

CHOCTAW SWITCH REFERENCE
AND LEVELS OF SYNTACTIC REPRESENTATION*

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Although same-subject marking and switch-reference marking in Choctaw are generally straightforward, there are some environments in which either type of marking is possible. The present paper proposes an account of switch reference in Choctaw. Important to the analysis is the motivation of the inversion structure for certain clauses. The proposed switch reference rule makes crucial use of the multiple levels of grammatical relations represented in the inversion structure, as well as other structures considered. Choctaw switch reference marking therefore provides an argument for the recognition of multiple levels of syntax.

1. Introduction

In Choctaw, a Muskogean language, there is a system for morphologically distinguishing whether or not clause pairs have the same subjects. Jacobsen (1967) is reportedly the first to ascribe the term 'switch-reference' to such a system. Generally speaking, within the Choctaw switch reference system the first of two clauses is morphologically marked for same subject (SS) when the subject of the first clause is coreferential with the subject of the second clause and for switch reference (SR) when the subjects of the two clauses are not coreferent.¹ However, there exist some switch reference data which are problematic, taking either SS or SR marking on the first clause with no apparent shift in meaning. Although in recent work Langdon and Munro (to appear) argue that for certain Yuman cases it is necessary to appeal to semantic notions, most accounts of switch reference have been couched in terms of the syntactic notion of subject. What follows is a syntactic analysis which accounts for the recalcitrant data in terms of the grammatical relations which nominals bear in a clause. The analysis makes crucial reference to grammatical relations at more than a single level of structure thereby arguing for multiple levels in syntactic representation.

2. Switch reference phenomena

When two clauses are coordinately conjoined, the particle cha may be used as a same-subject marker and the particle na as the corresponding switch-reference marker.² In either case, the particle follows the first

clause. Below are some sentences which exhibit the typical marking of switch reference in Choctaw.

- (1) a. Ofi poshohli-li-cha tamaha ia-li-tok.
dog rub-1Nom-SS town go-1Nom-Pst
'I patted the dog and went to town.'
b. *Ofi poshohli-li-na tamaha ia-li-tok.
SR
- (2) a. Tobi apa-li-cha oka ishko-li-tok.
beans eat-1Nom-SS water drink-1Nom-Pst
'I ate beans and drank water.'
b. *Tobi apa-li-na oka ishko-li-tok.
SR
- (3) a. Wa:k nipi ish-awashli-na oka ishko-li-tok.
cow meat 2Nom-fry-SR water drink-1Nom-Pst
'You fried the beef, and I drank some water.'
b. *Wa:k nipi ish-awashli-cha oka ishko-li-tok.
SS
- (4) a. Tobi apa-li-na tãchi ish-pa-tok.
beans eat-1Nom-SR corn 2Nom-eat-Pst
'I ate beans, and you ate corn.'
b. *Tobi apa-li-cha tãchi ish-pa-tok.
SS

The switch reference phenomena in (1)-(4) can be easily accounted for in terms of the notion 'subject'. In (1), the subject of both the clauses is 'I'; the same is true of (2). Since the subjects of both of the clauses are the same in these two sentences, coordination must be marked by the SS marker in both cases, as in the (a) sentences. When the SR marker na is used, as in the (b) sentences, the result is ungrammatical. In (3) and (4) the situation is reversed. In (3), the subject of the first clause is 'you' and the subject of the second clause is 'I'; in (4), the subject of the first clause is 'I' and the subject of the second is 'you'. Since the subjects are different, SR marking must be used, as in the (a) sentences. In the (b) sentences the SS particle cha is used; the sentences are ungrammatical.

There are, however, sentences which deviate from this paradigmatic pattern. In (5) and (6), the (a) sentences have been marker for SS and the (b) sentences for SR. Both the (a) and (b) versions are fully grammatical and have the same meaning.³

- (5) a. Chokfi-a-t ĩ-lhakoffi-cha chokka ia-li-tok.
 rabbit-Dt-Nom lDat-miss-SS house go-lNom-Pst

'I missed the rabbit and went home.'

- b. Chokfi-a-t ĩ-lhakoffi-na chokka ia-li-tok.
 rabbit-Dt-Nom lDat-miss-SR house go-lNom-Pst

'I missed the rabbit and went home.'

- (6) a. Alla-t ofi-a-t ĩ-kania-cha hoyo-tok.
 child-Nom dog-Dt-Nom 3Dat-lose-SS look for-Pst

'The child lost the dog and looked for it.'

- b. Alla-t ofi-a-t ĩ-kania-na hoyo-tok.
 child-Nom dog-Dt-Nom 3Dat-lose-SR look for-Pst

'The child lost the dog and looked for it.'

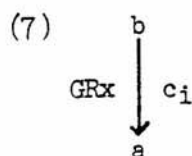
The situation in (5) and (6) might strike one as counter-intuitive. Given two clauses one would expect there to be two logical possibilities: (i) the subjects of the two clauses are the same, or (ii) the subjects of the two clauses are not the same. However, the fact is that (5) and (6) both exist as grammatical utterances in Choctaw; an adequate grammar of the language must be able to account for these data as well as the data in (1)-(4).

The data in (5) and (6) give striking evidence that an attempt to account for the switch reference phenomena in Choctaw merely in terms of the notion 'subject' is in immediate danger. On the one hand, the data in (1)-(4) can easily be accounted for by reference to same versus different subject. On the other, given the data in (5) and (6), it is not clear how these concepts are to be used to account for the facts in (5) and (6). However, a solution is in fact available by appealing to the notions and constructs set forth within the framework of relational grammar as described by Perlmutter and Postal (1977, in press).

3. Some basic notions of relational grammar

Before proceeding to the proposed account of the switch reference phenomena, it is necessary to motivate the construction which proves crucial to the analysis. This consists of motivating an inversion analysis for certain Choctaw clauses.

First, some basic notions of relational grammar should be introduced. Within the relational grammar framework, grammatical relations are taken as primitives of linguistic theory. A clause is conceived of as a set of arcs with a common clause node as tail; heading each arc is a node which represents a linguistic element. Each arc has an R-sign, which is the name of the grammatical relation which the element heading the arc bears to the clause. In (7), the schematic arc has the element a as its head, b as its tail, and bears the R-sign GR_x, a variable over grammatical relations.

