Abstract
Spatial referencing in ASL functions at both the lexical and the discourse levels. In discourse, it can be used by a signer to produce cohesion in comparisons, performatives, and time mapping. This article examines the occurrence and function of spatial referencing in an ASL text as it produces cohesion.

Cohesion in discourse
American Sign Language (ASL) is a visual-gestural language that is produced in the space immediately surrounding the signer. The use of this space, however, is more than a simple physical result of the modality of ASL; it is an integral part of the grammar. Individual signs, such as agreement verbs and classifier predicates, use space as part of the meaning of the sign. In addition, entire utterances and entire segments of discourse are signed within this space to make reference to previously established entities, thus producing cohesion. To date, most of the research which has been done is at the phonological and morphological level (DeMatteo 1977, Klima & Bellugi 1979, Liddell 1980, Liddell & Johnson, 1987, Liddell 1990). Investigations of the use of spatial referencing as a cohesive device in ASL at the discourse level are rare.

Cohesion in discourse is not a strategy or a device used by a speaker; it is rather the overall effect which is created when the individual utterances combine to create a "whole" text. This effect, or texture (Halliday & Hasan, 1976) is created by a number of features, including repetition of words and phrases, use of deictic referencing, and use of conjunctions. The creation of a cohesive
text can be traced through a given text from beginning to end, but in real situations, the speaker (and the hearer) recognize the cohesion by linking current words or references to text which has already occurred, that is, to prior text. These links are made from end to beginning. Thus, it is not any one feature that produces cohesion by itself; it is a combination of features that combine to create the effect of cohesion within a text or a segment of text. Likewise, cohesion in ASL can be created by a variety of linguistic features including repetition of signs, use of spatial referencing, and use of conjunctions. The focus of this paper is the use of spatial referencing to create cohesion in an ASL text.

Spatial referencing functions as a cohesive device in ASL by providing deictic referents throughout segments of discourse. An example of this is the comparison of two items, either concrete or abstract, by signing about one of them in one area (e.g. on the left side of the signing space) and signing about the other in a different area (e.g. on the right side of the signing space). The use of these two areas results in a comparison of the two items at that point in the discourse. Repeated reference to these areas indicates that the idea, explanation, or description currently being signed in an area refers to the entity originally discussed in that area. Thus, comparing English and ASL, a signer can describe ASL on the left side and English on the right; later in the same discourse, the signer can produce the utterance “relies on vision” on the left side, referring to ASL. The utterance “relies on sound” signed on the right side will refer to English. This referential use of space provides one strategy for textual cohesion. Three types of cohesion-producing spatial referencing are examined below: comparisons, performatives, and time mapping.

**Space as a modality versus space as a tool**

ASL, as a language articulated primarily by the use of a signer's hands, body, and face, is by its very nature produced in space and can therefore be said to use space as the medium of communication. This use of the space surrounding the signer is a direct result of the
movement of the hands and body in the production of any message. This physical, articulatory use of space, is not, however, the use of space referred to in this discussion. The use of space, for the purpose of this discussion, means the productive use of space for establishing referents within a text. (Winston in press, Liddell 1990 & personal communication). Space in this sense is manipulated by the signer to provide ties between one utterance and the prior utterances through the establishment of entities in space. These entities may represent an abstract idea or a concrete entity. Once established, reference to the area of the entity effectively refers to that entity. Spatial referencing can be accomplished using a variety of means, including the following (Winston in press):

- articulating the sign for the referent in the space;
- physically stepping into the space and producing the sign(s);
- indexing (pointing to) the space and articulating the sign either in an unmarked space in front of the chest or within the marked space (or vice versa);
- directing eye gaze at the space;
- rotating the torso and/or head toward the space;
- switching hands (from dominant to non-dominant) in order to articulate the sign with the hand on the side nearest the established space;
- using agreement verbs which inflect through movements toward/away from subjects and/or objects;
- using a combination of the above strategies.

It is typical for two or more of these features to co-occur, and some features, such as eye gaze and torso rotation, may be used in varying degrees. For example, the signer may turn his torso to directly face an area; he may also slightly shift the angle of his shoulders, also referencing the same area. A signer may also vary the length of a movement or hold in a sign which is articulated within a reference area, making the reference either more emphasized or more subtle. An area needing further investigation is that of the nature and quality of these combinations of features.
Although this is not the focus of this paper, such an investigation will add to an understanding of the structure of ASL discourse.

This paper discusses three aspects of discourse in which spatial referencing is used to help produce cohesion in a text. These are comparisons, performatives, and time mapping. Comparisons use space for reference by establishing entities in space and then indicating that space during subsequent references to that entity while the comparison is being made. Spatial referencing is used in performatives to indicate the persona which the signer has adopted for that section of the text; performatives include both the performance of an action and constructed dialogue. Time mapping uses spatial referencing to indicate events in time, as well as the passage of time itself, by mapping "time" onto space and making reference to that time.

