

Evidence for the role of abstract associations with subjecthood in Turkish agreement comprehension

Özge Bakay¹, Utku Turk², Duygu Demiray¹ & Brian Dillon¹

¹UMass Amherst, ²University of Maryland

utkukurk@umd.edu

CLS 62 2026 @ UChicago

April 17, 2026

Today's talk

How is **structural information** used to encode and access linguistic representations in memory?

Today's talk

How is **structural information** used to encode and access linguistic representations in memory?

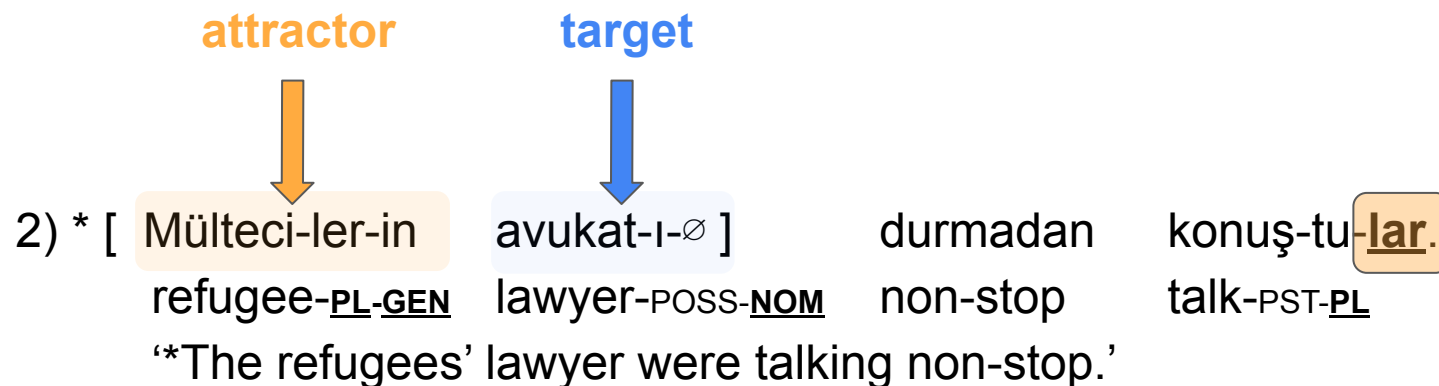
Upshot?

Syntactic positional associations gates access to memory representations.

Agreement attraction in Turkish

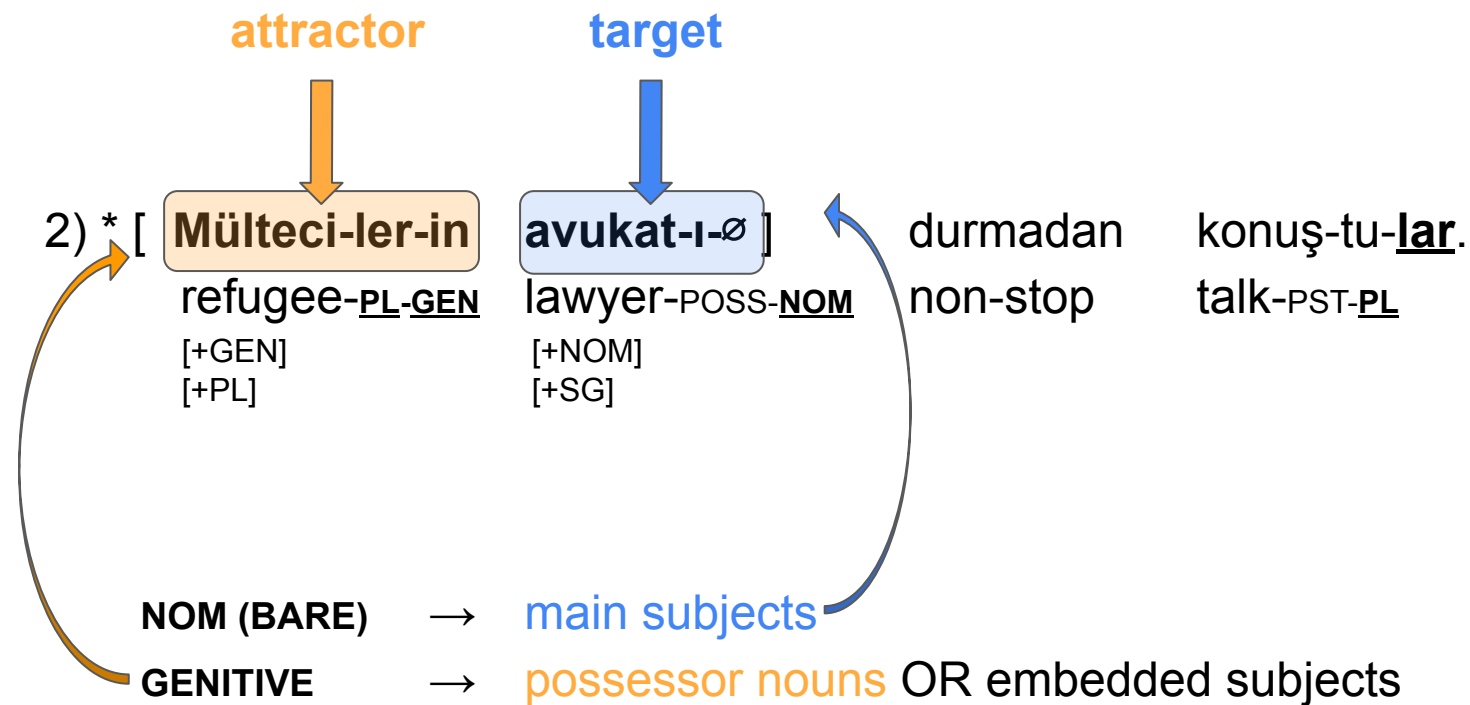
- 1) [**Mülteci-ler-in** **avukat-ı-∅**] durmadan konuş-tu.
refugee-PL-GEN lawyer-POSS-NOM non-stop talk-PST
'*The refugees' lawyer was talking non-stop.'
-

Agreement attraction in Turkish

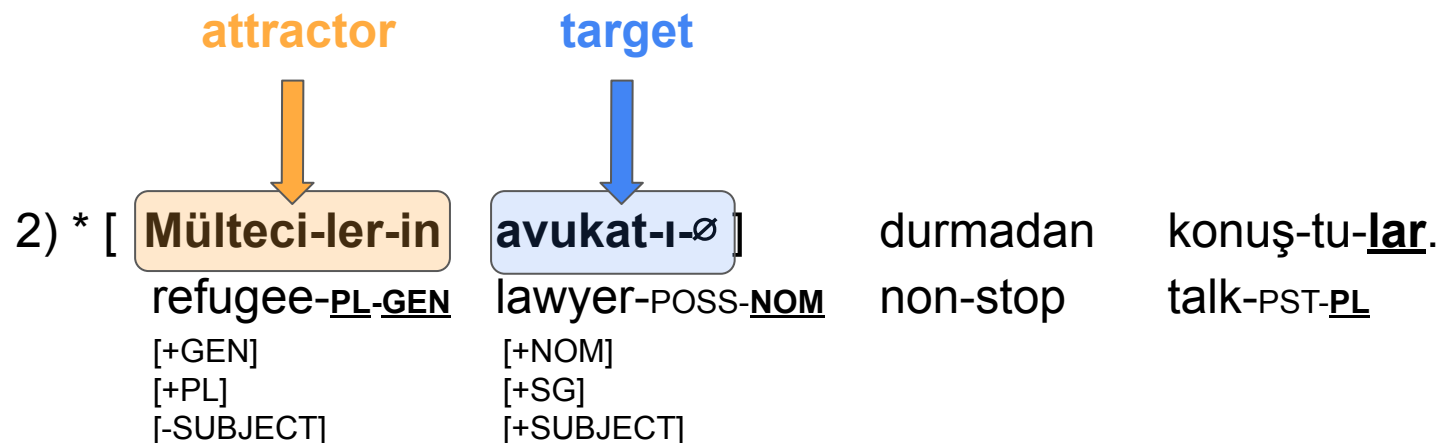


Ungrammatical sentences with a **plural, GENITIVE-marked attractor** occasionally accepted as grammatical

Agreement attraction in Turkish



Agreement attraction in Turkish



TODAY: What type of structural information modulates memory interference?

① Surface structural similarity to the subject (CASE)



② Syntactic associations with SUBJECT PHRASE

Experiment 1: Overview

Surface similarity to the target *or* **syntactic associations** with the subject?

A speeded acceptability judgment task;

2x3 within-subject design

$N_{\text{participant}}$ = 92 Turkish speakers

N_{item} = 24

N_{filler} = 48 (16 ungrammatical)

pre-registered on OSF

Experiment 1:

Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH:

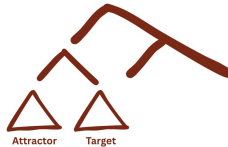
[mülteci-nin
refugee-GEN



avukat-lar-ı
lawyer-PL-POSS] ... duruşma-ya
trial-DAT

...

katıldı-lar.
joined-PL



ATTRACTOR MATCH:

NO MATCH:

‘Yesterday, the refugee’s lawyers joined the trial.’

