Predicting performance on a picture-naming task in Hebrew as L1 and as L2

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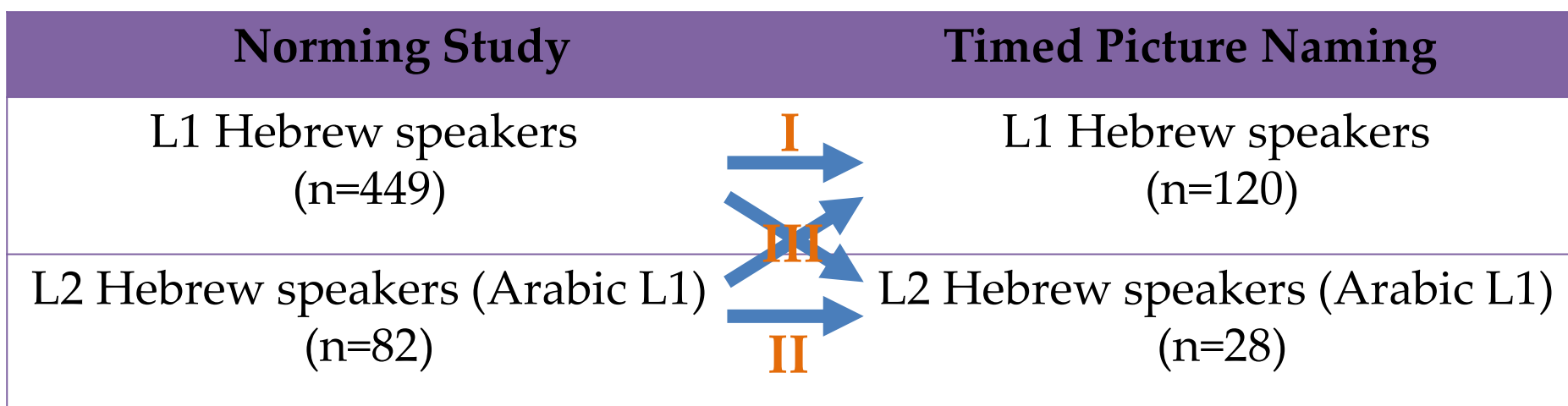[1] University of Haifa; [2] Ruppin Academic Center

Introduction

➢ Picture-naming is a common task in many language studies, taken to index speakers' production abilities, lexical retrieval, proficiency etc. To date, available sets of standardized pictures in Hebrew are limited and not appropriate for healthy adults.

➢ **The first goal of the current study is therefore to compile an up-to-date <u>set of colored pictures t</u>o be used in experiments with healthy adult Hebrew speakers.**

   ➢ **We further validate these norms with a timed picture naming task**

➢ For many Hebrew speakers, Hebrew is the L2 with varied native languages (L1, e.g., Arabic, Russian)

➢ **The second goal of the current study is to characterize to what extent off-line norms of <u>L1 speakers predict L2 speakers' performance, and vice versa.</u>**

The current study

| Norming Study	Timed Picture Naming
L1 Hebrew speakers (n=449)	L1 Hebrew speakers (n=120)
L2 Hebrew speakers (Arabic L1) (n=82)	L2 Hebrew speakers (Arabic L1) (n=28)

I → , III , II

Norming study

➢ A set of 333 colored pictures (205 pictures from Moreno-Martinez & Montoro (2012), and 128 pictures from Google Images) .

➢ Participants completed an online survey [Qulatrics.com], with varied number of pictures that were presented in a random order.

➢ For each picture, participants were asked to:
   ➢ Provide a name
   ➢ Rate its familiarity
   ➢ Rate its typicality
   ➢ Rate visual complexity (1-7 scale).

