

# The Role of Native Language in Statistical Learning Success Krystal Mendez, An Nguyen, Violet Kozloff, Zhenghan Qi Language Acquisition and Brain Laboratory, Department of Linguistics and Cognitive Science, University of Delaware, Newark, DE, USA

### Introduction

Statistical learning is the ability to extract repeated patterns of regularities and transitional probabilities. We examined whether native language experiences (English vs. Hebrew), perceived familiarity with one's native language, or native language proficiency affects how successful an individual learns an artificial language that is composed of Hebrew syllables.

The aim of this study was to confirm these hypotheses:

- English native speakers will perform relatively worse than Hebrew native speakers in learning the artificial language, but equally well in the non-linguistic statistical learning task.
- 2. There will be a positive correlation between the perceived English likeness of the artificial language and the learning success of an artificial language.
- People with better verbal knowledge and reading experiences will show greater success in both statistical learning tasks.

### Method

32 adults participated in the study (mean age 21.9 years old, 26 females and 6 males). All were between the ages of 18 and 40, receiving payment for their participation. They were all native English speakers with no learning, hearing, or language impairments.

### Exporimont Drocoduro

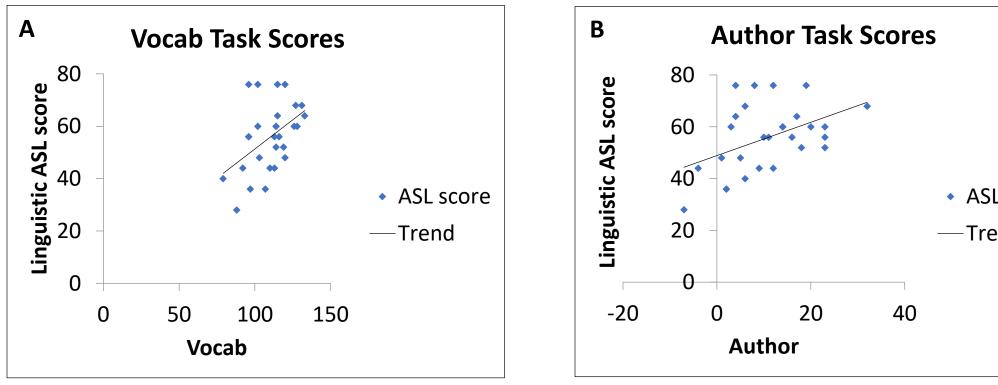
	Enter your ID:			
2 mg	heb_a_test			
Welcome to the alien game!			some of them are made-up name. an recognize. You can guess if you	
nis game you will hear a song from Planet Wuggy. Listen carefully so you can help another alien remember the order of the sounds in the song.	Are the following name:	an author or not an author?		
Press 1 when you are ready to begin.		Is an author	Is not an author	
r ress i when you are ready to begin.	Lauren Adamson	0	0	
	Isabel Allende Eric Amsel	0	0	
	Maya Angelou	0	0	
	Carter Anvari	0	0	
	Isaac Asimov	0	0	
Very good! Let's see if you can help the alien!	Margaret Atwood	0	0	
	Jean M. Auel	0	0	
Con every trial, you will hear three sounds followed by another three	Margarita Azmitia	0	0	
sounds. Help the alien decide which sound triplets appeared together in	Oscar Barbarian	0	0	
the alien song you heard before.	Reuben Baron Christopher Barr	0	0	
	Ann Beattie	0	0	
	Gary Beauchamp	0	0	
If you think the first group was in the right order, press 1.	Samuel Beckett	0	0	
	Saul Bellow	0	0	
If you think the second group was in the right order, press 2.	Lauren Benjamin	0	0	
	Thomas Bever	0	0	
Press 1 when you are ready to begin!	Brian Bigelow	0	0	
Welcome to the align language game!	<ul> <li>Non-linguistic ASL</li> <li>Author task</li> <li>Derecived English likens</li> </ul>			
Welcome to the alien language game! n this game you will hear an alien song. Listen carefully so you can help another alien remember the order of the sounds in the song. Press 1 when you are ready to begin.	Perceived English likene			
	Pictur	e-Vocab	ulary task	
Coco     Cococo     Cococo     Coco     Coco     Coco     Coco     Coco     Coc		<image/>		

