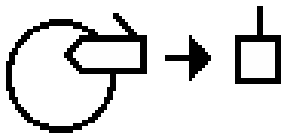
Peter DeHaas: Linguistics of American Sign Language Independent Study

American Sign Language is a visual, conceptual, contextual, language that relies heavily on its use of space. The use of "space" while signing has historically has been historically categorized strictly as grammar by authors such as Ted Suppala or William Stokoe. But Scott Liddell, in his book, Grammar, Gesture, and Meaning in American Sign Language, transcends this notion. Liddell is convinced that meanings expressed by signers exceed what grammar is capable of encoding and that the language signal does more than encode symbolic grammatical elements. These characteristics, he will argue, are common to all languages. (Liddell 2003:5)

This paper will explore the roots of ASL grammar from Stokoe's perspective (through Liddell's eyes) and provide a grammatical sketch of ASL. We will then immerse ourselves in how space is to used express and reinforce meaning in ASL. We will also explore Liddell's appreciation of the Fauconnier theoretical model of mapping and blending spaces. In sum, this paper will synthesize what space means in ASL and try to tease out some of these more abstract notions.

**Stokoe**

Only in the last 50 years has American Sign Language been studied closely in the context of linguistics, starting with William Stokoe at Gallaudet University. In 1960, Stokoe's approach looked at the structured, phonological system of ASL. He broke down his approach to categorizing ASL by looking at three aspects: location, what acts, and movement. In this approach, every sign consists of one location, one hand shape (what acts), and one or more movements (Liddell 2003:6). For example, in the sign "forget" there are three aspects of the sign. The location is on the forehead, the hand shape is "B" and the movements are rightward across the forehead with the open "B" hand and then ending with a closing movement. (Liddell 2003:7)



Forget

One of Stokoe's major accomplishments was demonstrating that signs, like spoken words, are comprised of minimal numbers of parts or "arbitrary units" that are used over and over again in new combinations. The implications of Stokoe's claims were both bold and serious. His foundation created a springboard for future ASL and sign language linguists around the world to spring from. This is true, even in the instance of those who didn't completely agree with his approach, because his initial claims were so revolutionary.

Why was this important? Prior to Stokoe developing his theories, few people considered ASL to be a language, but rather a system of symbols, gestures, and iconicity. Many likened ASL to a form of pantomime. Even today some people consider ASL to be a pidgin or creole based on its borrowing from French Sign and the contribution of home signs from the inhabitants of Martha's Vineyard. Some even say that ASL simply mimics spoken English. All of these things are of course untrue as ASL is a rich language which not only relies on a diverse lexicon, but also a highly productive grammar, use of conceptualizations and context, and abstract constructions in space.

Liddell outlines his goal of the book as taking a look at how grammar is central to how signers express meaning. He also states that he will attempt to prove that ASL signs exceed what a grammar is capable of encoding and that the language signal does more than encode symbolic grammatical elements. (Liddell 2003:5) He then proposes that these characteristics are common with all languages. Liddell is departing from the traditional Chomskyan syntactic analysis and approaching ASL with more of a cognitive science approach. He doesn't want the movement to be considered grammatical in the traditional sense necessarily, but he wants to discuss its importance in ASL. This is a radical notion for a linguist, let alone a linguist studying ASL.

**ASL Grammatical Sketch:**

Stokoe's original analysis consisted of a total of 12 location categories. The twelve locations are as follows: neutral space (in front of the body), face or whole head, forehead or brow (upper face), mid-face (the eye and nose region), chin (lower face), cheek & temple (side face), neck, trunk (body from shoulder to hips), upper arm, elbow (forearm), wrist (on its back), wrist (face down). (Liddell 2003:8) The concept of neutral space in particular is so fascinating

because spatially it can be used to create not only lexical items, but to create whole other worlds or entities of meaning. It can be used for pronoun construction, verb formations, or even categories or classifications in real space.

In creating this category of "articulatory constrasts," Stokoe limits the number of contrasts available, or combinations for constructing meaningful utterances in ASL. Stokoe realized that there was the element of arbitrariness, but at the same time, saw the necessity for sequencing too. This is exemplified in the sign for "Chicago". If one were to sign "Chicago" backwards it wouldn't carry the same meaning.

