

The bilingual lexicon under Distributed Morphology: An Investigation of gender agreement in code-switching

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Bilingualism and linguistic theory

- ↗ An adequate model of grammar must support the **representation of more than one language**.
- ↗ What is the locus of cross-linguistic variation in grammar?
- ↗ How is language specific information dissociated in a single system?

Grammatical gender

Grammatical gender is a source of cross-linguistic variation.

masculine

בית

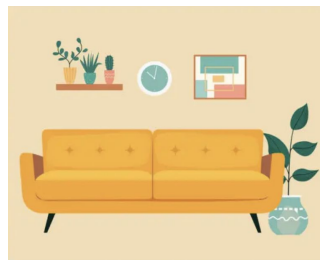
house



feminine

דירה

apartment

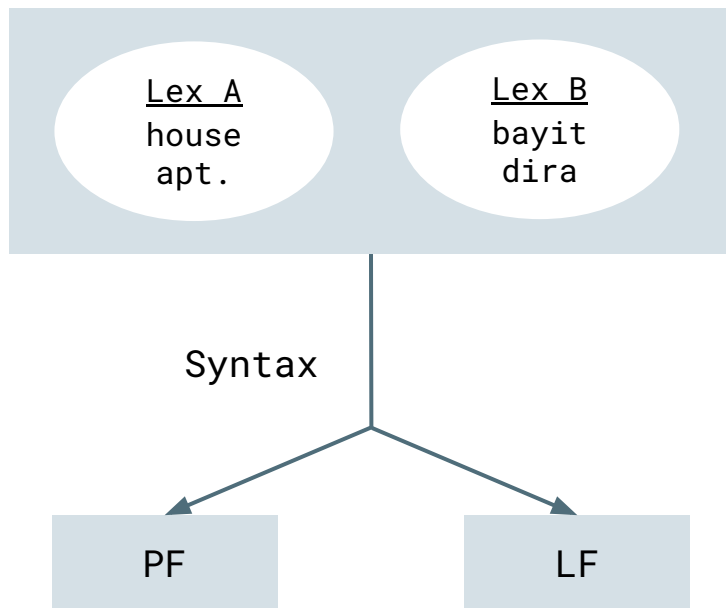


The bilingual lexicon(s)

Are **lexical items** of different languages integrated or autonomous within the bilingual Language Faculty?

The bilingual lexicon(s)

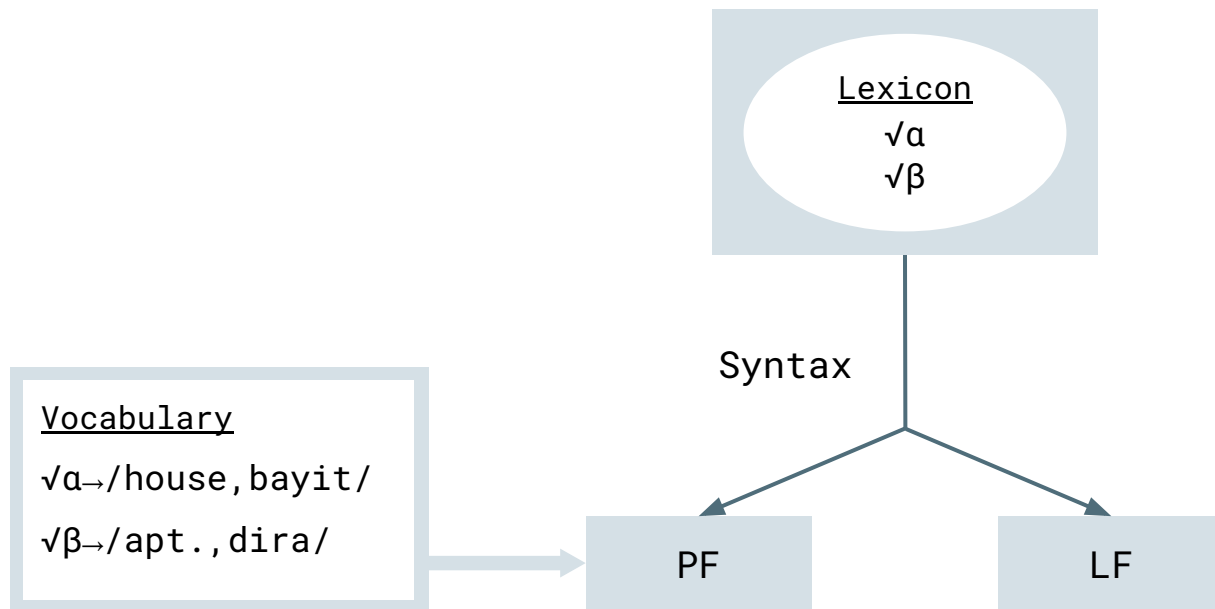
Lexicalist architecture (Chomsky 1965, 1981) → Autonomous



e.g., MacSwan 1999

The bilingual lexicon(s)

Distributed Morphology (Halle & Marantz 1993) → Possibly integrated



e.g., López 2020

Gender agreement in ICS

(1) Their old **apartment** *le'at le'at mitparek-ø/et*
slowly slowly fall.apart-M/F

↗ **Default agreement**

A noun in a non-gendered language may lead to default agreement, which is masculine in Hebrew.