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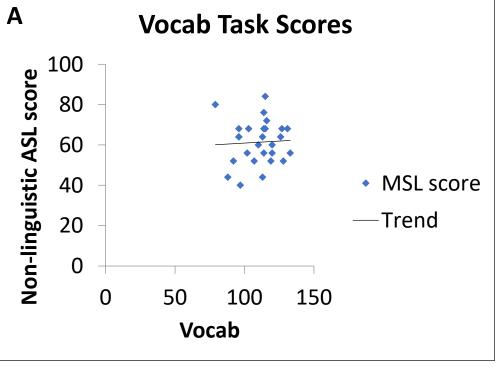
Таѕк	Hebrew native	English native
	speakers	speakers
Linguistic ASL	71% (13%)	57% (13%)
Non-linguistic ASL	71% (15%)	62% (10%)

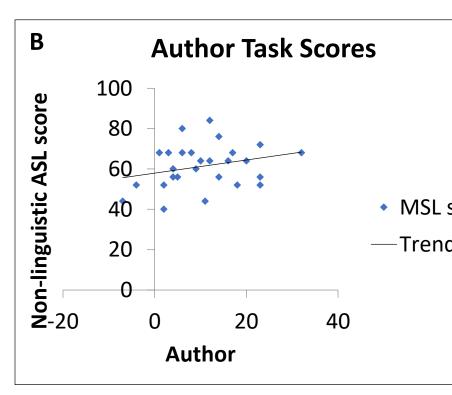
18) (SD).       performance comparation of the speakers         57% (13%)       Linguistic ASL         62% (10%)       Non-linguistic ASL         all individual difference measures in native         L       Non-Linguistic ASL         Author       Vocab         **       **         1	nglish likeness         **	<ul> <li>Table 1 shows the means English native speakers p Hebrew native speakers i</li> <li>Table 2 shows that Englis above chance (50%) for b However, they preformed participants. Without the possible to determine wh linguistic than the non-lin</li> <li>Table 3 shows the correlation measures.</li> <li>Table 4 &amp; Figure 1 show the linguistic data. For A) the shows no significant relation author task, and C) has a</li> <li>Table 5 &amp; Figure 2 shows linguistic data. For A), B), variabilities of statistical no relationship between scores, author task score</li> <li>1. Familiarity (or perceived for the statistical learning suggestion)</li> </ul>
62% (10%)       Non-linguistic ASL         Non-Linguistic ASL       Author       Vocab         k**       **       **         1       -       -         0.277       1       **         0.043       0.491       1         0.117       0.155       0.093       1         Model predicting Linguistic ASL performance         Coefficients       Standard Error       t         13.58186125       16.20041531       0.8         0.286127524       0.155241692       1.         0.376361066       0.232744313       1.66         SL       5.333741243       1.637855687       3.2         df       SS       M         3       2285.086027       763         24       2242.342544       93.         27       4527.428571       4527.428571	t(28) = 6.46, p = 0.02       t(79) = 2.89, p = 0.03         English speakers (p-value marked in         nglish likeness         **	<ul> <li>above chance (50%) for k However, they preformed participants. Without the possible to determine wh linguistic than the non-line</li> <li>Table 3 shows the correlation measures.</li> <li>Table 4 &amp; Figure 1 show the linguistic data. For A) the shows no significant relation author task, and C) has a</li> <li>Table 5 &amp; Figure 2 shows linguistic data. For A), B), variabilities of statistical no relationship between scores, author task score</li> <li>1. Familiarity (or perceived for the statistical for the statistical for the statistical for the score st</li></ul>
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L         Non-Linguistic ASL         Author         Vocab         En           **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **         **	stat       P-value         38365       0.410098         84311       0.077698         17058       0.118936         56539       0.003348         MS       F       Significance F         1.6953       8.152496       0.000646494         43094	<ul> <li>possible to determine when linguistic than the non-line</li> <li>Table 3 shows the correlation measures.</li> <li>Table 4 &amp; Figure 1 show the linguistic data. For A) the shows no significant relationship to task, and C) has a table 5 &amp; Figure 2 shows linguistic data. For A), B), variabilities of statistical no relationship between scores, author task score</li> <li>1. Familiarity (or perceived for the statistic of the statistic of the statistic of the statistic of the score statistic)</li> </ul>
