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Linguistic Evidence Indicative of Authorship by a Member of the Deaf Community

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ABSTRACT: Documents authored by Deaf Americans were examined in order to determine if linguistic evidence indicative of this group of people is present. The native language of deaf people is not English, but rather American Sign Language (ASL). ASL is a visual-gestural language with its own principles of syntax. The evidence examined includes vocabulary, syntax, and word usage. Such characteristics are class evidence and are not a means of identification, but rather an investigative tool. Such information may be of assistance to the field investigator in either developing a suspect or limiting the number of initial suspects in a case.

This research revealed that the use of ASL syntax and idioms and the problems associated with the use of English as a second language are indicative of authorship by a member of the Deaf Community. The results of this research will be of assistance to Document Examiners should they need to determine if a document was authored by a deaf individual.

KEYWORDS: questioned documents, linguistics, American Sign Language, class characteristics

A thorough linguistic examination of a questioned document may reveal the presence of certain characteristics which are derived from the writing habits and styles of certain age, national, social, and occupational groups [1,2]. Such characteristics are class evidence and are not a means of identification but rather an investigative tool. Such information may be of assistance to the field investigator in either developing a suspect or limiting the number of initial suspects in a case. Therefore, Questioned Document Examiners must acquire as much knowledge as possible regarding linguistic evidence.

Recently, the authors noticed that there are certain characteristics found in the handwriting of Deaf Americans which are indicative of this group of people. The native language of Deaf Americans is not English but American Sign Language (ASL). ASL is truly a unique and distinct language with its own syntactical principles. The use of ASL syntax, particular ASL idioms, and the problems associated with the use of English as a second language are very indicative of authorship by a member of the Deaf Community.

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Introduction to Deafness and Deaf Culture

There are approximately 24 million Americans with some degree of hearing impairment³ Between two and three million people have profound hearing loss and can not hear everyday sounds even with the aid of an amplification device. This group includes both people who were born deaf and people who became deaf later in life. There are many causes for deafness, including birth defects, disease, and accidents.

Because deaf people share a common language and experiences, most deaf people are more comfortable in association with other deaf people. This preferred association has resulted in the formation of a subculture of American society, the deaf community. Sign language is the glue that binds the deaf community together. It is the means by which the people share experiences of yesterday, joys and sorrows of today, and hopes for tomorrow. In order to be a member of this community, a person must know and use sign language.

Some deaf people can understand the mouth movements and facial expressions of a hearing person to comprehend what is said. This ability is referred to as lipreading or speechreading. However, speechreading alone is not an acceptable means of communication with deaf people for two reasons [3]. First, most deaf people have very limited speechreading skills. Second, speechreading conveys only about 50% of the communicated information. Therefore, when detailed information must be communicated, most deaf people generally require the assistance of a certified sign language interpreter.

Special electronic and telecommunication equipment is often found in the homes of deaf people. Captioning decoders are available for televisions. Electronic hook-ups that cause lights to flash in order to indicate such things as a crying baby, a ringing telephone, or the alarm clock are available. Telephone Device for the Deaf (TDD), modern versions of teletype equipment, permit deaf people to be in contact with other deaf people by telephone.

Overview of Deaf Education

Currently, some public school systems have mainstream programs for deaf children. However, the greatest majority of deaf children attend a state supported school for the deaf. At the Arkansas School for the Deaf (ASD), students generally begin their education at approximately 3 and one half to 4 years of age.⁴ Children who lose their hearing in infancy or at birth and whose parents are hearing generally have extremely limited language skills at the time of enrollment at ASD. This is due to the fact that such children do not benefit from language stimulation from their parents and siblings during the early years when language is acquired. In contrast, a student whose parents are deaf will have a much better language base.

ASD follows the concept of total communication. Total communication is a philosophical declaration that it is the right of each deaf individual to have access to information through any and all modes available. The possible modes are aural stimulation when there is residual hearing, speechreading, written forms, gestures, facial expression, sign language, and fingerspelling. The philosophy states that neglecting to provide a deaf child with any of these avenues may prohibit the child from full language development.

Teachers at ASD must be certified to teach in the public school system. In addition, they must also be certified in deaf education. Currently, ASD has three deaf teachers.

