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Learning to Fingerspell Twice: Young Signing Children’s Acquisition of Fingerspelling

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We tend to think of fingerspelling as a simple manual system for representing the alphabet. When adult second-language learners of American Sign Language (ASL) are first taught the system, they are often told that a fingerspelled word is made up of a sequence of hand shapes and that fingerspelling involves transitioning each hand shape into the next in an efficient way. Though some hand shapes are similar and are easily confused, adults can learn the system in a few lessons. For the young sign language learner, however, learning to fingerspell is a different task altogether.

This chapter reviews recent studies of fingerspelling in ASL, including those that discuss how young signers begin to construct fingerspelled words. As I will explain, these descriptions of early fingerspelling show that acquiring fingerspelling in ASL involves two sets of skills: first, the child learns to recognize fingerspelled words as whole units, and then, when reading and writing English become more prominent in the child’s life, the child begins to understand fingerspelled words as made up of hand shapes that correspond to the letters of the alphabet. In the latter sense, the child learns fingerspelling a second time—this time in terms of its internal composition and its link to English words in their written form. I conclude by addressing implications of this pattern of acquisition of fingerspelling for early education of young deaf children.
FINGERSPELLING IN ASL

The ASL Lexicon: Frequency

Compared to many other sign languages of the world, ASL uses fingerspelling more often and more prominently. As a measure of frequency of fingerspelling in ASL, my colleagues and I counted the number of times fingerspelled words appeared in short narratives of 18 native signers (Padden & Gumsauls, 2003). We selected a 150-sign segment from each signer during a narrative and counted the number of fingerspelled words as a percentage of the total vocabulary. We found an average of 18% fingerspelled words in our group of native signers of different ages and backgrounds, with some signers fingerspelling more (at 30%) and less (at 12%).

When we took an inventory of 2,164 fingerspelled words culled from group conversations among 14 signers, we found that nearly 70% of their fingerspelled words were nouns (Padden & Gumsauls, 2003). Next in frequency were adjectives. Verbs were comparatively much reduced in frequency, at about 6% of the total. Adverbs, conjunctions, and pronouns each constituted between 2% and 3% of the total. It is clear from these data that fingerspelled words are overwhelmingly nouns and disproportionately not verbs.

When we looked at fingerspelled loan signs, a category of adapted fingerspelled words that add prominent movement (Battison, 1978; Brentari and Padden, 2001), we found many more verbs represented among them than among fingerspelled words. The main distinction between the two types—fingerspelled words and fingerspelled loan signs—is that the latter vocabulary is nativized; that is, they often have a reduced number of just two hand shapes and an added movement such as path, for example, the verb #TO-FAIX. Fingerspelled words can stand in pairs with fingerspelled loan signs: the fingerspelled word FAIX can be used to refer to the sheet of paper that is faxed, and the loan sign #TO-FAIX is used for the act of faxing.

Other sign languages use fingerspelling very little or not at all. Boyes-Braem (2001) reports that Swiss German Sign Language relies on mouthing as a system of representing German words. Italian Sign Language and many other sign languages likewise use more on mouthing for words from the spoken language, resorting to fingerspelling largely for foreign names (S. Corazza, personal communication, October 1989). British Sign Language, on the other hand, joins ASL in its prominent use of fingerspelling (Brennan, 2001), with an average of 10% fingerspelled words of total vocabulary appearing in a signed segment (Sutton-Spence, 1994).

The ASL Lexicon: Grammatical Distinctions

The frequency of and regularity of fingerspelled words in ASL is related to the fact that fingerspelling is deeply entrenched in the lexicon (Brentari & Padden, 2001). ASL signers use fingerspelling to represent not only personal names but also many other English words, including names of cities, areas, regions, names of companies, car manufacturers, and brand names. Fingerspelling is an active means of borrowing English words into ASL, and unlike other sign languages that quickly translate spoken words into native signs of equivalent meaning, ASL has a large lexicon of stable fingerspelled words. Words like “rice,” “broccoli,” and “flour” are reliably always fingerspelled and have no signed counterparts. With respect to other English vocabulary, ASL fingerspells most brand names and manufacturers: “Gateway,” “Dell,” “Compaq” (computers), “Ford,” “Toyota,” “Honda,” (car manufacturers), where in other sign languages these names would be translated. For example, many European sign languages refer to the lion symbol in their signs for “Peugeot” or to the famous three-triangle hood ornament when signing “Mercedes-Benz.”