Experiment 1: Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH:

[mülteci-nin
refugee-GEN

ATTRACTOR MATCH: *

[mülteci-ler-in
refugee-PL-GEN

NO MATCH:

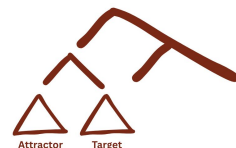
avukat-lar-ı] ... duruşma-ya
lawyer-PL-POSS trial-DAT

avukat-ı] ...
lawyer-POSS

...

katıldı-lar.
joined-PL

katıldı-lar.
join-PL



‘Yesterday, the refugee’s lawyers joined the trial.’

Experiment 1:

Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH:

[mülteci-nin
refugee-GEN

ATTRACTOR MATCH: *

[mülteci-ler-in
refugee-PL-GEN

NO MATCH:

* [mülteci-nin
refugee-GEN

avukat-lar-ı] ... duruşma-ya
lawyer-PL-POSS trial-DAT

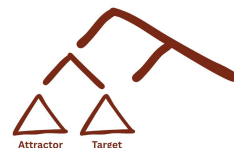
avukat-ı] ...
lawyer-POSS

avukat-ı] ...
lawyer-POSS

... katıldı-lar.
joined-PL

katıldı-lar.
join-PL

katıldı-lar.
join-PL



‘Yesterday, the refugee’s lawyers joined the trial.’

Experiment 1: Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH:

[mülteci-nin
refugee-GEN

ATTRACTOR MATCH: *

[mülteci-ler-in
refugee-PL-GEN

NO MATCH:

* [mülteci-nin
refugee-GEN

avukat-lar-ı
lawyer-PL-POSS

avukat-ı
lawyer-POSS

avukat-ı
lawyer-POSS

] ... duruşma-ya
trial-DAT

] ...

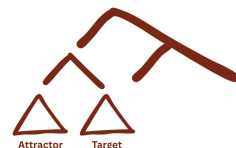
] ...

...

katıldı-lar.
joined-PL

katıldı-lar.
join-PL

katıldı-lar.
join-PL



ATTRACTOR WITHIN OBJECT

TARGET MATCH:

avukat-lar
lawyer-PL

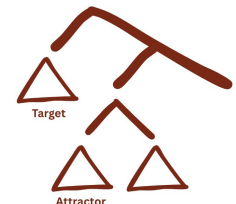
ATTRACTOR MATCH:

NO MATCH:

... [mülteci-nin
refugee-GEN

duruşma-sın-a] ...
trial-POSS-DAT

katıldı-lar.
join-PL



‘Yesterday, the (refugee’s) lawyers joined the (refugee’s) trial.’

Experiment 1:

Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH

[mülteci-nin
refugee-GEN



avukat-lar-ı
lawyer-PL-POSS

] ... duruşma-ya
trial-DAT

...

katıldı-lar.
joined-PL

ATTRACTOR MATCH

* [mülteci-ler-in
refugee-PL-GEN

avukat-ı
lawyer-POSS

] ...

katıldı-lar.
join-PL

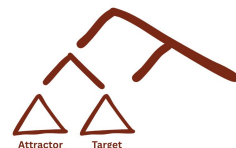
NO MATCH

* [mülteci-nin
refugee-GEN

avukat-ı
lawyer-POSS

] ...

katıldı-lar.
join-PL



ATTRACTOR WITHIN OBJECT

TARGET MATCH

avukat-lar
lawyer-PL



... [mülteci-nin
refugee-GEN

duruşma-sın-a] ...
trial-POSS-DAT

katıldı-lar.
join-PL

ATTRACTOR MATCH

* avukat
lawyer

[mülteci-ler-in
refugee-PL-GEN

...

katıldı-lar.
join-PL

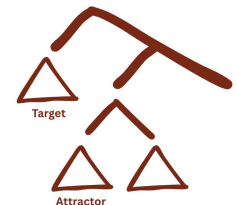
NO MATCH

* avukat
lawyer

[mülteci-nin
refugee-GEN

...

katıldı-lar.
join-PL



‘Yesterday, the (refugee’s) lawyers joined the (refugee’s) trial.’

Experiment 1:

Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH

[mülteci-nin
refugee-GEN]

ATTRACTOR MATCH

* [mülteci-ler-in
refugee-PL-GEN]

NO MATCH

* [mülteci-nin
refugee-GEN]

avukat-lar-ı
lawyer-PL-POSS]

avukat-ı
lawyer-POSS]

avukat-ı
lawyer-POSS]

ATTRACTOR WITHIN OBJECT

TARGET MATCH

avukat-lar
lawyer-PL]

ATTRACTOR MATCH

* avukat
lawyer

NO MATCH

* avukat
lawyer

... [mülteci-nin
refugee-GEN]

[mülteci-ler-in
refugee-PL-GEN]

[mülteci-nin
refugee-GEN]

PREDICTIONS

Surface similarity;

both attractors look like SUBJECT

SUBJECT ≈ OBJECT

'Yesterday, the (refugee's) lawyers joined the (refugee's) trial.'

Experiment 1:

Surface similarity or syntactic associations?

ATTRACTOR WITHIN SUBJECT

Dün / Yesterday...

TARGET MATCH

[mülteci-nin
refugee-GEN]

ATTRACTOR MATCH

* [mülteci-ler-in
refugee-PL-GEN]

NO MATCH

* [mülteci-nin
refugee-GEN]

avukat-lar-ı
lawyer-PL-POSS]

avukat-ı
lawyer-POSS]

avukat-ı
lawyer-POSS]

ATTRACTOR WITHIN OBJECT

TARGET MATCH

avukat-lar
lawyer-PL]

ATTRACTOR MATCH

* avukat
lawyer

NO MATCH

* avukat
lawyer

... [mülteci-nin
refugee-GEN]

[mülteci-ler-in
refugee-PL-GEN]

[mülteci-nin
refugee-GEN]

PREDICTIONS

Surface similarity;

both attractors look like SUBJECT

SUBJECT ≈ OBJECT

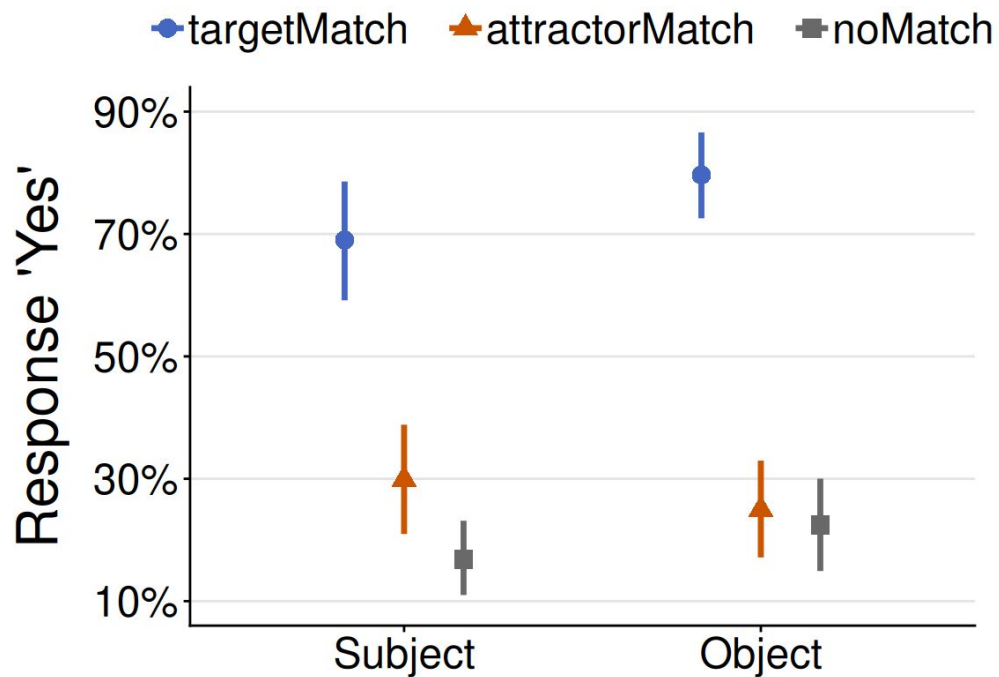
Syntactic associations;

attractor within SUBJECT is syntactically more similar to SUBJECT

SUBJECT > OBJECT

‘Yesterday, the (refugee’s) lawyers joined the (refugee’s) trial.’