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⁴Personal communication with Ms. Thada Gatlin, Upper High School Principal, Arkansas School for the Deaf, Little Rock, AR.

Students are taught the traditional elementary, junior high, and high school courses. In addition, students are required to take vocational classes. Included among the vocational courses offered are photography, printing, woodworking, welding, cosmetology, commercial homemaking, cleaning and pressing, art, and business education. Approximately 90% of the students graduate.

Deaf people generally have problems understanding and using English through out their lives. According to ASD, upon graduating from the school, the average deaf student has a sixth grade reading equivalent.

Methods of Manual Communication

The term "sign language" is a generic term used with reference to all forms of manual communication. However, many of these forms of communication are not true languages, but rather codes or systems of visually representing English.

Fingerspelling, or the manual alphabet (Fig. 1), is a method of representing the letters of the alphabet with the hand. By forming different shapes with the hand, a person can spell English words. The American manual alphabet is not a true language, but rather a code for the English language. Fingerspelling is most often used in association with another form of manual communication.

Manually Coded English (MCE) is a generic classification for various sign systems which were created in order to teach English to deaf children [3,4]. MCE systems use various means to specify affixes, articles, tense, plurality, and other inflectional variations of English. Some of the more common MCE systems are Signed English, Seeing Essential English (SEE1), Seeing Exact English (SEE11), and Linguistics of Visual English (LOVE). Like the manual alphabet, MCE systems are not true languages, but rather are codes for English. MCE systems are used primarily by elementary teachers for the deaf and deaf children. Very seldom are MCE systems used by deaf adults.

A pidgin language develops when two different groups of people, each with a different language, begin to communicate with each other. Naturally, a pidgin language is a com-

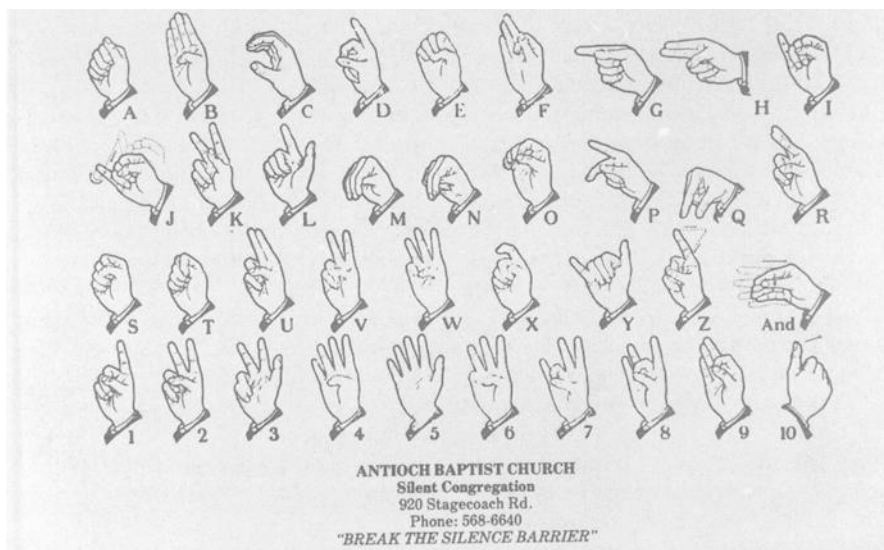


FIG. 1—The Manual Alphabet.

combination of the principles of the two languages involved. Such is the case with Pidgin Signed English (PSE). PSE is the use of signs from ASL with English syntax. This is the system most often learned by hearing people.

ASL is truly a unique language and as such has its own principles. In contrast to spoken and written languages, which have their basis in the production and recognition of sound, ASL is a visual-gestural language. In ASL, the basis of communication is the movement of the hands in combination with facial expression and body movement.

It is not the authors intent to set forth all the grammatical principles of ASL. However, a few of the very basic principles will be discussed [5].

1.) In ASL, syntax is described as sign-order rather than word-order. A general guide to ASL syntax is that the signs are arranged in the same order in which the events they represent occurred or can occur in real life. Also, in describing cause-effect relationships, the signs are arranged in such an order that the cause comes before the effect. Examples of syntax are given in the following sentences:

English: I will dictate that report when I finish working the case.

ASL: I will finish working the case. Then, I will dictate the report.

