Response Bias Manipulation in Turkish Agreement Attraction

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Short talk @ AMLAP 2021, Paris (online)

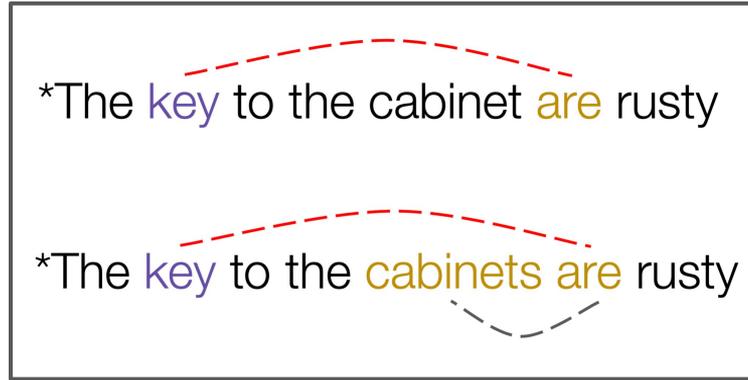**Grammaticality Asymmetry**

*The key to the cabinets are rusty

The key to the cabinets is rusty

(Wagers et al., 2009)

Agreement Attraction

*The key to the cabinet are rusty

*The key to the cabinets are rusty

Representational Accounts:
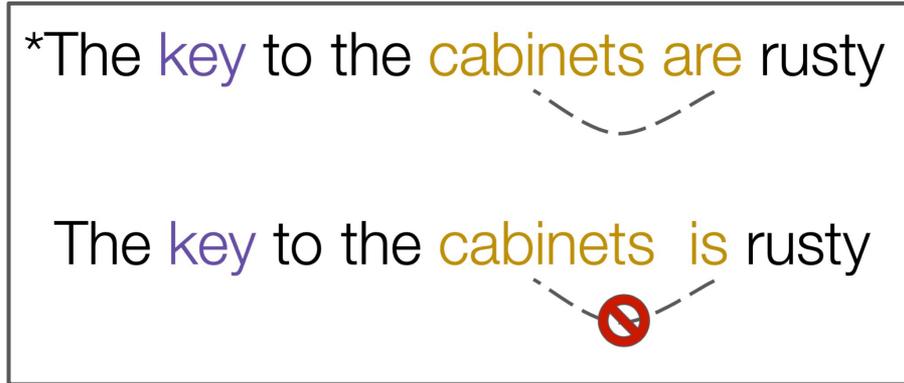
the number encoding of "*the key to the cabinets*"

Retrieval Accounts:

erroneous retrieval of "*cabinets*"

(Bock et al., 1991; Eberhard et al., 2005; Wagers et al., 2009)

Grammaticality Asymmetry
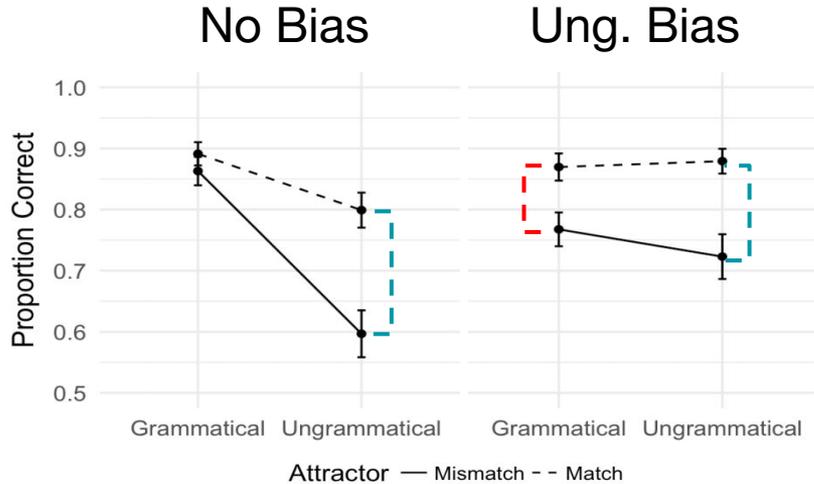
*The key to the cabinets are rusty

The key to the cabinets is rusty 🚫

Retrieval accounts ✅

Representational accounts ❌

Hammerly et al. (2019)