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B Author Task Scores	C Rating of English Likeness of the ASL Task 100 80 60 40 40 20 0 Trend	Thanks to the members of the Brain Laboratory for their second analysis. I would also like to for generously sharing her store This poster was supported program, with a grant from General Medicine Sciences of the second
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	R	esults					Resu
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speakers           71% (13%)	Speakers57% (13%)	Linguis	tic ASL	(50%)	(2018)		lebrew native speakers able 2 shows that Englis
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•			s, and the	C) rating of English li	keness of the linguistic tas	sk	Ackn
• MSL score	B Authon 100 80 80 60 40 20 0 0 0 0 0 0 0 0 0	or Task Sco	<ul> <li>MSL sco</li> </ul>	ASL SCORE	English Likeness of the ASL Task	Brain analy for ge	ks to the members of the Laboratory for their survisis. I would also like to enerously sharing her st
	y and Arnon (2018 Hebrew native speakers 71% (13%) 71% (15%) matrix showing a Linguistic ASL 1 L 0.488 0.486 0.462 0.577 1; *** p < .001 hear regression model ikeness of the ASL scores ASL scores ASL score Trend 150 inear regression model ikeness of the ASL scores ASL scores ASL score Trend	Jaracy of statistical learning performancey and Arnon (2018) (SD).Hebrew native speakersEnglish native speakers71% (13%)57% (13%)71% (15%)62% (10%)n matrix showing all individual differentLinguistic ASL 0.488Non-Linguistic ASL1**0.4860.2770.4620.0430.5770.117Coefficients 13.58186125 0.286127524 0.376361066 ikeness of the ASL5.333741243dfCoefficients 13.58186125 0.286127524 0.376361066 0.376361066StoresASL score TrendASL score TrendMathematic ASL scores 0 150ScoresASL score TrendASL score TrendB TrendAuth 	Table 2 perform perform perform and Arnon (2018) (SD).Terform perform performHebrew native speakersEnglish native speakersperform71% (13%)57% (13%)Linguistic71% (15%)62% (10%)Non-Lirn matrix showing all individual difference measuLinguistic ASL 0.488Non-Linguistic ASL 0.4860.4860.27710.4620.0430.4910.5770.1170.1551; *** p < .001	uracy of statistical learning performance Table 2: Inferenti y and Arnon (2018) (SD). Hebrew native English native speakers 71% (13%) 57% (13%) . 71% (15%) 62% (10%) n matrix showing all individual difference measures in nation 	Tracy of statistical learning performance Table 2: Inferential statistics of English variables of the ASL (2013) (SD). Hebrew native English native speakers (200%) 71% (13%) 57% (13%) 271% (15%) 62% (10%) Table 2 (13%) 57% (13%) 271% (15%) 62% (10%) Table 2 (13%) 57% (13%) 271% (15%) 62% (10%) Table 2 (13%) 57% (13%) 1 (15%) 62% (10%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (15%) 62% (10%) 1 (13%) 57% (13%) 1 (15%) 62% (10%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 57% (13%) 1 (13%) 1 (13%) 57% (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%) 1 (13%	Table 2: Inferential statistics of English native speakers' yeard Arnon (2018) (SD). Hebrew native English native speakers 71% (13%) 57% (13%) 71% (13%) 56% (13%) 56% (13%) 71% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56% (13%) 56%	$\frac{   }{   } \frac{   }{   } \frac{   }{   } \frac{   }{   }$



