Advances in the study of Siouan languages and linguistics

Edited by

Catherine Rudin

Bryan J. Gordon

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In this series:

1. Handschuh, Corinna. A typology of marked-S languages.

2. Rießler, Michael. Adjective attribution.

3. Klamer, Marian (ed.). The Alor-Pantar languages: History and typology.

4. Berghäll, Liisa. A grammar of Mauwake (Papua New Guinea).

5. Wilbur, Joshua. A grammar of Pite Saami.

6. Dahl, Östen. Grammaticalization in the North: Noun phrase morphosyntax in Scandinavian vernaculars.

7. Schackow, Diana. A grammar of Yakkha.

8. Liljegren, Henrik. A grammar of Palula.

9. Shimelman, Aviva. A grammar of Yauyos Quechua.

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To Bob, whose knowledge was matched only by his generosity.

Contents

Preface

This volume presents a group of papers representing a range of current work on Siouan[1] languages, in memory of our colleague Robert L. Rankin, a towering figure in Siouan linguistics throughout his long career, who passed away in February of 2014.

Beyond honoring a beloved colleague, our aim in this volume is to bring a variety of issues in Siouan linguistics to the attention of the linguistic community. The Siouan language family is a large and important one, with branches geographically distributed over a broad swath of the North American plains and parts of the southeastern United States. This puts it in contact historically with several other families of languages: Algonquian, Iroquoian, Caddoan, Uto-Aztecan, and Muskogean. Siouan languages are, or were historically, spoken by the members of at least 25 ethnic/political groups. One Siouan language, Lakota, is among the handful of indigenous North American languages with younger speakers today. Siouan languages have occasionally risen to prominence in general linguistics, for instance in the study of reduplication (Shaw 1980); and Omaha and Crow (Apsaalooke) have lent their names to two of the basic categories of kinship systems in anthropology. Nonetheless, the Siouan family has been underrepresented in the descriptive and typological literature, and most of the languages in the family are severely understudied. The majority of work on Siouan languages is unpublished, existing only in the form of conference papers or manuscripts.[2] This volume is a step toward making information on Siouan languages more broadly available and encouraging deeper investigation of the myriad issues they raise.

From the perspective of linguistic typology, Siouan languages have many notable features. Many of these features stand to challenge typological generalizations. Here we briefly sketch a few of the most characteristic features of the Siouan family.

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[1] "Siouan" is not to be confused with "Sioux", a controversial term referring to Lakota and Dakota people, rarely to Nakota/Nakoda people too, but never correctly to people of other traditionally Siouan-language-speaking communities.

[2] Many of these unpublished works are collected in the electronic Siouan Archive, maintained by John Boyle at the University of California at Riverside.

All Siouan languages possess a rich variety of applicative affixes, confirming Polinsky's (2013) observation that applicatives are common in North America and adding another language family to her list of applicative-rich families in the area. Helmbrecht (2006) divides the applicatives into three templatic slots: locative applicatives, benefactive applicatives, and applicative markers; all of the Siouan languages sampled by Helmbrecht possess at least two applicative morphemes.

All Siouan languages are strongly head-final, and the consensus among syntacticians working with Siouan languages is that all but the supraclausal projections (and even some of these) are underlyingly head-final in Siouan languages, contra Kayne's (1994) Antisymmetry theory.

All Siouan languages have head-internal relative clauses. A series of strong claims regarding the typological implications of head-internal relative clauses (cf. Cole 1987; Murasugi 2000), including purported distinctions between "Japanese-type" and "Lakota-type" constructions (cf. Watanabe 2004; Williamson 1987; Bonneau 1992), propelled Lakota into the debates of theoretical syntax. It has been pointed out that head-internal relative clauses of the kind found in Lakota and other Siouan languages lack the island restrictions found in other languages. On the other hand, Murasugi (2000) argues that languages with head-internal relative clauses must also have head-external relative clauses, which is not true in Siouan languages.

All Siouan languages have verbal affixes which index subject possession of or relationship with the object. They vary with respect to contexts of obligatoriness of these affixes.

Many Siouan languages have grammaticalized systems of speaker-gender marking, with gender-specific morphology for speech-act markers, address terms, and kinship lexemes.[3] Such usage varies depending on stuational factors, however, especially in the case of speech-act markers; see for instance Trechter (1995).

Many Siouan languages have a modal CCV morpheme shape. This does not necessarily imply a preference for CCV phonetic realizations, but may indicate such a preference in the distant past. Another unusual prosodic feature is the preference for second-syllable stress in most Siouan languages. Ho-Chunk may be the only attested language with default third-syllable stress in the world.

Most Siouan languages have ejective stops. The Dhegiha branch is notable for a four-way glottal-state distinction in its stop series (voiced/lenis, tense/pre-aspirated, ejective and aspirated). Outside of the Dhegiha branch are many Siouan

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[3] In the case of kinship terms, lexical choice is driven by the gender of the "ego" deictic center, which coincides with speaker gender when there is 1st-person inflection.

languages which have the unusual feature of a phonemic voicing distinction in fricatives but not in stops.

Verbs play some typologically unusual, prominent roles in Siouan languages. Diachronically, many grammatical items which rarely grammaticalize from verbs in other languages tend to derive from verbs in Siouan languages. For instance, Rankin (1977) documents the derivation of classifiers and articles from verbs. In some Siouan languages, the source verbs and target grammatical items continue to exist in parallel with substantial semantic overlap. The Omaha positional article t^ho^n 'OBVIATIVE ANIMATE SPECIFIC STANDING', for instance, is homophonous with the root of $át^ho^n$ 'stand on'.

This diachronic tendency is mirrored by synchronic flexibility. Siouan languages tend to verb freely — to use nearly any open-class stem as a verb. Thus Lakota *wimačhaša* 'I am a man' is derived from the nominal stem *wičhaša* 'man/person' with the 1st-person stative pronominal ma-.

Dhegiha articles (which have many features in common with positional classifiers in e.g. Mayan languages; see Gordon 2009) are homophonous with postverbal and postclausal functional items like subordinating conjunctions and aspect and evidentiality markers. They have considerable semantic overlap with them too, a fact which comprises another area of blurriness between nominal and verbal syntax: In Ponca, *niáshi^nga-ama* may mean 'the [PROXIMATE ANIMATE PLURAL SPECIFIC] people', but also may mean either 'they are people' or 'I am told s/he was a person'. Plurality is a part of the semantics of -ama in both the nominal and the first clausal interpretation. To make matters more interesting, these kinds of ambiguity are not always easily resolved by context alone, and may suggest a "simultaneity" (cf. Woolard 1998) at work as part of speakers' competence.

This flexibility, that is, the ability of one and the same root to function in both nominal and verbal contexts, has led to some discussion on the status and quality of the noun/verb distinction in Siouan languages (see e.g. Helmbrecht 2002 and Ingham (2001)).