- Grammaticality asymmetry due to response bias

- People have *a priori* grammaticality bias

➔ Grammaticality and ungrammaticality illusions with shifted bias

➔ Their findings are expected under drift diffusion model based account of grammaticality judgment
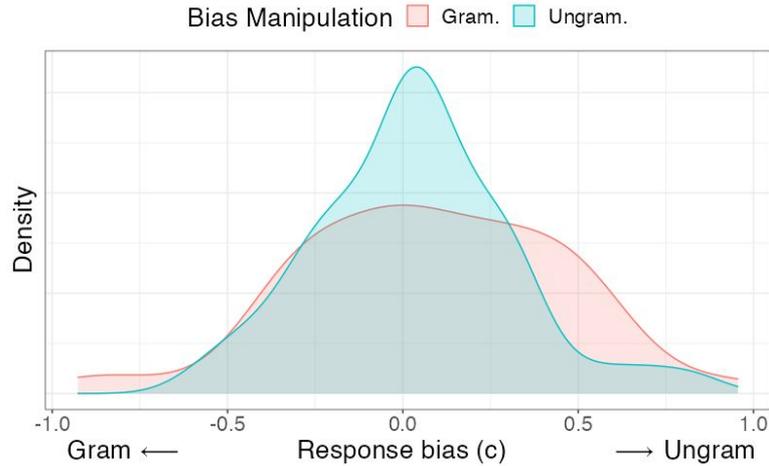
Method

Our Goal: Replicate Hammerly et al.'s findings in another language with another construction

- Speeded Acceptability Judgment, N = 114

- Within-subject factors: *Verb x Attractor number*

- Between-subject factor: *Bias*

a.   SINGULAR ATTRACTOR, GRAMMATICAL (SINGULAR VERB)
[*Yönetici-nin* **aşçı-sı**] mutfak-ta sürekli **zıpl-ıyor.**
manager.SG-GEN **cook-POSS** kitchen-LOC non-stop **jump-IMPF.SG**
'**The cook** of *the manager* **is jumping** in the kitchen non-stop.

b.   SINGULAR ATTRACTOR, UNGRAMMATICAL (PLURAL VERB)
* [*Yönetici-nin* **aşçı-sı**] mutfak-ta sürekli **zıpl-ıyor-lar.**
manager.SG-GEN **cook-POSS** kitchen-LOC non-stop **jump-IMPF-PL**
'*The cook** of *the manager* **are jumping** in the kitchen non-stop.

c.   PLURAL ATTRACTOR, GRAMMATICAL (SINGULAR VERB)
[*Yönetici-ler-in* **aşçı-sı**] mutfak-ta sürekli **zıpl-ıyor.**
manager-PL-GEN **cook-POSS** kitchen-LOC non-stop **jump-IMPF.SG**
'**The cook** of *the managers* **is jumping** in the kitchen non-stop.

d.   PLURAL ATTRACTOR, UNGRAMMATICAL (PLURAL VERB)
* [*Yönetici-ler-in* **aşçı-sı**] mutfak-ta sürekli **zıpl-ıyor-lar.**
manager-PL-GEN **cook-POSS** kitchen-LOC non-stop **jump-IMPF-PL**
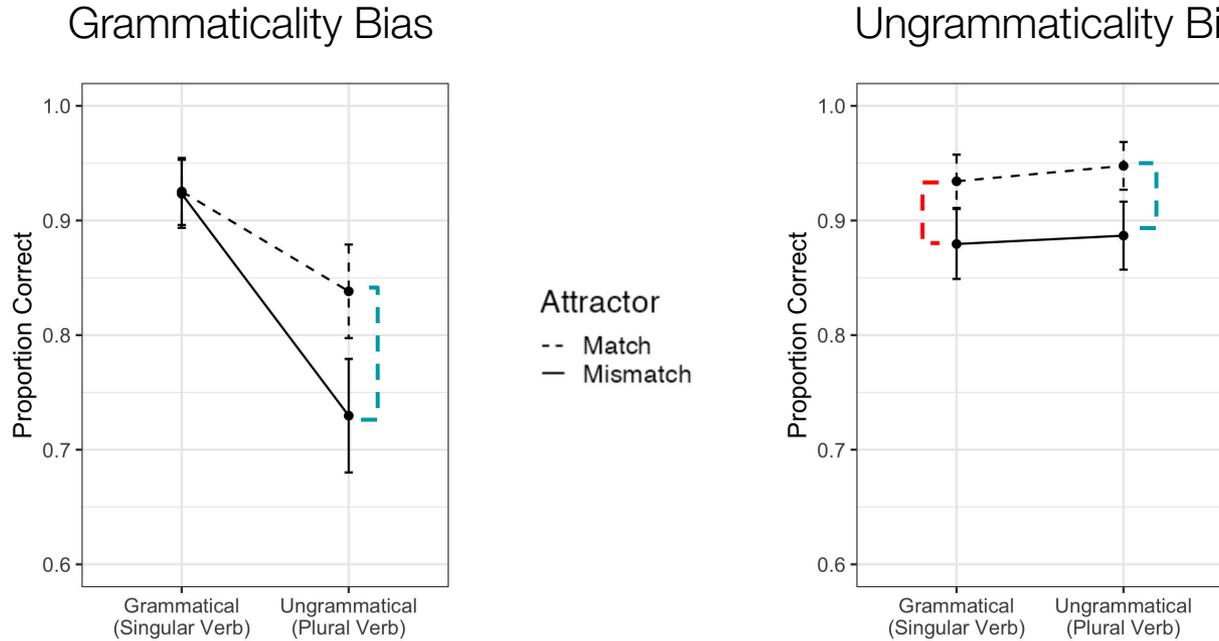'*The cook** of *the managers* **are jumping** in the kitchen non-stop.

