RESEARCH

Relative clauses in Western Muskogean languages

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Chickasaw and Choctaw, the two Western Muskogean languages, have several different relative clause constructions, each of which is internally headed: (1) relative clauses with final demonstratives; (2) relative clauses in which the verb is marked with the suffix -*kaash*; and (3) relative clauses in which the verb is marked with a form of the complement switch-reference marker -*ka*. Western Muskgean relative clauses sometimes take the marking predicted by the case system, sometimes the marking predicted by the switch-reference system, and sometimes can take either marker, with different conditions for the three different relative clauses types and for extraposed modifying clauses. This complexity, we argue, arose from syntactic change in progress.

1 Introduction

Chickasaw and Choctaw, the two Western Muskogean languages,[1] have several different relative clause constructions. We describe three types of relative clauses (RCs) in this paper: (1) RCs with final demonstratives (which we will refer to as demonstrative RCs); (2) RCs in which the verb is marked with the suffix -*kaash* (-*kaash* RCs); and (3) RCs in which the verb is marked with a form of the switch-reference marker -*ka* (-*ka* RCs).[2]

All of these types of clauses are internally headed (IHRCs), although an RC minus its head (which we will refer to as a modifying clause) can be extraposed to the end of its sentence.[3]

IHRCs are structurally both clauses (CPs) and nominal arguments of a higher predicate (DPs).[4] Features associated with both structures—most crucially switch-reference marking (typically found on CPs) and morphological case marking (typically found on DPs)—

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[1] The linguistic situation is certainly more complex than this paper suggests. For purposes of this paper, Choctaw means the usage of the late Josephine Wade and Chickasaw means the usage of Catherine Willmond. We do not have a full set of relevant data from other speakers. Chickasaw is spoken in Oklahoma and Choctaw in Oklahoma, Mississippi, and Louisiana. The Choctaw data represents the Oklahoma Choctaw dialect.

[2] Choctaw is presented in an adaptation of traditional Choctaw orthography following Ulrich (1986); Chickasaw orthography follows Munro and Willmond (1994). Underlining indicates vowel nasalization. We will normally not comment on rule-governed morphophonological changes in the examples.

[3] We thus generally use "relative clause" (RC) to refer to the entire DP which contains the clause, including the head (which, as we show below, is normally internal). The modifying clause alone (without the head) will be referred to in only those cases where the head appears in the matrix clause and the modifying clause (without the head) has been extraposed. Since both Choctaw and Chickasaw are null-pronoun languages, it is possible that the extraposed relative clauses contain a null pronoun, rather than a gap, and that therefore they too have internal heads. It is unclear whether it is possible to distinguish between a relative clause with an external head and one with a null-internal head which is coreferential with a preceding overt noun (phrase) in the matrix clause.

[4] Analyzing these as DPs is potentially problematical, since Chickasaw has no true determiners. Considering them to be NPs would not change our analysis, but we will not pursue these questions here. (Thanks to Cristina Guardiano for discussion of this issue.)

are found in each of these closely related languages.[5] Most of the RCs (and modifying clauses) that this paper describes end in either *t* or a nasalized vowel, an opposition which is structurally ambiguous. In the case-marking system, *-t* vs. a nasalized vowel marks nominative vs. accusative case markers; in the switch-reference system, *-t* vs. a nasalized vowel marks same subject vs. different subject. In addition, it will be important that these IHRCs can also appear with one suffix that unambiguously marks case, oblique *-ak* in Chickasaw.[6] We will find a complex system in which RCs sometimes take the marking predicted by the case system, sometimes the marking predicted by the switch-reference system, and sometimes can take either marker, with different conditions for the three different RC types and for IHRCs and extraposed modifying clauses.

Choctaw and Chickasaw are close to mutually intelligible, but exhibit noticeable differences at all levels of grammar, including the distribution of final markers on RCs and modifying clauses.

The focus of this paper is the description of this complex system in each of the two languages, giving tests to identify these final suffixes as either case markers or switch-reference markers. A short final section argues that the complexity arises from syntactic change in progress. Comparing the different behavior of the three types of RC, and the slightly different patterns in Choctaw and Chickasaw, we propose that the current system represents a merger in progress. In Pre-Western Muskogean, the demonstrative and *-kaash* RCs had only case-marking, fitting with their other overt DP markings; and *-ka* RCs had only switch-reference, fitting with their overtly clausal *-ka* switch-reference marking. In the partially merged systems shown in the two present-day languages, all three can take both case-marking and switch-reference marking, but under different conditions. It is of some additional interest that the merger appears to be sensitive to whether or not the switch-reference information is semantically redundant, and to reflect a historically more clause-like structure for the extraposed modifying clauses. This paper introduces some general properties of Western Muskogean sentence structure in section 1 and examines the three types of RCs mentioned above, first in Choctaw in section 2, and then in Chickasaw in section 3, and finally considers (in section 4) how the patterns of marking developed in the two languages.

2 Western Muskogean sentence structure

The unmarked word order in both Choctaw and Chickasaw is SOV. The verb agrees in person and number with the subject and at most one object. The subject is marked with a suffix ending in *t* (most commonly neutral *-at)* in both languages. (Choctaw (Ct) has an alternative nominative suffix ending in *sh*.) The first object in the sentence can optionally have a suffix ending in a nasalized vowel (most commonly neutral *-a*). Chickasaw (Cs) also has an optional "oblique" suffix *-ak* that appears primarily on locative objects. Other objects are generally unmarked.[7] These unmarked objects must occur immediately before the verb.

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[5] We have avoided proposing a specific analysis for the internal structure of these IHRCs, because our data appears to be compatible with a range of possible analyses (cf footnote 4). To handle our data, it is essential that the IHRC structure provide both a clause/CP element to fit with the clausal switch-references system and an argument/DP element to receive overt case marking. In addition, the case-marking and switch-reference systems must allow for an interaction in which exactly one of the two markers is phonologically expressed.

