


Same but different: Conjunctive expressions in Georgian and Hungarian

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Cross-linguistic variation

(1) *English conjunction pattern*

The apple **and** the banana are on the table. J

(2) *Japanese conjunction patterns*

a. Ringo **-to** banana teeburu-no ue-ni aru. J
apple-J banana table-GEN above-LOC be

b. Ringo **-mo** banana **-mo** teeburu-no ue-ni aru. MU
apple-MU banana-MU table-GEN above-LOC be

Cross-linguistic variation

(3) *Hungarian conjunction patterns*

a. Az alma **és** a banán az asztal-on van. J
the apple J the banana the table-LOC is
'The apple and the banana are on the table.'

b. Az alma **is**, a banán **is** az asztal-on van. MU
the apple MU the banana MU the table-LOC is
'The apple and the banana are on the table.'

c. Az alma **is** **és** a banán **is** az asztal-on van. J-MU
the apple MU J the banana MU the table-LOC is
'The apple and the banana are on the table.'

(Szabolcsi et al., 2014; Szabolcsi, 2015; Koopman et al., 2021)

Cross-linguistic variation

(4) *Georgian conjunction patterns*

a. vashli **da** banani aris magida-ze. J
apple.NOM J banana.NOM is table-on
'The apple and the banana are on the table.'

b. vashli **-c** , banani **-c** aris magida-ze. MU
apple.NOM-MU banana.NOM-MU is table-on
'The apple and the banana are on the table.'

c. vashli **-c** **da** banani **-c** aris magida-ze. J-MU
apple.NOM-MU J banana.NOM-MU is table-on
'The apple and the banana are on the table.'

(Hewitt 1995; Chutkerashvili 2009; Koopman et al. 2021)

Other uses of MU

(5) János **is** táncolt. Hungarian
John MU danced
'Also John danced.'

(6) maria **-c** c'a-vid-a bazar-shi. Georgian
Maria.NOM-MU PREV-went-3SG.SUBJ market-in
'Also Maria went to the market.'

(Chutkerashvili, 2009; Szabolcsi et al., 2014)

This talk

Questions for this talk:

- **Q1:** To what extent do the behavior of these expressions align?
- **Q2:** To what extent is this behavior captured by relevant theories?

This talk

1. **Confirm acceptability of these expressions.**
2. **Present several analyses of these expressions.**
3. **Explore the behavior of these expressions with regard to whether:**
   - 3.1 They can combine TP conjuncts.
   - 3.2 They are associated with a distributive or a non-distributive interpretation.
4. **Present our plans for next steps.**

Method

- We distributed questionnaires to 4 adult Hungarian speakers and 12 adult Georgian speakers.

- Speakers were asked to judge the acceptability of these sentences using a 7-point scale.

Confirm acceptability of these expressions

Confirm acceptability

While all three sentence types have been reported by some Hungarian- and Georgian- speakers to be acceptable, we wanted to:

- Confirm these reports.
- Check whether there might be differences in the relative acceptability of these expressions.

Confirm acceptability

(7) *Hungarian conjunction patterns*

a. Kati **és** Mari el-aludt. J
Kati J Mari VM.away-slept
'Kati and Mari fell asleep.'

b. Kati **is** , Mari **is** el-aludt. MU
Kati MU Mari MU VM.away-slept
'Kati and Mari fell asleep.'

c. Kati **is** **és** Mari **is** el-aludt. J-MU
Kati MU J Mari MU VM.away-slept
'Kati and Mari fell asleep.'

