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THE SYNTACTIC STRUCTURE OF RELATIVE CLAUSES IN CHOCTAW

By William D. Davies

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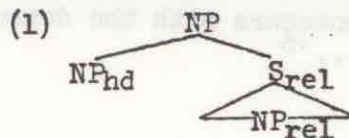
0. Introduction

The goal of the present study is to provide a syntactic characterization of restrictive relative clauses in Choctaw. Choctaw, a Muskogean language, is currently spoken primarily in Oklahoma and Mississippi.¹ This investigation will focus on a variety of relative clause phenomena, the examination of which will provide arguments crucial to the motivation of an underlying syntactic structure and the rules necessary to account for the surface forms within a transformational framework. The data have been selected in order to make the arguments and exposition clear without leading to incorrect assumptions or conclusions.²

1.0 The structure of relative clauses

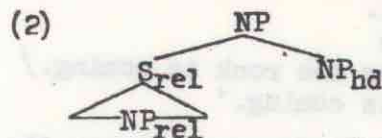
In his typological study of relative clauses, Andrews (1971) identifies three types of embedded relative clause constructions:³ the retro-relative, the pro-relative, and the deleted head or headless relative.⁴

1.1 The retro-relative is the structure usually associated with restrictive relative clauses in English. The underlying structure of retro-relatives is given in (1). It includes a head NP (NP_{hd}) which is coreferent to some NP (NP_{rel}) contained in the embedded clause (S_{rel}). NP_{hd} and S_{rel} are sister nodes dominated by an NP node.



Underlying retro-relative structures normally surface with a lexical NP_{hd} ; NP_{rel} is either deleted or occurs in a pronominal form. In addition to many Indo-European languages, languages analyzed as having retro-relative clauses include Finnish (Karlsson, 1972) and Classical Nahuatl (Rosenthal, 1972).

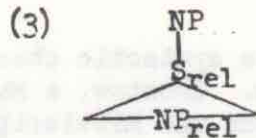
1.2 Pro-relative clause constructions are those in which the embedded clause precedes the head NP. This construction is found in Japanese (Kuno, 1973). Like the retro-relative there is an NP_{rel} dominated by S_{rel} which is coreferent to NP_{hd} in underlying structure (2).



The pro-relative structure has also been posited for Basque (de Rijk, 1972) and Navajo (Platero, 1974).

1.3 Andrews (1971) does not accept the headless construction as a possible base-generated form, but only a derived, surface manifestation, as in Navajo. However, others have posited headless relatives (also

referred to as embedded head constructions) as possible underlying structures (Schachter, 1973; Gorbet, 1974). The structure is given in (3).



1.4 Any of these structures may be the underlying structure of Choctaw relative clauses, and any of them may be included in surface structures. What remains is to motivate arguments for the characterization of the base and derived structures and state what rules may be necessary to derive the surface forms.

2.0 Some relative clause phenomena

The relative clauses to be discussed are the most common forms of restrictive relative clauses which the Choctaw consultant produced and accepted as grammatical. Nominals in any syntactic position are potential candidates for relativization, provided they are third person common nouns.

In many of the relative clauses considered the formative ka:sh occurs.⁵ It carries past tense sense and the implication that the hearer shares previous knowledge of the information described in S_{rel}. ka:sh also appears in one other form, as an adverbial reminding the hearer of some event or object. Here it cooccurs with the demonstrative ma and is loosely glossed as 'remember X....'⁶

- (4) Hattak-ma-ka:sh mīti.
 man-Dt- come
 'Remember that man, he's coming.'

In addition to ka:sh, there is a closely related form, ya:sh, to which is ascribed practically the same semantic value. Occasionally, but certainly not regularly, the consultant provided slightly different glosses for the two, ka:sh denoting past completive and ya:sh past progressive or habitual action.

- (5) Oho:yo tali pila-ka:sh mīti.
 woman rock throw- come
 'The woman that threw the rock is coming.'
- (6) Oho:yo tali pila-ya:sh mīti.
 woman rock throw- come
 'The woman that was throwing the rock is coming./
 The rock-thrower (woman) is coming.'

Repeated efforts to uncover the crucial difference between the two have failed. There are some differences in the way the two interact with other relative clause phenomena, but these differences have no effect on the analysis to be presented and so will not be considered at length. Further characterization of ka:sh and ya:sh is left for later research. Because of their confusing nature, no glosses will be provided for them in the data.

It is important to note, however, that only ka:sh and ya:sh can be used as past tense markers in relative clauses. The past tense marker tok, used in simple sentences, cannot be used to denote past time in relative clauses. Note the ungrammaticality of (8) which differs from (7) only in the substitution of tok for ka:sh.

- (7) Hattak oho:yo-t chokka i-kāchi-ka:sh towa hokli.
 man woman-Nom house 3Dat-sell- ball catch
 'The man that the woman sold the house to caught the ball.'

(8) *Hattak oho:yo-t chokka i-kāchi-tok towa hokli.

3.0 Word order

3.1 Word order in simple Choctaw sentences is relatively free. However, the canonical word order is SOV (9a).

- (9) a. Ofi-t katos kopo:li-tok.
 dog-Nom cat bite-Pst
 'The dog bit the cat.'
 b. Katos ofi-t kopo:li-tok.

In (9b) the direct object precedes the subject with no change in meaning.

3.2 In a relative clause construction the relativized nominal usually appears in initial position, regardless of its function in the matrix or embedded sentence. 'Relative clause construction' refers to all the information under the NP node immediately dominating S_{rel} . Therefore, in figures (1) and (2) this also includes NP_{hd} . In the examples that follow, the relative construction will be placed in brackets for clearer exposition. Therefore, given [XYZ] as a relative construction, X appears in initial position in that construction.

- (10) [Oho:yo pīsa-li-ka:sh] tali pila-tok.
 woman see-1Nom- rock throw-Pst
 'The woman that I saw threw the rock.'
 (11) Oho:yo-t [tali-t akka itōla-ka:sh] pila-tok.
 woman-Nom rock-Nom ground lie- throw-Pst
 'The woman threw the rock that was (lying) on the ground.'

In (10) oho:yo is the relativized NP and occurs in initial position. The same is true of tali-t in (11).

