SUBJECT OBVIATION, SWITCH REFERENCE, AND CONTROL

Ken Hale

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0. Introduction.

The following sentences, from Hopi (Uto-Aztecan, American Southwest) and the Misumalpan languages Miskitu and Ulwa (Atlantic Coast, Nicaragua), illustrate structures in which an argument of a matrix clause can be said to "control" the subject of a complement clause:

(1) Hopi:
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Nu' 'as [ec kweewa-t tu'i-ni-qa-y]      naawakna.
(I  PRT     belt-ACC buy-FUT-NC-ACC:PROX want)
'I want to buy a belt.'
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(2) Misumalpan (Miskitu above, Ulwa below):
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Yang    nani [ec w-a-m-tla mak-i]     ta    krik-ri.
Yangna balna [ec uu-ma     yamt-i]    tangka baht-ikda.
(we     PL   [  house-2    build-PROX] end   break-PAST:1)
'We began to build your house.'
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The sense in which "control" is involved here is simply the descriptive one according to which (a) the subject of the dependent clause is realized in a greatly reduced form (zero, in this case, represented here by *ec*, for "empty category"), and (b) the subject is necessarily bound to an argument in the immediately superordinate clause.

One of these properties of control -- namely, necessary coreference between a subordinate subject and an argument of the main clause -- is shared by sentences of the type represented by (3) and (4) below. These exemplify Hopi and Misumalpan clause sequencing constructions of the protasis-apodosis

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structure used in temporal relatives and conditionals, and in expressing the semantic coordination of propositions. The "binding" relation in these constructions involves the use of the grammatical system commonly referred to as "switch reference", a term introduced by Jacobsen in his important study of the phenomenon (Jacobsen, 1967):

(3) Mi'   taaqa noes-t   (puu') (pam) puwto.
    (that man   eat-PROX (then) (he) sleep)
    'The man ate and (then) (he) went to sleep.'

(4) Yang utla ra dim-i   kauhw-ri.
    Yang uu   kau aaw-i   wauhd-ikda.
    (I   house in enter-PART fall-PAST:1)
    'I went into the house and fell down.'
    'When I went into the house, I fell down.'

Here the subject of the dependent clause (i.e., the non-final clause) is overt rather than reduced. In fact, it is the subject of the main (i.e., final) clause which is reduced. And reduction of the main clause subject in this case is simply in accordance with the normal "pronominalization" procedure of the language (deletion or use of a pronoun in Hopi, deletion in Misumalpan), applied to arguments which are "repeated" in closely successive clauses, as in the sequencing constructions illustrated.

Although the subject of the dependent clause is overt here, it is nonetheless necessarily coreferential with that of the main clause. And to this extent, it is "bound", since it cannot vary freely in relation to the subject of the main clause. It is however "free", within the Binding Theory (cf. Chomsky, 1981), in the sense that it can be represented by a pronoun or an R-expression, and it is therefore to be distinguished from the subordinate subjects in the "control" constructions exemplified in (1) and (2), and from

the bound subjects in true control constructions in languages generally.

In Hopi and Misumalpan clause sequencing constructions, the non-final clause is a dependent clause, since the inflectional morphology (INFL) realized suffixally on the verb is "anaphoric". Thus, the tense category embodied in the non-final INFL is dependent for its interpretation upon the tense of the following matrix clause. A clause bearing the dependent INFL cannot stand alone, as a root clause, since its tense is anaphoric and, therefore, must be bound.

There is another sense in which the INFL of the non-final clauses of (3) and (4) above are dependent. In Misumalpan, the AGR component of dependent INFL there is reduced to a single form which, like tense, is anaphoric and interpreted only in relation to the immediate matrix subject. The agreement inflection in these forms, then, corresponds to the category of "Anaphoric AGR" studied in detail by Borer for a number of better known languages, including Hebrew, English, Korean, and Italian (Borer, 1987). Hopi differs slightly from Misumalpan, in that Hopi AGR itself (distinguishing just number, not person), is marked the same in dependent and main clauses. Its anaphoric status is indicated by the complementizer (glossed PROX above), or by the case marking, where the dependent clause is nominalized (as in (1) above).

This morphological marking of argument binding relations is observed both in the complementation structures, which clearly involve clausal embedding, and in the clause sequencing constructions, in which the relevant structural relation is generally assumed to be adjunction, rather than imbedding. In Misumalpan, the identical morphological system is used for both types. In Hopi, the systems are functionally the same in the two structures, in terms of

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the binding relations involved, but the actual morphology differs. Clause sequencing involves a complementizer in Hopi, while nominalized complements express the binding relations by means of the Hopi case system.

In both Hopi and Misumalpan, the morphology just described belongs to the switch reference system. The examples cited above represent the "proximate", or "same subject", value within the system. This is opposed, of course, to the "obviative", or "different subject" value, as exemplified in the following complementation and clause sequencing constructions:

(5) Hopi (complementation):
    Nu' ['i-pava 'inu-ngam kweewa-t yuku-ni-qa-t]   naawakna.
    (I   my-bro me-for   belt-ACC make-FUT-NC-ACC:OBV] want)
    'I want my brother to make me a belt.'

(6) Hopi (clause sequencing):
    Pam   wu'ti noes-q (puu') mi' taaqa pitu.
    (that woman eat-OBV (then) that man   arrive)
    'The woman ate and (then) the man arrived.'

(7) Misumalpan (complementation):
    Yang [witin nani aisi-n]   wal-ri.
    Yang [alas balna yulbau-d-ak]   dak-ikda.
    (I   [they PL   speak-(PL)-OBV:3] hear-past:1)
    'I heard them speak.'

(8) Misumalpan (clause sequencing):
    Yang sula kum kaik-ri   plap-an.
    Yang sana as tal-ing   iir-ida.
    (I   deer a   see-OBV:1 run-PAST:3)
    'I saw a deer and it ran.'

Here again, Misumalpan uses an identical morphological system for both the complementation structure and the clause sequencing. The tense oppositions are fully reduced in Ulwa and partially so in Miskitu -- in both cases, the tense is anaphoric and, therefore, interpreted in relation to that of the main clause. While the "proximate" morphology has an entirely reduced

AGR component in the Misumalpan languages, the "obviative" has a full AGR, marking all of the person categories distinguished in main clauses.