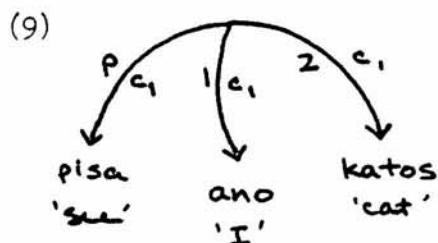


The set of R-signs includes: P, predicate; 1, subject; 2, direct object; 3, indirect object; oblique relations such as locative, benefactive, instrumental, and others; chomeur; and others. Therefore, one can refer to the subject of a clause as 'head of 1-arc', the direct object as 'head of 2-arc', and so on. In addition, the arc bears a coordinate (c_1), as in (7), which indicates the level at which the element bears a grammatical relation in a clause. Within relational grammar, the notion of linguistic level is reconstructed in terms of the notion 'stratum'. A stratum consists of all arcs with a given node as tail which share some coordinate. Therefore, the clause

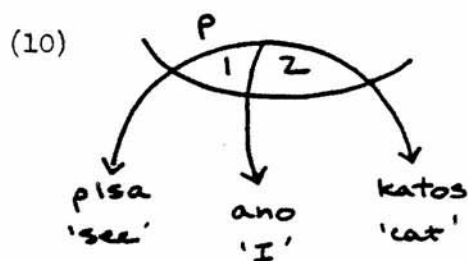
(8) Katos pisa-li-tok.
cat see-1Nom-Pst

'I saw the cat.'

has the structure⁴



The relational network in (9) ignores such things as tense, aspect, case marking, and the linear order of elements. The structure in (9) constitutes a single stratum by virtue of the fact that all arcs bear the coordinate c_1 . (10) is the stratal diagram abbreviation of the relational network in (9). In (10), the notion of stratum is pictorially more salient, represented by the horizontal row of R-signs.



As previously stated, the construct relevant to the present discussion is that of inversion, which has been proposed for Udi (Harris, to appear a), Georgian (Harris, to appear b), Albanian (Hubbard, 1980), Italian and Japanese (Perlmutter, 1979), and Russian and Kannada (Perlmutter, to appear).

The defining characteristic of inversion is the inclusion of a nominal which heads a 1-arc in one stratum and a 3-arc in a following stratum. This can be schematized as in (11).



The nominal heading the subnetwork in (11) is referred to as an inversion nominal. In order to argue for inversion in Choctaw, it is necessary to provide evidence that some clauses have a structure in which there is an inversion nominal.

The relevant clauses in Choctaw are those in which the notional subject, i.e., that nominal which Choctaw speakers and grammarians identify as the subject of a clause, determines dative agreement. The clauses in (12)-(14) are examples.

- (12) Holisso-t am-ihaksi-tok.
book-Nom 1Dat-forget-Pst

'I forgot the book.'

- (13) Takkon-a-t ã-tola-tok.
apple-Dt-Nom 1Dat-drop-Pst

'I dropped the book.'

- (14) A:bini:li-ma-t chim-ĩshahli hõ?
chair-DDt-Nom 2Dat-prefer Q

'Do you prefer that chair?'

In both examples of problematic switch reference in (5) and (6), one conjunct is a clause in which the notional subject determines dative agreement. An examination of this clause type is therefore relevant to the switch reference analysis.

In the following section arguments are provided that there exist Choctaw clauses in which a nominal heads both a 1-arc and a 3-arc and that this nominal cannot head a 1-arc in the final stratum.

4. Inversion in Choctaw

In this section I provide evidence for the 1hood and the 3hood of the Choctaw inversion nominal.

4.1 Evidence for the 3hood of the inversion nominal: agreement

An argument for considering the inversion nominal a 3 in some stratum is the type of verb agreement it determines. Sridhar (1976) refers to inversion nominals as 'dative subjects' precisely because in Kannada they are marked with the same case as indirect objects, dative case. This is also true in other languages for which inversion has been proposed.

In Choctaw there is a system of verb agreement in which the nominals of a clause determine affixes in the verbal complex which agree with them in person and number and occur in nominative, accusative, or dative form. The agreement paradigm, including allomorphs, appears in (15).

(15) Verb agreement affixes

a. Nominative

| | |
|-----------------|---------------------|
| -li/-l '1Nom' | il-/i:- '1PlNom' |
| ish-/is- '2Nom' | hash-/has- '2PlNom' |

b. Accusative

| | |
|----------------|-----------------|
| sa-/si- '1Acc' | pi- '1PlAcc' |
| chi- '2Acc' | hachi- '2PlAcc' |

c. Dative

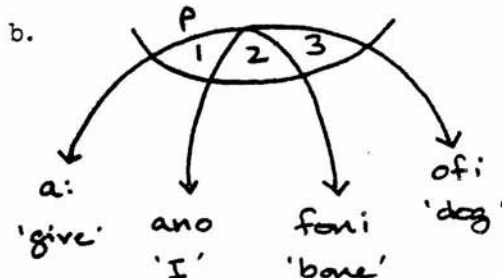
| | |
|---------------------|-------------------------|
| (s)am-/(s)ã- '1Dat' | pim-/pĩ- '1PlDat' |
| chim-/chĩ- '2Dat' | hachim-/hachĩ- '2PlDat' |
| im-/ĩ- '3Dat' | |

There is no overt third person marker for nominative or accusative agreement, and the third person dative marker is undifferentiated for number and gender. Nominals which head 3-arcs determine dative agreement, nominals which head 2-arcs determine accusative agreement, and nominals which head 1-arcs determine nominative agreement.⁵

In (16), the nominal heading the 3-arc, i.e., the indirect object, ofi 'dog', determines dative agreement, im '3Dat'.