In addition to fingerspelling entire words, ASL has fingerspelled words derived from abbreviations or shortened words. Fingerspelled abbreviations can be short or long, such as “IBM,” “post office” (p-o), “vice president,” (V-P), and “Chevrolet” (C-H-E-V). Abbreviations may overlap with those used in English but not always; when the U.S. Postal Service moved to two letter abbreviations for all states, ASL abbreviations did not change, and to this day, the longer abbreviations are still commonly used, for example, FLA, “Florida,” MISS, “Mississippi,” MICH, “Michigan.”

A large subcategory of ASL signs are initialized signs where the hand shape corresponds to the first letter of the word such as CITIZEN or UNIVERSITY. (Rarely, the hand shape corresponds to the last letter of the word, as in sex.) Days of the week as well as many colors are initialized signs. Initialized signs are commonly used for personal name signs in ASL, unlike in other sign languages that tend to use noninitialized descriptive name signs, referring to some physical or psychological characteristic of the individual. As a variation on the single hand shape found in initialized signs, abbreviations can be incorporated in two-syllable signs: SENIOR-CITIZEN, SOCIAL-WORK, DOWN-SYNDROME.

There are a number of sign-fingerspelled pairs that contrast in meaning and grammatical class. For example, the sign LOVE (verb) can be paired with the fingerspelled word LOVE (noun) to contrast the grammatical class of the former with the latter. The sign RENT means “to rent,” but the fingerspelled RENT refers to the rental payment. In another pair, the sign DRIVE (verb) refers to driving a car but the fingerspelled word DRIVE (noun) is used for a computer hard drive. In a third-grade science class, a deaf teacher explained to her students that she was going to demonstrate the idea of a scientific “problem,” a word that she fingerspelled, then added that it was not the same as the meaning of the sign PROBLEM, which is typically used to refer to a personal problem or dilemma (Padden & Gumsauls, 2003).
To further illustrate, there are a large number of sign-fingerspelled compounds, where usually, but not always, the first segment of a compound is signed while the second is fingerspelled, for example, RED T-A-P-E ("red tape"), BLACK + M-A-L-L ("blackmail"), WATER + F-A-L-L ("waterfall"), PLAY + O-F-F ("playoff game"), SOFT + W-A-R-E, and HARD + W-A-R-E ("computer software and hardware"). In all these cases, the second part of the compound or phrase is fingerspelled, even though there are signs for "tape," "mail," and "water flowing." There seem to be two reasons why the second segment is fingerspelled: (1) to distinguish literal from metaphorical meaning, and (2) to identify the compound as a noun. The compound "blackmail" does not literally involve the mail, nor does "red tape" involve scotch tape. The noun "waterfall" is distinguished from the verb, "water flowing," by the fact that the second segment is fingerspelled, not signed. There are many more such examples, including further contrasts within compounds: Computer "hardware" can be a sign-fingerspelled compound, HARD + W-A-R-E, but a "hardware" store must be completely fingerspelled: H-A-R-D-W-A-R-E. Fluent and native signers know these distinctions, though they are rarely reported in ASL dictionaries. Young children, in time, also pick up these distinctions.

Fingerspelled words are conventionally regarded as a means of representing English words for which there are no equivalent signs. This is a misleading characterization for three reasons: (1) it incorrectly assumes that fingerspelled words exist in place of signs, when in fact, they can coexist with already existing signs. (2) It describes fingerspelled words as English words. A more accurate description is one which recognizes fingerspelled words as existing within the ASL lexicon as a category of borrowed or "foreign" vocabulary (Brentari, 2001; Brentari & Padden, 2001; Padden, 1998). And (3) it incorrectly views fingerspelling primarily as a means of translation. ASL signers could translate words into signs; instead, they maintain an active lexicon of fingerspelled words that exist stably in that category. For example, "diglossia" has a signed translation in British Sign Language (Brennan, 2001), but in ASL it is always fingerspelled.

To sum up, fingerspelled words are both frequent and pervasive and are deeply entrenched in the grammar of ASL.