Autonomous
lexicons

↗ **Analogical agreement**

A noun in a non-gendered language may trigger agreement based on the gender of its translational equivalent, which is feminine in (1).



Integrated
lexicon

Methods

- ↗ Experiment 1: Visual sentence completion (forced-choice)
- ↗ Experiment 2: Auditory sentence completion (forced-choice)
- ↗ Experiment 3: Auditory acceptability judgement task

	Avg.	Std.	Min.	Max.
Dominance (-218 - 218)	-58.93	40.97	-140.39	93.08
Hebrew AoA	0.55	1.49	0	9
English AoA	3.55	2.98	0	11

Methods

- ↗ 52 early Hebrew-English bilinguals.
- ↗ Self-paced reading centered presentation.
- ↗ Binary forced choice (5000ms).

Materials

concord

We're looking for a {house | apartment} yaxasit

relatively

zol

cheap.M

zola

cheap.F

subj-verb

Their old {house | apartment} le'at le'at

slowly slowly

mitparek

fall.apart.M

mitpareket

fall.apart.F

pronoun

We bought an old {house | apartment} ve-šipacnu

and-renovated

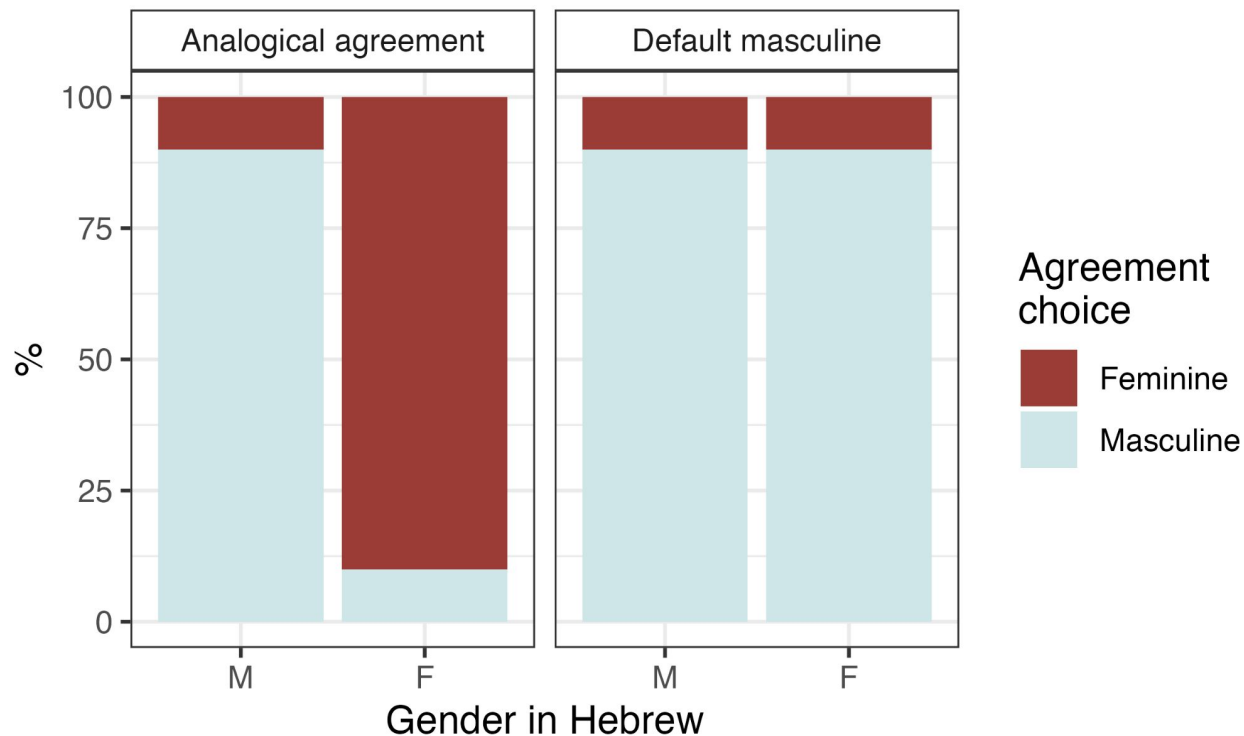
oto

it.M

ota

it.F

Predictions



Results

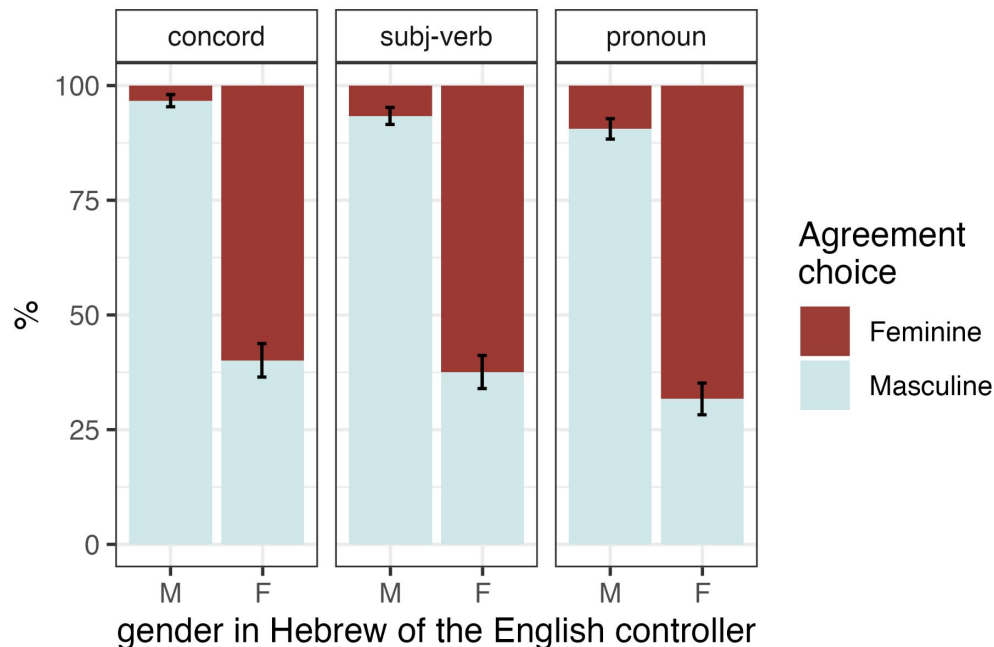
Analogical agreement

Participants tended to choose Hebrew-matching agreement.

Default masculine

Participants chose less Hebrew-matching agreement with *feminine*- compared to *masculine-in-Hebrew* nouns

Est.	Est. Error	95% CrI lower	95% CrI upper
-1.60	0.32	-2.25	-1.00



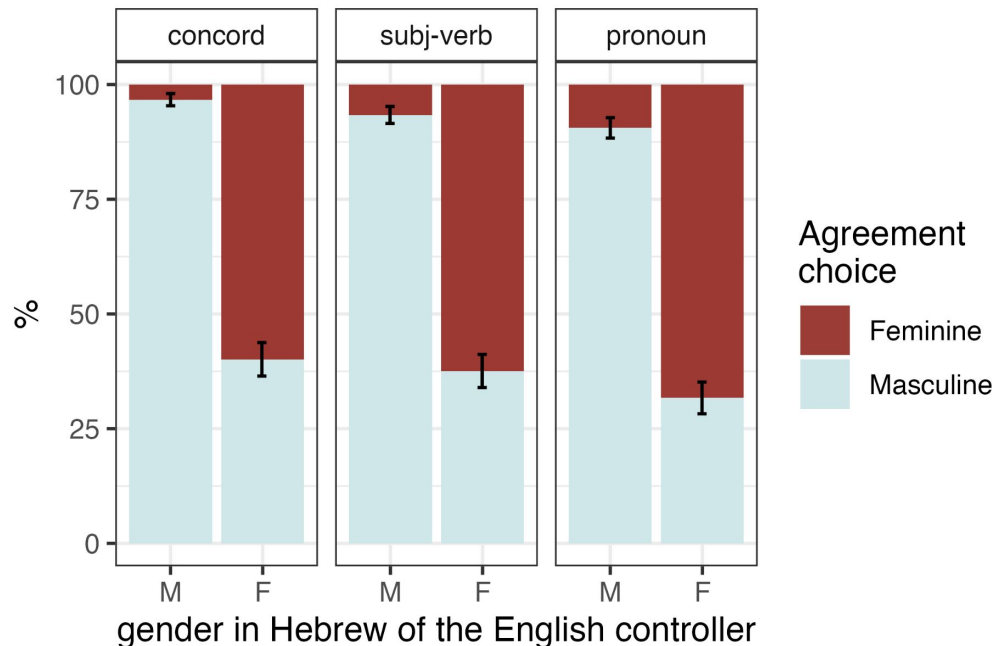
Results

Dependency type

The contrast between *feminine-* and *masculine-in-Hebrew* nouns was **larger** in the *concord* compared to the *pronoun* condition.

In the *concord* condition, there was **less** Hebrew-matching agreement with *feminine-in-Hebrew* nouns, but **more** with *masculine-in-Hebrew* noun.

Est.	Est. Error	95% CrI lower	95% CrI upper
0.25	0.15	-0.07	0.55



Methods

- ↗ 69 early Hebrew-English bilinguals.
- ↗ Listened to pre-recorded sentence preambles.
- ↗ Binary forced choice (5000ms).