Analysis

The analysis here of the spatial referencing as a cohesive element in an ASL text is preliminary. Although it will be necessary to analyze a broad range of signers in a variety of discourse events in order to understand more fully the use of discourse strategies in general, and specifically, the use of space, for this preliminary study one signer in one communicative event was chosen for analysis. A section of the event was analyzed, and the analysis was narrowed to the three categories described above. Data collection and analysis are described below.

The selection of a signer and a text for this analysis was based on several criteria: a signer who used ASL for the communication, a communicative event which could be videotaped, a signer who would be available for comments during analysis, and an event which would provide a clearly visible signer on videotape. This last requirement is obvious but difficult, since the movement involved can making taping difficult and any event which involves frequent turn-taking requires two video cameras to record both participants. The text chosen fits all these requirements.
The text to be analyzed is a lecture given by a deaf man to a class of approximately 12 interpreting students at Gallaudet University. These students had advanced ASL skills, and one object of the lecture itself was to provide the students with additional ASL input. The author, teacher of the class, specifically requested that the lecture be in ASL, as deaf signers may or may not sign in more English-like form with hearing people (Lucas & Valli 1989). The signer is a native ASL signer and a teacher of interpreting and ASL; his use of space—not a feature of English—is evidence that he was using ASL. His topic, “The Nature of a Line in ASL Poetry,” comes from his research. The lecture lasted for one hour; analysis was made of the first ten minutes of the lecture, which consisted of the introduction of his topic. Although this is essentially a monologue, some interaction is evident from the lecturer’s responses to the students.

The lecture was videotaped on 3/4 inch videotape and analyzed with slow motion playback. The author discussed with the signer the accuracy of the English translation and the accuracy of the analysis of the references in the text.

Examples in the discussion will appear as shown in Figure 1. The English translation is shown on the left side of the page; the diagrams on the right illustrate aspects of the signer’s use of spatial referencing in the example—from the watcher’s perspective. Directions associated with signing are written from the signer’s perspective by convention. Therefore, directions such as left and right in the transcript are shown on the opposite side in the diagram.

**Spatial referencing analysis**

The analysis of this section of discourse focuses on the use of spatial referencing as it is used to produce cohesive sub-texts within an ASL lecture. Spatial referencing is used in, but is not limited to, comparisons, performatives, and time mapping. Examples of each category will be discussed in terms of the spatial referencing involved and the cohesive effect produced.
Figure 1. Example of transcription conventions.

1. I had a really hard time.

2. I thought to myself, ...

3. "Why don't I apply?"

Figure 2. Comparison.

1. I had a really hard time.

2. I had to separate the art...

3. and the science of poetry.

4. Wow! I struggled with that.

5. I finally succeeded in making the separation.

6. What a job!
Figure 2. Comparison.

Comparisons in ASL can be made by signing about two (or more) items in different areas of the signing space. These items can be either concrete or abstract. The comparison is made by articulating the sign for each item in a separate area, usually one on either side of the signing space. Comments about each item can then be made by referring to the space previously established for these items. This use of space for referencing during comparisons ties each comment about the entity to the prior comment; the end of the comparison also marks the end of spatial referencing for that topic, helping the watcher interpret the change of topic.

The following example of this strategy is taken from the beginning of the lecture. The signer is briefly explaining the way the research was conducted, and is describing his need to separate the art of poetry and the science of poetry in order to begin his analysis. Up to this point in the description he has stated that he does not have much knowledge about the technical side of poetry, even though he is a poet himself and understands the creation of it. He reiterates this point, using spatial referencing (Figure 2).

As can be seen by the diagram, which traces the use of space in this comparison of the two aspects of poetry, the artistic aspect is established on one side (line 2), and the scientific aspect on the other (line 3). By juxtaposing the two, the signer can then index each area when referring to the entities. The signer continues, commenting about his inner struggle with the separation by signing STRUGGLE. He moves his hands diagonally in front of his body to indicate that the struggle, although still between the two entities, is within himself (line 4). In the final line of the comparison (line 5), the signer again uses spatial referencing by showing the separation of the two, ending with one hand in each space. This use of spatial referencing binds the section of text which contains the comparison, allowing the watcher to interpret the utterances through reference to a previously established spatial referent.

1 In Winston (in press), this sign was analyzed as a use of spatial referencing, but after additional discussions with the signer, it is clear that STRUGGLE is being signed without spatial reference to the two sides.
After this point, the signer signs "What a job!" (line 6) in the central, or neutral space, no longer using the spaces established for the comparison, but referring to the struggle. Thus, it is the comparison of the two aspects that is described through the use of spatial referencing, with the final comment about the struggle not included in this space. He changes to a new topic in his lecture after this point. This use of space allows the watcher to interpret this section as a cohesive section of text, containing a clear sub-topic of the text.

*Performatives* in ASL also use spatial referencing. Performatives show the action and persona of a speaker. One type of performative is constructed dialogue, which actually portrays the “voice” of a speaker. ASL uses performatives frequently in discourse, often using space to reference entities which can be individual characters, objects, or ideas.