Nominal arguments in general are not required in Siouan languages, thematic relations being signaled by pronominal or agreement markers within the verb — including zero markers. This makes Siouan languages relevant to debates about the existence of "pronominal argument" languages (Jelinek 1984) and to the related issues of whether there are languages with truly nonconfigurational or flat structure. The preponderance of evidence in Siouan is for the existence of hierarchical structure, specifically including a VP (for instance, West 2003; Johnson 2016; Johnson, Rosen & Schuck 2016; Rosen 2016).

Although Siouan languages have many remarkable features in common, they

vary on many others. Some Siouan languages have noun incorporation, while others do not. Some Siouan languages have stress-accent systems, and others have pitch-accent systems. Dhegiha languages are notable in having as many as eleven definite/specific articles indexing features such as animacy, proximacy/obviation (or case), posture/position, number, visibility, motion and dispersion; meanwhile other Siouan languages have no fully grammaticalized articles at all.

Some Siouan languages reflect longtime cultural presence on the Plains, while others are located as far east as the Atlantic Coast, and many more show cultural aspects of both regions. Dhegiha-speaking peoples (Quapaw, Osage, Kanza, Omaha and Ponca, and likely Michigamea as well (Kasak 2016; Koontz 1995) likely lived at the metropolis at Cahokia, perhaps at a time before any of the descendant groups had separated, and have many Eastern Woodlands-style features of traditional governance and religion, in sharp contrast with the more Plains-typical cultural features of close Lakota and Dakota neighbors and relatives.

One seemingly minor but in fact quite significant issue in Siouan linguistics is the matter of language names and their spelling. Often this involves a self-designation in competition with a name imposed by outsiders. Even when an autonym gains currency among linguists there is sometimes no agreed spelling; so for instance the Otoe self-designation is written <Jiwere> or <Chiwere>. For the most part in this volume the choice of language designations has been left to the individual chapter authors. However, after a volume reviewer pointed out that the language of the Ho-Chunk or "Winnebago" people was spelled no less than ten different ways in various chapters, we encouraged authors to choose one of the two spellings used on the tribe's web site: <Ho-Chunk> or <Hoocąk>. Most have voluntarily complied. In a related move, we decided to retranscribe all Lakota data throughout the volume using the orthography of the *New Lakota Dictionary* (Ullrich 2012).

The volume is divided into four broad areas (Historical, Applied, Formal/Analytical, and Comparative/Cross-Siouan) described in more detail in separate introductions to each part of the volume. Part I consists of five chapters on historical themes: Ryan Kasak evaluates the evidence for a relationship between Yuchi and Siouan; David Kaufman discusses the participation of some Siouan languages in a Southeastern sprachbund; Rory Larson summarizes current knowledge of Siouan sound changes; and Kathleen Danker and Anthony Grant investigate early attempts to write Ho-Chunk, Kanza, and Osage. Part II opens with Linda Cumberland's interview with Robert Rankin about his work with Kanza language programs. Jimm Goodtracks, Saul Schwartz, and Bryan Gordon present three different perspectives on Baxoje-Jiwere language retention. Justin McBride ap-

plies formal syntax to the solution of a pedagogical problem in teaching Kanza. This applied-linguistics section ends with Jill Greer's sketch grammar of Baxoje-Jiwere. Part III contains formal analyses of individual Siouan languages. David Rood proposes an analysis of /b/ and /g/ in Lakota using the tools of autosegmental phonology and feature geometry. John Boyle elucidates the structure of relative clauses in Hidatsa. Meredith Johnson, Bryan Rosen, and Mateja Schuck, in a series of three interrelated chapters, discuss syntactic constructions in Ho-Chunk including resultatives and VP ellipsis, which they argue show the language has VP and an adjective category. Part IV consists of three chapters which take a broader view of grammar, considering data from across the Siouan family. Catherine Rudin compares coordination constructions across Siouan; Bryan Gordon does the same with information structure and intonation, and Johannes Helmbrecht with nominal possession constructions.

All four of the areas represented by this volume are ones to which Bob Rankin contributed. His scholarly publications centered primarily around Siouan historical phonology, but included works ranging from dictionaries to toponym studies, from philological investigation of early Siouanists to description of grammaticalization pathways. He was deeply involved in language retention efforts with the Kanza Language Project. Other interests included archeology, linguistic typology, Iroquoian and Muskogean languages, and the history of linguistics.

Bob was a major figure in Siouan linguistics, a mentor to nearly all living Siouanists, and a mainstay of the annual Siouan and Caddoan Linguistics Conference meetings for decades. Trained in Romance and Indo-European linguistics, with a specialty in Romanian (Ph.D. University of Chicago 1972), he shifted gears soon after leaving graduate school, and became an expert in Siouan languages, especially the Dhegiha branch, with special focus on Kanza. From the mid 1970s through the end of his life, he devoted himself to Siouan studies, both practical and scholarly. His long association with the Kaw Nation led to a grammar and dictionary of that language (see Cumberland 2016), and he also produced a grammar of Quapaw, and briefly conducted field work on Omaha-Ponca and Osage. At the University of Kansas he directed dissertations on Lakota (Trechter 1995) and Tutelo (Oliverio 1996) as well as several M.A. theses on Siouan languages, and taught a wide variety of courses including field methods and structure of Lakota and Kanza as well as more theoretical courses in phonology, syntax, and historical linguistics. Perhaps Bob's greatest gift to the field was his encouragement of others. At conferences and on the Siouan List email forum, he was unfailingly patient and encouraging, answering all questions seriously, explaining linguistic terms to non-linguist participants and basic facts of Siouan languages to general

linguists with equal enthusiasm and lack of condescension.

Following his untimely passing, a special session was held at the 2014 Siouan and Caddoan Linguistics Conference to organize several projects in Bob's honor: The first of these was publication of the Comparative Siouan Dictionary, an immense project comparing cognates across all the Siouan languages, undertaken by Rankin and a group of colleagues in the 1980s. It had been circulated in various manuscript forms but never published. Thanks to David Rood (another founding member of the CSD project), with help from Iren Hartmann, the CSD is now available online (Rankin et al. 2015). The second project was a volume of Bob's conference papers and other previously unpublished or less accessible work, to be collected and edited by a group headed by John P. Boyle and David Rood; that volume, tentatively titled *Siouan Studies: Selected Papers by Robert L. Rankin*, is currently in progress. The third project was a volume of Siouan linguistic work in Bob's memory, which has taken the shape of the present volume.

