Gender representation in linguistic example sentences

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Linguistic Society of America
January 2020
In 1996, the LSA publishes the *Guidelines for Non-Sexist Usage*.


“The *majority* of constructed example sentences in syntax textbooks are *biased toward male-gendered NPs*, and ... *contain* *highly stereotyped representations* of both genders.”

Keep in mind…

- People who identify outside of the gender binary may or may not adopt gendered language to refer to themselves.
- This has nothing to do with the sex they were assigned at birth.
Introduction


- Do the biases found in syntax textbooks extend beyond this limited genre and into scholarly work in linguistics?

  - ...and what can we do about it?
Roadmap

§1 Introduction
§2 Background: Macaulay and Brice (1997)
§3 Gender representation in journal papers
§4 Discussion: Why does this matter? How can we improve?
Roadmap

§1 Introduction

§2 Background: Macaulay and Brice (1997)

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§4 Discussion: Why does this matter? How can we improve?
Comparative study of constructed examples from 11 syntax textbooks published between 1969 and 1994.

- **Study 1**: 1,032 examples from one textbook (‘Syntax textbook,’ 1991); male author (published in Macaulay and Brice 1994)
- **Study 2**: 10 additional textbooks published between 1969 and 1994 to generalize results. 7 male authors, 3 female authors.
200 examples were sampled from each textbook. NPs were coded for:

- **Grammatical gender** (female, male, other)
- **Grammatical function** (subject, DO, IO, etc.)
- **Theta roles** (agent, patient, experiencer, recipient, etc.)
- **Lexical choices** (pronouns, proper names, violence, appearance, reading and writing, etc.)
Men...

- Appear more often as arguments than women
- Are more likely to be subjects and agents than women
- Are subjects and agents more often than other arguments
- Have pronouns mentioned more often than women
- Have proper names twice as often as women
- Are engaged in ‘intellectual activities’ (book reading/handling) and handle cars more often than women
- Are described as having occupations more often than women, and in a wide range of occupations
- Perpetrate violence more often than women
Macaulay & Brice (1997): Results

Women...

- Often lack names, but are referred to with *kinship terms* (*X’s wife, mother*) more often than male arguments are
- Have their *appearance* described more often than male arguments
Some differences based on **author sex**:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>AUTHOR SEX</th>
<th>3F (%)</th>
<th>3M (%)</th>
<th>Other (%)</th>
</tr>
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<tbody>
<tr>
<td>1969</td>
<td>M</td>
<td>6</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td>1975</td>
<td>M</td>
<td>10</td>
<td>41</td>
<td>49</td>
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<td>1979</td>
<td>M</td>
<td>20</td>
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<td>1986</td>
<td>M</td>
<td>4</td>
<td>49</td>
<td>47</td>
</tr>
<tr>
<td>1988</td>
<td>M</td>
<td>8</td>
<td>36</td>
<td>57</td>
</tr>
<tr>
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</tr>
<tr>
<td>1992</td>
<td>F</td>
<td>41</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>1993</td>
<td>F</td>
<td>28</td>
<td>21</td>
<td>52</td>
</tr>
<tr>
<td>1994</td>
<td>F</td>
<td>6</td>
<td>39</td>
<td>55</td>
</tr>
</tbody>
</table>
(1)  

a. Every painting of Maja and photograph of Debbie pleased Ben.

b. Harry watches the fights and his wife the soap operas.

c. Bill is proud of his father and tired of his mother.

d. John might drown the kittens/his wife/??his goldfish/!his frying pan/!his birth.

e. Steven likes but Maja hates the man next door.

f. We consider him to be a genius and her to be a fool.

g. The man who shot her believed there was someone else who was seeing Helen.

h. His wife saw Hercule, her husband.

i. The man killed, cut up, and ate his children

...and so many more
In addition, **explicit and suggestive language:**

(2)  

a. Max doesn’t beat his wife because he loves her.

b. She’s fond of John naked.  

(structural ambiguity)

c. After Rambo as a lover, she was exhausted.

d. I can’t imagine you in kinky boots.

e. Personally, inflatable dolls bore me.

f. She’ll soon tire of her sexploits.

g. What a nice pear Mary’s got!

h. John forced Mary to be kissed by Bill.

i. He once glonked an out-of-work actress.

j. The lascivious tree who we saw in the magic forest waved his luxuriant branches lustfully at Mary and said, ‘You can fondle my foliage anytime, darling’.