Confirm acceptability

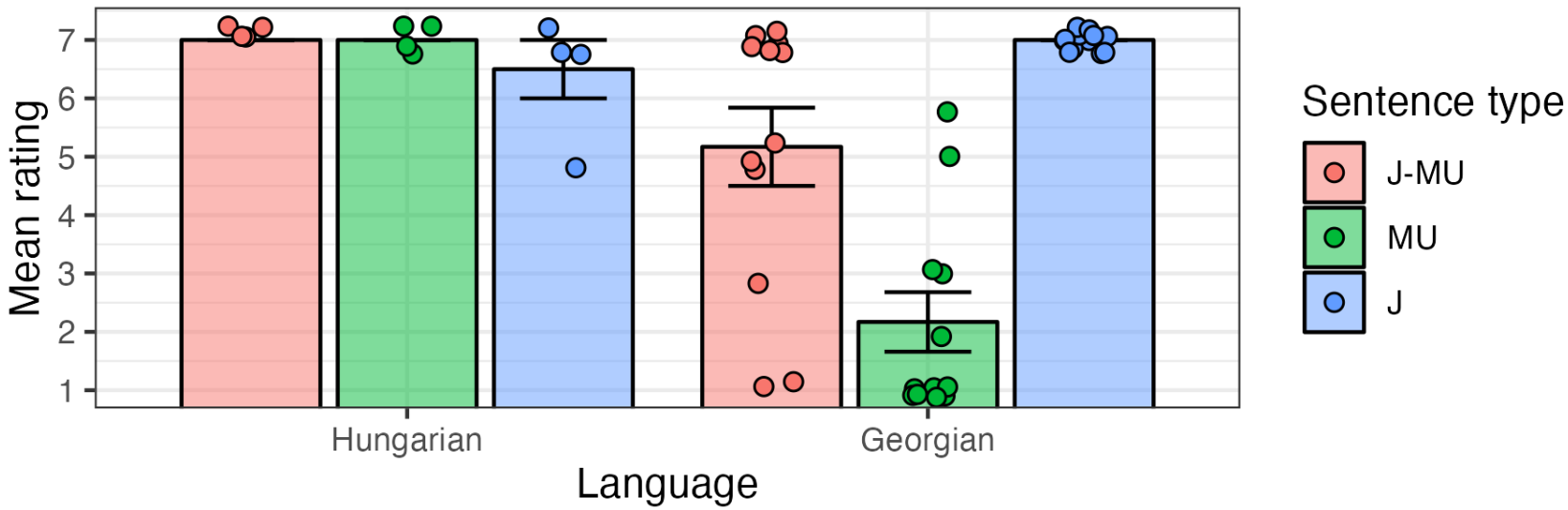
(8) *Georgian conjunction patterns*

a. maria **da** ana c'a-vid-nen bazar-shi. J
Maria.NOM J Ana.NOM PREV-went-3PL.SUBJ market-in
'Maria and Ana went to the market.'

b. maria **-c** , ana **-c** c'a-vid-nen bazar-shi. MU
Maria.NOM-MU Ana.NOM-MU PREV-went-3PL.SUBJ market-in
'Maria and Ana went to the market.'

c. maria **-c** **da** ana **-c** c'a-vid-nen J-MU
Maria.NOM-MU J Ana.NOM-MU PREV-went-3PL.SUBJ
bazar-shi.
market-in
'Maria and Ana went to the market.'

Confirm acceptability



- In Hungarian, all three sentence types received high acceptability ratings.
- In contrast, only J and J-MU sentences received high acceptability ratings in Georgian, with MU sentences being rated much lower.

Confirm acceptability

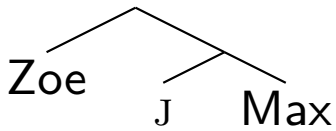
- For Hungarian, all three types of expressions are highly acceptable, confirming previous work (Szabolcsi et al. 2014).
- For Georgian:
  - While both J and J-MU expressions appear to be felicitous, there appears to be a difference, with J expressions being more acceptable than J-MU expressions.
  - For the majority of participants, it is not clear that MU expressions are actually possible at all.

Georgian MU expressions ungrammatical?

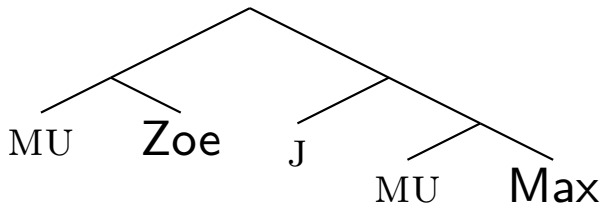
- The low ratings for MU expressions from most Georgian-speakers raises the question of whether these expressions are actually a part of the Georgian language.
- A definitive answer to this would require the collection of more data (which we plan to do).
- For current purposes, we will set MU expressions aside and rather focus on comparing J and J-MU expressions.

