One Root to Build Them All: Roots in Sign Language Classifiers

Hande Sevgi

1. Introduction

Classifiers in sign languages give information about the movement, location, and physical properties of the argument(s) in a structure (Supalla 1986):

(1) Turkish Sign Language (TİD)

H1: MAN TABLE BOOK PUT.CL
H2: TABLE BOOK
'The man puts the book on the table.'[1]

In (1), the signer introduces the arguments with the lexical signs in the first three frames. The frames marked with the square are an example of classifier construction which encodes the semantic properties of the theme argument, i.e., the book, as well as the agency of the subject, i.e., the man, simultaneously.

Based on the similarities to classifiers in spoken languages, the term 'classifier' was first used by Frishberg (1975) in sign language linguistics for these grammatical categories. More specifically, sign language classifiers have been argued to be the counterpart of verbal classifiers in spoken languages. However, there have been many studies which indicate the morphological organization of sign language classifiers differs from classifiers in spoken languages and such organization is unique to sign languages (Supalla 1986; Zwitserlood 2003; Benedicto & Brentari 2004; among others). One of the prominent differences between the two modalities is that classifier morphemes in spoken languages are discrete units which denote the properties of their referents with respect to size, shape, substance, etc. These morphemes attach to the verb sequentially. Classifier morphemes in sign languages, on the other hand, are the handshape which are incorporated into the verbs simultaneously (Supalla 1982; Wilbur 1987).

Previous studies analyze sign language classifiers as complex predicates which have a multimorphemic structure (Supalla 1982; among others). These morphemes have non-arbitrary relation

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[1] The following abbreviations in gloss are used: H1 = dominant hand, H2 = nondominant hand, CL = classifier morpheme, BE_LOC = be located.

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between their form and meaning (Supalla 1982). Classifier handshape is widely analyzed as a bound morpheme. This bound morpheme attaches to an underspecified verbal root of location, movement, or manipulation of an entity (Supalla 1982; Zwitserlood 2003; Sandler & Lillo-Martin 2006; among others). This morpheme which encodes the semantic and structural properties of a referent occurs obligatorily with a specific type of verbs, namely spatial verbs[2]; on the other hand, the lexical predicates do not allow the classifier handshapes in general. Moreover, the choice of the classifier handshape varies according to the salient property of the referent(s) within the structure. The handshape represents the category of the referent(s), i.e., two-legged entity (), vehicle (), or upright being ()), or handling or manipulation of an object (i.e., , ,), or the handled object itself (Benedicto & Brentari 2004; among others)[3].

Supalla (1982) argues that a noun can be realized by different classifiers which are available in the classifier inventory of that specific noun. Several classifiers may be interchanged throughout the discourse for the same noun to focus on different characteristics of the referent object as in (2):

(2) American Sign Language (ASL)

a. MONEY BE_LOC.CL:F()
'The coin is located [on the table].'

b. MONEY BE_LOC.CL:B()
'The banknote is located [on the table].'

c. MONEY. BE_LOC.CL:CLAW()
'A pile of coins is located [on the table].'

However, the semantic properties of the referents are not the only criteria in determining the classifier handshape. Previous studies reveal that classifier morphemes are realized in different forms depending on the syntactic properties of the referents in the structure as in (3):

(3) ASL (Adapted from Benedicto & Brentari 2004, p.752)

a. BOOK MOVE.CL:B()
'The book fell down on its side.'

b. [Ø] BOOK MOVE[4].CL:C()
'S/he took the book and laid it down on its side.'

These examples show that the structural properties of the arguments have a role in determining the choice of classifier type[5] and classifier handshape. In this study, I aim to investigate the relation between the choice of classifier handshape and the structural and semantic properties of the referents. This paper is organized as follows. Section 2 presents the relevant background on sign language classifiers and indicates the challenges which these accounts face. Section 3 provides the data in TİD to give a better understanding of classifier constructions. Section 4 aims to propose an analysis of classifiers by focusing on the properties of the roots in these constructions. Finally, Section 5 concludes the discussion.