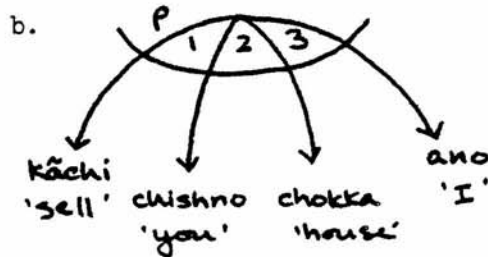
(16) a. Ofi-yã foni-yã im-a:-li-tok.
dog-Dt=Obl bone-Dt=Obl 3Dat-give-1Nom-Pst

'I gave the bone to the dog.'



Notice also that the nominal which heads the 1-arc, ano 'I', determines nominative agreement. In (17), the nominal heading the 3-arc, ano 'I', determines dative agreement.

- (17) a. Chokka is-să-kăchi-tok.
house 2Nom-1Dat-sell-Pst
'You sold the house to me.'



As illustrated above, in some Choctaw clauses the 'subject' determines dative agreement. These clauses are examples of inversion and the subject is the inversion nominal. Dative agreement determined by the notional subject of a clause is illustrated again in (18) and (19).⁶

- (18) Chim-iskali-a-t ă-kania-tok.
2Poss-money-Dt-Nom 1Dat-lose-Pst
'I lost your money.'
- (19) Issi nakni-a-t chĩ-lhakoffi hă?
deer male-Dt-Nom 2Dat-miss Q=Pst
'Did you miss the buck?'

Since the subject determines dative agreement in (18), ă '1Dat', and (19), chĩ '2Dat', it must head a 3-arc in some stratum.

4.2 Evidence that the inversion nominal is not a final 1: Equi

Evidence that the inversion nominal does not head a final-stratum 1-arc is available from the Equi construction. An informal statement of Equi in Choctaw is given in (20).

- (20) Equi
A nominal heading a final-stratum 1-arc in an embedded clause may be an Equi victim if coreferential with a nominal heading a 1-arc in the matrix clause.

The important point here is that potential Equi victims must be final 1s. It should be noted that Equi in Choctaw is optional.

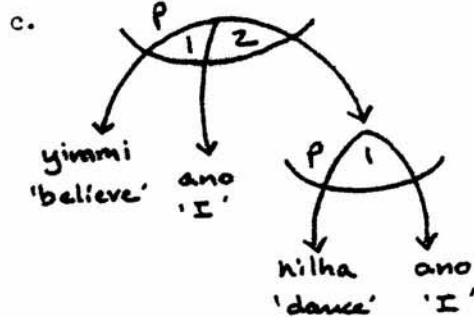
The sentences in (21) and (22) illustrate the Equi construction. The (b) sentences are examples of Equi; in each, the agreement determined

by the final 1 of the embedded clause is absent and the final 1 is coreferential with the matrix 1.

- (21) a. Hilha-l-a:-chĩ-ka-t yimmi-li.
 dance-1Nom-Irr-Fut-Comp-SS believe-1Nom

'I believe I will dance.'

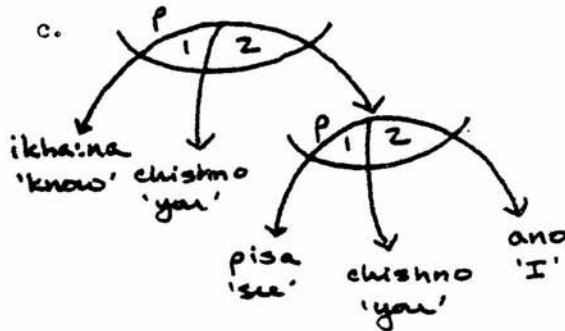
- b. Hilh-a:-chĩ-ka-t yimmi-li.



- (22) a. Is-sa-pisa-ka-t ish-ikha:na.
 2Nom-1Acc-see-Comp-SS 2Nom-know

'You know you saw me.'

- b. Sa-pisa-ka-t ish-ikha:na.

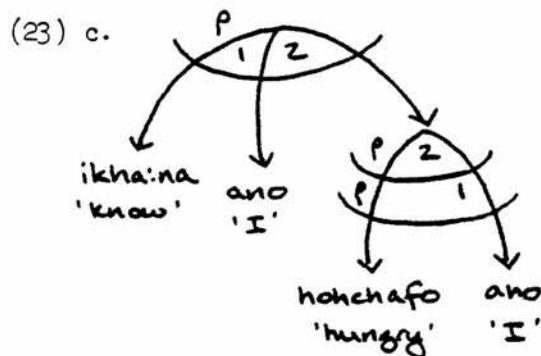


One might hypothesize that what is going on in (21b) and (22b) is not Equi but some sort of agreement marker deletion which only affects nominative agreement markers. However, when the embedded clause is unaccusative, the subject nominal determines accusative agreement and Equi is possible. In Davies 1981, I argue that clauses such as the embedded clause in (23) are best analyzed as unaccusatives in the sense of Perlmutter 1978 and Perlmutter and Postal, to appear.⁷

- (23) a. Sa-hohchafo-ka-t ikha:na-li.
 1Acc-hungry-Comp-SS know-1Nom

'I know I'm hungry.'

- b. Hohchafo-ka-t ikha:na-li.



In (23), the agreement which is determined by the final 1 in the (a) sentence is absent in the (b) sentence and the nominal is coreferential with the matrix subject.

If an inversion clause is embedded in a clause whose subject is coreferential with the inversion nominal, the inversion nominal may not be an Equi victim. In *(24b), the inversion nominal is treated as an Equi victim and the sentence is ungrammatical.

- (24) a. Holisso-t əm-ihaksi-ka-t ikha:na-li.
 book-Nom 1Dat-forget-Comp-SS know-1Nom

'I know I forgot the book.'

b. *Holisso-t ihaksi-ka-t ikha:na-li.

Since the condition on Equi states that final 1s can be Equi victims and inversion nominals cannot be Equi victims, inversion nominals cannot be final 1s.

4.3 Evidence for the lhood of the inversion nominal

In the present section I provide two arguments for the lhood of the inversion nominal.