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Acknowledgments

Chapter 1

The syntax and semantics of internally headed relative clauses in Hidatsa

John P. Boyle

Hidatsa is a highly endangered member of the Missouri Valley branch of the Siouan language family. Like all Siouan languages, Hidatsa is a left-branching SOV language with many polysynthetic characteristics. Hidatsa specifically, and Siouan in general, is typologically unusual in that it only allows relative clauses to be internally headed. This paper examines the structure of internally headed relative clauses (IHRCs) in Hidatsa. I provide a syntactic analysis within the Minimalist Program as proposed by Chomsky (1995; 1998; 2001) and show that IHRCs are nominalized sentences that serve as DPs in larger superordinate clauses. This extends previous analyzes of IHRC for Native American languages, most notably Williamson (1987), Cole (1987), Culy (1990), and Basilico (1996) among others. I then show that Hidatsa, like other languages with IHRCs, obeys the indefiniteness restriction first proposed by Williamson (1987) for Lakota. Employing the general framework first proposed by Heim (1982) and developed by Williamson (1987) and Basilico (1996), I provide a semantic explanation for the fact that the head noun of an IHRC cannot be marked as definite. Following Williamson (1987) and Culy (1990), I treat the indefinite determiner that follows the head of the IHRC as a variable and not as a quantifier. I argue that the head noun must move covertly to a [SPEC, CP] position to escape VP-level existential closure.

1 Introduction

Hidatsa is a highly endangered member of the Missouri Valley branch of the Siouan language family and is spoken by approximately 175 speakers, primarily on the Ft. Berthold Indian Reservation in North Dakota. Typologically, Hidatsa is left branching with a complement-head SOV word order and, like most other Siouan languages, it has an active-stative pronominal system. Along with Crow, the other member of the Missouri Valley branch of Siouan, it has many polysynthetic characteristics, most notably productive noun incorporation (Rankin et al. 2003; Boyle 2007). One aspect of Hidatsa that is of particular interest is the structure of its relative clauses.

Like many other Siouan languages (see Drummond 1976 and Cumberland 2005 (Assiniboine); Williamson 1987 and Rood & Taylor 1996 (Lakota); Quintero 2004 (Osage), and Graczyk 1991, 2007 (Crow), among others), relative clauses in Hidatsa are internally headed. This means that the noun that is modified by the relative clause is positioned within the relative clause and is not external to it, as happens in languages like English.

In §2, I will provide data that shows that Hidatsa RCs are nominalized clauses that act as DPs for superordinate predicates. I will also detail how IHRCs in Hidatsa differ with regard to specificity. In §3, I will discuss the notion of HEAD and show that the head of the IHRC in Hidatsa does indeed stay low in the subordinate construction (counter to claims made by Kayne (1994), Bianchi (1999) and Di Sciullo (2005)). In §4, I will examine several previous works on IHRC, most notably Williamson (1987) and Culy (1990). In §5, I will provide a syntactic analysis within a minimalist framework showing how the derivation of the IHRC is built in Hidatsa. In §6, I will argue that the head of the clause must move covertly in order to escape the existential closure of the VP. This is motivated by a semantic necessity for full interpretation. This analysis explains Williamson's indefiniteness restriction for IHRCs. §7 will provide a brief conclusion as well as avenues for further research.

2 The status of Hidatsa RCs

2.1 Hidatsa RCs as DPs

In Hidatsa, RCs are nominalized constructions that act as DPs for superordinate clauses. As stated above, Hidatsa has an SOV word order as shown below in (1).

(1) **Common S-O-V sentence with simple DP arguments**
Wíaš	*wacéeš*	*íkaac.*
wía-š	wacée-š	íkaa-c
woman-DET.D	man-DET.D	see-DECL

'The woman saw the man.'

In Hidatsa, RCs can serve in any syntactic role that can be filled by an ordinary DP. In example (2), the RC (in brackets) is subject of the main clause.

(2) **RC serving as subject**

> [*Wacée akuwaapáahiš*]   *wía*   *íkaac.*
> [wacée aku-waapáahi-š]   wía   íkaa-c
> [man   REL.S-sing-DET.D]   woman   see-DECL
> 'The man that sang saw the woman.'

In (3), the RC is the object of the main clause.

(3) **RC serving as object**

> *Wíašéʔeri*   [*wacée akuwaapáahiš*]   *íkaac.*
> wía-šéʔe-ri   [wacée aku-waapáahi-š]   íkaa-c
> woman-DEM-TOP   [man   REL.S-sing-DET.D]   see-DECL
> 'The woman saw the man that sang.'

In both examples (2) and (3) the word order of the main clause is SOV. RCs can also be possessed as shown in (4). In these types of constructions, the possessed RC takes a possessive prefix, in this case the 3rd person possessive prefix *ita-*.

(4) **Possessed RC**

> *Ráaruwa*   [*itaʔaruʔapáxihe*]   *híiwareec.*
> rée-a-ruwi-a   [ita-aru-apáxi-hee]   híi-wareec
> go-CONT-along-CONT   [3.POSS.A-REL.N-stop.rest-3.CAUS.D.SG]   arrive-NE
> 'Going along, he (First Worker) arrived at the place where Sun stops to rest.' (Lowie 1939: I: 21)

RCs in Hidatsa can also function as objects of postpositions, shown in example (5). In these types of constructions, the head of the RC takes a postpositional suffix. In this example, the postpositional suffix is -*wahu* 'inside' (shown in **bold**).

(5) **Object of a postpositional phrase**

> *Ráaruwaa*   [*wirawáhu*   *arušiipikáatikua*]   *hírawa*
> ráa-ruwa-a   [wira-**wáhu**   aru-šiipi-káati-kua]   hírawi-a
> go-continue-CONT   [woods-**inside**   REL.N-thick-EMPH-LOC]   sleep-CONT
> *wáakiruk*   *uʔúšiawareec.*
> wáaki-ruk   uʔúšia-wareec
> be.there-TEMP   arrive-NE
> 'Going along in the woods where it is very thick, he (First Worker) arrived while (Spotted Tail) was still sleeping.' (Lowie 1939, II:54)

In examples (2)–(5), each of the RCs act as a DP for the main clause, serving as an argument in the same manner as a common DP.

2.2 Specificity in Hidatsa RCs

Hidatsa RCs are all formed in a similar manner. They are nominalized clauses that can take zero, one or two overt DP arguments depending on the transitivity of the nominalized verb. This clause then acts as a DP for a superordinate clause. It is the entire RC that takes a final determiner, thus making it available as an argument for another predicate. The overt syntactic structure is shown in (6).

(6) **The Hidatsa RC structure**
[(DP) (DP) REL-verb]-DET

As shown in (6), the verb (or predicate) is relativized by a relative marker. Hidatsa has two relative markers, *aku-* (shown in (2) and (3)) and *aru-* (shown in (4) and (5)). The first marker, *aku-*, marks for specificity and speakers prefer to use it for animate entities. An example of this is shown in (7).

(7) **The Hidatsa specific relative marker**
Wašúka akuʔáwakaš   wakítʰaac.
wašúka **aku**-ʔ-áwaka-š   wa-kía-tʰaa-c
dog   REL.S-EPE-1A.see-DET.D 1A-fear-NEG-DECL
'I am not afraid of that dog that I see.'

The second marker, *aru-*, marks nonspecific arguments and is often used for inanimate objects or entities. An example of this is shown in (8).

