

## FOCUS OF THE STUDY

### Referential Accessibility:

In narratives, speakers and signers vary **the quantity of marking** on referring forms and anaphoric tools (REATs) based on the accessibility of the referent in the addressee's mind [1-2]:

Accessible → less marking

Inaccessible → more marking

### Discourse Status:

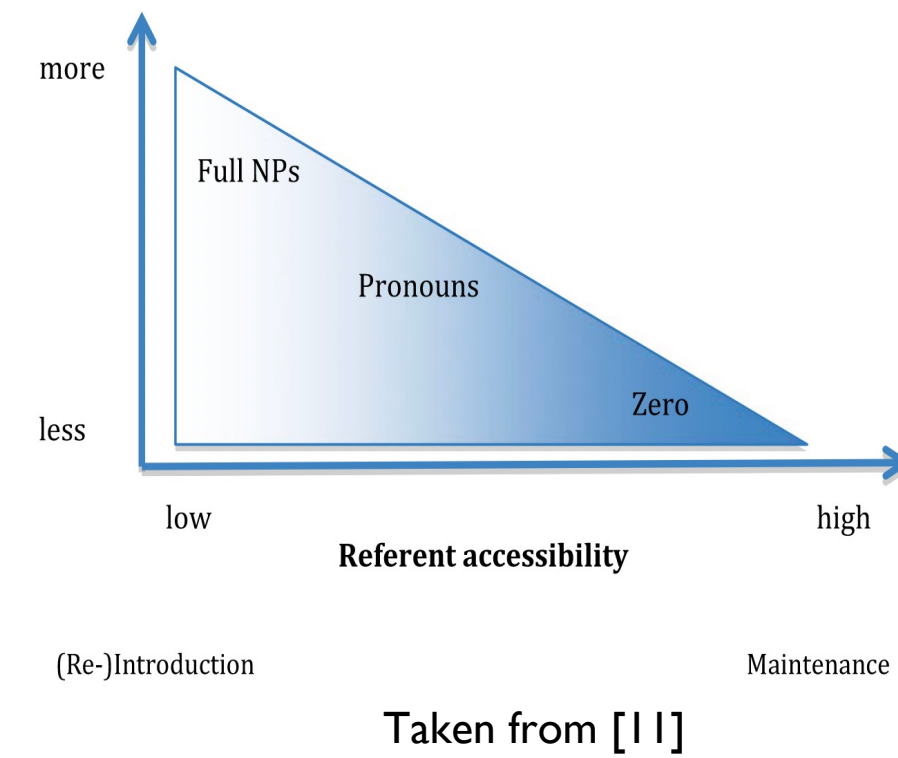
A referent can also be:

Introduced → mentioned for the first time

Maintained → continued across at least two clauses

Re-introduced → old referent brought back to discourse

**The Present Study:** -- investigated the reference tracking strategies of native and late deaf adult signers in Turkish Sign Language (TiD) narratives by using a 7-point scale of referent accessibility.



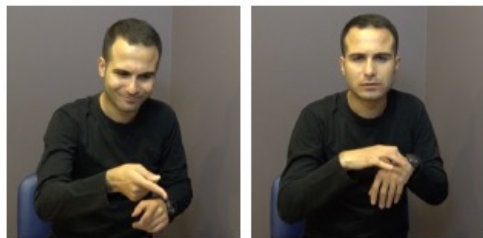
## Referent Tracking in Sign Languages

Sign Languages are natural languages of the Deaf communities all around the world. REs for sign languages include the following main tools:

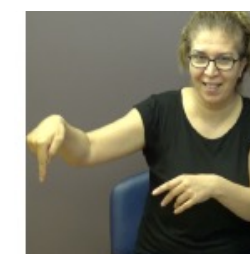
### Nominal (NOM)



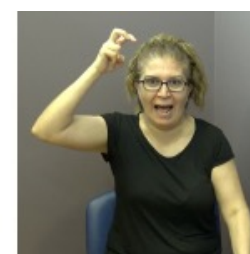
### Pronominal (PRO)



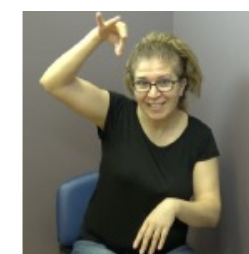
### Classifiers (CL)