4.3.1 Case

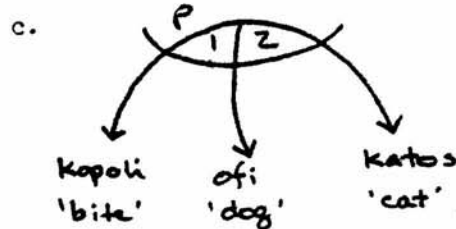
In addition to the system of verb agreement (section 4.1), Choctaw distinguishes two cases for free-standing nominals. Nominals which generally correspond to the notional subject of a clause are assigned nominative case, marked by the suffix -t or the nominative form of the focus morpheme, kosh. Oblique case is assigned to all non-subjects and can be signalled by nasalization of the determiner or the oblique form of the focus morpheme, akō. Even though oblique case is often not marked outside of focus constructions, subjects must always be marked. Therefore, in (25), ofi 'dog' takes nominative case and katos 'cat' takes oblique case marking optionally.

- (25) a. Ofi-t katos(-ã) kopoli-tok.
dog-Nom cat-Dt=Obl bite-Pst

'The dog bit the cat.'

- b. Ofi-a-kosh katos(-ã) kopoli-tok.
dog-Dt-Fo=Nom cat-Dt=Obl bite-Pst

'The dog was the one that bit the cat.'



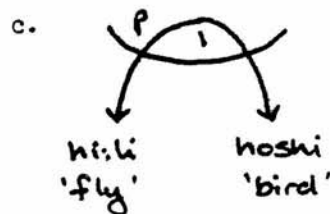
In (26), hoshi 'bird' heads a 1-arc and takes nominative case.

- (26) a. Hoshi-t hi:li-tok.
bird-Nom Pl=fly-Pst

'The birds flew.'

- b. Hoshi-a-kosh hi:li-tok.
bird-Dt-Fo=Nom Pl=fly-Pst

'The birds were the ones that flew.'



(25) and (26) provide evidence for the generalization regarding case assignment, stated informally in (27).

(27) Case assignment

A nominal is assigned:

- a. nominative case if it heads a 1-arc, and
- b. oblique case if it does not head a 1-arc.

In inversion clauses, the inversion nominal must be marked for nominative case.

- (28) a. Alla-ma-t holisso-t ĭ-kania-tok.
child-DDt-Nom book-Nom 3Dat-lose-Pst

'The child lost the book.'

- b. *Alla-ma holisso-t ĭ-kania-tok.

The inversion nominal in (28), alla-ma 'the child', must take nominative case marking, as in (28a); when it does not, the clause is ungrammatical *(28b). According to (27), only nominals which head 1-arcs can be marked for nominative case. Since this nominal is marked for nominative case, it must head a 1-arc in some stratum. In (18), kania 'lose' is shown to take a subject which determines dative agreement; therefore, the dative agreement, ĭ '3Dat', which appears in the verbal complex in (28) is determined by alla-ma. The situation is somewhat clearer in the following focus construction in which the inversion nominal is not a third person nominal.

- (29) a. An-a-kosh alla-t am-ihaksi-tok.
1-Dt-Fo=Nom child-Nom 1Dat-forget-Pst

'I was the one who forgot the child.'

- b. *An-a-kō alla-t am-ihaksi-tok.

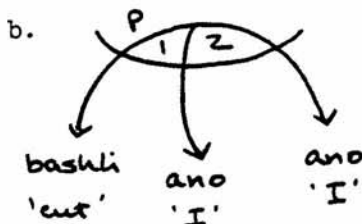
In (29a), ano 'I', which determines the dative agreement am '1Dat', takes the nominative case form of the focus morpheme; (29a) is grammatical. In *(29b), it takes the oblique form and the clause is ungrammatical. (28) and (29) therefore provide evidence that the inversion nominal heads a 1-arc in some stratum.

4.3.2 Reflexives

Reflexives in Choctaw are commonly marked by a reflexive affix, ili, which occurs in the verbal complex. This morpheme is undifferentiated for person and number but appears as ilim/ilĭ when the nominal heads a 3-arc. In (30), the reflexive heads an initial- and final-stratum 2-arc.⁸

- (30) a. Ili-bashli-li-tok.
Refl-cut-1Nom-Pst

'I cut myself.'



In (31) a nominal heading a 3-arc appears as a reflexive.⁹

- (31) a. Hattak-a-t alla-yã ilĩ-kãchi-tok.
man-Dt-Nom child-Dt=Obl Refl=Dat-sell-Pst

'The man_i sold the child to himself_i.'
*'The man sold the child_i to self_i.'



(31) points to a crucial restriction on Choctaw reflexives: the antecedent must head a 1-arc. In (31), only hattak 'man', which heads a 1-arc in (31b), can be the antecedent of the reflexive. An interpretation of (31) with alla 'child', which heads a 2-arc, as the antecedent of the reflexive is unacceptable. In (30), the antecedent of the reflexive also heads a 1-arc. The condition on antecedents can be stated informally as in (32).

- (32) 1-condition on antecedents of reflexives
Only nominals which head 1-arcs can be antecedents of reflexives.

As (33) and (34) show, an inversion nominal can antecede a reflexive.

- (33) Ili-hachim-ĩshahli.
Refl-2PlDat-prefer

'You prefer yourselves.'

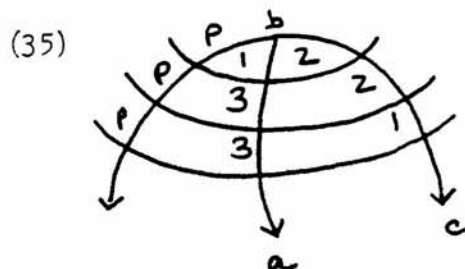
- (34) Ili-am-ahchiba.
Refl-1Dat-tired of

'I am tired of myself.'

The fact that the inversion nominal can be an antecedent argues that it must head a 1-arc in some stratum.