[6] The alternative Choctaw nominative suffix ending in *sh* also unambiguously marks case and not switch-reference; unfortunately, we do not have sufficient data showing how this *–sh* interacts with RCs. The alternative switch-reference markers mentioned in footnote 11 are not homophonous with case markers, but they do not appear in structures relevant to our analysis.

[7] For more information on case marking and agreement in Western Muskogean, see (among others) Nicklas (1972), Ulrich (1986), and Broadwell (2006) for Choctaw, Munro and Gordon (1982) and Munro and Willmond (2008) for Chickasaw. For nominative *-sh*, see also footnote 6.

(1)   *Choctaw*
        Pam-at   hattak   pisa-tok.
        Pam-NOM   man   see-PT
        'Pam saw the man.'

(2)   *Choctaw*
        Hattak-at   ohooyo(-ya)   i-nokshoopa-h.
        man-NOM   woman(-ACC)   DAT-fear-TNS
        'The man is afraid of the woman.'

(3)   *Chickasaw*
        Hattak-at   ihoo(-a)   pisa.
        man-NOM   woman(-ACC)   see
        'The man sees the woman.'

(4)   *Chickasaw*
        Hattak-at   in-chokk-aak   / in-chokka' / in-chokk-a   aa-impa-tok.
        man-NOM   DAT-house-OBL / DAT-house / DAT-house-ACC   LOC-eat-PT
        'The man ate at his house.'

It is also sometimes possible to leave subjects of main clauses unmarked for case in Choctaw (though not in Chickasaw):

(5)   *Choctaw*
        Ofi-ma   sa-kobli-tok.
        dog-that   1sII-bite-PT
        'That dog bit me.'

Both languages use switch-reference[8] to mark verbs of subordinate clauses to indicate whether the referents of the subjects of the subordinate and matrix clauses are the same or different. Most[9] switch-reference markers end either in *t* to indicate same subject or with nasalization to indicate different subject, reflecting an apparent homophony with the case markers. Thus, (6) and (7) illustrate the complement switch-reference markers: in (6), the subjects of the matrix and complement clauses are the same; in (7) they are different.

(6)   *Chickasaw*
        Jan-at   ithána   toksali-kat.
        Jan-NOM   know   work-CMP.SS
        'Jan_i knows she_i is working.'

(7)   *Chickasaw*
        Jan-at   ithána   toksali-ka.
        Jan-NOM   know   work-CMP.DS
        'Jan_i knows she_j is working.' [Cs]

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[8] This term originated with Jacobsen (1967). The switch-reference system in Western Muskogean is discussed in detail in Payne (1980), Broadwell (1990; 2006), Munro and Willmond (1994; 2008), and Munro (2016), among others.

[9] One pair of switch-reference markers uses Cs *-cha*, Ct *-chah* for same subject and Cs *-na*, Ct *-nah* for different subject. For discussion, see Linker (1987).

In both Chickasaw and Choctaw, RCs also normally end in *t* or nasalization. Is this final marking switch-reference or case marking?

3 Choctaw relative clauses
3.1 Demonstrative RCs

Demonstrative RCs typically end in the distal 'that' demonstrative suffix *-mat/-ma*, which marks farther off items:[10]

(8)   *Choctaw*[11]
       Ofi   Jan kobli-tok-mat   bali-t   kaniya-h.
       dog   Jan bite-PT-THAT.NOM|SS[12]   run-PRT   go.away-TNS
       'The dog that bit Jan ran away.'

(9)   Charles-at   Jan(-at)   hattak   ayoppáchi-ma   apila-h.
       Charles-NOM   Jan(-NOM)   man   like-that.ACC|DS   help-TNS
       'Charles helped the man Jan likes.'

(10)   Hattak   ayoppáchi-li-ma   ish-apila-h.
        man   like-1SI-that.ACC|DS   2SI-help-tns
        'You helped the man I like.'

Ofi 'dog' is not marked for case in (8), even though it is the subject of both the RC and the matrix clause; similarly, *Jan*, the subject of the RC in (9), may optionally be left unmarked. Nominative marking in both Choctaw RCs and main clauses is variable, as discussed in connection with (5) above. In our data, subjects of RCs are more frequently unmarked for case than subjects of main clauses.

   In (8) the RC is both a subject RC and a same-subject switch-reference clause, since its referent, *ofi* 'dog', is the subject of both the matrix and the RC. Thus, it is impossible to determine whether the *-mat* demonstrative indicates nominative case or same subject. In (9) and (10), conversely, the RC is an object (its referent is the object of the main clause) and the subjects of the RC and matrix clause are different, so it is indeterminate whether the demonstrative *-ma* indicates accusative case or different subject.

   The useful test cases are those in which the appropriate switch-reference marking and case marking would produce different forms. For example, if the RC is a different-subject/subject clause (i.e. it is the subject of the main clause, but the subjects of the two clauses are different), then final *-mat* can only indicate nominative case and *-ma* can only be a different-subject marker. Either marking is acceptable in examples like (11), in which *Jan* is the subject of the RC and the RC is the subject of the matrix clause

(11)   Jan   ofi   ipita-tok-ma/-mat   bali-t   kaniya-h.
        Jan   dog   feed-PT-that.DS/-that.NOM   run-PRT   go.away-TNS
        'The dog Jan fed ran away.'

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[10] The proximate *–pat / -pa* demonstrative can be used similarly but is rare in our data. This makes sense, since people tend to use RCs to identify things out of sight or at a distance.

[11] All examples in this section are from Choctaw; all those in section 4 are from Chickasaw.

[12] In principle, before any other data is considered, *-mat* may be marking either nominative case or same-subject switch-reference. We will continue to gloss these suffixes this way, until we make the argument that the use of the two can be distinguished in certain cases. At that point, we will gloss more precisely.

The other situation in which case marking and switch-reference produce different forms is a same-subject/object clause, as in (12). Here, *-mat* on the RC must mark same subject and *-ma̱* must mark accusative case. Again both forms are acceptable.

(12)   Hattak   ayoppáchi-li-ma̱/-mat   apila-li-h.
            man   like-1sI-that.ACC/-that.SS   help-1sI-TNS
            'I helped the man I like.'