2. Some background on sign language classifiers

Previous studies on sign language classifiers consider the handshape as the core element of these constructions. This classifier morpheme has been analyzed as reference marker (Edmondson 2000), as pronoun (Klima & Bellugi 1979), as agreement marker (Glück & Pfau 1998, Zwitserlood 2003), and as functional head (Benedicto & Brentari, 2004). In this section, I focus on the studies which analyze classifier handshapes as agreement markers and functional heads within the scope of this study.

[2] Chang et al. (2005) argue that 'only spatial verbs have classifiers, but not plain verbs or agreement verbs.' They further argue that this is because only spatial verbs use topographic space for the grammatical relations, which 'recreates a map of the real world.'

[3] These are the corresponding ASL handshapes. The classifier handshapes referring to the same referent are not necessarily identical in each sign language since every sign language utilizes their own handshape repertoire although there is a great overlap across the sign languages due to the iconic nature of this construction.

[4] The movement is from vertical to horizontal position.

[5] There are different approaches to the grouping of classifiers in the literature. In this study, I follow the analysis by Engberg-Pedersen's (1993) in which classifiers are grouped into four categories, namely whole entity classifiers (WECL), body part classifiers (BPCL), handling classifiers (HCL), and extension classifiers (ExtCL).

2.1. Classifiers as agreement markers

Different studies consider sign language classifiers as an example of agreement phenomenon and classifier morphemes as agreement markers[6]. Glück and Pfau (1998) claim that classifiers are morphosyntactic units and they are assigned in a certain phrasal projection. The trigger for the classification is the relevant features of the arguments in the structure. (4) presents the correspondence between the classifier handshape and the physical properties of a relevant argument:

(4) German Sign Language (DGS) (Adapted from Glück and Pfau 1998)

a. CAT WALK.CL:bent_V()
'The cat walks.'

PERSON WALK.CL:V()
'The person walks.'

b. BALL ROLL.CL:C()
'The ball rolls.'

PENCIL ROLL.CL:G()
'The pencil rolls.'

c. (IX_1) FLOWER $_1GIVE_2$.CL:F()
'I give the flower to you.'

(IX_1) FLOWER $_1GIVE_2$.CL:C ()
'I give the apple to you.'

Glück and Pfau (1998) argue that this phenomenon is an example of inflection. Moreover, they claim that classifier constructions license empty pronouns and allow left-dislocation. These properties are attested in agreeing verbs but not in plain verbs which 'do not license empty pronouns due to the lack of agreement' (p.70). Therefore, they propose that sign language classifiers are an example of agreement. Moreover, they analyze classifier constructions and agreeing verbs under a unified account.

Zwitserlood (2003) also investigates classifiers as agreement markers. Similar to Glück and Pfau (1998), she proposes a unified account for agreeing verbs and classifiers within the DM framework. In her analysis, classifier constructions and agreeing verbs share the identical structure while the presence of a classifier depends on the content of the root. For Dutch Sign Language (NGT), Zwitserlood (2003) argues that the root of a classifier predicate is movement. The root has an internal argument as its complement and it does not bear any syntactic or phonological information. Moreover, the presence or absence of the functional heads determines the classifier type in the structure.

2.2. Classifiers as functional heads

In their morphosyntactic analysis of classifiers, Benedicto and Brentari (2004) argue that classifier constructions in ASL have an internal argument as their complement, similar to Zwitserlood (2003). These verbal roots bear information about the number of arguments they can take. However, they do not contain any information about the syntactic properties of their arguments. Furthermore, Benedicto and Brentari (2004) observe that the choice of handshape in two identical clauses determines the argument structure (i.e., transitive – unaccusative, unergative-unaccusative). They provide evidence for this claim by using syntactic tests which target syntactically different arguments (internal or external):

(5) ASL (Benedicto & Brentari, 2004)

a. ACTOR BOW.CL:1()
actor bow.upright_being$_{WECL}$
'The actor bowed.'

ACTOR BOW.CL:1() NOTHING
actor bow.upright_being$_{WECL}$ NEG-nothing
'None of the actors bowed.'

b. ACTOR BOW.CL:S()
actor bow.head$_{BPCL}$
'The actor bowed.'