Present several analyses of these expressions

Haslinger et al. (2019), Haslinger and Schmitt (2019)

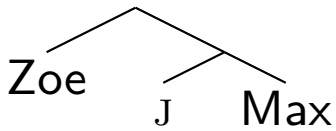


(a) J expressions

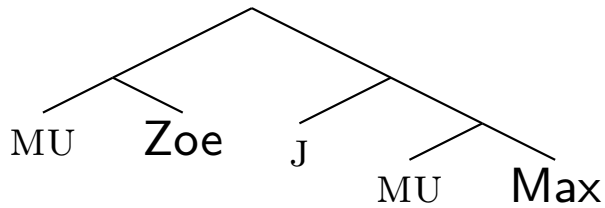


(b) J-MU expressions

Haslinger et al. (2019), Haslinger and Schmitt (2019)



(a) J expressions



(b) J-MU expressions

(11) $[\![\text{J}]\!] = \lambda x_{\alpha^*}.\lambda y_{\alpha^*}.x \boxed{\oplus_{\alpha^*}} y$

(12) $[\![\text{MU}]\!] = \underline{\lambda x^*_{e^*}.\lambda P^*_{<e,\alpha>^*}}.C(P^*, x^*)$

Mitrović and Sauerland (2016)

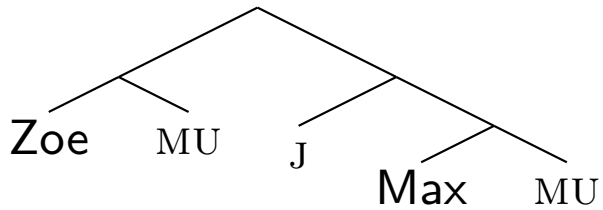


Figure: J and J-MU expressions

Mitrović and Sauerland (2016)

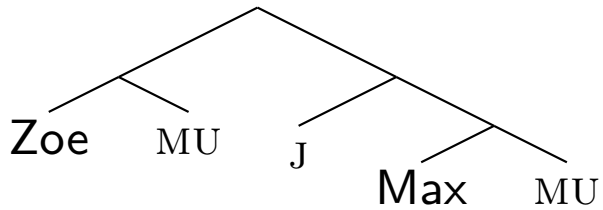
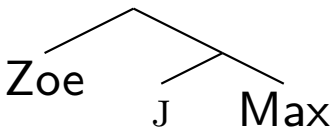


Figure: J and J-MU expressions

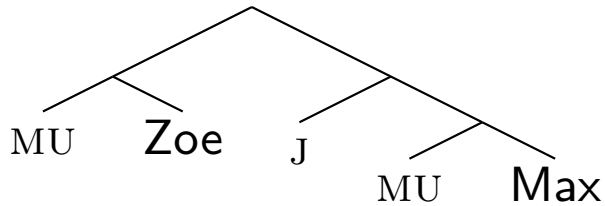
(15) $[\![\text{J}]\!] = \lambda P_{<et,t>}.\lambda Q_{<et,t>}.\lambda R_{<e,t>}.P(R) \boxed{\wedge} Q(R)$

(16) $[\![\text{MU}]\!] = \lambda R_{<e,t>}.\lambda S_{<e,t>}.R \boxed{\subseteq} S$

Szabolcsi (2015)

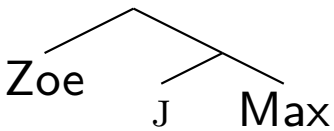


(a) J expressions

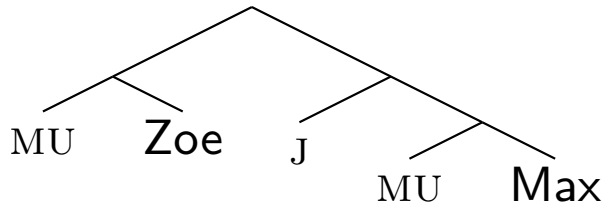


(b) J-MU expressions

Szabolcsi (2015)



(a) J expressions



(b) J-MU expressions

(19) $[\![\mathrm{X}_\alpha \ \mathrm{J} \ Y_\alpha]\!] = [\![X_\alpha]\!][\![Y_\alpha]\!] \Rightarrow \langle [\![X_\alpha]\!], [\![Y_\alpha]\!] \rangle$

(20) Let X be the expression hosting MU, and Y the immediately larger context, MU requires $[\![Y]\!] < [\![X]\!]$.

Predictions

	TP	
	J	J-MU
Haslinger et al. (2019)	✔	✔
Mitrović & Sauerland (2016)	✔	✘
Szabolcsi (2015)	✔	✔

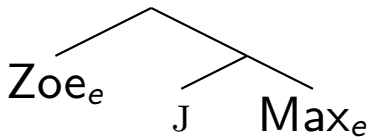
Preferred interpretations

DP conjunctive expressions can be associated with a distributive or a non-distributive interpretation.