Materials

concord

We're looking for a {house | apartment} yaxasit

relatively

zol

cheap.M

zola

cheap.F

subj-verb

Their old {house | apartment} le'at le'at

slowly slowly

mitparek

fall.apart.M

mitpareket

fall.apart.F

pronoun

We bought an old {house | apartment} ve-šipacnu

and-renovated

oto

it.M

ota

it.F

Results

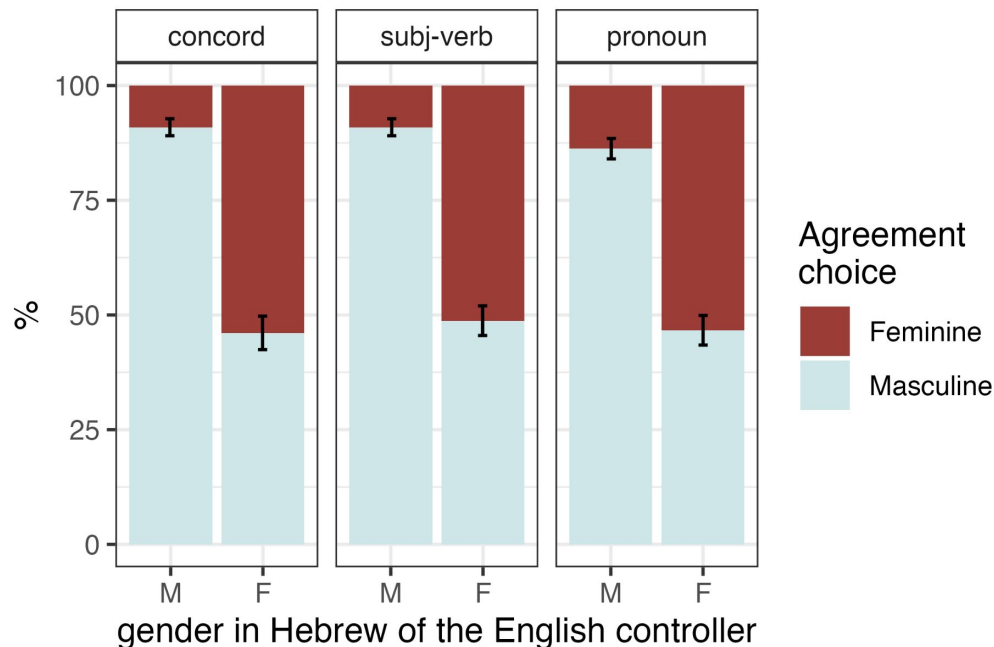
Analogical agreement

Participants tended to choose Hebrew-matching agreement.

Default masculine

Participants chose less Hebrew-matching agreement with *feminine-* compared to *masculine-in-Hebrew* nouns

Est.	Est. Error	95% CrI lower	95% CrI upper
-1.27	0.22	-1.72	-0.85

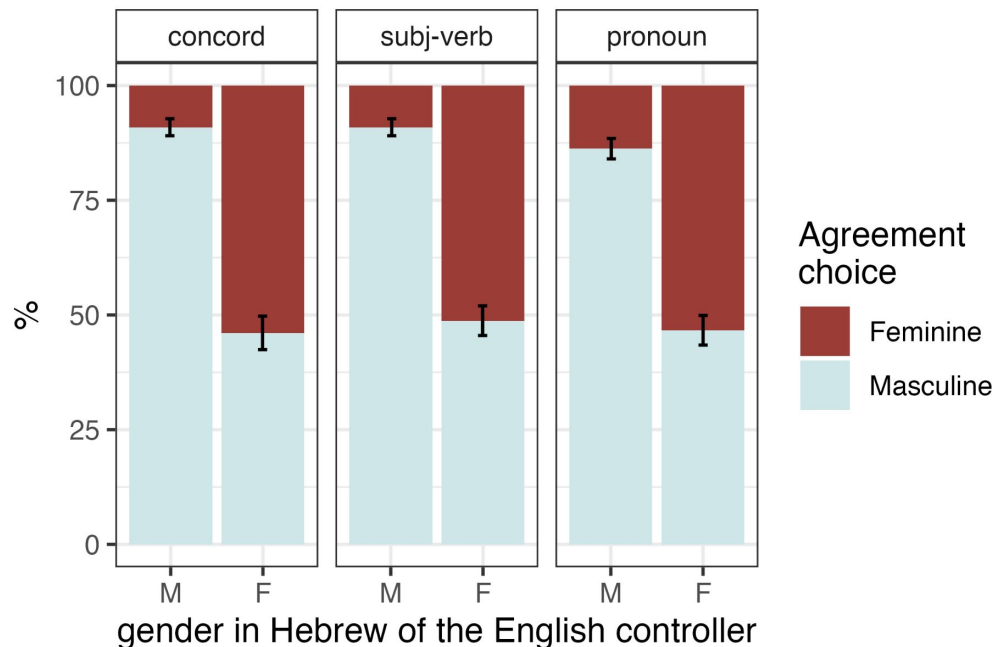


Results

Dependency type

There is some evidence that the contrast between *feminine-* and *masculine-in-Hebrew* nouns was **larger** in the *concord* and *subj-verb* compared to the *pronoun* condition.

Est.	Est. Error	95% CrI lower	95% CrI upper
0.09	0.08	-0.08	0.25



Methods

- ↗ 85 early Hebrew-English bilinguals.
- ↗ Listened to pre-recorded sentences.
- ↗ Rated their acceptability on a 6pt scale.