In Hopi, clause sequencing uses the complementizer system of the language to mark the "obviative" relation, just as it uses the complementizer to mark the "proximate" relation in the examples cited earlier. In the complementation structure, Hopi marks these relations by means of its accusative case morphology. The AGR element in Hopi obviatives is the same as in main clauses and in proximates; it distinguishes number categories only, as noted above. The same is true of the tense morphology in these Hopi constructions; it does not differ from that found in main clauses. In short, in Hopi the subordinating and binding functions are realized in the complementizer system. In this respect, Hopi differs from Misumalpan, where these functions are realized morphologically in INFL.

Given the apparent fact that the Hopi and Misumalpan morphology of subject obviation, or switch reference, is used not only in clause sequencing, where it is well documented for many of the world's languages (cf. Munro, 1980; Finer, 1985; Haiman and Munro, 1983; and many others), but also in complementation, as illustrated above (and also discussed in Finer, 1984), it is natural to ask what relation this system bears to control.

The following discussion will deal with two issues surrounding subject obviation and control: (1) the question of whether control is a subcase of a more general subject obviation system; and (2) some issues concerning the structural relations under which subject obviation holds.

1. Extensions of switch reference and its place in the grammar.

Several publications on switch reference have suggested that the phenomenon belongs to a more general grammatical system having to do with reference. Jacobsen's paper points out a number of grammatical devices which are related in kind to switch reference, though his own definition restricts it to morphological systems which mark a change (or maintenance) of subjects between clauses in certain constructions (Jacobsen, 1967), including primarily constructions of the general type termed "clause sequencing" in the introduction.

In his grammar of the Uto-Aztecan language Huichol, writing before the term "switch reference" was introduced, Grimes (1964) adopted a suggestion which Hockett made to him and related the phenomenon to the class of grammatical devices to which Algonquian obviation belongs. Although the implied analogy is apt only at a rather abstract level in the classification of grammatical categories, a number of people working on Uto-Aztecan languages followed this suggestion and began to refer to switch reference by the term "obviation" (e.g., Voegelin and Voegelin, 1969; Jeanne, 1978). Obviation corresponds to two relations or values, "proximate", or coreference, and "obviative", or non-coreference (disjoint reference). It is therefore a term which can be applied generally in relation to co- and disjoint reference -- as it has been during the past decade -- and, in particular, it can be used in reference to relations involved in the whole family of grammatical machinery of which switch reference is just one realization.

Perhaps the first work which attempted to place switch reference in a more general perspective, i.e., to explore its extensions, was that of Jeanne on Hopi (Jeanne, 1978). Jeanne, in describing what she referred to as "the
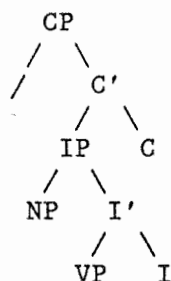
Hopi Rule", argued that obviation was a single principle which generalized to all categories within the X-Bar system of Hopi. Obviation, according to Jeanne, is marked on the head (X-zero category) in Hopi, and it serves to define the reference of the "principal" argument of the structure projected by the head in relation to the subject of the immediate matrix clause:

(9) The Hopi Rule of Coreference (Jeanne and Hale, 1985, modified from Jeanne, 1978):
    If an X-Bar structure is identified (by the morphological properties of its head, X-zero) as *a*-proximate, then its principal argument (governed by the head X) is *a*-anaphoric and, accordingly, *bound* (if [+anaphoric]) or *free* (if [-anaphoric]) in relation to the subject of the minimal Complete Functional Complex (Chomsky, 1986) containing that argument.

The terminology of "obviation" is used here; accordingly, [+proximate] is "proximate", and [-proximate] is "obviative". Switch reference is one instance of this general rule. Thus, in the Hopi sentences (1, 3) and (5, 6), a functional head is marked for one or the other value for obviation, identifying the principal argument as either free or bound. In the original formulation of Jeanne (1978), the definition of the notion "principal argument" was problematic. In clause sequencing constructions of the type represented by (3), for example, the subject was the "principal argument" of the sentence (the projection of INFL, called AUX in Jeanne's usage). This meant, of course, that the subject was "bound" by (or, in Jeanne's usage, necessarily "coreferential" with) the superordinate subject. Where the "bound" subject is an R-expression, it cannot be technically bound, of course. The Binding Theory had not been developed when Jeanne did her work, and the problem, though recognized, was not considered crucial. Later (cf., Jeanne and Hale, 1985), the conception of Hopi X-Bar structure was

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reconsidered, under the influence of Finer (1984, 1985). Under the revised conception of the relevant structures, the obviation morphology was no longer taken to be located in INFL but rather in the complementizer (or in the compination of nominalizing complementizer plus case, depending on the type of subordination). The complementizer was the immediate governor of INFL (i.e., of I in (10) below) and its maximal projection (IP):