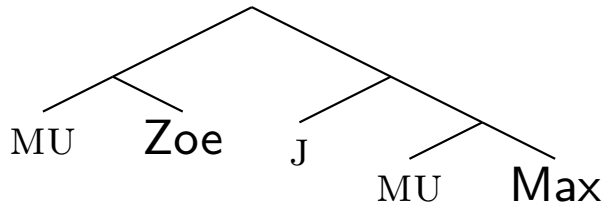
(21) a. **Distributive:** Maria and Johannes ate a pizza each.

b. **Non-distributive:** Maria and Johannes carried a piano together.

Haslinger et al. (2019), Haslinger and Schmitt (2019)



(a) J expressions

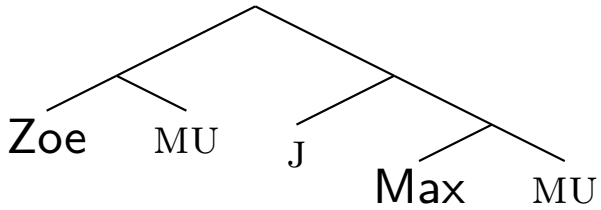


(b) J-MU expressions

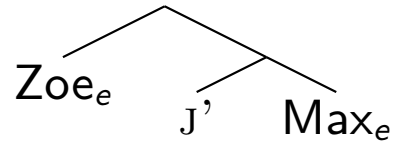
- When J-MU conjunction combines with the predicate, each conjunct applies to the entire plural set denoted by that argument, deriving distributivity.

(22) $[\![\text{MU}]\!] = \lambda x^*_{e^*}.\lambda P^*_{<e,\alpha>^*}.C(P^*, x^*)$

Mitrović and Sauerland (2016)



(a) Distributive J and J-MU



(b) Non-distributive J

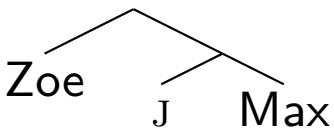
Ambiguity of conjunction:

(23) $[\![\text{J}]\!] = \lambda P_{<et,t>}.\lambda Q_{<et,t>}.\lambda R_{<e,t>}.P(R) \boxed{\wedge} Q(R)$

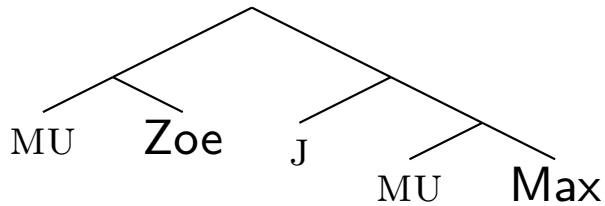
(24) $[\![\text{J'}]\!] = \lambda x_e.\lambda y_e.x \boxed{\oplus} y$

- J' cannot appear in structures with MU-particles because MU shift the conjuncts to quantifiers.

Szabolcsi (2015)



(a) J expressions



(b) J-MU expressions

MU's requirement is only satisfied with distributive conjunction:

(25) Let X be the expression hosting MU, and Y the immediately larger context, MU requires $[\![Y]\!] < [\![X]\!]$.

Predictions

	Non-distributive	
	J	J-MU
Haslinger et al. (2019)	✔	✖
Mitrović & Sauerland (2016)	✔	✖
Szabolcsi (2015)	✔	✖

Predictions

	TP		Non-distributive	
	J	J-MU	J	J-MU
Haslinger et al. (2019)	✔	✔	✔	✖
Mitrović & Sauerland (2016)	✔	✖	✔	✖
Szabolcsi (2015)	✔	✔	✔	✖

Explore the behavior of these expressions

TP-conjunction?

Can these expressions be used in TP-conjunction?

TP-conjunction?

These accounts differ wrt. whether it should be possible for J-MU expressions to conjoin TPs.

	TP		Non-distributive	
	J	J-MU	J	J-MU
Haslinger et al. (2019)	✓	✓	✓	✗
Mitrović & Sauerland (2016)	✓	✗	✓	✗
Szabolcsi (2015)	✓	✓	✓	✗

We tested this by exploring whether, in each language, it is possible for a J and J-MU sentences to combine with TP conjuncts.