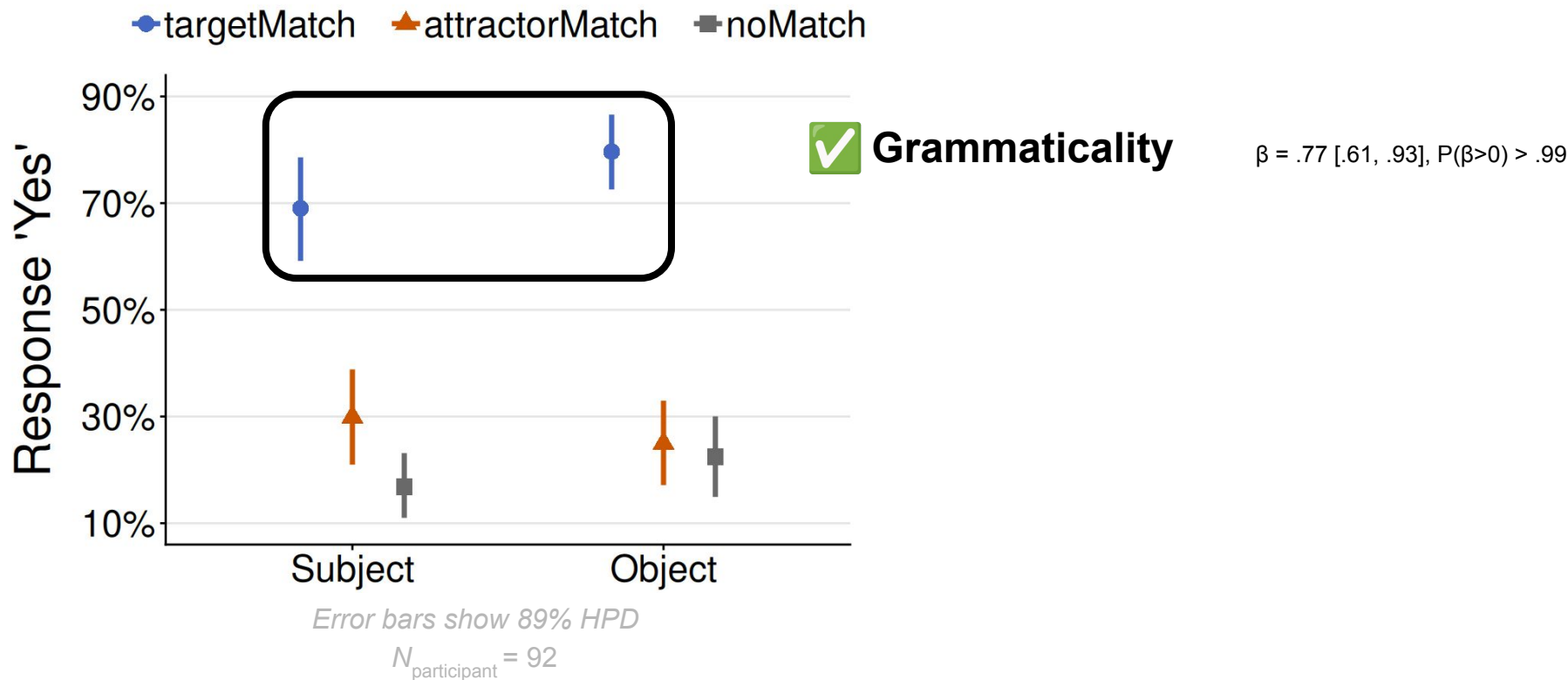
Experiment 1: Results



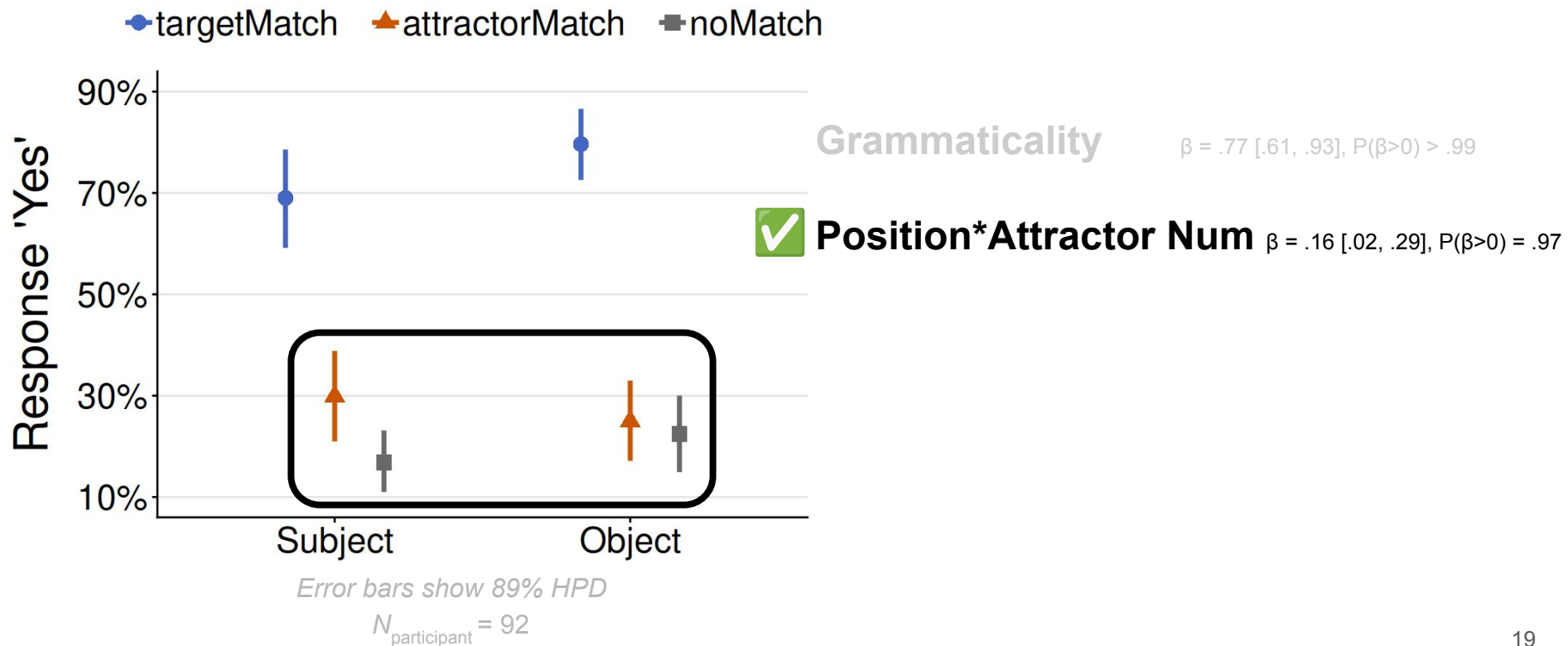
Error bars show 89% HPD

$N_{\text{participant}} = 92$

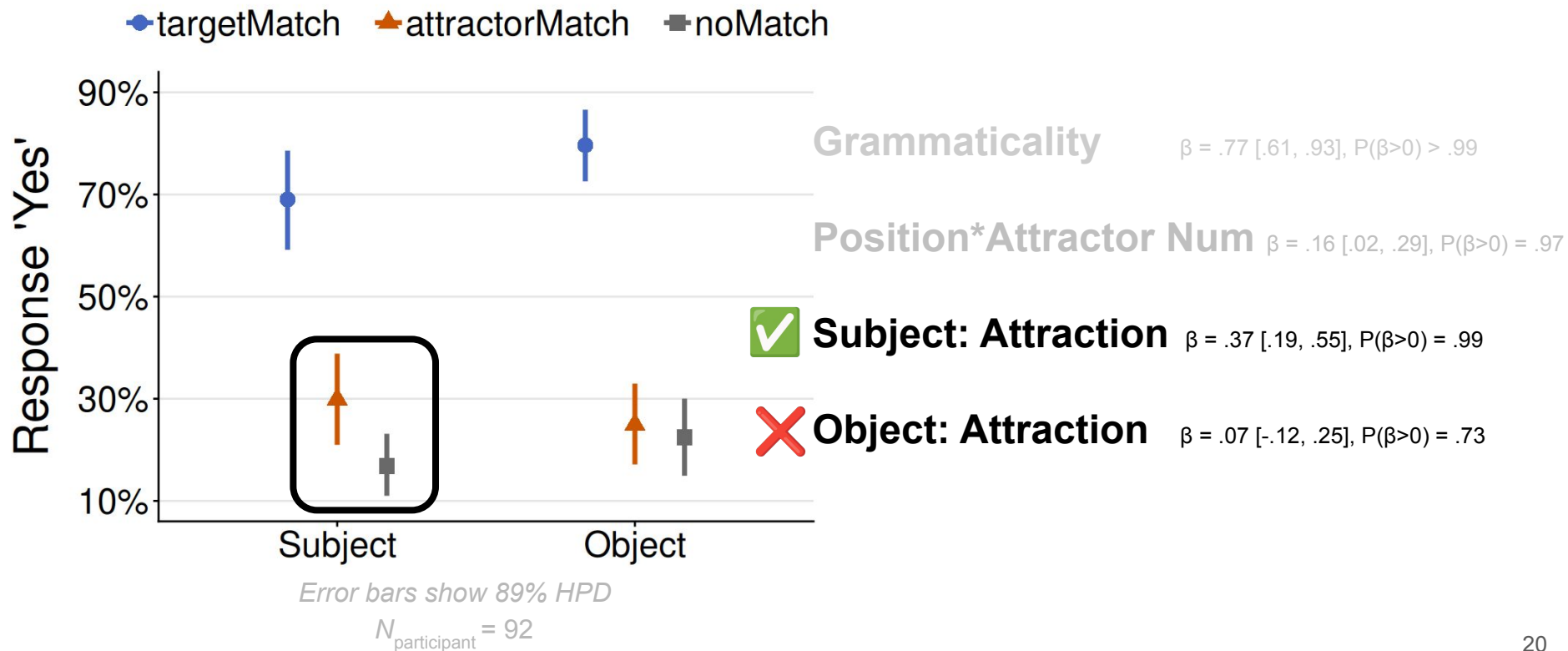
Experiment 1: Results



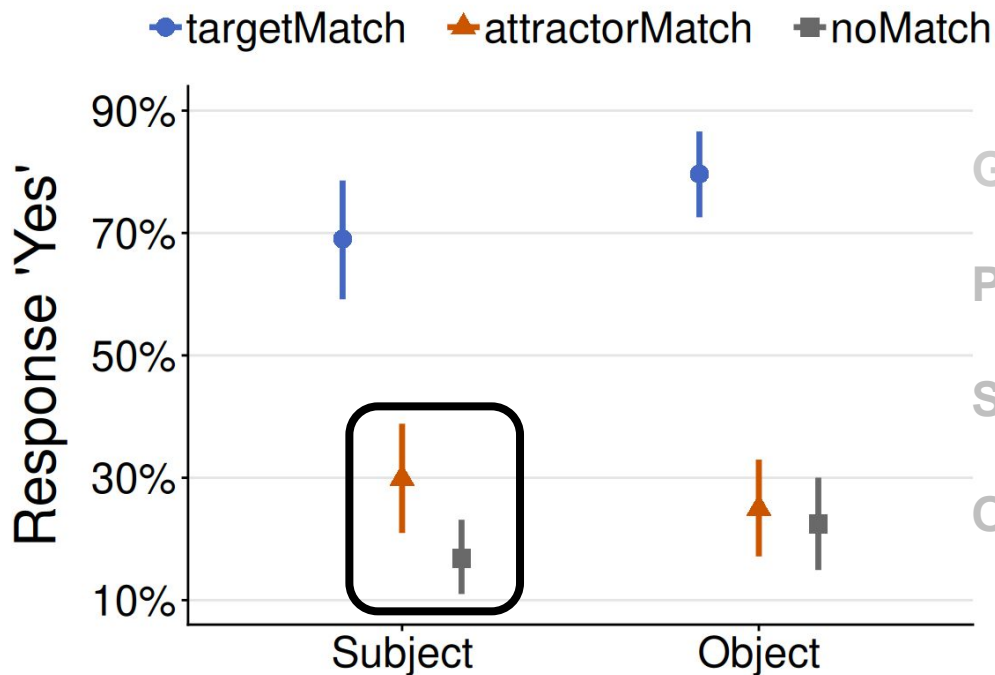
Experiment 1: Results



Experiment 1: Results



Experiment 1: Results



Error bars show 89% HPD

$N_{\text{participant}} = 92$

Grammaticality $\beta = .77 [.61, .93], P(\beta > 0) > .99$

Position*Attractor Num $\beta = .16 [.02, .29], P(\beta > 0) = .97$

Subject: Attraction $\beta = .37 [.19, .55], P(\beta > 0) = .99$

Object: Attraction $\beta = .07 [-.12, .25], P(\beta > 0) = .73$

**Syntactic association with the subject
leads to attraction**

Experiment 2: Overview

Does attraction extend to other **attractors with similar syntactic associations**?

A speeded acceptability judgment task with Bare Attractors;

2x3 within-subject design

$N_{\text{participant}}$ = 58 Turkish speakers

N_{item} = 24

N_{filler} = 48 (16 ungrammatical)

Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET

Mülteci-nin

avukat-lar-ı

duruşmada

durmadan

konuştu-lar.

MATCH

refugee-GEN

lawyer-PL-POSS

at.trial

non-stop

talked-PL

ATTRACTOR

* Mülteci-ler-in

avukat-ı

MATCH

refugee-PL-GEN

lawyer-POSS

konuştu-lar

talked-PL

NO MATCH

* Mülteci-nin

avukat-ı

refugee-GEN

lawyer-POSS

konuştu-lar.

talked-PL

Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>	duruşmada	durmadan
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL-POSS</u>	at.trial	non-stop
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı		
MATCH	refugee- <u>PL-GEN</u>	lawyer- <u>POSS</u>		
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı		
	refugee- <u>GEN</u>	lawyer- <u>POSS</u>		

konuştu-lar.
talked-PL

konuştu-lar
talked-PL

konuştu-lar.
talked-PL

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL-POSS</u>
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer- <u>POSS</u>
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer- <u>POSS</u>

konuştu-lar.
talked-PL

konuştu-lar.
talked-PL

konuştu-lar.
talked-PL

Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı
MATCH	refugee- <u>PL-GEN</u>	lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı
	refugee- <u>GEN</u>	lawyer-POSS

*Probabilistic inference for
alternatives with high frequency*

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer-POSS
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer-POSS

Experiment 2: Bare attractors?

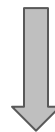
GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı
MATCH	refugee- <u>PL-GEN</u>	lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı
	refugee- <u>GEN</u>	lawyer-POSS

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer-POSS
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer-POSS

*Probabilistic inference for
alternatives with high frequency*



$$P(\text{target.PL} \mid \text{attractor.PL}) > P(\text{target.SG} \mid \text{attractor.PL})$$

