

# Experimental investigations around gender-fair language

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RoLinC, June 9, 2026

# The problem with masculine generics

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'Welcome to the students.masc'

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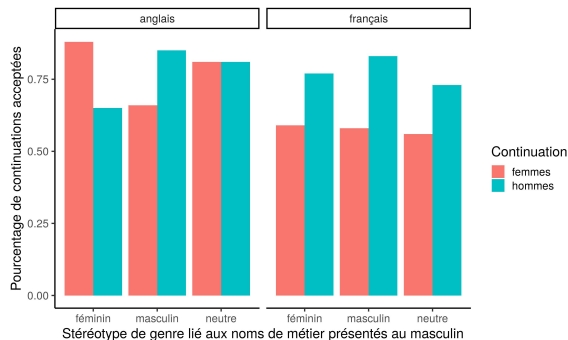


# Gygax et al. (2008)

□ Sentence continuation paradigm

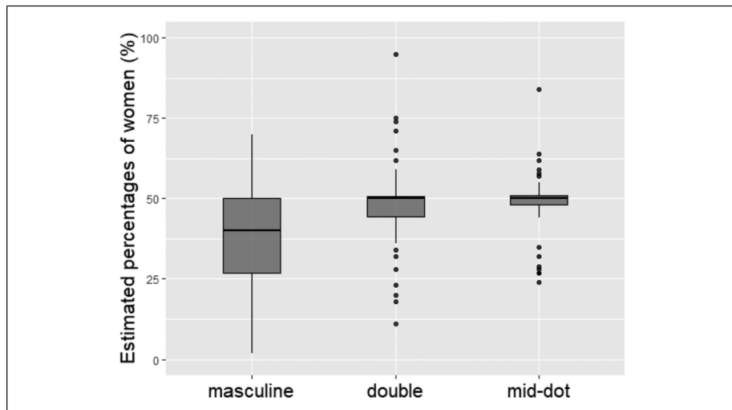
□ Ex:

- (1) Les esthéticiens/musiciens/mécaniciens... un des hommes/une des femmes..
- (2) The beauticians/musicians/mechanics... one of the men/women



# Xiao, Strickland, and Peperkamp (2023)

## □ Gender ratio estimation task



**Figure 1.** Boxplots of estimated percentages of women as a function of linguistic form.

stereotypically neutral role nouns (*musiciens/musiciens et musiciennes/musicienn.es*)

# The problem with so-called masculine generics

- do not represent women and men equally...
- with behavioral consequences
  - ▶ female teenagers judge themselves as less apt to do a job if it is presented in the masculine generic (Chatard-Pannetier, Guimont, and Martinot, 2005)
  - ▶ women are less likely to be interested in job ad written in the masculine generic (e.g., Hetjens and Hartmann 2024)

# Gender-fair strategies in French

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- Feminization (make gender visible)
  - ▶ formes doubles (*étudiants et étudiantes*)
  - ▶ formes contractées (*étudiant(e)s, étudiant.es, étudiant-es*)
- Neutralization (conceal gender)
  - ▶ gender-common nouns (*élèves*)
  - ▶ epicene nouns (*personnes qui étudient*)
  - ▶ collective nouns (*la classe*)

# Research question

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- Is that the case?
- 1. **Lexical meaning:** do these strategies trigger the same gender inferences about their *referents*?
- 2. **Social meaning:** do these strategies trigger the same social inferences about their *users*?


## Goal

Identify strategies that are both gender-fair and socially neutral

# A sensitive topic...

**The Conversation France** · 13 octobre · 🌐

Alors que l'écriture inclusive est souvent réduite au point médian, elle recouvre en réalité une diversité de stratégies pour représenter équitablement femmes et hommes... [En voir plus](#)



👍❤️👎 237    441 commentaires    67 part.

👍 J'aime    💬 Commenter    ➦ Partager



Super fan

**Bernard Meyer**

L'écriture inclusive extreme, avec point median, n'est plus visible nulle part, y compris dans the conversation.. Trop lourde, trop moche...

7 sem. J'aime Répondre

19 🗨️👍👎

[Voir les 47 réponses](#)



**Maurice Talazac**

Stéréotypes de genre? Vous voulez dire de sexe ? Et alors ? Nous évoluons constamment selon des stéréotypes, c'est ce qu'on appelle la vie sociale.

