caitlyn Jenner
she/her
Trans woman
American athlete
72 weeks

Elliot Page
he/they
Trans masculine
Canadian actor
66 weeks

Doja Cat
she/her
Cis woman
American rapper
27 weeks

Laverne Cox
she/her
Trans woman
American actress
103 weeks

Tom Holland
he/him
Cis man
British actor
27 weeks

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

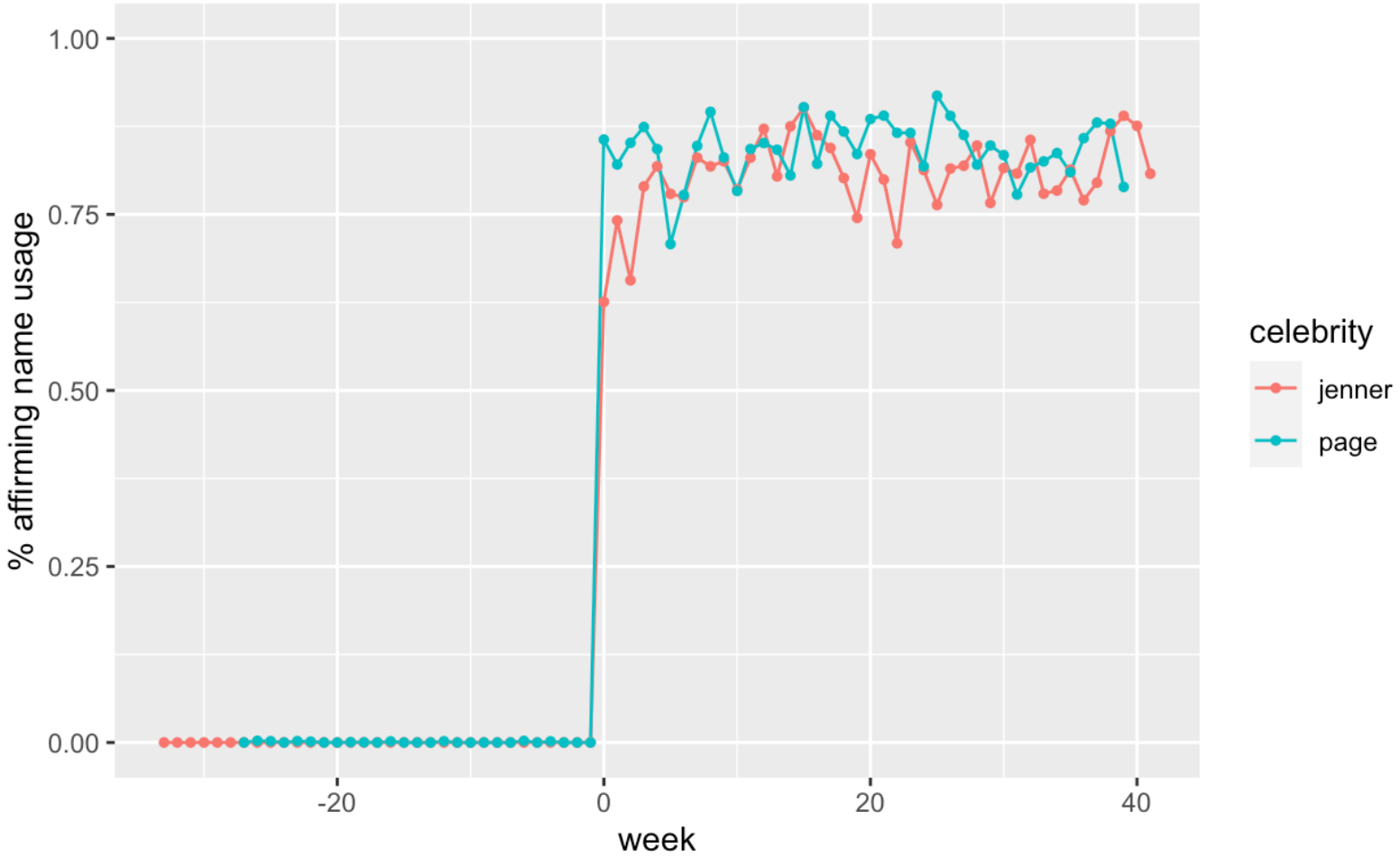
1. **DUP** Remove tweet if duplicate written by same author.
2. **NAME** Remove tweet if it does not contain (dead)name or (dead)handle
3. **PRON** Remove tweet if it does not contain third-person pronouns
4. **COREF** Remove tweet if it contains coreferential dependencies between a third-person pronoun 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

