

TWO SUPERLATIVE METHODOLOGIES:

PICTURE-AIDED TRANSLATION & STORYBOARDS

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Outline

The project

- ◆ Introducing the project
- ◆ Project-specific challenges

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Comparing methods

- ◆ Initial investigations
- ◆ Picture-aided translation compared with storyboards

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Discussion and future work

THE PROJECT

Funding from the Swedish Research Council project *Most and more: Quantity superlatives across languages* (2015-01404), awarded to PI Elizabeth Coppock at the University of Gothenburg.

Introducing the project

- ◆ Crosslinguistic investigation of the expression of quality and quantity superlative meaning. **Investigating:**
- ◆ What structures are used?
- ◆ What readings are available?
- ◆ Do any typological patterns or generalizations emerge?

Introducing the project

- ◆ What counts as a **superlative**?
- ◆ Truth conditional meaning, not structure, is key

“A construction that conveys that a gradable property holds of an entity to a **uniquely high extent**, when comparison is made among all entities within a relevant set that may be explicit or implicit.”

(Coppock, Bogal-Allbritten, and Nouri-Hosseini 2018)

Introducing the project

- ◆ We were especially interested in eliciting data about four potential readings for superlatives (2 quality, 2 quantity)
- ◆ We focus here on readings for quantity superlatives

Introducing the project

Relative reading, quantity superlative

(1) I ate the **most** cookies.

≈ I ate more cookies than anyone else did.

Bááh łikaní ‘**a-láahgo** yíyáą́’.

cookie INDEF-beyond 3OBJ.1SBJ.eat.PERF

(Navajo)

(2) ‘Anna picked the most apples.’

a. Anna **biš-tar-in** sib ro chid-∅

Anna much-CMPR-SPRL apple OM pick.PAST-3SG

b. Anna **az hame biš-tar** sib chid-∅

Anna from all much-CMPR apple pick.PAST-3SG

(Persian)

Introducing the project

Proportional reading, quantity superlative

(3) I ate **most** of the cookies.

≈ I ate more than half of the cookies.

K'asdaá' bááh łikaní 'ałtso yíyáá'.

almost cookie all 3OBJ.1SBJ.eat.PERF (Navajo)

(4) Together, they drank **most** of the juice.

Una bahambige biš-tar-e abmiva-ro noošid-an(d)
3PL together much-CMPR-EZ juice-OM drink.PAST-3PL

(Persian)

Introducing the project

Initial observation

While quantity superlatives seem to universally allow relative readings.....proportional readings are frequently missing.

Proposed universal

Universal: Quantity superlatives have relative readings.

Tendency: Proportional readings are absent.

Crucial for us:

- ◆ Elicit superlatives (in languages which have them)
- ◆ **Distinguish between relative and proportional readings**