TP-conjunction?

(26) *Georgian*

a. Maria ch'ri-s vashls **da** J
Maria cut.RM-3SG.SUBJ apple.DAT J

Ana xat'av-s q'vavils.
Ana paint.TH-3SG.SBJ flower.DAT

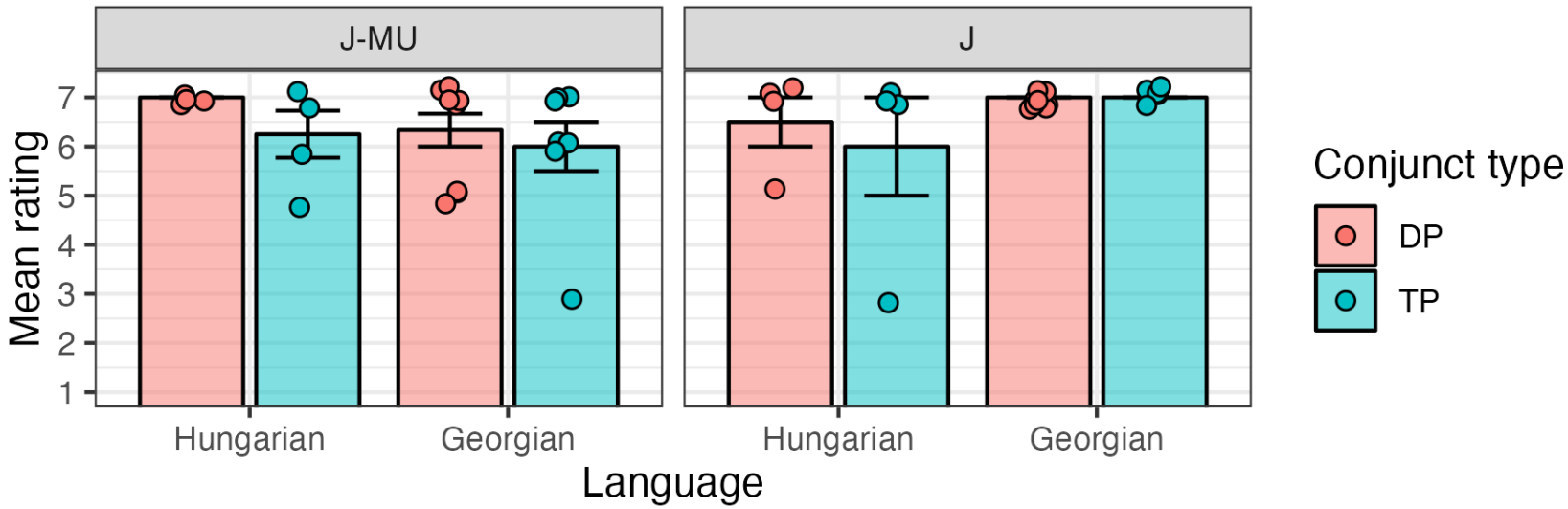
'Maria is cutting an apple and Ana is painting a flower.'

b. Maria **-c** ch'ri-s vashls **da** J-MU
Maria-MU cut.RM-3SG.SUBJ apple.DAT J

Ana **-c** ch'ri-s vashls.
Ana-MU cut.RM-3SG.SUBJ apple.DAT

'Maria is cutting an apple and Ana is cutting an apple.'

TP-conjunction?



- In both languages, it is possible for not only J[1] expressions to combine TP conjuncts, but also for J-MU expressions.

[1] Note that for the Georgian J expressions the VPs varied, whereas for Hungarian they were the same.

TP-conjunction?

	TP		Non-distributive	
	J	J-MU	J	J-MU
Haslinger et al. (2019)	✓	✓	✓	✗
Mitrović & Sauerland (2016)	✓	✗	✓	✗
Szabolcsi (2015)	✓	✓	✓	✗
Hungarian results	✓	✓	**?**	**?**
Georgian results	✓	✓	**?**	**?**

These results constitute a challenge for Mitrović and Sauerland (2016)'s analysis of J-MU expressions.

Possible interpretations

Are these expressions associated with a distributive or a non-distributive interpretation?

Possible interpretations

DP conjunctive expressions can be associated with a distributive or a non-distributive interpretation.

(27) a. **Distributive:** Maria and Johannes ate a pizza each.

b. **Non-distributive:** Maria and Johannes carried a piano together.