7 sem. J'aime Répondre

18 🗨️👍👎

[Voir les 38 réponses](#)



**Mathias Giraud**

Ou il suffirait de réapprendre aux enfants que le masculin en français porte aussi la marque du neutre. Parce que le français (langue latine), contrairement aux langues anglo-saxonnes, ne dispose pas d'un genre neutre différencié.

7 sem. J'aime Répondre

13 🗨️👍👎

[Voir les 42 réponses](#)



**Ben Lem**

Propagande...

""Les" études montrent"...ce que vous voulez qu'elles montrent. Il n'y a rien de scientifique dans des études menées par des sociologues idéologisés.

7 sem. J'aime Répondre

32 🗨️👍👎

[Voir les 18 réponses](#)



**Valérie Loetscher-Klaus**

Une grosse connerie ! Un truc de bobo universitaire en manque de reconnaissance qui ne savent plus quoi inventer pour se rendre intéressant.

7 sem. J'aime Répondre

23 🗨️👍👎

# Plan

- Lexical meaning
  - ▶ 2 studies on epicenes (*personne/individu*)
  - ▶ 1 study comparing feminization and neutralization
- Social meaning
  - ▶ 1 study on feminization (contracted forms: *étudiant(e)s* vs *étudiant-e-s*)

# Lexical meaning: epicene nouns

Joint work with Laura Delaloye Saillen

Storme and Delaloye Saillen (2024)

# Epicene nouns

- A neutralization strategy
  - (3) Epicene nouns in French
    - a. Feminine nouns: *une personne* 'a person', *une vedette* 'a star', etc.
    - b. Masculine nouns: *un individu* 'an individual', *un talent* 'a talent', etc.
- To date, a single study (Brauer and Landry, 2008, Study 3) has looked at those nouns, focusing on a single pair (*individu/personne*).
  - ▶ *personne* less male-biased than *individu*
- Are feminine epicenes more inclusive?

# Why epicenes are interesting for testing grammatical effects on gender inferences

- Epicene nouns are available in both genders, therefore making it possible to test biases in both directions (*personne/individu*).
- They make it possible to control for competition effects that could play a role in the male-biased interpretation of masculine generics.
  - ▶ See Gygax and Gabriel (2008) on the role of competition in the male bias.
  - ▶ *candidat* vs. *candidate* but *une personne* vs. \**un person*

## Effect of grammatical gender on gender inferences: direct or indirect?

If competition is key to explain male inferences for masculine generics, then grammatical gender only has an indirect effect on gender inferences.

# Research question

Do masculine epicene nouns (*individu*) favor male inferences more than semantically similar feminine epicene nouns (*personne*)?

- The only available study suggests that they do.
  - ▶ *individu* (16.9% female responses) vs. *personne* (30% female responses)
- But it is based on a single pair of nouns (*personne/individu*).
- Does the effect generalize beyond that pair?
- Other interesting result: no female bias for feminine nouns
  - ▶ effect not due to stereotypes (only gender-neutral role names were used)
  - ▶ could be due to the use of masculine generics alongside hybrid nouns (e.g. *les chanteurs*)

## Study 2: Methods

- Test variable: Grammatical Gender (feminine, masculine)
  - ▶ similar feminine and masculine nouns paired up together
  - ▶ 14 pairs
- Epicene nouns were considered to have a generic interpretation by the authors if they could be predicated of both a man and a woman without contradiction.
  - (4) Examples of experimental items
    - a. Une vedette de la chanson a été invitée pour présider le jury.
    - b. Un talent de la chanson a été invité pour présider le jury.