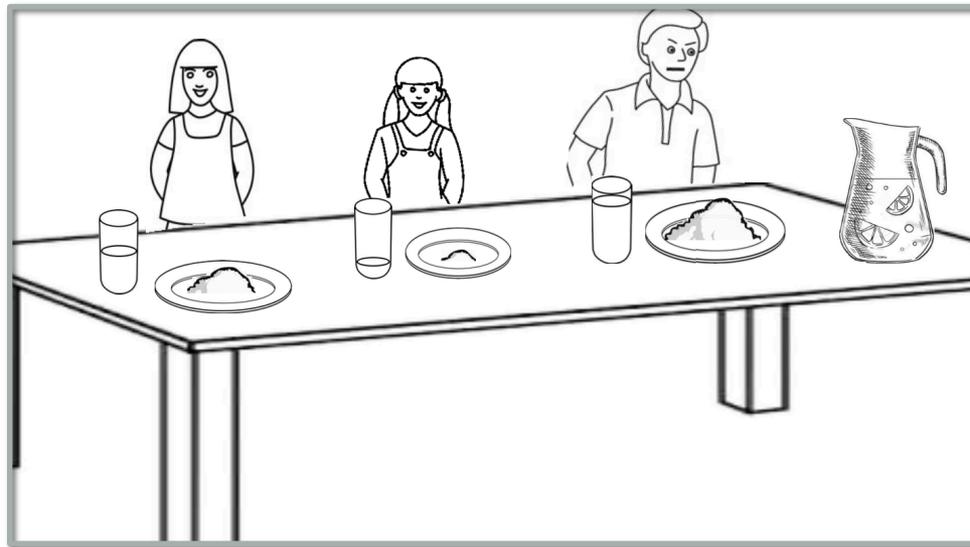
Challenges

Challenges

I: Superlatives in competition with other structures

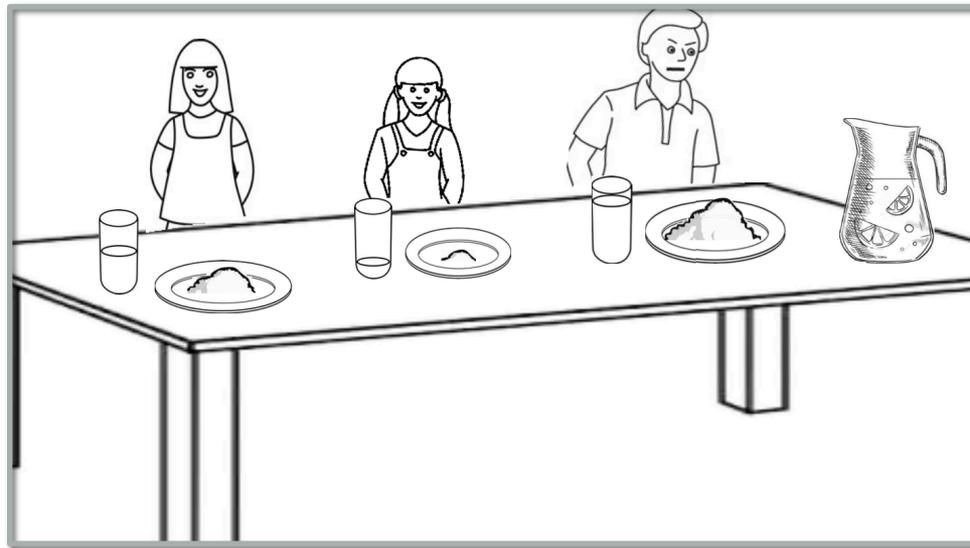
Challenges

I: Superlatives in competition with other structures



Challenges

I: Superlatives in competition with other structures



- (5) a. Ben ate the most rice.
b. Ben ate more rice than his sisters.
c. Ben ate a whole lot of rice.

Challenges

II: Majority of data collected electronically, at a distance

Challenges

II: Majority of data collected electronically, at a distance

- ◆ Although some face-to-face elicitation was possible, much communication was, or will be, done online to maximize the diversity of languages included in sample.
- ◆ Materials needed to be viewable with a computer and **clear enough so consultants could use them independently.**

Crucial to distinguish **relative** vs. **proportional** readings and elicit superlatives **whenever possible.**

COMPARING METHODS

Initial investigations: Translation questionnaire

Pure storyboard methodology

Picture-aided translation

Initial investigations

Much of our data were collected with a **translation questionnaire**.

- ◆ Short story consisting of 17 sentences
- ◆ Contact language: English (almost always)
- ◆ Questionnaire distributed online
- ◆ Some consultants participated in follow-up (negative data)

Initial investigations

Advantages of the questionnaire:

Hypothesis driven:

- ◆ Sentences designed to target particular meanings

Replicability:

- ◆ Same materials seen by all consultants

Ease of distribution and completion:

- ◆ Easy to create an online form for response collection
- ◆ Can be completed in short period of time

Initial investigations

Disadvantages of questionnaires:

(Matthewson et al. 2017)

Little context provided

- ◆ Assume that consultants' understand prompts' truth conditions
- ◆ Consultant may be confused about intended meaning, or create a context that supports the other reading

Contact language structures are in focus

- ◆ Consultants may be encouraged to use structures in unnatural ways in order to 'match' the prompt

Potential net impact: Overuse of superlative constructions

Initial investigations

Our response: storyboards

- ◆ Burton and Matthewson (2015), Matthewson et al. (2017)
- ◆ Storyboards target particular meanings and forms while still designed to produce more fluent, natural speech.
- ◆ Contact language used to tell story initially, but **not** present during storytelling
 - ◆ Less potential influence by contact language

Initial investigations

Storyboards used:

- ◆ *Bake Off* (Totem Field Storyboards)
- ◆ *Fishing Trip* (Bogal-Allbritten and Coppock)
- ◆ *What Matters* (Bogal-Allbritten, Coppock, Nouri-Hosseini)

Initial investigations

However, initial runs were not that successful for us.