The Phonology of Fingerspelling

ASL signers fingerspell rapidly, which is yet another characteristic unique to those sign languages that use fingerspelling extensively such as British Sign Language and Swedish Sign Language. To the adult second-language learner, fingerspelled words seem like a blur of rapidly executed hand shapes, frustrating those who are learning ASL. Comparatively speaking, signs are easier to perceive: They are larger in physical shape and can sweep across the broad space in front of the signer's body. New signers can pick up clues to a sign's meaning from its representative or iconic qualities. Fingerspelled words, on the other hand, have no iconic qualities and involve many more hand shapes than in a single sign. Unlike signs, in which the units of hand shape, location, and movement are layered and executed at once, fingerspelled words are linearly expressed, with units sequenced over time.

In a seminal description of the phonetics of fingerspelling, Wilcox (1992) observes that though fingerspelling is popularly conceived of as an act of stringing together hand shapes in a sequence, the psychological reality is otherwise: The most salient aspect of a fingerspelled word is not its hand shapes, but the combination of small movements that link the hand shapes together and the overall "contour" or movement shape of the fingerspelled word. This idea of contour was also developed by Akamatsu (1982), who studied fingerspelling used by preschool hearing children of deaf parents.

When an ASL signer fingerspells, the hand is positioned in neutral space, often to one side. The hand usually does not move to one side as the hand shapes are executed in sequence. When a word is fingerspelled at normal speed, which is quite rapid for the adult second-language learner of ASL, the hand shifts slightly downward, to the sides and upward, but mostly remains in the same position. The shifts of the hands reflect transitions from one hand shape to another. For example, in the slower version of the fingerspelled word B-A-N-K, the hand moves slightly downward during the transition from B to A, and then only the fingers move during the transition from A to N; finally the hand sweeps upward as it transitions from N to K. When the word is fingerspelled at normal speed, hand shapes are clustered together in a movement unit: the three hand shapes, B-A-N are positioned slightly downward, and then the hand moves slightly upward in for the last hand shape: K. Crucially, there are two elements in the movement contour of this particular fingerspelled word: the first involves three hand shapes, and the second involves the transition to the last hand shape.

Because movement shifts do not coincide with individual hand shapes but instead involve units of more than one hand shape, future analyses of fingerspelling will likely consider the notion of syllable a useful means of accounting for when and where movement shifts occur in a fingerspelled word. Returning to the example of B-A-N-K, it may be that the fingerspelled word is made up of two movement peaks, or possibly, two syllables despite the fact that the spoken word, "bank," is a single-syllable word.

**Fingerspelling in Child Language**

Studies of ASL acquisition rarely include descriptions of a child's use of fingerspelling since it is believed that fingerspelled words are English
words and thus are not part of a description of how children learn ASL. However, as I have argued in the preceding section, fingerspelling is frequent and pervasive in signed discourse, and a very young signer cannot avoid learning fingerspelled forms used by parents or others in the signing environment. In their home studies with deaf families Erting et al. (2000) find numerous examples of very young deaf children attempting to fingerspell as early as 2 years old. In this section, I review studies about fingerspelling and acquisition of fingerspelling. Akamatsu (1982) studied the acquisition of fingerspelling in hearing children of deaf parents who use ASL extensively in the family, and, not unexpectedly, many of her findings are similar to those described in the literature regarding how deaf children learn ASL and fingerspelling. In recent years increasing numbers of hearing parents are using ASL in the home, and like deaf parents, many try to use fingerspelling. Signing hearing parents often consult with deaf parents for advice about literacy; as a result, ideas about fingerspelling and other language practices circulate through the community.

Some signing parents say they try to avoid using fingerspelled words around very young children because they believe they are not yet capable of understanding the words. But in videotaped interactions between parents and children using ASL, it can be seen that parents cannot entirely avoid fingerspelling to their children (Akamatsu, 1982; Erting et al., 2000; Kelly, 1995; Padden, 1991). Kelly found an instance on videotape of a parent fingerspelling to her 2-month-old infant, again in another videotape at 14 weeks, and in subsequent videotaped interactions. Before the end of the first year, the parents added more fingerspelled words, for example, CEILING, when describing it to the child. Some of the most common vocabulary items in a young signer’s language environment are fingerspelled, for example, BUSH and ICE. Moreover, Kelly found numerous instances of parents fingerspelling to older children or to other adults; as such, fingerspelled words are plentiful in the ambient signing environment.