# Methods

Sentence	ItemType	GramGender	Item
C'est une star de la course à pied.	experimental	feminine	star/as
C'est un as de la course à pied.	experimental	masculine	star/as
Cette personne ne se souvient même plus de son nom.	experimental	feminine	personne/individu
Cet individu ne se souvient même plus de son nom.	experimental	masculine	personne/individu
La dépouille fut transportée dans un cercueil.	experimental	feminine	dépouille/cadavre
Le cadavre fut transporté dans un cercueil.	experimental	masculine	dépouille/cadavre
Avec ses manières, c'est une véritable bête de foire.	experimental	feminine	bête/phénomène
Avec ses manières, c'est un véritable phénomène de foire	experimental	masculine	bête/phénomène
Une personnalité de premier plan du gouvernement s'est exprimée à la radio.	experimental	feminine	personnalité/personnage
Un personnage de premier plan du gouvernement s'est exprimé à la radio.	experimental	masculine	personnalité/personnage
Une vedette de la chanson a été invitée pour présider le jury.	experimental	feminine	vedette/talent
Un talent de la chanson a été invité pour présider le jury.	experimental	masculine	vedette/talent
C'est une célébrité du cinéma français.	experimental	feminine	célébrité/monument
C'est un monument du cinéma français.	experimental	masculine	célébrité/monument
La tête du groupe a accepté une interview à la télé.	experimental	feminine	tête/cerveau
Le cerveau du groupe a accepté une interview à la télé.	experimental	masculine	tête/cerveau
Tu n'es qu'une fourmi.	experimental	feminine	fourmi/microbe
Tu n'es qu'un microbe.	experimental	masculine	fourmi/microbe
Ma petite merveille s'est fait un bobo au genou.	experimental	feminine	merveille/trésor
Mon petit trésor s'est fait un bobo au genou.	experimental	masculine	merveille/trésor
Ma petite crème a fait sa rentrée scolaire aujourd'hui.	experimental	feminine	crème/ange
Mon petit ange a fait sa rentrée scolaire aujourd'hui.	experimental	masculine	crème/ange
Cette sangsue m'a volé toutes mes économies.	experimental	feminine	sangsue/vautour
Ce vautour m'a volé toutes mes économies.	experimental	masculine	sangsue/vautour
Une sommité du domaine a reçu le prix.	experimental	feminine	sommité/génie
Un génie du domaine a reçu le prix.	experimental	masculine	sommité/génie
Cette fripouille a encore réussi à tromper tout le monde.	experimental	feminine	fripouille/charlatan

# Methods

- Response variable: Referent's Gender (7-point Likert scale)
  - ▶ 1: categorically male response
  - ▶ 4: uncertainty (gender-neutral responses)
  - ▶ 7: categorically female response
- Participants were also asked to guess two additional properties of the person referred to in the sentence: (i) their age and (ii) their level of education.

\*Une vedette de la chanson a été invitée pour présider le jury.

À votre avis, de qui parle-t-on dans cette phrase ? Indiquez ses caractéristiques individuelles ci-dessous.

	1	2	3	4	5	6	7	
Âge : jeune	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	avancé
Sexe : homme	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	femme
Niveau d'éducation : peu avancé	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	avancé

Figure: An example of item

# Methods

- Fillers were used in addition, following Richy and Burnett (2021).
- Fillers contained proper names instead of common names (e.g. Dominique, Claude, Brigitte, Kévin, etc.)
- 14 experimental items, 20 fillers for each participant

# Methods

- 60 participants were recruited through mailing lists at French-speaking universities.
- The study was carried out online using the LimeSurvey platform (LimeSurvey, 2012).
- Participants in Study 2 were assigned to a set of experimental items that were randomly selected for each participant.
- Each participant was randomly assigned to one of the two groups.
- The judgment data were modeled using the ordinal cumulative model (Bürkner and Vuorre, 2019, pp. 78–79).

Referent's Gender  $\sim$  Grammatical Gender + (1+Grammatical Gender|Participant) + (1|Pair) + (1|Noun)

# Results

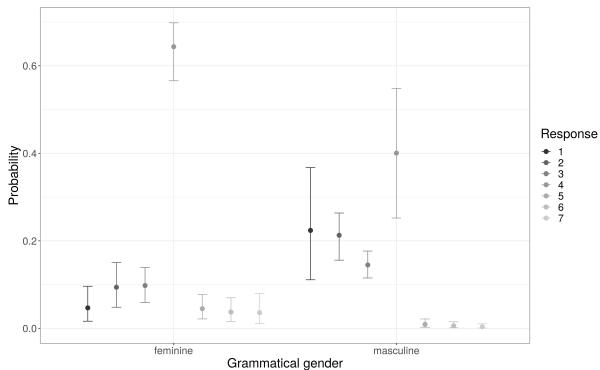


Figure: Results of Study 2: Posterior means with 95 % CI.

- Masculine nouns induce more male representations than semantically similar feminine hybrid nouns ( $\beta = -0.94$ ,  $CI = [-1.41, -0.45]$ ).