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

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



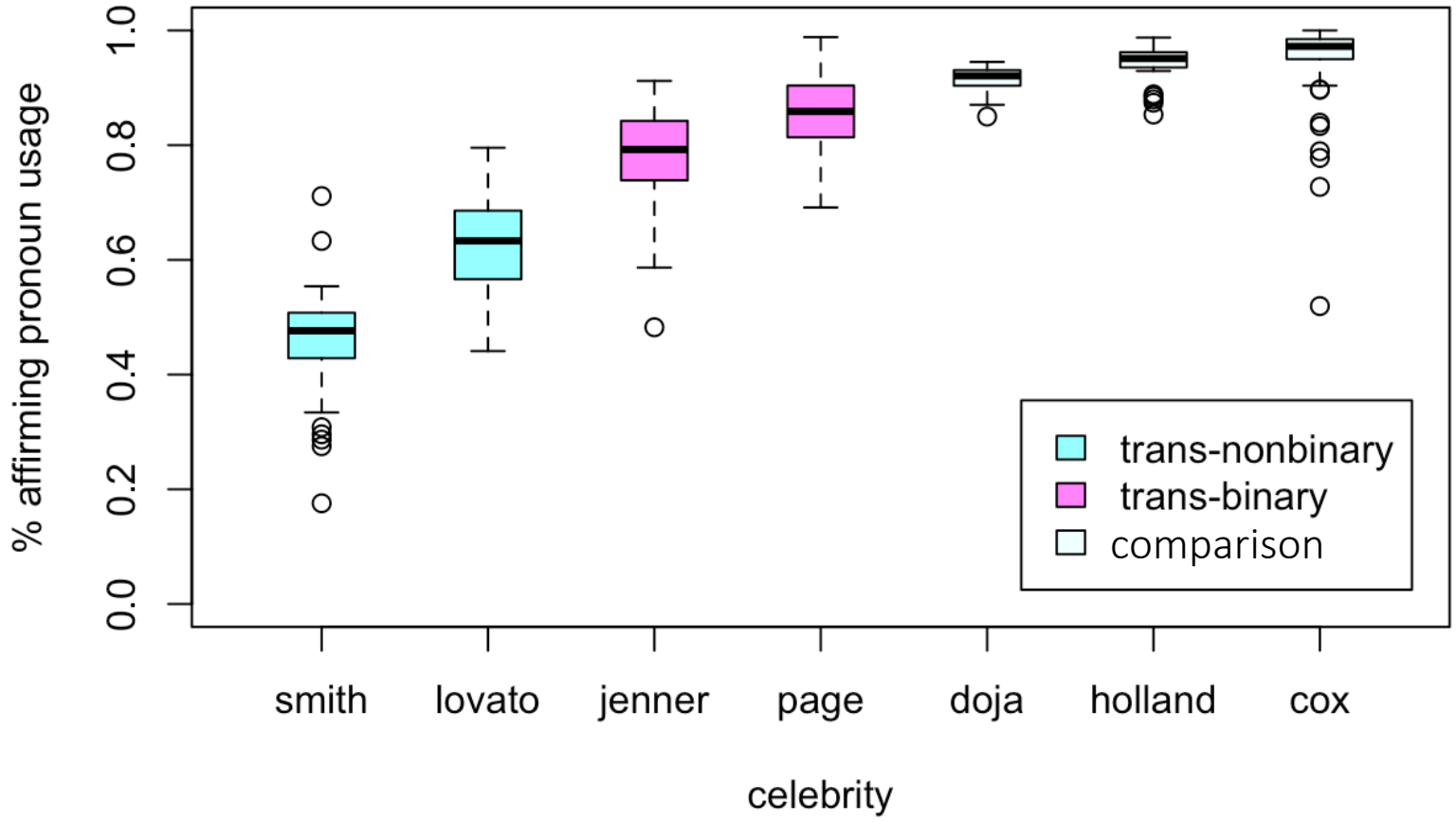
Name Regression Results

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

- Deadnaming tweets significantly predicted by…
  - **Hate speech** terms (β=-0.912, $p \leq 0.001$)
  - **Binary gender** terms (β=-0.739, $p \leq 0.001$)
  - **Gender/sex** terms (β=-0.37, $p \leq 0.001$)
  - **Biological essentialism** terms (β=-0.234, $p \leq 0.01$)