An alternative to the analysis that these clauses can be marked for either switch-reference or case would be that *-mat* and *-ma̱* mark neither switch-reference nor case, but instead vary freely on any RC. The data, however, refute such an analysis, since it is ungrammatical to mark a different-subject/object RC with *-mat,* as in (13), or a same-subject/subject RC with *-ma̱,* as in (14).

(13)   Hattak   ayoppáchi-li-ma̱/*-mat   ish-apila-h.
            man   like-1sI-that.ACC|DS/*that.SS|NOM   2sI-help-TNS
            'You helped the man I like.'

(14)   Hattak   iya-tok-mat/*-ma̱   a̱-ki   i̱-toksali-h.
            man   go-PT-that.SS|NOM/*that.DS|ACC 1sII.DAT-father   DAT-work-TNS
            'The man that left works for my father.'

In addition, there are structures where one of these apparently ambiguous affixes has only one reading: for example, to get the good reading of (15), *-mat* has to be interpreted as a case marker and cannot be interpreted as a same-subject marker. If *-mat* is the nominative marker, then the RC must be the subject, and we correctly get the reading 'The dog Jan$_i$ bought hit her$_{i/j}$/him/it' with a third-person singular null pronoun as object in the main clause. If we could take the *-mat* in (15) as marking same subject, leaving case unmarked, we'd get the blocked reading *'Jan$_i$ hit the dog she$_i$ bought', parallel to the good reading of (12). To block the bad reading of (15), something must force *-mat* to be the nominative case marker and not the same-subject marker. The structural effect must be strong, since the blocked reading is pragmatically much more plausible than the observed reading.

(15)   Jan-at   ofi   cho̱pa-tok-mat   isso-tok.
            Jan-NOM   dog   buy-PT-that.NOM   hit-PT
            'The dog Jan$_i$ bought hit her$_{i/j}$/him/it.' but not *'Jan$_i$ hit the dog she$_i$ bought.'

What structural difference distinguishes (12), where *-mat* can indicate same subject, from (15), where the same-subject parsing is blocked and *-mat* must mark nominative case? Checking the full range of main-clause and RC subjects, the descriptive generalization appears to be that the same-subject parsing is blocked only if both the main-clause and RC subjects are third person.[13]

   If the *-mat* in (15) is replaced with the accusative/different-subject marker *-ma̱* as in (16), the plausible reading that was blocked for (15) becomes the primary reading, 'Jan$_i$ hit the dog she$_i$ bought'. This same-subject reading requires interpreting *-ma̱* as an accusative case marker; the accusative parsing also permits different-subject readings with the RC as object. For these readings it cannot be determined whether *-ma̱* is marking switch-reference or case.

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[13] Looking ahead, this condition is surprising, because in other cases we find that third-person subjects favor switch-reference readings over case marking, presumably because switch-reference provides potentially important coreference information for third person, but is redundant for marked first and second persons.

(16)   Jan-at   ofi   chǫpa-tok-ma̱   isso-tok.
        Jan-NOM dog   buy-PT-that.ACC|DS hit-PT
        'Jan$_i$ hit the dog she$_{i/j}$/he$_j$ bought.'

(15) provides an example where the subjects are third person and *-mat* must be interpreted as a case marker, but we haven't found any case with third-person subjects where *-mat* must be interpreted as a same-subject marker. In contrast (11) and (16) combine to show that *-ma̱* can be interpreted as either an accusative case marker or a different-subject switch-reference marker. In (16), *-ma̱* must be parsed as an accusative case marker to get the pragmatically preferred same-subject interpretation; but the available different-subject readings might be accounted for by parsing *-ma̱* as marking different subject or as marking accusative case, which would leave switch-reference unmarked and and permit both same-subject and different-subject readings. In (11), however, the use of *-ma̱* on a subject RC shows an instance of *-ma̱* which must be parsed as different-subject marking.

In all situations, then, demonstrative RCs can be marked appropriately for case, but only a subset of them can be marked in ways that the switch-reference system would predict. Because the switch-reference interpretation is not always available, we conclude that while case marking on demonstrative RCs is fully productive, switch-reference on demonstrative RCs is not. We will return to this point when we consider the historical origin of these patterns.

The RC can be extraposed to the end of the main clause, with the head left in the main clause, as in (17) and (18).[14] If both the extraposed modifying clause and the main clause have a third-person subject, then both the switch-reference-marked and the case-marked versions are possible. (18) shows that *-mat* can have the same-subject switch-reference interpretation in a extraposed modifying clause, contrasting with (15) and (16), where the RC is not extraposed and *-mat* must be interpreted as a case marker.

(17)   Ofi   bali-t kaniya-h   Jan   kobli-tok-mat.
        dog   run-PRT go.away-TNS   Jan   bite-PT-that.NOM|SS
        'The dog that bit Jan ran away.'

(18)   Jan-at   ofi   isso-tok   chǫpa-tok-mat /-ma̱.
        Jan-NOM dog   hit-PT   buy-PT-that.SS /-that.ACC|DS
        'Jan$_i$ hit the dog she$_i$ / she$_{i/j}$ | he bought.'

The two variants of (18) differ crucially in meaning. The same-subject variant with *-mat* forces a reading in which *Jan* and *she* are coreferential; the version with *ma̱* permits the subject of the subordinate clause to be interpreted as the same as the subject of the matrix clause or different from it. As with (15) and (16), the *-ma̱* must be accusative if the subjects are coreferent, but might be either accusative or different-subject if the subjects are not coreferent.

The distribution of suffixes found at the end of demonstrative relative clauses in Choctaw is summarized in Table 1 below. For ease of comparison with the data presented in Tables 2–6 below, we indicate the possibility of nominative/same-subject *-mat* with T (since all these forms have final *-t*) and accusative/different-subject *-ma̱* with N (since these have final nasalization). When both forms are given in a cell of the table, it means either the form predicted by case or the form predicted by switch-reference is acceptable.

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[14] As we noted in footnote 4, an alternative analysis might treat the extraposed RC as an appositive with a null internal head. We will not consider this approach further here.