Chicago

*Chicago (ill-formed)

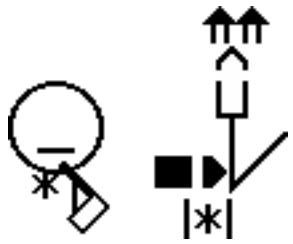
**Non-manual Signals:**

Non-manual signals in ASL are important reinforcements to the meaning of certain signed utterances. Created with the mouth or through facial expressions, they are used specifically to reinforce a sign's meaning. For example if someone was signing "driving" with the NMS: "TH" the recipient would know that the signer meant driving carelessly. Whereas, if the recipient saw the signer doing the NMS: "MM" while they were signing driving, the recipient would then know that the signer meant driving in a normal, relaxed fashion. This could be seen as a more deictic feature in the grammar of ASL.

**Morphology:**

The morphology of ASL is a very complex component to the structure of the grammar. There are several types of morphological representations such as compound signs, signs with incorporated numerals, prefixes added to signs with numerical value, and aspectual forms of

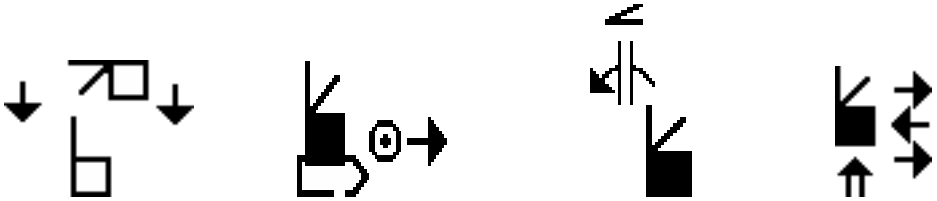
verbal and adjectival signs. (Liddell 2003:14) An example of a compound sign is the ASL sign for "breakfast". This sign combines eat plus morning.



Breakfast

**Numeral Incorporation:**

The numerical incorporation takes a number like two and can express it differently just by articulating it into different configurations. Two weeks, two months, two dollars, and two o'clock are four examples of how this can be achieved in ASL with the same hand shape "V".



two months two weeks two dollars two o'clock

**ASL pronouns and possessive determiners:**

Pronouns in ASL are obviously developed differently than spoken languages in that they're created in space and encode grammatically defined meanings. (Liddell 2003:96) This entails precision on behalf of the signer and understanding of the context at all times by the recipient. The recipient of the signed message must constantly be aware of the referent via pronoun construction and this distinction must be kept at all times. ASL pronouns come in first person and non-first person pairs. The first person in ASL is formed by pointing with the pointer finger to oneself.

1SG;I/me

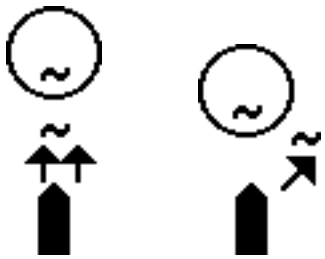
2SG;you

3SG; he/she/it

Liddell states there are two cases where there are non-first person pronouns without corresponding forms. There is no first person characterizing pronoun corresponding to the non-first person pronoun SELF-CHAR; and there is no first person plural pronoun corresponding to the non-first person plural formal pronoun PRO-FORMAL-PL. (Liddell 2003:20)

Interestingly enough, there is no morphological distinction in ASL between second and third person pronouns in terms of the hand shape used. The second person "you" would be created by pointing directly at the person you're presumably having the conversation with and the third person would be created by point to the left or the right neutral space. There is no specific morphology in ASL to distinguish gender. Gender distinction can be made by either signing boy/man OR girl/woman first, or by simply spelling the person's first name before creating their place in space.