Results: Bias Manipulation

- Density plot of the by-group bias estimates

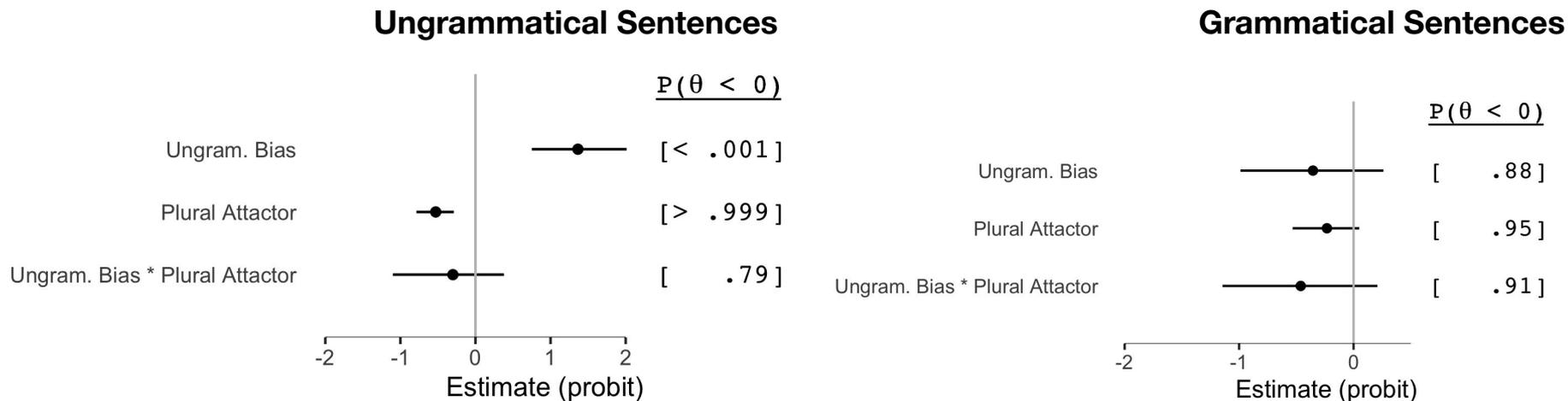- Participants did not respond to our bias manipulation

(Macmillan & Creelman, 2005)

Results

We grouped participants according to their response bias value based on filler items

(Cousineau et al., 2005; Macmillan & Creelman, 2005; Morey et al., 2008)

Results

We fit 2 Bayesian GLMs
- Independent variable: Correct Responses (Bernoulli-distributed with probit link function)

➔ The effect of plural attractor is more pronounced in people with ungrammaticality bias in grammatical sentences

Conclusion

- We were able to replicate theoretically significant findings of Hammerly et al. (2019).

- We were not able to replicate Hammerly et al.'s (2019) experimental manipulation.

References

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Appendix I: Response Bias

- Tendency to response 'yes' instead of 'no'

- Calculation: (Z(Hit Rate) + Z(False Alarm)) / - 2

- Hammerly et al. (2019) uses all experimental items, while we only use fillers.

Appendix II: Our Bias Manipulation and Questions

- Used written instructions unlike Hammerly et al. (2019)

- "Most of the sentences COMFORT to Turkish grammar" for bias towards grammaticality

- "Most of the sentences DO NOT COMFORT to Turkish grammar" for bias towards ungrammaticality

- Question: "How does sentence sound to you?" GOOD / BAD