Experiment 2: Bare attractors?

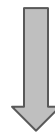
GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL</u> -POSS
ATTRACTOR MATCH	* Mülteci- <u>ler-in</u> refugee- <u>PL-GEN</u>	avukat-ı lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u> refugee- <u>GEN</u>	avukat-ı lawyer-POSS

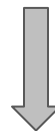
BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL</u> -POSS
ATTRACTOR MATCH	* Mülteci- <u>ler</u> refugee- <u>PL</u>	avukat-ı lawyer-POSS
NO MATCH	* Mülteci refugee	avukat-ı lawyer-POSS

*Probabilistic inference for
alternatives with high frequency*



$$P(\text{target.PL} \mid \text{attractor.PL}) > P(\text{target.SG} \mid \text{attractor.PL})$$



*Plural target assumed in ATTRACTOR MATCH
→ attraction*

Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL-POSS</u>
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı
MATCH	refugee- <u>PL-GEN</u>	lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı
	refugee- <u>GEN</u>	lawyer-POSS



$$P(\text{target.PL} \mid \text{attractor.PL}) > P(\text{target.SG} \mid \text{attractor.PL})$$

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL-POSS</u>
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer-POSS
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer-POSS



Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL-POSS</u>
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı
MATCH	refugee- <u>PL-GEN</u>	lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı
	refugee- <u>GEN</u>	lawyer-POSS



$$P(\text{target.PL} \mid \text{attractor.PL}) > P(\text{target.SG} \mid \text{attractor.PL})$$

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL-POSS</u>
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer-POSS
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer-POSS



[attractor.PL + target.PL]

?*mülteciler avukatları

ungrammatical?!



Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı
MATCH	refugee- <u>PL-GEN</u>	lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı
	refugee- <u>GEN</u>	lawyer-POSS

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer-POSS
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer-POSS

PREDICTIONS

Syntactic associations;

both attractors are comparable and syntactically similar to SUBJECT

GEN \approx BARE

Experiment 2: Bare attractors?

GENITIVE ATTRACTOR = ATTRACTOR WITHIN SUBJECT IN E1

TARGET	Mülteci- <u>nin</u>	avukat- <u>lar-ı</u>
MATCH	refugee- <u>GEN</u>	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler-in</u>	avukat-ı
MATCH	refugee- <u>PL-GEN</u>	lawyer-POSS
NO MATCH	* Mülteci- <u>nin</u>	avukat-ı
	refugee- <u>GEN</u>	lawyer-POSS

BARE ATTRACTOR

TARGET	Mülteci	avukat- <u>lar-ı</u>
MATCH	refugee	lawyer- <u>PL</u> -POSS
ATTRACTOR	* Mülteci- <u>ler</u>	avukat-ı
MATCH	refugee- <u>PL</u>	lawyer-POSS
NO MATCH	* Mülteci	avukat-ı
	refugee	lawyer-POSS

PREDICTIONS

Syntactic associations;

