Gender biases in constructed example sentences

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Today’s talk builds on and is inspired by my joint work with several members of the LSA Committee on Gender Equity in Linguistics (COGEL, formerly COSWL)

From left to right: Monica Macaulay (University of Wisconsin-Madison), Miranda McCarvel (University of Utah), Hadas Kotek, Kristen Syrett (Rutgers University), Katharina Pabst (University of Toronto), Katharine Donelson (University at Buffalo), Paola Cépeda (Stony Brook University)
The "A-team"

The talk is based on a collaboration with three Yale graduate students, and builds on the joint work with COGEL.

From left to right: Rikker Dockum (Swarthmore College), Sarah Babinski, Chris Geissler, Yale University.
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…

• Gender is not binary.
• 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.

- 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: Gender representation in textbooks then & now
§3 Gender representation in journal papers
§4 Discussion: Why does this matter? How can we improve?
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Macaulay & Brice (1997): Overview

Comparative study of constructed examples from 11 syntax textbooks published between 1969 and 1994.

- **Study 1**: 1,032 examples from one textbook
- **Study 2**: 10 additional textbooks published between 1969–1994
200 examples were sampled from each textbook. NPs were coded for:

- **Grammatical gender** (female, male)
- **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...

- Occur more often as arguments than women
- Are more likely to be subjects and agents than women
- Have pronouns and proper names more often than women
- Are engaged in ‘intellectual activities’ (book reading/handling) and appear in cars-related events 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
Women...

- Are referred to with **kinship terms** (*X’s wife, mother*) more often than men are
- Have their **appearance** described more often than men
Every painting of Maja and photograph of Debbie pleased Ben.

Harry watches the fights and his wife the soap operas.

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

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

Steven likes but Maja hates the man next door.

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

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

Gentlemen prefer blondes.

His wife saw Hercule, her husband.

The man killed, cut up, and ate his children...and so many more
In addition, **explicit and suggestive language**:

(2)  

a. What a nice pear Mary’s got!  
b. John forced Mary to be kissed by Bill.  
c. He once glonked an out-of-work actress.  
d. After Rambo as a lover, she was exhausted.  
e. I can’t imagine you in kinky boots.  
f. Personally, inflatable dolls bore me.  
g. She’ll soon tire of her sexploits.  
h. She’s fond of John naked.  
i. 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)

- Neither are non-binary individuals.

- That was then...

Of 1262 gendered arguments:
833 male-gendered arguments and 429 female-gendered arguments.

⇒ 34% female arguments overall (or: 2:1 M:F arguments)

Consistent across all books and regardless of language of example
Men...

- **Still** appear more often as *arguments* than female-gendered-NPs do
- Are **still** more likely to be *subjects* and *agents*
- Are **still** still engaged in ‘*intellectual activities*’ (book reading/handling) more often
- Are **still** described as having *occupations* more often than women, and in a wide range of occupations
- **Still** perpetrate *violence* more often and more severely than women
Some ratios have improved (occupation, violence).

Explicitly sexist content is almost entirely absent (from the textbooks we chose to sample!).

- Women’s appearance,
- Women pleasing men,
- Sexually suggestive examples,
- Sexually explicit examples

Stereotypical examples concerning men and cars are almost entirely absent.
All the major findings from Macaulay and Brice 1997!

- Grammatical functions,
- theta roles,
- intellectual activities,
- occupations, ...

- The data contains 781 proper names (for human beings). Out of these, only 58 are gender-neutral (7.4%).
- Explicit discussions of non-binary gender identities are entirely absent.
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Textbooks are a very specific genre.

- Is this true of Linguistic research more generally?


⇒ 927 papers in total; 25,106 3rd human/animate person arguments
Examples extracted using Regular Expressions.

Similar coding to textbook project

25 Yale undergrads hired to code; 13 were very active

Some coding relegated to automated tools:

- positive/negative emotions (sentiment analysis),
- specific tokens: kinship, violence, appearances, cars, intellect (Regular Expressions).
Overall arguments:
22% female, 48% male, 30% ambiguous/non-gendered
Of gendered arguments (17,688):
31% female, 69% male (ratio of 2.2 M/F arguments)
Gender in journal papers: Trends over time

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

![Graph showing trends over time]
Gender in journal papers: Trends over time

...contributed entirely by non-subject arguments:

![Graph showing the proportion of female subjects and objects over time.](image)

Proportion of F subjects over time

Proportion of F objects over time
Gender in journal papers: Language of examples

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

- English: 33% female args
- Non-English: 30% female
Gender in journal papers: Distribution of arguments

By journal: the same trends, though the counts differ a bit. We’ll show collapsed graphs throughout.