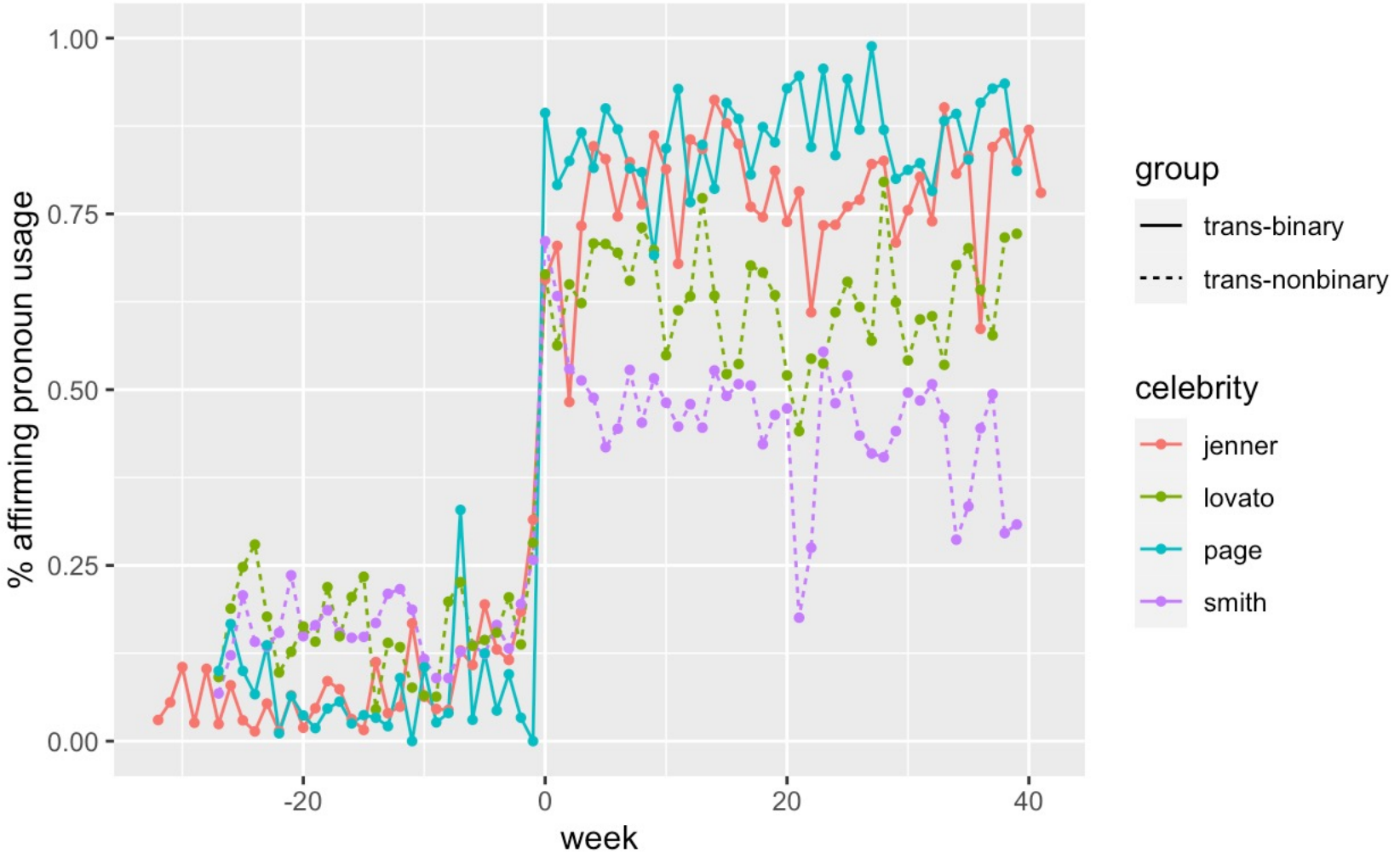
Affirming Pronoun Usage Rate by Week

- 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: β=-0.728, $p \leq 0.001$; T-NB: β=-0.932, $p \leq 0.001$)
  - **Hate speech** terms (T-B: β=-0.54, $p \leq 0.001$; T-NB: β=-0.488, $p \leq 0.001$)
  - **Biological essentialism** terms (T-B: β=-0.623, $p \leq 0.001$; T-NB: β=-0.426, $p \leq 0.001$)