(10)
```
                CP
               / \
              /   C'
             /   / \
            IP     C
           /  \
         NP    I'
              / \
            VP    I
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Under this revision, of course, INFL itself is the relevant "principal argument", and the relevant subcomponent of INFL -- namely, AGR -- is either anaphoric, or non-anaphoric, depending on the obviation value which appears on the complementizer which governs it. The subject NP is not itself anaphoric or non-anaphoric by virtue of the obviation morphology directly. By virtue so-called "Spec-head agreement", the dependent subject is co-indexed with AGR and, therefore, its reference depends upon the anaphoric status of AGR. If AGR is bound, then the dependent subject NP is "bound" in the loose sense of "necessarily coreferential" with the matrix subject; formally, of course, it is co-indexed with the matrix subject. But whether it is "technically bound", in the sense of the Binding Theory, depends on whether it is c-commanded by the argument with it is coindexed. In clause chaining, as in (3), for example, the subject NP is free, since the matrix subject, with which it is co-indexed, does not c-command it. In complementation, however, the dependent

subject is presumably bound and, therefore, can never be represented by an R-expression -- this is certainly true of proximate structures like (1). Thus sentences like (1) give the superficial appearance, at least, of "control structures".

Jeanne's Hopi Rule generalizes the obviation system to the other major categories of Hopi. She assumes that the Hopi reflexive/reciprocal is to be understood in terms of the Hopi Rule; it involves proximate. marking of a verb or postposition (by means of the prefix *naa-*), identifying the object as anaphoric, and therefore bound by the subject, as in (11a) below. A verb or postposition not so marked represents the obviative relation, in which the object is free in the domain of the subject (as in (11b)):

(11) (a) Mi'   tiyo'ya *ec* naa-tuhota.
         (that boy   REFL/RECIP-hurt)
         'The boy hurt himself.'

     (b) Mi'   tiyo'ya pu-t   tuuhota.
         (that boy   him-ACC hurt)
         'The boy hurt him.'

In possessive constructions, obviation is marked in the determiner and case projections, defining the anaphoric status of the possessor. In (12), for example, the determiner *-at* identifies the possessor (innermost brackets) as obviative singular, while in (13) the absense of this determiner (together with the particular case form which appears) identifies the possessor (*ec*) as anaphoric (and necessarily non-overt therefore, since it is c-commanded by its antecedent):

(12) Nu' [[mi-t   tiyo'ya-t] po'ko-y-at]   'uu'uyi.
     (I   [that-ACC boy-ACC] dog-ACC-OBV:SG] steal)
     'I stole the boy's dog.'

(13) Mi'   tiyo'ya [ec po'ko-y]   mu'a.
     (that boy   [ec dog-ACC:PROX] shoot)
     'The boy shot his (own) dog.'

Similarly, relative clauses, like nominalized complements, are marked for

obviation:

(14) Nu' [taavo-t   (nu') (pu-t)   niina-qa-y]   siskwa.
     (I   rabbit-ACC (I)   (it-ACC) kill-NC-ACC:PROX skin)
     'I skinned the rabbit I killed.'

(15) Nu' [taavo-t   'i-pava (pu-t)   niina-qa-t]   siskwa.
     (I   rabbit-ACC my-bro (it-ACC) kill-NC-ACC:OBV skin)
     'I skinned the rabbit my brother killed.'

The overt reflex of the opposition is located in the case ending here --

-y in the proximate, -t in the obviative -- as in the complementation

constructions (1) and (5) above.

Jeanne's research program for Hopi had two purposes: (i) the formulation

of a general rule which would unify the systems of coreference observed in the

different syntactic categories of Hopi, and (ii) integration of these into the

binding theory (as it was understood in the mid 1970's). With the work of

Finer on switch reference (Finer, 1984, 1985), and the work of Aoun on binding

(Aoun, 1981), this program is in effect completed.

The desired unification results in part from Finer's recognition that the

relevant anaphoric elements in systems of the type represented by Hopi are not

the NP arguments (i.e., the "A position" arguments), but rather the *functional*

heads of the various syntactic categories, typically the morphological locus

of the obviation morphology. These are presumably "A-bar positions",
nonargument positions, and are therefore governed by principles of the
"Generalized Binding Theory" of Aoun.

Let us assume that the basic syntactic structures of Hopi take the
following form -- at the relevant level of syntactic representation, at least:

(16)
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                    FP
                   /  \
                 NP    F'
                      /  \
                    YP    F
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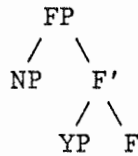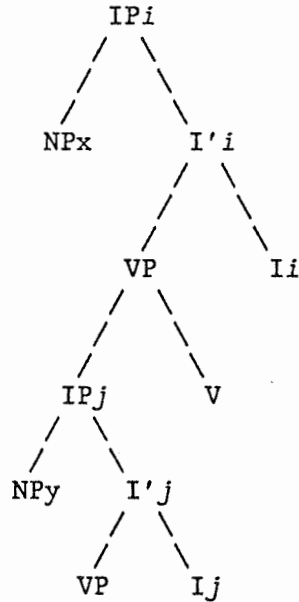
The functional categories (F) project a structure which includes a
complement (YP) and a "specifier" (NP). A certain subset of functional
categories in Hopi are "marked for obviation". I take this to mean that they
contain "phi-features" of person which are either anaphoric or pronominal and,
accordingly, must be bound or free in the domain of an immediately
superordinate subject (and, in fact, they must be bound or free in relation to
that very subject). The NP argument is co-indexed with F, by virtue of
"Spec-head Agreement", and is therefore A-bar bound by F. The anaphoric status
of the NP argument itself is determined by the Binding Theory as it applies to
arguments, i.e., to NP categories in A-positions. This may or may not
correspond to the anaphoric status of the F category with which the NP is
co-indexed.

Abstracting away from the morphological processes giving rise to their
surface form, I will assume that F corresponds to INFL (i.e., to I) in Hopi
clausal complements, relative clauses, and the adjunct clauses in sequencing
constructions. And the NP corresponds to the subject. The latter will be

overt, unless it is itself anaphoric. Anaphoric arguments in Hopi are always

nonovert. The NP will be anaphoric if it is bound in accordance with the the

Binding Theory. This will be the case if the NP is A-bar bound to an

anaphoric INFL (i.e., to AGR in INFL) and if, in addition, it is bound in its

governing category by a c-commanding NP argument. Evidently, these

requirements are met in (1), where the subordinate subject must be nonovert

(represented in (1) by the notation *ec*). In that sentence, the subordinate

INFL (more accurately AGR) is anaphoric (by virtue of its relationship to the

PROX complementizer, the actual locus of the obviation morphology). By

Spec-head agreement, the subject NP is co-indexed with the anaphoric INFL and,

therefore, necessarily coreferential with the matrix subject, since this is

co-indexed in turn with the matrix INFL, the binder of the subordinate INFL.

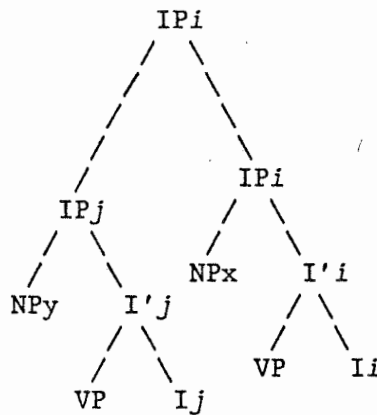The essential structure of (1), abstracting somewhat, is as in (17) below:

(17)