Linguistic Inquiry: 32%
Natural Language & Linguistic Theory: 31%
Language: 31%
83% of male arguments vs 79% of female arguments are subjects.
Gender in journal papers: Theta roles

Agents: 30% female
Experiencers: 30% female
Patients: 35% female
Recipients: 42% female
Men and women have proper names **59%** and **58%** of the time.

Men and women have pronouns **29%** and **23%** of the time.
Gender in journal papers: Top-5 names

Notice John and Juan; Mary, Maria, and Marie

Of 10,743 names in the study, 428 were classified as non-gendered or ambiguously gendered (=4% of the data)
Gender in journal papers: Occupations

Men are over-represented in occupation-related examples (74% M):
Men are massively over-represented in violence-related exx (84% M):

Women: 68% subjects, men: 72% subjects.
Gender in journal papers: Romance

Women are over-represented in romance-related examples (50% M):

Women: 58% subjects, men: 76% subjects.
Gender in journal papers: Kinship terms

Women are over-represented with respect to kinship terms (44% M):
The *Bing* method categorizes emotion into *positive* and *negative*:

![Sentiment Analysis Chart]

- Negative sentiment M/F ratio: 2.5:1
- Positive sentiment M/F ratio: 1.7:1

(Recall overall skew: 2.2:1)
The *NRC* method has more fine-grained categories:
a. Which Nobel prize winning author came in his car?
b. At least one student of every professor is horrified at his grading procedure
c. No linguist here recommended some of his own books, but I don’t know which of his own books
d. Mary, being dumb, needs to sit down
e. Ray mother thinks he a genius
f. Aoyama’s sister-in-law knitted a scarf
g. Married him, didn’t she/*Marge/%the gold digger?
h. I called for a policeman, not a policewoman
i. Bill won’t go to the bar and James to the liquor store
j. An Iraqi father drowned his 17 year old daughter
k. Rabe forced women to wash clothes
(4) 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. * Kelly broke again tonight when she did the dishes
   f. For whom do you regret that she made a cake?
   g. * Eat food that Mary; cooks, she; knows I never would
   h. John (not Peter) washed cars well
   i. Tomas replaced Ricardo as the captain
   j. Mary thought that it pleased John [PRO to speak his/*her mind]
   k. Maybe I talk to my husband first. we’ve some arguments recently
Men...

- appear more often as **arguments**
- appear more often as **subjects, agents, and experiencers**
- engage in significantly more **violence**
- have significantly more **occupations**
- exhibit more **negative emotions**
Women...

- are over-represented as recipients and patients
- are over-represented in “romantic” examples
- are massively over-referred to using kinship terms
- exhibit more positive emotion
Gender in journal papers: Summary

- Not (m)any suggestive or explicit examples
- ...although stereotypes are very much evident
- 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% — caused by an increase in non-subject F arguments

We can do better!
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.
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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 more participation from under-represented groups ...

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

...at the cost of just a little more thoughtfulness.

- Go beyond “John, Mary, Bill, and Sue”
- Think past the first names that comes to mind when you ask yourself who to cite, or who to invite to your event

**Small actions can go a long way.**
LSA Responses to Gender and Inclusivity

- 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
- 2021 Resources on Equity and Inclusivity in Linguistics (REIL) guidebook (COGEL & SALTED)
Possible objection 1:
- Threat against free speech
- Constrains creativity
- Smacks of censorship

Our response:
If an example could potentially hurt someone and the content is not relevant for illustrating a certain phenomenon, linguists can and should find other means to illustrate the linguistic points they are making.
Possible objection 2:
It is unclear how to rectify this situation.

Our response:
Any concerted attempts to reverse the distributional skew and to present linguistic examples in a way that celebrates and honors the diversity of individuals representing our field is welcome.
To be clear

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 feels exclusionary of non-male individuals.

• Singular *they* has been used for decades precisely for this purpose.

#WOTY15 #WordOfTheDecade
The bigger picture

• The trend we have observed in linguistics texts is reflected elsewhere and is reflective of an *engrained mindset and a more general and systemic societal problem* with implicit/explicit gender bias.

• This bias starts surprisingly early — around age 6!
Bian, Leslie, and Cimpian (2017):

- Children were told a brief story about a person who was “really, really smart.” They were then asked to guess which of four unfamiliar adults (two M, two F) was the protagonist of the story. In another version, children saw several pairs of same- or different-gender adults and guessed which adult in each pair was “really, really smart.”

- At 6, girls perceive girls as getting better grades, but not as smart or brilliant.
Leslie, Cimpian, Meyer, and Freeland (2015):
“across the academic spectrum, women are underrepresented in fields whose practitioners believe that raw, innate talent is the main requirement for success, because women are stereotyped as not possessing such talent”

Meyer, Cimpian, and Leslie (2015):
“fields believed to require brilliance have fewer women”
The bigger picture

Meyer, Cimpian, and Leslie (2015):
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.

► **Conference organizers**
  - Adopt the REIL guidebook.
Thank you! Questions?

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