- ◆ Some consultants confused about the task or gave very free narration (see also Petzell 2016)
- ◆ Structure of task takes time (go through story twice)
- ◆ Superlatives often omitted, even in languages for which they exist. **Used instead: intensifiers, comparatives, etc.**

Arose in face-to-face sessions, but potentially exacerbated by remote work

Initial investigations

Can we combine storyboards with translation tasks and mitigate potential challenges for each method?

Adding visual narrative:

- ◆ Clarify and enrich the context to reduce misunderstanding
- ◆ No longer rely *totally* on prompt sentences

Adding visible prompts:

- ◆ Clarify the task while keeping target (superlatives) salient
- ◆ Reduce load on consultant memory, reduce task length

Picture-aided translation

**Picture-aided translation =
storyboard images + visible prompts**

- ◆ ***What Matters***: 34 images, tell story about a competition between three siblings.
 - ◆ Short 'chapters' focused on particular construction or meaning
 - ◆ Chapters can be omitted to shorten task
 - ◆ Nouns in story can be altered to fit language of study

Picture-aided translation

**Picture-aided translation =
storyboard images + visible prompts**

Chapter 3 examples

Anna said, "I won! I picked the most apples! ..."

19



**Quantity superlative,
relative reading**

Picture-aided translation

**Picture-aided translation =
storyboard images + visible prompts**

Chapter 3 examples

...But we are a good team, because together we
picked most of the apples in the tree."

20



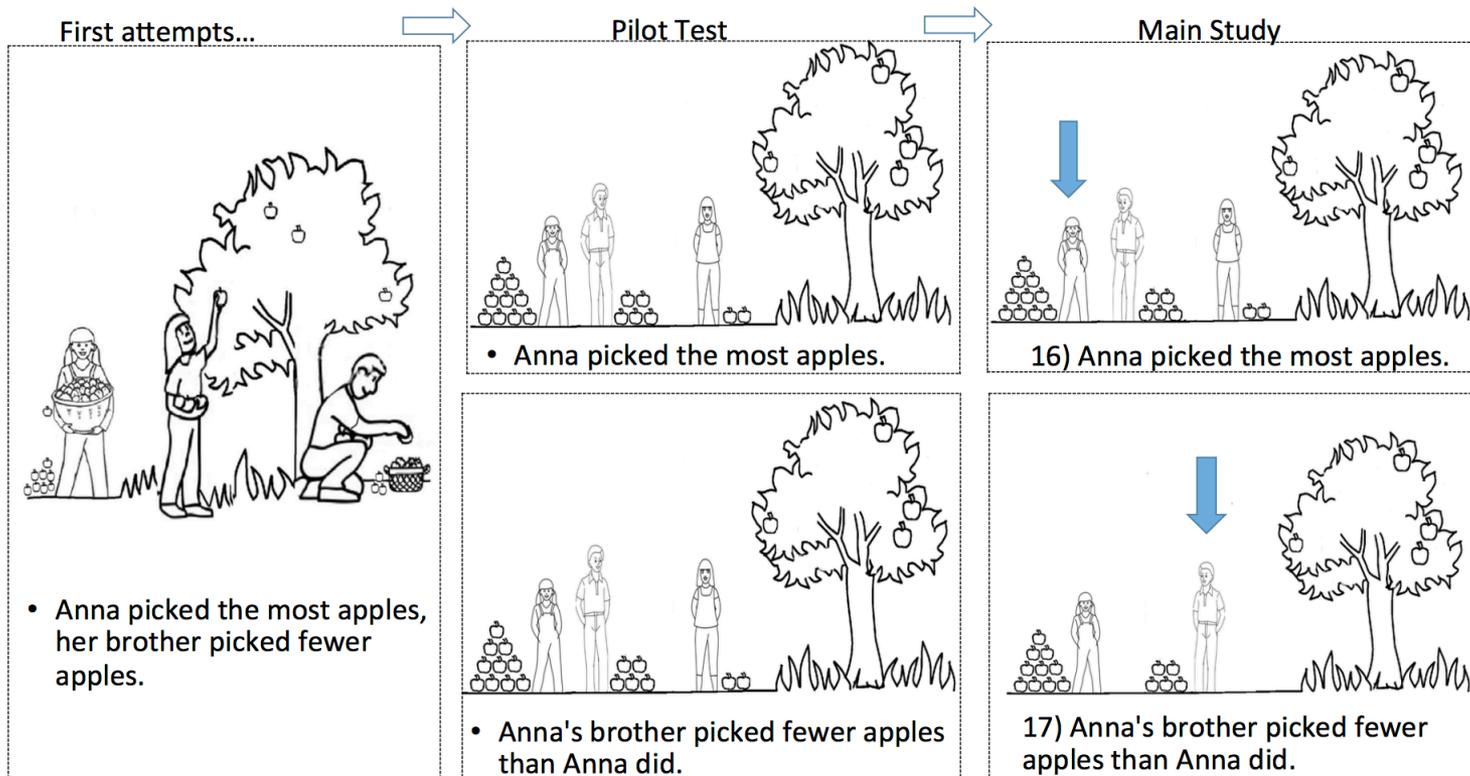
**Quantity superlative,
proportional reading**

