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DOING WITHOUT WORD ORDER AND INFLECTIONS: THE CASE OF
                    BRITISH SIGN LANGUAGE
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        One of the functions of language is to communicate
about events, states and changes of state in the external
environment. A speaker's perception of extralinguistic
relationships is expressed in the relations between elements
of language such as nouns and verbs. According to Fillmore
(1968:21), nouns are in case relationships with verbs, and
these can be captured by assigning case roles to the nouns
in a sentence. Such roles have been given various labels,
including e.g. agent, patient, source and goal (cf. e.g.
Langendoen 1970).
        It is well known that in spoken languages, inflections
or prepositions and word order are the main alternative ways
of indicating case roles. Some languages, such as Hungarian,
have relatively free word order but an extensive system of
inflections while others, such as English, rely more on word
order and less on inflections to indicate case. The two
systems are usually in balance so that, as Osgood points out,
"Inflection seems to compensate with word order as an alter-
native means of keeping the syntactic house in order" (Osgood
1966:305). Fischer (1974) points out that this has been con-
sidered so fundamental a linguistic universal that it is not
usually explicitly listed as such. However, as she shows,
its status as a universal becomes open to question when we
examine data from a manual-visual language, American Sign
Language (ASL).
        Fischer asserts that ASL has a basic SVO order, but
relies on it only when the verb is transitive and the subject
and object would otherwise be semantically and syntactically
interchangeable. However, order is free (1) if the verb is
intransitive; (2) if the subject and object could not be
interchanged without creating a semantic anomaly; or (3) if
the verb used belongs to a limited set allowing for case-
marking. In other words, inflection and order are only two
of the possible ways of assigning case roles in ASL.
        Friedman (1976) claims that there is no basic word order
in ASL, but agrees with Fischer on the other ways that case
can be identified at the sentence level. In addition,
Friedman goes beyond the sentence to the level of discourse
and suggests that when a verb appears without a surface sub-
ject, the subject will be the last mentioned, or if there
is none, then a first person subject will be assumed.
She also suggests that "heavy reliance on context" (Friedman
1976:140) is another way of distinguishing the arguments of

a verb, and Edge and Herrmann (1977) show how context is sometimes important to indicate who is doing what in ASL.

Word order and inflections are syntactic characteristics of the sentence, but the work on ASL shows that the syntax and semantics of discourse as well as of the sentence are important for case role assignment in at least one sign language. In this paper I will show how the same general-ization applies to another manual-visual language, British Sign Language (BSL). My analysis of data from BSL will investigate syntactic and semantic factors at both the sentence and discourse level. At the sentence level I shall discuss the syntactic factor of <u>spatial modification</u> and the factor of <u>semantic plausibility</u>; and at the discourse level I shall discuss Friedman's condition for <u>subject assignment</u> and the <u>semantics</u> or pragmatics of <u>context</u>. I aim to show that the assignment of case roles in BSL can only be captured by appealing to two areas of grammar, syntax and semantics, and by using two different units of analysis, the sentence and the discourse. This may have implications for both the methodology of grammatical analysis and the theory of language universals.

BSL is the native language of an estimated 40,000 deaf people in Britain. The signing community can be considered diglossic (cf. Ferguson 1959) in that an 'H' variety, which is close to English in syntax, is used in formal settings, while an 'L' variety with its own characteristic syntax is used in informal conversation and is the variety learned by deaf people as a native language. This variety fulfils functions comparable to those of Ameslan in the U.S. deaf community, while H has functions more comparable to those of signed English in the U.S. (For information on diglossia in BSL see Deuchar 1977.) In this paper the term 'BSL' should be understood to refer only to the 'L' variety, and I shall not be concerned with the 'H' variety. The data on which my analysis is based were collected during nine months of participant observation in a deaf club in Reading, England. Sign sequences were recorded in notes, on video-tape, and a thirty minute film was made.

As I have pointed out, there is disagreement as to whether ASL has a basic order. In BSL there is no basic order as far as I can determine, and the following are examples of orders found in the data:-

SVO: I KNOW SHE ('I know her')
SOV: HE YOU LOVE ('He loves you')
VOS: LOVE YOU SHE ('She loves you')
VSO(V): FORGET I TICKET FORGET ('I forgot about the ticket')

VS: RIGHT I   (I'm right)
OSV: ONE I PUT-IN   ('I put one in')
OVS: HOW-MUCH KNOW(Neg.) I   ('I don't know how much')
This apparent freedom of order is such that order does not
seem to be a factor in the assignment of case roles.