- For target groups, **gender-affirming tweets** significantly predicted by…
  - **Pronouns** in bio (T-B: β=1.104, $p \leq 0.001$; T-NB: β=1.295, $p \leq 0.001$)
  - **Pride/support** terms (T-B: β=0.913, $p \leq 0.001$; T-NB: β=0.157, $p \leq 0.001$
  - **COE terms** (T-B: β=0.546, $p \leq 0.001$; T-NB: β=0.374, $p \leq 0.001$)
  - **Flag(s) in bio** (T-B: β=0.631, $p \leq 0.05$; T-NB: β=0.274, $p \leq 0.01$)

Pronoun Regression Results II

- Much **larger effect of transgender terms for trans-nonbinary** group
  - T-NB: (**β=1.455**, $p \leq 0.001$)
  - T-B: (**β=0.433**, $p \leq 0.001$)
  - Cox: (β=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: (**β=0.402**, $p \leq 0.001$)
  - T-B: (**β=-.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**

Overview of Results II

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!

Michael Senko
Northwestern University
QP Fest 2022

Works referenced I

Ackerman, L. (2018). *Our words matter: acceptability, grammaticality, and ethics of re- search on singular 'they'-type pronouns* (Unpublished doctoral dissertation). Newcastle University.

Ackerman, L. (2019). Syntactic and cognitive issues in investigating gendered coreference. *Glossa*, *4*, 1-27.

Bodine, A. (1975). Androcentrism in prescriptive grammar: singular 'they', sex-indefinite 'he', and 'he or she". *Language in Society*, *4*, 129-175.

Borba, R. (2019). Gendered politics of enmity: Language ideologies and social polarisation in brazil. *Gender and Language*, *13*, 423-448.

Borba, R., & Milani, T. M. (2017). The banality of evil: Crystallised structures of cisnormativity and tactics of resistance in a brazilian gender clinic. *Journal of Language and Discrimination*, *1*, 7-33.

Bradley, E. D. (2020, 3). The influence of linguistic and social attitudes on grammaticality judgments of singular 'they'. *Language Sciences*, *78*.

Bucholtz, M., & Hall, K. (2004). Theorizing identity in language and sexuality research. *Language in society*, *33*(4), 469–515.

Butler, J. (1990). *Gender trouble*. Routledge.

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).

Conrod, K. (2017). Names before pronouns: Variation in pronominal reference and gender. In *Northwest linguistics conference, university of british columbia.*

Conrod, K. (2018b, 10). Pronouns and misgendering. In *New ways of analyzing variation.*

Conrod, K. (2019). *Pronouns raising and emerging* (Unpublished doctoral dissertation). University of Washington.

Conrod, K. (2020). Pronouns and gender in language. In K. Hall & R. Barrett (Eds.), Oxford University Press.

Corbett, G. G. (1991). *Gender*. Cambridge University Press.

Ericsson, S. (2018). The language of cisnormativity: Children and parents in interaction with a multimodal app. *Gender and Language*, *12*, 139-167.

Gal, S., & Irvine, J. T. (2019). *Signs of difference: Language and ideology in social life*. Cambridge University Press.

Hekanaho, L. (2020). *Generic and nonbinary pronouns: Usage acceptability and attitudes* (Unpublished doctoral dissertation). University of Helsinki.

Hernandez, E. E. (2020). *Pronouns, prescriptivism, and prejudice: Attitudes toward the singular 'they', prescriptive grammar, and nonbinary transgender people* (Unpublished master's thesis). Purdue University.

Hord, L. C. R. (2016). Bucking the linguistic binary: Gender neutral language in english, swedish, french, and german. *Proceedings of Western Interdisciplinary Student Symposium on Language Research*, *3*.

Hutto, C. J., & Gilbert, E. (2014). Vader: A parsimonious rule-based model for sentiment analysis of social media text. In *Proceedings of the eighth international aaai conference on weblogs and social media* (p. 216-225).

Works referenced II

Jones, J. J. (2021). A dataset for the study of identity at scale: Annual prevalence of american twitter users with specified token in their profile bio 2015–2020. *PloS one*, *16*(11), e0260185.