Picture-aided translation

**Picture-aided translation =
storyboard images + visible language prompts**

- ◆ Original by Bogal-Allbritten, Coppock, and Nouri-Hosseini.
- ◆ Revisions by Nousi-Hosseini after pilot sessions with Persian, Swedish, Spanish, Swahili, Portuguese and Arabic speakers.
- ◆ Finished picture-aided translation materials used in work with Navajo, Luo, Sesotho, Georgian, and Persian speakers.

Picture-aided translation



Example of revisions made by Nouri-Hosseini:

◆ Number of people: Superlative 3+, comparative 2

◆ Arrows

◆ 1:1 pairing between pictures and sentences

Comparing methodologies

Question:

- ◆ What impact, if any, do contact language sentences have when accompanied by pictures? Does visible presence of contact language have a negative impact?

Caveat!

For other meanings or forms, or other consultants, contact language may have different impact for other target meanings –**we are not making a global claim.**

Comparing methodologies

Nouri-Hosseini's (2018) Masters thesis

Systematic comparison of picture-aided translation with pure storyboard methodology



Supervision of Masters thesis by
Elizabeth Coppock



Comparing methodologies

Nouri-Hosseini's methodology:

- ◆ Participants (3 female, 5 male) between 30-42 years old. All highly educated and fluent in English.
- ◆ Each consultant completed four tasks with variable order.
- ◆ Each elicitation session took approximately one hour.

Comparing methodologies

Constant or controlled in Nouri-Hosseini's study:

- ◆ Elicitation materials (*What Matters* (WM), *Bake-off* (BK))
 - ◆ English used to present (visible) prompt sentences
 - ◆ Language of investigation: Persian
 - ◆ Nouri-Hosseini is a native speaker; can gauge, gloss responses
 - ◆ Speakers easily accessible
 - ◆ Superlative structure and readings already documented
- We know what we want...what do we get?**

Comparing methodologies

Variables:

- ◆ Order in which stories were presented to consultants
- ◆ Order in which two methods were applied
 - ◆ Pure storyboard (SB)
 - ◆ Picture-aided translation (PT)

Comparing methodologies

Variables:

All consultants saw all four conditions (story * order).

MethodOrder		
StoryOrder	SB before PT	PT before SB
WM before BK	SB/WM PT/WM SB/BK PT/BK (2 participants)	PT/WM SB/WM PT/BK SB/BK (2 participants)
BK before WM	SB/BK PT/BK SB/WM PT/WM (2 participants)	PT/BK SB/BK PT/WM SB/WM (2 participants)

Comparing methodologies

Faithfulness: Measure of success in eliciting the target construction. Responses coded '1' or '0'

- ◆ 1 if **superlative** elicited with **correct meaning**.
- ◆ 0 for any of the following:
 - Rough idea (alternative construction)
 - Forgotten (unable to respond without help)
 - Misinterpretation of context

Notion of 'target construction' is language relative

Comparing methodologies

Faithful translation:

...be-bin-im ki az hame sari-tar mido-e
SBJV-see-1PL who from all fast-CMPR run-3SG

Prompt: Let's see who can run **the fastest!**

Score: 1

Note! *sari-tar-in
fast-CMPR-SPRL



Comparing methodologies

Rough idea:

...be-bin-im ki barande mi-šav-ad
SBJV-see-1PL who winner become.PRES-3SG

Prompt: Let's see who can run **the fastest!**

Score: 0

Other examples: Intensifier,
positive form



Comparing methodologies

Misinterpretation

(relative context, proportional structure)

Kas-i ke biš-tar-e abmive ro be-nush-e
one-INDEF that much-CMPR-EZ juice OM SBJV-eat-3SG
barandeh ast-ø
winner be-3SG

Prompt: Whoever drinks
the most juice is the winner!

Score: 0

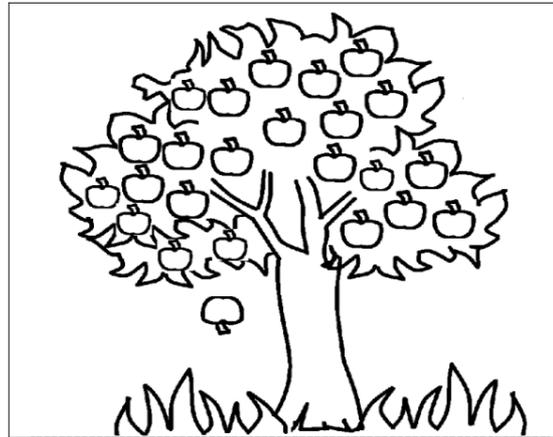


Comparing methodologies

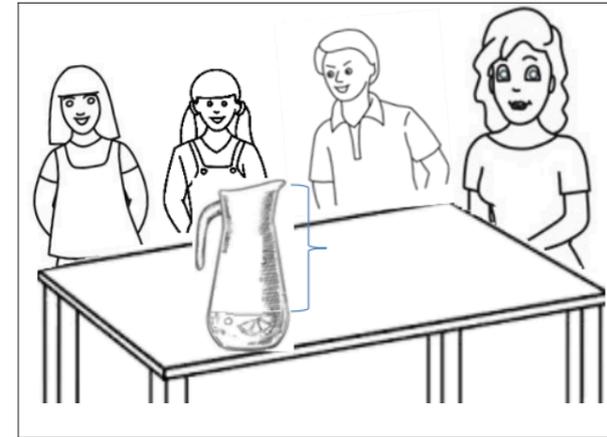
‘Forgotten’



So she challenged him to a baking contest.



Many of the apples in the tree were ripe.



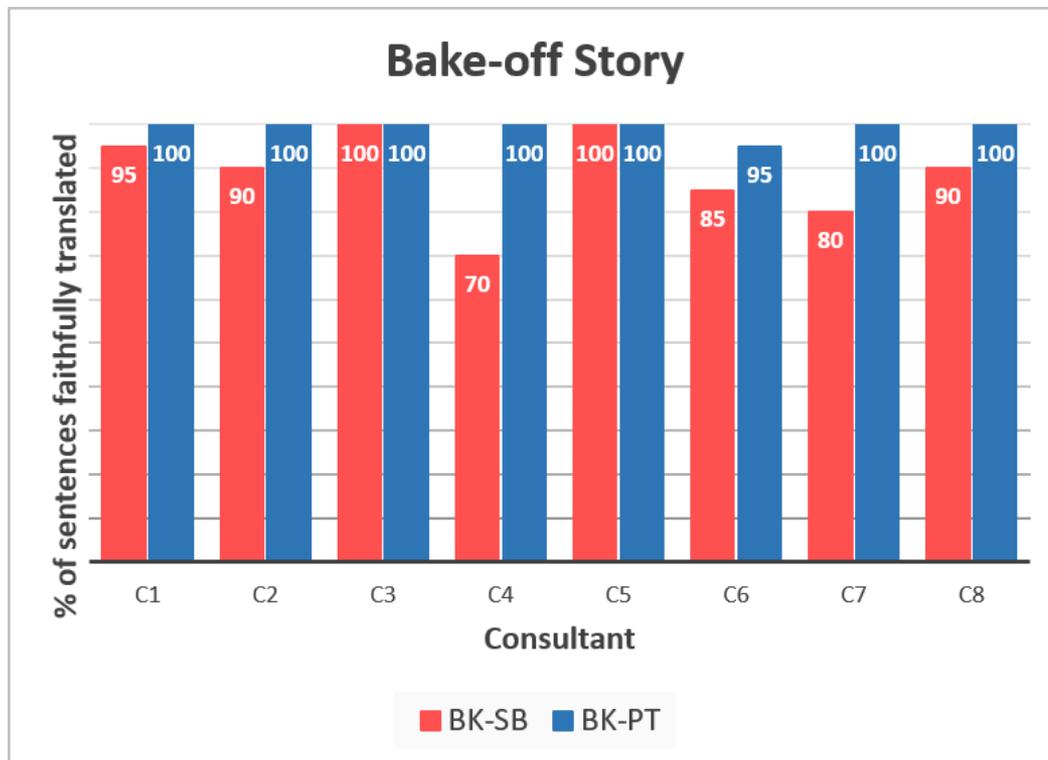
Together, they drank most of the juice.