...and many more
“Our results clearly illustrate the need for such scrutiny: females are simply not significant actors in the world constructed by sample sentences.” (p. 816)

We might add…

- Neither are non-binary individuals.
- Very little has changed in more recent textbooks (Pabst, Cepeda, Kotek, and Syrett, 2019).
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Textbooks are a very specific genre.

- Is this true of Linguistic research more generally?

We examine all papers from 3 journals: *Linguistic Inquiry, Natural Language & Linguistic Theory, Language* between the years 1997–2018.

⇒ 873 papers in total; 15,826 3rd person arguments
Examples extracted using Regular Expressions.

Similar coding to textbook project. 20 Yale undergrads hired to code.

Some coding relegated to automated tools:

- author gender (NLTK gender classifier),
- positive/negative emotions (sentiment analysis),
- specific tokens: kinship, violence, appearances, cars, intellect (Regular Expressions).
Female-gendered NPs represent 32% of the total arguments (15,826) (Namely, a ratio of 2.1 male arguments for every 1 female argument).
Arguments over time

An ever so slight improvement over the 20 years we studied:
Arguments by journal

By journal: the same trends.
We’ll show collapsed graphs throughout.

<table>
<thead>
<tr>
<th>Journal</th>
<th>Gender</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLLT:</td>
<td>F</td>
<td>1943</td>
</tr>
<tr>
<td>LI:</td>
<td>M</td>
<td>3074</td>
</tr>
<tr>
<td>Language:</td>
<td>F</td>
<td>1392</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>3558</td>
</tr>
</tbody>
</table>

NLLT: 31%
LI: 32%
Language: 32%
74% of male arguments vs 66% of female arguments are subjects.
Theta roles

Agents: 30% female
Experiencers: 30% female
Patients: 34% female
Recipients: 43% female
Male and female-gendered NPs have pronouns 32% vs 25% of the time.

They are proper names 53% vs 54% of the time.
37% of all male names are John.
37% of all female names are Mary.
3 of the top 5 male names are John variants: John, Juan, and Ivan.
4 of the top 5 female names are "Mary" variants: Mary, Maria, Marie, and Mari.
Male-gendered NPs are over-represented in occupation-related examples (74% M):
**Violence**

Male-gendered NPs are also massively over-represented in violence-related exx (85% M):

Female-gendered NPs: 70% subjects, Male-gendered NPs: 72% subjects.
Female-gendered NPs are over-represented in “romantic” exx (49% F):

They are again over-represented as objects in such sentences:
Female-gendered NPs: 57% subjects, Male-gendered NPs: 73% subjects.
Female-gendered NPs are massively over-represented with respect to kinship terms (57% F):
Language of examples

English and non-English examples don’t appear different:

English: 33% female args
Non-English: 31% female args
Inappropriate examples

(3) a. John ate the meal and Mary cleaned the dishes
b. John didn’t eat the meal because he would have to clean the dishes
c. John thinks that he himself is a war hero
d. John told Bill that Mary began to cry without any reason
e. The boys had thrown no rock at the cars
f. Maria reviewed the novel, she didn’t write it
g. The senator killed herself
h. Iraqi father drowned his 17 year old
i. Mary, being dumb, needs to sit down
j. Which Nobel prize winning author came in his car?
Inappropriate examples

(4)  a.  For whom do you regret that she made a cake?
b.  * Eat food that Mary; cooks, she; knows I never would
c.  John (not Peter) washed cars well
d.  * Kelly broke again tonight when she did the dishes
e.  I called for a policeman, not a policewoman
f.  The students are all the boys
g.  Tomas replaced Ricardo as the captain
h.  Every male student doesn’t fear tigers
i.  It is amazing how many cars he owns
j.  At least one student of every professor; is horrified at his; grading procedure
Male-gendered NPs...

- appear more often as **arguments** than female-gendered NPs do
- appear more often as **subjects and agents** than female-gendered NPs do
- engage in significantly more **violence** than female-gendered NPs do
- have significantly more **occupations** than female-gendered NPs do
Female-gendered NPs...

