(Non)Effects of age of acquisition in TİD morpho-syntax:
Evidence from classifiers and argument expression

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It has been known that the age of acquisition has a crucial impact on language performance and comprehension of a child (Penfield & Roberts, 1959; Lenneberg, 1967; Emmorey, 2002). Moreover, exposure to linguistic input after the critical age is not adequate for some aspects of language to fully develop no matter for how long an individual continues to receive relevant linguistic data (Mayberry & Eichen, 1991; Newport, 1990); therefore, we observe linguistic differences between native and late-learner signers of a sign language in adulthood. Furthermore, previous studies have shown that classifiers in sign languages are complex structures (Supalla 1982, Zwitserlood 2003, Benedicto & Brentari 2004) and even children who have access to primary linguistic data from the first day of their lives acquire these structures at the age of 7-8 (Schick, 1987). In this study, we investigate differences in the production of clauses with classifier constructions by native and late-learner TİD signers to reveal any age sensitive morpho-syntactic aspects of TİD following Benedicto and Brentari (2004)'s syntactic analysis of classifier constructions in which classifier handshapes are functional heads and determine the argument structure of a clause. Benedicto and Brentari (2004) propose that these functional heads, f1 and f2, introduce external and internal arguments, respectively, while, marking the thematic roles of the arguments. Such marking reveals an active alignment system; the single agent argument of an intransitive clause behaves like the agent of a transitive clause while the single theme argument of an intransitive clause behaves like the theme of a transitive clause (Dixon, 1987; Deal, 2016).

We conducted an elicitation task with sixteen deaf TİD signers who use TİD as the main way of communication. We grouped the informants as native TİD signers and late-learner TİD signers based on their responses to the questionnaire that they filled before the task. Basically, we considered the informants who were born to a family with at least one deaf parent or elder sibling as native TİD signers while we considered the rest who do not have any deaf relatives in their immediate family as late-learner TİD signers. The age range for the native TİD signers is 26-37 (mean age; 30) while it is 31-49 (mean age; 38) for the late-learner group. The late-learner signers indicated that they started to learn TİD at a deaf school (mean age of acquisition; 7). That means the total duration of exposure to sign language for both groups is actually very close to each other (30 years for natives; 31 years for late-learners) which eliminates duration of exposure to language as a confounding factor. We had eight female and eight male informants for both groups. Although their birthplaces vary, all informants currently live in Istanbul. Six native signers are graduates of various high schools for the deaf. Two native signers are graduates of universities, but these schools are not specialized for the education of deaf students. Five late-learner TİD signers are graduates of various high schools for the deaf. Similar to the native group, two late-learner signers are graduates of universities which are not specialized for the education of deaf students. One late-learner informant, on the other hand, is a graduate of a secondary school for the deaf.

To obtain classifier constructions, we used the elicitation materials of Zwitserlood (2003) with her permission. We conducted the task by applying picture signing method. The task was to explain the event on each picture (89 in total) to the camera as if it were "their deaf friend".

Our first research question was based on Benedicto and Brentari's analysis of classifiers: Do we observe such a thematic role–morphological marking regularity in TİD? Furthermore, considering the aforementioned difficulties in the acquisition of these morphological structures, we wondered whether the morpho-syntactic expression of the classifiers shows any differences between native and late-learner signers. Results in Table 1 show that TİD behaves as predicted by Benedicto and Brentari's account where morphological handshapes map to thematic roles. Initial results also show that two native and two late-learner signers show no significant difference with respect to this mapping from morphological handshape to thematic role, i.e. it is not age sensitive in TİD.

Table 1: Morphological Handshape – Theta Role Correspondence in Native and Non-native Signers

	Body Part Classifiers		Whole Entity Classifiers		Handling Classifiers	
	Agent	Theme	Agent	Theme	Agent	Theme
Native_1	13	-	-	13	43	43
Native_2	14	-	-	15	48	48
Non-native_1	11	-	-	11	45	45
Non-native_2	9	-	-	10	46	46

Our second research question is about the expression of arguments in clauses with unergative, unaccusative, and transitive verbs with classifier predicates. Previous research shows that in addition to cross-reference marking on a verb and case marking on an argument, the overt expression or dropping of an argument based on its theta role can indicate the alignment of a fully-fledged language (Durie, 1988) or a homesign system (Goldin-Meadow et al. 1984). So, we questioned if TİD signers display any differences in expressing or not expressing arguments with different theta roles. We also wondered whether there are any differences between native and late-learner signers in this respect. Results show that native signers differentiate theta roles of the arguments by expression rates.