➢ A minimum of 30 responses for each picture.
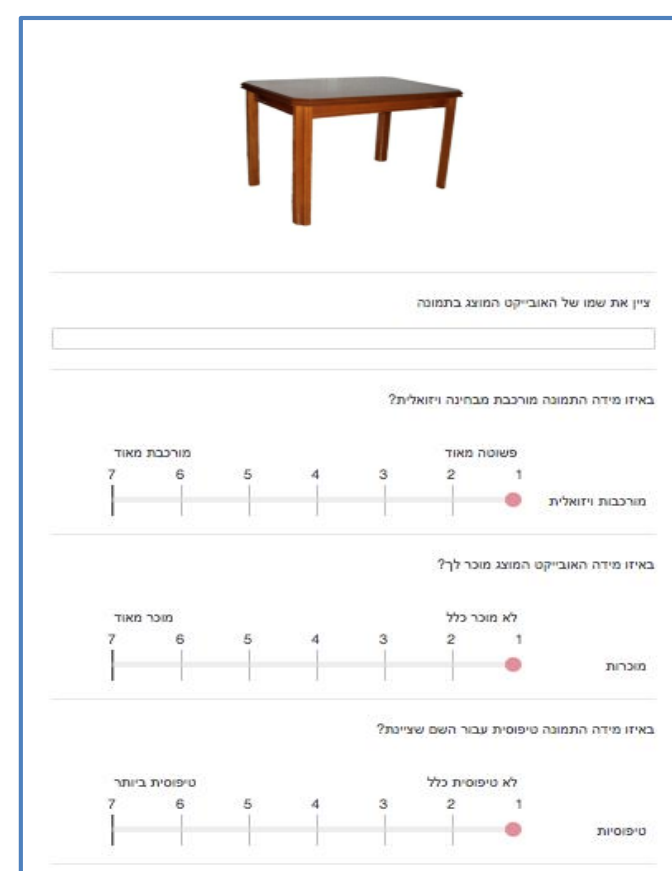
Picture Naming task

➢ A set of 135 pictures

➢ Task: Name out loud as quickly and accurately as possible
   ➢ RT and Accuracy rates were compiled.

750 ms

Until vocal Response / up to 3 s
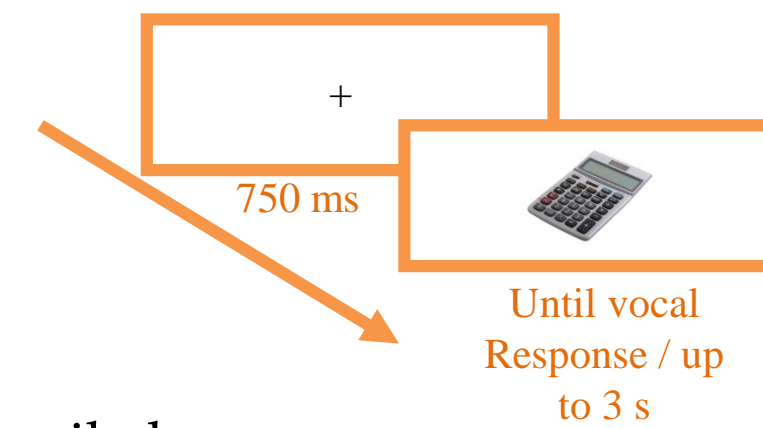
Part I: Within L1 performance

How well does L1 norming predict L1 naming performance?

➢ L1 speakers' subjective ratings (familiarity and name agreement) significantly predicted both participants' RT and accuracy above and beyond objective measures of written-frequency and length in syllables.

➢ Ratings of typicality and visual complexity did not significantly contribute to the variance neither in accuracy nor in RT.