5. The inversion structure

Having established that there are clauses in Choctaw containing a nominal which heads both a 1-arc and a 3-arc, the question remains concerning the form of the structure of such clauses. The schematic stratal diagram in (35) represents the personal inversion structure proposed for other languages.¹⁰



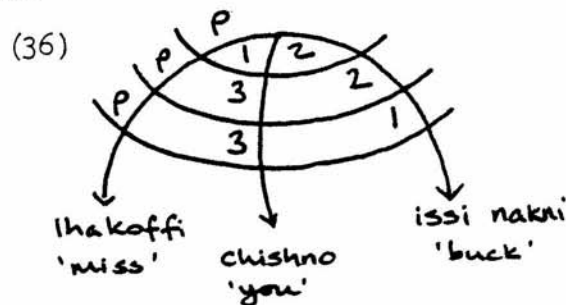
Nominal a in (35) is the inversion nominal. Since the major concern here is the nature of the interaction of the inversion nominal with switch reference, only one argument for the lhood of nominal c is given.

The diagram in (35) together with the statement of case assignment (27) predicts that nominal c in personal inversion clauses should take nominative case marking. This is because (27) states, in effect, that all nominals which head 1-arcs are assigned nominative case and nominal c heads a 1-arc in the final stratum in (35). Clauses considered in previous sections show that this is indeed the case. Consider (19), repeated below.

- (19) Issi nakni-a-t chĩ-lhakoffi hã?
 deer male-Dt-Nom 2Dat-miss Q=Pst

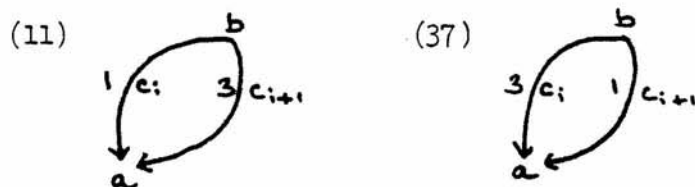
'Did you miss the buck?'

The structure in (36), which omits unnecessary details, is associated with (19).



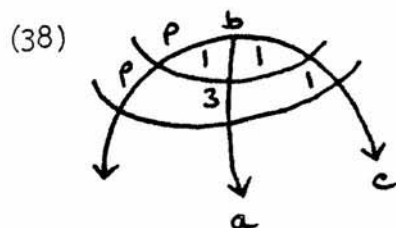
I would like to examine further two points crucial to a personal inversion analysis of some clauses: (i) inversion clauses contain a subject which demotes to indirect object, and (ii) nominal c in personal inversion clauses does not head a 1-arc in all strata.

Arguments have been given for the 3hood, lhood, and non-lhood of the inversion nominal. The claim of an inversion analysis is that this nominal heads arcs of the form in (11) as opposed to (37).



The crucial evidence for (11) comes from Equi data. According to the condition on Equi (20), final 1s are potential Equi victims. If this formulation is correct, (37) predicts that inversion nominals are potential Equi victims. However, data in section 4.2 show that inversion nominals cannot be Equi victims. Therefore, (37) cannot be the proper characterization. On the other hand, (11) makes the proper prediction with respect to Equi.

Case marking facts indicate that certain inversion clauses, such as (19), are instances of personal inversion. How, then, can one be sure that nominal c heads any arc other than a 1-arc, which accounts for nominative case marking? Given the characterization of the inversion nominal in (11), if the other nominal were to head an initial- and final-stratum 1-arc, it would be necessary to posit a structure such as that in (38) for personal inversion clauses.



(38) violates the Stratal Uniqueness Law proposed by Perlmutter and Postal (1977, in press), stated informally in (39).

(39) Stratal Uniqueness Law

No more than one nominal can head an arc with a given term R-sign, i.e., 1, 2, or 3, in a given stratum.

Since there are two 1-arcs in the initial stratum of (38), this structure must be discarded if one is to maintain the Stratal Uniqueness Law. Nominal c must head an arc other than a 1-arc in the initial stratum.

I assume here that nominal c heads an initial-stratum 2-arc for a number of reasons. First, there appears to be only one type of advancement to 1 in Choctaw, unaccusative advancement. Unaccusative advancement is the advancement of a nominal heading a 2-arc in an intransitive stratum to 1 in the following stratum (Perlmutter, 1978). This is illustrated in the embedded clause of the structure in (23). In addition, the structure in (35), which includes an initial transitive stratum, has been proposed for a number of languages (Harris, to appear a, to appear b; Perlmutter, 1979, to appear). The facts of certain Choctaw inversion

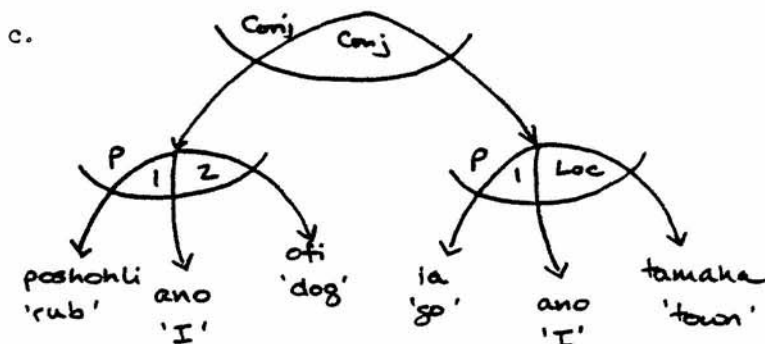
clauses can be captured by such a structure. Finally, there is no evidence that this nominal heads any other type of arc.

6. Switch reference in Choctaw

Having motivated the inversion analysis for certain Choctaw clauses, it is possible to propose a solution which accounts for the problematic switch reference phenomena and the paradigmatic switch reference data in a unified way. Repeated below are (1) and (3) with accompanying stratal diagrams.

