

Gender biases in French Agent Nouns

O. Bonami, A. Fargues, E. Kiouss, M. Wauquier. *In revisions*. Social gender and derivational morphology: A distributional study of the gendered import of learned morphology in French. *Linguistics*.

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Aim and predictions

Can one make a more systematic empirical argument that there are similar but distinct interpretive effects in feminine and masculine nouns ?

Insights from distributional semantics:

- ▶ Correlation between morphological and semantic properties
 - ▶ Valence distinction: positive/neutral valence of Learned_{EUR/RICE} AN, negative value of Non-learned_{EUR/EUSE}
- ▶ Semantic specialisation of negative valence correlated with grammatical gender information
 - ▶ Feminine Agent Nouns_{NL} denote derogatory sexuality/physical characteristics and Masculine Agent nouns_{NL} criminality/stigmatized behaviour
- ▶ Using neighbours of centroids allows to abstract away from differences in vector representations

Methodology

- ▶ Materials: 400 Agent Nouns (100 nearest neighbours of the centroid, split into 4 categories by formation type and gender)

	Non-learnèd	Learnèd
Feminine	curatrice ('curator.F')	râleuse ('complainer.F')
Masculine	négociateur ('negociator.F')	cambricoleur ('burglar.M')

- ▶ Online rating task: multiscale judgments based on visual stimuli (classification of gendered individuals by participants occurs 150ms after visual stimulus onset, Ito and Urland (2003))
 - ▶ Picture-based scales (1-5 Likert scales): ratings converted into distances from the archetype
 - ▶ 2 target scales: Criminality, Sexuality
 - ▶ 4 filler scales: Richness, Fatness, Oldness, Sickness
 - ▶ Items in simple predicative contexts
(e.g. Marie est une traductrice 'Marie is a translator.F.L', Paul est un blagueur 'Paul is a jokester.M.NL')

The scales

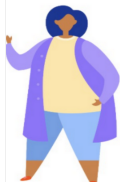
Target, F



Target, M



Filler, F



Filler, M



Sampling

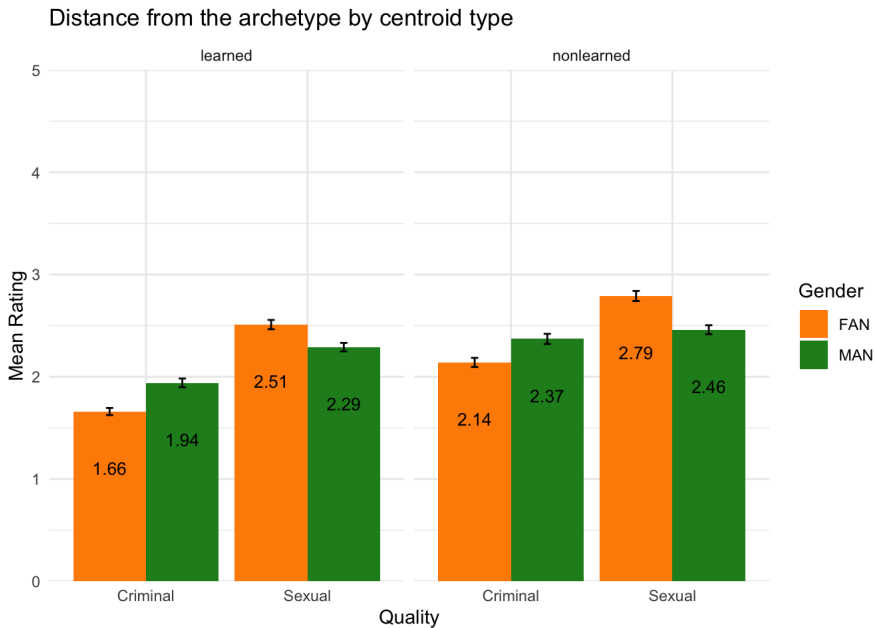
- ▶ Within-subject design
 - ▶ Randomised subset of 40 items per participant
- ▶ 149 participants recruited on Prolific
 - ▶ High rate of participant exclusion (49 fell below the 80% accuracy threshold)
 - ▶ French native speakers, ages 18-63 (mean: 34)
 - ▶ 29 women, 36 men

Results

- ▶ Overall predictions were borne out :
 - ▶ Mean distance to the archetype regardless of formation type:

Noun	Archetype	Mean	N
FAN	Sexuality	2.6462	1554
FAN	Criminality	1.8956	1554
MAN	Sexuality	2.3760	1540
MAN	Criminality	2.1546	1540

Results



Results

- ▶ Bayesian mixed effects logistic ordinal regressions (brms, R)
 - ▶ Random effects: ITEM & PARTICIPANT
- ▶ MAN 45% less likely to yield high sexuality ratings ($P(\beta < 0)=1$)

	Estimate	Conf. Int.
MAN	-0.59	[-0.93 ; -0.26]
Non-learnèd	0.48	[0.16 ; 0.79]

Table: Model 1 : Rating \sim Sexuality * Formation type

- ▶ MAN 170% more likely to be evocative of criminality ($P(\beta > 0)=1$)

	Estimate	Conf. Int.
MAN	0.53	[0.17 ; 0.89]
Non-learnèd	1.02	[0.66 ; 1.40]

Table: Model 2 : Rating \sim Criminality * Formation type

- ▶ Non-learnèd nouns more likely to yield high stereotypicality ratings overall ($\uparrow 161\%$ for sexuality, $\uparrow 277\%$ for criminality) ($P(\beta > 0)=1$)

Discussion

- ▶ Greater effect sizes for Masculine Agent Nouns across both models:
 - ▶ It is likely that Feminine Agent Nouns evoke archetypes (whatever they may be) to a greater degree than MAN
 - ▶ Gender-specified representation of FAN (Irmen and Kurovskaja 2010)
 - ▶ Women are conceptualized based on stereotypes (Burr, Dunn, and Farquhar 1972)
- ▶ Gender effect: derogatory semantic specialization especially salient for FAN
 - ▶ Semantic asymmetries : Semantic drifts more common for female nouns, especially viz. obscenities (Schulz 1975)





Conclusion

- ▶ Main effects compatible with our starting claims
 - ▶ There are distinct interpretive effects in Feminine Agent Nouns and Masculine Agent Nouns, as well as valence distinctions for learned and non-learned formations
 - ▶ FAN_N are more evocative of sexuality than FAN_L or MAN_N
 - ▶ MAN_N are more evocative of criminality than MAN_L or FAN_N

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- ▶ Taking stock:
 - ▶ We provided a psycholinguistic means of evaluating different axiological properties and their interaction with formation types for French agent nouns
 - ▶ We provided evidence confirming semantic and morphological contrasts

References

-  Burr, Elizabeth, Susan Dunn, and Norma Farquhar (1972). "The language of inequality". In: *ETC: A Review of General Semantics*, pp. 414–416.
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