Case role of RC in MC	Form predicted by case	Switch-reference	Form predicted by switch-reference	Non-third person subjects in either RC or MC	Actual form on in-situ RCs	Actual form on extra-posed RCs
Subject	T	Same subject	T	Yes	T	
				No		
		Different subject	N	Yes	T or N	
				No		
Non-subject	N	Same subject	T	Yes	T or N	T or N
				No	N	
		Different subject	N	Yes	N	
				No		

Table 1: Suffixes on demonstrative relative clauses in Choctaw.

3.2 -kaash RCs

In *-kaash* RCs, the suffix *-kaash* appears on the verb of a relative clause with past reference.[15]

(19)   Ofi   ipita-li-kaash   bali-t   kaniya-h.
        dog   feed-1sI-kaash   run-PRT   go-away-TNS
        'The dog I fed ran away.'

Bare *-kaash*-marked RCs like (19) are unmarked for both case and switch-reference. To mark either case or switch-reference, the *-kaash*-marked verb can be followed by a marked demonstrative, in the same way as the tense-marked verbs in the demonstrative RCs discussed above.

(20)   Ofi   ipita-li-kaash-mat/-ma   bali-t   kaniya-h.
        dog   feed-1sI-kaash-that.NOM/-that.DS   run-PRT   go.away-TNS
        'The dog I fed ran away.'

(21)   Hattak   Jan   pisa-kaash-mat/* -ma   mishshamahma   atta-h.
        man   Jan   see-kaash-that.SS|NOM/*-that.DS|ACC   over.there   stay-TNS
        'The man who saw Jan lives over there.'

(22)   Ofi   ipita-li-kaash-ma /*-mat   ish-písa-tok.
        dog   feed-1sI-kaash-that.DS|ACC/*-that.SS|NOM   2sI-see-PT
        'You saw the dog I fed.'[16]

The distribution of *-mat* and *-ma* in these *-kaash* RCs matches that in the demonstrative RCs: Compare (20) with (12), (21) with (14), and (22) with (13). Thus, the same arguments let us conclude that *-kaash* RCs also mark either case or switch-reference. In-situ *-kaash* RCs with third-person subjects in sentences with third-person subjects (as in (23) and (24)) show the same marked pattern as the demonstrative RCs in (15) and

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[15] *-Kaash* includes the nominal 'aforementioned' suffix *-aash* (Broadwell 2006: 89; Munro & Willmond 1994: xxxiv, li). No other tense marking appears on the verb of a *-kaash* RC; *-tok,* for example, is incompatible with *-kaash.*
[16] Example from Broadwell (2006: 299–300, (186)), orthography and gloss adapted.

(16): *-mat* is always interpreted as a case marker, while *-ma* can be interpreted as either switch-reference or case marking.

(23)   Jan-at   ofi   ch<u>o</u>pa-kaash-m<u>a</u>   isso-tok.
        Jan-NOM   dog   buy-kaash-that.ACC|DS   hit-PT
        'Jan$_i$ hit the dog she$_{i/j}$/he bought.'

(23), with *-ma,* works like the parallel demonstrative RC in (16). That is, the subjects of the two clauses may be interpreted as the same or different. If the interpretation is same subject, we must interpret the *-ma* as case marking; if the interpetation is different subject, it cannot be determined whether the *-ma* marks case or switch-reference.

(24)   Jan-at   ofi   ch<u>o</u>pa -kaash-mat   isso-tok.
        Jan-NOM   dog   buy-kaash-that.NOM   hit-PT
        'The dog Jan$_i$ bought hit her$_{i/j}$/him/it.' but not *'Jan$_i$ hit the dog she$_i$ bought.'

The *-kaash* RC in (24) acts like the demonstrative RC in (15). The final suffix on the embedded clause (*-mat*) in (24) cannot be interpreted as forcing a same-subject reading. (24) has only the reading in which *-mat* marks nominative so that the RC, which has *ofi* 'dog' as its head, is the subject of *isso-tok* 'hit-PT'. The object of *isso-tok* is freely interpretable as any third-person entity identifiable in the discourse.

   Like the demonstrative RCs, *-kaash* RCs can be extraposed, leaving the head in the main clause, as in (25) and (26). When the modifying clause is extraposed, it can be marked with either switch-reference or case.

(25)   Ofi   bali-t   kaniya-h   ipita-li-kaash-mat/-m<u>a</u>.
        dog   run-PRT   go.away-TNS   feed-1SI-kaash-that.NOM/-that.DS
        'The dog I fed ran away.'

(26)   Jan-at   ofi   isso-tok ch<u>o</u>pa-kaash-mat /-m<u>a</u>.
        Jan-NOM   dog   hit-PT   buy-kaash-that.SS /-that.ACC|DS
        'Jan hit the dog she$_i$ / she$_{i/j}$/he bought.'

The two variants of (26), like those of (18), mean crucially different things. In the *-mat* version, the subjects of the two clauses are obligatorily coreferent, as expected with *-mat* marking same subject. In the *-ma* version, the subjects may be coreferent or disjoint in reference, as predicted by the same analysis as (18).

   The summary in Table 1 above accounts for the data in *-kaash* RCs as well as in the demonstrative RCs, except that it is possible to have *-kaash* RCs without demonstratives, and such clauses do not mark either case or switch-reference.

3.3 *-ka* RCs

Verbs in the third type of RC end in the complement switch-reference markers *-kat* and *-ka* as seen in (6) and (7). The distribution of *t* and nasalization in these *-ka* RCs shows that these can indicate either case or switch-reference, just like demonstrative and *-kaash* RCs. Same-subject/subject *-ka* RCs can only appear with *-kat,* as in (27), while different-subject/object *-ka* RCs can only appear with *-ka,* as in (28) and (29).

(27)   Ofi   Jan kobli-tokat[17]/*-tok<u>a</u>   bali-t   kaniya-h.
       dog   Jan bite-PT.CMP.NOM|SS /*-PT.CMP.ACC|DS   run-PRT   go.away-TNS
       'The dog that bit Jan ran away.'