Possible interpretations

	TP		Non-distributive	
	J	J-MU	J	J-MU
Haslinger et al. (2019)	✓	✓	✓	✗
Mitrović & Sauerland (2016)	✓	✗	✓	✗
Szabolcsi (2015)	✓	✓	✓	✗
Hungarian results	✓	✓	?	?
Georgian results	✓	✓	?	?

Possible interpretations

(28) *Distributive context in Georgian*

Mariam	**(-ac)**	**da**	anam	**(-ac)**	i-tamash-a	monop'olia.
Maria.ERG-MU	J		Ana.ERG-MU		PREV-play-3SG.SUBJ	monopoly.DAT

Mariam	giorgis-tan	i-tamash-a	gushin.	Anam	
Maria.ERG	Giorgi.GEN-WITH	PREV-play-3SG.SUBJ	yesterday	Ana.ERG	
levan-tan	i-tamash-a	gasul	k'viras.		
Levan.GEN-WITH	PREV-play-3SG.SUBJ	last	week.DAT		

'Maria and Ana played Monopoly. Maria played with Giorgi yesterday. Ana played with Levan last week.'

Possible interpretations

(30) *Distributive context in Georgian*

Mariam **(-ac)** **da** anam **(-ac)** i-tamash-a monop'olia.

Maria.ERG-MU J Ana.ERG-MU PREV-play-3SG.SUBJ monopoly.DAT

Mariam giorgis-tan i-tamash-a gushin. Anam

Maria.ERG Giorgi.GEN-WITH PREV-play-3SG.SUBJ yesterday Ana.ERG

levan-tan i-tamash-a gasul k'viras.

Levan.GEN-WITH PREV-play-3SG.SUBJ last week.DAT

'Maria and Ana played Monopoly. Maria played with Giorgi yesterday. Ana played with Levan last week.'

(31) *Non-distributive context in Georgian*

Mariam **(-ac)** **da** anam **(-ac)** ertad i-tamash-es

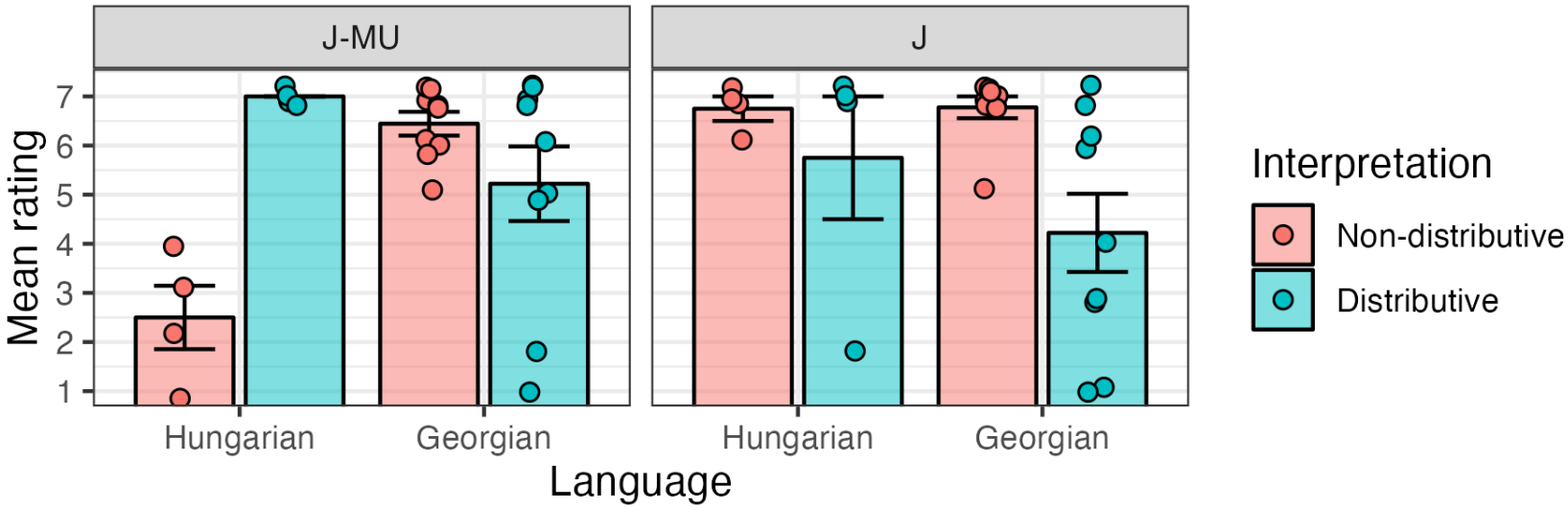
Maria.ERG-MU J Ana.ERG-MU together PREV-play-3PL.SUBJ

monop'olia. Mariam mougo anas.

monopoly.DAT Maria.ERG win.PST Ana.DAT

'Maria and Ana played Monopoly together. Maria won against Ana.'