Materials

```
agreement: {match|mismatch}
```

concord

We're looking for a house

yaxasit {zol|zola}
relatively cheap.M/F

We're looking for an apartment

yaxasit {zola|zol}
relatively cheap.F|M

subj-verb

Their old house

le'at le'at {mitparek/mitpareket}
slowly slowly fall.apart.M/F

Their old apartment

le'at le'at {mitpareket|mitparek}
slowly slowly fall.apart.F|M

pronoun

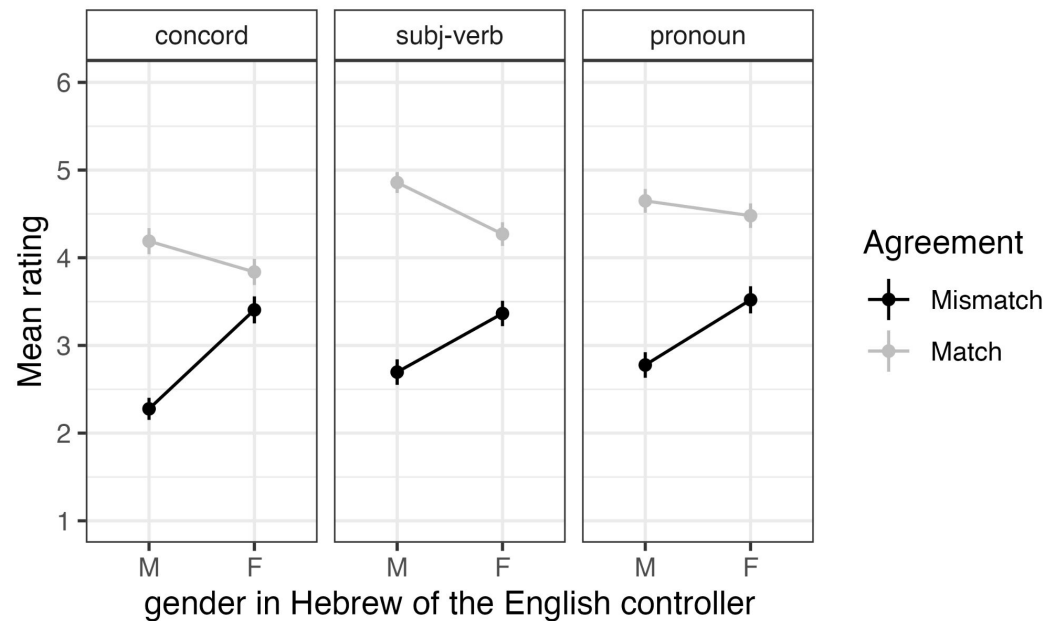
We bought an old house

ve-šipacnu {oto|ota}
and-renovated it.M/F

We bought an old apartment

ve-šipacnu {ota|oto}
and-renovated it.F|M

Results

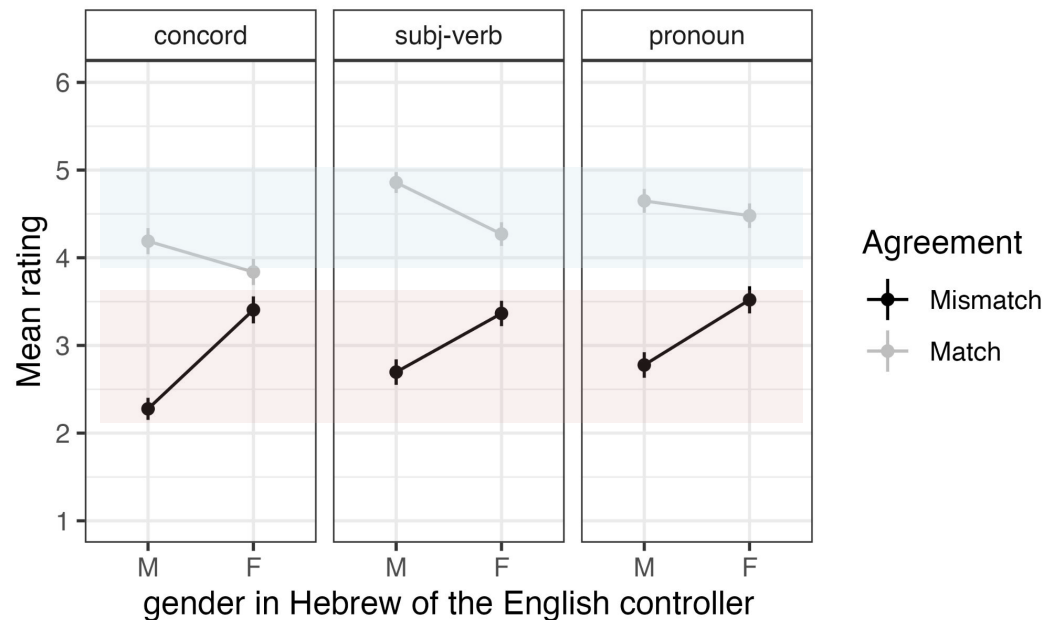


Results

Analogical agreement

Participants prefer Hebrew-matching agreement.