```
                        IPi
                       /  \
                      /    \
                     /      \
                   NPx      I'i
                           /  \
                          /    \
                         /      \
                        VP      Ii
                       /  \
                      /    \
                     /      \
                   IPj      V
                  /  \
                 /    \
               NPy    I'j
                     /  \
                    /    \
                   VP    Ij
```

The subordinate INFL (Ij) is bound by the matrix (Ii), assuming the

former is anaphoric and $j = i$. Therefore, by virtue of Spec-head agreement,

NPy is necessarily coreferential with NPx. Since NPy, in this configuration, is regularly nonovert, we can assume that it is itself an anaphor. If this is correct, then NPy must be in the same governing category as its antecedent, though the definition of the governing category for Hopi anaphoric arguments is not totally clear as yet. Note that relative clauses are "opaque" in this respect -- cf. (14) above, where deletion of the subordinate subject is not obligatory, though "pro-drop" is possible.

The complementation structures assumed here (i.e., as in (17) above) present a configuration in which the subordinate subject can be bound by the matrix subject. By contrast, the structural configurations assumed for clause sequencing, or "clause chaining" (cf. Longacre, 1985), do not. Rather, clause sequencing can be assumed to involve adjunction, as depicted in (18) below:
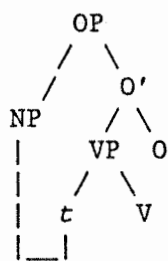
(18)

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                            IPi
                           /  \
                          /    \
                         /      \
                        /        \
                       /          \
                      /            IPi
                     IPj          /  \
                    /  \         /    \
                   /    \     NPx     I'i
                  NPy   I'j          /  \
                       /  \        /    \
                      /    \     VP     Ii
                     VP    Ij
```

I take it that adjunction involves an asymmetry, so that the adjunct (IPj above) is in the relevant sense structurally "dependent" to its host (IPi above). Given an appropriate conception of the command relation (cf. Hale, 1988), it is reasonable to claim that the matrix INFL asymmetrically commands the INFL of the dependent clause and, further, that the matrix INFL binds the

dependent INFL, where the latter is anaphoric. However, the subject of the
dependent clause -- i.e., NPy -- cannot be bound by the matrix subject, since
the required c-command relations do not hold. Hence, NPy is regularly overt,
even if it is necessarily coreferential with the matrix subject, as in the
Hopi sentence (3) above.

The Misumalpan system of obviation -- abstracting away from differences
in morphsyntactic detail -- is identical to the Hopi system as it applies to
clauses. In Misumalpan, however, obviation is restricted to clauses (or, more
accurately, to INFL-headed constructions). In Hopi, as Jeanne argues,
obviation is more general. That is to say, in Hopi realizations of (16), F is
not restricted to INFL. In possessive constructions, of the type represented
by (12) and (14), we can assume that F corresponds to the determiner category
D (cf. Abney, 1987); the possessor is an NP category in Spec of DP,
co-indexed as usual with the head D. Where D is anaphoric (as in (13)), the
possessor NP is itself anaphoric, necessarily, since it is bound by the
c-commaning subject of the clause, which, we must assume, is the governing
category of the possessor. Hence, the latter is nonovert in (13), as required
of an anaphoric argument in Hopi.

The reflexive/reciprocal of Hopi, as illustrated in (11a), conforms to
(16) in the following manner. The reciprocal heads an object agreement phrase
(cf. Pollock, 1988; Chomsky, 1988); thus, the reflexive/reciprocal morphology
corresponds to F in (16). The verb phrase corresponds to YP, the complement
of F. The object NP appears in the Spec of FP where it is assigned case,
raised there, presumably, from VP where it is assigned its theta-role. Thus,
replacing F with 0 (for Object Agreement), we have (19):

(19)
```
                        OP
                      /    \
                     /      O'
                  NP       /  \
                   |      VP   O
                   |     /  \
                   |    t    V
                   |__|
```
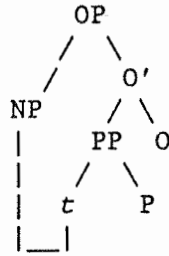
By Spec-head agreement, NP (the object) is co-indexed with O (object

agreement). In the reflexive/reciprocal, of course, O is anaphoric. Since,

in that circumstance, NP must also be anaphoric, being bound by the subject,

it must be nonovert, as usual for Hopi anaphoric arguments. The anaphoric O

is morphologically a prefix in Hopi, and it is realized by the prefix *naa-*

(through O-lowering, or by V-raising, the exact mechanism yet to be

determined).

The same relations, and the same morphology, obtain in Hopi postpostional

phrases, as in (20), exemplifying the proximate (or anaphoric) and obviative

(or pronominal) object agreement O, respectively:

(20) (a) Taqa [ec naa-mi]   yu'a'ata.
         (Taqa [ec REFL/RECIP-to] speak)
         'Taqa is speaking to himself.'

     (b) Taqa pu-t   'a-w   yu'a'ata.
         (Taqa him-ACC OBV3-to speak)
         'Taqa is speaking to him/her.'

The category P, like the category V, combines with the functional

category O, as depicted in (21) below:

(21)
```
                    OP
                   /  \
                  /    O'
            NP   /  \
             |   PP   O
             |  /  \
             |  t    P
             |__|
```

Here, as with verbs, O is realized in surface structure as a prefix. The
anaphoric O appears as *naa-*, while the (third person) pronominal O appears as
'a-. (Pronominal O is not overtly marked in verbal morphology; hence no
prefix appears on the verb of (11b) above.)

2. Obviation and control.

The works of Jeanne (1978) and Finer (1984, 1985) make it possible to
argue conclusively that the obviation system of Hopi, and that of Misumalpan
as well, conform to principles of the generalized theory of binding. It is
natural to ask whether control, which involves binding in the core cases, is
an instance of obviation.

The Hopi and Misumalpan proximate complementation structures of (1) and
(2) have certain of the characteristics of the paradigm control constructions,
namely:

(22) (a) a bound subject;
     (b) a designated binder;
     (c) a local binder.