Much like hearing parents who read aloud to infants, some parents will insist on fingerspelling to their very young children because they believe that early exposure to fingerspelling is good preparation for literacy. They view fingerspelling as intimately linked to the alphabet that is itself the centerpiece of English literacy. As such, signing parents’ ideas about fingerspelling are a mix of beliefs about sign language, English literacy, schooling, and even social class. One middle-class deaf mother described less advantaged deaf children as those who use little or no fingerspelling. The absence of such forms is seen as an indication of poor early education, or poor sign language environments. Fingerspelling is both about representing English words as well as representing bilingualism in signing children’s lives. The act of fingerspelling signals and communicates: In this sense, it both signifies and

is a signifier; that is, it makes a symbolic statement as well (Padden & Gussauds, 2003).

Learning Fingerspelling Twice

I describe the acquisition of fingerspelling as involving mastery of two different kinds of skills: the skill of fingerspelling, on the one hand, and the skill of connecting fingerspelled words to their English alphabetic counterparts, on the other. The former skill involves understanding how fingerspelling is used in ASL, including what types of words are likely to be fingerspelled. This skill also involves recognizing shapes of fingerspelled words and knowing the meanings of commonly used fingerspelled words.

The second skill, of linking fingerspelling to English words, develops when the child begins to acquire English literacy. In this sense, the child learns fingerspelling a second time, that is, comes to understand the words as having internal linguistic patterning, as made up of hand shapes that correspond to alphabetic letters. The timing of the acquisition of the two kinds of acquisition can vary from child to child; typically signing children can use fingerspelled words before they are able to identify their internal structure. Some children move smoothly into both skills and others struggle, particularly those who are also struggling to read and write. I will describe the first and second skills in terms of a child’s knowledge of different kinds of language and literacy practices and how this knowledge changes over the course of childhood. As children leave home and begin school, their attention is oriented toward reading and writing behaviors, and they begin to link fingerspelling to those contexts.

First Skill of Fingerspelling

Because fingerspelling is described as representing the alphabetic structure of English words, it is almost automatic to think of fingerspelling as intimately linked to reading and writing. In fact, many young signers cannot yet read when they begin to understand and use fingerspelled words. Young children commonly see fingerspelled words outside of literacy contexts in everyday discourse. Their parents may be reading aloud to them, signing stories from books, and making a point of using fingerspelled names and words while reading from books (Erting et al., 2000), but the connection between reading, writing, and fingerspelling is not an obvious one to the young child. As I have discussed previously (Padden, 1991), the child has a sense of the interaction of fingerspelling, signing, reading, and writing, but that relationship takes time to develop, and it crucially involves the developing skill of reading and writing.

Fingerspelled words can appear early in a child’s productive vocabulary; a young child in Kelly’s (1995) study was videotaped trying to fingerspell CHIP ("potato chip") at age 24 months. The child’s productions involved clusters of movement, in which a salient
component of the movement is preserved in the production of the fingerspelled word, and hand shapes are deleted in medial position: C-H-P. A colleague, Tom Holcomb (personal communication, April 1987) once described his child at this age as making a movement distinction between I-C-E and R-I-C-E, which are identical except for one extra letter in “rice.” The child produced I-C-E with opening and closing movement but R-I-C-E with a circular movement, deriving from the letter R, which in turn influences the movement of the remaining three letters. At this young age, these children cannot read or write and have little or no realization of the alphabetic distinction of similarly spelled words. Instead, they are able to detect small movement components of fingerspelled words and they strive to replicate them in their use of the forms.

Akamatsu (1982) in her description of fingerspelling in young hearing preschool children who use ASL finds similar attempts in which the children try to replicate what she calls the “movement contour” of the fingerspelled word. In such clusters of movement, the hand shapes are barely discernible. The salient features of fingerspelled words are their movement shapes, and the children produce those shapes when they replicate the word.

Aside from Wilcox’s (1992) work on phonetics of fingerspelling, there has been little work on the phonology of fingerspelling. Such work would shed light on what young children learn about movement in fingerspelling. We know from studying errors in young signers’ fingerspelled attempts that certain movement components are salient to them, particularly movement associated with doubled letters in words, for example, doubled vowels or doubled consonants as in “Lee,” “zoo,” or “cattle.” In one such error reported in Padden (1991), the child was trying to fingerspell the name of a relative, Dee. Instead of fingerspelling D, the child substituted L but preserved the bouncing movement for the doubled vowel, ee. In ASL double letters can involve either reiterating the hand shape, bouncing the hand shape or sliding the hand shape to the side. Signing children pick up all these possible small internal movements and use them in their earliest attempts. There are likely to be other similar correspondences between frequently appearing letter sequences and movements that go with them, for example, the suffix -ion or the prefix ex-, but these are not well described in either the fingerspelling or acquisition literature.