Konnelly, L., & Cowper, E. (2020). Gender diversity and morphosyntax: An account of singular they. *Glossa*, *5*, 1-19.

Kosnick, K. (2019). The everyday poetics of gender-inclusive french: Strategies for navigating the linguistic landscape. *Modern and Contemporary France*, *27*, 147-161.

Koyama, E. (2003). The transfeminist manifesto. In R. Dicker & A. Piepmeier (Eds.), (p. 244-259). Northeastern University Press.

Lascotte, D. K. (2016, 2). Singular they: An empirical study of generic pronoun use. *American Speech*, *91*, 62-80.

McConnell-Ginet, S. (2014). Gender and its relation to sex: The myth of 'natural' gender. In G. G. Corbett (Ed.), (Vol. 6, p. 3-39).

McLemore, K. A. (2015, 1). Experiences with misgendering: Identity misclassification of transgender spectrum individuals. *Self and Identity*, *14*, 51-74.

Monroe, B. L., Colaresi, M. P., & Quinn, K. M. (2008). Fightin' words: Lexical feature selec- tion and evaluation for identifying the content of political conflict. *Political Analysis*, *16*, 372-403.

Olson, K. R., Durwood, L., Demeules, M., & McLaughlin, K. A. (2016, 3). Mental health of transgender children who are supported in their identities. *Pediatrics*, *137*.

Popič, D., & Gorjanc, V. (2018). Challenges of adopting gender–inclusive language in slovene. *Suvremena Lingvistika*, *44*, 329-350.

Sendén, M. G., Bäck, E. A., & Lindqvist, A. (2015). Introducing a gender-neutral pronoun in a natural gender language: The influence of time on attitudes and behavior. *Frontiers in Psychology*, *6*.

Sheydaei, I. (2021). Gender identity and nonbinary pronoun use: Exploring reference strategies for referents of unknown gender. *Gender and Language*, *15*, 369-393.

Silverstein, M. (1985). Language and the culture of gender: At the intersection of structure, usage, and ideology. In *Semiotic mediation* (pp. 219–259). Elsevier.

Simpson, L., & Dewaele, J. M. (2019, 3). Self-misgendering among multilingual transgender speakers. *International Journal of the Sociology of Language*, *2019*, 103-128.

Sinclair-Palm, J. (2017). 'it's non-existent': Haunting in trans youth narratives about naming. *Occasional Paper Series*, *2017*, 1-13.

Sluchinski, K. (2019). Genderless narratives: The pragmatics of ta in chinese social media. In *The 2019 annual conference of the canadian linguistic association: 2019 congress of the humanities and social sciences.*

Turton, S. (2021). Deadnaming as disformative utterance: The redefinition of trans woman- hood on urban dictionary. *Gender and Language*, *15*, 42-64.

Zimman, L. (2009). 'the other kind of coming out': Transgender people and the coming out narrative genre. *Gender & Language*, *3*(1).

Zimman, L. (2017). Transgender language reform. *Journal of Language and Discrimination*, *1*, 84-105.

Zimman, L. (2019). Trans self-identification and the language of neoliberal selfhood: Agency, power, and the limits of monologic discourse. *International Journal of the Sociology of Language*, *2019*, 147-175.

Zimman, L. (2020). Transgender language, transgender moment: Toward a trans linguistics. In K. Hall & R. Barrett (Eds.), Oxford University Press.