Est.	Est. Error	95% CrI lower	95% CrI upper
0.58	0.08	0.42	0.74

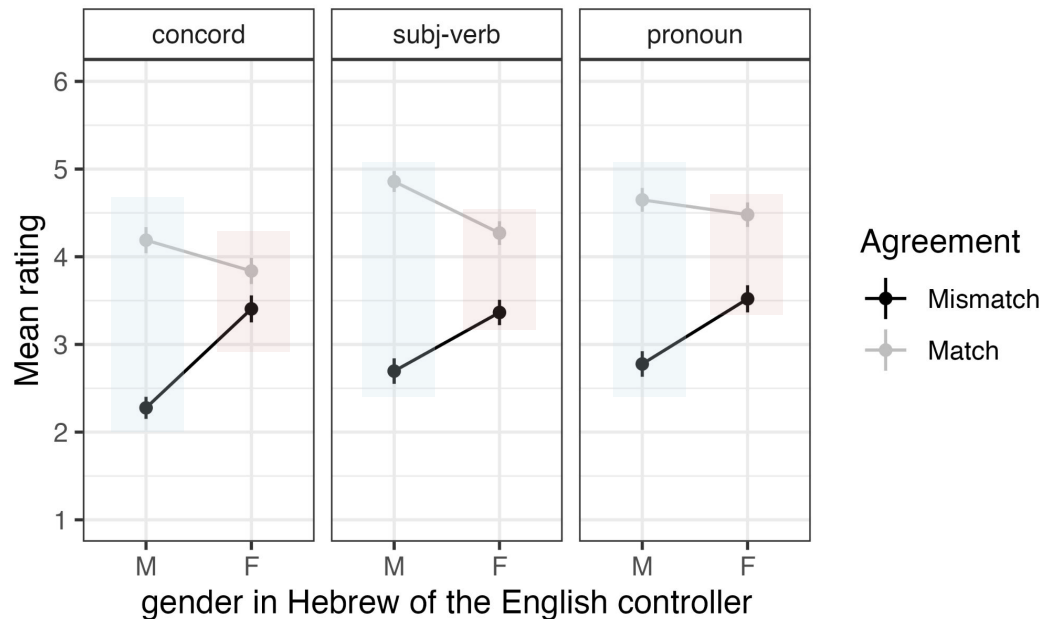


Results

Default masculine

The preference for Hebrew matching agreement was stronger with *masculine-* than *feminine-in-Hebrew* nouns

Est.	Est. Error	95% CrI lower	95% CrI upper
-0.26	0.05	-0.35	-0.17

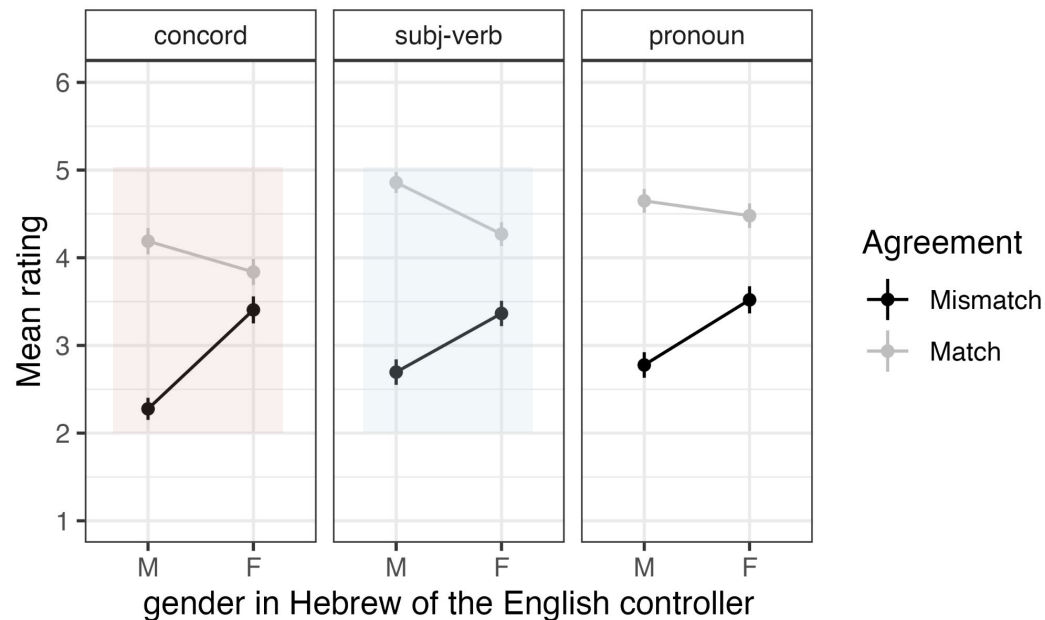


Results

Dependency type

The preference for Hebrew-matching agreement was weakest in the *concord* condition.