WCL



BPCL

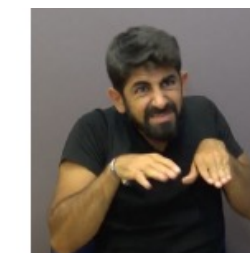


Handling

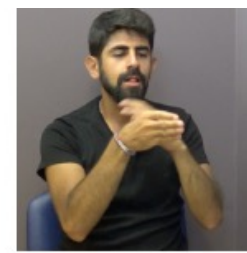


ExtCL

### Null Marking (NULL)



CA



Plain VERB



Agreement VERB

## Age of Acquisition Effects

### Two groups of signers

- 1) Native deaf signers: have deaf parents, AoA: 0-3 years
- 2) Late deaf signers: have hearing parents, AoA: >3 years

Native language deprivation among late signers known to influence morphosyntactic [5] and narrative abilities [3].

## References & Acknowledgements

[1] Ahn D. The determinacy scale: A competition mechanism for anaphoric expressions [PhD Thesis]. Harvard University; 2019. [2] Ariel M. Accessing Noun-Phrase Antecedents. Routledge; 1990. 284 p. [3] Becker C. Narrative competences of Deaf children in German Sign Language. Sign Language & Linguistics. 2009, 12(2):113–60 [4] Bel A, Ortells M, Morgan G. Reference control in the narratives of adult sign language learners. International Journal of Bilingualism. 2015;19(5):608–24 [5] Boudreau P, Mayberry R. Grammatical processing in American Sign Language: Age of first-language acquisition effects in relation to syntactic structure. Language and Cognitive Processes. 2006. [6] Bürkner P-C. Advanced Bayesian Multilevel Modeling with the R Package brms. The R Journal. 2018; 10(1):395. [7] Czibek TA. A comprehensive study of referring expressions in ASL. 2017;244. [8] Frederiksen AT, Mayberry RI. Reference tracking in early stages of different modality L2 acquisition: Limited over-explicitness in novice ASL signers' referring expressions. Second Language Research. 2019;35(2):253–83. [9] Morgan G. Discourse cohesion in sign and speech. 2000. [10] Nuhbaloğlu D. Comprehension and production of referential expressions in German Sign Language and Turkish Sign Language: An empirical approach [Doctoral Dissertation]. [Germany]: Georg-August-Universität Göttingen; 2018. [11] Perniss P, Özyürek A. Visible Cohesion: A Comparison of Reference Tracking in Sign, Speech, and Co-Speech Gesture. 2015. [12] Sioetjes H, Wittenburg P. Annotation by Category: ELAN and ISO DCR. In: Proceedings of the Sixth International Conference on Language Resources and Evaluation (LREC'08). Marrakech, Morocco: European Language Resources Association (ELRA); 2008. [13] Swabey LA. The Cognitive Status, Form and Distribution of Referring Expressions in ASL and English Narratives [Unpublished Doctoral Dissertation]. [Minneapolis, USA]: University of Minnesota; 2002. [14] Toole J. The Effect of Genre on Referential Choice. In 1996. p. 263. [15] Williams J. Zero Anaphora in Second Language Acquisition: A Comparison among Three Varieties of English. Studies in Second Language Acquisition. 1988; 10(3):339–70.

## HIGHLIGHTS

- Deaf native and late signers' reference tracking examined with a story-telling paradigm in Turkish Sign Language.
- In introduced and re-introduced contexts, nominals mainly used for referents with low accessibility.



- In maintenance, null markers and classifiers were favored for highly accessible referents.
- Limited evidence of over-redundancy in late signers' reference tracking compared to native signers, pointing to less sensitivity to economy of form.

## METHODS

### Participants:

8 native and 8 late deaf adult signers.

Late signers' exposure to TiD between ages 3-17.



### Procedure:

Participants shown 10 short wordless clips from a cartoon and asked to retell them.