English: I am worried about John because he has been sick for two weeks.

ASL: John has been sick for two weeks. I am worried about him.

2.) Signs are often repeated to show plurality. When a sign does not lend itself to repetition, plurality is designated by the use of signs that convey the idea of "many," "few," "some," or a specific number.

3.) Tenses are not incorporated in the verb signs. Tense is designated by using signs, called "time indicator signs," which tell when an action takes place. There are two categories of time indicators:

a.) Specific time indicators are signs that place the event in a specific time, such as "yesterday," "last night," or "this morning." Specific time indicators generally come at the beginning of a statement. An example of a specific time indicator is given below.

English: I visited my parents yesterday.

ASL: Yesterday, I visited my parents.

b.) Nonspecific time indicators do not indicate a specific time, simply the past or future. Nonspecific time indicators generally follow the verb and include the signs for "finish" and "will." An example of a nonspecific time indicator is given below.

English: I completed that job.

ASL: That job, I finished.

Context is of extreme importance in determining the time in ASL. When a signer begins to relate an incident that occurred or will occur at some specific time, he will first establish the time of the incident by using a time indicator sign. From that point, all the events which are set forth are understood to take place in the time frame established by the indicator sign used. To illustrate this point, consider the following example:

I visit my parents. My mother makes apple pies. My father makes Chocolate ice cream. We eat until everyone is sick.

In this example, there is no indication as to when the actions described occurred or will occur. The time will be indicated if a specific time indicator is used. Consider the following example of the same sentences when a specific time indicator is used.

Yesterday, I visited my parents. My mother made apple pies. My father made Chocolate ice cream. We ate until everyone was sick.

4.) The subject and indirect object may be expressed by the movement of the verb sign. This quality of movement is called "verb directionality." Verbs may be placed in three groups with regard to directionality.

a.) Nondirectional verbs express neither subject or indirect object. It must be stressed that these signs have movement; however, that movement is nondirectional. An example of a nondirectional verb is the sign for think. This sign has movement, but it does not express the subject.

b.) One-directional verbs move toward the indirect object; therefore, a noun or pronoun is not required. The exception to this rule is when the signer is the indirect object. An example of a one-directional verb is the sign for "see." If it is desired to sign the sentence, "I see you," the sign for "see" would be made with the movement going toward the indirect object. The sign for "you" would not be made.

c.) Multidirectional verbs express both subject and indirect object. The sign moves from the subject toward the indirect object. Thus, neither the subject or indirect object is signed. Consider the sentence, "Lend me your car." To sign this sentence, the phrase "lend me" would be made by moving the sign for "lend" from the subject (you) towards the indirect object (me), followed by the signs for "your" and "car."

5.) In ASL, one sign is used for all forms of the verb "be." Many times, deaf people omit the forms of "be."

6.) There are no articles (a, an, the) in ASL.

7.) First and second person singular pronouns tend to come at the end of a statement. In questions, second person singular pronouns are sometimes dropped.

8.) Interrogative pronouns generally come at the end of a question, but they may be at the beginning. Sometimes, the interrogative pronoun is used at both the beginning and end of a question.

9.) Negation of a statement is achieved by shaking the head while making a sign. The signer may make the sign for "not," and simultaneously shake the head. In this situation, the negation is emphasized. Signs of negation generally follow the thing they negate.

Samples of Written Communication

Documents authored by deaf people were obtained from the Arkansas School for the Deaf (5 samples) and the Arkansas Office for the Deaf and Hearing Impaired (24 samples). Each document was examined with regard to vocabulary, syntax, and word usage.

Documents composed by a Deaf American may contain two different types of class evidence. First, such documents may contain evidence which is indicative of the use of English as a second language. Second, such documents may contain evidence that is a direct result of the native language of the author.

Figure 2 is an essay written by a Senior at the Arkansas School for the Deaf concerning why he was sent to detention hall (DH). The quality of English usage is very poor. However, the syntax of this essay is consistent with the structure of ASL. Table 1 gives an interpretation for selected sentences from Fig. 2. In these sentences, there are no definite or indefinite articles and the first person personal pronoun is not used. In sentences 1 and 3, the form of "be" is absent. In sentences 3 and 4, the prepositions "in" and "to" are absent. All of these characteristics are consistent with the syntax of ASL.