Est.	Est. Error	95% CrI lower	95% CrI upper
0.25	0.16	0.00	0.51

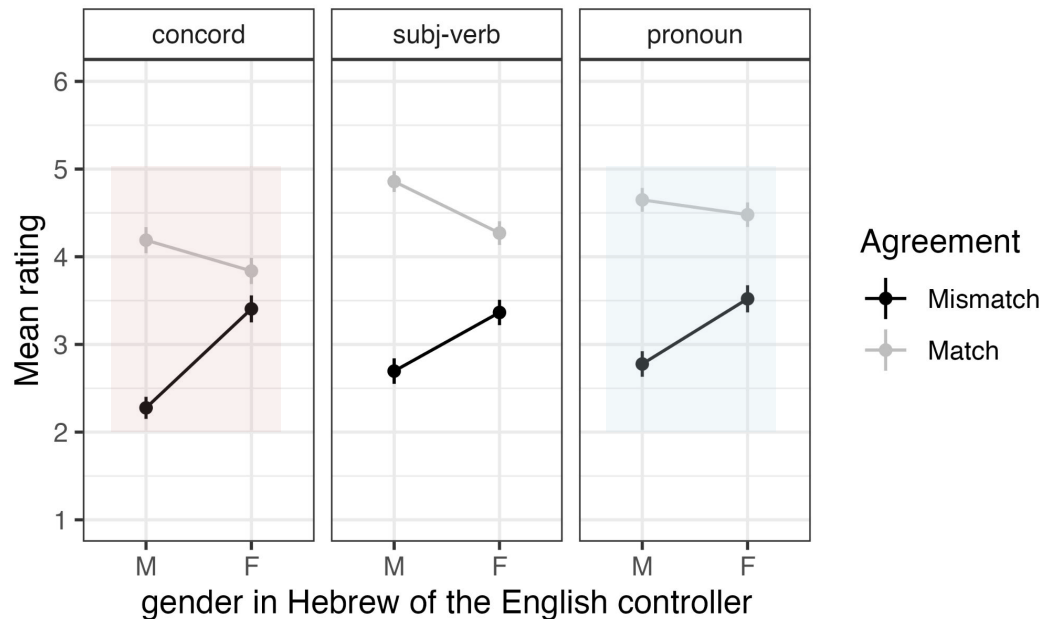


Results

Dependency type

The preference for Hebrew-matching agreement was weakest in the *concord* condition.

Est.	Est. Error	95% CrI lower	95% CrI upper
0.19	0.12	-0.01	0.38

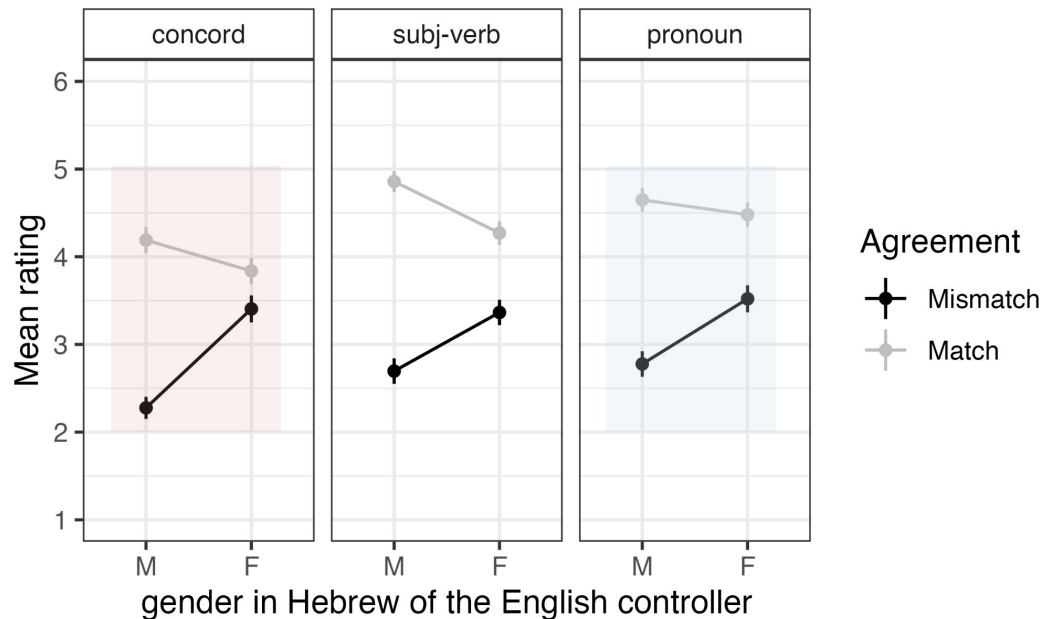


Results

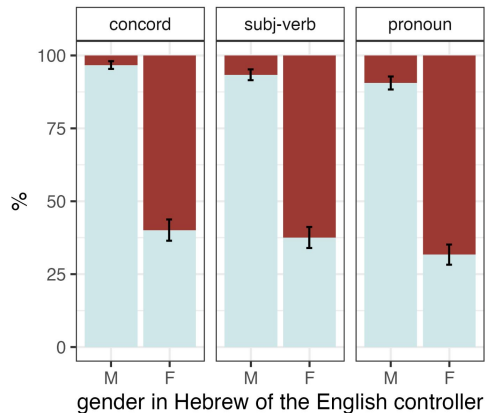
Dependency type

The penalty for using masculine agreement with feminine nouns is larger in the *pronoun* compared to the *concord* condition, but the penalty for using feminine agreement with masculine nouns is the same across the dependency types.

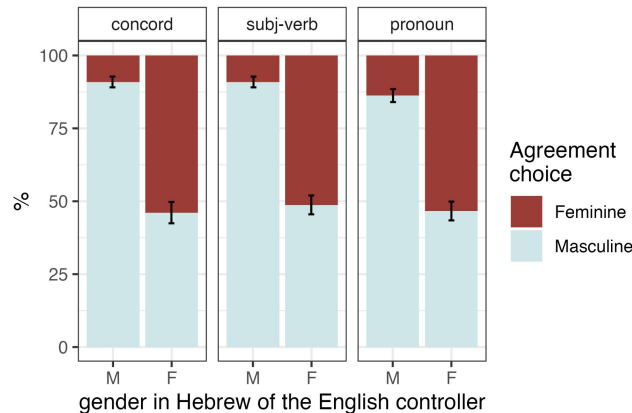
Est.	Est. Error	95% CrI lower	95% CrI upper
-0.38	0.26	-0.80	0.06