### Accessibility Scoring (following [14])

5 for most accessible and -2 for least accessible) based on:

- (i) the number of propositions back to previous mention of the current referent
- (ii) topicality/saliency of the current referent
- (iii) number of matched competitors between the referent and its previous mention

### Annotation

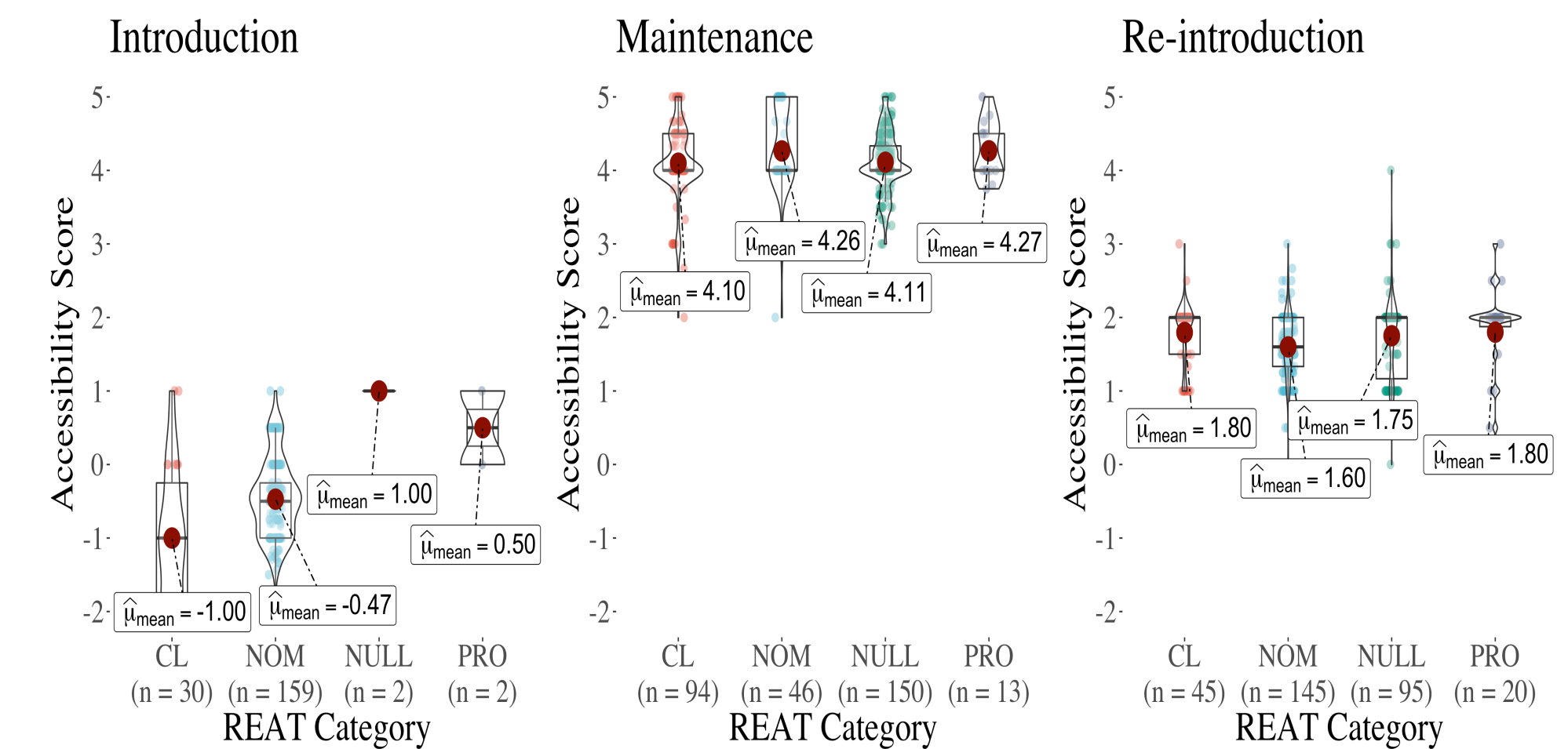
Using ELAN [12], we annotated the accessibility score, discourse status, and REAT.