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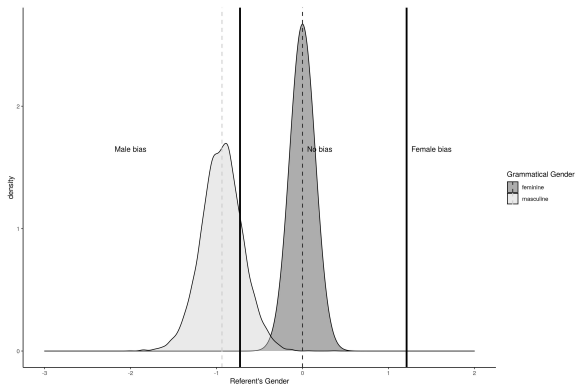


Figure: Results of Study 2: Effect of grammatical gender.

- Male bias for masculine nouns but no female bias for feminine nouns.

# General discussion

- Effect of masculine gender on gender inferences independent of competition: confirms the claim that grammatical gender *directly* influences gender inferences.
- Feminine nouns are not female-biased: Why?
- Potential explanation 1: effect of gender stereotypes (not controlled for)
- Potential explanation 2: general male bias (independent of stereotypes) that is compensated by the feminine form.
- Problem: difficult to control for stereotypes with these nouns (restricted set).

# Lexical meaning: epicene nouns and agreement

Joint work with Manon Dhuicque and Sharon Peperkamp  
in prep

# Introduction

- Grammatical gender influences gender representations of referents.  
(Gygax et al. 2008 among many others)
  - (5) Bienvenue aux **étudiants**.  
Welcome to the students.MASC.
  
- **RQ:** What happens in the presence of additional gender agreement markers in the sentence? (see Anne Rosar's talk on German)
  - (6) Bienvenue aux **étudiants** déjà **arrivés**.  
Welcome to the students.MASC already arrived.MASC.
  
- **Hypothesis:** The effect of gender agreement is cumulative.  
Yes: Each agreement marker contributes to gender inferences.  
No: Only one agreement marker contributes to gender inferences.

## Implications

If the hypothesis is confirmed, this provides further justification for gender-fair language.

# Introduction

- **Secondary RQ:** any difference between agreement markers available in **one modality** (orthographic agreement) vs. **two modalities** (phonological and orthographic agreements)?

Agreement	Masculine	Feminine
ortho	arrivé <b>s</b> [aʁive] 'arrived.masc.pl'	arrivé <b>es</b> [aʁive] 'arrived.fem.pl'
ortho+phono	présent <b>s</b> [pʁezã] 'present.masc.pl'	présent <b>es</b> [pʁezãt] 'present.fem.pl'

# Introduction

## □ Testing ground: French epicene nouns

i.e. nouns with a generic interpretation but a fixed grammatical gender, masculine or feminine.

- (7) a. Masculine: *un individu* 'an individual', *un as* 'an ace', ...  
b. Feminine: *une personne* 'a person', *une star* 'a star', ...

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- (7) a. Masculine: *un individu* 'an individual', *un as* 'an ace', ...
- b. Feminine: *une personne* 'a person', *une star* 'a star', ...

- Effect of grammatical gender of epicenes on gender inferences (Brauer and Landry, 2008; Storme and Delaloye Saillen, 2024):

- ▶ masculine epicenes have a male biased interpretation compared to semantically similar feminine epicenes

# Method

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<i>Gender agreement</i>	<b>Masculine epicene</b>	<b>Feminine epicene</b>
<i>baseline</i>	<u>Cet</u> individu ne se souvient plus de son nom. 'This individual/person does not remember their name.'	<u>Cette</u> personne ne se souvient plus de son nom.
<i>ortho</i>	<u>Cet</u> individu ne s'est pas souven <u>u</u> de son nom. 'This individual/person has not remembered their name.'	<u>Cette</u> personne ne s'est pas souven <u>ue</u> de son nom.
<i>ortho+phono</i>	<u>Cet</u> individu ne s'est pas rem <u>is</u> [ʁəm <u>i</u> ] de son amnésie. 'This individual/person has not recovered from their amnesia.'	<u>Cette</u> personne ne s'est pas rem <u>ise</u> [ʁəm <u>iz</u> ] de son amnésie.