both attractors are comparable and syntactically similar to SUBJECT

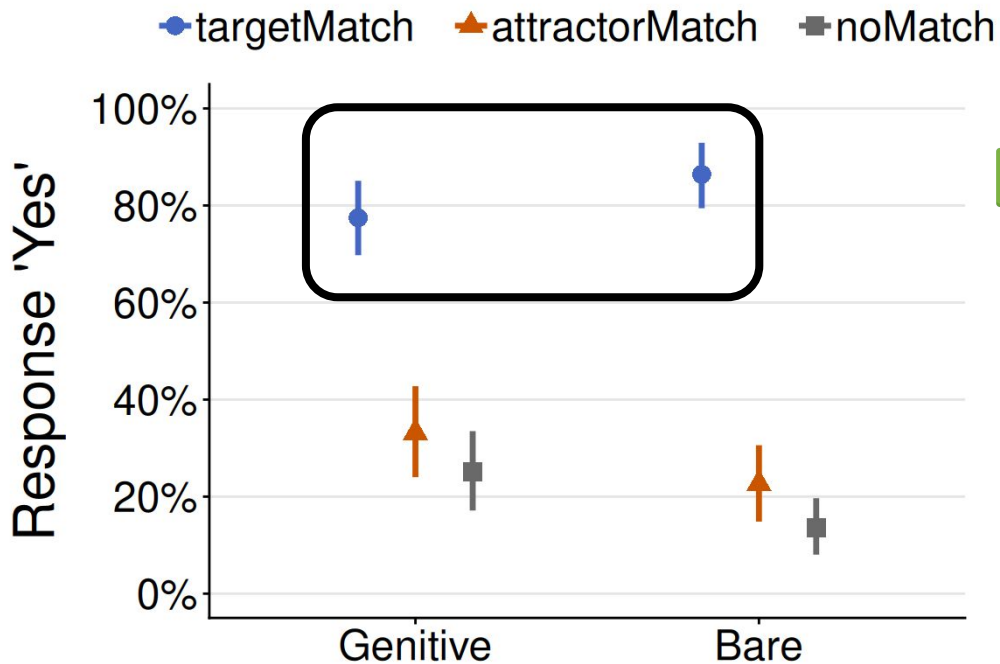
GEN \approx BARE

Probabilistic inference

target in GEN is likely to be corrected to a plural form

GEN $>$ BARE

Experiment 2: Results



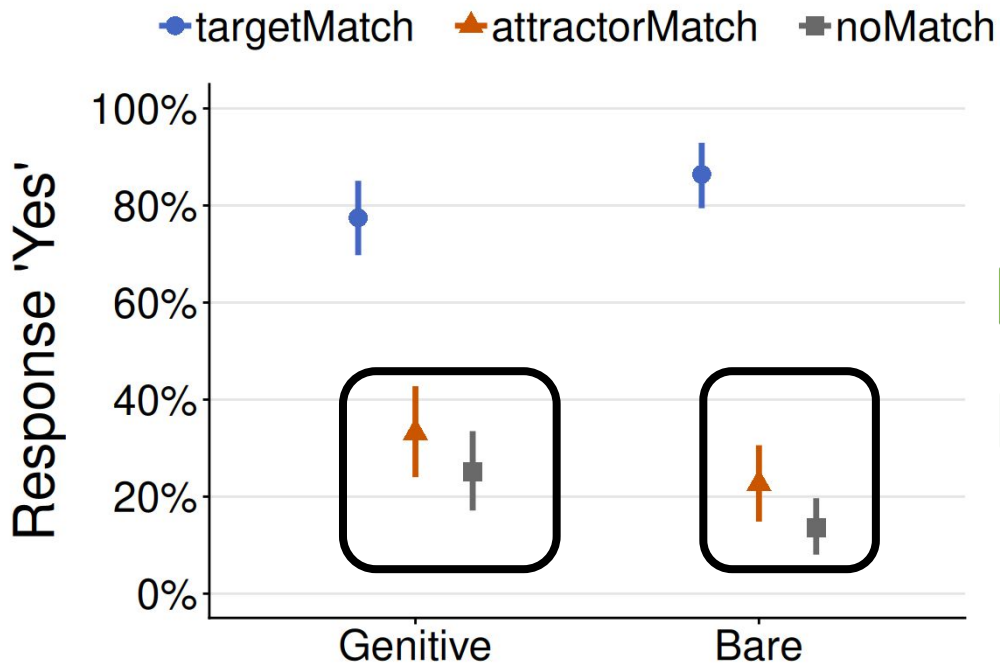
Grammaticality

$\beta = .92$ [.76, 1.09], $P(\beta > 0) > 0.99$

Error bars show 89% HPD

$N_{\text{participant}} = 58$

Experiment 2: Results



Error bars show 89% HPD

$N_{\text{participant}} = 58$

Grammaticality

$\beta = .92$ [.76, 1.09], $P(\beta > 0) > 0.99$

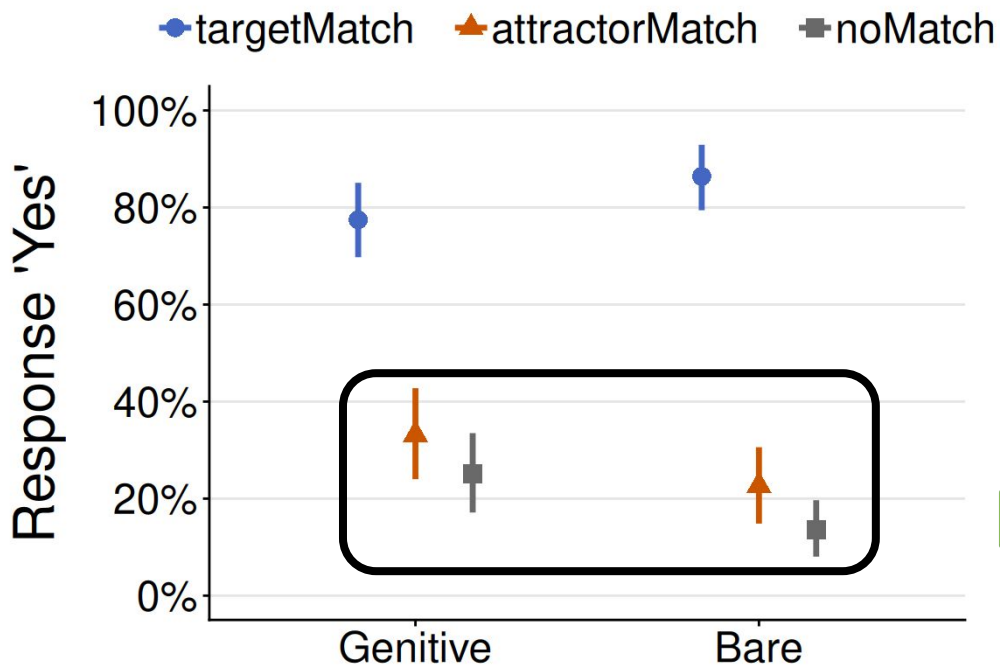


Genitive: Attraction $\beta = .20$ [-.03, .42], $P(\beta > 0) = .92$



Bare: Attraction $\beta = .31$ [.06, .56], $P(\beta > 0) = .98$

Experiment 2: Results



Error bars show 89% HPD

$N_{\text{participant}} = 58$

Grammaticality

$\beta = .92$ [.76, 1.09], $P(\beta > 0) > 0.99$

Genitive: Attraction

$\beta = .20$ [-.03, .42], $P(\beta > 0) = .92$

Bare: Attraction

$\beta = .31$ [.06, .56], $P(\beta > 0) = .98$



Attraction

$\beta = .26$ [.09, .42], $P(\beta > 0) = .99$



Case * Attraction

$\beta = -.05$ [-.23, .14], $P(\beta > 0) = .34$

Summary

In two experiments on **agreement attraction in Turkish**, we

- ✓ replicated attraction with **GENITIVE attractors embedded within the SUBJECT**
- ✓ presented evidence for attraction with **BARE attractors**
- ✗ found **no evidence** for attraction with **GENITIVE attractors within the OBJECT**

Summary

In two experiments on **agreement attraction in Turkish**, we

- ✓ replicated attraction with **GENITIVE attractors embedded within the SUBJECT**
- ✓ presented evidence for attraction with **BARE attractors**
- ✗ found **no evidence** for attraction with **GENITIVE** attractors within the **OBJECT**

Main take-away:

Memory access in Turkish gated by **syntactic associations with the SUBJECT**

→ role of surface cues such as case & probabilistic inference?

Summary

In two experiments on **agreement attraction in Turkish**, we

- ✓ replicated attraction with **GENITIVE attractors embedded within the SUBJECT**
- ✓ presented evidence for attraction with **BARE attractors**
- ✗ found **no evidence** for attraction with **GENITIVE** attractors within the **OBJECT**

Main take-away:

Memory access in Turkish gated by **syntactic associations with the SUBJECT**

→ role of surface cues such as case & probabilistic inference?

Potential role for surface cues? → attractors with non-subject cases

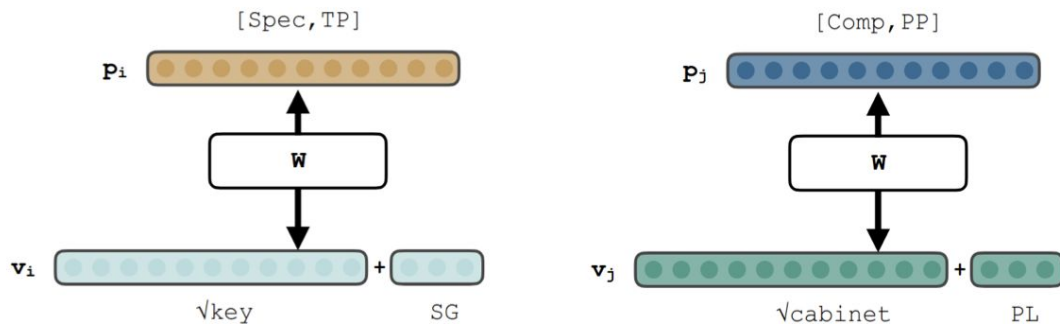
Discussion



How to model associations between lexical items and syntactic positions in memory?

Items maintained through transient bindings with their syntactic positions, with memory access guided by cues linked to these positions

(Keshev et al., 2025; Neu et al. 2025; Bakay et al., 2026)



→ *Attraction then would be a by phenomenon of structural similarity to controllerhood.*

Discussion

- How are different sources of information used **crosslinguistically**?
Syntactic associations, surface cues, probabilistic inference...

Discussion



How are different sources of information used **crosslinguistically**?

Syntactic associations, surface cues, probabilistic inference...

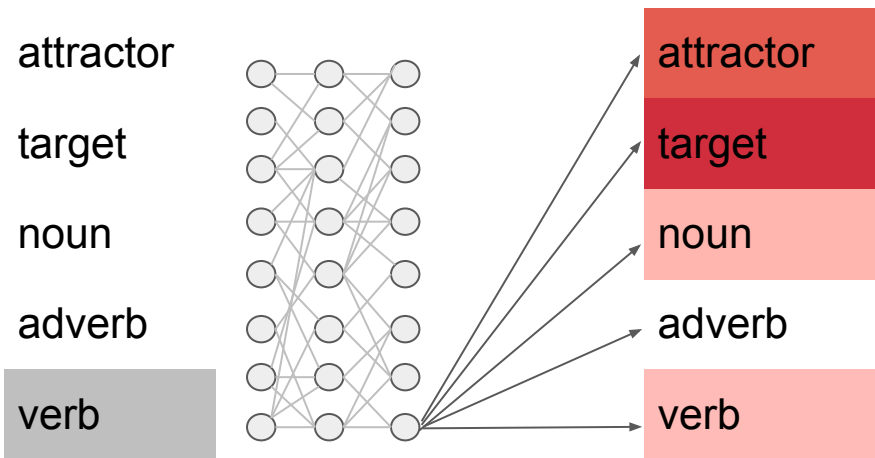
LLMs: Cognitive-general architecture + language-specific properties;

→ attention allocation in transformer-based BERT in Turkish

Does the verb attend to **target** OR **attractor** more?