At times this order can be crucial to meaning. In (12a) adla-t appears in initial position in the relative construction. In this sentence adla-t is interpreted as the relativized NP, i.e., that NP modified by the relative clause (S_{rel}). On the other hand, when adla-t and ofi occur in the opposite order, that is when ofi appears in initial position in the relative construction, only ofi can be interpreted as the relativized NP (12b).⁸

- (12) a. [Adla-t ofi ahpali-ka:sh] hitha-t issa.
 child-Nom dog kiss- dance-SS stop
 'The child who kissed the dog stopped dancing.'

- (12) b. [Ofi adla-t ahpali-ka:sh] hithe-t issa.
 dog child-Nom kiss- dance-SS stop
 'The dog that the child kissed stopped dancing.'

However, in some cases the relativized NP need not be in initial position in the relative construction.⁹

- (13) a. [Iti hattak isht-isso-ka:sh] kadlo-tok.
 stick man with-hit- hard-Pst
 'The stick that 3 hit the man with was hard.'
 b. [Hattak iti isht-isso-ka:sh] kadlo-tok.
 (14) a. [Hattak chokka oho:yo-t i-kāchi-ya:sh] towa hokli.
 man house woman-Nom 3Dat-sell- ball catch
 'The man that the woman sold the house to caught the ball.'
 b. [Chokka hattak oho:yo-t i-kāchi-ya:sh] towa hokli.

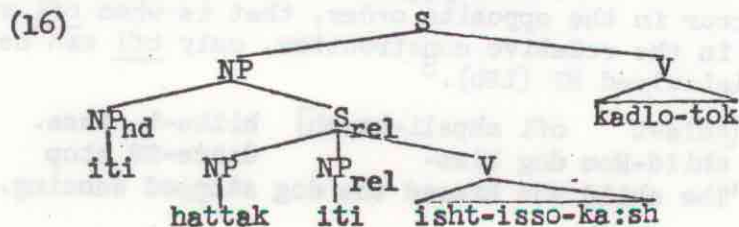
In (13a) and (14a) the relativized NP occurs in initial position in the relative construction. However, in the corresponding (b) sentences an NP other than NP_{rel} is in initial position. The conditions under which this alternative order is possible have not been determined at this point. The fact is that the substitution of ka:sh for ya:sh in (14) will yield different results.

- (15) a. [Hattak chokka oho:yo-t i-kāchi-ka:sh] towa hokli.
 man house woman-Nom 3Dat-sell- ball catch
 'The man that the woman sold the house to caught the ball.'
 b. [Chokka hattak oho:yo-t i-kāchi-ka:sh] towa hokli.
 *for (15a) meaning
 'The house that the woman sold to the man caught the ball.'

For a complete description of Choctaw relative clause phenomena, the conditions under which variable word order in the relative construction has no effect on meaning are indeed interesting. However, for the determination of the structure of relatives, all that is relevant is the observation that the relativized NP need not always appear initially in the construction.

3.3 Analysis

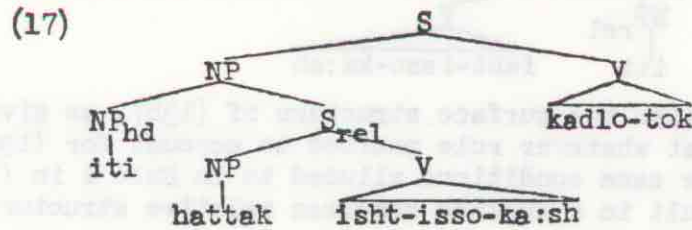
3.3.1 In an analysis which posits underlying retro-relative clauses (10), (11), (12), (13a), and (14a) will be easily accounted for. The initial NP is generated in the NP_{hd} position in (1). In (16) the underlying structure for (13a) is given.



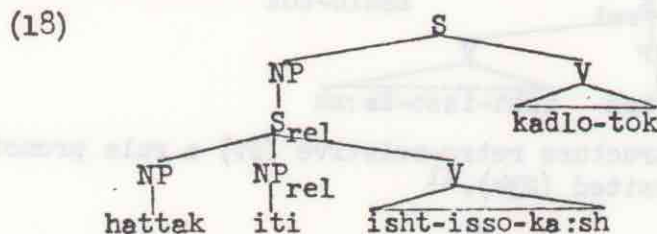
To arrive at the surface structure corresponding to (13a) it will be

necessary only to posit a rule of forward deletion in which NP_{rel} is deleted under identity with NP_{hd} (Rule 2 in (19)).

The surface structure of (13a) would be that shown in (17).



(13b) and (14b) are more problematic. Since the initial NP is not the relativized NP, it cannot fill the NP_{hd} position in the surface structure, as it did in (17). This will of necessity result in a headless relative in the surface structure. In order to derive (13b) from (16), it will be necessary to formulate a deletion rule in which NP_{rel} is the controller and NP_{hd} is deleted (Rule 1 in (19)). By applying such a rule to (16) it is possible to derive (13b), the surface structure of which is given in (18).



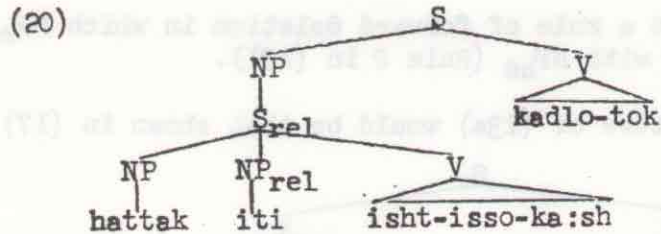
(14b) will be derived via the application of this same rule, which must be optional and apply only under certain conditions (which have yet to be enumerated).

Statements of the two rules necessary to account for this data are given in (19).¹⁰ Notice that since Rule 1 is optional and Rule 2 is not, Rule 1 must apply before Rule 2 to insure the possibility of its application. Opposite ordering would result in the destruction of the environment of Rule 1.

(19) Rule 1--Reverse deletion (optional)--Given $NP_i [X-NP_i-Y]_S$, delete the first occurrence of NP_i when proper conditions obtain.

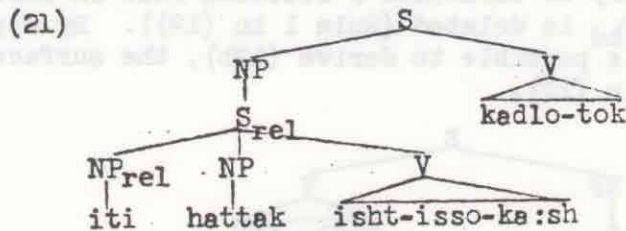
Rule 2--Forward deletion--Given $NP_i [X-NP_i-Y]_S$, delete the second occurrence of NP_i .