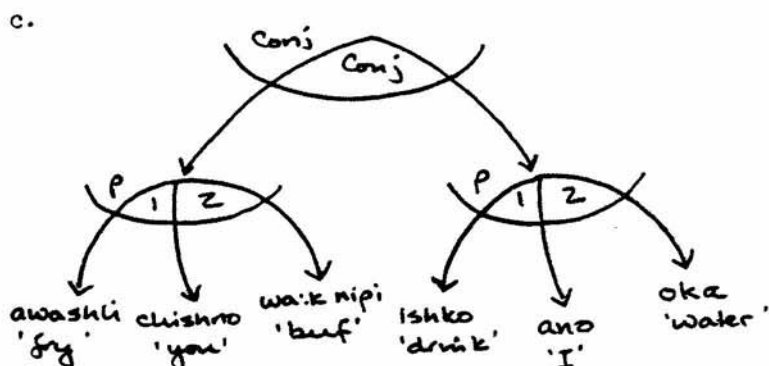
- (1) a. Ofi poshohli-li-cha tamaha ia-li-tok.
dog rub-1Nom-SS town go-1Nom-Pst

'I patted the dog and went to town.'



- (3) a. Wa:k nipi ish-awashli-na oka ishko-li-tok.
cow meat 2Nom-fry-SR water drink-1Nom-Pst

'Your fried the beef, and I drank some water.'



It is apparent from comparing the sentences and the stratal diagrams that SS marking occurs in (1) because the nominals heading 1-arcs in the two clauses are coreferential. When the nominals heading the 1-arcs in the two clauses are not coreferential, SR marking occurs (3).

I propose the statement in (40) as the formulation of the general condition on switch reference in Choctaw.

(40) Switch reference marking¹¹

- a. Same-subject marking may occur if there is a stratum in clause A and a stratum in clause B that contain l-arcs headed by coreferent nominals.
- b. Switch-reference marking may occur if there is a stratum in clause A and a stratum in clause B that do not contain l-arcs headed by coreferent nominals.

Not more than one of these may apply in a given case.

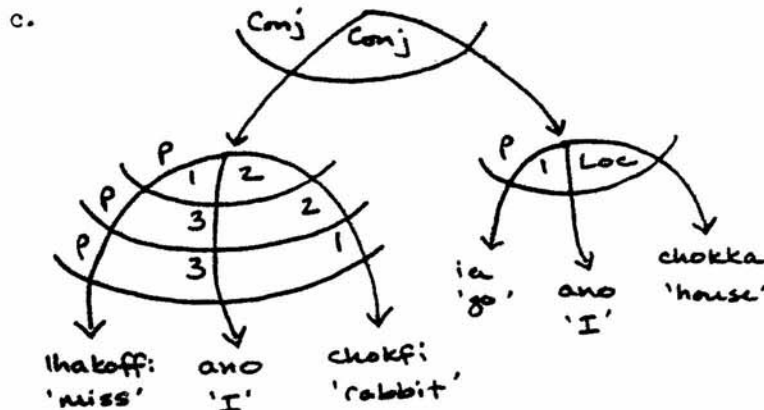
The interaction of these statements with the sentences and structures in (1) and (3) is fairly obvious and is left to the reader. However, consider the stratal diagrams for (5) and (6), the recalcitrant data, given below.

- (5) a. Chokfi-a-t ĩ-lhakoffi-cha chokka ia-li-tok.
 rabbit-Dt-Nom lDat-miss-SS house go-lNom-Pst

'I missed the rabbit and went home.'

- b. Chokfi-a-t ĩ-lhakoffi-na chokka ia-li-tok.
 rabbit-Dt-Nom lDat-miss-SR house go-lNom-Pst

'I missed the rabbit and went home.'



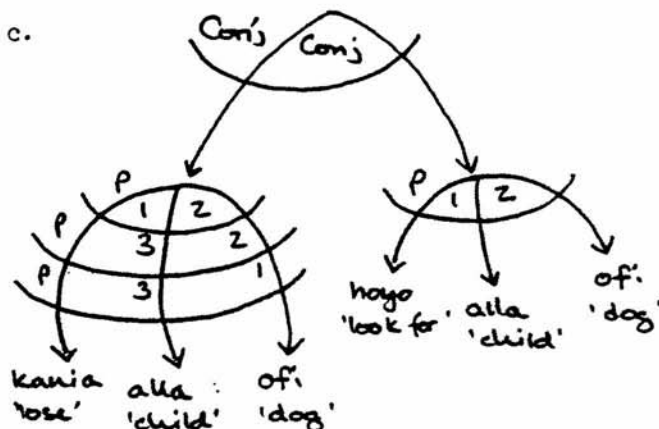
- (6) a. Alla-t ofi-a-t ĩ-kania-cha hoyo-tok.
 child-Nom dog-Dt-Nom 3Dat-lose-SS look for-Pst

'The child lost the dog and looked for it.'

- b. Alla-t ofi-a-t ĩ-kania-na hoyo-tok.
 child-Nom dog-Dt-Nom 3Dat-lose-SR look for-Pst

'The child lost the dog and looked for it.'

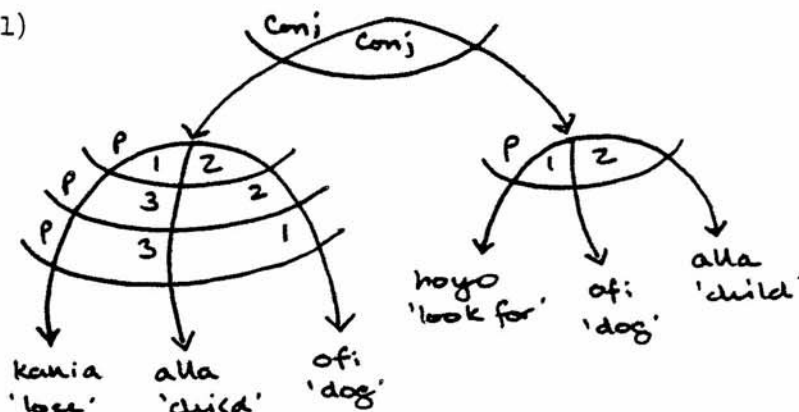
(6) c.



The diagrams in (5c) and (6c) satisfy both conditions in (40). The SS marking in (5a) is accounted for by (40a) because ano 'I' heads a 1-arc in the initial stratum of the inversion structure; there is thus a 1-arc in each clause headed by ano. The SR marking in (5b) is accounted for by (40b) because in all but the initial stratum of the inversion structure ano 'I' heads a 3-arc; therefore, there are not 1-arcs headed by coreferent nominals. The circumstances in (6) are parallel. If the initial stratum of the inversion structure in (6c), in which alla 'child' heads a 1-arc, is considered, the SS marking in (6a) can be accounted for by (40a) since alla heads a 1-arc in both clauses. SR marking in (6b) can be accounted for by (40b) if any stratum other than the initial stratum of the inversion structure is considered. In that case there are no 1-arcs headed by coreferent nominals.