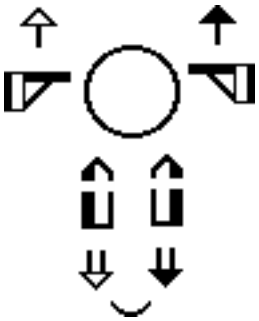
Possessive pronouns in ASL are formed with the five hand shape facing outward towards the second or third person entity. Dual personal pronouns can be formed with numbers to depict two of us OR two of them. These referents are formed in space depicting the either the literal two people present or fictional referents.



2PSG 3SG/PL

Suffixation in ASL is used to form professional categories through what is called the AGENT suffix –ER. For example the sign for "teach" could easily become "teacher" with the attachment of the agent suffix. These forms can be analyzed as nouns derived by affixing an agent nominalizer onto the verb. (Liddell 2003:34)

Teach (V)



Teacher (N)

Suffixation in ASL can be formed by incorporating a number into a sign like “old” or “years old”.

4 years old

Some forms in ASL aren’t formed through prefixation or suffixation. They are created through a change in the form of the sign itself. This can be achieved in some instances through reduplication.

**Aspect:**

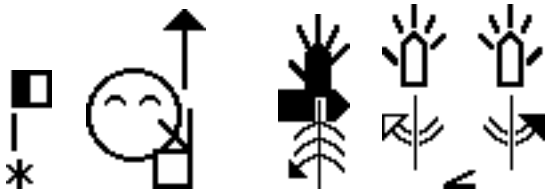
The aspectual elements in ASL are sometimes morphologically complex forms that can alter simple signs however they’re not produced with the addition of a prefix or suffix. Some of these changes can occur through reduplication, or through an internal change in the actual form of the sign via the frame process, or a combination of the two. (Liddell 2003:37)

The sign for “TELL” is an example of the frame process. Tell can be articulated outwardly as in “tell you” or the unrealized aspectual form which never leaves the chin.

tell you

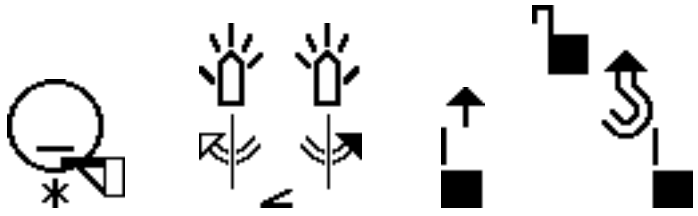
tell: (unrealized inceptive aspectual form)

In ASL, aspect may be expressed through morphological verbal inflection or through a limited set of lexical aspect markers. The most well known aspect marker (among ASL linguists) is the sign "FINISH". (Neidle 2000:178) Liddell doesn't include this one in his discussion on aspect. "FINISH" can be articulated at the beginning or end of an utterance depending on how it is being used. There are several meanings of "FINISH" and at least four grammatical functions. (Wilbur 1987:130) In some instances "FINISH" shows a completed action (perfective aspect), in others as a complement, or an auxillary. Here are a few examples:



I see movie FINISH

I saw the movie.



Eat finish you question

ASL doesn't mark tense like English does. ASL tense is expressed using specific spaces and signs. The future tense is casting forward through the neutral space, the present is immediately in front of the signer, and the past is articulated by signing towards the back.

future will now yesterday past/ago

The future and past have gradient features that fall along what Frishberg and Gough refer to as the "time line". (Wilbur 1987:129)

**Reduplication:**

Reduplication occurs in ASL with certain adverbial signs like "again" are signed repeatedly. This reinforces the meaning of something that is repeated over and over again.

**Topicalization:**

Topicalization in ASL uses non-manual signals (NMS) to reinforce the announcement of a topic in the discourse. The eyebrows go up and the head tilts slightly backward with the topic at the beginning of the sentence.

**Numerosity:**

Numerosity refers to dual and trial verb forms. For example the verb "ask" can be inferred as being directed toward two referents with a single sign or dually signed with both the dominant and non-dominant hands simultaneously referring to two separate referents.

**Multiple and Exaustive verb forms:**

Some ASL verbs express action toward larger numbers of entities. A verb like "give" can be expressed as a multiple form in the neutral space with a sweeping motion to the right as depicting giving to more than one person or in a series of short arching movements to the right as depicting giving a lot.