3.3.2 In a headless analysis a rule of deletion will be unnecessary. In order to account for the sentences in (10)-(15) only one rule need be formulated. The form of the rule will depend on whether the resulting structure is a retro-relative or headless relative. Turning once more to (13), the underlying headless structure will be that in (20).

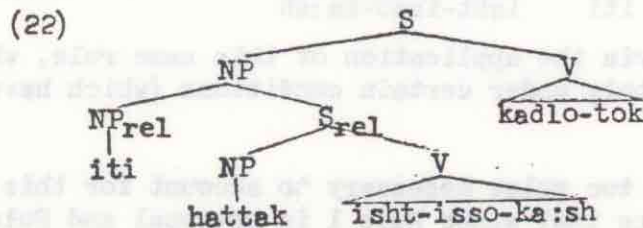


Notice that (20) is also the surface structure of (13b), as given in (18). This means that whatever rule posited to account for (13a) will be optional under the same conditions alluded to in Rule 1 in (19). This will always result in a surface headless relative structure.

Two possibilities remain for the surface structure of (13a): either a headless structure (21) or a retro-relative (22). To account for a headless structure (21) a rule moving NP_{rel} to initial position in S_{rel} will be necessary (23a).



To derive a surface structure retro-relative (22) a rule promoting NP_{rel} out of S_{rel} must be posited (23b).¹¹

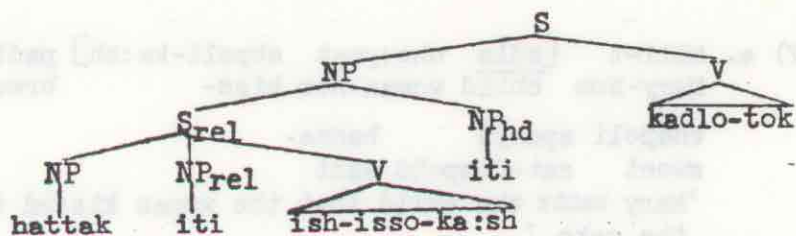


The alternative formulations are given in (23). Note once more that the rules apply obligatorily, except under certain conditions, since for the most part the relativized NP appears in initial position in the relative construction.

- (23) a. Relative clause formation--Move NP_{rel} to initial position in S_{rel}; optional under certain conditions (headless surface structure).
 b. Relative clause formation--Raise NP_{rel} and sister adjoin it to the left of S_{rel}; optional under certain conditions (retro-relative surface structure).

3.3.3 Assuming a pro-relative underlying structure, a rule moving NP_{rel} to initial position in S_{rel}, identical to (23a), will be necessary. In addition, to account for the data presented thus far, a rule deleting NP_{hd} in (24) must be formulated (Rule 2 in (25)). The pro-relative underlying structure for (13) is:

(24)



The deletion rule (Rule 2 in (25)) will eliminate NP_{nd} . The movement rule will front NP_{rel} within S_{rel} yielding the structure in (21) for (13a); or when the proper conditions are met, this fronting rule need not be applied resulting in (20), the surface structure of (13b). In either case the resulting surface structure is headless. The rules necessary to account for the data from an underlying pro-relative structure are provided in (25).

(25) Rule 1--Fronting--Move NP_{rel} to initial position in S_{rel} ; optional under certain conditions.

Rule 2--Forward deletion--Given $[X-NP_i-Y]_{S_{NP_i}}$, delete the second occurrence of NP_i .

3.4 At this point a number of possible analyses have been presented. Although more data must be considered in order to come to a conclusion concerning the shape of the underlying and surface structures of relative clauses, it is possible to make one concrete statement based on the predictions of each analysis. There are surface headless relative clause constructions in Choctaw. For each of the analyses discussed in 3.3 (13b) (and also (14b)) must have a headless surface structure. In the case of an underlying pro-relative structure as well as one option for underlying headless structures, the data presented thus far will all be accounted for by surface headless structures.

4.0 Case marking within relative clauses

4.1 Choctaw distinguishes two cases for free-standing nominals, nominative and objective, by means of suffixes.¹² The nominative suffix -t is used for NPs which are subjects of sentences; non-subjects receive objective case signalled by the nasalization of the determiner or, optionally, by no marking at all. Due to this case marking system, there is a degree of variability in word order as was seen in 3.1 in (9).

4.2 The relativized NP may only bear the case marker appropriate to its function in the embedded clause. Optionally, the NPs of S_{rel} may bear no marking.

(26) a. [Oho:yo pīsa-li-ka:sh] tali pila-tok.
 woman see-1Nom- rock throw-Pst
 'The woman that I saw threw the rock.'

b.*[Oho:yo-t pīsa-li-ka:sh] tali pila-tok.
 -Nom

- (27) a. Mili-t [adla oho:yo-t ahpali-ka:sh] padlaska
 Mary-Nom child woman-Nom kiss- bread
 chāpoli apa-yā banna.
 sweet eat-Comp=DS want
 'Mary wants the child that the woman kissed to eat
 the cake.'
- b. *Mili-t [adla-t oho:yo-t ahpali-ka:sh] padlaska
 child-Nom
 chāpoli apa-yā banna.

In (26) and (27) the underscored word is the direct object of S_{rel} functioning as the subject of the next highest sentence. In the (b) sentences the word has been marked with the nominative case and the result is ungrammatical. In (26) oho:yo is the subject of pila, and in (27) adla is the subject of apa. It is possible for the relativized NP to be marked in nominative case only when it is the subject of the downstairs clause. In (28) the relative construction is the subject of the matrix clause, while in (29) the relative is the matrix direct object.

- (28) [Oho:yo-t sa-pīsa-ka:sh] tali pila-tok.
 woman-Nom 1Acc-see- rock throw-Pst
 'The woman who saw me threw the rock.'
- (29) Oho:yo-t [tali-t akka itōla-ka:sh] pila-tok.
 woman-Nom rock-Nom ground lie- throw-Pst
 'The woman threw the rock that was (lying) on the ground.'

4.3 Analysis

4.3.1 Given a base structure with a retro-relative clause, it is going to be necessary to formulate the conditions under which NP_{hd} is marked for case. One possible solution would be to formulate the case marking rule so that NP_{hd} attracts the case marking of NP_{rel} . Andrews (1971) cites examples from Hopi, Persian, and Micmac in which NP_{hd} does just this.