However, in these particular structures, the characteristics set out in
(22) result straightforwardly from the intersection of principles of the
Generalized Binding Theory. The subordinate subject is A-bound by AGR in the

INFL of the dependent clause, by virtue of Spec-head agreement. The dependent

INFL, being anaphoric, is itself locally bound by the matrix AGR. And this,

in turn, A-bar binds the matrix subject. The matrix subject c-commands and is

co-indexed with the subordinate subject. The former therefore locally binds

the latter, which is thus an anaphoric argument. All of this coincides with

the classical control situation, and the parallel is enhanced by the fact that

the bound argument, like controlled PRO, is phonologically null -- i.e., an

empty category -- in Hopi and Misumalpan alike.

This encourages the view that control, in part at least, is simply the

intersection of the relations in (23) below and that, accordingly, control is

a function of aspects of the (Generalized) Binding Theory:

(23) (a) Spec-head agreement;
     (b) Anaphoric agreement;
     (c) A-bar binding (of and by heads);
     (d) A-binding (of and by maximal projections);
     (c) Locality.

A conception of control which is closely similar to that suggested here

is the theory of Anaphoric AGR developed by Borer (1985), according to which

anaphora is fundamentally a property of subject agreement, rather than of the

subject argument itself. Borer's account of a array of cases of control

constructions, and control-like constructions, is convincing, and I assume

that it is correct for a large class of cases. However, there is an aspect of

control, in its classical formulation, which is left out of this picture and

which cannot, *ohne weiteres*, be subsumed by the account briefly sketched

above. The missing ingredient is PRO, the (caseless, and possibly ungoverned)

subject of an infinitival.

The bound subject of a dependent proximate clause in a Hopi or Misumalpan, or any other, construction which utilizes the system of obviation morphology cannot be PRO, in the technical sense. The subject in a dependent proximate clause is certainly case marked, and it is certainly governed, given any reasonable assumptions -- the position of the dependent must at least be case-marked since an NP in that position, if not itself anaphoric (and therefore null), can be overt. Its appearance as an empty category depends upon its relation to a local antecedent, not upon its government or case -- if it is bound by a c-commanding local antecedent, it will be phonologically null (in the languages under consideration here, at least), since an overt pronominal or R-expression would violate principles of the Binding Theory.

Hopi has no infinitival construction, and correspondingly, it does not use PRO. Misumalpan, however, beside its obviation system, has infinitival constructions and, presumably, PRO subjects. The following Ulwa and Miskitu sentences illustrate the use of phonologically null controlled subjects in infinitival clauses:

(24) (a) Ulwa:
     Yang [ec Ulwah yul-naka] walta-ya-ng.
     (I   [ec Ulwa   speak-INF] want-PRES-1st)
     'I want to speak Ulwa.'

   (b) Miskitu:
     Yang [ec Ulwa lan   tak-aia]   trai kaik-ri.
     (I   (ec Ulwa learn become-INF] try see-PAST1)
     'I tried to learn Ulwa.'

Although the Misumalpan languages, like Portuguese, possess a "personal infinitive", that is not used in these control constructions. Thus, it seems reasonable to assume that the nonovert subject (ec) in (24) above is PRO,

though I must confess that it is not particularly easy to prove that this subject is caseless and ungoverned (an issue which I will not attempt to deal with here). As expected of PRO, it can also appear with arbitrary reference in Misumalpan, as in the following Miskitu example:

(25) Wan muihni   pru-i   kaka, [ec ilp mun-aia] ba pain sa.
     (our brother die-PRES if,   [ec help do-INF] DEF good be:PRES3)
     'If our brother is suffering (dying), it is good to help (him).'

The empty subject in the bracketed infinitival here conforms to the canonical PRO category in that its reference is human, as well as arbitrary. This is true in general of PRO subjects in Misumalpan, as in English (cf. Williams' contribution to this workshop).

One of the characteristics of controlled PRO is its dependence upon a "designated controller"; a matrix verb in the control construction has the property that one of its arguments, and not another, serves as the controller. While the idenfification of the "designated controller" is almost certainly predictable, it is not consistent in relation to grammatical function. Thus in (24) above, the controller is the matrix subject, while in (26) below, the matrix object is the controller:

(26) [ec diara nani atk-aia   ] ai wi-n.
     [ec dii   balna bakan-naka] yaa-yult-ida.
     (ec thing PL   buy-INF   me-tell-PAST3)
     'He told me to buy things.'

To be sure, "control" in the Hopi and Misumalpan obviation systems also involves a "designated controller". However, this depends not upon properties of the matrix verb but, rather, upon the very nature of obviation. Obviation

involves binding (or contra-binding) of a *functional* head, by another. In the case of clausal obviation, the relevant functional head, of course, is INFL (or, more precisely, AGR in INFL). Since this is bound not by a matrix argument but by the matrix INFL (i.e., AGR), it follows as a matter of course that the matrix subject will, so to speak, be the "designated controller". The situation here is quite distinct from that of controlled PRO, at least in those conceptions of the phenomenon according to which a matrix argument is the controller, of PRO, itself an argument.

The study of controlled PRO is, in large part, the study of a particular NP category. The prevailing property of PRO, that it is always a subject, never an object, follows I think from the fact that it is, so to speak, the "category specific" specifier of the infinitival INFL projection. In this, it is parallel to the arbitrary (or "impersonal") subject pronouns *on, man, men,* ..., of French, German, Dutch, and many other languages (cf. Chomsky, 1986:117). These latter also appear only as subjects and, like PRO, they are human in reference. They differ from PRO in that they are (category specific) specifiers of *finite* INFL, and they are never bound by an antecedent. The referential properties of PRO follow, perhaps, from the fact that it functions as a variable, ranging over humans. In control constructions, the value of the variable is given by the matrix verb as a function the principles according to which the complement clause is combined with the matrix verb to yield a fully interpreted syntactic structure. Where PRO is not controlled by an antecedent argument, its reference is arbitrary, like the overt subject pronouns of arbitrary reference of French, German, and Dutch (an many other languages).

Given the difference between obviation and control (in the sense of controlled PRO), it is reasonable to expect both to appear in the same language, as in Misumalpan. Control is fundamentally a relation between arguments of syntactically related clauses -- specifically, between some designated argument of a matrix verb and the subject of a subordinate clause. Obviation is a relation between functional heads related by government, the one governing the other; arguments are involved indirectly, through Spec-head agreement. This does not mean, of course, that a unified theory of obviation and control is impossible; the work of Borer (1985), it seems to me, is a promising development in this connection.