Spoken languages which do not rely on word order for the
assignment of case roles often have inflections which indicate
case roles in the syntax of the sentence. If we look at the
syntax of sentences in BSL we find that the nearest approx-
imation to inflection for case is spatial modification, which
marks the roles associated with a limited set of verbs. This
set includes verbs such as GIVE, EXPLAIN, ASK, SAY, SEE,
BEAT and MOCK. These verbs have in common the semantic
notion of 'transference' (cf. Edge and Herrmann 1977:144),
either in the sense of something transferred from source to
goal, as in GIVE and EXPLAIN something to someone, ASK
(posing a question to someone), SAY something to someone,
and SEE (involving movement of the eyes towards a goal); or
else in the sense of action transferred from agent to patient,
as in BEAT and MOCK. A class of verbs with similar semantic
and formational properties is also found in ASL where, as
Friedman (1975:956) states: "The choice of movement and
orientation for these verbs is dependent on the location in
space of both (a) the AGENT, EXPERIENCER or SOURCE, and (b)
the PATIENT, BENEFICIARY or GOAL". This description fits
BSL also, for as in ASL, direction of movement and orientation
of the hands are from the agent or source towards the patient
or goal. The system is egocentric in that the signer is
the location for the first person, whether agent or patient,
source or goal; and direction of movement and orientation
in relation to the signer mark case roles. For a first
person agent or source, movement is away from the signer
towards a second or third person agent or goal, while for a
first person patient or goal, movement and orientation are
towards the signer. If there is no first person argument,
then the signer will 'represent' a second or third person,
usually in the agent or source role, with direction and
orientation being away from the signer.

Spatial modification involves 'directionality' and
may also involve 'reversibility'. Directionality refers
to the possibility for case roles of a verb to be indi-
cated by the direction of its movement, while reversibility
refers to the possibility for case roles to be indicated
by the orientation of the hands in the verb. (Cf.
definitions in Fischer and Gough, to appear.) In BSL,
GIVE and EXPLAIN are directional, while ASK, SAY, SEE,

MOCK and BEAT are both directional and reversible. The
alternative realizations of these verbs according to
direction of movement and orientation are as follows:-[2]
GIVE: $\emptyset B_a B_a^\perp$ (direction away from signer) as in 'I give
    to you' versus $\emptyset B_a B_n^\top$ (direction towards signer)
    as in 'You give to me';
EXPLAIN: $\emptyset 5_\top 5_\top^\emptyset$ (direction away from signer) as in 'I
    explain to you' versus $\emptyset 5_\top 5_\top^\emptyset$ (direction towards
    signer) as in 'You explain to me';
ASK: $\cup F_\perp^{\times\perp}$ (direction and orientation away from signer)
    as in 'I ask you' versus $\cup E_\top^{\times\top}$ (direction and
    orientation towards signer) as in 'You ask me';
SAY: $\cup G_\perp^{\times\perp}$ (direction and orientation away from signer)
    as in 'I say to you' versus $\cup G_\top^{\times\top}$ (direction and
    orientation towards signer) as in 'You say to me';
SEE: $\sqcup G_\perp^{\times\perp}$ (direction and orientation away from signer)
    as in 'I see you' versus $\sqcup G_\top^{\times\top}$ (direction and
    orientation towards signer) as in 'You see me';
MOCK: $\overline{5}_p 5_p^{\times\perp}$ (direction and orientation away from signer)
    as in 'I mock you' versus $\overline{5}_p 5_p^{\times\top}$ (direction and
    orientation towards signer) as in 'You mock me';
BEAT: $G_\perp G_\perp^{\times\perp}$ (direction and orientation away from signer)
    as in 'I beat you' versus $G_\top G_\top^{\times\top}$ (direction and
    orientation towards signer) as in 'You beat me'.
In GIVE and EXPLAIN a change in case roles is reflected
by a change in direction of movement; in the other verbs
it is reflected by a change in direction and orientation.
Direction, and orientation where applicable, are away from
the signer as source or agent, towards the signer as
patient or goal.
    The following are examples from filmed conversations,
using GIVE:-
    HOSPITAL LETTER GIVE ('We gave the letter to the
hospital').
Here the movement of the verb is away from the signer who
represents the understood first person 'we', towards the
third person goal, 'the hospital'. However, in the
sentence
    I-f CAN FORM GIVE SEND b-d-a ('If we can we'll
receive a form and send it to the British Deaf Association')
the movement is towards the signer, representing an under-
stood first person goal, from an understood third person
source.
    The following are examples using SEE:-
    SEE PAPER ('I saw it in the paper').
Here the direction and orientation of the verb are away
from the signer representing first person source, towards
an understood third person goal, 'it'.
    SEE I t-h ('He or she will see me on Thursday').
In this sentence the direction and orientation are towards

the signer representing the goal, away from the third
person source.

So in a limited class of BSL verbs the direction of
movement, and in some verbs the orientation also, indi-
cate the case roles associated with those verbs. This
may be compared to inflection in spoken languages,
except that it is more restricted.

In addition to this formal or syntactic means of
assigning case at the sentence level there is a semantic
means, which we can term _semantic plausibility_ . This
factor operates to disambiguate case roles in sentences where
an alternative assignment would lead to semantic anomaly.
It is similar to Fischer's "second condition" in which
word order is free in ASL, which I referred to earlier.
(See Fischer 1974:198.) For example, the BSL sentence
       I TEN PINT LAGER DRINK
receives the interpretation 'I drank ten pints of lager'
rather than 'Ten pints of lager drank me', because we
know that DRINK must have an animate subject or agent.
The following are two further examples from the data
where only one interpretation is possible to ensure
semantic plausibility:
       HAVE WORK YOU ('Do you have work?') (The question
is indicated by raised eyebrows.)
       MY s-o-n BORROW PAPER ('My son borrowed a paper').
So we see that the factor of semantic plausibility can
operate at the sentence level in BSL. While it is not
a characteristic of syntactic structure like spatial
modification, it relies on shared knowledge of lexical
features or the rules of semantic interpretation of
sentences.