Scores: 0

Comparing methodologies

Results from Nouri-Hosseini (2018):

Higher faithfulness with [picture-aided translation](#) for both stories

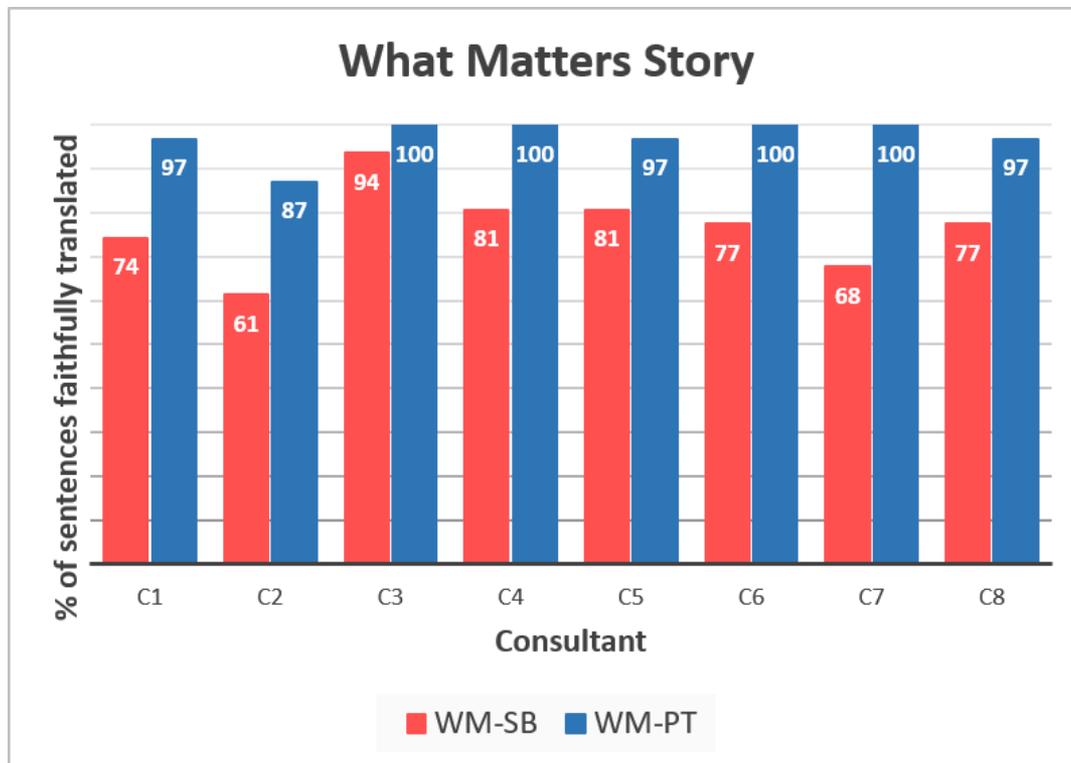


Average increase of **10%**
in faithfulness across all
consultants

Comparing methodologies

Results from Nouri-Hosseini (2018):

Higher faithfulness with [picture-aided translation](#) for both stories



Average increase of **20%**
in faithfulness across all
consultants

Generalized linear mixed model
 Fixed effects: Method, Story, MethodOrder, StoryOrder.
 Random effects: Participant, Item.