Figure 3 is also an essay written by a member of the 1991 Senior Class of the Arkansas School for the Deaf. This essay was prepared as a homework assignment for English Class. The quality of English in this essay is much better than that in Fig. 2. In contrast to the essay in Fig. 2, this essay does contain articles, the first person personal pronoun, and prepositions. In fact, this essay contains very little syntax consistent with ASL, a fact that is consistent with its designated purpose of showing English skill. However, there are certain characteristics which should be noted. These characteristics include the very limited vocabulary, improper use of forms of "be" (ex.—we was work), and improper use of verbs.

Figure 4 is another essay prepared by a member of the Senior Class at ASD for a homework assignment in English. It would be impossible to determine from this essay that the author is deaf. The quality of English is very good and there are no indications that the author uses ASL. However, it must be remembered that this example was prepared for the specific purpose of demonstrating English Language skill.

Figures 5 and 6 consists of excerpts from a letter that was written by a 26 year-old-

I talk too much He give me
 D.H. I will not again get D.H.
 anymore because I want go to
 Ship class SR. I will be carefull
 I will last of SR. I can
 Remember about SR. If I got
 bad grade or D.H. I will not
 remember SR. no trip stay
 school not good be good
 boys, not same child ~~am~~ I
 am older same man I am
 soon man High school
~~good for you~~ good for you
 for future Job or College
 not easy out world must
 know how look for Job or college
 not ask parent same baby
 must your self same man
 soon I am 18 year old


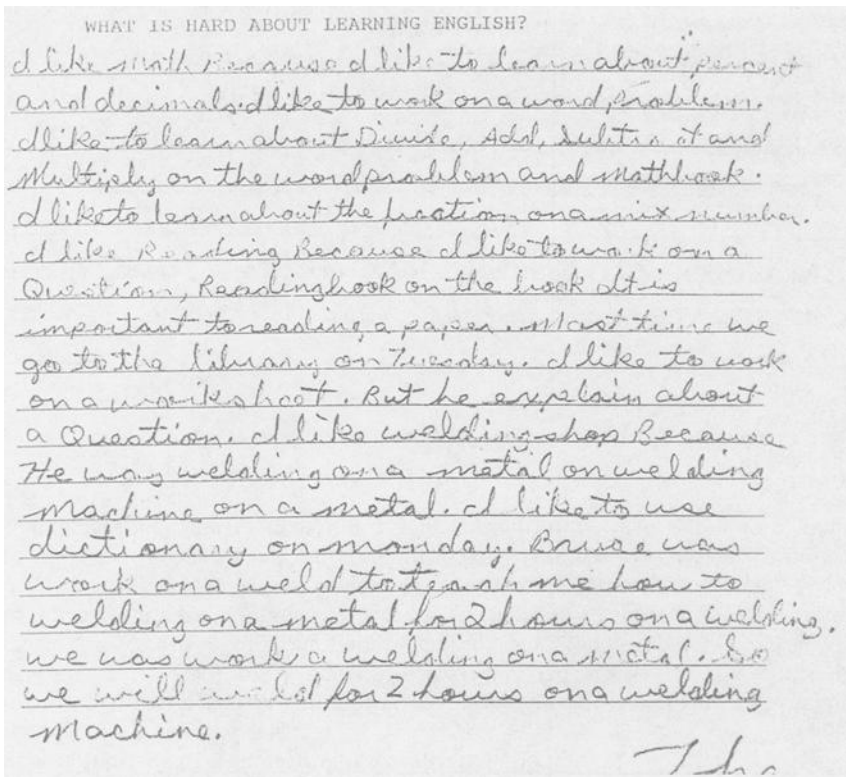


FIG. 2—Essay that reveals a heavy dependence upon ASL syntax.

TABLE 1—*Interpretation of selected sentences from Fig. 2.*

Sentence in ASL	Interpretation
1. No trip stay school not good.	It is not good to miss the Senior trip and have to stay at school.
2. Be good boy not same child.	I must be a good boy and not act like a child.
3. Not easy out world.	It is not easy out in the world.
4. Must know how look for job or college.	I must know how to find a job or go to college.
5. Not ask parent same baby.	I must not ask my parents like a child would ask.