- (30) Case marking (for underlying retro-relative)
- NP_{hd} is marked for case according to the function of NP_{rel} in S_{rel} ,
 - NP_{hd} is optionally unmarked, and
 - all other NPs are marked for case according to their grammatical relations with respect to the immediately dominating S.

4.3.2 Assuming an underlying headless structure will simplify the case marking rule. If the promotion rule of (23b) is implemented, resulting in a surface retro-relative structure, NP_{hd} would be expected to have the case marking of NP_{rel} . If (23a) were chosen, yielding a headless surface structure, NP_{rel} is still contained within S_{rel} and one expects that it will bear the appropriate case marker. The only condition necessary on the case marking rule is its optionality in S_{rel} . Regardless of the surface structure, the case marking rule for an underlying headless structure is that given in (31).

(31) Case marking

- a. NP is marked for case according to its grammatical relation in the S immediately dominating it, and
- b. case marking is optional in S_{rel} .

At this point it appears that in a grammar positing a surface retro-relative structure, the better solution is that which generates a headless structure with a rule of NP_{rel} promotion. Not only is the case marking rule stated more simply, but instead of positing the two deletion rules in (19), only rule (23b) will apply to create the retro-relative structure. An analysis using a promotion rule has been suggested for English (Schachter, 1973).¹³ For these reasons the possibility of an underlying retro-relative analysis will be discarded.

4.3.3 An analysis assuming a pro-relative base structure will make use of the same case marking rule as in (31). Since NP_{rel} is the NP which surfaces, it naturally follows that it will receive its case marking according to its function in S_{rel} .

5.0 The pronominal reflexes makosh and makō

5.1 Relative clauses may optionally be followed by a pronominal reflex. The forms are marked for case according to the function of the clause in the S immediately dominating it. When the relative construction is the subject of the matrix S this reflex appears as makosh, while as a non-subject it appears as makō.

- (32) Oho:yo pīsa-li-ka:sh makosh tali pila-tok.
 woman see-1Nom- Pro=Nom rock throw-Pst
 'The woman that I saw threw the rock.'
- (33) Hattak shokha īshi makosh mīko.
 man pig have Pro=Nom chief
 'The man who has the pig is the chief.'
- (34) Oho:yo-t tali-t akka itōla-ka:sh makō pila-tok.
 woman-Nom rock-Nom ground lie- Pro=Obj throw-Pst
 'The woman threw the rock that was on the ground.'
- (35) Hattak John-at isso makō skali i-ma:-li-tok.
 man John-Nom hit Pro=Obj money 3Dat-give-1Nom-Pst
 'I gave money to the man that John hit.'

There are a number of reasons for considering makosh and makō to be pronominal reflexes of the NP which dominates the relative clause.¹⁴ For one, these forms occur as free-standing, third person emphatic pronouns elsewhere in the language.

- (36) Makosh mīko.
 Pro=Nom chief
 '3 is the chief/3 is the one who is the chief.'
- (37) Makō i-sa-noksho:pa.
 Pro=Obj 3Dat-1Acc-afraid
 'I am afraid of 3./It is 3 that I am afraid of.'

Notice that if the relative clause in the sentences in (32)-(35)

were omitted, the resulting sentences would be perfectly grammatical, receiving a third person reading instead.

- (38) Makosh tali pila-tok.
 Pro=Nom rock throw-Pst
 '3 threw the rock./It was 3 that threw the rock.'
- (39) Makosh miko.
 see (36)
- (40) Oho:yo-t makō pila-tok.
 woman-Nom Pro=Obj throw-Pst
 'The woman threw it.'
- (41) Makō skali i-ma:-li-tok.
 Pro=Obj money 3Dat-give-1Nom-Pst
 'I gave money to 3.'

However, makosh and makō appear in the focusing construction in which they affix to simple NPs. The material in the focused element can be considered new information; the construction is most often used when answering questions and adds emphasis.

- (42) a. Mikō-ma-kosh adla pīsa-tok.
 chief-Dt-Fo=Nom child see-Pst
 'It was that chief that saw the child.'
- b. Sīti-ma-kō hoshi-t apa.
 snake-Dt-Fo=Obj bird-Nom eat
 'It is that snake that the bird is eating.'
- (43) a. Ofi-pa-kosh katos kopo:li-tok.
 dog-Dt-Fo=Nom cat bite-Pst
 'It was this dog that bit the cat.'
- b. Miko-pa-kō adla-t pīsa-tok.
 chief-Dt-Fo=Obj child-Nom see-Pst
 'It was this chief that the child saw.'
- (44) a. Ofi-a-kosh abi-tok.
 dog-Dt-Fo=Nom kill-Pst
 'It was the dog that killed it.'
- b. Pi-pokni-a-kō ā-ti:k-at pīsa-tok.
 1PlPo-grandmother-Dt-Fo=Obj 1Po-sister-Nom see-Pst
 'It was our grandmother that my sister saw.'

In addition to makosh and makō it is also possible to have pakosh (43a), pakō (43b), akosh (44a), and akō (44b). The focusing morpheme o interacts with the complete range of determiners in the language. These include pa 'this', ma 'that', and a which fluctuates between specified and unspecified meanings.

It might be, then, that makosh and makō are attached to complex NPs, i.e., relative clauses, in the same manner as in the focusing construction and are not after all pronominal reflexes. This does not seem to be the case. First of all, it is only makosh and makō which can act as free-standing third person pronouns. Also, only these may

follow relative clauses.

- (45) Hattak oho:yo-t chokka i-kāchi $\left\{ \begin{array}{l} *pakosh \\ makosh \\ *akosh \end{array} \right\}$ towa hokli.
 man woman-Nom house 3Dat-sell Pro=Nom ball catch
 'The man that the woman sold the house to caught the ball.'
- (46) Oho:yo-t tali-t akka itōla-ka:sh $\left\{ \begin{array}{l} *pakō \\ makō \\ *akō \end{array} \right\}$ pile-tok.
 woman-Nom rock-Nom ground lie- Pro=Obj throw-Pst
 'The woman threw the rock that was lying on the ground.'

The relative clause may also be separated from the pronominal reflex by preposing it; the sentence retains the same meaning and full grammaticality.