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- **Task:** estimation of the referent's gender, using 7-point Likert scale (Richy and Burnett, 2021; Storme and Delaloye Saillen, 2024)
  - ▶ 1=man, 4=uncertainty, 7=woman

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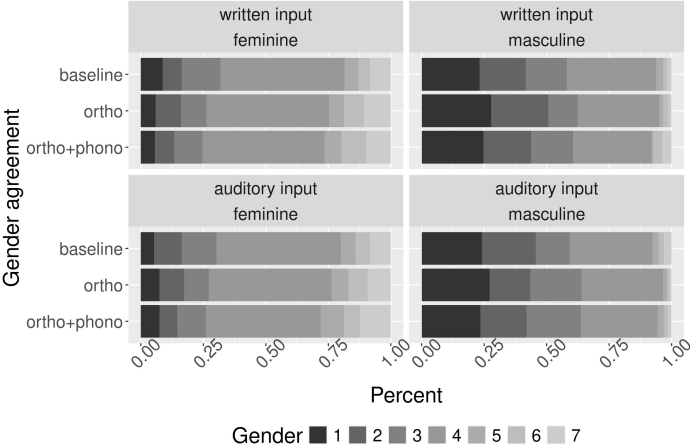
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  - ▶ 1=man, 4=uncertainty, 7=woman
- **Analysis:** response ~ grammatical gender \* gender agreement + (1|participant) + (1|pair) + (1|noun) + (1|sentence) using ordinal regression in brms (Bürkner, 2017)

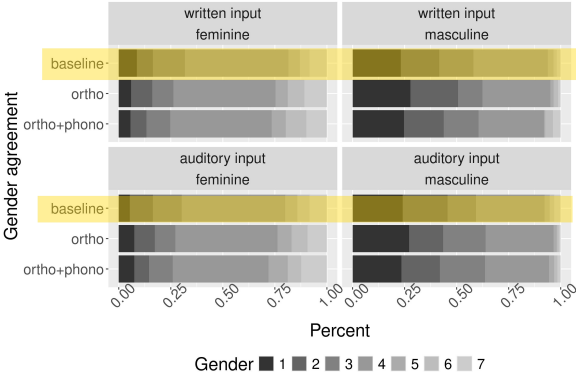
# Hypotheses

- We expected to replicate Storme and Delaloye Sailen (2024) in the **baseline** condition in both experiments.
  - ▶ male bias for masculine epicenes (*individu* vs *personne*)
- In Exp 1 (written stimuli), we expected this effect to be larger in both the **ortho** and **ortho+phono** conditions, with possibly the largest effect in **ortho+phono** (given that written forms can activate phonological forms, for instance due to inner speech)
- In Exp 2 (auditory stimuli), we expected the gender effect to be larger in the **ortho+phono** condition compared to baseline, and possibly also larger – but to a lesser extent – in the **ortho** condition (given that spoken forms can activate written forms)

# Descriptive statistics



# Inferential statistics: baseline

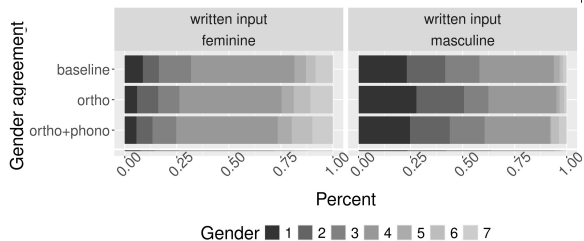


□ Interpretation of masculine nouns is male-biased compared to feminine nouns in the baseline.

- ▶ Written stimuli:  $\beta = -0.88, 90\% \text{ CI} = [-1.26, -0.50]$
- ▶ Auditory stimuli:  $\beta = -1.08, 90\% \text{ CI} = [-1.49, -0.69]$

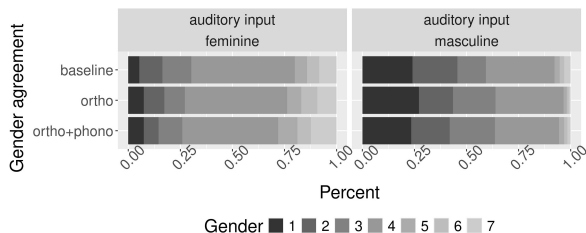
□ Replicates Storme and Delaloye Saillen (2024) for written modality and extends results to spoken modality

# Inferential statistics: gender agreement in Exp 1



- The effect of grammatical gender is enhanced with gender agreement:
  - ▶ ortho vs baseline:  $\beta = -0.42, 90\% \text{ CI} = [-0.62, -0.22]$
  - ▶ ortho+phono vs baseline:  $\beta = -0.27, 90\% \text{ CI} = [-0.48, -0.07]$
- No evidence for a stronger effect of gender agreement present in two modalities (ortho+phono) vs one modality (ortho):
  - ▶ ortho+phono vs ortho:  $\beta = 0.15, 90\% \text{ CI} = [0.05, -0.34]$

## Inferential statistics: gender agreement in Exp 2



- The effect of grammatical gender is enhanced with auditory gender agreement (ortho+phono):
  - ▶ ortho+phono vs baseline:  $\beta = -0.23$ , 90% CI =  $[-0.44, -0.03]$
- But it is also enhanced similarly with orthographic gender agreement (ortho):
  - ▶ ortho vs baseline:  $\beta = -0.22$ , 90% CI =  $[-0.42, -0.02]$
- This may suggest that the auditory form strongly activates the written form (whereas the written form does not strongly activate the auditory form; see Exp 1).