(8) **The Hidatsa non-specific relative marker**
Wašúka aruʔawákaš   wakítʰaac.
wašúka **aru**-ʔ-awáka-š   wa-kía-tʰaa-c
dog   REL.N-EPE-1A.see-DET.D 1A-fear-NEG-DECL
'I am not afraid of a dog that I see.'

The overriding attribute of these markers is one of specificity and not animacy. It should be noted that neither of these markers is a relative pronoun. There is no gap in the relative clause, as in English, nor do they act as an argument projected by the verb. This is to say, they do not satisfy the subcategorization frame of the verb. The subcategorization frame of the verb can only be satisfied by an overt DP argument or signaled by a pronominal prefix, which agrees with a *pro*.[1] The

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[1] Hidatsa is an active-stative language with regards to its pronominal system and only the first and second person pronominal prefixes are overt. The third person marker is null. In this paper, I treat the pronominal prefixes as agreement markers on the verb that agree with a null pro that occupies an argument position.

difference in specificity does nothing to alter any aspect of the syntax and as such, they can be treated identically in the syntactic analysis presented below.

3 The notion of head and internal heads

The term *internally headed relative clause* was first coined by Gorbet (1976) in his description of Diegueño nominals. In some of the subsequent literature, there has been confusion about the notion of *head.* Cole, Herbert & Hermon (1982) and Weber (1983) (among others) have referred to IHRCs as *headless relative clauses'.* This was based on the notion that the head noun that was being modified by the relative clause was not external to the RC as in languages like English. In this paper, the notion of *head* is a semantic one. It refers to the noun being modified by the relative clause. It is not to be confused with the *head* in an X-bar construction (i.e. a X^0 category), which is a syntactic notion. As IHRCs are sentences, and sentences never have DPs as their head, the head of the IHRC cannot be the syntactic head of the sentence. The term *headless relative clause*, as used by the authors mentioned above, is misleading for another reason as well. This reason is that the head noun modified by the clause may be null. An example of a RC in Hidatsa with an overt head is shown in (9).

(9) **Hidatsa relative clause with an overt head**
*Mary **uuwáki** akuhíriš   warúcic.*
Mary **uuwáki** aku-híri-š   wa-rúci-c
Mary **quilt**   REL.S-make-DET.D 1A-buy-DECL
'I bought the quilt that Mary made.'

This construction can be juxtaposed with the example in (10), where the head that is modified by the RC is null.

(10) **Hidatsa relative clause with a null head**
*Mary **e** akuhíriš   warúcic.*
Mary **e** aku-híri-š   wa-rúci-c
Mary **e** REL.S-make-DET.D 1A
'I bought (what/something/it) Mary made.'

As stated above, the subcategorization frame of the verb is satisfied by the projection of a *pro.* There is also no overt agreement marker on the verb as the third person agreement prefix is a null affix. This is not possible in English as is clearly reflected in the gloss with the insertion of the English third person

indefinite (*what/something/it*). For the purposes of this paper, the example shown in (10) is an example of a *headless* relative clause (i.e. the head that is modified by the RC is null or not phonologically overt). Given this evidence, we can now define an IHRC (following Culy 1990: 27) as: "A (restrictive) internally headed relative clause is a nominalized sentence, which modifies a nominal, overt or not, internal to the sentence."

3.1 Internal heads

In languages with internally headed relative clauses, the head of the RC is always internal to the RC and not part of the superordinate clause. This is counter to the claims of Kayne (1994), which were elaborated on by Bianchi (1999) and Di Sciullo (2005). Kayne claims that the heads of these clauses are always the left-most element, and thus are really outside of the relative construction itself. While this may appear to be correct for IHRCs with intransitive verbs and transitive verbs where the head noun corresponds to the subject of the RC, it cannot account for IHRCs where the head noun corresponds to the object of the RC. Following the copy theory of movement, it could be claimed that the copy at the relative head position is deleted in IHRCs, in contrast to EHRCs, in which the copy in the tail of the movement chain is deleted. This would suggest that there is a choice in pronunciation between the head and the tail of the chain in the formation of relative clauses. However, there is no evidence or motivation for the head of the RC to move out of the clause to the left periphery and then not be pronounced in that external position, contravening the typical pattern for copy deletion. This is particularly problematic when the head noun is an internal argument in the clause.[2] A clear example of this is shown in (11).

(11)   **Hidatsa internally headed relative clause**
　　　[*Wacéeš*　　**wašúkawa** *akutíheeš*]　　　　　　　*šipíšac.*
　　　[wacée-š　　**wašúka-wa** aku-tí-hee-š]　　　　　　šipíša-c
　　　[man-DET.D **dog-DET.I**　REL.S-die-3.CAUS.D.SG-DET.D] black-DECL
　　　'The dog [that the man killed] is black.'

In this sentence, the relative clause *wacéeš wašúkawa akutíheeš* contains the noun that is modified, namely *wašúkawa* 'a dog'. In the English translation, the relative clause *that the man killed* does not contain the noun that is modified by the relative clause. In English, the head is outside of the clause. This is not the case in Hidatsa and languages like it. In these languages, the head stays low and

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[2] A more detailed critique of Kayne's analysis of IHRCs can be found in Boyle (2007).

is internal to the subordinate clause, hence the name *internally headed relative clause*.

This type of relative clause is clearly subordinate to the matrix (or superordinate) clause. Number marking on the different verbs in (12) provides evidence of this subordinate relationship. In Hidatsa, verbs agree in number (singular or plural) with their subject.

(12)   **Plural agreement in a Hidatsa relative clause**
   Alex [*wíaakuʔo*   *uuwáki akuhíraʔaš*]   *íkaac.*
   Alex [wía-aku-ʔo   uuwáki aku-híri-ʔa-š]   íkaa-c
   Alex [woman-DET.SPEC-PL.I quilt   REL.S-make-PL.D-DET.D] see-DECL
   'Alex saw [those women who made the quilt].'

In this sentence, the matrix verb *íkaa-* 'see' agrees with the subject of the main clause and is marked as singular in number. This is shown with zero marking, and it agrees with the subject *Alex*. The subordinate verb in the relative clause *híri-* 'make' shows plural agreement. This is shown with the definite plural marker *-ʔa-*. The verb *híri-* agrees with its subject, *wíaakuʔo* 'those women'. This argument, *wíaakuʔo*, is also the head of the relative clause, which is marked with the indefinite plural marker *-ʔo-*. In IHRCs, the head occupies an argument position that is determined by its role in the subordinate relative clause, in this case the subject. In this example there is agreement in number between the subjects and the verbs in both clauses. The entire RC, not merely the head noun, then acts as an argument for a superordinate verb. In (12) the RC is the object of the main verb.

4 The syntax of IHRCs

Although a number of people[3] have worked on IHRCs, there are two analyses that I will review and build upon. These are Williamson (1987) who developed the notion that IHRCs have an indefiniteness restriction, and Culy (1990) who argues for a *wh* element that triggers movement of the internal head to [SPEC, CP] at LF.

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[3] These include Hale & Platero (1974), Gorbet (1976), Fauconnier (1979), Cole (1987), Culy (1990), Kayne (1994) Bianchi (1999), Citko (2001) among others.