- (47) Tali-t akka itōla-ka:sh oho:yo-t makō pile-tok.
 rock-Nom ground lie- woman-Nom Pro=Obj throw-Pst
 'The woman threw the rock that was on the ground.'
 see (34) and (46)

This type of construction is not possible with simple NPs.

- (48) a. Adla-t towa isso-tok.
 child-Nom ball hit-Pst
 'The child hit the ball.'
 b. Towa adla-t isso-tok.
 c. *Towa adla-t makō isso-tok.
 d. Towa-ma-kō adla-t isso-tok.
 ball-Dt-Fo=Obj child-Nom hit-Pst
 'It was that ball that the child hit.'

Preposing the simple NP towa and leaving behind a pronominal copy marked with the appropriate case yields ungrammatical results (48c). The only manner in which makō may be used in conjunction with the simple NP is in the focusing construction as in (48d).

In order to leave a pronominal copy of a simple NP additional morphology is required.

- (49) a. Towa-yō adla-t makō isso-tok.
 ball-Contr=Obj child-Nom Pro=Obj hit-Pst
 'It was the ball (instead of something else) that the child hit.'
 b. *Adla-t towa-yō makō isso-tok.

Although (49a) parallels the construction in (47), three important differences should be noted. Leaving a pronominal copy of the NP necessitates additional morphology. While (48c) is ungrammatical, (49a) is grammatical but includes a contrastive morpheme; this contrastive morphology is unnecessary in (47). Second, the additional morphology marks a meaning difference between (49a) and (48a); meaning is unchanged when the relative clause construction is preposed. Third, the NP towa-yō cannot appear contiguous to the pronominal form makō as is evident in (49b). The relative construction and the pronominal reflex are contiguous in (34).

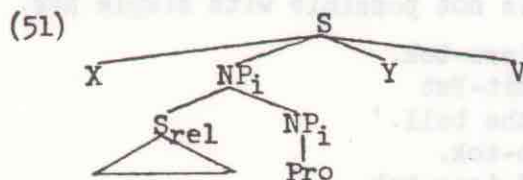
Because of the difference in behavior between the relative constructions and the simple NPs with respect to makosh and makō, because makosh and makō can act as free-standing pronouns, and because the occurrences of makosh and makō in conjunction with relative clauses obey the primacy conditions to be motivated in 5.3, they will be analyzed as emphatic, free-standing third person pronouns.

5.2 Analysis

5.2.1 In an analysis in which headless relatives are generated in the base it will be necessary to formulate a rule which creates the pronominal reflex and adjoins it to the existing structure. Perhaps the most likely possibility is to adjoin it to the NP dominating the relative clause. The rule is stated in (50).

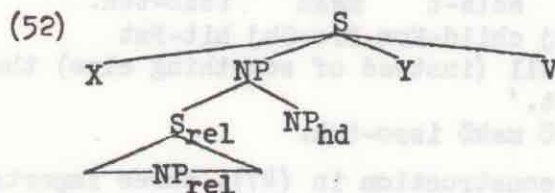
- (50) Pro-creation (optional)
Sister-adjoin a pronominal copy of the NP dominating S_{rel} to the right of S_{rel} .

Application of this rule will yield a structure such as that in (51).



In order to insure that the newly created Pro receives the appropriate case marking, it will be necessary to amend the case marking rule stated informally in (31). The amendment will ensure that Pro receives the case marker appropriate to the function of the relative construction in the matrix sentence, i.e., the function of the NP dominating S_{rel} .

5.2.2 One striking thing about the structure in (51) is its similarity to that of a pro-relative clause structure, repeated in (52). If an underlying pro-relative clause structure were assumed, the appearance of makosh and makō would simply be a matter of forward pronominalization,¹⁵ which is necessary in a grammar of Choctaw.



In a pronominalization analysis NP_{hd} will be pronominalized under the influence of NP_{rel} . The case will be assigned to the pronominal form in the same manner as it would in a headless analysis, according to the function of the relative construction in the matrix sentence.

The optionality of makosh and makō presents no difficulty for a pro-relative analysis, since a general condition stating the optionality of non-emphatic pronouns is necessary for Choctaw. For instance, in (53) ano, the non-emphatic form of the first person singular free-standing pronoun, may be deleted with no change in meaning. The fact is that

sentences of the form of (53b) occur more frequently than do those like (53a) according to both the consultant and the data.

- (53) a. Ano oho:yo pīsa-li-tok.
 1Pro woman see-1Nom-Pst
 'I saw the woman.'
 b. Oho:yo pīsa-li-tok.

There is no unemphatic third person pronoun in Choctaw, so it logically follows that many relative clauses would not have the pronominal element. Only when the pronoun is in the emphatic form is it expected.

More importantly, this means that Rule 2 stated in (25) is unnecessary. The relative clause constructions which appear headless in the surface, i.e., those without makosh or makō, will no longer require a rule of deletion, being derived by means of pronominalization.

At this point the data favor an analysis in which relative clauses have an underlying pro-relative structure which is realized either as a pro-relative surface structure with a pronominal head or as a headless relative. The advantage of the pro-relative analysis is its ability to account for the appearance of the pronominal copy as a straightforward manifestation of the pronominal system of the language. Conversely, the headless analysis requires an additional rule of Pro-creation (50).

5.3 A further examination of the facts of pronominalization in Choctaw will focus attention on more relevant facts concerning the structure of relative clauses. The primacy relations for Choctaw are the same as those motivated for English (Langacker, 1969): precedence and command. The statement of the interaction between a pronoun and its antecedent is given in (54).

- (54) An antecedent must bear at least one of the two primacy relations to its corresponding pronoun.

Data exhibiting the precede and command relations follow:

- (55) a. Liwi-t Mili ahpali-tok-a:tokosh (makosh)
 David-Nom Mary kiss-Pst-because=SS Pro-Nom

al-a:chī kio.

come-Fut Neg

'Because David kissed Mary, he won't come.'

- b. (Makosh) Mili ahpali-tok-a:tokosh Liwi-t
 Pro-Nom Mary kiss-Pst-because=SS David-Nom

al-a:chī kio.

come-Fut Neg

'Because he kissed Mary, David won't come.'

- (56) a. Ofi-t katos kopo:li-hma katos-at (makō) kalaffi-tok.
 dog-Nom cat bite-and=DS cat-Nom Pro=Obj scratch-Pst

'The dog bit the cat and the cat scratched it.'