		K	esults					Resi
Table 1: Mean accu	racy of statistical	learning performan			statistics of English r	•		Table 1 shows the means
in the current study Task	•	S) (SD). English native speakers	performar	nce compa	ared to chance and H Compare to chance (50%)	lebrew native speakers. Compare to Arnon (2018)		English native speakers p Hebrew native speakers
Linguistic ASL	71% (13%)	57% (13%)	Linguistic A	ASL	t(30) = 3.00, p = 0.02		• •	Table 2 shows that Englis
Non-linguistic ASL	71% (15%)	62% (10%)	Non-lingui	stic ASL	t(28) = 6.46, p = 0.02	2 t(79) = 2.89, p = 0.03		above chance (50%) for k However, they preformed
able 2. Completion		Lindividual diffara		in nativo	English speakers (n			participants. Without the
sterisks)	matrix showing a	in maiviauai amerei	ice measures	in native	English speakers (p-	value markeu m		possible to determine where the second secon
	Linguistic ASL	Non-Linguistic ASI	L Author V	ocab E	nglish likeness			Table 3 shows the correla
Linguistic ASL	1	**	** **	* *	* *			measures.
Non-linguistic ASL	0.488	1						Table 4 & Figure 1 show t
Author	0.486	0.277	1 **	*				linguistic data. For A) the
Vocab	0.462	0.043	0.491 1					shows no significant relat
English likeness	0.577	0.117	0.155 0.	.093 1				author task, and C) has a
p < 0.05;** p< 0.01	.; *** p < .001							Table 5 & Figure 2 shows linguistic data. For A), B),
able 4: Multiple lin	ear regression mo	odel predicting Ling	uistic ASL per	formance				variabilities of statistical
		Coefficients	Standard Er		Stat P-value			no relationship between
Intercept		13.58186125			338365 0.410098			scores, author task score
Vocab		0.286127524			.84311 0.077698			,
Author		0.376361066	0.23274	4313 1.6	617058 0.118936			
Rating of English lil	keness of the ASL				256539 0.003348			
Regression		<i>df</i>	2285 08			<i>gnificance F</i> 0.000646494		<mark></mark>
		24		12544 93		5.000040454		
Residual							1.	Familiarity (or perceived f
		27	4527.42	28571				
Residual Total		27	4527.42	28571				statistical learning succes
Total igure 1: Scatter plo	-				ne C) rating of Englis	h likeness of the linguistic		•
Total igure 1: Scatter plo	-				ne C) rating of Englis	h likeness of the linguistic		<ul> <li>English native speaker</li> </ul>
Total	uistic ASL scores	y task scores, B) au		es, and tl		h likeness of the linguistic English Likeness of the		<ul> <li>statistical learning success</li> <li>English native speakers</li> <li>speakers in learning ar syllables.</li> </ul>
Total gure 1: Scatter plot ask versus the Lingu Vocab Task S	uistic ASL scores	y task scores, B) au B Auth	thor task scor	es, and tl	C Rating of E			<ul> <li>English native speaker</li> <li>speakers in learning ar</li> <li>syllables.</li> </ul>
Total igure 1: Scatter plot ask versus the Lingu Vocab Task S 80 60	uistic ASL scores	y task scores, B) au	thor task scor	es, and tl	C Rating of E	English Likeness of the		<ul> <li>English native speakers</li> <li>speakers in learning ar</li> </ul>
Total gure 1: Scatter plot ask versus the Lingu Vocab Task S	cores	y task scores, B) au	thor task scor	es, and t	C Rating of E POS 80 ISP 60	English Likeness of the		<ul> <li>English native speaker</li> <li>speakers in learning ar</li> <li>syllables.</li> <li>Perceived English liker</li> </ul>
Total gure 1: Scatter plot ask versus the Lingu Vocab Task S <sup>80</sup> <sup>60</sup>	ASL scores	y task scores, B) au	thor task scor	• ASL score	C Rating of E POS 80 ISP 60	English Likeness of the		<ul> <li>English native speakers</li> <li>speakers in learning ar</li> <li>syllables.</li> <li>Perceived English liken</li> <li>with linguistic statistics</li> </ul>
