**Acquisition of Morphosyntactic Features in ASL**

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This research paper will focus on how morphosyntactic features in American Sign Language (ASL) are acquired among language learners. First, it will address what Morphosyntactic features in ASL are. These features are separated for more depth and clarity, into morphology and syntax. It will then discuss the typical language acquisition patterns focusing on how one develops morphosyntactic features of ASL. It will next speak on the differences between Morphosyntactic development in early acquisition compared to adolescent acquisition. This paper analyzes both morphology and syntax acquisition in that it focuses on both how one learns to assign meaning to words and how one begins to develop word order patterning and grammatical structures in sentence formation. Studies show that late language acquisition has negative impacts on proper language development.

**Morphology**

Morphology is the study of the smallest meaningful units in a language and how those units are used to build new units (Valli, 2011). This is the same for both spoken languages, such as English, and for signed languages such as American Sign Language. The difference, however, is the form that these units take on. In both English and ASL there are bound and free morphemes, which will be discussed in further detail later. In English, these meaningful units, otherwise known as morphemes, are words and affixes. Words in English are free morphemes and affixes such as the prefix “un” and the suffix “s” which are bound morphemes, which simply means that they have meaning only when attached to a free morpheme. In ASL a free morpheme is a sign, the sign language equivalent to a word. Unlike English, ASL has multiple types of bound morphemes besides affixes. ASL contains affixes, such as the agentive suffix added to the sign for the English word “teach” TEACH+AGENT causing it to become the ASL sign for “teacher”, or a negative suffix such as NONE added to a sign to make it negative in meaning. In ASL, there are five parameters to a sign: handshape, palm orientation, location, movement, and non-manual-markers. Though the individual parameters are most often considered phonemes and are arbitrary in meaning, there are times when a parameter adds to or changes the meaning of a sign. A handshape change happens for things like lexicalization to disambiguate a sign, or in numerical incorporation. Orientation can have specific grammatical meaning to specify things like the orientation of a noun. Some signs are the same in all paramaters except for location yet the meaning is different such as the signs for “summer” and “dry”. Movement reduplication can change a sign from a noun to a verb or from singular to plural. Non-manual markers such as nodding and eyebrow raising or lowering, can change meaning from positive to negative, into question or a rhetorical question and more. In the cases mentioned, the parameters can be considered a bound morpheme and therefore, are part of ASL morphology.

So far, this paper has discussed how ASL contains both bound and free morphemes and examples of each. Other features of ASL morphology include temporal aspect, compound signs, use of space, and fingerspelled signs. Temporal aspect in ASL is shown by the movement of a sign. Use of space has many grammatical functions in ASL. Space is used for both aspectual markers, referential markers, and narrative perspectives (Valli, 2011). Fingerspelling can take multiple forms. It can be used in an initialized sign, as a lexicalized sign, or when fingerspelling borrowed words from English that do not have a sign. ASL also contains different word classes much like any other language. The categories are very similar to the English language in that both languages contain all the same parts of speech. Of course, the parts are represented differently between the two languages. ASL also has further organization within its parts of speech. For example, there are two types of verbs in ASL: plain and locative. There is also a predicate in ASL that is not present in English, called a predicate classifier. Classifiers are iconic signs that have movement roots and classifier handshapes, represent a location in three-dimensional space, and can be divided into different types (Valli, 2011). ASL has many of the same morphological features as other languages, yet they are uniquely its own.

**Syntax**

 Syntax, also commonly referred to as grammar, is the study of how a language forms sentences and the grammatical rules behind that. As mentioned earlier, ASL contains the same lexical categories as English and other languages: nouns, predicates, verbs, adjectives, and adverbs as well as determiners, auxiliary verbs, prepositions, conjunctions, and pronouns. ASL also has rules for what order these categories of signs must come in when producing a grammatically correct sentence. The basic word order in ASL sentences is subject first then verb. ASL follows the most common word order across languages which is Subject-Verb-Object. However, in English this word order is a strictly held rule whereas ASL and many other languages are much more flexible in switching up this word order. Another acceptable sentence structure for basic sentences in ASL is Subject-Verb-Pronoun also called subject pronoun copy because the pronoun refers back to the subject (Valli, 2011). Verb-Pronoun is another acceptable type when there is nodding for agreement (Valli, 2011). An ungrammatical sentence form in ASL would be Verb Subject (Valli, 2011). In “Sign Language and Linguistic Universals”, Fischer states other observations about ASL word order alterations. He shows that topic comment sentences can be altered to an Object-Subject-Verb order, a sentence containing rhetorical questioning into: Verb-Object-Subject order and an idiomatic sentence: Object-Verb order (Sander et al., 2006). Every word order used in ASL depends on the agreement of the verb and with the agreeing word Object-Subject-Verb is preferred over Subject-Verb-Object. Liddell agreed with what Fischer found and added that yes/no questions in ASL can be Subject-Verb-Object or Object-Subject-Verb and that topicalization sentences are Object-Subject-Verb with a longer hold on the topic. Verb-Object can also be topicalized with added negation (Sander et al., 2006).

As you can see here, there are many variations in ASL depending on the sentence type and it has a much more flexible word order than English. The basic word order is Subject-Verb-Object with transformations that happen with some sort of marker such as a non-manual-marker to indicate the change. Non-manual signals are an important part to all areas of ASL linguistics including syntax. In syntax, non-manual markers indicate sentence types such as: yes-no questions, wh-questions, negation, topicalization, rhetorical questions, and more.