- b. Makosh katos kopo:li-hma katos-at ofi kalaffi-tok.
 Pro=Nom cat bite-and=DS cat-Nom dog scratch-Pst

*for meaning in (56a)

'3 bit the cat and the cat scratched the dog.'

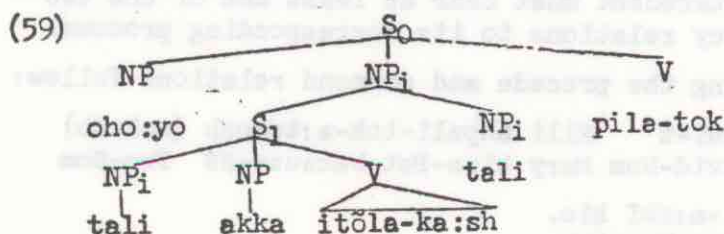
In (55a) the antecedent precedes but does not command its pronominal form since Liwi-t Mili ahpali-tok-a:tokosh constitutes a clause embedded in a higher clause and Liwi-t is the antecedent of makosh.¹⁶ In (56a) the antecedent ofi-t both precedes and commands makō, its pronominal form, which is in the second of two conjoined clauses. Both (55a) and (56a) are, therefore, examples of forward pronominalization. In (55b) the antecedent Liwi-t commands but does not precede its pronoun makosh, which occurs in a lower clause. This is an example of backward pronominalization. Notice that (56b) is not a possible variant of (56a) but means something different. The reason for this is that makosh and ofi cannot be coreferent since makosh precedes and commands its antecedent, a direct violation of (54). Therefore, backward pronominalization can only occur if the antecedent appears in a higher clause than its coreferent pronoun.

Even though backward pronominalization will be necessary in Choctaw, the pronominal form of the NP cannot precede the full NP in relative clause constructions.

- (57) *Oho:yo-t makosh akka itōla-ka:sh tali pila-tok.
 woman-Nom Pro=Nom ground lie- rock throw-Pst
 ('The woman threw the rock that was on the ground.')
 see (34)

- (58) a. Oho:yo-t adla ahpali-ka:sh makosh tali pila-tok.
 woman-Nom child kiss- Pro=Nom rock throw-Pst
 'The woman who kissed the child threw the rock.'
 b. *Makosh adla ahpali-ka:sh oho:yo-t tali pila-tok.

For an analysis which generates a pro-relative base structure in a language which allows backward pronominalization, this presents a problem. The conditions for pronominalization are met in the base structure of (57) which is given in (59).



According to the tenets of pronominalization, tali in S_1 should be able to appear in pronominal form. The fact is that in Navajo, which has a base pro-relative structure upon which pronominalization works, this backward pronominalization may take place (Platero, 1974).

However, there seems to be a general constraint in the language against the use of makosh and makō in relative clauses.¹⁷ Notice the ungrammaticality of (60b) below in which makosh appears as the Pro-form of John.

- (60) a. John micha: adla (John-at) noksho:bli-ka:sh
 John and child John-Nom scare-
 talach-a:chī kio.
 come-Fut Neg
 'John_i and the child John/he_i scared won't come.'

- (60) b. *John micha: adla makosh noksho:bli-ka:sh talach-a:chĩ
kio.

However, in some case neither are sentences grammatical in which backward pronominalization has taken place and makosh and makō do not occur.

- (61) a. Oho:yo-t tali-t akka itōla-ka:sh pila-tok.
woman-Nom rock-Nom ground lie- throw-Pst
'The woman threw the rock that was on the ground.'
b. *Oho:yo-t akka itōla-ka:sh tali-t pila-tok.
c. Oho:yo-t akka itōla-ka:sh tali pila-tok.
woman-Nom ground lie- rock throw-Pst
*for meaning in (61a)
'The woman that was lying on the ground threw the rock.'

(61c), which would be the surface string after backward pronominalization given the underlying structure in (59), has a different meaning. Although more data are needed to confirm such a hypothesis, it may be that since ambiguity arises through backward pronominalization in relative clauses many times, the strategy is avoided. The fact is that when there is no chance of ambiguity, backward pronominalization is possible. Notice that (62b), (63b), and (64b) are the first pro-relative clauses that have appeared with full lexical heads.¹⁸

- (62) a. Adla-t hoshi ape-ka:sh tali pila-tok.
child-Nom bird eat- rock throw-Pst
'The child that ate the bird threw the rock.'
b. Hoshi ape-ka:sh adla-t tali pila-tok.
(63) a. Adla-t tali pila-ya:sh pīsa-li-tok.
child-Nom rock throw- see-1Nom-Pst
'I saw the child that threw the rock.'
b. Tali pila-ya:sh adla pīsa-li-tok.
c. *Tali pila-ya:sh adla-t pīsa-li-tok.
d. Adla-t tali pila-ya:sh makō pīsa-li-tok.
(64) a. Oho:yo pīsa-li-ka:sh tali pila-tok.
woman see-1Nom- rock throw-Pst
'The woman that I saw threw the rock.'
b. Pīsa-li-ka:sh oho:yo-t tali pila-tok.
c. *Pīsa-li-ka:sh oho:yo tali pila-tok.

The first point to note is the parallel between the (b) sentences in (62)-(64) and those which included the pronominal reflex. In each sentence the lexical head derives its case marking in the same manner as the pronominal reflex, i.e., according to the function of the relative clause in the matrix S. In (63), adla is the subject of S_{rel} and thus can take the -t of nominative case in (63a). However, when adla occurs as the lexical head it must be marked for case according to the function in the higher S; thus, (63b) is grammatical whereas (63c), in which adla appears in nominative case, is ungrammatical. Therefore, case is assigned to adla in the same manner as for the Pro-form, makō, in (63d). This establishes that both the lexical head and the pronominal form can be analyzed as filling the grammatical role in the sentence. The situation is similar in (64). In (64a) oho:yo appears as the direct object of S_{rel} and is marked for case accordingly. In the relative

construction with a lexical head, *oho:yo* must take nominative case marking (64b), hence the ungrammaticality of (64c), since the relative construction functions as the subject of the main clause. Because of these case marking facts and the parallel to the constructions with pronominal reflexes, these NPs are analyzed as occurring outside of S_{rel} .

Regardless of the fact that at this point it is not possible to state under what conditions the lexical head relative constructions may appear, these structures provide crucial evidence for a base-generated pro-relative structure. As has been discussed at length, an underlying pro-relative structure will account for the forms in (62b), (63b), and (64b) by means of backward pronominalization. On the other hand, a rule of promotion of NP_{rel} from an underlying headless structure will be necessary to account for these forms.