- are over-represented as non-subjects, especially as recipients
- are over-represented in sentences involving romantic/sexual language
- are massively over-referred to using kinship terms
Summary

- Not (m)any suggestive or explicit examples
- ...although stereotypes are very much evident (replicating Pabst et al. 2019)

〜 We’ve tidied up the surface, but have done very little to address the underlying problem
- Language of example doesn’t make a difference — so this effect is not (just) about lack of access to sources
- A slight improvement over the past 20 years: from low-30% to mid-30%
Even if some ratios improved and explicit language has improved, the gender bias observed in Macaulay and Brice and in Pabst et al. is still there.

Removing the blatant examples doesn’t address the underlying problem.

We can do better!
Beyond the gender binary

- Explicit discussions of non-binary gender identities are entirely absent.
- There are also a number of other issues that should be addressed:
  - Western vs. Non-Western names
  - Constructed vs. corpus examples
  - Elicited examples, narratives, etc.
There’s more to do

Remains to be done:

- Author gender
- Breakdown of non-English examples
- Sentiment analysis (positive/negative emotion)
- Predicates in:
  - violence
  - books and reading
  - appearances
  - romance-related
  - cars
  - other stereotypes

Your question here?
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Why does this matter?

- Constructed examples sentences are one of the main sources of data in theoretical linguistics.

- These examples are cited again and again, often divorced from their original source and treated as an example from the literature of a particular phenomenon.

- Examples may encode implicit biases (even at a very subtle level), which then get handed down to new generations of linguists, perpetuating the cycle.
Why does this matter?

Inclusive language encourages participation from underrepresented groups

- leading to a **better community**
- leading to **better science**

...at the cost of just a little more thoughtfulness.
• 1996 Guidelines for Non-Sexist Usage (COSWL)
• 2016 Guidelines for Inclusive Language (COSWL)
• 2018 Panel at Annual Meeting: Our Linguistics Community: Addressing Bias, Power Dynamics, Harassment
What can we do?

**In the interest of being maximally inclusive...**

- Stereotypical language, sexually explicit and demeaning language, and language reflecting biases are easily avoidable, and should be.
- The use of gendered lexical items (-man, he, etc.) where unnecessary should be avoided.
- The biased and elevated frequency of particular gendered NPs in particular syntactic positions or semantic roles should be diminished.
Embrace singular *they*!

- We are often told that the pronoun *he* should be used for (singular) nouns whose gender is unknown.
- Despite this official designation, however, this pronoun feel exclusionary of non-male individuals.
- Singular *they* has been used for decades precisely for this purpose.

#WOTY2019
Conclusion: What can we do?

► **Instructors:**
  - Choose your examples wisely.
  - Be sensitive to how you portray all individuals in your examples.
  - Keep in mind that you are in a position of authority and can have a *positive* influence on young minds entering the field.
  - Consider gender ratios and representation in your syllabi.

► **Authors**
  - Be thorough, inclusive, and balanced in your citations.
  - Do not perpetuate bias in the examples you cite.
  - Keep the Guidelines for Inclusive Language in mind.

► **Editors/Reviewers**
  - Pay attention to the examples and language authors use.
Thank you! Questions?

Special thanks to Monica Macaulay and Colleen Brice for the original inspiration behind this work. Additional thanks to Katarina Pabst, Kristen Syrett, and Paola Cèpeda, whose work on the 2018 textbook project together with Hadas Kotek laid the ground for this project.

We are also thankful to the Yale Female Faculty Forum and Claire Bowern for supporting this work, and to our audience at Yale, NYU, MIT, and Brandeis University, as well as the 2018 LSA Annual Meeting, esp. Kirby Conrod, Emily Bender, and Lauren Ackerman, for their feedback on ideas which inspired this work.
References


Gender in journal papers: Books and reading

![Bar chart showing book-related events by gender]

- Male: 569
- Female: 285

Book-related events

Gender
- F
- M
Gender in journal papers: Emotion

Expressions of emotion

Gender

F

M

327

611

48
the raw counts may not be the most helpful; the observation in M&B was about how often women were pleasing to men, so we need to know