Table 2: Argument Expression Rates in Intransitive and Transitive Sentences

	Unergative Structure		Unaccusative Structure		Transitive Structure		
	% of SV	% of V	% of SV	% of V	% of SOV	% of OV	% of Other
Native_1	25	75	73,3	26,7	12,24	42,85	44,91
Native_2	43,75	56,25	88,23	11,77	22	22	56
Non-native_1	73,3	26,7	73,3	26,7	46	0,6	53,4
Non-native_2	86,6	13,4	84,61	15,39	61	0,2	38,8

Native signers drop the single agent argument in unergative structures while the overt expression of the argument by them clearly increases when the single argument of a clause is a theme in unaccusative structures. Native signers also drop the agent-subject of a transitive sentence while expressing the theme-object more often. Therefore, their argument expression patterns indicate an active system where the single agent argument of an unergative clause is treated on a par with the agent-subject of a transitive clause whereas the single theme argument of an unaccusative clause is treated on a par with the theme-object of a transitive clause. As for the late-learner signers, we do not observe any differences between the expression rates of the single argument in an unergative vs. unaccusative structure. Also, late-learner signers express the agent-subject in a transitive sentence at a much higher rate than the theme-object. These results indicate a nominative-accusative alignment for late-learner signers which does not differentiate subjects based on their thematic roles. Thus, alignment of TİD as indicated by argument expression rates seems to be age-sensitive.

In summary, the first analysis on classifier types indicates that late-learner TİD signers, as well as native TİD signers, commonly encode the thematic roles morphologically. However, they do not differentiate the thematic properties of arguments in syntax by means of their overt/covert expressions.

Keywords: Sign language linguistics, Turkish Sign Language, TİD, age of acquisition, morpho-syntax.

References: Benedicto, E., & Brentari, D. (2004). Where did all the arguments go? Argument changing properties of classifiers in ASL. Natural Language & Linguistic Theory, 22(4), 743-810. **Deal, A. R. (2016).** Syntactic ergativity: Analysis and identification. In the Annual Review of Linguistics, 2, 165-185. **Dixon, R. M. W. (1987).** Ergativity. Language, 55(1), 59-138. **Durie, M. (1988).** Preferred argument structure in an active language: Arguments against the category 'intransitive subject'. Lingua, 74(1), 1-25. **Emmorey, K. (2002).** Language, cognition, and the brain: Insights from sign language research. Mahwah, NJ: Lawrence Erlbaum Associates. **Goldin-Meadow, Susan, Carolyn Mylander, Jill de Villiers, Elizabeth Bates, and Virginia Volterra. (1984).** "Gestural communication in deaf children: The effects and noneffects of parental input on early language development." Monographs of the society for research in child development, 1-151. **Lenneberg, E. H. (1967).** The biological foundations of language. Hospital Practice, 2, 59-67. **Mayberry, R. I., & Eichen, E. B. (1991).** The long-lasting advantage of learning sign language in childhood: Another look at the critical period for language acquisition. Journal of memory and language, 30(4), 486-512. **Newport, E. L. (1990).** Maturational constraints on language learning. Cognitive Science, 14(1), 11-28. **Penfield, W., & Roberts, L. (1959).** Speech and brain mechanisms. New York: Atheneum. **Schick, B. (1990).** The effects of morphological complexity on phonological simplification in ASL. Sign Language Studies, 66, 25–41. **Supalla, T. (1982).** Structures and acquisition of the verbs of motion and location in American Sign Language. Unpublished doctoral dissertation, University of California, San Diego. **Zwitserlood, I. E. P. (2003).** Classifying hand configurations in Nederlandse Gebarentaal (Sign Language of the Netherlands). Unpublished doctoral dissertation, University of Utrecht, the Netherlands.