(28)   Hattak   Pam   <u>i</u>-toksali-k<u>a</u>/*-kat   apila-li-h.
       man   Pam   DAT-work-CMP.ACC|DS/*-CMP.NOM|SS   help-1SI-TNS
       'I helped the man who works for Pam.'

(29)   Hattak   ayoppáchi-li-k<u>a</u>/*-kat   ish-apila-h.
       man   like-1SI-CMP.ACC|DS/*-CMP.NOM|SS   2SI-help-TNS
       'You helped the man I like.'

When switch-reference and case marking would produce different forms, either type of
marking is possible. Different-subject/subject RCs can be marked with either -kat or -k<u>a</u>,
as in (30) and (31), as can same-subject/object RCs, as in (32).

(30)   Ofi   ipita-li-tokat/-tok<u>a</u>   bali-t   kaniya-h.
       dog   feed-1SI-PT.CMP.NOM/-PT.CMP.DS   run-PRT   go.away-TNS
       'The dog I fed ran away.'

(31)   Jan-at   ofi ipita-tokat/-tok<u>a</u>   bali-t   kaniya-h.
       Jan-NOM   dog feed-PT.CMP.NOM/PT.CMP.DS   run-PRT   go.away-TNS
       'The dog Jan fed ran away.'

(32)   Jan-at   ofi   ch<u>o</u>pa-tokat/-tok<u>a</u>   isso-tok.
       Jan-NOM   dog   buy-PT.CMP.SS/PT.CMP.ACC   hit-PT
       'Jan$_i$ hit the dog she$_i$ bought.'

As with the other RC types, modifying -ka clauses can be extraposed, leaving the head in
the main clause, as in (33) and (34).

(33)   Ofi-it   bali-t   kaniya-h Jan-at   isso-tok<u>a</u>/-tokat.
       dog-NOM   run-PRT go.away   Jan-NOM   hit-PT.CMP.DS/PT.CMP.NOM
       'The dog Jan hit ran away.'

(34)   Jan-at   ofi   isso-tok   ch<u>o</u>pa-tokat/-tok<u>a</u>.
       Jan-NOM   dog   hit-PT   buy-PT.CMP.SS/-PT.CMP.ACC
       'Jan$_i$ hit the dog she$_i$ bought.'

-Ka relative clauses in Choctaw, unlike the other two relative clause types, are never sensi-
tive to whether switch-reference marking would be informative (when both subjects are
third person) or redundant (when the RC or MC subject is first or second person), and -ka
relative clauses can always mark either switch-reference or case. The distribution of final
suffixes on -ka relative clauses is summarized in Table 2, where T indicates a -kat clause
and N a -k<u>a</u> clause

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[17] -Tokat / -tok<u>a</u> is composed of the past/perfective marker –tok plus complement –kat/-k<u>a</u>.

Case role of RC in MC	Form predicted by case	Switch-reference	Form predicted by switch-reference	Actual form on in-situ RCs	Actual form on extraposed RCs
Subject	T	Same subject	T	T	
		Different subject	N	T or N	
Non-subject	N	Same subject	T	T or N	
		Different subject	N	N	

Table 2: Final suffixes on *-ka* relative clauses in Choctaw.

3.4 Summary

To account for the range of acceptable marking on all three kinds of RCs in Choctaw, it is necessary to analyze them as marked either with switch-reference or case marking. Thus, final *-t* in *-mat* or *-kat* in 0, (11), (24), (25), (30), and (31), must be identified as indicating nominative case, while in (12), (18), and (32) it must be identified as indicating same subject. In the same way, final nasalization in *-ma* or *-ka* can mark either accusative case or different-subject switch-reference. Thus, in cases like (30), (31), and (32), for example, although the surface variation in the sentences looks the same, it reflects different relationships: in (31) and (32) *-kat* is nominative case marking contrasting with *-ka*, the different-subject marker, while in (33) *-kat* is the same-subject marker contrasting with *-ka*, the accusative case marker.

In general, when only one of these markings is possible, that marking is structurally ambiguous. For example, final *-mat* or *-kat* on a relative clause serving as the subject of the main clause and having the same subject as the main clause can be interpreted as either a nominative case marker or a same-subject switch-reference marker. The ambiguity here produces not different meanings, but different structural properties, like the ambiguity Hankamer (1977) called "disjunctive multiple analyses".

Almost all Choctaw RCs can be marked with either case or switch-reference; the only exception to this generalization is found in sentences in which an in-situ demonstrative or *-kaash* RC has a third-person subject and the matrix clause has a third-person subject, in which case any *-mat* marking must be interpreted as nominative, rather than as same-subject marking.[18]

4 Chickasaw relative clauses
4.1 Demonstrative RCs

As in Choctaw, the usual Chickasaw demonstrative on RCs is distal, *yamma* 'distant, unmarked, that'. Chickasaw typically requires overt nominative marking on all subjects, except subjects of RCs. In RCs, the subject is obligatorily unmarked if the relative verb is intransitive, and optionally unmarked if the verb is transitive.

Just as in Choctaw, either switch-reference or case can be marked on demonstrative RCs.

(35)   Ofi'   woochi   yammat/*yamma   sa-kisili-tok.
        dog   bark   that.NOM|SS/*-that.ACC|DS   1SII-bite-PT
        'The dog that barked bit me.'

(36)   Ofi'   Jan   kisi-tok   yammat   mali-t   kaniya-tok.
        dog   Jan   bite-PT   that.NOM|SS   run-PRT   go.away-PT
        'The dog that bit Jan ran away.'

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[18] For plain demonstrative RCs with *-mat*, see discussion of (11), (15), (16), and (18) on pages 4–6; for RCs with *-kaash* plus demonstrative, see discussion of (23), (24), and (26) on pages 7–8.

(37) Hattak pís-li-tok   yamma/yammat   chaaha.
      man   see-1SI-PT   that.ds/that.NOM   be.tall
      'The man I saw is tall.'