4.1 The indefiniteness restriction

In her 1987 article, Williamson observed that in Lakota the head in an IHRC cannot be marked as definite.[4] This "indefiniteness restriction" has been generalized to IHRCs in general and to date no evidence has emerged to counter this claim. This indefiniteness restriction holds true for Hidatsa. Examples (13) and (14) are both grammatical in Hidatsa.

(13) *Wacéewa   akuʔawákaš   maapáahic.*
      wacée-wa aku-awáka-š   maa-páahi-c
      man-DET.I REL.S-1A.see-DET.D INDEF-sing-DECL
      'The man that I saw sang (something).'

(14) *Wacée akuʔawákaš   maapáahic.*
      wacée aku-awáka-š   maa-páahi-c
      man   REL.S-1A.see-DET.D INDEF-sing-DECL
      'The man that I saw sang (something).'

It is important to note that the English gloss of both (13) and (14) uses the definite article for the head of the relative clause: *the man*. This is because *the man* gets its definiteness from the determiner that nominalizes the predicate *awáka* 'see', which in both examples is the definite determiner *-š*. While both (13) and (14) are grammatical in Hidatsa, example (15) is not.

(15) *[*]Wacéeš akuʔawákaš waapáahic.*
      wacée-š   aku-awáka-š   waa-páahi-c
      man-DET.D   REL.S-1A.see-DET.D INDEF-sing-DECL
      (Intended: 'The man that I saw sang.')

In (15) we see that Williamson's claim that the head of an IHRC cannot be marked definite holds true for Hidatsa. The definite determiner on the head of the IHRC makes the sentence ungrammatical.

4.2 Williamson's analysis of Lakota
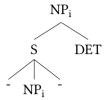
Williamson's (1987) analysis of the relative structure is that shown in (16). In this structure the S[5] has a determiner for a sister.

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[4] It should be noted that while the head of an IHRC cannot be marked as definite, the head may take either an indefinite determiner or no determiner at all.

[5] Although I will use a Minimalist framework and the associated terminology for my analysis, I will employ the older terminology used by the various authors cited so as to not confuse their

(16)   **Williamson's (1987) model at S-structure**

```
              NP_i
             /    \
            S      DET
          / | \
         -  NP_i  -
```
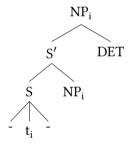
This analysis is what Williamson posits for a representation of the overt syntax, or S-Structure. We can see that the IHRC acts as a sentence or subordinate clause in its own right. This entire structure then acts as an argument or DP for the matrix verb. Williamson posits that the internal head obligatorily moves outside of the IHRC at LF, giving the structure shown in (17).

(17)   **Williamson's (1987) model after movement at LF**

```
                NP_i
               /    \
             S'      DET
            /  \
           S    NP_i
         / | \
        -  t_i  -
```
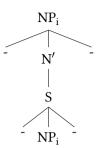
Williamson further posits a cyclic rule that co-indexes the internal head with the DP dominating the IHRC. Although Williamson's syntactic analysis is adequate, both Hoeksema (1989) and Culy (1990) point out that the movement at LF is unmotivated in general. Nonetheless, many researchers have adopted Williamson's analysis. Williamson's major insight into the structure of IHRCs is her observation and explanation of the fact that the head of an IHRC cannot be marked with a definite determiner.

4.3 Culy's analysis of IHRCs

Culy (1990) describes the syntactic structure of an IHRC as that shown in (18).

(18)   **Culy's (1990) structure of an IHRC.**

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arguments. For example many authors use S for TP and S′ for CP. This older terminology will be retained when showing older examples written in early P&P or pre-P&P frameworks.

The main problem with this structure is that it violates the endocentric constraint of X-bar syntax, which states that all phrases must project a head and all heads must project a phrase. In the schema proposed above in (18), the N′ exhaustively dominates an S, not an N. Culy claims, "while this structure is unusual, it is similar to a rule proposed by Jackendoff (1977) that allows 'category-switching' ". That rule is:

$$x^i \rightarrow af \rightarrow y^i$$

The difference, according to Culy, is that in an IHRC construction the two categories N′ and S are not at the same level. Culy's argument for this structure is as follows: N′ dominates S because IHRCs are nominalized sentences and as such occur with the elements of a NP that also occur with N′. That is to say, IHRCs have an internal structure of S but an external distribution of N′.

Culy also states that there does not seem to be any framework-independent evidence about whether the IHRC is an S (TP) or an S′ (CP) and that there is no strong evidence that IHRCs have overt complementizers.

Culy makes one other important prediction about IHRCs that is relevant to this discussion. He proposes that IHRCs have a *wh* element which is not overt. He uses this notion to provide motivation for the movement at LF that Williamson proposes. As shown in (18), Culy (like Williamson) argues that there is coindexation between the DP dominating the IHRC and the internal DP being modified (the head). This coindexation is similar to that which exists between a relative pronoun and its antecedent. Culy bases his argument on Safir (1986) who proposes that in English relative clauses without relative pronouns, there is a null *wh* operator[6] which functions like a relative pronoun. Given this assumption, Culy shows that the relative clause in (19a) has the S-structure shown in (19b).
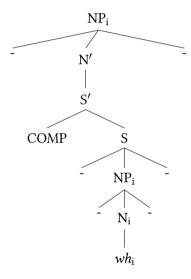
(19)   **English relative clause without a relative pronoun**

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[6] Safir terms this operator an "abstract A′ binder", which he then represents as a *wh*.

   a. the dog I ran away from
   b. [$_{NP}$ the dog$_i$ [$_{S'}$ *wh*$_i$ [$_S$ I ran away from e$_i$]]]
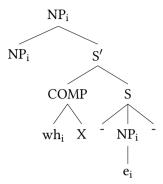
Culy proposes that any common noun can optionally act as a *wh* operator in languages with IHRCs. This operator then moves from the head to COMP (or C) at LF via the rule of *wh* construal, just as in-situ *wh* elements must move at LF. Culy then proposes a tree structure for both D-structure and S-structure that is the same in all relevant respects. This is shown in (20).

(20)   **D- and S-structure of an IHRC (Culy 1990)**

Additionally, to account for the construction in (20), Culy proposes a general rule that coindexes the NP (that is the IHRC) and the *wh* operator. To do this he proposes the LF structures for EHRCs shown in (21) and the LF structure for IHRCs shown in (22).