*ACTOR BOW.CL:S() NOTHING
actor bow.head$_{BPCL}$ NEG-nothing
#'None of the actors bowed.'

[6] There is no consensus among researchers about whether sign languages show an agreement system in general which is identical to the agreement system in spoken languages. Some accounts argue for a purely syntactic agreement (Pfau et. 2018) while some accounts favor a gesture-based analysis of the dependencies between arguments and verb (Schembri et al. 2018).

Based on these observations, Benedicto and Brentari (2004) propose that classifier morphemes, the handshapes, are functional heads which introduce external (f1) and internal (f2) arguments while the (co)presence of these functional heads determines the argument structure of a clause[7]. This analysis predicts to observe whole entity classifiers (WECL) encoded by the f2 when the verb of the clause is unaccusative, body part classifiers (BPCL) encoded by f1 when the verb is unergative, and handling classifier (HCL) encoded by the co-occurrence of f1 and f2 when the verb is transitive. This alignment is commonly attested across sign languages, i.e., Catalan Sign Language (LSC) and Argentinian Sign Language (LSA) (Benedicto et al. 2007), among others.

2.3. Current challenges for the previous accounts and objective of the study

These analyses have a great capacity to explain the data from a certain aspect; however, challenges remain for these accounts. In their analysis, Glück and Pfau (1998) claim that classifiers are an example of agreement phenomenon focusing on the fact that they can license null arguments. However, Lillo-Martin (1986) argues that ASL allows null arguments with plain verbs as well as with agreeing verb. Moreover, she argues that not only agreement but also discourse can license null arguments in ASL. In a similar way, TİD allows null arguments not only with agreeing verbs but also with plain verbs (Kayabaşı, 2018). Furthermore, Lourenço and Wilbur (2018) propose that plain verbs also show agreement in their study on Brazilian Sign Language. These facts raise the question whether the null argument licensing is a valid criterion to confirm that classifier morphemes are agreement markers.

The analysis of Zwitserlood (2003), on the other hand, can represent the structural properties of the classifiers constructions as well as those of the agreeing verbs under a unified account. However, this analysis cannot capture one of the classifier types, namely body part classifiers (BPCL).

Lastly, the analysis of Benedicto and Brentari (2004) can represent the relevant classifier types. Although the alignment between the argument structure and the classifier type has been attested in various sign languages as predicted by this analysis, the existence of mismatching cases and new data in TİD[8] as well as other counterexamples in RSL (Russian Sign Language), NGT, DGS, and Kata Kolok (Kimmelman et al. 2019) posit a challenge for the account. Moreover, as pointed out by de Lint (2020), this analysis has the potential to overgenerate the alternation patterns while these alternations are not easily available for the users of these languages.

In brief, the current morphosyntactic analyses are not successful to capture the characteristics of classifiers when they utilize general syntactic properties. Moreover, when they successfully represent the structures, they need to propose additional and sometimes modality-specific syntactic elements. Therefore, I aim to present a compositional analysis which is capable of representing the characteristic properties of sign language classifiers while utilizing non-specific linguistic tools in this study. I question what features of the referent argument(s) play a role in the realization of the classifier handshape and to what extent semantics and syntax take responsibility in this process.

Before the analysis, I present the relevant data in TİD in the next section.

3. Classifiers in Turkish Sign Language

TİD is the language used by the Deaf communities in Turkey. This natural language seems not to be related to any European sign languages since they show various differences in many aspects (Zeshan 2003). TİD is an SOV language and classifiers are used productively (Kubus 2008; among others). To understand these constructions better, I provide some examples of classifiers in TİD with a focus on classifier type and handshape. The data is elicited from eight native TİD signers via picture-signing task.

We observe that the semantic properties of the referents affect the choice of classifier handshape in an identical event as follows:

[7] Similar to previous works on classifiers, Benedicto and Brentari (2004) also point out that the classifier handshape is determined via specifier-head relation (structural agreement).

[8] Transitive structures in TİD shows an interesting distribution of the classifier types: almost 50% of cases are realized by HCL while the rest is realized by BPCL. It is easy to discuss that iconicity plays a role in determining the classifier type; however, the aim of this study is to search for a structural explanation to account for these cases.