**Syntax:**

ASL has been deemed as having a pretty flexible or productive grammar. For the most part, structurally, ASL is an SVO word order language. Having said that, there are variations within the syntax of ASL that are perfectly acceptable utterances.

**Liddell's Model of Space in ASL:**

*"Language as we know it, is a superficial manifestation of hidden, highly abstract, cognitive constructions. Essential to such constructions is the operation of structure projection between domains"* (Fauconnier 1997:34)

Liddell gives us a basic sketch of ASL grammar then moves swiftly to the rest of the book. He uses Stokoe's model of grammar as a foundation and pivoting point, then ventures into his cognitive perspective on mental spaces. He wants to shift from the focus of what is normally defined as "linguistic" or "grammatical" and really focus on how space is constructed, conceptualized, and coded in ASL. He is convinced that space in ASL does things that a grammar is incapable of encoding and that these elements are common to all languages. He wants to show us the meshing of grammar, gradient

aspects, and gesture. His notion supersedes the notion of what we normally define as grammar. Liddell adheres to his notion of cognition and space and uses the theoretical work of Gilles Fauconnier as his backdrop.

Liddell's new cognitive model of constructed meaning uses world knowledge and refines the mapping model. His perspective on mental mapping refers to the process as "coding" versus "conceptualization" as stated in the previous model. (Emmorey 2002:92) He also references the "semantic pole" as being the point that the signer and the recipient's message corresponds through the mapping process. (Liddell 2003:92)

This is a fuzzier domain, in that it pertains to cognition and use of space in ASL. We can't ignore this part of ASL structure because it is largely a spatially based language and its development and use of space is so fascinating and complex. Liddell wants to show us how grammar is central to reinforcing meaning in ASL and demonstrate that meanings expressed in ASL exceed more than the notion of encoding into a symbolic grammatical element. (Liddell 2003:65)

The rest of this paper will look at Liddell's notion of space and how ASL is highly productive with these elements. It will also look at how Liddell's approach to how space is filtered through applied cognitive linguistics and the Fauconnier theoretical approach to mental and blended spaces.

Fauconnier writes about a new category of "conceptual mappings" and "blends". These are mappings between semantic representations and numerous types of both spatial and non-spatial conceptualizations. (Liddell 2003:65)

In doing so, Liddell wants to show us the gradient (versus analog 1:1) nature of ASL and how important it is grammatically as a very diverse language. He in a sense is 'teasing' out the concept of grammar in ASL. "*It combines a layered effect of meaning, abstract notions, and base of gestural context.*" (Schick class 2008) It seems like he is striving for a Universal notion of Grammar through use of space and the cognitive process to be applied to all languages.

*"While linguists analyzing vocally produced languages have been able to ignore both gesture and grandient aspects of the language signal, this cannot be done with ASL. This is because obligatory, gradient, and gestural phenomena in ASL play such a prominent, meaningful role that they cannot be ignored."* (Liddell 2003:xi preface)

Suppala tried to take these gradient aspects of ASL and classify them individually instead of looking at them as a more abstract cognitive component constructed in space. This perspective gets a little fanatical when every precise movement is considered to be a morpheme. Suppala states:

"*ASL verbs of motion, like words of spoken language, are comprised of combinations of discrete morphemes; and the morphological parameters and grammatically possible values along these parameters are like those found in spoken languages of the world*." (Suppala 1986:182)

Real space is a term used by Liddell to label a person's current conceptualization of the immediate environment based on sensory input. (Liddell 2003:82) All instances or real space discussed in Liddell's book are constructed from visual input. The real space is the conceptual realm where worlds are created. This seemingly imaginary world is structurally what allows ASL to go to another dimension cognitively. What do I mean by this? Through the use of and production of the real space, a signer can elaborate more effectively, and descriptively through their use of metaphorical space.