(21)   **LF structure for an EHRC (Culy 1990)**

$$
\begin{array}{c}
NP_i \\
\diagup \quad \diagdown \\
NP_i \qquad S' \\
\diagup \quad \diagdown \\
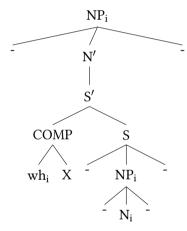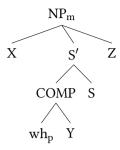COMP \qquad S \\
\diagup\diagdown \qquad \diagup|\diagdown \\
wh_i \;\; X \quad {}^- NP_i {}^- \\
| \\
e_i
\end{array}
$$

(22) **LF structure of an IHRC (Culy 1990)**

$$
\begin{array}{c}
NP_i \\
{}^- \quad N' \quad {}^- \\
| \\
S' \\
\diagup \quad \diagdown \\
COMP \qquad S \\
\diagup\diagdown \qquad \diagup|\diagdown \\
wh_i \;\; X \quad {}^- NP_i {}^- \\
\diagup|\diagdown \\
{}^- N_i {}^-
\end{array}
$$

Culy points out that these structures both have an NP dominating an S′ with a *wh* element in its COMP that is coindexed with the NP internal to the clause. He further states that while it has generally been assumed that coindexation in EHRCs is between a *wh* element and an NP that is the head, this is not a necessary assumption. The same effect can be accomplished by coindexing the *wh* element with the NP dominating the relative clause, since this NP will have the same index as its daughter NP by general feature passing conventions (i.e. that a head and its mother share the same features). By taking this approach, Culy subsumes coindexation in EHRCs and IHRCs under the same rule, which he formalizes as the Relative Coindexing Constraint, shown in (23).

(23) **Relative Coindexing Constraint (RCC) (Culy 1990)**
It must be the case that m = p.

```
              NP_m
            /   |   \
           X    S'    Z
               /  \
            COMP    S
             /  \
          wh_p    Y
```

This allows a generalization about the coindexing that occurs in both EHRCs and IHRCs, thus providing a unifying account of both internally headed and externally headed relative clauses.

5 The syntax of the Hidatsa IHRC

After having reviewed the above approaches to IHRCs, a theoretical analysis of the Hidatsa relative clause is now possible. As shown above in §4.1, Hidatsa obeys the indefiniteness restriction first proposed by Williamson. In this respect, it is typical of IHRCs in other languages. However, Hidatsa is unusual in that its RCs are prefixed with a relative marker that distinguishes specificity of the nominalized clause. In §5.1, I will show that these prefixes are not relative pronouns. In §5.2, I will argue that they are complementizers and provide a syntactic analysis of IHRCs in a Minimalist framework.

5.1 The syntactic status of the Hidatsa relative markers

The Hidatsa RC is a nominalized sentence with the structure shown above in (6) and repeated here as (24).

(24) [(DP) (DP) REL-verb]-DET

In addition to overt DPs, the argument positions can also be filled with a *pro*. Like full DPs, *pro* triggers number and person agreement on the verb. Given this fact, the *aku-* and *aru-* relative markers cannot be relative pronouns in the common sense. That is to say, they do not serve the same function as relative pronouns in languages like English. They do not serve as arguments. Consider again example (9) repeated here as (25).

(25) *Mary uuwáki akuhíriš   warúcic.*
      Mary uuwáki aku-híri-š   wa-rúci-c
      Mary quilt   REL.S-make-DET.D 1A-buy-DECL
      'I bought the quilt that Mary made.'

In this example, we see that the matrix verb *rúci-* 'buy' projects two arguments and two θ roles. The argument positions are filled by a *pro* subject, which is first person (shown by the agreement marker *ma-*), and the relative clause itself. Likewise, the verb in the relative clause, *híri-* 'buy', also projects two arguments and θ roles. These are filled by the subject of the clause, *Mary*, and by the object, *uuwáki* 'quilt'. If *aku-*, and by extension *aru-*, were relative pronouns, they would fill an argument slot, but this is not possible since both verbs project only two arguments each, and these are filled with either full DPs or *pro*. It is thus not possible for either of the Hidatsa relative markers to be a relative pronoun. If this was their role, it would be a violation of the theta criterion (Chomsky 1981: 36). As they cannot be relative pronouns, I propose that they are complementizers. They signal that the RC is a complement clause of a superordinate verb and in that role they function like the English complementizer *that*.

5.2 The Hidatsa relative markers as complementizers

Culy (1990) claims that 1) no languages have overt complementizers in IHRC constructions; and 2) as a result of this lack of overt complementizers, there is no framework independent evidence as to whether the IHRC is an S (TP) or an S′ (CP).
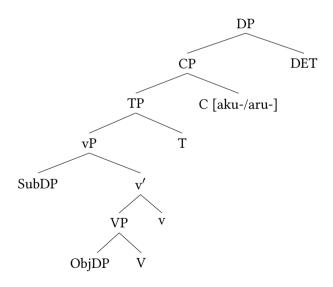
All Siouan languages have an extensive set of morphemes that serve as clause final markers. In Hidatsa, a predicate must have one of these markers to be grammatical. In main clauses, these morphemes show illocutionary force: declarative *-c*, emphatic *-ski*, speculative *-tóok*, past definite *-št*, and permission *-ahka* among others (Matthews 1965; Boyle 2007). Following Rizzi (1997), I assume that complementizers are the syntactic elements that express this type of illocutionary information. As illocutionary force markers, these morphemes indicate the clause type (Cheng 1997) or Force (Chomsky 1995) of the sentence and must be projected in C. In subordinate clauses, these morphemes can include complementizers that include conditional and temporal subordinators. As in matrix clauses, these morphemes are also projected in C.[7]

---

[7] Hidatsa also has co-subordinate clauses (Van Valin & LaPolla 1997). These clauses are connected with switch-reference (SR) markers. Boyle (2007) argues that these are coordinate structures with the SR markers coordinating vPs (same-subject markers) or TPs (different subject

Only relative clauses do not have a clause final illocutionary force marker. While there is a determiner that nominalizes the entire clause, which appears to be clause final, I propose that this is not the case. That determiner is the head of the DP that takes the RC as its complement. The determiner is thus outside of the RC. It is not a complementizer. To unify the syntactic structure of Hidatsa, I believe we can analyze the RC markers *aku-* and *aru-* as complementizers that mark the clause type as relative (REL). This feature satisfies the underspecified clause type feature in T. If this analysis is correct, we now have evidence that IHRCs are CPs, not TPs. The mechanics of how these complementizers function will be detailed below.

While Culy needs the structure presented in (18) above for his analysis, it is highly unusual as it is exocentric — that is to say, the head does not project a phrasal level. In (18), the S projects an N′ and then NP. Culy's analysis could have been simplified but he employs older syntactic notations that do not allow him to capture greater generalities. The analysis presented here follows from the structure proposed by Williamson with only slight alterations. An IHRC in Hidatsa has the base-generated structure shown in (26).

(26)   **Proposed structure for IHRCs in Hidatsa**

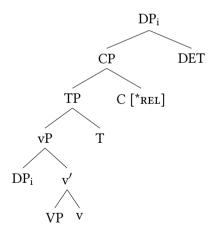This structure allows for a straightforward syntactic analysis without postulat-

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markers). These co-subordinate clauses receive their illocutionary force from the matrix verb. See Gordon & Torres (2012) for a similar analysis of SR marking in Mandan.

ing an exocentric construction.[8] It captures the insights of both Williamson and Culy. In addition, it shows the placement of the Hidatsa complementizers, *aku-* and *aru-*, as projections of C. These relative complementizers surface as prefixes to the verb. The motivation for this ordering is discussed below. The overt syntactic data provides framework-independent evidence for the CP status of IHRC. If this analysis is correct, it is not consistent with Culy's claims presented at the beginning of this section.