(65) Rightward promotion (optional)

Reise NP_{rel} and sister adjoin it to the right of S_{rel} provided certain conditions obtain.

The conditions referred to in (65) are, of course, the same as those under which backward pronominalization is admissible in a pro-relative analysis. The important fact here is that the headless analysis will require the addition of a further rule, and that in order to insure the proper case marking on the form this rule must precede any case marking rule.

6.0 Extraposed relatives

6.1 In addition to the relative constructions considered thus far, it is possible to extrapose relative clauses to sentence-final position.

(66) a. Adla-t tali pila-ka:sh pīsa-li-tok.

child-Nom rock throw- see-1Nom-Pst

'I saw the child that threw the rock.'

b. Adla pīsa-li-tok tali pila-ka:sh.

c. *Adla-t pīsa-li-tok tali pila-ka:sh.

d. *Adla pīsa-li-tok makosh tali pila-ka:sh.

(67) a. Mary-t hattak John-at isso-ka:sh skali i-ma.

Mary-Nom man John-Nom hit- money ?Dat-give

'Mary gave money to the man that John hit.'

b. Mary-t hattak skali i-ma John-at isso-ka:sh.

c. *Mary-t hattak skali i-ma makō John-at isso-ka:sh.

(68) a. Hattak oho:yo-t chokka ī-kāchi-ka:sh towa hokli-tok.

man woman-Nom house ?Dat-sell- ball catch-Pst

'The man that the woman sold the house to caught the ball.'

b. Hattak-at towa hokli-tok oho:yo-t chokka ī-kāchi-ka:sh.

c. *Hattak towa hokli-tok oho:yo-t chokka ī-kāchi-ka:sh.

In the (b) sentences in (66)-(68), S_{rel} has been extraposed to final position. In each case the NP modified by S_{rel} is assigned case marking according to its function in the matrix S, which is the same as the function of the relative construction in the corresponding (a) sentences. Once again, this case marking is crucial for grammaticality.

Although adla functions as the subject of S_{rel} in (66a), if it has nominative case marking in the extraposed variant (66c), the result is ungrammatical. Likewise (68c) is ungrammatical because it has been marked for case (here \emptyset) according to its function in the downstairs clause; hattak must take nominative case as in (68b). Notice also that in (66d) and (67c) the appearance of makosh and makō in the relative clause once again yields ungrammatical results.

6.2 Either a headless or pro-relative analysis will require the same rule of extraposition.

- (69) Relative clause extraposition (optional)
 Given $[S_{rel-NP}]_{NP}$, extrapose S_{rel} to final position
 in the S most immediately dominating it.

In the headless analysis (69) will necessarily have to be ordered after the rule of Rightward promotion (65). Otherwise, the structure described in (69) will not obtain. Therefore, the application of this rule is dependent on the application of another optional rule.

The pro-relative analysis will efficiently handle the data by ordering the extraposition before pronominalization. After S_{rel} is extraposed, forward pronominalization will remove NP_{rel} from S_{rel} . This same analysis has been proposed for right extraposed relative clauses in Navajo (Platero, 1974). Therefore, extraposition of relative clauses will not be dependent on the application of any other optional rules. In addition, this ordering accounts for the ungrammaticality of (70) in which the Pro-form, makō, precedes and commands its antecedent adla-t.

6.3 Due to the combined evidence from relative clauses with pronominal reflexes, relative clauses with full lexical heads, and extraposed relative clauses, I propose an analysis in which relative clauses are generated in the base as pro-relatives and have either a headless or pro-relative surface structure. There is no compelling evidence that relative clauses ever have a retro-relative structure.

7.0 Universals

In his discussion of universals of relative clause structures, Downing makes many claims concerning relative clauses in general and in SOV languages in particular. The present analysis of Choctaw relative clauses is interesting in light of some of these claims.

After stating that no syntactic universals for all relative clause constructions exist, Downing provides the following semantic properties which apply to all relative clauses (1978:380):

...coreference between terms inside and outside the clause (Rel NP and Ant NP); the notion that the RC is an assertion about Rel NP (that Rel NP is its theme); and the relation of modification which holds between a restrictive relative clause (RRC) and its antecedent.

While Choctaw relative constructions clearly support the second two defining criteria, what is most interesting is the claim of coreference.

Under the pro-relative analysis proposed here, coreference between NP_{rel} and NP_{hd} (Ant NP) is maintained, and thus the first of Downing's characteristics is supported. Notice, in addition, that the headless base analysis, rejected for independent reasons, would not support this claim of coreference since NP_{hd} exists at no level of the structure, or if the rule of Rightward promotion is taken as a rule of NP_{hd} creation, at no level of the structure when an independent NP_{rel} exists.

Downing also includes an implicational universal which states, 'In prenominal relative clauses if the relative NP is retained, it has a weak pronominal form; there are no (strong) relative pronouns in prenominal relative clauses' (1978:396). This is particularly interesting when viewed in terms of the ungrammaticality of the emphatic pronouns makosh and makō within S_{rel} (5.3 and fn. 17). A look at relative clause data in other languages may provide evidence that this is not a language-specific constraint in Choctaw.

The Choctaw data also support Downing's statements that in S_{rel} in pro-relative structures 'either the verb is placed in final position or there is a clause-final relative marker, or both' (396) as well as that pro-relative structures are almost exclusively found in OV languages (392).

On the other hand, Downing maintains as an implicational universal that 'in prenominal relative clauses there is no movement of the relative NP to either the beginning or end of the clause' (1978:396). Given the proposed analysis, Choctaw provides clear counterevidence to this claim. In 3.2 word order within relative clauses was considered and evidence was presented which showed that in many cases NP_{rel} must obligatorily be moved to initial position in S_{rel} (see (12)). Rule 1 in (25) is necessarily included in the grammar of Choctaw. These conditions obtain in relative constructions in which NP_{hd} is pronominal, which is an example of a pro-relative surface structure. Presumably, the pro-relative surface structures are the types of structures Downing considered when formulating his statement.

Downing's discussion of headless relatives, which he terms replacive relative clauses, further underscores the similarity of some aspects of the Navajo relative clause (Platero, 1974) and the Choctaw constructions. Downing contends that in many languages it is difficult to establish the position of the deleted head. However, in Choctaw, as in Navajo, the head clearly follows S_{rel} in base structure.