The autonomy of obviation and control raises the question, of course, whether the two could be observed in the same complex sentence. The complementation structures of (1) and (2) are potential instances of this, but, as we have argued, the "control" relation observed there is simply the convergence of the two systems of anaphoric binding -- the subordinate INFL is bound by the matrix INFL and, by Spec-head agreement, the subordinate subject is bound by the matrix subject, given the c-command relations. A locally bound NP is necessarily non-overt in Hopi and Misumalpan, and the antecedent is evidently "local" in the required sense here. The two sorts of binding relations can be teased apart in a construction in which the matrix object, rather than the subject, is the binder. This is the situation in the following Hopi sentence:

(27) Taaqa tiyo-t [ec kaway-mu-y   'oyato-ni-qa-t]   'ayata.
     (man boy-ACC [ec horse-PL-ACC put-FUT-NC-ACC:OBV] send)
     'The man sent the boy to put the horses back.'

Here, the two clauses are related obviatively, while the matrix object
binds the subordinate subject. The latter is nonovert, as usual in such cases
for Hopi. This is an instance, therefore, in which a subject is "controlled"
independently of the obviation system. It is not likely, however, that the
controlled subject in (27) is PRO, since the clause in which it appears is
fully tensed, as are all subordinate clauses in Hopi. The use in Hopi (and in
Misumalpan) of empty subjects -- "controlled (small) pro", let us say -- is
governed by principles which are not yet fully understood (but see Jeanne,
1978, for some suggestions in regard to Hopi; and see Higgins, 1989, paper for
this workshop, for a relevant remark on control effects in Hopi's Aztec
relatives).

The question remains whether obviation and controlled PRO could coexist
in a sentence having the structure of (27). This would require obviation
morphology to appear on infinitivals devoid of the normal INFL features. In
the languages under consideration here, this would be impossible, since
clauses marked for obviation are finite in the relevant respects, however
"reduced" the categories present in INFL may appear to be (see Hale, 1988, for
some discussion of this in relation to Misumalpan).

(Planned section on ECM, Raising, and Restructuring in an Obviation
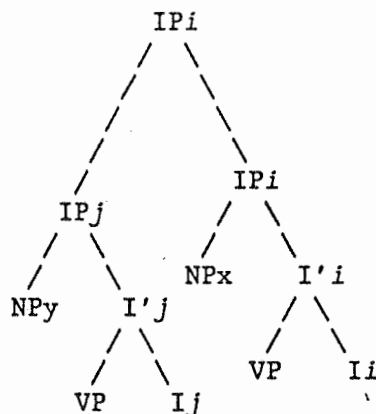system not yet done, not enough time.)

3. The syntactic structure of obviation constructions.

Omitting certain morphosyntactic details, complementation constructions
of the type represented by Hopi (1, 5) and Misumalpan (2, 7) conform to the
structural description depicted in (17), in which the subordinate clause is

unambiguously subordinate in the classical sense, i.e., "embedded", as a
complement of the matrix verb. The structural relations of command relevant
to the Binding Theory clearly obtain here, both for the relevant arguments,
and for the functional heads involved in the obviation system. Thus the
matrix INFL c-commands the subordinate INFL, and the matrix subject c-commands
the subordinate subject.

The situation is not so straightforward for the clause sequencing, or
chaining, constructions exemplified by Hopi (3, 6) and Misumalpan (4, 8).
Descriptively, the command relations for arguments and INFL are distinct
here. The matrix subject does not c-command the subject of the dependent
clause, while some relevant command relation does appear to obtain for the
INFL elements -- the matrix INFL commands, in some sense, the the INFL of the
dependent clause. I follow Finer (1984, 1985) in assuming that the structural
relation holding between the clauses here is adjunction and, further, that
c-command, in the technical sense, applies only to maximal projections. For
Misumalpan, at least, where the dependent clause is not accompanied by a
complementizer, the syntactic configuration of clause sequencing is that
depicted in (18) above, repeated here as (28):

(28)

```
                        IPi
                       /  \
                      /    \
                     /      \
                    /        \
                   /          IPi
                  IPj        /  \
                 /  \       /    \
                /    \    NPx    I'i
              NPy    I'j        /  \
                     / \       /    \
                    /   \     VP    Ii
                   VP   Ij
```

I assume also that adjunction is asymmetrical, in the sense that features of the "host", but not those of the adjunct, are inherited by the adjunction node. The relevant asymmetrical command relations, termed f-command, may be formulated as follows:
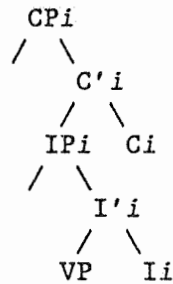
(29) *f-command*:
A functional category X f-commands Y iff a projection
of X dominates Y. (If a node A is a projection of a
functional category B, then A bears the functional index
projected by B.)

This is a notational equivalent of Finer's assumption that "heads c-command everything dominated by the topmost item of their categorial projection ..." (Finer, 1985:45), in so far as his assumption is restricted to functional (as opposed to lexical) heads. On this construal of the matter, f-command is simply c-command. In (28), I_i f-commands (c-commands) I_j, but not the reverse.

The adjunction structure (28) is, strictly speaking, observationally adequate only for languages of the Misumalpan type, where the obviation morphology is lodged in the INFL head of a clause. It is not exactly correct for languages like Hopi, and other Uto-Aztecan languages (and in fact a great many other languages as well), in which INFL and a complementizer (and/or case morphology) function together to mark obviation. In such languages, presumably, the structure given in (29) would be more accurate, for the dependent clause, at least:

(29)
```
                        CPi
                       /  \
                         C'i
                        /  \
                      IPi   Ci
                     /  \
                        I'i
                       /  \
                     VP    Ii
```

In such structures, following Finer (1985:48), I assume that the
complementizer and INFL function jointly as the head of the sentence (CP).
Thus, for the purposes of the obviation system, there is no functional
difference between the Misumalpan structures and those of Hopi. There is,
however, a morphological difference which is not altogether trivial when seen
in historical perspective.