# Discussion

- The effect of grammatical gender is enhanced with auditory gender agreement (ortho+phono):
  - ▶ ortho+phono vs baseline:  $\beta = -0.23$ , 90% CI =  $[-0.44, -0.03]$
- But, suprisingly, it is also enhanced similarly with orthographic gender agreement (ortho):
  - ▶ ortho vs baseline:  $\beta = -0.22$ , 90% CI =  $[-0.42, -0.02]$
- This may suggest that the auditory form activates the written form.

## Discussion: summary

- We replicated Storme and Delaloye Sailen (2024): male bias for masculine epicenes compared to feminine epicene
- This effect is enhanced by gender agreement in both modalities: gender agreement markers contribute to gender inferences.
- We provided evidence for the effect of grammatical gender on gender inferences in spoken French (most of the evidence so far comes from reading).

# Discussion: implications and limitations

- The finding that gender agreement plays a role in gender inferences is a further motivation for gender-fair language.
- Limitations:
  - ▶ why an asymmetry between Exp 1 and Exp 2? effect of orthographic form in auditory modality, but no effect of phonological form in written modality
  - ▶ we have tested gender agreement with epicene nouns: what happens with other types of nouns (e.g., role nouns)?
  - ▶ we tested 1 vs 2 agreement markers: what happens with more agreement markers?

# Lexical meaning: feminization vs neutralization

Joint work with Martin Storme

Storme and Storme (2026)

# Background

- Grammatical gender influences inferences about social gender.  
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- How to mitigate this effect? (e.g. Sczesny, Formanowicz, and Moser 2016)
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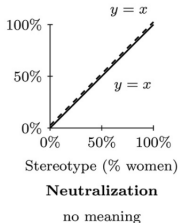
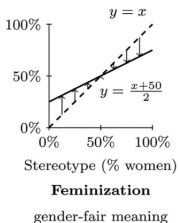
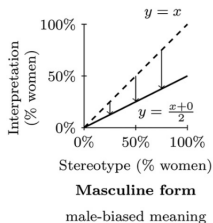
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- **RQ:** which one is more gender-fair? (Disclaimer: we focus on the representation of women, leaving non-binarity aside)
- **Previous studies on French:** mixed results, with focus on non-stereotyped contexts (e.g. Tibblin et al. 2023 vs. Spinelli, Chevrot, and Varnet 2023).

# Background

- Grammatical gender influences inferences about social gender. (Gygax et al. 2008 among many others)
- How to mitigate this effect? (e.g. Sczesny, Formanowicz, and Moser 2016)
  - ▶ **Feminization** (= make gender visible, e.g. *he or she*)
  - ▶ **Neutralization** (= make gender invisible, e.g. *they*)
- **RQ:** which one is more gender-fair? (Disclaimer: we focus on the representation of women, leaving non-binarity aside)
- **Previous studies on French:** mixed results, with focus on non-stereotyped contexts (e.g. Tibblin et al. 2023 vs. Spinelli, Chevrot, and Varnet 2023).
- **Hypothesis:** feminization better counteracts stereotypical information than neutralization. (Richy and Burnett 2021 on neutralization, Xiao, Strickland, and Peperkamp 2023 on feminization; see also Gabriel, Gygax, and Kuhn 2018)



# Method

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Condition	Example
stereotypical baseline	Vous voulez <b>travailler dans un institut de beauté</b> ? 'You want to work in a beauty salon?'
masculine form	Vous voulez travailler comme <b>esthéticien</b> ? 'You want to work as a beautician.MASC?'
pair form (feminization)	Vous voulez travailler comme <b>esthéticien ou esthéticienne</b> ? 'You want to work as a beautician.MASC or beautician.FEM?'
neutral form (neutralization)	Vous voulez travailler comme <b>spécialiste des soins de beauté</b> ? 'Do you want to work as a specialist in beauty treatments?'