More broadly, children begin to recognize and replicate fingerspelled words that frequently appear in their everyday language: names of family members and friends, brand names such as grocery stores (e.g., S-A-F-E-W-A-Y), place names, as well as fingerspelled words of common nouns (e.g., ice and rice). They often can replicate the general movement shape of the words if they don’t yet get the internal sequence of letters correct.

Second Skill of Fingerspelling

The second skill is being able to link the internal sequence of hand shapes of a fingerspelled word to an English word. The first and second skills are not always linearly ordered with respect to one another, and young signers can be seen making errors involving both types of skills. A very young signer can be seen trying to create a sequence of hand shapes, particularly if their parents have been teaching them the letters of the alphabet both in print and in fingerspelling. Often, though, when they try to fingerspell words by their letters, they get the sequence wrong. A young child at age 2 years 9 months (2;9) could only spell her name as E-U-B when asked what her name was (without revealing the child’s name, only the letter E appears in her name). When asked the name of her dog, Sasha, she switched around the letters she knew and fingerspelled U-B-A (Padden & LeMaster, 1985). The struggle to construct a correct sequence of letters will continue through most of the child’s early literacy years. Parents are greatly pleased when their signing child can finally produce their name with the correct sequence of letters, but spelling in a certain sequence requires a great deal of practice, as well as the awareness that the correct sequence is important.

In other examples from Padden and LeMaster (1985), a father teased his daughter, age 4;11, and told her that E.T. the extraterrestrial from the popular movie at that time had taken her candy. The daughter shook her head and insisted it could not have been the alien, fingerspelling the name as T-E. She seemed unperturbed at her attempt, apparently focusing more on which letters appeared in the word rather than what sequence was correct. Another child, age 4;9, has several spellings for “cat,” which include correct as well as incorrect sequences: C-R-I, C-N-I.

As the signing child’s literacy education begins in earnest, their attention is focused on developing the ability to link different literacy skills with different fingerspelling skills. Kelly (1995) describes an interaction between a deaf mother and her deaf daughter where the mother holds up index cards with written words on them and encourages the daughter to try and fingerspell the words. The daughter, at age 3;4, could match hand shapes to letters but then couldn’t say what the words represented. When her mother fingersped the words “rice” and “seed” back to her daughter, the daughter then recognized what they were.

Convergence of Skills

I have described these early literacy attempts as pushing toward a convergence of skills, where the skill of fingerspelling is aligned to the skill of reading and written spelling (Padden, 1991). There are several skills that need to be aligned together in the signing literate child: writing a word, fingerspelling it as well as understanding the same word as fingerspelled by someone else. The move toward convergence can take a number of
years, from the first year of school through even second or third grade, until the child moves effortlessly between the skill domains of fingerspelling, spelling, writing, and reading. Some signing children, however, struggle to accomplish convergence even by third grade: They may be able to recognize a fingerspelled word but not be able to write the same word correctly on a page. Other children may be able to recognize a word on a page but stumble when they try to fingerspell the same word without being able to see it in written form. Difficulty at convergence is often seen in those children who are struggling at the task of learning to read.

My colleague Claire Ramsey and I carried out a series of studies examining the development of reading ability in young signing deaf children (Padden & Hanson, 2000; Padden & Ramsey, 1998). In one study, we developed a fingerspelling test in which the children were asked to view a list of signed sentences on videotape, each containing a single fingerspelled word. After viewing each sentence, the child was asked to write down the fingerspelled word contained in it. We wanted to know whether skill in correctly writing down the fingerspelled word had a relationship to reading ability. Indeed it does: We found that accuracy in correctly spelling the word in written form correlated with reading comprehension skill as measured by their Stanford Achievement Test score (n = 22; r = 0.43, p < 0.05). In other words, correctly writing a word as it was fingerspelled is not simply being able to see the sequence of hand shapes and then writing down that sequence; the child must also possess reading ability. The child might be able to understand the fingerspelled word in a signed sentence, but the skill of writing it down in English is related to reading ability.