(38) Hattak pís-li-tok   yamma/yammat   ayoppásh-li.
      man   see-1SI-PT   that.ACC/that.SS   like-1SI
      'I like the man I saw.'

(39) Hattak a,sa,pila-tok   yamma   ayyoppásh-li.
      man   1SII,help-PT   that.ACC|DS   like-1SI
      'I like the man who helped me.'

Another piece of evidence that supports the hypothesis that either switch-reference or case can be marked on demonstrative RCs is the distribution of the oblique case marker -*ak* (illustrated in (4)), which is not homophonous with any switch-reference marker. Object RCs can be marked with -*ak* as in (40), where the subject of the RC can be treated as the same as or different from the subject of the matrix clause.

(40) Pam-at   kaar chompa-tok   yammak   ayoppánchi
      Pam-NOM   car   buy-PT   that.OBL   like
      'Pam likes the car she bought.'

Subject RCs cannot be marked with -*ak,* as in (41), even when the subjects of the two clauses are different. *Yammak* in all of its occurrences marks case, not switch-reference. An unambiguous non-subject case marker can be used in examples with an object RC like (40), but not in examples like (41) in which the RC is a subject.

(41) Kaar chompa-li-tok   yammat/yamma/*yammak   ik-ayyo'b-o.
      car   buy-lSI-PT   that.NOM/that.DS/that.OBL   HYP-be.good.NEG-NEG
      'The car I bought is no good.'

This distribution implies that when *yamma* follows a subject RC like (41), it must indicate different subject, rather than accusative, since if it were a case marker it should be ungrammatical in exactly the way that *yammak* is ungrammatical.[19]

As in Choctaw, it is possible to extrapose RCs, leaving the head in the main clause, as in (42), (43), and (44). When the clause is extraposed and has a third-person subject, only switch-reference marking is possible. This suggests that, in Chickasaw, the extraposed

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[19] It seems attractive to suppose that earlier in the history of Western Muskogean, these RCs were marked with case suffixes, since demonstratives would seem to be most appropriately marked with nominal suffixes. These constructions would then have undergone (partial) reanalysis with the demonstrative reanalyzed as a complementizer and appropriate to mark with switch-reference. Superficially such a historical analysis certainly seems possible. It is difficult, however, to find independent support for it; instead there appears to be some (slight?) evidence that demonstratives are verbal. For instance, the 'aforementioned' nominal suffix -*aash* used in (i) appears as -*kaash* when attached to a verb (as in the -*kaash* RCs in section 2.2 above and section 3.2 below); it is also -*kaash* following a demonstrative, as in (ii):

(i) Ofi'-aash   falama-t   aya-tok.
     dog-afore   return-PRT go-PT
     'The (aforementioned) dog went back again.'

(ii) Ofi'   yamma-kaash   falama-t   aya-tok.
     dog   that-kaash   return-PRT   go-PT
     'That (aforementioned) dog went back again.'

Also, the nominative and accusative forms of the demonstratives are phonologically aberrant: since their final syllable is heavy (distal *yamm-,* proximate *yapp-*), we'd expect their nominative forms to be *yammaat* and *yappaat* instead of *yammat* and *yappat.* These unexpected forms look like the same-subject form of the verb *móma* 'to be all', which is *mómat.*

Case role of RC in MC	Form predicted by case	Switch-reference		Form predicted by switch-reference	Non-third person subjects in either RC or MC	Actual form on in-situ RCs	Actual form on extraposed RCs
Subject	T	Same subject		T	Yes	T	T
					No		
		Different subject		N	Yes	T or N	T or N
					No		N
Non-subject	N or *-ak*	Same subject		T	Yes	T or N or *-ak*	T or N
					No		T
		Different subject		N	Yes	N or *-ak*	N
					No		

Table 3: Suffixes on demonstrative relative clauses in Chickasaw.

modifying RC keeps its clausal status while losing its DP role; rather, the head functions as the DP in the matrix clause, while the RC does not.

(42)   Ofi'-at   mali-t   kaniya-tok   Jan-at   ipita-tok   yamm<u>a</u>/*yammat.
       dog-NOM   run-PRT   go.away-PT   Jan-NOM feed-PT   that.DS/*that.NOM
       'The dog Jan fed ran away.'

(43)   Jan-at   ofi'   ipita-tok   chompa-tok   yammat.
       Jan-NOM   dog   feed-PT   buy-PT   that.SS
       'Jan$_i$ fed the dog she$_i$ bought.'

(44)   Jan-at   ofi'   ipita-tok   chompa-tok   yamm<u>a</u>.
       Jan-NOM   dog   feed-PT   buy-PT   that.DS
       'Jan$_i$ fed the dog she$_j$ bought.'

The distribution of suffixes found at the end of demonstrative relative clauses in Chickasaw is summarized in Table 3 below. Here, T indicates nominative/same-subject *yammat* and N accusative/different-subject *yamm<u>a</u>*. The third option is *-ak*, indicating oblique *yammak*.

4.2 -kaash RCs

In Chickasaw, as in Choctaw, *-kaash* can be used on past tense RCs in all roles without any further marking.[20]

   More interestingly, *-kaash* RCs can be followed by the focus suffix *-oot* or *-<u>o</u>*,[21] showing the same case/switch-reference variation discussed above.

(45)   Jan-at   ofi'   ipita-kaash-oot/-<u>o</u>   mali-t   kaniya-tok.
       Jan-NOM   dog   feed-kaash-FOC.NOM/-FOC.DS   run-PRT   go.away-PT
       'The dog Jan fed ran away.'

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[20] Thus, the focus suffixes *-oot* and *-<u>o</u>* following *-kaash* in the examples below can be omitted without change in acceptability.

[21] Focus suffixes are used in typical focus contexts such as answers to *wh-* questions, but they also show up in other modifying contexts, following stative verbs and quantifier verbs used as modifiers (which are arguably reduced RCs).

(46) Ofi' Jan kisili-kaash-oot/*-<u>o</u> mali-t kaniya-tok.
      dog Jan bite-kaash-FOC.SS|NOM/*-FOC.DS|ACC run-PRT go.away-PT
      'The dog that bit Jan ran away.'