Total igure 1: Scatter plot ask versus the Lingu Vocab Task S	cores	y task scores, B) au	thor task scor	es, and t	C Rating of E 80 80 100 100 100 100 100 100	English Likeness of the ASL Task	2.	<ul> <li>English native speakers speakers in learning ar syllables.</li> <li>Perceived English liken with linguistic statistics speakers.</li> </ul>
Total igure 1: Scatter plot ask versus the Lingu Vocab Task S	ASL scores	y task scores, B) au	thor task scor	• ASL score	C Rating of E POS 80 ISP 60	English Likeness of the ASL Task	2.	<ul> <li>English native speakers speakers in learning ar syllables.</li> <li>Perceived English liken with linguistic statistic speakers.</li> <li>Individuals' vocabulary is</li> </ul>
Total igure 1: Scatter plot ask versus the Lingu Vocab Task S 80 40 20 0	ASL score ASL score Trend	ry task scores, B) aut	thor task scor	• ASL score	C Rating of E	English Likeness of the ASL Task	2.	<ul> <li>English native speakers in learning ar syllables.</li> <li>Perceived English liken with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu</li> </ul>
Total igure 1: Scatter plot ask versus the Linge Vocab Task S 40 40 20 0 50 100 Vocab	ASL scores • ASL score — Trend 150	ry task scores, B) aut	thor task scor nor Task Scores	• ASL score Trend	C Rating of E	English Likeness of the ASL Task ASL Task ASL score Trend 4 6	2.	<ul> <li>English native speakers in learning ar syllables.</li> <li>Perceived English liken with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting</li> </ul>
Total igure 1: Scatter plot ask versus the Linge Vocab Task S 40 40 20 0 50 100 Vocab	ASL scores • ASL score — Trend 150	ry task scores, B) au B Auth B 0 0 0 -20 0 Aut	thor task scor nor Task Scores	• ASL score Trend	C Rating of E	English Likeness of the ASL Task ASL Task ASL score Trend 4 6	2.	<ul> <li>English native speakers in learning ar syllables.</li> <li>Perceived English liken with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting</li> </ul>
Total igure 1: Scatter plot ask versus the Linguro Vocab Task S Notation Vocab Task S 0 0 0 50 100 Vocab Table 5: Multiple lin Intercept	ASL scores • ASL score — Trend 150	ry task scores, B) au B Auth au B Auth au 60 40 40 40 40 -20 0 Auth Coefficients 68.08948625	thor task scor nor Task Scores	• ASL score Trend • L perforn • 88889	$\frac{C}{Stat} \frac{P-value}{8.65878} = 0.001307$	English Likeness of the ASL Task ASL Task ASL score Trend 4 6	2.	<ul> <li>English native speaker speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting</li> </ul>
Table 5: Multiple lin Intercept Vocab	ASL scores • ASL score — Trend 150	ry task scores, B) au B Auth au au b Auth au b Auth b Auth c A	thor task scor nor Task Scores	• ASL score Trend • L perforn 5 L perforn 5 88889	C Rating of E	English Likeness of the ASL Task ASL Task ASL score Trend 4 6	2. 1. Ar	<ul> <li>English native speakers in learning ar syllables.</li> <li>Perceived English liken with linguistic statistical speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting linguistic and non-linguist</li> </ul>
Total igure 1: Scatter plot ask versus the Lingure Vocab Task S Vocab Task S 0 0 0 0 0 0 0 0 0 0 0 0 0	ASL scores ASL score Trend 150	ry task scores, B) au B Auth au B Auth au B Auth au Coefficients 68.08948625 -0.115239837 0.408883704	thor task scor nor Task Scores	• ASL score — Trend 5 L perform 5 88889 3 10002 5 4 4 9 7 2	C       Rating of B         9       80         9       80         9       80         9       60         40	English Likeness of the ASL Task ASL Task ASL score Trend 4 6	2. 1. Archild	<ul> <li>English native speaker speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting linguistic and non-linguist</li> </ul>