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	4.6456	0.9375	4.956	7.21e-07	***
MethodSB	-3.0715	0.4429	-6.935	4.06e-12	***
StoryWM	-1.3053	0.5959	-2.190	0.0285	*
MethodOrder	0.3340	0.3531	0.946	0.3442	
StoryOrder	0.6696	0.3421	1.957	0.0503	.

Method?

Highly significant

Story?

Significant at 0.05 level

Order?

No effect of order.

LME3 package, glmer Mod

```
m1 <- glmer(Faithfulness ~ Method + Story + MethodOrder + StoryOrder + (1|Participant) + (1|Item), family="binomial", data=data)
```

Comparing methodologies

Results from Nouri-Hosseini (2018):

- ◆ **Method (i.e. presence of text): Highly significant according to statistical analysis**
- ◆ No significant effect of order of presentation
- ◆ Greater increase in faithfulness with text for *What Matters*, but scores overall somewhat lower than for *Bake Off*

7 of 8 consultants also reported greater comfort when prompt sentences were visible.

Comparing methodologies

Resisting the influence of English

“The key point is that speakers did not feel pressured to produce sentences that have maximal structural congruence with the meta-language (English) prompt when such a structure would be ungrammatical in Persian.”

(Nouri-Hosseini 2018: 39-40)

Comparing methodologies

Resisting the influence of English

The key case

- ◆ Superlatives were **not** volunteered as translations of proportional prompts presented in proportional visual contexts. 0/16 speakers used superlative structure, despite *most* in prompt sentence

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Prompt:

...together we picked
most of the apples
in the tree."



Comparing methodologies

Resisting the influence of English

Prompt: No, I can bake **the most** pies!

10/16 Persian responses used comparative construction (5/16 used superlative)

“This is an interesting case which shows that even when the English prompt has a superlative structure, Persian speakers mostly used a comparative strategy, which can be due to the fact that in the picture (in the context) it is shown that the comparison is between two people.”

(Nouri-Hosseini 2018: 57)



SUMMARY AND FUTURE WORK

What did we do?

Considered the following question:

- ◆ What impact, if any, do contact language sentences have when they accompany pictures?

Results:

- ◆ Increased faithfulness (**more superlatives**) with text.
- ◆ Positive result for 'at a distance' elicitation.
- ◆ Did not find overuse of superlatives.

Future work, pt. 1

Faithfulness vs. naturalness

- ◆ **Question:** Was increase in faithfulness accompanied by a decrease in naturalness elsewhere?
 - ◆ **Nouri-Hosseini's impressions: No.**
- ◆ **Our next step:** Test for naturalness along lines employed by Burton and Matthewson (2015).
 - ◆ Comparison of elicited story retellings with more spontaneous narratives in terms of vocabulary, intonation, and use of discourse and narrative-linking expressions

Future work, pt. 1

Faithfulness vs. naturalness

- ◆ **What if** we find that overall naturalness decreases as a result of including prompt sentences, as Burton and Matthewson (2015) predict?
- ◆ We must decide how this tradeoff intersects with our priorities.
 - ◆ Elicit superlatives **whenever possible**.
 - ◆ Make materials easy for consultants to use alone.

Best practice: Be explicit about what the priorities were, and how they may have influenced materials used.

Future work, pt. 2

Impact of prompt language?

- ◆ Including prompt sentences with visual contexts introduces an additional variable: **Language** used to present prompts
- ◆ English possesses a morphological superlative strategy, which Persian also has in its repertoire
- ◆ What happens if prompts are instead presented in a language that uses a superlative strategy **distinct** from the primary superlative strategy used in the language of study?

A final look

- ◆ All elicitation methods have their own potential (dis)advantages which may be impacted by research topic or context.
- ◆ Meta-comparison of research methods is helpful.
- ◆ Being explicit about priorities and goals in material construction is key.

Thank you!

Consultants, including Aleksandre Maskharashvili (Georgian), Ellavina Perkins (Navajo), Lawrence Were (Luo), Marcel (Sesotho), Seyed Hamed Moosavi (Persian).

Audiences at Université de Paris Diderot and the University of Gothenburg.