Switch reference also provides another argument for the lhood of nominal c in personal inversion clauses. Consider once more the sentences in (6). These two sentences are actually ambiguous; they can also mean 'The child lost the dog and the dog looked for the child'. In this case the stratal diagram associated with the sentences is that in (41).

(41)



From this structure, SR marking in (6b) can be accounted for by (40b) since in the first two strata of the inversion structure in (41) ofi 'dog' does not head a 1-arc. However, SS marking is possible since ofi

heads a 1-arc in the final stratum of the inversion structure. Since ofi heads 1-arcs in both clauses, the condition for SS marking in (40a) is satisfied.¹²

Switch reference marking encodes different things in different languages. Therefore, it is important to identify the parameters which are relevant in a given language. For instance, in many languages switch reference is sensitive to whether the subjects of two clauses are the same or different. In Seri, a Hokan language of northwestern Mexico, a dependent clause is marked for switch reference if its subject is different, i.e., noncoreferent, from the subject of the following clause (Moser, 1978).¹³ When the subjects are coreferent, there is no marking. Langdon and Munro (to appear) report that in Yuman languages same versus different subject is the relevant parameter, with the first of two conjoined clauses and embedded clause receiving same- or different-subject marking.

The same/different parameter does not, however, appear to be the relevant one for Choctaw. Even though the coordinate structures which include personal inversion clauses, (5c) and (6c), can be accounted for in terms of same versus different subject (since the initial 2 heads a 1-arc in the final stratum), the condition stated in (40) is formulated in terms of same versus not same subject. The condition in (40b) is not stated in terms of different subject. The reason for this becomes evident when data such as those in (42) and (43) are carefully considered.

- (42) a. Sa-hohchafo-cha tobi nonachi-li-tok.
1Acc-hungry-SS beans cook-1Nom-Pst

'I was hungry and cooked some beans.'

- b. Sa-hohchafo-na tobi nonachi-li-tok.
1Acc-hungry-SR beans cook-1Nom-Pst

'I was hungry and cooked some beans.'

- (43) a. Issoba sa-banna-cha chõpa-li-tok.
horse 1Acc-want-SS buy-1Nom-Pst

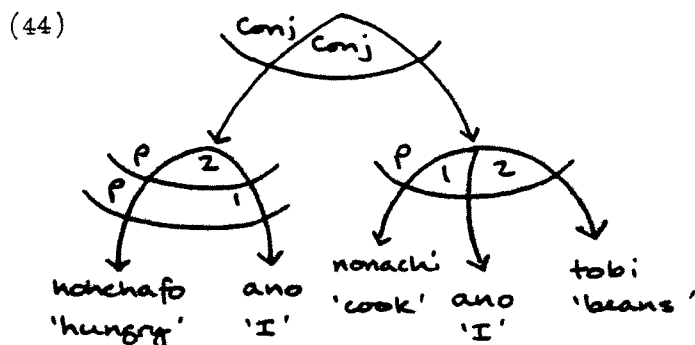
'I wanted a horse and bought one.'

- b. Issoba sa-banna-na chõpa-li-tok.
horse 1Acc-want-SR buy-1Nom-Pst

'I wanted a horse and bought one.'

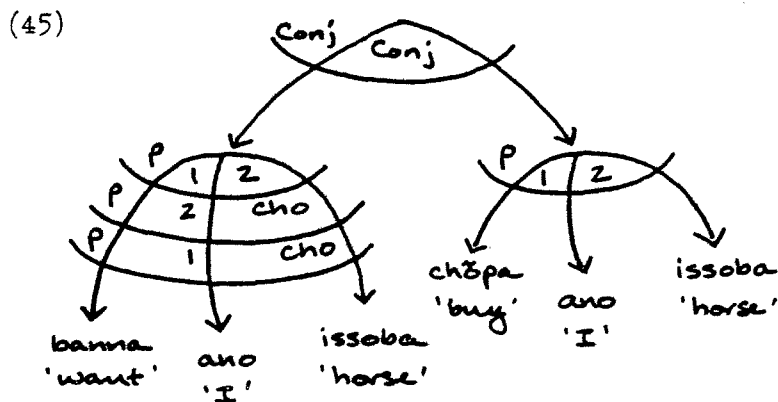
In (42) and (43) we encounter the same type of switch reference phenomena that led to this discussion, i.e., both SS and SR marking are possible in these sentences. The explanation lies in two facts: (i) the first clauses in (42) and (43) have subjects which bear other grammatical relations at some level of structure, and (ii) the parameter for determining switch reference in Choctaw is same subject/not same subject.

The stratal diagram associated with the sentences in (42) is that in (44).



The structure to the left in (44) is unaccusative (cf. section 4.2). The possibility of either SS or SR marking in (42) can be accounted for by applying the condition on switch reference in (40). (42a) can be accounted for by (40a) because in the final stratum of the unaccusative structure in (44) ano 'I' heads a 1-arc; thus there is a 1-arc in each clause headed by ano. If, however, the initial stratum of the unaccusative clause is considered, the stratum in which ano does not head a 1-arc, (40b) is satisfied and the clause is marked for SR, as in (42b).

I have argued elsewhere (Davies, to appear) that the first clause in (43) has an antipassive structure; therefore, (43) has the structure in (45).



Note that ano 'I' does not head a 1-arc in all strata of the antipassive structure (to the left in the diagram). Therefore, based on the previous discussion of the switch reference conditions and their interaction with unaccusatives, one would predict that the structure in (45) would allow either SS or SR marking. As the sentences in (43) show, this is precisely the case.