FIG. 3—*Essay reflecting a moderate transition from ASL to English.*

woman who has been deaf since infancy. She is a graduate of the Arkansas School for the Deaf. This letter contains examples of the inverted word order often associated with the writing of the deaf. For example, consider the following sentence; "My car had broke inside the motor so we had to borrow 3 people money to spend on engine kits and repair parts." In proper English the sentence would read, "... we had to borrow money from 3 people." Also, inverted word order is found in the sentence which reads, "All I had is paying of the rent and insurance liability car. . . ." Of course, hearing people would say, "... car liability insurance. . .". This inverted word order is a result of ASL syntax.

"What is Good About My Favorite Class?"

There are many good things about Graphic Arts class which is my favorite class. In that class, paper or notebook are not necessary, as we work with our hands 98% of the time. I am always on my feet. I don't have to sit down and listen to the teacher. The teacher just tells me what has to be done and I work until the bell rings. Also, I am always photographing and developing pictures. I am the first person to see all of the pictures taken by anyone on campus. Another thing is that I get to spend close the darkroom. It feels like the darkroom is mine! The best thing is that I love my teacher. She is good at teaching me how to do stuff. She is really nice. As you can see, I really like Graphic Arts because I like to be on my own and on my feet after sitting and listening all morning!

FIG. 4—Essay showing an excellent understanding and use of English.

In addition to the inverted word order, Figs. 5 and 6 contain an abundance of incorrect verb forms, such as, "have" when the correct form is "had," "needs" when the correct form is "need," "still fixing" when the correct form is "being fixed," and "worried" when the correct form is "worrying." Also, several nouns are used incorrectly, for example, "liar" should be "lie," and "broker" should be "broke." In several places, the author does not use the first person personal pronoun. All of these incorrect usages are a direct result of the fact that the author is writing in a language that is not natural to her.

Figure 7 consists of a portion of a letter that was written by a 36-year-old woman who had been deaf since birth. She completed high school. This portion of the letter is presented so that the reader may see the quality of the handwriting. In order to conserve space, the entire text has not been given in this article. However, Table 2 presents selected sentences from the text of this letter and an interpretation for each sentence.

The first sentence of Table 2 is a question. The subject was not used in the sentence because it was understood from the context (Fig. 7). The first person personal pronoun is absent in several of the sentences. A preposition is absent from sentence 4. The syntax of the sentences is consistent with the ASL syntax and forms the basis for the conclusion that the author is deaf.

Figure 8 contains sentences from two different samples and shows the use of the word "finish," a nonspecific time indicator in ALS. The use of this word is very idiomatic to ASL and is used to denote completed action. Thus, the presence of this nonspecific time indicator is very indicative of authorship by a member of the deaf community.

I sure needs to get your help
 and I dont know if it could help
 or not But would ~~be~~ like to know.
 paying regular. That's what is worried
 me lot. I dont know, what it's like
 dont have my car to go. I still
 dont have it, yet. My car is still
 fixing.
 Is anything I could get
 paper in every month. I dont buy in
 every month, I cant afford. All I had
 (175.⁰⁰). (145.⁰⁰)
 is paying for the rent + insurance
 liability car, that's all I did. I'm
 really serious about money problems.

FIG. 5—Excerpts from a letter written by a 26-year-old woman who has been deaf since infancy.

Conclusion

The ability of deaf people to use the English language varies greatly as with any group. This research has shown that it is very possible for a person to be deaf and yet have a thorough knowledge and ability to use English. Thus, a document written by a deaf person may not contain any evidence that the author is deaf. However, many documents

would understand that My husband +
 I are very much alike broker so
 I really would love for someone to
 see if they could help me about
 it. And I'm not telling a liar, OK
 Anyway my car had broke inside
 the motor so we had to borrow 3 people
 money to spend on engine kits + repair
 parts that was \$500.⁰⁰ (and now
 television is broke, we couldn't borrow
 again. because we owed lot of money
 to pay back - total \$1,800.⁰⁰. I'm
 very much depressed over being broker
 and I still dont know if we could,

FIG. 6—Excerpt from a letter written by a 26-year-old woman who has been deaf since infancy. This excerpt is from the same letter as those in Fig. 5.