In examples like (45), Chickasaw -*kaash* RCs, like demonstrative RCs, appear to be freely marked for either case or switch-reference. However, (46) shows that using -<u>o</u> is blocked where switch-reference would require same-subject marking. It is impossible to mark -*kaash* RCs with accusative -<u>o</u> when switch-reference would require same-subject marking, as in (47) and (48). Thus, case marking on these RCs is not fully productive.[22]

(47) Jan-at ofi' isso-kaash-oot/*-<u>o</u> ipita-tok.
      Jan-NOM dog hit-kaash-FOC.SS/*-FOC.ACC feed-PT
      'Jan$_i$ fed the dog she$_i$ hit.'

(48) Ofi' ipita-li-kaash-oot/*-<u>o</u> isso-li-tok.
      dog feed-1sI-kaash-FOC.SS/*-FOC.ACC hit-1sI-PT
      'I hit the dog I fed.'

Extraposed -*kaash* RCs can only be marked for switch-reference. Compare (45) with (49):

(49) Ofi'-at mali-t kaniya-tok Jan-at ipita-kaash-<u>o</u>/*-oot.
      dog-NOM run-PRT go.away-PT Jan-NOM feed-kaash-FOC.DS/*-FOC.NOM
      'The dog Jan fed ran away.'

Table 4 summarizes the data for Chickasaw -*kaash* RCs, with T indicating -*kaashoot* and N -*kaash<u>o</u>*.

4.3 -*ka* RCs

Options for marking Chickasaw RCs ending with the complement switch-reference markers -*kat* and -k<u>a</u> are more restricted than for -*kaash* RCs. As with -*kaash* RCs, same-subject/object RCs can only be marked with switch-reference (with one exception illustrated in (52), (53), and (54)).

Case role of RC in MC	Form predicted by case	Switch-reference	Form predicted by switch-reference	Actual form on in-situ RCs	Actual form on extraposed RCs
Subject	T	Same subject	T	T	T
		Different subject	N	T or N	N
Non-subject	N	Same subject	T	T	T
		Different subject	N	N	N

Table 4: Suffixes on -*kaash* relative clauses in Chickasaw.

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[22] This constraint on case marking may reflect a grammaticization of a preference for nominative/same-subject marking. If so, the grammaticization is incomplete since nominative marking varies with different-subject marking where appropriate It seems possible that this reflects an incomplete reanalysis from a structure which exclusively marked switch-reference to one which allows limited case marking as well; same-subject marking appears to be less susceptible to replacement by case markers than different-subject marking.

(50)   Jan-at   hattak   pís-tokat/*-toka   ayoppánchi.
        Jan-NOM   man   see-PT.CMP.SS/*-PT.CMP.ACC   like
        'Jan_i likes the man she_i saw.'

A different-subject/subject RC can always be marked with the different-subject switch-reference marker -ka, but it can be marked for nominative case (with -kat) only if the subject of the RC is first or second person, as in (51). If the subject is third person, only switch-reference marking is possible, as in (52).

(51)   Ofi'   ipita-li-toka/-tokat   mali-t   kaniya-tok.
        dog   feed-1SI-PT.CMP.DS/-PT.CMP.NOM   run-PRT   go.away-PT
        'The dog I fed ran away.'

(52)   Jan-at   ofi'   ipita-toka/*-tokat   mali-t   kaniya-tok.
        Jan-NOM   dog   feed-PT.CMP.DS/*-PT.CMP.NOM   run-PRT   go.away-PT
        'The dog Jan fed ran away.'

In this kind of RC, therefore, case marking is even more restricted. Case marking is allowed only when the agreement marking on the matrix and RC verbs clearly allows the switch-reference facts to be inferred without requiring overt switch-reference marking.[23]
    As noted above, the Chickasaw oblique suffix -ak is not homophonous with any switch-reference suffix, so if -ak appears on a RC, that clause is marked as an object. Object RCs can be marked with -ak, as in

(53)   Chokka'   chompa-li-tok-ak   Pam-at   ahánta.
        house   buy-1SI-PT.CMP-OBL   Pam-NOM   live
        'Pam lives in the house I bought.'

(54)   Chokka'   chompa-li-tok-ak   ahánta-li.
        house   buy-1SI-PT.CMP-OBL   live-1SI
        'I live in the house I bought.'

However, the availability of -ak marking is limited. It can only appear on object RCs under two conditions: when the subject of the RC is either first or second person, as in (53)–(54), or when the subject of the RC is different from the matrix clause subject, as in (55).

(55)   Pam-at   nipi'   hopoon-tok-ak   apa-tok.
        Pam-NOM   meat   cook-PT.CMP-OBL   eat-PT
        'Pam_i ate the meat she_j cooked.'

The first condition is reminiscent of the distribution of the nominative interpretation of -kat RCs: it restricts -ak to marking those clauses in which switch-reference marking would be redundant. Otherwise, -ak can only be used on different-subject/object RCs like (55).

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[23] Perhaps, since -ka cannot otherwise be used except on different-subject RCs, -ka RCs are never case-marked. Instead, one might propose that under some circumstances an object DP can control switch-reference—perhaps a rule promotes an object to subject (as proposed and rejected in the appendix to this paper) or alters the control of switch-reference without affecting other subject properties. This kind of analysis has several drawbacks—for example, the promotion or feature assignment process would be restricted to occurring in subject RCs with first- or second-person subjects and the promotion of the object in a subordinate clause which has the same subject as the main clause would be pragmatically odd.

Same-subject marking can only be displaced when the information it bears is redundant; this distribution is parallel to nominative marking on RCs which similarly can displace different-subject marking only when the information it bears is redundant. Case marking on *-ka* RCs is restricted, suggesting a secondary development based on the homophony between the switch-reference and case systems and the structure of RCs as both DPs (and therefore eligible for case marking) and embedded CPs (and therefore eligible for switch-reference marking).[24]

These modifying clauses can also be extraposed, in which case the final marking on the RCs is only interpretable as switch-reference. Compare (51) above with (56) and (52) with (57). In (51), the in-situ RC with a first-person subject can be marked for either case or switch-reference; in (56), the extraposed modifying clause with a first-person subject can only be marked for switch-reference. In (52) and (57), the subordinate clause (in situ or extraposed) with the third-person subject can only be marked for switch-reference, not case.