5.3 Hidatsa *aku-* and *aru-* as strong features in C

Above I have argued that Hidatsa has overt complementizers in relative clauses, namely the *aku-* and *aru-* morphemes. In Hidatsa IHRCs, these morphemes carry strong features, and as such they trigger movement of the verbal complex to T and then C. It is important to note that this type of cyclic roll-up is head-to-head movement, rather than phrasal movement. Consider the structure (shown in example (27) of the Hidatsa IHRC, here simplified for only one DP in the relative clause.

(27)   **Proposed structure for IHRCs in Hidatsa**

Culy (like Williamson) argues that there is coindexation between the DP dominating the IHRC and the internal DP being modified (the head). In Hidatsa, the head of the RC is coindexed with the DP that dominates the entire IHRC.

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[8] In Hidatsa DPs select NPs or nominalized verbs, which include relative clauses, as complements.

Evidence of coindexation between the head of the IHRC and the DP dominating the IHRC can be seen in number agreement.[9] An example of this agreement is shown in (28) and (29).

(28) **Plural agreement with overt subject**

wíakuʔo	*uuwáki akuhíraʔaš*	*íiwiaʔac*
wía-aku-ʔo	uuwáki aku-híri-ʔa-š	íiwia-ʔa-c
woman-DET.S-PL.I quilt	REL.S-make-PL.D-DET.D	cry-PL.D-DECL

'[Those women who made the quilt] cried.'

(29) **Plural agreement with null subject**

uuwáki akuhíraʔaš	*íiwiaʔac*
uuwáki aku-híri-ʔa-š	íiwia-ʔa-c
quilt REL.S-make-PL.D-DET.D	cry-PL.D-DECL

'(The ones who) made the quilt cried.'

In these examples, we see that the matrix verbs agree with their subjects, which are IHRC. The head in each of these clauses, whether overt (as in 28) or null (as in 29), is plural and this plural number is marked on both the matrix and subordinate verbs. Thus, both the head and the IHRC must have the same number feature. Coindexation is the usual way for two DPs to have the same number marking. The overt interaction of these elements offers convincing evidence that there is indeed a coindexing relationship between the head and the IHRC.
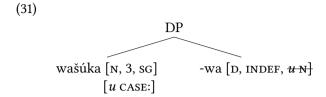
5.4 Move and Merge in the Hidatsa IHRC

Consider again example (11) repeated here as (30).

(30) **Hidatsa internally headed relative clause**
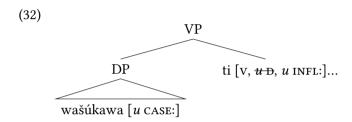
[*wacéeš*	*wašúkawa akutíheeš*]	*šipíšac*
[wacée-š	wašúka-wa aku-tí-hee-š]	šipíša-c
[man-DET.D dog-DET.I	REL.S-die-3.CAUS.D.SG-DET.D]	black-DECL

'The dog [that the man killed] is black.'

The direct object is built by the indefinite determiner selecting for a NP. These two elements merge to form a DP as shown in (31).

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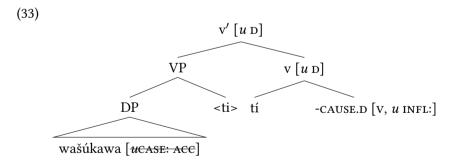
[9] In some languages, person agreement also provides evidence for this coindexation. While Williamson shows this evidence in Lakota, it is not seen in Hidatsa since the type of person agreement morphology that exists in Lakota does not exist in Hidatsa.

(31)

DP
wašúka [N, 3, SG]   -wa [D, INDEF, ~~*u* N~~]
[*u* CASE:]
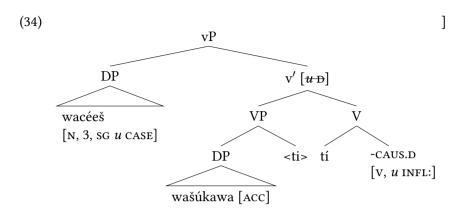
The verb *ti-* 'die' then selects for an argument, satisfying the [*u* D] feature of the verb as shown in (32).

(32)

VP
DP   ti [V, ~~*u* D~~, *u* INFL:]...
wašúkawa [*u* CASE:]

In Hidatsa, the direct causative is projected as the head of v. Direct causatives take stative verbs as their complements and add an agentive argument to the subcategorization of the verb. The lexical verb then moves up to adjoin to the v forming the derived verb *ti+CAUS.D-* and projecting a v′. The verb *ti+CAUS.D-* in Hidatsa is literally 'cause to die'. Accusative [ACC] case is then licensed and checked on the DP *wašukawa*, making it a direct object as shown in (33).

(33)

v′ [*u* D]
VP   v [*u* D]
DP   <ti> tí   -CAUSE.D [V, *u* INFL:]
wašúkawa [~~*u*CASE: ACC~~]

The [*u* D] feature in v is passed up to v′ and projects a SPEC position where the agent is merged, thus checking the [*u* D]. This is shown in (34).

(34)   ]

```
                              vP
                  ┌───────────┴───────────┐
                 DP                      v′ [u̶ ̶D̶]
              ┌───┴───┐             ┌──────┴──────┐
            wacéeš                 VP             V
        [N, 3, SG u CASE]      ┌────┴────┐    ┌────┴────┐
                              DP   <ti>  tí  -CAUS.D
                          ┌────┴────┐              [V, u INFL:]
                       wašúkawa [ACC]
```
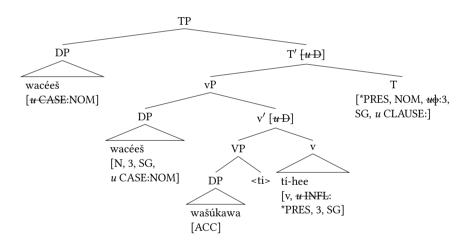
The T head then merges with vP. T has the features [*PRES, NOM, *EPP ([u D]), *u* ϕ: , *u* CLAUSE:]. This gives us the structure shown in (35).