For as long as I can remember, there has been debate concerning the
structural relations involved in clause sequencing. The debate centers around
the question of whether the relation is one of asymmetrical dependency, as
implied by the adjunction theory of the structure, or coordination, as argued
recently by Roberts for the Papua New Guinea language Amele (Roberts, 1988).
It cannot be denied, by anyone who has learned or worked extensively on, a
clause sequencing language that the device is used to express the coordination
of propositions, among other things. But this does not, in and of itself,
settle the basic structural question, since the syntactic structure of
coordination is itself not at all clear. Assuming that we have coordination
when we have, say, across the board "extraction", as in (30), then Misumalpan
sequencing is evidently coordination, in some sense:

(30) Yang plun ... piak-i   swi-ri   k-an   ba swahw-an   sa.
     (I   food ... cook-PROX leave-PAST:1 be-PAST:3 the spoil-PAST:3 be:3)
     'The food I had cooked and left (out) has spoiled'.

However, if the relative clause in (30) involves coordination, it also
involves an asymmetry, since the first clause is dependent in relation to the
second. At least this must be the case if our understanding of the obviation
system is correct.

This raises as many questions about coordination as it does about clause
sequencing. Be this as it may, a look at language change leaves no doubt
whatsoever that there is a kinship between clause sequencing and
coordination. This is seen quite clearly in the treatment, sometimes observed
in the course of change, of complementizers implicated in obviation.

The Hopi complementizers -t (proximate) and -q (obviative) continue Proto
Uto-Aztecan *-ti and *-ku/o, respectively. These were subordinating
complementizers in Uto-Aztecan, and they are continued as such in a great many
of the modern languages, including Hopi. However, their Hopi reflexes include
functions beyond those reconstructed for Uto-Aztecan. Specifically, they are
involved in the coordination of NP arguments, as illustrated in (31) below:

(31) (a) Nu' 'ita-ngu-y ni-t   'ita-na-y pa'angwa.
         (I   our-Mo-ACC INCR-and our-Fa-ACC help)
         'I am helping our mother and our father.'

     (b) 'Ita-ngu ni-q   'ita-na tumala'yta.
         (our-Mo   INCR-and our-Fa work)
         'Our mother and our father are working.'

The coordinating conjunctions are -t for non-subject NPs and -q for
subject NPs; these are combined with an incremental element which regularly

appears when these elements are not suffixed dirctly to a verb (e.g., when following a non-verbal predicator, when the verb is gapped, or, as here, when used as a coordinating conjunction). In modern Hopi it would appear that the choice of conjunction corresponds to the case marking, which also distinguished just two morphological cases, one for subjects, another for non-subjects. And it may in fact be true in the synchronic grammar that the conjunction reflects the case of the conjuncts. Historically, however, the source of the distinction is clear: -t is the element which would appear if (31a) were rendered as clauses in sequence, since the subjects would be shared; and, correspondingly, -q would appear if (31b) were rendered in the form of clauses in sequence:

(31') (a) Nu' 'ita-ngu-y pa'angwa-t (puu') nu' 'ita-na-y pa'angwa.
       (I our-Mo-ACC help-PROX (then) I   our-Fa-ACC help)
       'I help our father and (then) I help our mother.'

    (b) 'Ita-ngu tumala'yta-q (puu') 'ita-na tumala'yta.
       (our-Mo work-OBV   (then) our-Fa work)
       'Our mother works and (then) our father works.

It is as if coordinated NPs were derived through conjunction reduction, and this may be the historical source. Synchronically, however, the sentences of (31) simply represent the modern system of NP coordination (cf. Jeanne and Hale, 1976, for evidence against conjunction reduction as a synchronic derivation for coordination of the type represented by (31)). Clearly, Hopi has, under certain conditions, reanalyzed its obviation morphology as coordinating conjunctions.

In the Northern Piman language 'O'odham (Papago and Arizona Pima), this process is somewhat more advanced. The 'O'odham reflexes of the two

Uto-Aztecan complementizers are -c (proximate, < *-ti) and k(u)- (obviative, < *-ku) (cf. Hale, 1983, for details omitted here). At the period of the earliest historical records of Northern Piman, in the 17th century, these elements were involved exclusively in complementation and clause sequencing. By the time of the separation of the Piman branch from the rest of Uto-Aztecan, however, the obviative element was no longer morphologically dependent on the verb of the dependent clause and was, instead, associated with the main clause, were it was prefixed to the "auxiliary" (INFL). Meanwhile, the 17th century proximate complementizer remained firmly suffixed to the verb of the dependent clause, as in Proto Uto-Aztecan, presumably, and it showed no indication of reanalysis as a generalized coordinating conjunction. Coordination of NPs, and of other non-clausal constituents, was effected by other means.

In modern 'O'odham, the reflex of the Piman proximate complementizer is primarily a coordinating conjunction, retaining only vestigially its original morphological dependency and function as a mark of clausal dependency. It is no longer limited to the function of relating clauses, as it was in the Piman and Uto-Aztecan ancestoral languages. As a true conjunction within the generalized X-bar schema, it extends to all syntactic categories of the language, coordinating IPs, VPs, NPs, PPs, and APs alike.

The 'O'odham development seems quite clear. Simplifying somewhat (cf. Hale, 1983, for details), a complementizer associated with proximate clause sequencing was reanalized as a coordinating conjunction, encouraging one to speculate that the syntactic structure involved in clause sequencing is akin to that involved in coordination. Speculation is further encouraged by the

observation that, while the full obviation system of 'O'odham is perhaps no longer intact (cf. Scancarelli, 1988), due to the "defection" of the obviative (which happened to varying degrees, and at various times and places, in the history of the Piman languages), the modern 'O'odham reflex of the proximate complementizer, now a generalized conjunction, appears to *retain* its proximate force. Thus, the subjects of the clauses in (32) below are necessarily coreferential:

(32) 'Ali   'aş   huhu'id g   gogs c   'aş   hehem.
     (child AUX3rep chase   art dog and AUX3rep laugh)
     'The child is/was (reportedly) chasing the dog and laughing.'