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

Pron: **62.9%**

VADER: **0.216**

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

~2 yrs

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

Pron: **45.72%**

VADER: **0.015**

Pron: **85.59%**

P-VADER: **0.325**

Name: **84.3%**

N-VADER: **0.227**

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

~5 yrs

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

Pron: **77.82%**

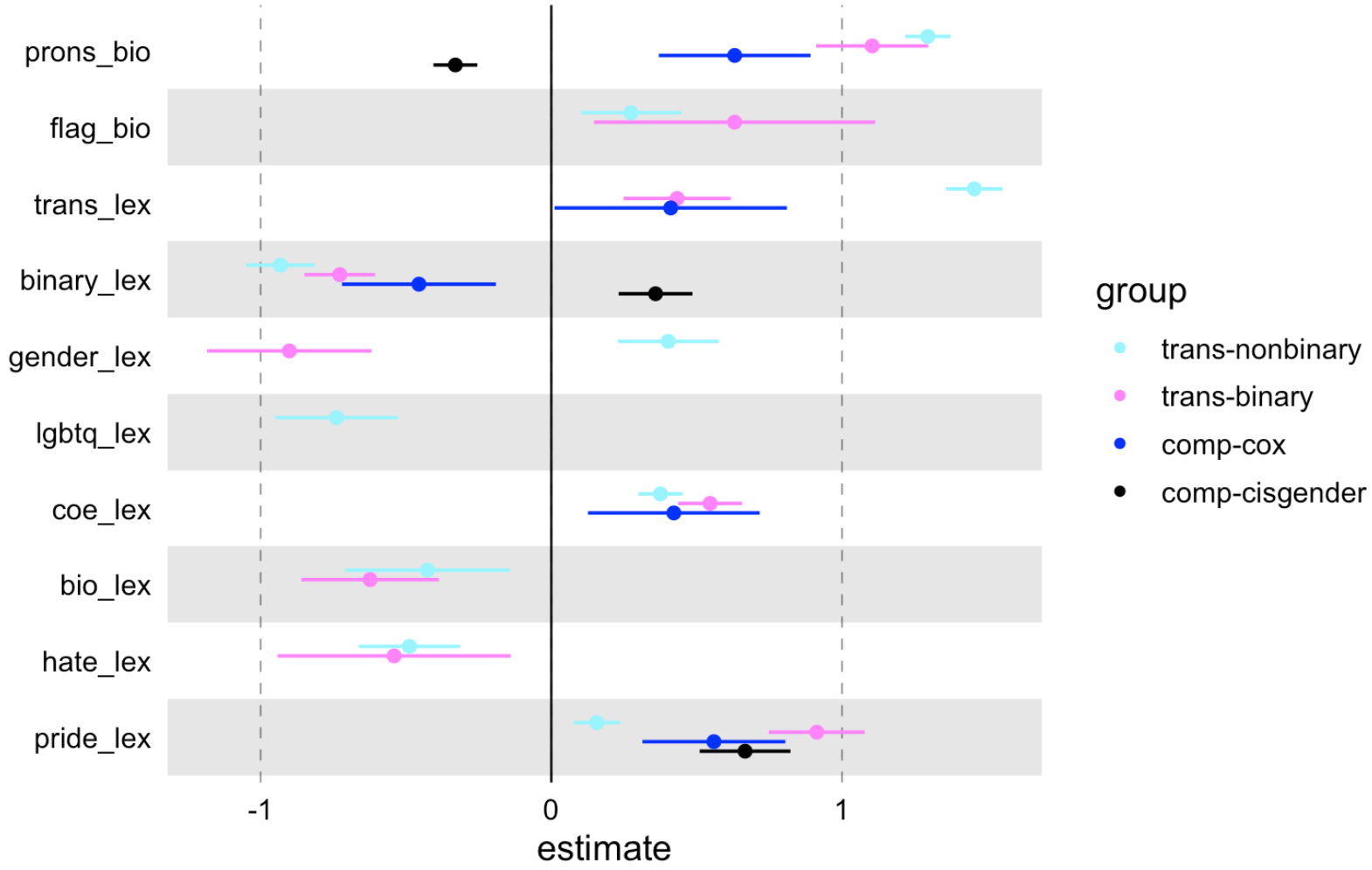
P-VADER: **0.161**

Name: **80.63%**

N-VADER: **0.115**

Significant Pronoun Regression Effects

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



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

Celebrity	PRE	POST		
		PRON-AFFIRM	MISGENDER	DISCREPANCY
Trans-nonbinary				
Smith	0.2928862	0.2272077	0.2123156	0.0148921
Lovato	0.1510316	0.2426199	0.02633819	0.21628171
Average	**0.2219589**	**0.2349138**	**0.119326895**	**0.115586905**
Trans-binary				
Jenner	0.2130364	0.2760341	0.1148471	0.161187
Page	0.3086618	0.4471038	0.1217256	0.3253782
Average	**0.2608491**	**0.36156895**	**0.11828635**	**0.2432826**
Total Average	**0.241404**	**0.298241375**	**0.1188066225**	**0.1794347525**

Celebrity	PRON-AFFIRM	MISGENDER	DISCREPANCY
Transgender			
Cox	0.4609984	0.3538285	0.1071699
Cisgender			
Doja	0.2106753	0.122494	0.0881813
Holland	0.2287218	0.1480358	0.080686
Average	**0.21969855**	**0.1352649**	**0.08443365**
Total Average	**0.3001318333**	**0.2081194333**	**0.0920124**