Because of the data involving unaccusative and antipassive structures, it is clear that the same subject/different subject parameter is not the relevant one for determining switch reference in Choctaw. The SR marking in (42b) and (43b) cannot be accounted for in terms of different subject since there is only one nominal that bears the subject

relation at any level in the unaccusative and antipassive structures. It is clear that the proper criterion is same subject/not same subject and that this interacts crucially with the multiple levels of the syntactic structure.

7. Conclusion

A substantial number of current syntactic frameworks posit grammatical relations at a single level in syntactic representation. Although a careful comparative analysis is beyond the scope of the current discussion,¹⁴ the Choctaw switch reference phenomena considered here bear directly on the question of the number of levels necessary for syntactic representation and the adequacy of grammars that recognize only a single level. The recalcitrant switch reference data which provided the impetus for the present discussion make critical use of the representation of grammatical relations in multiple strata in the inversion analysis proposed for a number of Choctaw clauses, as well as in the unaccusative and antipassive structures considered more briefly. By crucially referring to the grammatical relations at more than one level and using the same subject/not same subject parameter, the proposed analysis constitutes a strong argument for the inclusion of multiple levels in syntactic representation.

Footnotes

*Choctaw is currently spoken primarily in Oklahoma and Mississippi. The data presented here were elicited from a number of consultants in Oklahoma and a consultant living in San Diego who speaks a variety of the Oklahoma dialect. Many thanks go to all of them. I would also like to thank David Perlmutter and Sandy Chung who provided insightful comments on an earlier version of this work. Any errors in the present work are, of course, my own.

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The following abbreviations are used in the morphemic glosses:

| | |
|-----------------------|-------------------------|
| Nom - nominative | SS - same subject |
| Obl - oblique | SR - switch reference |
| Acc - accusative | Dt - determiner |
| Dat - dative | DDt - distal determiner |
| Refl - reflexive | Fo - focus |
| Q - question particle | Pl - plural |
| Pst - past tense | Poss - possessive |
| Fut - future | 1 - first person |
| Irr - irrealis | 2 - second person |
| Comp - complementizer | 3 - third person |

¹⁴Switch reference marking is also sensitive to whether or not a single member of a group mentioned in one clause participated in the activity performed by the whole group (a proper subset condition). Therefore,

SS marking in (ia) indicates that John helped clean the house; the SR marking in (ib) indicates that John did not help.

- (i) a. Alhiha-t chokka kashoffi-cha John-a-t tamaha ia-tok.
group-Nom house clean-SS J-Dt-Nom town go-Pst

'The group cleaned the house and John went to town.'

- b. Alhiha-t chokka kashoffi-na John-a-t tamaha ia-tok.
group-Nom house clean-SR J-Dt-Nom town go-Pst

'The group cleaned the house and John went to town.'

For the data considered here, coreference can be used as one criteria for switch reference marking.

²Switch reference is also marked on embedded clauses (cf. (21)-(24)). However, for simplicity only coordinate structures are considered here.

³For some speakers only (5a) and (6a) are grammatical. For present purposes, I consider only the dialect in which both the (a) and (b) variants of (5) and (6) are grammatical.

⁴In Choctaw, non-emphatic, free-standing pronouns generally do not occur. Therefore, although ano 'I' heads an arc in (9), it does not appear overtly in (8). However, it does determine agreement which is marked in the verbal complex, li 'lNom', in (8). Chishno is the second person singular pronoun.

⁵Cf. Davies 1981 for a more detailed treatment of verb agreement in Choctaw.

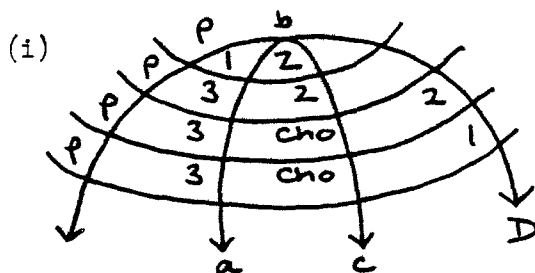
⁶The predicates in these clauses occur in one of the conjuncts in the problematic switch reference data in (5) and (6).

⁷The arguments for the unaccusative analysis include the fact that like other 2s the nominal determines accusative agreement (cf. section 4.1), like other 1s the nominal takes nominative case marking (cf. section 4.3.1) and antecedes reflexives (cf. section 4.3.2), and like other final 1s can be an Equi victim.

⁸In the stratal diagrams of clauses which include reflexives, I do not consider the question of multiattachment.

⁹In (31), I use the subscript i to indicate coreference, as has been customary in the literature of generative grammar.

¹⁰The diagram in (35) is referred to as personal inversion in order to distinguish it from the impersonal inversion structure in (i).



The distinction between personal and impersonal inversion is therefore analogous to the case of personal and impersonal passives. The introduction of the silent dummy (D) as a 2 (and its subsequent advancement to 1) in the impersonal inversion structure in (i) parallels the introduction of a dummy element as a 2 in so-called impersonal passives (Perlmutter, 1978). The absence of a dummy element in (35), the personal inversion structure, parallels the situation in regular or personal passives, which contain no dummy element in their structures (cf. Perlmutter and Postal, 1977). Both personal and impersonal inversion in Choctaw are discussed in more detail in Davies 1981.

¹¹As discussed in fn. 3, some speakers consider the problematic switch reference data ungrammatical. However, the conditions in (40) are also applicable to this dialect, in which case same-subject marking always occurs when the condition for SS marking (40a) is satisfied.

¹²Notice that the fact that SR marking is possible for the clauses represented by the structure in (41) provides more independent evidence for the claim that the initial 2 in personal inversion clauses does not head a 1-arc in all strata (cf. section 5). The fact that the SR condition in (40b) is satisfied (and SR marking is possible) argues that *ofi* 'dog' must head an arc other than a 1-arc in the personal inversion structure.

¹³Marlett (1981) has formulated the condition on switch reference in Seri in terms of the notion 'first subject' of a clause.

¹⁴Cf. Davies 1981 for a discussion of the data considered here, as well as other data, within the framework of lexical-functional grammar (Bresnan, 1980, 1981; Kaplan and Bresnan, 1980), which represents grammatical relations only at the level of surface structure.

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