(Ryu & Lewis, 2025)

LLMs as a probe of retrieval



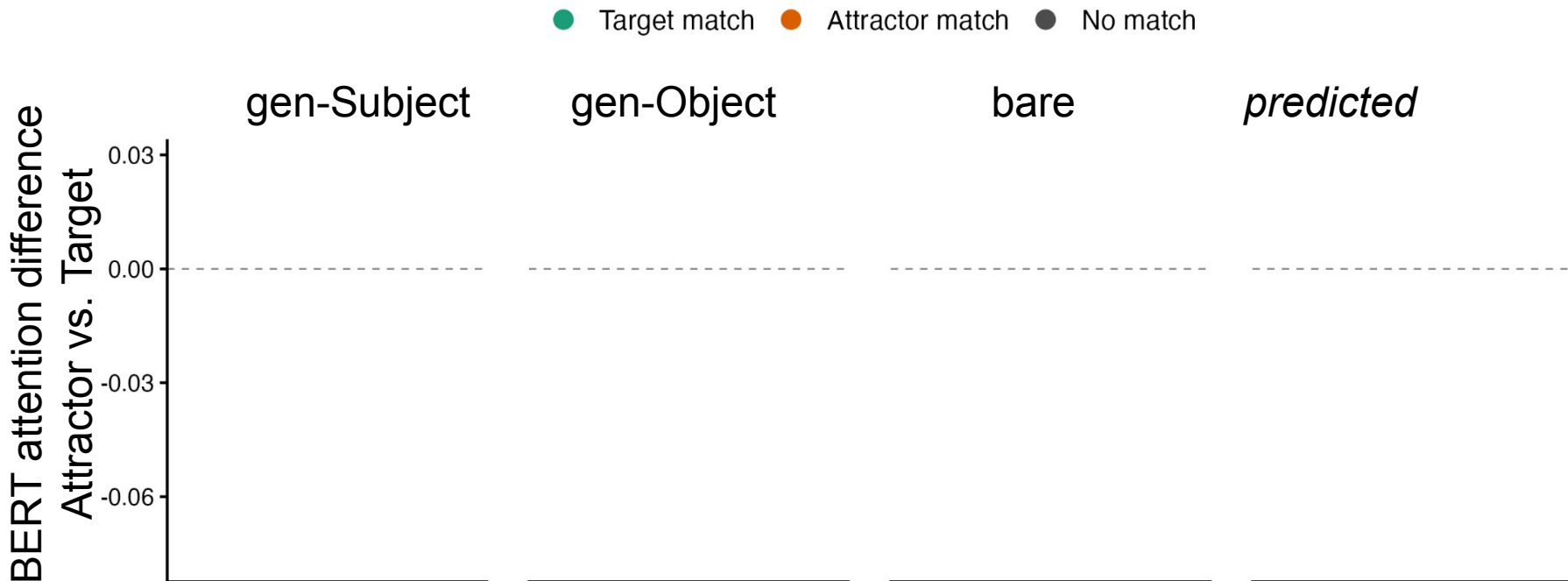
- Transformer's **attention** as a measurable analogue of retrieval interference
- With a controller-sensitive *head*, we looked at the difference between attention to **target** vs. **attractor**

(Ryu & Lewis, 2025)

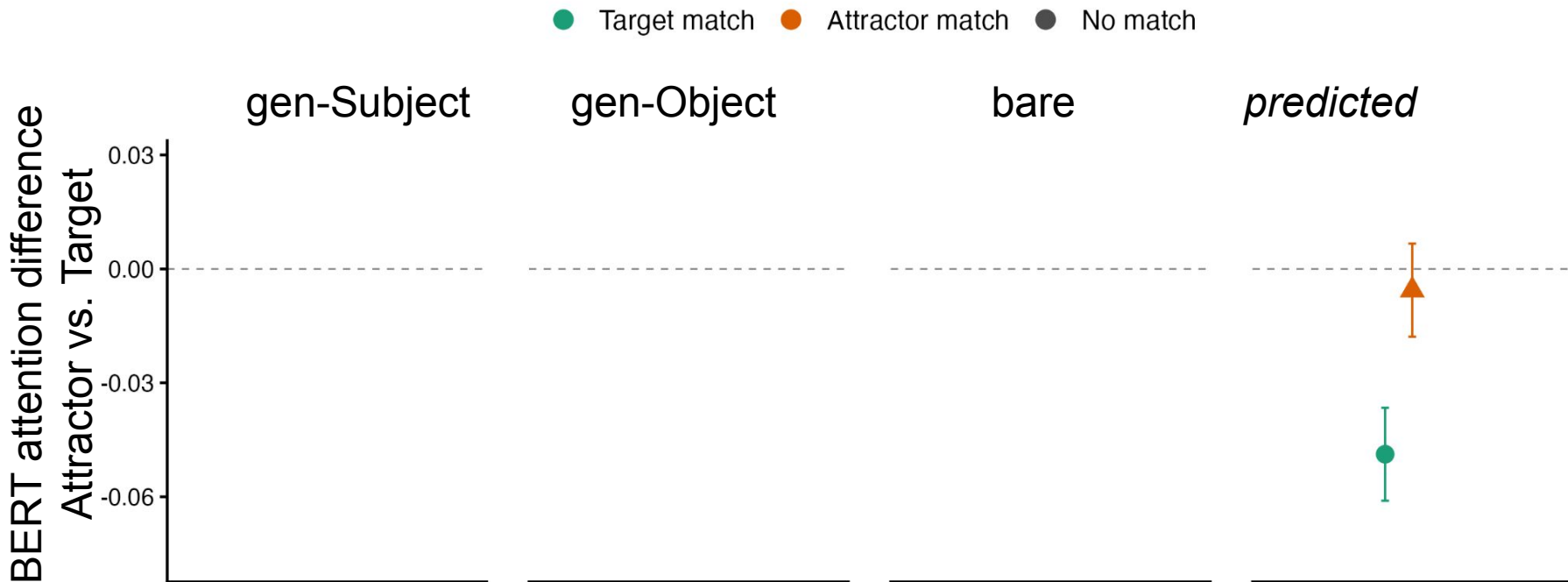
Selection of the *attention head* in BERT

- We analyzed 1 million sentences from the Leipzig corpus;
- We extracted dependency relations and located '**nsubj**' heads;
- We identified a single attention head that gives the strongest attention to subjects;
- We used that as a agreement-sensitive probe;
- Using that, we compared attention to **target** vs. **attractor**.

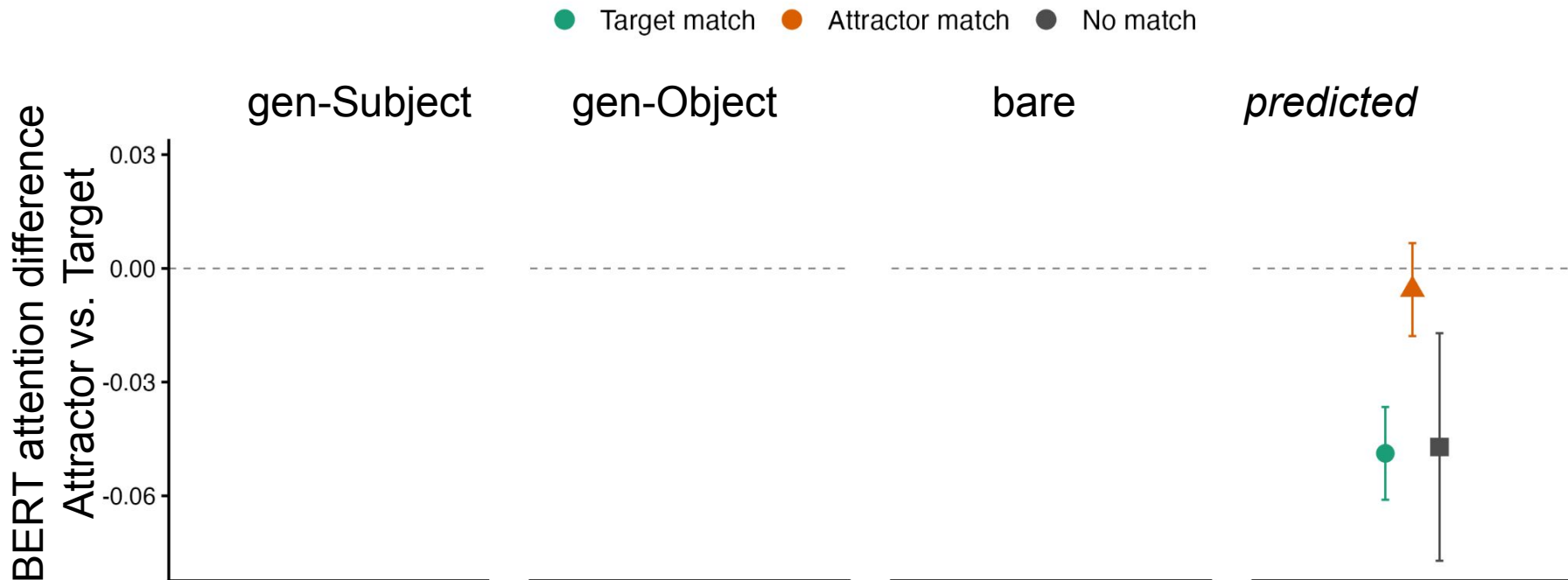
BERT's attention to target vs. attractor