(6) H1: APPLE TREE^TREE FALL.CL:WECL()
H2: TREE^TREE TREE.CL:WECL()
'The apple falls from the tree.'

(7) H1: WOMAN TREE^TREE FALL.CL:WECL()
H2: TREE^TREE TREE.CL:WECL()
'The woman falls from the tree.'

However, we observe that a different classifier type (and classifier handshape) is used with a different event in (8) even though it has the identical referent as in (7):

(8) H1: WOMAN TREE^TREE JUMP.CL:BPCL()
H2: TREE^TREE TREE.CL:WECL()
'The woman jumps off from the tree.'

These examples indicate that the argument structure has a role in determining the classifier type and handshape. Nonetheless, there is no one-to-one mapping between the classifier handshape and the argument structure/referent. The same handshape can occur in the clauses with different argument structure and can refer to the semantically distinct referents as in (6) and in the following example:

(9) H1: WATER^BOTTLE THROW.CL:HCL()
'(S/he) throws the bottle.'

The data shows that the argument structure and the choice of the classifier type are closely related in TİD. The relevant question is whether this correlation is an illusion or whether there are any structural motivations for the existing pattern. Furthermore, this is not the only factor in determining the classifier handshape since the semantic properties of the referent(s) affect the classifier morpheme.

An important question regarding classifier constructions is when a classifier occurs. Previous studies provide insight on this issue by indicating the presence of an 'underspecified verbal root' in classifier constructions (Supalla 1982; among others). Similarly, Zwitserlood (2003) suggests that sign languages have conditions at PF interface which require the signs to have minimal and maximal number of components to be spelled out (p.32). She further argues that some verb roots do not have the required phonological information; therefore, it is realized as a classifier or an agreeing verb on the surface form.

As abovementioned, sign language classifiers are analyzed as the counterpart of verbal classifiers in spoken languages. However, we observe nominal and adjectival classifiers in sign languages (Kubus 2008, p. 91; among others). Nonetheless, it is crucial to note that classifiers related to the verbal domain and those related to the nominal domain do not show the identical properties. Classifiers are obligatorily present in the verbal domain when the relevant verb type is present; however, those in the nominal domain are optional and they function as a reference tracking tool similar to pronominals. Despite this difference, I argue that any account on classifiers should capture these constructions as well.

In addition to these patterns, TİD presents a set of data which might be ruled out by the previous analyses. Some transitive structures are expressed with a body part classifier on the dominant hand and a simultaneous whole entity classifier on the non-dominant hand:

(10) H1: KICK.CL:BPCL()
H2:BALL.CL:WECL()
'[The boy] kicks the ball.'

This pattern occurs in the classifier constructions which express the events of licking, biting, etc. Moreover, a set of transitive events can be expressed both with HCL and also with this configuration:

(11) H1: MAN POLE CLIMB.CL:HCL() CLIMB.CL:BPCL()
H2: POLE CLIMB.CL:HCL() CLIMB.CL:WECL()
'The man climbs the pole.'

Showing different patterns, these examples posit a challenge for previous accounts. I present an alternative analysis of classifiers by focusing on the properties of the roots in the next section.