(56) Ofi'-at   mali-t   kaniya-tok   ipita-li-toka̲/*-tokat.
      dog-NOM   run-PRT   go.away-PT   feed-1SI-PT.CMP.DS/*-PT.CMP.NOM
      'The dog I fed ran away.'

(57) Ofi'-at   mali-t   kaniya-tok   Jan-at   ipita-toka̲/*-tokat.
      dog-NOM   run-PRT   go.away-PT   Jan-NOM   feed-PT.CMP.DS/*-PT.COMP.NOM
      'The dog Jan fed ran away.'

Table 5 summarizes the data for Chickasaw *-ka* RCs. Here, again, T indicates same-subject/nominative *-kat,* N indicates different-subject/accusative *-ka̲,* and *-ak* indicates the oblique *-kak.*

4.4 Summary

In Chickasaw, as in Choctaw, multiple analyses are required to account for the distribution of final markers on RCs. On in-situ demonstrative RCs both case-marking and switch-reference analyses are available to some extent. In *-kaash* and *-ka* RCs, case marking is not always possible, but switch-reference marking always is. On extraposed clauses in which switch-reference would not be redundant, only switch-reference marking is possible.

Case role of RC in MC	Form predicted by case	Switch-reference		Form predicted by switch-reference	Non-third person subjects in either RC or MC	Actual form on in-situ RCs	Actual form on extraposed RCs
Subject	T	Same subject		T	Yes	T	T
					No		
		Different subject		N	Yes	T or N	N
					No	N	
Non-subject	N or *ak*	Same subject		T	Yes	T or *ak*	T
					No	T	
		Different subject		N	Yes	N or *ak*	N
					No		

Table 5: Suffixes on *-ka* relative clauses in Chickasaw.

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[24] Complement clauses potentially share the property of functioning as both DPs and as CPs. The distribution of markers ending in same-subject/nominative *t* vs. different-subject/accusative nasalization on complement clauses is discussed in the appendix.

5 Conclusion

In Western Muskogean, the case markers and the switch-reference markers have historically converged in marking RCs. Table 6 below provides a summary of the distribution of markers on all three types of RCs, both in-situ and extraposed, in both languages.

In Choctaw this convergence is almost complete—in most cases, either marking is possible. Switch-reference rather than case marking is required only when the subjects of both clauses are third person (and therefore not uniquely specified by the verbal agreement marking).

In Chickasaw, the situation is somewhat different. First, when the RC is extraposed with its head in the matrix clause, the modifying clause must be marked for switch-reference, rather than for case. This seems like a natural secondary development once a structure has been perceived as a potential carrier of switch-reference and has been extracted from the position in which it functions as a DP (and in which the nominal head is serving as an argument in the matrix clause): thus, the extraposed clause is treated like typical subordinate clauses (and marked with switch-reference) while the head is case-marked for its role in the matrix clause.

Moreover, in some Chickasaw *-kaash* and *-ka* RCs, case marking is barred and only switch-reference marking is possible. Case marking is limited to those cases in which the head is truly inside the RC (i.e., where the RC is not extraposed) and the agreement on the verb makes the switch-reference redundant. These look plausibly like instances in which originally switch-reference marked forms have been reanalyzed as taking case marking.

In Western Muskogean, therefore, it appears that switch-reference marked IHRCs and case-marked IHRCs are converging, but that merger is not yet complete. This convergence is driven by the shared clausal and nominal functions of IHRCs and enabled by the homophony of the switch-reference markers and the case markers.

Case role of RC in MC		Subject				Non-Subject			
Form predicted by case		T				N or -*ak* (Cs)			
Switch-reference		Same subject		Different subject		Same subject		Different subject	
Form predicted by switch-reference		T		N		T		N	
Non-third person subjects in either RC or MC		Yes	No	Yes	No	Yes	No	Yes	No
Actual form on in-situ demonstrative RCs	Ct	T		T or N			N	N	
	Cs	T		T or N		T or N or -*ak*		N or -*ak*	
Actual form on extraposed demonstrative RCs	Ct	T		T or N				N	
	Cs	T		T or N	N	T or N	T	N	
Actual form on in-situ -*kaash* RCs	Ct	T		T or N			N	N	
	Cs	T		T or N		T		N	
Actual dorm on extraposed -*kaash* RCs	Ct	T		T or N				N	
	Cs	T		N		T		N	
Actual form on in-situ -*ka* RCs	Ct	T		T or N		T or N		N	
	Cs	T		T or N	N	T or -*ak*	T	N or -*ak*	
Actual form on extraposed -*ka* RCs	Ct	T		T or N				N	
	Cs	T		N		T		N	

Table 6: Summary of suffixes on relative clases in Western Muskogean.

Abbreviations

ACC = accusative, CMP = complement, DAT = dative, DS = different subject, LOC = locative, NOM = nominative, OBL = oblique, PRT = participle, PT = past/perfective, Q = question, SS = same subject, TNS = tense (Ct-*h*, per Broadwell 2006).

We use a period to separate elements of a complex gloss and commas to set off infixed material and | between the different glosses for ambiguous forms.

Muskogean languages have a complex active system of pronominal agreement, with two main agreement classes, which we identify as "I" and "II"; a third agreement class used with non-third person datives is glossed "III". Person and number are indicated with 1, 2, S, P (third person is unmarked). For more discussion, see the sources cited in footnote 7.

Choctaw and Chickasaw verbs may occur in several "grades" (ablaut forms, including an accented vowel), which are not specially indicated in our glosses.

Additional File

The additional file for this article can be found as follows:

- **Appendix.** Marking on complement clauses. DOI: https://doi.org/10.5334/gjgl.184.s1

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Competing Interests

The authors have no competing interests to declare.

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