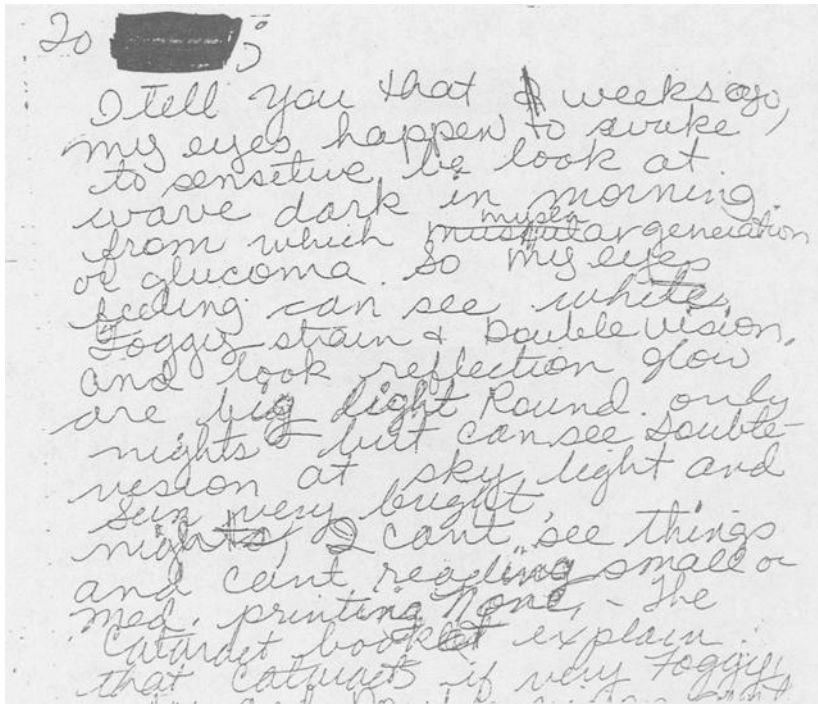


FIG. 7—Portion of a letter that was written by a 36-year-old woman who had been deaf since birth.

TABLE 2—Interpretation of selected sentences from Fig. 6.

Sentence in ASL	Interpretation
1 From which muscular degeneration or glaucoma.	Is this from muscular degeneration or glaucoma?
2 Sun very bright, I can't see things and can't reading small or medium printing none.	In bright sun light, I can't see things well. I can't read any small or medium printing.
3 So my right eye can see spot blinds-problems.	I have a problem with blind spots in my right eye.
4 And my eyes reflection mirror to can't see.	And I can't see my reflection in the mirror.
5 Foggy white at my face.	Because I have a foggy white spot directly in my line of vision.
6 And feeling tired a lot and headaches several.	I am feeling tired a lot and am having several headaches.

written by deaf people do contain linguistic evidence which indicates that the author is a member of the deaf community.

The determination that the author of a document is deaf must not be made simply because the English skill is very low. Figure 9 is a document that was submitted to the Arkansas State Crime Laboratory as part of a routine case. A Linguistic examination of the document reveals the presence of poor English skill. An article is absent in three places. The proper form of "be" is absent in one sentence. In several places, a preposition

Hi Hello I am Mrs. Doe: want know you did fix finish? GA

Oct. 31 to back some place. 5067 37 Street will done (finish built new reservation models) so my landlord, please will write me let know when

FIG. 8—Portions from two different letters. Each portion shows the use of the nonspecific time indicator, “finish.”

~~Some~~

Sometime in July August 29 or 29 i was working at LongR of School when i lost my wallet in side my wallet my driver license 33 Card in my own key to School. I did report the lost. i did nothing about plate been stole on the the morning 10-23-91 when i got pick up

FIG. 9—A document submitted to the Laboratory as part of a routine case.

is absent or used incorrectly. The next to last sentence contains an incorrect verb form (stole instead of stolen). However, the document does not contain syntax consistent with that of ASL. Neither does the document contain any idioms associated with ASL. Therefore, a conclusion that the author is possibly a deaf person is not appropriate. Upon contacting the submitting officer, the authors learned that the suspect is hearing.

The evidence that indicates a deaf author is the use of ASL syntax and idioms in combination with the problems associated with the use of English as a second language.

Without the presence of ASL syntax and idioms, the determination that an author is possibly deaf is not appropriate.

Acknowledgment

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