4. Proposal

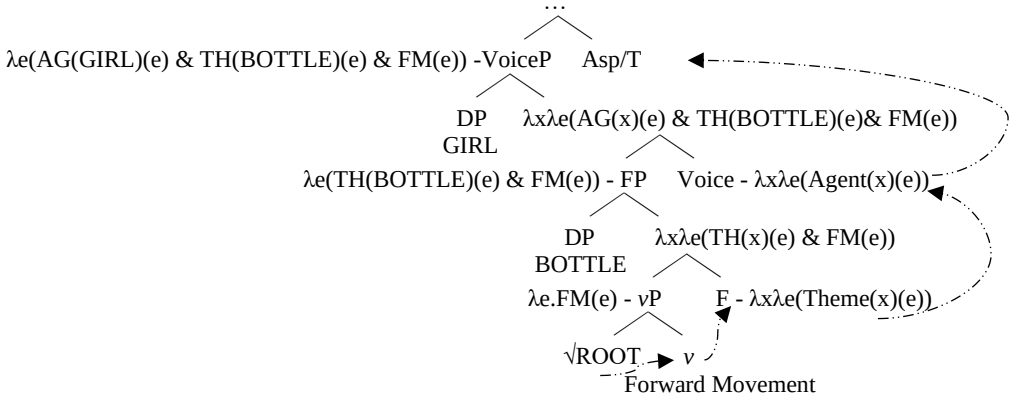
A crucial question related to classifier constructions is what triggers the presence of a classifier in a structure. As pointed out in the previous section, there is a neat relation between the choice of classifier type and the argument structure in TİD as proposed by Benedicto and Brentari (2004) for ASL. However, it is crucial to investigate whether a classifier morpheme determines the argument structure or vice versa. Based on the examples attested in TİD, I aim to present a representation which is not specific to classifier constructions and in which the structure determines the classifier type and handshape. Following Zwitserlood (2003), I further claim that there is no structural difference between the constructions with a lexical sign and a classifier. The core difference between classifiers and lexical signs is the information encoded in their roots. Therefore, I claim that the classifiers do not determine the argument structure.

In line with DM framework, I assume that all roots in TİD are acategorial and their syntactic categories are introduced within the structure. I claim that this property might enable us to explain the nominal and adjectival classifiers as well as the classifiers related to verbal domain; however, I do not investigate this issue within the scope of this paper.

As indicated before, I argue that the presence of a classifier is due to the content of the root. Borer (2014) argues that roots do not have any syntactic properties or any content while they have phonological specifications. Following her study, I argue that the roots in classifier constructions lack any information or diacritics related to any semantic/syntactic properties. Furthermore, I claim that these roots do not have any phonological information since their phonological information is motivated by the referent in the structure. The roots function as slots which the syntactic and semantic properties of the structure are built on. Therefore, I argue that there is one specific root which all kind of classifier constructions share.

Previous studies argue that roots of classifiers have an internal argument as their complement. However, I claim that these roots are severed from any arguments and any information related to their argument structure following Borer (2005) and Ahn (2016). I argue that this approach is relevant for classifiers which reflect the semantic and syntactic properties of their arguments transparently. Moreover, as Ahn (2016) indicates, such structure may indicate that syntax can correspond to a fully neo-Davidsonian semantics in a transparent way since 'the arguments are introduced by unique semantic functions which correspond with unique syntactic positions':

(12) H1: GIRL BOTTLE THROW.CL:HCL(✍)
'The girl throws the bottle.'



(12) is a simplified representation of a classifier construction with an HCL. In line with DM framework, I argue that the acategorial root (a lexical or a classifier root) requires a category-assigning head which determines its syntactic category. In the case of classifier constructions related to the verbal domain, the root merges with the verbalizer head *v* which is eventive as well. Previous studies on classifiers argue that the root of a classifier predicate involves the movement or the location of an entity. Based on the fact that the movement might serve as a distinguishing property for noun-verb pairs (Özkul 2013 for TİD), I argue that *v* bears an overt *movement* marker. Moreover, the movement component of classifier constructions differs from the movement in a lexical sign since the former one reflects the real world as indicated by Chang et al. (2005). Therefore, I further argue that when *v* combined with a root of a classifier construction which lacks information, it encodes the movement of the referents in an event

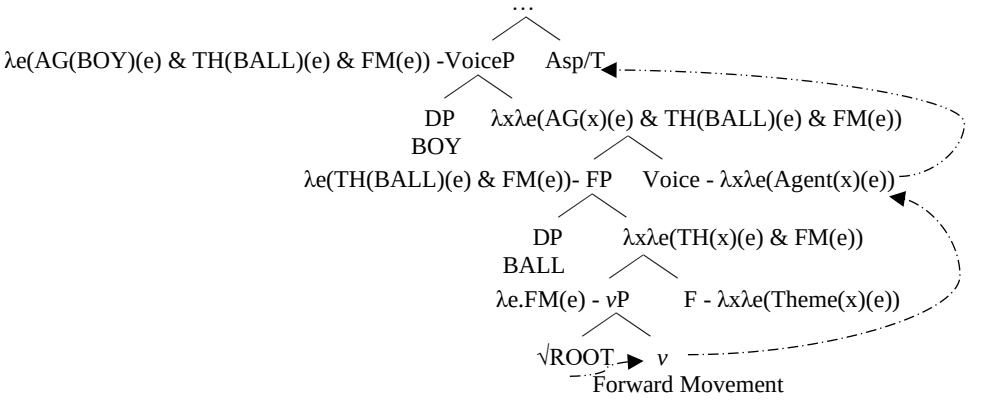
while it is not the case for the lexical roots which are already encoded with a phonological component. Moreover, following Borer (2005) among others, I claim that the internal argument is introduced via a functional head F while Voice head encodes agentivity and introduces the external argument.