Possible interpretations



- **Hungarian:** For J-MU sentences, there is a clear preference for *distributive* interpretations, whereas both are acceptable for J sentences.
- **Georgian:** Can receive either interpretation.

Possible interpretations

	TP		Non-distributive	
	J	J-MU	J	J-MU
Haslinger et al. (2019)	✓	✓	✓	✗
Mitrović & Sauerland (2016)	✓	✗	✓	✗
Szabolcsi (2015)	✓	✓	✓	✗
Hungarian results	✓	✓	✓	✗
Georgian results	✓	✓	✓	✓

- In Hungarian, a non-distributive reading was possible for J expressions, but not for J-MU expressions, in-line with the predictions of all accounts.
- For Georgian, a non-distributive reading was possible for both J expressions as well as J-MU expressions, challenging the predictions of all accounts.

Summary of results

	TP		Non-distributive	
	J	J-MU	J	J-MU
Haslinger et al. (2019)	✓	✓	✓	✗
Mitrović & Sauerland (2016)	✓	✗	✓	✗
Szabolcsi (2015)	✓	✓	✓	✗
Hungarian results	✓	✓	✓	✗
Georgian results	✓	✓	✓	✓

- The ability in both languages for J-MU expressions to conjoin TPs is a challenge for Mitrović and Sauerland (2016)'s analysis of J-MU expressions.
- The fact that, in Georgian, non-distributive interpretations are possible with J-MU expressions is a challenge for all of these accounts.
- The differences between these expressions in Hungarian and Georgian make it more difficult to develop a common analysis.

Cross-linguistic variation

- Not all languages share this ability to conjoin TPs.

(32) *Japanese* (Mitrović and Sauerland, 2016)

*Mary hanase-ru- mo John waka-ru- mo .
Mary talk-NON.PAST-MU John understand-NON.PAST-MU

(33) *Malayalam* (Paul, 2016)

*John vann-u- um Bill po:-(y)i- um .
John come-PAST-MU Bill leave-PAST-MU

Cross-linguistic variation

- Languages with MU particles have been found to allow non-distributive interpretations.

(34) *Hungarian* (Haslinger and Schmitt, 2019; Haslinger et al., 2019)

Szerencsére **a** **két** **szervezö** idöben felhívta
fortunately the two organizers on-time called

Bálintot is és Pétert is .
Bálint.ACC MU J Péter.ACC MU

'Fortunately, the two organizers called both Bálint and Péter ahead of time.'

(35) *Polish* (Roszkowski, 2021)

I Ewa i Karol i Iza spotkali się wczoraj.
MU Ewa.NOM MU Karol.NOM MU Iza.NOM met REFL yesterday

'Ewa, Karol and Iza met yesterday.'

Present our plans for next steps

Next Steps

- Conduct an experiment where we collect sentence acceptability ratings from a larger sample of Georgian and Hungarian speakers.
- Ensure that (as much as possible) the predicates and contexts are equivalent between the languages.
- In addition to attempting to replicate the results presented here, we are also interested in exploring:
  - Unambiguously collective predicates (*gather*- type and *numerous*-type predicates, see e.g. Champollion 2010)
  - Cumulative readings
  - Any differences between sentences with two vs. one MU particles

Thank you for your attention!

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Appendix

DP restriction

(36) *Georgian*

a. Maria ch'ri-s vashls **da** J
Maria cut.RM-3SG.SUBJ apple.DAT J

Ana xat'av-s q'vavils.
Ana paint.TH-3SG.SBJ flower.DAT

'Maria is cutting an apple and Ana is painting a flower.'

b. Maria **-c** ch'ri-s vashls **da** J-MU
Maria-MU cut.RM-3SG.SUBJ apple.DAT J

Ana **-c** ch'ri-s vashls.
Ana-MU cut.RM-3SG.SUBJ apple.DAT

'Maria is cutting an apple and Ana is cutting an apple.'