**Pattern of Language Development**

 The typical pattern of language development in children according to Chloe Marshall and colleagues, is to assemble phonemes to produce single words before combining words to make sentences. They continue to say that children produce content words like nouns and verbs before producing function words such as articles and prepositions and that they construct simple sentences that are short before producing more grammatically complex sentences such as relative clauses (Marshall et al., 2016). Though children vary significantly in language development, Marshall and colleagues record statistics that English speaking children in the 90th percentile produce around 180 words by 16 months old and those in the 10th percentile only 10 words averaging out to a productive vocabulary of about 40 words by 16 months. They state in their findings, that deaf children who were exposed to sign language from birth show similar figures (Marshall et al., 2016). According to Cheng in the Journal of Child Language, “When the language employs variable word order patterns, young children sometimes begin by using word order variations, but shortly thereafter show a preference for the canonical word order.” (Cheng et al., 2019). Canonical word order refers to the basic word order of Subject-Verb-Object which is the proper or more grammatically preferred order. Studies have shown that in early language development, children in many languages, including ASL, will start out by using mostly non-canonical word order around two years of age. The trend continues that most will quickly change their preference for a canonical word order. In ASL acquisition it is around three to five years old that a child will switch to signing in canonical word order for over 80% of their language expressions (Cheng et al. 2019). In the initial stage of language acquisition children are typically using two-word phrases which often include pronouns. This is no different for ASL acquisition. Rama Novogrodsky and colleagues also state from their research that when a deaf child is exposed to sign language their language acquisition parallels that of a typically developing hearing child, understanding opposite-based relationships at the same age, making the same types of errors, and reaching the same syntax milestones (Novogrodsky et al., 2017). According to their research, 18-24 months is when deaf children begin using simple sentences and move on to more complex sentences between three and four years. Non-manual features develop around 12-18 months and are paired with signs around 20 months. Using these nonmanual markers to represent sentence types emerges at different ages. For example, a sentence with topicalization develops around three years. Simple yes/no questions with raised eyebrows are produced at one year six months and wh-questions not until three years six months. They also develop Subject -Verb agreement that require spatial locations and referents at three years to three years six months and agreement with referents that are not present at four years nine months (Novogrodsky et al., 2017).

**Early Verses Late Acquisition**

Harry Knoors and his colleagues, talk about the importance of early input of language for proper language development by stating that, “If a baby is able to process its parent’s language adequately and has the ability to produce it at an age-appropriate level than nothing will interfere with optimal language development” (Knoors et. al, 2016). They continue, in their chapter about Language Development in Deaf Children and the Consequences for Communication Choices, to show how language acquisition is a cognitive activity where children will problem solve to assign meaning to their parent’s use of language. This acquisition is situated in a communicative context which aids in attaching meaning to symbols and structures of language, and learning phonological, semantic, morphosyntactic, and pragmatic properties. The ability to acquire a first language naturally, in the way described, is time limited and can only take place before the age of three and requires rich and fluent language input. If this is the case, even bilingual acquisition will be natural and automatic. However, a typically hearing baby begins language development in the last three months of pregnancy; for babies who are born Deaf this development cannot begin until they have access to either a signed manual language or get access through some means to a spoken language. Since 95% of parents of deaf babies are hearing and do not know sign language it takes time for them to make a decision on how to provide language access and deaf children often are delayed in language acquisition. Past the fourth year of life this delayed access to language, “will lead to negative consequences (especially in the field of complex grammar) that cannot be overcome, no matter how intensely a child or adolescent is exposed to first language input later” (Knoors et al., 2016). Interestingly, if a deaf child is not introduced to an accessible first language early enough, they will try to construct their own language by using symbols and gestures that usually only their mothers can understand (Knoors et al., 2016).

Furthermore, Cambridge University Press states that, “Children usually acquire their first language (L1) early in life with little effort. By contrast, second language (L2) learners as well as L1 learners with early language deprivation all seem to face difficulties developing native-like skills. In addition, early language deprivation results in a more disrupted outcome compared to delayed L2 learning.” (Cheng et al., 2019). Their studies show that many of the earliest stages of syntactic development in ASL are congruous regardless of the age of acquisition. In fact, the first stages of language seem to be developed at a faster rate in older language learners than those who were exposed to the language from infanthood. However, studies have revealed how first language delay leads to a struggle with more complex morphosyntactic structures. Basic word order in ASL is learned and performed at a near equivalent level between late onset and native ASL users. However, using variants has proven to be more difficult in late language learners.

Rama Novogrodsky and colleagues studied school-aged deaf children and said that, “One explanation for their syntactic deficits is language deprivation during critical periods for first language syntax acquisition. For example, deaf adult signers who had late exposure to ASL show deficits in sign language syntax comprehension despite years of language use.” (Novogrodsky et al., 2017). Later they show that children who do not receive a complete first language and have late exposure to sign language have syntactic difficulty in both signed and spoken language as adults, but native adult signers performed well at syntactic mapping tasks in both ASL and English (Novogrodsky et al., 2017).

**Conclusion**

 In conclusion, this paper went over what morphological features in ASL are, what Syntactic features in ASL are and how those features are acquired among first language learners. There is a typical pattern in language acquisition and morphosyntactic features are developed at the same rate, following the same patterns in both spoken and signed languages. Late language one learners also follow this same pattern even developing some parts of language faster. However, they struggle with complex morphosyntactic features and are unable to achieve native like production. This outcome is irreversible past the critical period of language acquisition which is found to be around four years of age. Though one can still learn a first or second language past the critical period, there are certain morphosyntactic features that will never be developed if not introduced by the critical age of acquisition.

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