Legend: L1Typicality, L1VisualComplexity, L1Familiarity, L1NameAgreement, Freq&NumberSyllb (Acc, RT; ΔR^2)
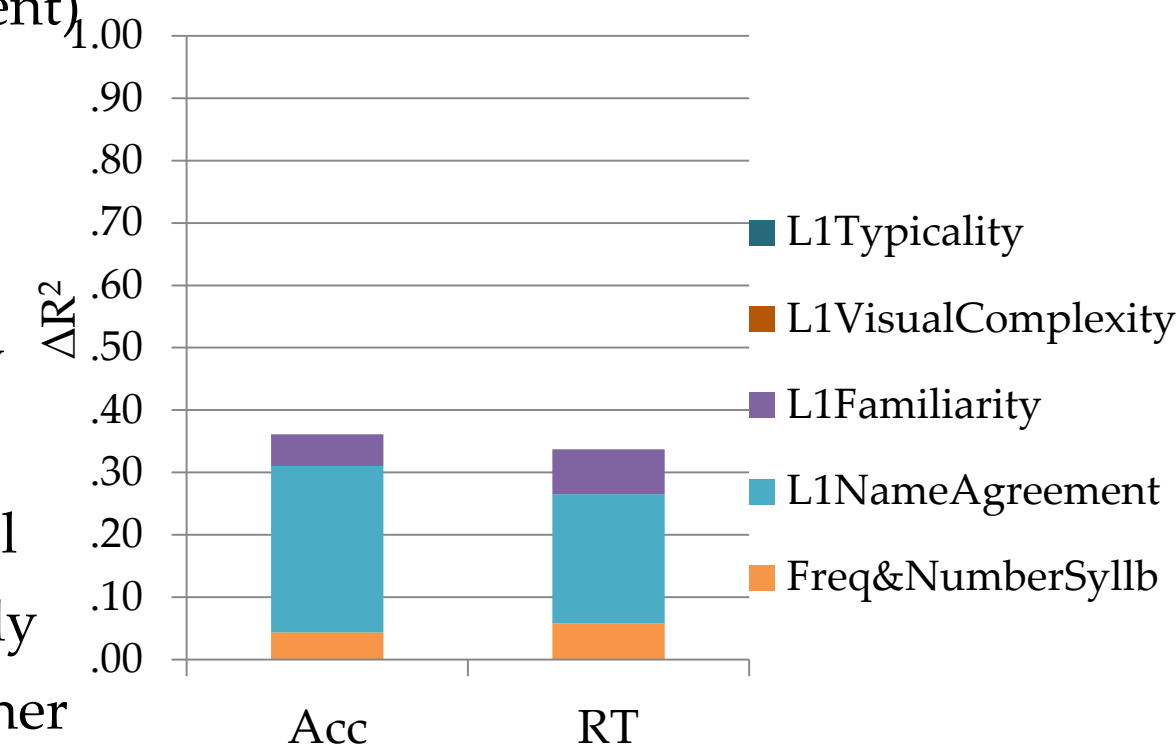
Part II: Within L2 performance

How well does L2 norming predict L2 naming performance?

➢ L2 speakers' name agreement (but not familiarity) significantly predicted both participants' RT and accuracy above objective measures of written-frequency and length in syllables.

➢ Ratings of typicality contributed another 1.2% to accuracy and visual complexity contributed another 5.4% to RT.
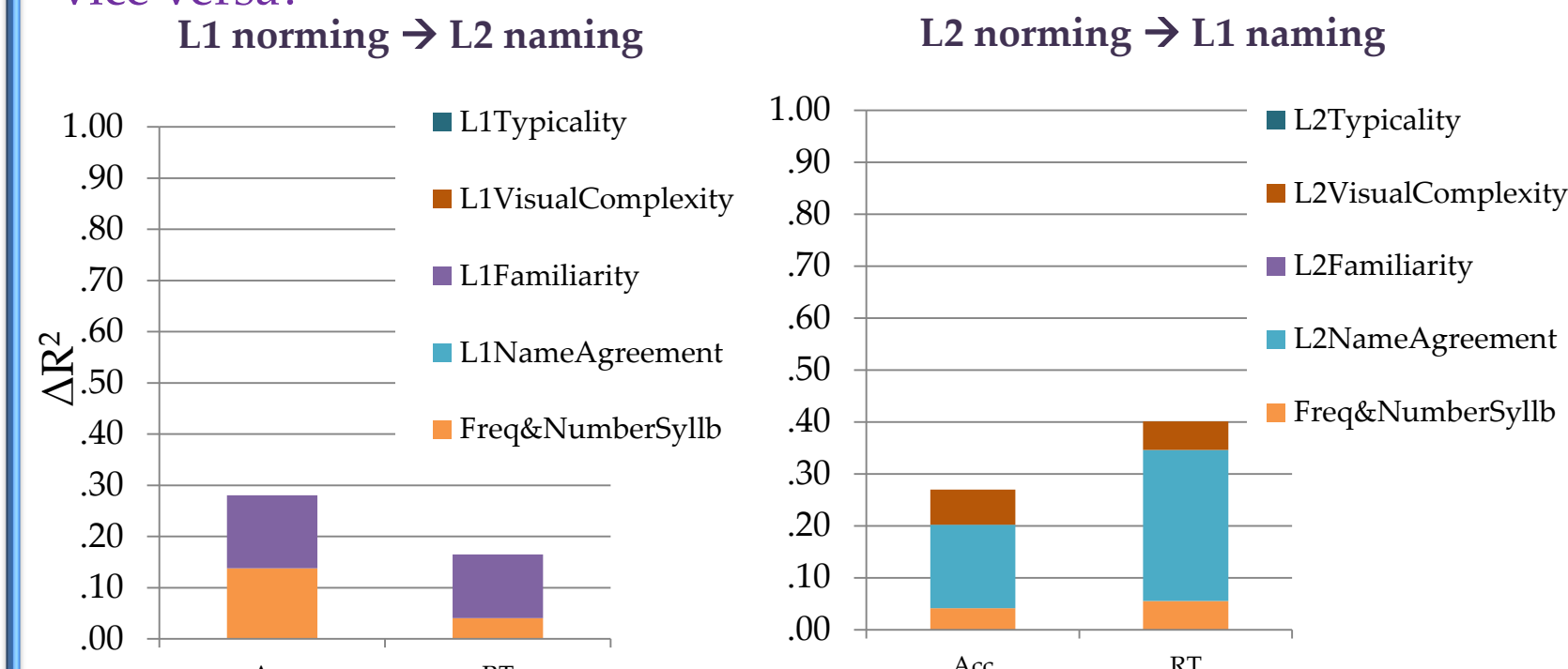