## RESULTS

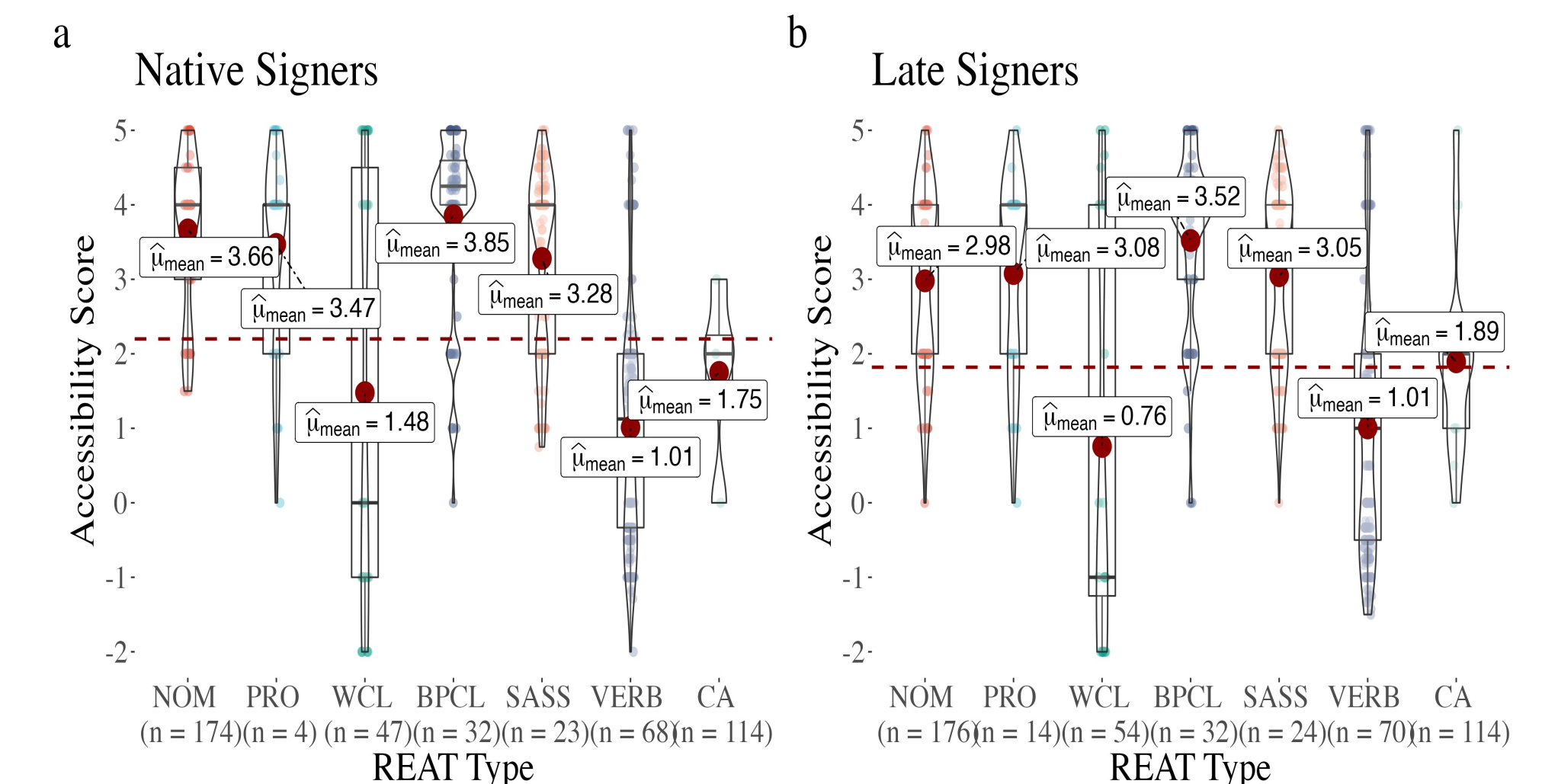
We fit a Bayesian linear regression model using the brms package [6] in R to accessibility score (dependent variable) with discourse status and acquisition group as fixed effects and subject as random effect.

**Maintenance condition greatly increased accessibility ratings** ( $\beta = 4.86$ , 95% CI [4.76, 4.95]) whereas **introduction greatly decreased accessibility** ( $\beta = -4.68$ , 95% CI [-4.78, -4.58]).

NULL was used to maintain highly accessible referents but **signers overall preferred NOM for lowly accessible referent introduction and re-introduction**.



**Native signers had slightly higher mean accessibility ratings** ( $\beta = 0.14$ , 95% CI [0.01, 0.28]) **despite employing similar mean numbers of REAT**.



## DISCUSSION

-- The observed distribution of REAT types was in line with previous observations [7-8, 12].

-- Limited over-explicitness by late signers in reference tracking is akin to findings from hearing L2 acquirers of a sign language [4, 8] and spoken language [15].

### Conclusion:

-- Native and late signers share the same linguistic inventory to track referents but differ in pragmatic competence.

-- Delayed first language exposure might negatively affect late deaf signers' pragmatic competence, and this might be reflected in their sensitivity to economy of form.