But spatial modification and semantic plausibility
alone are not adequate to account for the assignment of
all case roles in BSL. For example, there are sentences
where the arguments to which case roles would be assigned
do not appear in surface syntax. When the subject or agent
of the verb is missing, it can usually be determined by
a _syntactic condition_ which operates beyond the sentence
at the level of discourse. This condition, which was
found by Friedman (1976) to hold for ASL, also seems to
hold for BSL, and can be stated as follows: the agent
or source or equivalent role for a subjectless verb is
assigned to the last mentioned subject if there is one,
otherwise to the first person. For example, SHE must
be the subject of MOCK in the following segment of dis-
course, even though it does not occur in the same sentence:

WIFE TALK SIGN f-n-y   GOOD SHE   MOCK POWELL
('My wife talks and signs in a funny way. She's good.
She mocks Powell.')
In the following sequence FARE must be the subject of
EXPENSIVE and UP as it is the last appearing subject:
     FARE GO COME TEN p   EXPENSIVE UP EXPENSIVE
('The fare there and back is ten pence. It's expensive,
it's gone up, it's expensive.')
In the following sentences there is no previous subject
that could be assigned to the subjectless verbs, so first
person reference is assumed:-
     SUGAR PUT-IN FINISH ('I've put in the sugar')
     CLEAN ALL ('I cleaned everything')
     TEN p PUT-IN ('I put in ten pence')
This condition of subject assignment will also apply to
verbs which can be spatially modified, but where the
subject is not explicitly stated, as in the examples quoted
earlier, HOSPITAL LETTER GIVE ('We gave the letter to the
hospital') and SEE PAPER ('I saw it in the paper')
     Where it is not the subject which is missing, but
another argument, case roles can be assigned on a semantic
or pragmatic basis, with reference to the context of the
discourse. While the rule governing subject assignment in
discourse is syntactic, and depends on the structure of the
discourse, the semantics of context relies rather on shared
knowledge at the sentence level. The semantics of context
is important to assign roles in a sentence such as
     FIND I GARDEN ('I found (the disc) in the garden').
Here we know that the disc is the patient because it is
the topic of conversation, and is being displayed in the
hand of the person who found it. Or in the sentence
     HEAR SHE ('She heard that')
where SHE is not formally marked for case, we can only tell
that SHE is the subject or experiencer and an understood
'that' the object or patient, on the basis of our contextual
knowledge that the topic or 'given' information in the con-
versation is something which might be heard by her. Otherwise
we might assume SHE to be the object or the patient of the
verb, with a deleted first person subject.
     The semantics and pragmatics of context can be useful
not only for the assignment of case roles to deleted or
missing arguments, but also for the disambiguation of case
roles in sentences where all arguments appear, but reference
to sentence syntax or semantics is not enough. This will be
the situation in sentences where the verb does not allow
spatial modification and there is more than one semantically
plausible way of assigning case. The sentence
     LOVE YOU SHE ('She loves you')
is an example: we can only assign the role of subject or

experiencer to SHE on the basis of contextual knowledge
that the sentence is a comment on why the person referred
to by SHE had shown concern for the man referred to by
YOU.

To summarize, word order does not seem to be a factor
in the assignment of case roles in BSL, and inflection,
its alternative in spoken languages, is only relevant
for a small class of verbs. So to account for case role
assignment in BSL we have to appeal to additional factors
beyond sentence syntax, i.e. the semantics of the sentence
and the syntax and semantics of the discourse. Syntactic
factors at both the sentence and discourse level seem to
operate in conjunction with one another to assign case
roles clearly and unambiguously.

What are the implications of these findings for
linguistic theory? Support has been found for Fischer's
(1974) contention that we must distinguish between uni-
versals which apply only to spoken languages, and those
which apply to language in general. The assignment of
case roles by either word order or inflections seems only
to apply to spoken languages since to identify roles in
British as well as American Sign Language, we have found
it necessary to go beyond sentence syntax. While sentence
syntax continues to be the focus of attention for some
linguists working on spoken languages, others argue that
this approach is too limited. The case of sign language,
where the limitations of sentence syntax are particularly
obvious, provides further evidence for the importance of
discourse in grammatical analysis. The evidence from sign
language also suggests that analysis beyond sentence syntax
must be recognized in the theory of language universals if
its scope is to include all languages, regardless of medium.

NOTES

1. In the transcription of examples, English glosses in
upper case letters represent individual signs; lower case
letters separated by hyphens represent fingerspelled words.
A verb gloss followed by (Neg.) as in KNOW(Neg.) indicates
that negation is incorporated in the verb sign.
2. Notation is based on the system used for ASL in Stokoe
et al. 1976.

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