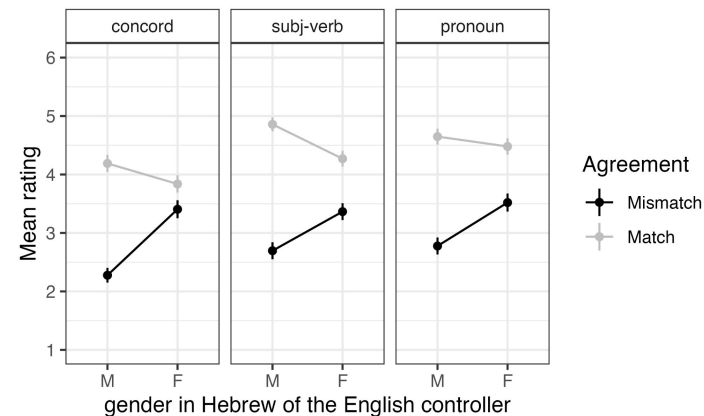
Written sentence completion



Auditory sentence completion



Auditory acceptability judgment

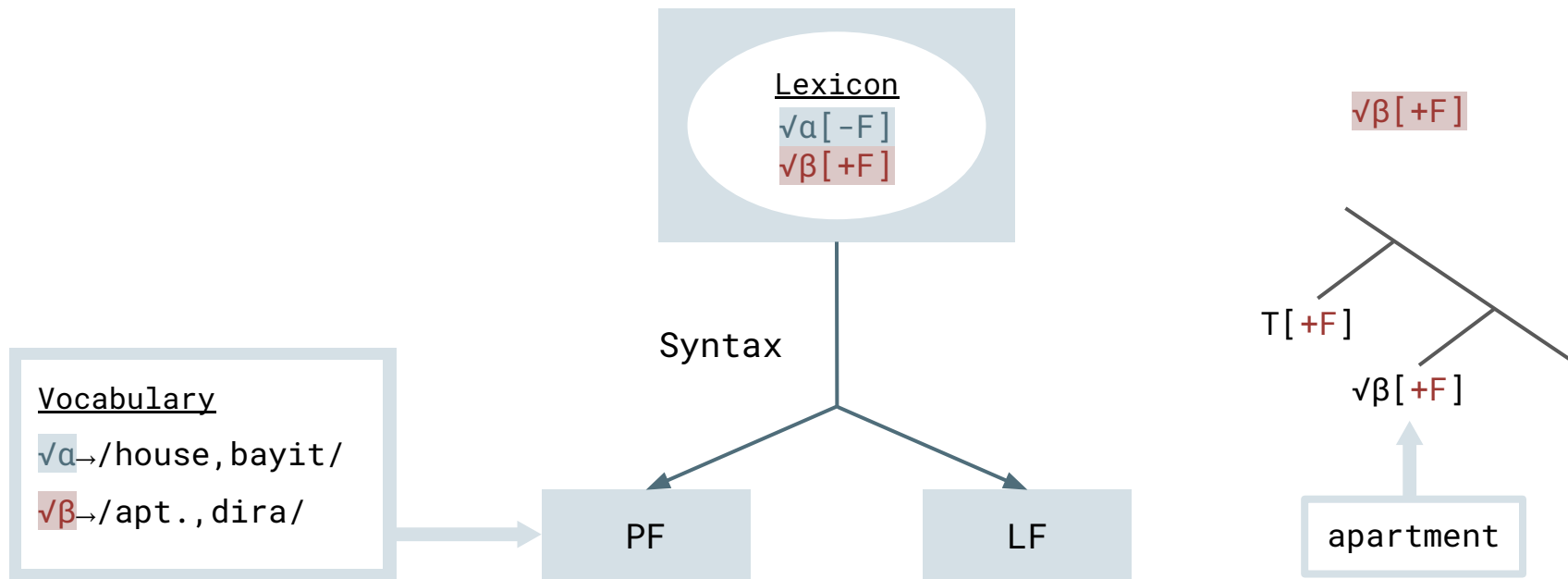


Analogical agreement

Hebrew-English bilinguals prefer Hebrew agreement that **matches the gender of an English noun's Hebrew equivalent**.

The representation of an English lexical item must be marked with the gender of its Hebrew equivalent.

Analogical agreement



Default agreement

Still, we find a significant effect of default agreement:

- ↪ Less Hebrew-matching agreement with feminine-in-Hebrew nouns.
- ↪ Lesser penalty for mismatching agreement with feminine-in-Hebrew nouns.

Default agreement

Gender categorization of Hebrew nouns, and rejection of an agreement error, is faster and more accurate with nouns that carry regular, rather than irregular, gender morphology.

Gollan and Frost (2001)

The absence of congruent gender information on English exponents may interfere with analogical agreement, resulting in default masculine agreement.

Dependency type

We find more default masculine agreement in adjectival concord compared to pronoun form selection.

cf. Valenzuela et al. (2012)

We attribute this contrast to a difference in the *route* to gender information:

- ↪ Concord relies on a structurally determined local antecedent.
- ↪ Pronouns' phi-features are determined via retrieval of the discourse referent's gender specification.

Conclusions

Analogical agreement is prevalent and preferred



Gender marked abstract lexical items under DM

Representation

Some default agreement, especially in concord



Interference of the English exponent's genderlessness

Performance

Thank you!

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