I argue that the meaning is constructed compositionally based on the syntactic structure and the semantic properties of the arguments in the structure. Moreover, I claim that these factors determine how the classifier type and the handshape are realized. The features and the derivation responsible for determining the classifier handshape is not clear at the moment; however, the current structure reflects the tripartite encoding of the arguments (WECL, BPCL, HCL) as in Benedicto and Brentari's (2004) account as well as utilizing the linguistic tools which are not phenomenon specific. There is a potential relation between FP and the WECL as well as VoiceP and BPCL. Moreover, the handling classifier is the realization of the features in F head and Voice head in the same node, similar to portmanteau markers, which is the result of a post-syntactic head movement of the classifier root to higher functional nodes.

Additionally, this structure yields the similar results for the syntactic tests utilized by Benedicto and Brentari (2004) to reveal the relation between the argument structure and the classifier type. I suggest that the presence of Voice head, which encodes agentivity and introduces the external argument, can explain the incompatibilities of certain morphemes in the structure in a similar way to the incompatibility of agent-oriented adverbials in spoken languages which is due to the lack of Voice head in the structure.

However, at this point, the function of classifier handshapes is still vague since there is no clear-cut way to distinguish the relevant linguistic elements in sign languages, i.e., the agreement markers, pronominal affixes, and clitic doubling. Nonetheless, for the current purposes, I speculate the idea that the handshape functions as a pronominal affix based on their role in reference tracking as well as the presence of nominal classifiers. Moreover, this structure can explain the attested data in TİD where the transitive structure is realized by a BPCL on H1 and WECL on H2, instead of an HCL. The data indicates that the presence of the non-dominant hand which refers to a different referent within the same proposition triggers the spell-out process of the lower domain before the head movement of the root. It prevents the structure to yield a handling classifier which is result of a process similar to amalgamation:

(13) H1: BOY BALL ROOT.forward_movement.CL:BPCL(🤏)
'The girl throws the bottle.'



This approach might indicate that there are two main classifier types in the verbal domain, BPCL and WECL, while handling classifier is the realization of two functional head on the same node.

5. Conclusion

In this study, I argue that the realization of classifiers is not due to some specific properties of the structure but the content of the root following Zwitserlood (2003). This approach enables us to present an analysis without the phenomenon-specific functional heads. The current analysis also indicates that it is possible to have a compositional analysis of classifier constructions which combine syntactic and semantic information while referring the tripartite argument alternation patterns. Moreover, this analysis speculates the idea that TİD has different type of roots with different specifications: the classifier root which are abstract and the lexical roots which are meaningful.

I suggest that the classifier morpheme can be analyzed as a pronominal affix based on its properties. However, further research is needed to ensure the function of this morpheme in a structure. It is important to note that the distinction between agreement markers and clitics is still a hot topic in the studies on spoken languages. Any further research on sign languages may contribute a new perspective to the studies on this issue. Finally, I argue that the current analysis can account for the attested TİD data with two-handed classifiers where body part classifier and whole entity classifier cooccur. Nonetheless, this study evokes the need for further studies on the non-dominant hand in classifier constructions.

References

Ahn, Byron. 2016. Severing Internal Arguments from their Predicates: An English Case Study. Presented at the 2016 annual meeting of the LSA. Washington, DC.

Benedicto, Elena & Diane Brentari. 2004. Where did all the arguments go? Argument-changing properties of classifiers in ASL. *Natural Language & Linguistic Theory*, 22(4), 743-810.