BERT's attention to target vs. attractor



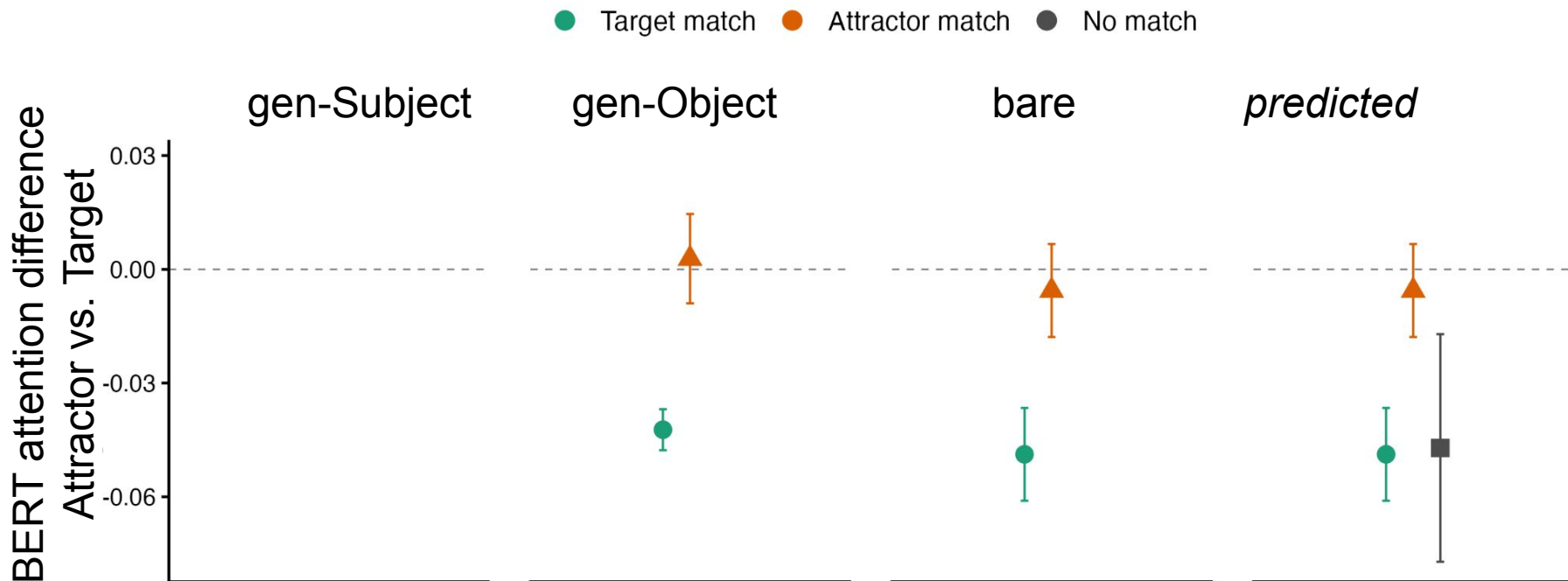
BERT's attention to target vs. attractor



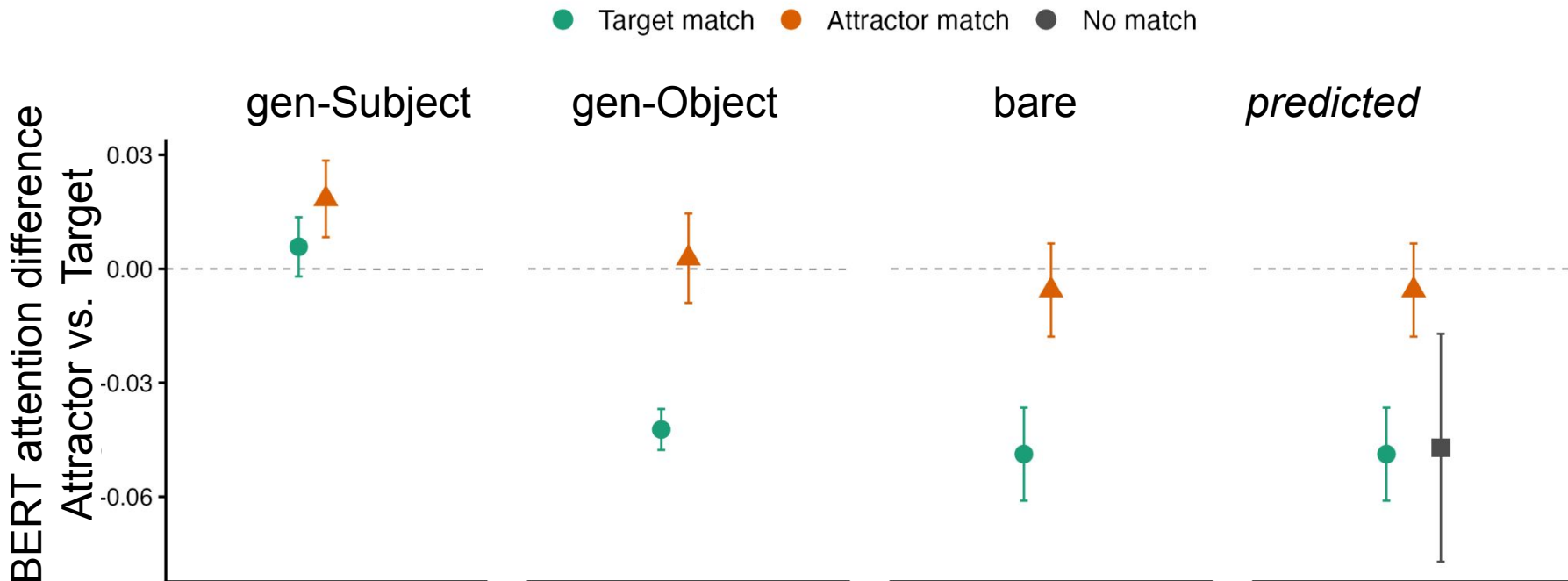
BERT's attention to target vs. attractor



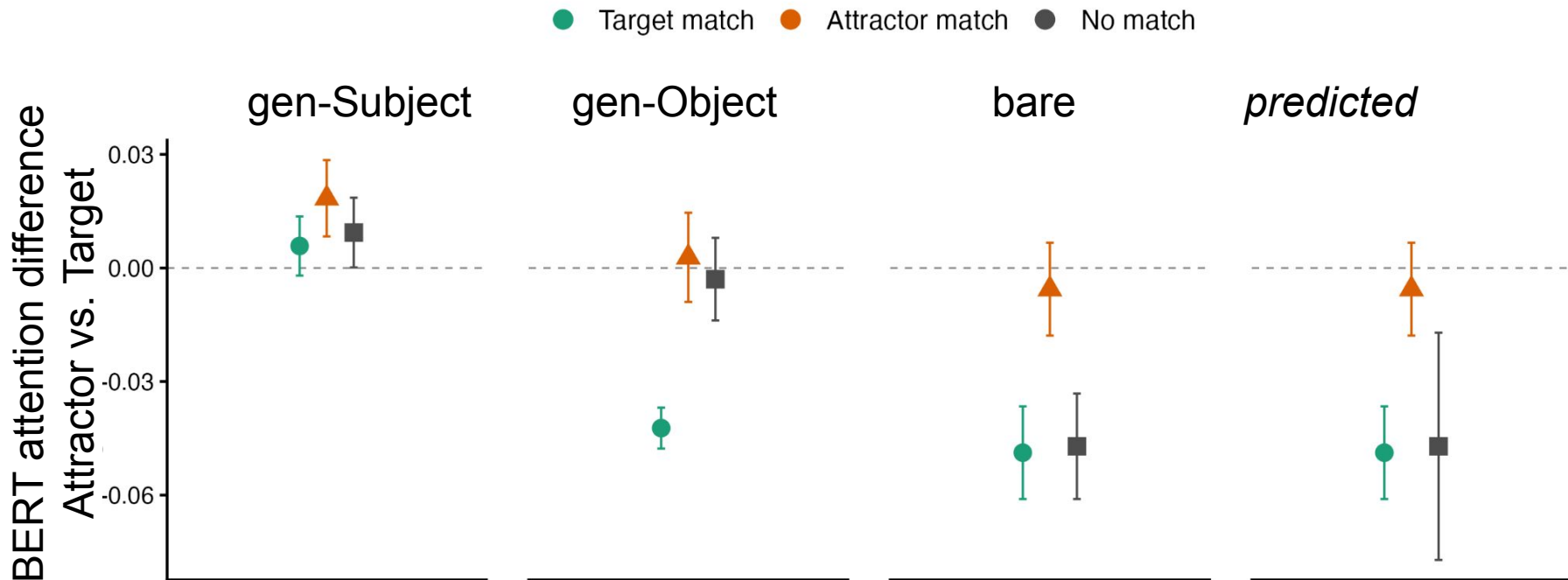
BERT's attention to target vs. attractor



BERT's attention to target vs. attractor



BERT's attention to target vs. attractor



THANK YOU!