Constructed dialogue is one type of performative that uses spatial referencing in ASL. This is accomplished by the shifting of the head and/or body position from one side to the other, indicating each speaker facing the other. This referencing includes the direction of eye gaze at the "other" character as well as the use of signs which are directed toward the "other" character. This shifting allows the watcher to interpret the change of speakers throughout the dialogue. It is often the shift alone which indicates the new character (Winston 1989b). The conclusion of the spatial referencing is an indication that the specific sub-text is ending as well.

The following example of constructed dialogue from the text occurs at the end of the ten minutes, when the lecturer is discussing his personal reasons for doing the research. Specifically, he is discussing the reasons for his eventual emergence as a poet. He has just described his feelings of embarrassment about creating poetry and telling his friends about it. He says that at this point, he met

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2 "Voice" here is used as Tannen (1989) uses it, and refers not to an exact reduplication of an utterance but rather to a speaker's interpretation of that utterance.
another deaf poet whose influence encouraged him to become more public about his poetry. He uses constructed dialogue to describe this meeting which was so important in his artistic development:

<table>
<thead>
<tr>
<th>Right</th>
<th>Center</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye gaze to audience</td>
<td>Head &amp; eye to left</td>
<td>Head &amp; eye to right</td>
</tr>
<tr>
<td>Eyes back to audience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. She is a poet.

2. She announced to everyone...

3. "I'm an ASL poet."

4. "You're an ASL poet?"

5. That was great.

6. I thought I was the only one

**Figure 3.** Performative: constructed dialogue.
In line 1, the signer is using the neutral signing space, signing and looking toward the audience, describing the person, a poet. At line 2, he turns his head, looking to the left, and signs that line and the following, which contains the first speaker’s “speech.” He indicates his surprise at the information that she is a poet in line 4 when he responds, “You’re an ASL poet?” He signs this utterance having shifted his head direction and eye gaze to the opposite side. Lines 5 and 6 are signed in neutral space and are not part of the constructed dialogue. The use of spatial referencing in this section helps to produce a cohesive sub-text within the greater text.

**Time mapping.** Signers use spatial referencing in ASL to indicate segments of time and events occurring at various points within that segment of time. This is done by using the space behind the speaker to indicate past time, the space directly in front of the speaker to indicate the present, and the space forward of the "present" space as future. Using this division of space, a signer can place various events in past, present, or future time by placing the signs at various points in the time space. In addition, he can indicate, through spatial referencing, the order of occurrence of the events. Use of these areas is often described in terms of time lines (Klima & Bellugi 1979, Winston 1989a). This label is misleading, however, since there are no “lines” as such. This discussion refers to this aspect of ASL as time mapping rather than time lines.

The following example of the use of spatial referencing for time mapping in the text occurs when the lecturer is describing the history of ASL research and its relation to his own emergence as an ASL poet. This history is a well-known story to people in the field of interpreting; the use of space to portray it allows the watcher to interpret the events as they occur within a given period of time. The signer begins this segment by asking the rhetorical question: “Why didn't anyone notice ASL poetry before that time?” He then steps backward and to the left, beginning to tell the history of ASL research. As he tells the events, he gradually moves forward again, until he reaches the present day and present events. He comments on this sequence of events at the end, stepping backwards again when
discussing past events and ending the segment by moving back to the center and neutral space. The example is shown in Figure 4.

**Figure 4. Time mapping.**
This segment begins at line 1 when he asks the rhetorical question. At line 2 he steps back and left, staying there through line 11, describing the first recognition of ASL and people's resistance to it. At line 12 the signer begins to move forward, taking a step at this line, and at lines 13 and 14, arriving back at the center. Each step forward indicates a greater acceptance of ASL as a language as time passed. This center is not neutral space but is the end of his time map, at which the signer comments that poetry was noticed at that time (during the 1970's) in lines 15 and 16. At line 17 he steps back and left again, commenting that he believes poetry existed in the past but no one knew about it. He finally moves back to the center and neutral space at line 21, when he changes to a new topic. As with the other examples of spatial referencing, the use of spatial referencing throughout this section marks it as a sub-text of the larger text; the termination of its use indicates the end of that sub-topic and the beginning of a new topic.

Conclusion

It should be noted that spatial referencing for comparisons, performatives, and time mapping does not need to occur separately. Comparisons can be made of items or events which occurred in the past and the present; thus spatial referencing can be used to map time and to compare entities which appeared during that mapped segment of time. Performatives can occur during that same time segment; likewise, the performance of two characters (or their speech) can be compared. The use of spatial referencing for these aspects of discourse and their interaction is an area of research that has yet to be included in many linguistic studies. The results of such research will not only provide a better understanding of ASL itself, it will help second language learners and interpreters to use the language more effectively. The use of space is an integral part of ASL. The use of space for referencing is only one of the uses ASL makes of space; the creative molding of space to convey information is an aspect of ASL which will require extensive research.
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