"*We treat things as if they were real, physical things around us."* (Liddell 2003:82)

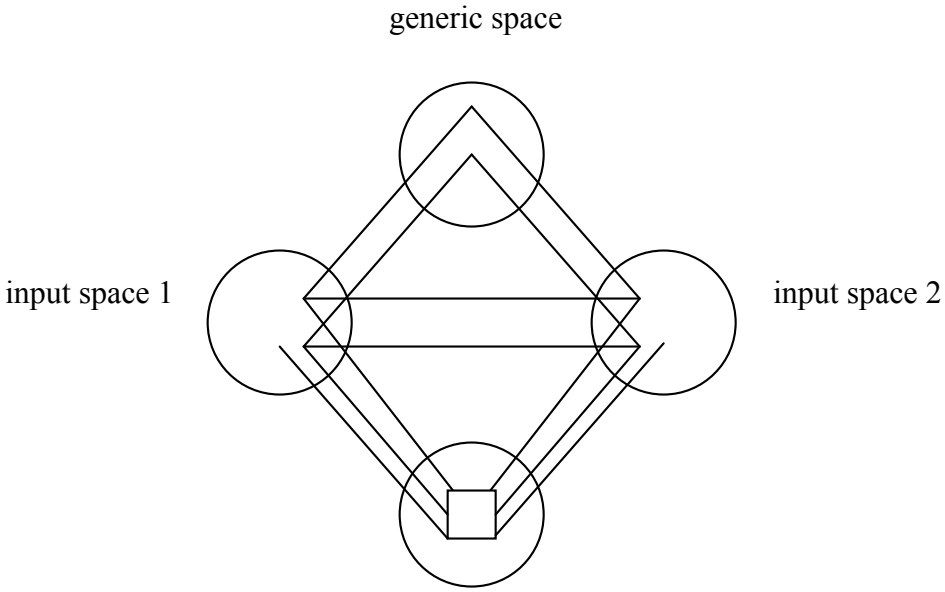
Spoken languages require a conceptual and contextual awareness as well. The difference is that its not created and processed visually through a manual, coded means like signing. It's mapped and coded cognitively through the auditory process rather than the visual process. Spoken languages do however naturally use gestures to reinforce meaning.

Pronouns in ASL real space are unique in that they can take different forms and can be directed toward physically present entities and encode meanings that help in the process of deciphering what entities are being talked about. (Liddell 2003:67) They are like any language in that one can point conceptually to their referents. They are different from spoken languages in that referents not present take shape in a metaphorical way being created in space.

Verbs in ASL can be directed meaningfully in space as well. Indicating verbs such as "ask-question" can be directed towards a person, place, or entity. Directional indicating verbs show agreement with their referent such as "give you" or "pay you". They can also show agreement with a place in a verb such as "drive to". Liddell does not agree with the concept of agreement in verbs. He does not think that these verbs agree or are inflectional. He thinks that they're simply pointing.

A surrogate space is when the signer takes on the role of someone or something else while signing. One example of surrogate space used in Liddell's book is one in which the signer takes on the surrogate role as a fish being cut open. This was done to show more accurately in greater detail how this occurred. The signer takes on the role of the fish and uses her own body to metaphorically represent the fish's.

When the real space overlaps with a surrogate space it is called a blended space. Emmorey refers to this as the "viewer space" whereas Schick refers to it as "Real-world space". (Emmorey 2002:145)




Example of a 4 Space Blend (Liddell 2003:145)

Fauconnier showed that blending can provide a simple account of superficially complex syntactic phenomena as well as an understanding of metaphor. He also says blending is fundamental to understanding the concept of meaning in language. It operates over two mental spaces as inputs, is then projected to a third space which is then referred to as a blend or blended space. (Liddell 2003:142)

A token space is an area used just for reference that has no specific physical features. Liddell goes into great detail how to set up different token spaces. This is a way of differentiating categories with the specificity of each token having a relatively precise gradient placement. For example, hypothetically, if you were talking about six different categories of movies you would have to keep the categories distinguished both as the signer and recipient. This is an exaggerated example of course, but it shows how specific a signer could distinguish six different categories in the neutral space if they needed to.