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- **Task:** estimation of the proportion of women among those targeted by the ad, using slider
  - ▶ 90 participants read the 12 ads in the baseline condition
  - ▶ 90 participants read 12 ads in the three other conditions

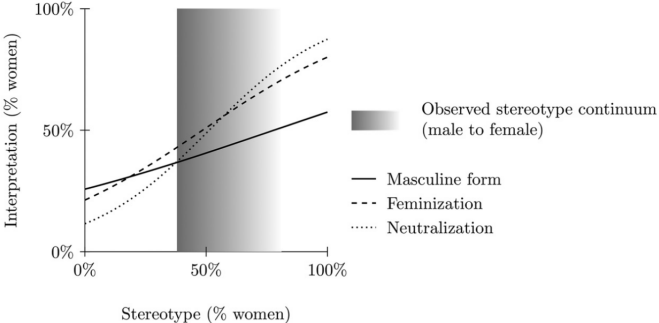
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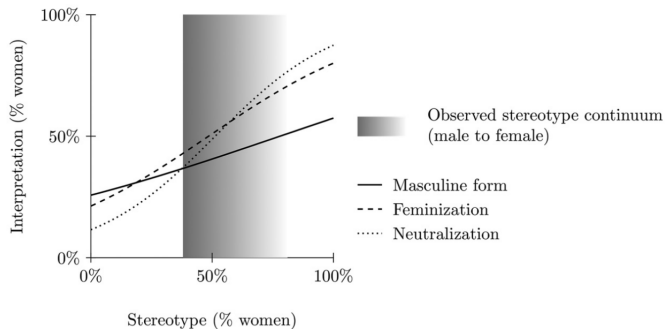
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- **Task:** estimation of the proportion of women among those targeted by the ad, using slider
  - ▶ 90 participants read the 12 ads in the baseline condition
  - ▶ 90 participants read 12 ads in the three other conditions
- **Analysis:** proportion of women  $\sim$  linguistic form × baseline proportion of women + (1|ad) + (1|participant)  
using Beta regression in brms

# Results

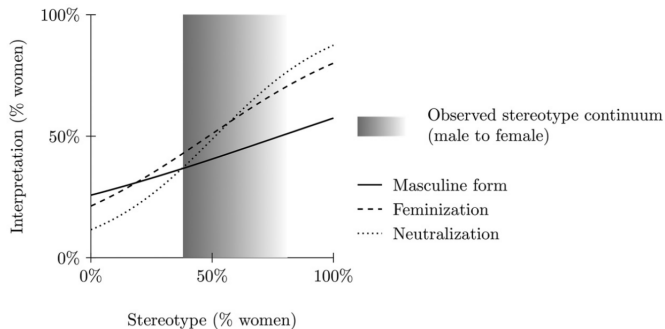


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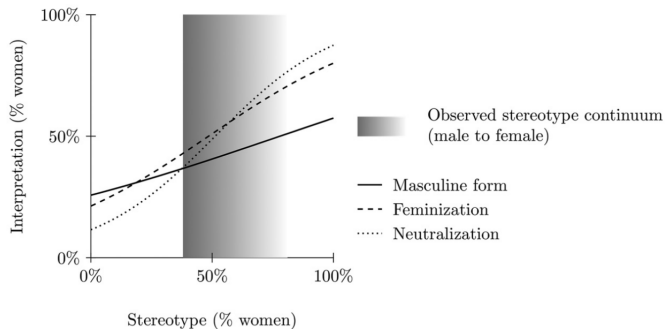
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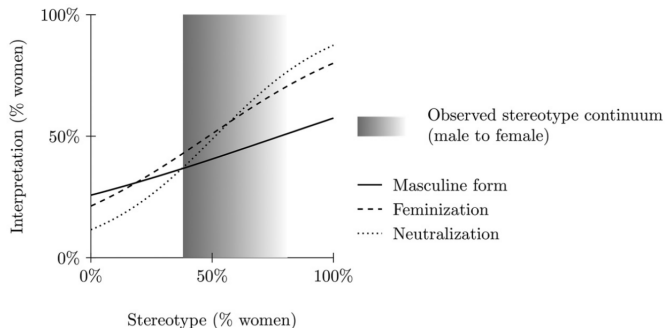
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# Discussion

## □ **Theoretical and practical implications:**

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## □ **Theoretical and practical implications:**