Legend: L2Typicality, L2VisualComplexity, L2Familiarity, L2NameAgreement, Freq&NumberSyllb (Acc, RT; ΔR^2)
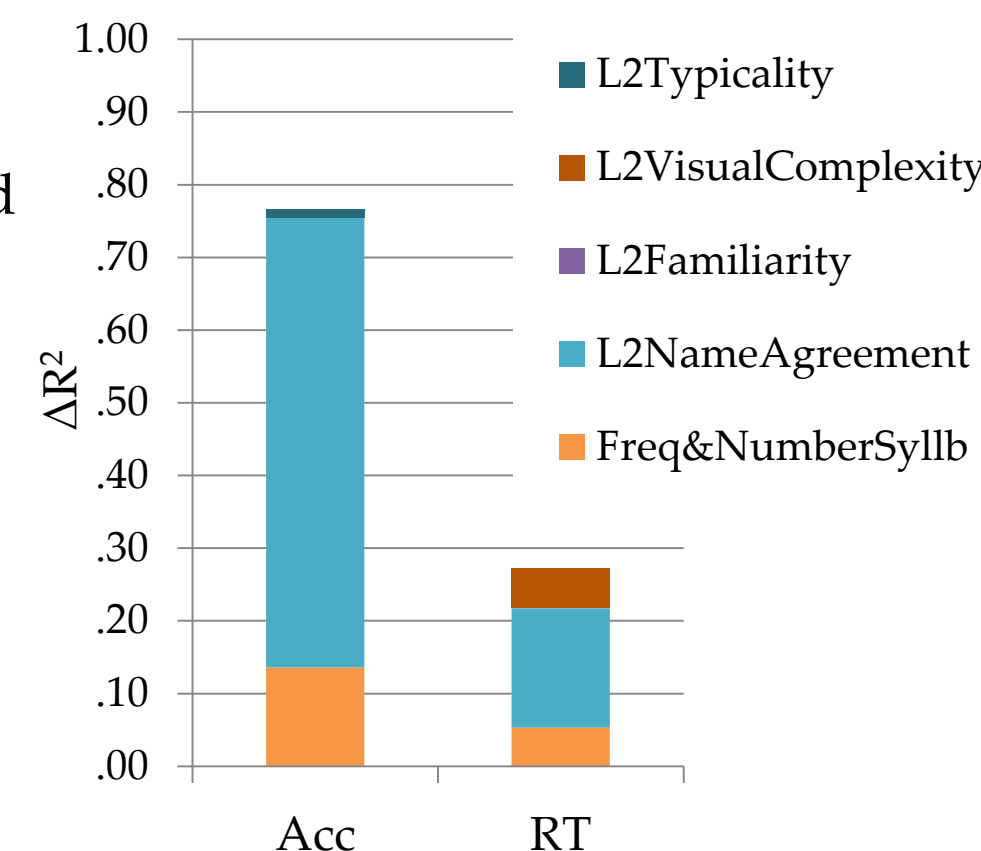
Part III: Across L1/L2 comparisons

How does L1 norms correlate with L2 norms?