Token blends are created by blending an area of space and some conceptual content. Signers can direct signs toward tokens to refer to that conceptual content. In a blend, the number of tokens can range from one to several and can change during the discourse. Further, semantic characteristics associated with a token can also change over time. Another characteristic shared by many of the examples is that the space containing tokens may have its own value distinct from the individual tokens within that space. (Liddell 2003:221)

Emmorey refers to the token space as "diagrammatical space", and Schick in turn refers to it as "model space". Diagrammatical space reflects a map-like environment to the model. Schick's model space is characterized as "*an abstract, Model scale in which all objects are construed as miniatures of their actual referents*." (Emmorey 2002:92)

The torso movement is critical in distinguishing spaces. A slight shift is all that it takes to distinguish from one token, or pronoun referent to another. Shifting can occur especially in a surrogate situation where the signer needs to quote someone or needs to take on a different role. Shifting also occurs in token blends when slightly moving to denote the shift from one topic or category to the next.

Buoys are things created in space that allow the signer to set up associations between topics or things being described. Five different distinctions can be made with the five hand. The signer can also do four categories or things with four fingers, three with the number three, or two with the number two. These are all considered list buoys. They are created on the non-dominant hand. Theme buoys are different in that they generally take form to specify or discuss an important discourse feature. It takes form as a raised, typically vertical index finger of the non-dominant hand held in place as the dominant hand produces one or more signs. (Liddell 2003:242) Fragment buoys occur during a typical discourse when the dominant hand temporarily signs something and the non-dominant hand holds the space. When a one handed sign follows a two handed sign it is common for the non-dominant hand to hold its place in space. The non-dominant hand is said to "perseverate" into the succeeding one-handed sign. (Liddell 2003:248) The pointer buoy is similar to the fragment buoy in that it is produced with the non-dominant hand while the dominant hand produces one or more signs. What makes the pointer buoy different from the fragment buoy? The pointer buoy doesn't take on any new significance through blending. Instead, the pointer buoy points towards an important element of the discourse.

These concepts allow us as native and non-native signers language users to visualize or map more accurately what is occurring in ASL. Use of space in ASL is paramount. Whether it be pronoun development, real space, surrogates (blended spaces), tokens, or buoys, the use of space is one feature of ASL that is largely underestimated and misinterpreted. I think this is common especially for non-native signers because of the abstract notion of conceptualizing and creating metaphorical entities in thin air.

**The Cognitive Model:**

Cognitive Linguistics, relatively speaking, is still in its infancy. It appears to be a perfect tool or model to filter ASL through because of ASL's diverse and complex spatial structure as a language and because there is so much mapping and coding involved as well as the creation of metaphorical spaces.

*Because cognitive linguistics sees language as embedded in the overall cognitive capacities of man, topics of special interest for cognitive linguistics include: the structural characteristics of natural language categorization (such as prototypicality, systematic polysemy, cognitive models, mental imagery and metaphor); the functional principles of linguistic organization (such as iconicity and naturalness); the conceptual interface between syntax and semantics (as explored by cognitive grammar and construction grammar); the experiential and pragmatic background of language-in-use; and the relationship between language and thought, including questions about relativism and conceptual universals.(International Cognitive Linguistics Association)*

It is from this cognitive, conceptual stance that Liddell is proposing ASL as a cognitive grammar overlapping grammar, gradience, and gesture. Liddell wants us to take everything into account. He wants to recognize the importance of our world knowledge as it applies to spatial contexts. What does he mean by world knowledge? World knowledge refers to our razor sharp awareness of context and understanding of subtle nuances that may creep into a given real space. For example, if you were to randomly point to an empty chair in your office it wouldn't be understood that you were developing a 3rd person pronoun unless that is the recipient had the world knowledge to draw from and conceptualize who the signer was referring to. (i.e. the person who normally sits in that particular spot.)

Liddell looks at how directional signs and gradient and gestural phenomena are driven by grammar and my meaning construction. Chomsky, of course, would throw this notion out the window because, undoubtedly, ASL uses context and semantics as a very important tool in grammar and in the development of discourse.