We thank Lyn Frazier, Chuck Clifton, Will Timkey,
Weije Xu, Ellen Lau, Colin Phillips and the audience at HSP 2026 for comments.



*We gratefully acknowledge the support of the
National Science Foundation (NSF-DDRI
2518020 to ÖB & NSF-IIS #2504954 to BD) and
UMass Dissertation Fieldwork Grant (to ÖB).*

REFERENCES

- Bakay, Ö., Akkuş, F., & Dillon, B. (2026). [Hierarchical relations guide memory retrieval in sentence comprehension: Evidence from a local anaphor in Turkish](#). *Journal of Memory and Language*, 148, 104747.
- Cartner, M., Dillon, B., Meltzer-Asscher, A., and Keshev, M. Rational inference does not predict agreement errors: Gender vs number attraction in Hebrew comprehension. Poster at the 38th Annual Conference on Human Sentence Processing (HSP). University of Maryland, College Park, MD, USA.
- Hahn, M., Futrell, R., Levy, R., & Gibson, E. (2022). [A resource-rational model of human processing of recursive linguistic structure](#). *Proceedings of the National Academy of Sciences*, 119(43), e2122602119.
- Keshev, M., Cartner, M., Meltzer-Asscher, A., & Dillon, B. (2025). [A working memory model of sentence processing as binding morphemes to syntactic positions](#). *Topics in Cognitive Science* 17(1), 88-105.
- Lago, S., Gračanin-Yukseş, M., Şafak, D. F., Demir, O., Kırkıcı, B., & Felser, C. (2019). [Straight from the horse's mouth: agreement attraction effects with Turkish possessors](#). *Linguistic Approaches to Bilingualism*, 9(3), 398-426.
- Ryskin, R. A., Bergen, L., & Gibson, E. (2021). Agreement errors are predicted by rational inference in sentence processing. PsyArXiv.
- Ryu, S. H., & Lewis, R. L. (2025). [Memory for prediction: A Transformer-based theory of sentence processing](#). *Journal of Memory and Language*, 145, 104670.
- Türk, U., & Logačev, P. (2024). [Agreement attraction in Turkish: The case of genitive attractors](#). *Language, Cognition and Neuroscience*, 39(4), 448-454.

Experiment 2:

Corpus data on probabilities of alternative targets

GENITIVE ATTRACTOR

TARGET:	Mülteci-nin refugee-GEN	avukat-lar-ı lawyer-PL-POSS
MATCH		
ATTRACTOR MATCH	Mülteci-ler-in refugee-PL-GEN	avukat-ı lawyer-POSS
NO MATCH	Mülteci-nin refugee-GEN	avukat-ı lawyer-POSS

BARE ATTRACTOR

TARGET MATCH	Mülteci refugee	avukat-lar-ı lawyer-PL-POSS
ATTRACTOR MATCH	Mülteci-ler refugee-PL	avukat-ı lawyer-POSS
NO MATCH	Mülteci refugee	avukat-ı lawyer-POSS

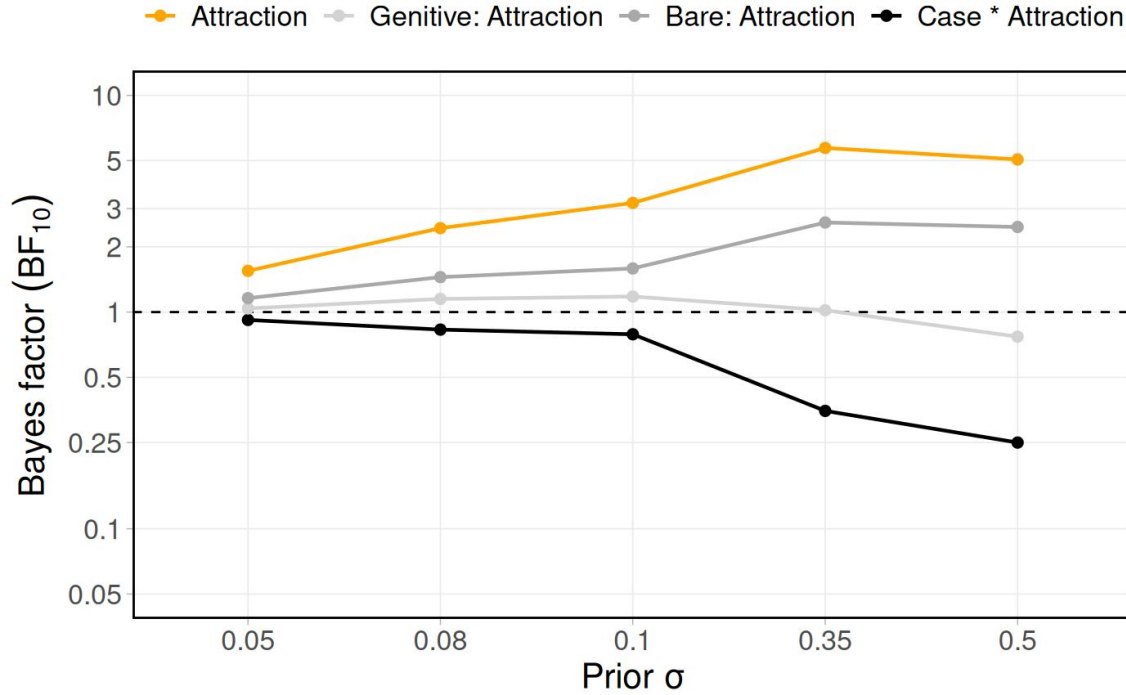
ATTRACTOR: GENITIVE (GEN)

Attractor	Target	Counts (out of 1M)	Pr(TargetPL Att)
SG	SG	4901.8	11.4%
	PL	631.5	
PL	SG	1684.7	24%
	PL	540.3	

ATTRACTOR: BARE NOUN (BARE)

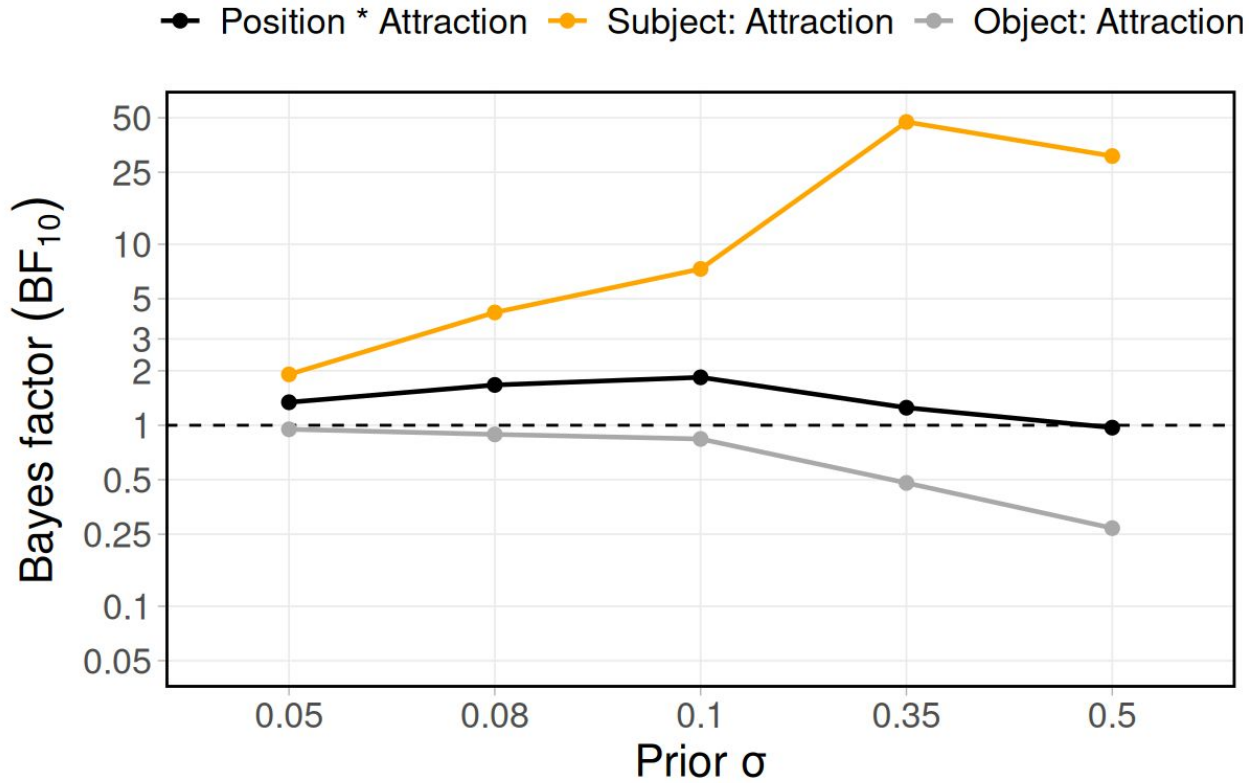
Attractor	Target	Counts (out of 1M)	Pr(TargetPL Att)
SG	SG	18407	17%
	PL	3842.4	
PL	SG	655	5%
	PL	37	

Experiment 2: Sensitivity Analysis



 **Attraction**

Experiment 1: Sensitivity Analysis



- ✓ Subject: Attraction
- ✗ Object: Attraction