- ▶ Feminization can benefit both women and men.
- ▶ Educators and language policy makers should promote broader adoption of feminization

## □ **Limitations and future direction:**

- ▶ Do results generalize beyond pair forms and beyond French?
- ▶ What about non-binarity? (cf. *étudiant.e.x.s*)

# Social meaning

Joint work with Naomi Truan, Jo Lychnara, Grainne Deasy  
in prep

# Introduction

- Media/Institutions that align with more left-wing/progressive ideologies are more likely to use gender-fair language
  - ▶ e.g. corpus of Parisian of university brochures (e.g., Burnett and Pozniak 2021)
- **RQ1**: are users of gender-fair language perceived as more left-wing?
- **RQ2**: are more recent gender-fair strategies (e.g., mid-dots) perceived as more left-wing than older, more established strategies (e.g., parentheses)?
- Experimental approach: controlling for the content of the text

# Methods

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	French	German
Generic masculine	<i>Étudiants</i>	<i>Studenten</i>
Gender-inclusive strategy (more established)	parentheses: <i>étudiant(e)s</i>	middle capital I ( <i>Binnen-I</i> ): <i>StudentInnen</i>
Gender-inclusive strategy (less established)	mid-dot ( <i>point médian</i> ): <i>étudiant·e·s</i>	asterisk ( <i>Gender-Sternchen</i> ): <i>Student*innen</i>

**Table 1:** Linguistic strategies used in the experiment, exemplified with the lexeme *student*

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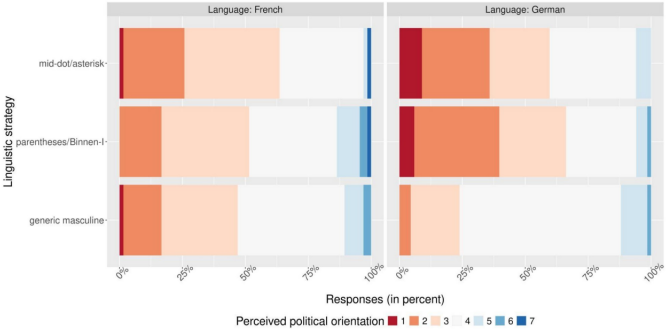
**Table 1:** Linguistic strategies used in the experiment, exemplified with the lexeme *student*

- **Task:** estimation of political orientation of the writer, using 7-point Likert scale
- **Analysis:** political orientation  $\sim$  linguistic form  $\times$  language + (1|Scenario) + (1|participant)

# Methods

Avis aux **étudiant(e)s** ! Je vends mon lit double avec matelas (100 euros, prix négociable). Il est en excellent état, idéal pour **un(e) étudiant(e) soucieux(se)** de confort, et je pense que cela pourrait être une excellente opportunité pour l'**un(e)** d'entre vous. Il est démonté et rentre dans le coffre d'une petite voiture. N'hésitez pas à me contacter pour plus de détails et pour convenir d'une date de récupération! ¶

# Results



**Figure 1:** Perceived political orientation of the writer (1 = “far-left”, ..., ..., 4 = “center”, ..., ..., 7= “far-right”) as a function of linguistic strategy (mid-dot/asterisk, parentheses/Binnen-I, generic masculine) and language (French, German).

# Results

- In French, writers using parentheses were not judged to be more left-wing than those using generic masculines ( $B = 0.05$ , 90% one-sided CI =  $[-0.25, 0.35]$ , Post. Prob. = 0.40).
- However writers using mid-dots were judged as more left-wing than those using generic masculines ( $B = -0.35$ , 90% one-sided CI =  $[-0.65, -0.04]$ , Post. Prob. = 0.97).
- In German, both strategies were perceived as more left-wing than generic masculines, and more strongly so than in French.



# Discussion

- Parentheses perceived as more politically neutral than mid-dots.
- Difference between French and German might be an effect of asymmetries in the samples
  - ▶ we did not target L1 speakers specifically (for more inclusivity)
  - ▶ more L1 speakers in the German sample than in the French sample





# Conclusion

- Lexical meaning:
  - ▶ feminine epices are more gender-fair than masculine epicenes
  - ▶ effect is enhanced by gender agreement
  - ▶ feminization is more gender-fair than neutralization
- Social meaning:
  - ▶ parentheses as politically more neutral than mid-dots
- Feminization + political neutrality = best compromise between gender-fairness and social acceptability?
  - ▶ parentheses or double forms?
- Another factor to take into account: readability (current research)






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