Conceptualizing grammar in ASL entails embracing gesture and gradience in the process of constructing meaning though mental space mappings. "*The resulting interconnected conceptual structures are the means that ASL, and perhaps spoken language more generally, use to communicate*." (Liddell 2003:xi preface) It has been said that the study of linguistic structure of signed languages has revealed (and continues to reveal) significant insights into the nature of human language. (Emmorey 2002:69)

**The Cognitive Construction Perspective: Fauconnier**

Fauconnier's theoretical model talks about blends in space and mapping. This was truly a revolutionary feat to step outside of the box and propose something different

from the linear syntactic approaches to classifying the grammar of a language. These blends in ASL are complex abstractions that exemplify the cognitive process of language construction and usage.

*"Mental spaces-the connections linking them, the linguistic, pragmatic, and cultural strategies for constructing them-are a significant part of what is happening backstage, behind the scenes, in the cognitive background of everyday speaking and common sense reasoning. The principles governing the operations are, in themselves, simple and general. They appear to be universal across languages and cultures" (Fauconnier 1994: xviii)*

Fauconnier is venturing from the traditional Chomskyian hierarchical view that we must look strictly at syntactic form. He wants to take everything into account; semantics, pragmatics, and the cognitive process that occurs when communicating. He focuses on mapping which inspires Liddell into expanding the realms of what space is in ASL. Liddell's usage of the theoretical background of Fauconnier shows the distinct mappings that occur in ASL. He talks about all of the unique constructions and abstractions that can be overlapping at any given point in time.

ASL grammar can do many things at once. It encompasses many spaces and referents during a single discourse. The effect of a language expression depends on the space configuration it operates on. (Fauconnier 1997:65)

Liddell's notion of space ends up being very complex to dissect and digest. There is so much historical overlap and so many different perspectives to sift through that it would almost be easier if he would just say that space in ASL is simply semantics and pragmatics. Semantics would cover the relevance of meaning and what is being conveyed and pragmatics would cover the concept of space being used to convey meaning and all of the deictic elements connected to it. He argues that the need for the cognitive model comes out of the complex metaphorical spaces created with gesture in ASL that create cognitive mappings between entities within the semantic pole of a pronoun, verb, or entity in real space. (Liddell 2003:138) The whole process is quite compelling to consider with all of its layers overlapping metaphorically in real space blends.

It is imperative in our analysis of ASL that we look at all of its features. The grammar is certainly important but there are also so many other diverse, abstract notions

created in real space. Liddell's model allows us to look at ASL in a broader context, peeling away at the larger concept of language. We cannot simply categorize ASL as being conventionally linguistic. We must look in depth at its gradient aspects, its use of gesture, and its grammar. All of these things combined define the underlying utterance of the conceptual structure. To simply try to boil ASL down to a strictly iconic, symbolic system of communication is a huge over site. We must recognize the importance and the overlap of the gradient, gestural, and grammatical elements in chorus recognizing that there is a complete message being constructed through the use of all of these elements.

## Bibliography

Emmorey, K. (2002). *Language, Cognition, and the Brain.* Mahwah, NJ. Lawrence Erlbaum Associates.

Fauconnier, G. (1994). *Mental Spaces.* New York NY. Cambridge University Press.

Fauconnier, G. (1997). *Mappings in Thought and Language.* New York NY. Cambridge University Press.

Liddell, S. (2003). *Grammar, Gesture, and Meaning in American Sign Language.* New York NY. Cambridge University Press.

Neidle, C., Kegl, J., MacLaughlin, D., Bahan, B., Lee, R. (2000). *The Syntax of American Sign Language*. Boston, MA. Massachusetts Institute of Technology.

Supalla, T. (1986). The classifier system in American Sign Language. In C. Craig (Ed.), *Noun Classification and Categorization.* J. Benjamins.

Wilbur, R. (1987). *American Sign Language.* Boston, MA. College Hill Press.

**Online resources:**

International Cognitive Linguistics Association
http://www.cognitivelinguistics.org/cl.shtml

Sign Writing Program & Data Base:
http://www.signwriting.org/

**Grammar and Space in American Sign Language**

Peter C. DeHaas

12/17/08

University of Colorado

Linguistics of American Sign Language Independent Study

Brenda Schick