8.0 Conclusion

Through the investigation of various relative clause constructions in Choctaw, I have attempted to sufficiently motivate an analysis in which a base pro-relative structure is generated. The derived structure can be either a pro-relative with a pronominal or lexical head or a headless relative clause.

This pro-relative analysis allows these structures to be derived largely through the workings of the pronominal system of the language.

This frees the grammar from requiring many rules which are specific to relative clauses, thus resulting in greater generality. To this regard it is superior to a headless analysis in which just such rules must be formulated. The rules of Pro-creation (50) and Rightward promotion (65), necessary in the headless analysis, create very similar structures, i.e., surface pro-relatives, but must be stated separately in the grammar. These two separate statements diminish the generality of the grammar in order to create structures which naturally follow from a pro-relative base. However, what the pro-relative analysis fails to explain, and what appears to be a fruitful area for future research, is why there is a preponderance of relative clauses in which NP_{rel} contains full lexical characterization and NP_{hd} is either a Pro-form or absent altogether.

A further advantage of the system is the ability to derive preposed and extraposed relative clauses from the base structure. Although Andrews (1971) maintains that these two constructions should be considered adjoined relative clauses which are not derived from embedded counterparts, there seem to be no compelling arguments for asserting that this is the case in Choctaw.

Footnotes

1. The data considered here were elicited from a single consultant, now living in San Diego, who speaks a variety of the Oklahoma dialect.
2. There is what may be considered a conspicuous absence of semantic considerations in this treatment of Choctaw relative clauses. The reason lies in the fact that while semantic content is most likely crucial for the statement of the conditions on certain rules, e.g., word order within relative clauses, it appears to play no significant role in the determination of the base and surface syntactic configurations.
3. The term embedded relative clause refers to a structure in which S_{rel} is a daughter of some node NP which also dominates NP_{hd} (if it is present). This is in contrast to adjoined relative clause which refers to a construction in which S_{rel} and NP_{hd} do not form a constituent but are merely dominated by the same S node (Andrews, 1971:38).
4. The terms retrospective (retro) and prospective (pro) are due to Schwartz (1971). Such constructions have also been referred to as post-(nominal) relative clauses and pre-(nominal) relative clauses (Andrews, 1975; Downing, 1978).
5. The data are presented in a phonemic orthography which has traditionally been used for written Choctaw, with some modifications. For the most part the consonants correspond to standard IPA phonetic symbols; exceptions include: th=θ, sh=š, and ch=č. In addition, since all nasalized vowels are long, the redundant feature is omitted.
6. Liddell (1977) reports two facts about relative clauses in American Sign Language which closely parallel the use of ka:sh in Choctaw. First, he states that '...the relative clause occurred naturally and only after it was established that the previous situation was already known by the signer's addressee' (p. 217). This seems to be a general condition on Choctaw relative clauses. Perhaps more interesting is that 'relative clauses may also be introduced by signs like REMEMBER'

(p. 225). This is precisely the other context in which ka:sh may appear. Hence, sentences such as Liddell's (26) may qualify as relative constructions in ASL.

(26) "(Remember) the cat the dog bit, (it) ran away." (p.225)

7. Choctaw has a system of verbal agreement markers which appear in nominative (Nom), accusative (Acc), and dative (Dat) cases and are affixed to the verbal complex. The case of the agreement marker is determined by the grammatical relation of the nominal triggering agreement.

8. Choctaw has a switch reference system in which morphological distinctions occur to signal whether or not the subject of the matrix clause is the same as that of an embedded clause or whether or not the subjects of two conjoined clauses are the same. In the morphemic glosses SS refers to same subject and DS to different subject.

9. In the translations 3 refers to any third person pronoun. Choctaw does not differentiate gender and number in third person, leaving the discourse context to make this clear. Unspecified 3 will not be indicated in phrase markers, e.g., (16), (17), and (18).

10. I have elected to state the rules informally throughout the paper since the important issue here is not how the rules need to be stated formally, but what rules are necessary and what processes are entailed.

11. Whether or not NP_{rel} becomes NP_{hd} in (22) is not crucial to any claims made here. The process made be considered NP_{hd} formation.

12. This case system is a syntactic case system and is distinct from the case system for agreement markers discussed in fn. 7.

13. A similar proposal regarding the rightward promotion of NP_{rel} from S_{rel} has been made for Japanese. Discussion of this proposal appears in a work written in Japanese (Inoue, 1976). My information about the proposal comes from conversations with Tatsuo Otsuka.

14. It has been proposed by Andrews (1971) that not only are NP_{rel} and NP_{hd} coreferential, but that the NP dominating S_{rel} is also coreferential to each of these NPs. Fauconnier (1974) supports a similar view of the coreference of the NP dominating S_{rel} and NP_{rel} . Therefore, the pronouns in question are considered to be reflexes of this highest NP.

15. Throughout the discussion of pronominalization I refer to pronominalization as a process. This is not crucial for the points being made. The same data can be accounted for if pronominal forms are generated in the base (in either NP_{rel} and NP_{hd}) and interpretive rules based on primacy relations and constraints on the appearance of emphatic forms in relative clauses are allowed to work.

16. Although the pronominal forms in (55) and (56a) can refer to a third person nominal not mentioned in these sentences, I will be concerned here only with the readings in which the forms are coreferent to one of the nominals in the sentence.

17. The reason for the ungrammaticality of makosh and makō in relative clauses may be their emphatic nature. NPs with contrastive marking are also ungrammatical when used in relative clauses.

- (i) Oho:yo-t tali-yō pila-tok.
 woman-Nom rock-Contr=Obj throw-Pst
 'The woman threw the ball (instead of something else).'
 (ii) *Oho:yo-t tali- $\begin{cases} yō \\ yosh \end{cases}$ akka itōla-ka:sh pila-tok.
 woman-Nom rock-Contr $\begin{cases} =Obj \\ =Nom \end{cases}$ ground lie- throw-Pst
 ('The woman threw the rock (instead of something else)
 that was on the ground.')

This contrastive marker, which shows up in (49), also marks emphasis. The NP is contrasted to all other possible NPs, giving it an emphatic reading. Therefore, the constraint in question may be that emphatic NPs cannot occur in relative clauses in Choctaw. This gives a more general view than a restriction based on two forms.

18. Note that at this point the possibility that retro-relatives occur in surface structure has been abandoned.

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