Knowing the sequence of letters in a written word is a literate skill, acquired in the course of learning to read and write. For children who are struggling to read and write, they are also struggling to write down words they have just seen fingerspelled. Ramsey and Padden (1998) describe deaf children who require that each letter be fingerspelled to them one at a time in order for them to write words down. In fact, the children often require the fingerspeller to tell them that they have reached the end of the word. Unlike more skilled deaf children, they cannot watch a fingerspelled word in its entirety and then write the word. Their difficulty is a complex one: It involves memory—being able to remember the word as it was fingerspelled, but equally, it involves literate ability in English—knowing what types of spellings English words tend to have, and using this knowledge to predict the likely spelling of the target English word.

**SUMMARY AND CONCLUSION: IMPLICATIONS FOR EDUCATION**

In a report about use of fingerspelling during simultaneous communication, Akamatsu and Stewart (1989) found that preschool teachers of deaf children fingerspell much less than do teachers of older children. Furthermore, if they use fingerspelling, they often confine their vocabulary to a small set of words, used repeatedly. They express concerns that preschool and elementary teachers may have misconceptions about the nature of fingerspelling and how it should be used with young children. Based on the body of research currently available, there are a number of implications for early education of deaf children.

Very young deaf children can be exposed to commonly used fingerspelled words while interacting with language models. These include words that are meaningful in their lives: ice, rice, bus, okay, chips, flour. Most of these words are short, and refer to objects familiar to the child. These fingerspelled words are often found in the home language environment of children who are not yet reading or writing, demonstrating that use of fingerspelling by teachers should not be delayed until literacy education begins. Instead, fingerspelling should be a part of a child’s early preschool language as well.

In ASL, personal names, place names, and brand names (or proper nouns) are often fingerspelled. The young child can learn a great deal from seeing these words used in a teacher’s language. First, they learn about the category of vocabulary that is routinely fingerspelled in the language, and second, they learn distinctions between common and proper nouns.

Kelly (1995) and Humphries and MacDougall (2000) report that deaf parents and deaf elementary level teachers often embed fingerspelled words in “sandwiched” or “chained” structures where the word is immediately followed by a sign of related or close definition. This provides immediate context for the child. Kelly gives two examples: DUCK DUCK Q-U-A-C-K, to show that quacking is what ducks do, and another where the father uses sandwiching to show that a chapstick is a special kind of lipstick: L-I-P-S-T-I-C-K C-H-A-P-S-T-I-C-K. Humphries and MacDougall report from their studies of teacher talk that chaining is prevalent in the elementary years among deaf teachers but not in later years where other strategies are used for word definition. Such strategies seem “childlike” when used repeatedly with older children. Hearing teachers, in contrast, use little or no chaining at any level, most likely because they are unaware of such techniques. Teacher training programs can benefit from learning more about such “indigenous” strategies and incorporating them in courses that train signing elementary-level teachers.

When signing deaf children begin literacy education, teachers should expect to see a transition in use of fingerspelling, from more global units to more analytical spelling, where the child is more aware of the internal composition of fingerspelled words. Spelling correctly in fingerspelling as well as writing is a developmental task, and teachers should have expectations that as the child’s literacy skills increase, the components of these skills, including fingerspelling, will change.
Fingerspelling should not be viewed—as it often is—as a system for supplying words to ideas, concepts, and objects that “have no signs.” This undermines the status of both signs and fingerspelling as rich sources of vocabulary within the language. Fingerspelled words and their relatives, initialized signs, abbreviations, and sign-fingerspelled compounds, form a robust and active component of the lexicon.

Fingerspelled vocabulary can be used productively both as signifiers, that is, as words within the sign stream, and to signify, to make a symbolic distinction, as when a teacher explains that she is illustrating not a personal PROBLEM but a computational PROBLEM (Padden & Gunsauls, 2003).

To paraphrase Akamatsu slightly, what these suggestions indicate is that fingerspelling is more than the “sum of its parts.” It is not merely a linear means of representing the orthography but has taken on rich symbolic content above and beyond the words themselves. Fingerspelled words occupy a place in the ASL lexicon and carry grammatical content as well as semantic contrasts with other vocabulary in the language. In the future, when studies of child language acquisition of ASL routinely include fingerspelled tokens, we will learn more about how young children learn complex and rich vocabularies in sign languages.

REFERENCES