Benedicto, Elena, Sandra Cvejanov, & Josep Quer. 2007. Valency in classifier predicates: A syntactic analysis. *Lingua.* 1202-1215.

Benedicto, Elena. 2018. Verbal Classifiers in Sign Languages. . . Agreement vs AGREE?. In Rodica Ivan (ed.) *UMOP 40: The Leader of the Pack. A Festschrift in Honor of Peggy Speas*, 1-18. Amherst, MA: GLSA, University of Massachusetts.

Borer, Hagit. 2005. *Structuring Sense: Vol II: The Normal Course of the Events*. Oxford: Oxford University Press.

Chang, Jung-hsing, Shiou-fen Su, & James H-Y. Tai. 2005. Classifier predicates reanalyzed, with special reference to Taiwan Sign Language. *Language and Linguistics*, 6(2). 247-278.

de Lint, Vanja. 2020. From meaning to form and back in American Sign Language verbal classifier morphemes. *Word Structure*, 3(1), 69-101.

Edmonds, William. 1990. A non-concatenative account of classifier morphology in signed and spoken languages. In S. Prillwitz & T. Vollhaber (Eds.), *Current trends in European Sign Language research: Proceedings of the Third European Congress on Sign Language research,* July 26-29, 1989, 187-202. Hamburg: Signum Press.

Glück, Susan & Roland Pfau. 1998. On classifying classification as a class of inflection in German Sign Language. *Proceedings of ConSole*, 6, 59-74.

Kayabaşı, Demet. 2018. Null arguments in TİD. Unpublished MS. Boğaziçi University, Turkey.

Kimmelman, Vadim, Vanja de Lint, Connie de Vos, Marloes Oomen, Roland Pfau, Lianne Vink & Enoch O. Aboh. 2019. Argument structure of classifier predicates: Canonical and non-canonical mappings in four sign languages. *Open Linguistics*, 5, 332-353.

Klima, Edward, & Ursula Bellugi. 1979. *The signs of language*. Cambridge, MA: Harvard University Press.

Kubus, Okan. (2008). *An analysis of Turkish Sign Language (TİD): Phonology and morphology* (Unpublished master's thesis). Middle East Technical University, Ankara, Turkey.

Lillo-Martin, Diane. 1986. Two kinds of null arguments in American Sign Language. *Natural Language and Linguistic Theory*, 4(4), 415-444.

Lourenço, Guilherme & Ronnie B. Wilbur. 2018. Are plain verbs really plain? Co-localization as the agreement marker in sign languages. *FEAST 2*, 68-81.

Özkul, Aslı. 2013. *A phonological and morphological analysis of noun-verb pairs in Turkish Sign Language* (Unpublished master's thesis). Boğazici University, Istanbul, Turkey.

Pfau, Roland, Martin Salzmann & Markus Steinbach. 2018. The syntax of sign language agreement: Common ingredients, but unusual recipe. *Glossa* 3(1). 107, 1-46.

Sandler, Wendy & Diane Lillo-Martin. 2006. *Sign language and linguistic universals*. Cambridge: Cambridge University Press.

Schembri, Adam, Jordan Fenlon & Kearsy Cormier. 2018. Indicating verbs as typologically unique constructions: Reconsidering verb 'agreement' in sign languages. *Glossa* 3(1), 89, 1-40.

Supalla, Ted. 1982. *Structures and acquisition of the verbs of motion and location in American Sign Language* (Doctoral dissertation). University of California, California.

Supalla, Ted. 1986. The classifier system in American Sign Language. In C. Craig. (Ed.), *Noun classes and categorization,*181-214. Amsterdam: John Benjamins.

Wilbur, Ronnie (1987). *American Sign Language: Linguistic and applied dimensions*. NY: Little, Brown and Co.

Zeshan, Ulrike. 2003. Aspects of Türk İşaret Dili (Turkish Sign Language). *Sign Language & Linguistics*, 6, 43-75.

Zwitserlood, Inge E. P. 2003. *Classifying hand configurations in Nederlandse Gebarentaal (Sign Language of the Netherlands)* (Doctoral dissertation). University of Utrecht, the Netherlands.

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