TP-conjunction?

(37) *Hungarian*

a. Kati vág egy almát **és** J
Kati cut.3SG an apple.ACC J

Mari vág egy almát.
Mari cut.3SG an apple.ACC

'Kati is cutting an apple and Mari is cutting an apple.'

b. Kati **is** vág egy almát, **és** J-MU
Kati MU cut.3SG an apple.ACC J

Mari **is** vág egy almát.
Mari MU cut.3SG an apple.ACC

'Kati is cutting an apple and Mari is cutting an apple.'

Preferred interpretations

(38) *Non-distributive context in Georgian*

Mariam **da** anam ertad i-tamash-es monop'olia. J
Maria.ERG J Ana.ERG together PREV-play-3PL.SUBJ monopoly.DAT

Mariam mougo anas.
Maria.ERG win.PST Ana.DAT
'Maria and Ana played Monopoly together. Maria won against Ana.'

(39) *Distributive context in Georgian*

Mariam **da** anam i-tamash-a monop'olia. J
Maria.ERG J Ana.ERG PREV-play-3SG.SUBJ monopoly.DAT

Mariam giorgis-tan i-tamash-a gushin. Anam
Maria.ERG Giorgi.GEN-WITH PREV-play-3SG.SUBJ yesterday Ana.ERG
levan-tan i-tamash-a gasul k'viras.
Levan.GEN-WITH PREV-play-3SG.SUBJ last week.DAT

'Maria and Ana played Monopoly. Maria played with Giorgi yesterday. Ana played with Levan last week.'

Preferred interpretations

(40) *Non-distributive context in Georgian*

Mariam **-ac** **da** anam **-ac** ertad i-tamash-es J-MU
Maria.ERG-MU J Ana.ERG-MU together PREV-play-3PL.SUBJ
monop'olia.
monopoly.DAT

Mariam mougo anas.
Maria.ERG win.PST Ana.DAT
'Maria and Ana played Monopoly together. Maria won against Ana.'

(41) *Distributive context in Georgian*

Mariam **-ac** **da** anam **-ac** i-tamash-a monop'olia. J-MU
Maria.ERG-MU J Ana.ERG-MU PREV-play-3SG.SUBJ monopoly.DAT

Mariam giorgis-tan i-tamash-a gushin. Anam
Maria.ERG Giorgi.GEN-WITH PREV-play-3SG.SUBJ yesterday Ana.ERG
levan-tan i-tamash-a gasul k'viras.
Levan.GEN-WITH PREV-play-3SG.SUBJ last week.DAT

Preferred interpretations

(42) *Non-distributive context in Hungarian*

Kati **és** Mari együtt játsz-ot-tak Monopolyt. J

Kati J Mari together play-PST-3PL Monopoly.ACC

Kati le győzte Marit.

Kati VM.down won Mari.ACC

'Kati and Mari played Monopoly together. Kati won against Mari.'

(43) *Distributive context in Hungarian*

Kati **és** Mari Monopolyt játsz-ott. J

Kati J Mari Monopoly.ACC play-PST.3SG

Kati Áron-nal játsz-ott tegnap. Mari Vidor-ral játsz-ott múlt hét-en.

Kati Áron-with play-PST.3SG yesterday Mari Vidor-with play-PST.3SG last week-on

'Kati and Mari played Monopoly. Kati played with Aron yesterday. Mari played with Vidor last week.'

Preferred interpretations

(44) *Non-distributive context in Hungarian*

Kati **is** **és** Mari **is** együtt játsz-ot-tak Monopolyt. J-MU
Kati MU J Mari MU together play-PST-3PL Monopoly.ACC

Kati le győzte Marit.
Kati VM.down won Mari.ACC
'Kati and Mari played Monopoly together. Kati won against Mari.'

(45) *Distributive context in Hungarian*

Kati **is** **és** Mari **is** Monopolyt játsz-ott. J-MU
Kati MU J Mari MU Monopoly.ACC play-PST.3SG

Kati Áron-nal játsz-ott tegnap. Mari Vidor-ral játsz-ott múlt
Kati Áron-with play-PST.3SG yesterday Mari Vidor-with play-PST.3SG last
hét-en.
week-on
'Kati and Mari played Monopoly. Kati played with Aron yesterday. Mari played with Vidor last week.'