Total igure 1: Scatter plot ask versus the Lingure Vocab Task S Vocab Task S 0 0 0 0 0 0 0 0 0 0 0 0 0	ASL scores ASL score Trend 150	ry task scores, B) au B Auth au B Auth au Coefficients 68.08948625 -0.115239837 0.408883704 1.46247008	thor task scor nor Task Scores 20 40 hor n-linguistic AS <u>Standard E</u> 5 18.609 7 0.1815 4 0.2705 8 2.1028	• ASL score — Trend 5 L perform 5 88889 3 10002 5 4 4 9 7 2	C Rating of B S Stat P-value 3.65878 0.001307 -0.6349 0.531762 1.51128 0.144336 695457 0.493737	English Likeness of the ASL Task   • ASL score   - Trend   4   6   English likeness of the ASL	2. 1. Ar child 2. Ro Inter	<ul> <li>English native speakers speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting linguistic and non-linguist</li> </ul>
Total igure 1: Scatter plot ask versus the Lingurous Vocab Task S Not the start of the start	ASL scores ASL score Trend 150	ry task scores, B) au B Auth au B Auth au B Auth au Coefficients 68.08948625 -0.115239837 0.408883704	thor task scor nor Task Scores 20 40 hor h-linguistic AS <u>Standard E</u> 5 18.609 7 0.1815 4 0.2705 8 2.1028 <b>SS</b>	• ASL score Trend • ASL score Trend • ASL score 10002 54497 1 91871 0.	C Rating of B S Stat P-value 3.65878 0.001307 -0.6349 0.531762 1.51128 0.144336 695457 0.493737	English Likeness of the ASL Task   • ASL score   • Trend   4   6   English likeness of the ASL	2. 1. Ar child 2. Ro Inter 3. Sa	<ul> <li>English native speakers speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting linguistic and non-linguist</li> <li>non, i. (2018, May 7). Do current states ren? An investigation of task reliabilemberg, A. and Saffran, J. (2010). States disciplinary Reviews: Cognitive Scier ffran, J., Aslin, R., &amp; Newport, E. (19)</li> </ul>
Total igure 1: Scatter plor ask versus the Lingure Vocab Task S Notab Task S Nota	ASL scores ASL score Trend 150	ry task scores, B) au B Auth au B Auth au Coefficients 68.08948625 -0.115239837 0.408883704 1.46247008	thor task scor nor Task Scores 20 40 hor h-linguistic AS 5 18.609 7 0.1815 4 0.2705 8 2.1028 53 314.00	• ASL score Trend • ASL score Trend • ASL score 10002 54497 1 91871 0.	C       Rating of R         9       80         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10	English Likeness of the ASL Task   • ASL score   • Trend   4   6   English likeness of the ASL	2. 1. Ar child 2. Ro Inter 3. Sa	<ul> <li>English native speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting linguistic and non-linguist</li> <li>non, i. (2018, May 7). Do current states ren? An investigation of task reliabilemberg, A. and Saffran, J. (2010). States disciplinary Reviews: Cognitive Scier ffran, J., Aslin, R., &amp; Newport, E. (19)</li> </ul>
Total igure 1: Scatter plot ask versus the Lingure Vocab Task S Nocab Task S Nocab Task S Nocab 100 Vocab Table 5: Multiple lin Intercept Vocab Author Rating of English lik	ASL scores ASL score Trend 150	ry task scores, B) au B Auth au au au b au b au au b au b au b au au b au b au au b au b au au b au b	thor task scor nor Task Scores 20 40 20 40 hor n-linguistic AS <i>Standard E</i> 5 18.609 7 0.1815 4 0.2705 8 2.1028 <i>SS</i> 3 314.00 3 2693.9	• ASL score Trend • ASL score Trend • ASL score • Trend • ASL score • ASL score • Trend • ASL score • ASL score • Trend • ASL score • ASL scor	C       Rating of R         9       80         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10         10       10	English Likeness of the ASL Task   • ASL score   • Trend   4   6   English likeness of the ASL	2. 1. Ar child 2. Ro Inter 3. Sa	<ul> <li>English native speakers speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, bu performance, suggesting linguistic and non-linguist</li> <li>non, i. (2018, May 7). Do current states ren? An investigation of task reliabilemberg, A. and Saffran, J. (2010). States disciplinary Reviews: Cognitive Scier ffran, J., Aslin, R., &amp; Newport, E. (19)</li> </ul>