$N = 150$, $* p < .05$; $** p < .01$

		1	2	3	4	5	6	7	8
1.	L1 Name Agreement	1							
2.	L1 Visual Complexity	-.18*	1						
3.	L1 Familiarity	.35**	-.39**	1					
4.	L1 Typicality	.32**	-.37**	.77**	1				
5.	L2 Name Agreement	.25**	-.18*	.36**	.21*	1			
6.	L2 Visual Complexity	-0.15	.20*	-.48**	-.42**	-.36**	1		
7.	L2 Familiarity	.16*	-.26**	.53**	.38**	.67**	-.56**	1	
8.	L2 Typicality	0.14	-0.15	.35**	.21*	.82**	-.40**	.80**	1

How well does L1 norming predict L2 naming performance & vice versa?

L1 norming → L2 naming

Legend: L1Typicality, L1VisualComplexity, L1Familiarity, L1NameAgreement, Freq&NumberSyllb (Acc, RT; ΔR^2)

L2 norming → L1 naming

Legend: L2Typicality, L2VisualComplexity, L2Familiarity, L2NameAgreement, Freq&NumberSyllb (Acc, RT; ΔR^2)

➢ L1 speakers' familiarity ratings were the only predictor for L2 naming performance above objective measures.

➢ However, both L2 speakers' name agreement measure and visual complexity ratings significantly predicted L1 performance.

What are the major predictors of L2 naming performance?

➢ L2 speakers' name agreement accounted for much of the variance in accuracy, L1 naming performance added only 11% and L1 name agreement not at all.

Legend: L2Typicality, L2VisualComplexity, L2Familiarity, L2NameAgreement, L2NamingPerformance, L1Typicality, L1VisualComplexity, L1Familiarity, L1NameAgreement, L1NamingPerformance, Freq&NumberSyllb (Acc, RT; ΔR^2)
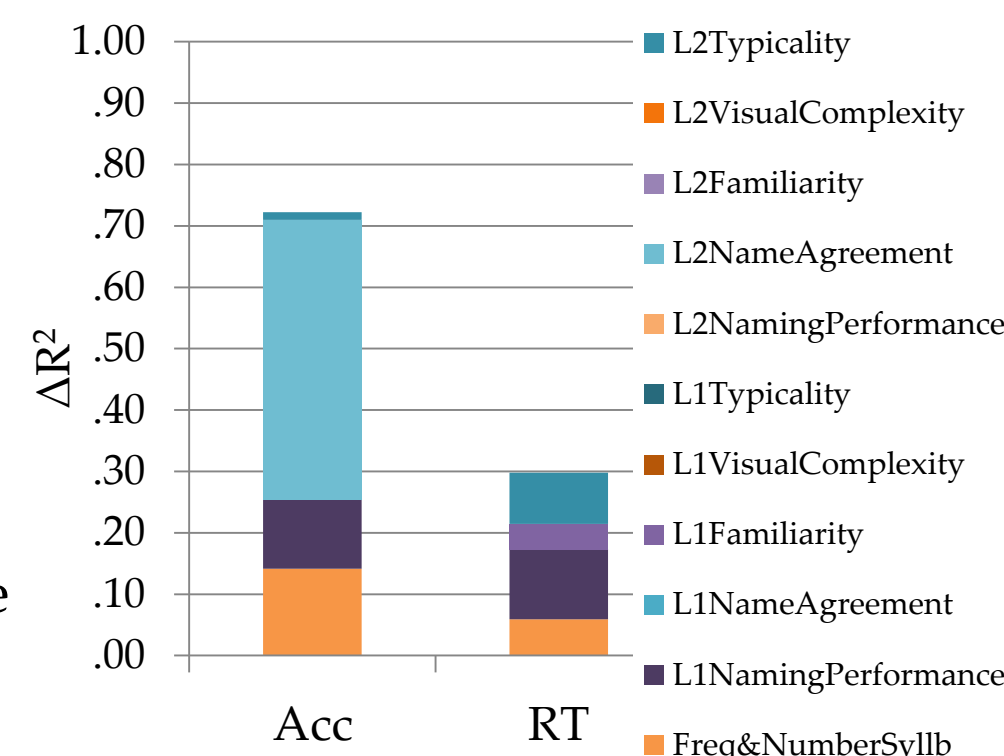
Discussion & Conclusion

➢ Picture-naming norms predict performance on a timed naming task specifically when populations in both cases overlap in their native language.

➢ Conducting L2 norms is crucial for the interpretation of L2 speakers' performance on timed naming tasks.

References

- Moreno-Martínez, F. J., & Montoro, P. R. (2012). An ecological alternative to Snodgrass & Vanderwart: 360 high quality colour images with norms for seven psycholinguistic variables. *PloS one*, 7(5), e37527.