Let us assume that 'O'odham *c* is in fact a conjunction, and that, in clause sequencing, it forces coreference between the subjects of the conjoined clauses. Either the type of forced coreference involved here is something to which the Binding Theory is relevant, or it is not. It is possible, for example, that the 'O'odham phenomenon represented by (32) fall outside the domain of the Binding Theory and should receive a pragmatically based account (of the type rejected for paradigm switch reference systems by Finer, 1985, for example). This may be true now for 'O'odham, despite the fact that its recent ancestors possessed canonical obviation systems. The fact that 'O'odham *c* can conjoin clauses which, strictly speaking, do *not* share subjects, as in (33) below, might lend support to this line of inquiry:

(33) Gew   'o   haag-him c   'oia hab meḍ g   ṣuudagĭ.
     (snow AUX3 melt-PROG and then thus run art water)
     'The snow is melting so the water is running.'

This is possible under the reading according to which the snow and the

water are the same thing -- where *the water* resumes *the snow* "epithetically", so to speak, or perhaps "metonymically". Use of an obviative construction here would imply that there was no connection between the snow and the water. All of this sounds consistent with a pragmatic view of the relationships expressed in (33), and so it is. However, I believe that this example is also consistent, to some extent at least, with the view of obviation which I have been assuming in this essay. The obviation system relates functional heads (INFLs, in the case of clauses), not argument NPs directly. If obviation is involved in (33), then we must assume that one of the INFL heads is bound by the other (say the first is bound to the second). This is the strictly grammatical component of the structure of (33); the correctness of this conception of the matter is suggested by the fact that a sentence like (33) but with INFLs marked for distinct persons, would be utterly ungrammatical. The pragmatic component of the analysis of (33) would have to do with the relation between overt nominal expressions and the INFLs with which they are coindexed. Can distinct nominal arguments be linked via co-indexed INFLs? Sentence (33) is evidently possible. A conceptually similar problem is presented by sentences of the type represented by (34) below:

(34) (Gook 'an 'a'aldag.) Hema 'o   wuḍ 'uwĭ c   hema wuḍ ceoj.
                          (one AUX3 COP girl and one COP boy)
    ('I have two kids.') 'One is a girl and one is a boy.'

Here again, proximate coordination is used, but while the overt subjects are the same word (*hema* 'one'), they they are not "identical" in the normally understood sense. It is clear that work remains to be done on this aspect of the 'O'odham system of obviation.

Continuing to speculate on the nature of modern 'O'odham c, and assuming that it is in some relevant sense a conjunction, what exactly does this mean, for the grammar of 'O'odham? In particular, how can does the grammar express the proximate relation which c marks? Assuming this to be a genuine instance of obviation, and therefore subsumed by the Binding Theory, how does a conjunction function to identify a clause (more accurately, its INFL head) as anaphoric and bound?

One possibility, suggested by recent work of Collins (1988a), is that a conjunction projects the same sort of structure as other functional categories and, therefore, provides specifier and complement positions. On this view, the conjuncts occupy these positions in the projection. The conjoined clauses of (32), for example, would combine with the conjunction (symbolized by means of an ampersand) in the following manner:

(35)

$$
\begin{array}{c}
\&\text{P} \\
\diagdown \\
\&' \quad \text{IP}i \\
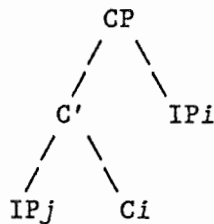\diagdown \\
\text{IP}j \quad \&i
\end{array}
$$
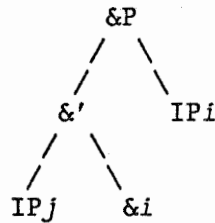
On this view of conjoined structures, the conjunction projects an asymmetrical relation between its "arguments" (the clauses, in this instance). Moreover, by virtue of Spec-head agreement, as well as by c-command, the "specifier" (IPi) is the more prominent of the two clauses, since the maximal projection will (by percolation of indices, giving $\&i$ and $\&\text{P}i$) be identified with the specifier rather than with the complement -- this is precisely the asymmetric prominence relation which holds in adjunction (as

in (18) above), by hypothesis, at least. In 'O'odham, let us say, the head of the conjunction structure -- i.e., c, representing the functional category & -- has the ability to discharge onto its complement IP the feature [+anaphoric], requiring that its head INFL be bound. Assuming the &P to be the relevant governing category in (35), the binder will be the head of IP_i, of course. And the binding relation is asymmetrical, given the assumptions of this view of conjunction.

According to the analysis just sketched, conjunction is in the essential respects identical to adjunction, given the basic categorial neutrality of &. In all relevant respects, the difference between the two is simply the presense or absense of a conjunction. Hence, it is not surprising that clause sequencing might be reanalyzed as conjunction. Collins (1988b) has suggested that the structures involved in clause sequencing, in general, partake of a structure identical to (35), headed by C rather than &:

(36)
```
                    CP
                   /  \
                  /    \
                 C'     IPi
                / \
               /   \
             IPj    Ci
```

If so, this eliminates the purely syntactic distinction between complementizers and conjunctions. Assuming for (35, 36) that the matrix INFL here can be said to f-command (c-command in Finer's extended sense) the dependent INFL, the latter can be bound by the former, as required for the proximate case. If Collins' structure is used universally in clause sequencing, then it is only abstractly so, since Misumalpan gives no evidence

of a complementizer in the crucial cases. In any event, this view of clause
sequencing coincides precisely with the conception of conjunction embodied in
(35). The structure (36) cannot, of course, account for all obviation
phenomena. In complementation, it is the matrix INFL which enters into
obviation -- this would be impossible if the Spec of CP were occupied by an
IP, since, by relativized minimality (cf. Rizzi, 1987), the latter would
block the obviation from the matrix to the complement of CP. This is probably
not a real problem, since we can assume that the s-selection properties of the
matrix verb would force the Spec of CP to be empty. In relative clauses, Spec
of CP is presumably occupied by the relative operator. Though I cannot
suggest the precise mechanisms involved, we must assume, given the observed
obviation facts, that this operator does not block obviation. The role of
case in Hopi obviation, whether for complements or for relative clauses, is
still a matter of study.

(To be continued: an alternative analysis of conjunctions, "true"
coordinations; obviation and control in relation to the findings and proposals
developed by T. Givon; this may or may not be ready in advance of the
workshop. Most likely not.)

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