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

JENNER				PAGE			
DEADNAME		NAME-AFFIRM		DEADNAME		NAME-AFFIRM	
Score	Term	Score	Term	Score	Term	Score	Term
-396.828	CELEB_DEADNAME	373.035	CELEB_NAME	-81.295	CELEB_DEADNAME	103.708	CELEB_NAME
-334.94	jenner	98.865	TARGET_PRONOUN	-52.909	TWITTER_HANDLE	21.253	TARGET_PRONOUN
-119.679	WRONG_PRONOUN	58.185	cait	-32.688	WRONG_PRONOUN	17.628	coming
-78.138	TWITTER_HANDLE	40.55	espys	-21.577	DEAD_HANDLE	14.451	star
-63.243	😂	38.142	via	-11.606	woman	14.365	transgender
-58.531	woman	36.505	new	-9.624	sex	12.713	trans
-50.98	interview	35.278	trans	-9.287	actress	12.039	announces
-37.761	shit	34.167	photos	-8.673	😂	10.95	love
-33.796	21stepsmichael	33.371	speech	-8.544	formerly	10.644	happy
-33.55	nigga	33.099	costume	-8.507	mental	10.642	academy
-32.22	sawyer	32.949	vanity	-8.453	female	10.418	umbrella
-32.199	diane	32.055	manslaughter	-8.363	⭐	10.277	actor
-31.708	sex	31.955	espy	-8.252	male	9.949	portner
-30.996	caitlin	31.795	fair	-8.17	science	9.906	oprah
-30.773	change	31.712	2015	-7.845	gender	9.851	deadname
-29.538	like	31.086	kylie	-7.366	women	9.739	juno
-28.062	fuck	30.766	first	-7.26	born	9.28	news
-27.665	man	30.499	laverne	-7.148	girl	9.208	emma
-27.522	😭	30.331	halloween	-6.924	🤣	9.104	came
-26.601	niggas	30.248	cox	-6.899	gay	8.924	divorce
-25.849	female	28.02	awards	-6.724	recast	8.583	shares
-25.338	lol	27.802	kevinonliner	-6.459	#mugclub	8.236	shirtless
-24.134	watching	26.742	charge	-6.366	change	8.139	first
-22.422	smh	26.565	glamour	-6.199	biology	7.941	deadnaming
-21.361	really	26.288	face	-5.97	degeneres	7.459	interview
-21.095	got	26.086	kris	-5.832	illness	7.354	top
-20.121	still	26.047	.@	-5.726	biological	7.346	abs
-19.485	ass	25.988	stewart	-5.67	mean	7.161	surgery
-19.426	u	25.819	jon	-5.664	eliot	7.146	stan
-19.399	becoming	25.593	award	-5.583	child	7.114	terfs
-19.368	dude	25.57	candis	-5.466	latinx	7.087	today

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

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

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

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 *ècriture 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

Celebrity Group	COREF over PRON	ALTENT over COREF	ALTHAND over ALTENT
Comparison			
Cox	6.09%	1.64%	2.12%
Holland	5.95%	10.91%	4.36%
Doja	6.49%	1.84%	5.21%
Average	**6.18%**	**4.80%**	**3.90%**
Target, Pre			
Jenner	-39.79%	-25.57%	-5.92%
Page	-20.75%	-11.04%	-16.19%
Smith	-12.86%	-10.70%	-16.07%
Lovato	-20.15%	-8.28%	-3.69%
Average	**-23.39%**	**-13.90%**	**-10.47%**

	Pronouns	AFFIRM-RATE	ALT-RATE	THEY-RATE
Cox	*she/her*	0.837	0.043	0.120
Doja	*she/her*	0.747	0.063	0.189
Holland	*he/him*	0.781	0.049	0.170
Average		**0.788**	**0.052**	**0.160**

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

	Mean affirming name rate			Mean affirming pronoun rate		
	Pr-Aff	Pr-Mix	Pr-Mis	N-Aff	N-Mix	N-Dead
Jenner	0.9182809	0.5605776	0.3199732	0.8937198	0.6055047	0.1753081
Page	0.9560607	0.6942159	0.3768535	0.9642512	0.7036747	0.2822468
Average	**0.9371708**	**0.62739675**	**0.34841335**	**0.9289855**	**0.6545897**	**0.22877745**