Total igure 1: Scatter plot ask versus the Linge Vocab Task S Notab	ASL scores ASL score Trend 150 ASL score Trend ASL score ASL score Trend ASL score ASL score ASL score ASL score Trend	ry task scores, B) au B Auth 90 10 10 10 10 10 10 10 10 10 1	thor task scor nor Task Scores 20 40 hor h-linguistic AS <u>Standard E</u> 5 18.609 7 0.1815 4 0.2705 8 2.1028 <u>SS</u> 3 314.00 3 2693.9 6	• ASL score Trend • ASL score Trend • ASL score • Trend • Trend • ASL score • ASL score • Trend • Tren	C       Rating of R         905       80         15       60         10       20         0       20         0       20         0       20         0       20         0       20         0       20         0       20         0       20         0       20         0       20         0       2         Rating of         nance         Stat       P-value         3.65878       0.001307         -0.6349       0.531762         1.51128       0.144336         695457       0.493737         MS       F       Sig         04.6695       0.893618       0         17.1301       0       0	English Likeness of the ASL Task   • ASL score   • Trend   4   6   English likeness of the ASL	2. 1. Ar child 2. Ro Inter 3. Sa 274 (1	<ul> <li>English native speakers speakers in learning ar syllables.</li> <li>Perceived English liker with linguistic statistic speakers.</li> <li>Individuals' vocabulary is learning performance, but performance, suggesting linguistic and non-linguist linguistic and non-linguist</li> <li>non, i. (2018, May 7). Do current states ren? An investigation of task reliability of task reliability and Saffran, J. (2010). States disciplinary Reviews: Cognitive Scient ffran, J., Aslin, R., &amp; Newport, E. (195294), 1926-1928. doi: 10.1126/scient</li> </ul>
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## Results (continued)

ns of English vs. Hebrew native speakers. The performance was worse than that of the s in both tasks.

ish native speakers performed significantly <sup>•</sup> both the linguistic and non-linguistic tasks. ed extensively worse than the Hebrew ne raw data from the Arnon (2018), it is not whether the group difference is greater in linguistic task.

elation matrix of all the individual difference

the multiple linear regression of the nere a marginal contribution to the task, B) ationship between the linguistic asl score and a significant and unique data trend vs the multiple linear regression of the non-), and C) there is no relation to the individual learning performance. The data trends show n the non-linguistic scores and the vocab res, or rating of English likeness.

### Conclusion

familiarity) of language is related to ess from the speech input. ers perform worse than Hebrew native artificial language consisting of Hebrew

eness of the artificial language is associated ical learning success in English native

is only associated to linguistic statistical out not the non-linguistic statistical learning g dissociable learning mechanisms between stic domains.

### References

statistical learning capture stable individual differences in bility across modalities. https://doi.org/10.31234/osf.io/9pa8t Statistical learning and language acquisition. *Wiley* 

*ience*, 1(6), pp.906-914.

1996). Statistical Learning by 8-Month-Old Infants. Science, cience.274.5294.1926

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