(35)

```
                                        TP
                        ┌────────────────┴────────────────┐
                       DP                                T′ [u̶ ̶D̶]
                   ┌────┴────┐                ┌───────────┴───────────┐
                 wacéeš                      vP                       T
              [u̶ ̶CASE̶:NOM]        ┌──────────┴─────────┐    [*PRES, NOM, u̶ϕ̶:3,
                                 DP                   v′ [u̶ ̶D̶]   SG, u CLAUSE:]
                              ┌───┴───┐         ┌──────┴──────┐
                            wacéeš             VP             v
                          [N, 3, SG,      ┌────┴────┐    ┌────┴────┐
                           u CASE:NOM]   DP   <ti>  tí-hee
                                     ┌────┴────┐     [v, u̶ ̶INFL̶:
                                  wašúkawa           *PRES, 3, SG]
                                   [ACC]
```
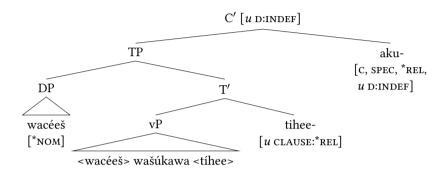
In this structure, nominative case [NOM] is passed down from T to value the [*u* CASE:] feature of the DP in [SPEC, VP]. This agentive DP, *waceeš* 'the man', then passes its phi-features up to value the [*u* ϕ:] in T as [3, SG]. The features [*PRES, 3, SG] are then passed down to value the [*u* INFL:] feature on the verb. Once the CAUS.D is valued for person and number, it is realized as *hee-* at Spellout. The strong [*PRES] tense feature then attracts the verb to T where the tense features are checked (shown below in 36). The EPP feature attracts the agentive DP to [SPEC, TP] where the [NOM] case feature is checked and the [EPP (*u* D]) feature is satisfied. These are all straightforward Move and Merge operations.
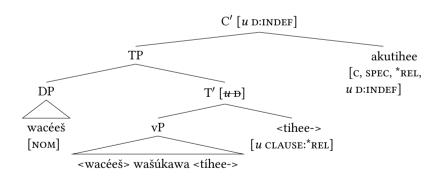
The TP then merges with a C. Normally, if there is no [*wh* feature] in C, there is no [SPEC, CP] position projected. Complementizers for IHRCs are different. I propose that the Hidatsa relative complementizers have the features [C, *REL, *u* D:INDEF]. Additionally, the *aku-* complementizer has a value of [SPEC] (specific) and the *aru-* complementizer has a value of [NON.SPEC] (nonspecific). This gives us the structure shown in (36).

(36)

As the [*REL] illocutionary feature in C is strong it triggers Move of the verbal head in T, so that this feature can be checked. The verb moves to C where the *aku-* is prefixed to it. This is shown in (37).
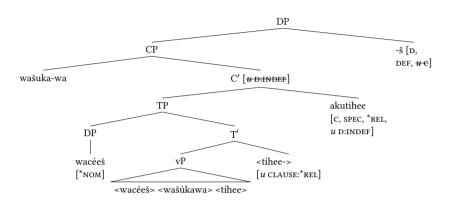
(37)

Normally, illocutionary features in C are weak and don't trigger movement. Because of this the illocutionary force markers concatenate onto the verbal complex as a suffix due to roll-up movement.

The [*u* D:INDEF] feature in C moves up to C′ and creates a [SPEC, CP] position. This is a weak feature, so movement of the indefinite DP is triggered after Spell-

out at LF. The semantic motivations for this will be discussed below in §6. The determiner then nominalizes the clause, selecting for a C rather than N, giving us the complete relative clause structure. This is shown in (38).

(38)

6 Semantic constraints and motivations

Prior to Williamson (1987) there was very little in the way of semantic explanation for IHRCs. Williamson and most linguists after her built on Heim's (1982) ideas about definites and indefinites and applied them to IHRCs. According to Heim, indefinites act not as quantifiers, but as variables. In this section, I will review Heim's basic assumptions. I will then review Williamson's account of IHRC (1987) as well as Basilico's (1996) account, which employs not only Heim's ideas but also Diesing's mapping theory (1990; 1992a,b) to account for how IHRCs function at LF. Adopting Heim's framework, and building on Williamson and Basilico, I develop an account of IHRCs that simplifies previous work and provides an explanation as to the nature of IHRCs and their heads with regard to definiteness and movement at LF. I then show how this account unifies our understanding of IHRCs and EHRCs.

6.1 Heim's account of indefinite determiners

Heim's (1982) dissertation has proven to be very important in the theoretical explanation for the semantics of IHRCs. This work explores how the logical form of a sentence is constructed. Although Heim accepts the commonly held view that noun phrases headed by a common noun are generalized quantifiers, her major

contribution to semantic analysis (particularly for IHRCs) is that indefinites are variables, not quantifiers. So a sentence like (39a) will have the semantic representation seen in (39b):

(39)   **DPs as Generalized Quantifiers**
    a. Every dog is barking
    b. every [(dog(x)) (is-barking(x))]

In (39b), 'every' is the quantifier, '(dog(x))' is the restriction of the quantifier, and '(is barking(x))' is the nuclear scope of the quantifier.

According to Heim (1982), definites and indefinites can be distinguished by three properties. First, only indefinites can undergo Operator Indexing. This means that an indefinite can be indexed with another element in the sentence. Definites, along with proper names and pronouns, are not subject to Operator Indexing. Second, only indefinites are constrained by the Novelty Condition. The Novelty Condition states that an indefinite NP must not have the same index as any NP to its left. Third, definites, but not indefinites, presuppose their descriptive content, if they have any. That is to say, a definite presupposes the existence of an entity with the properties of its descriptive content, while an indefinite does not. The crucial property in understanding the distribution of determiners in IHRCs is that only indefinites undergo Operator Indexing. Lastly, as indefinites are variables and not quantifiers, they must be bound by an existential operator inserted in the sentence by an operation she calls Existential Closure.

6.2 Williamson's treatment of IHRCs

Williamson (1987) claims that all languages that have IHRCs will have an indefiniteness restriction. According to this restriction, only indefinite NPs may be heads in an IHRC. This is to say that the head of an IHRC cannot be marked with a definite determiner. Williamson claims that the indefiniteness restriction cannot be attributed to some inherent (i.e. lexical) property requiring wide scope of the indefinite NP. In addition, one cannot attribute this restriction to the traditional distinction between quantifiers, on the one hand, and proper nouns and definite NPs, on the other. To understand the indefiniteness restriction, Williamson claims that we must understand that both simple declaratives containing an indefinite and RCs indicate the intersection of two sets. The traditional view of this can be seen in (40) and (41).

(40)   I bought a dog
    $\exists\,x\,(\mathrm{Dog}\,(x)\,\&\,\mathrm{Buy}\,(I,\,x))$

(41)   dog that I bought
       (Dog (x) & Buy (I, x))

In (40) we see a proposition with a bound variable and in (41) we see a propositional function with a free variable. Williamson suggests that we reconsider the traditional view of indefinites as existential quantifiers. Following Heim (1982), Williamson proposes that indefinites are 'quantifier-free'. That is to say that they are essentially free variables. This then gives the example in (40) the semantic interpretation of the example in (41). The quantifier force of indefinites in simple declaratives is determined by the rule of Existential Closure. Thus, IHRCs have the interpretation of a propositional function. Williamson claims that universal quantifiers are excluded as heads because semantically such a quantifier is interpreted as a restrictive term. A definite is familiar (known) and presupposes the content of its predicate. This property is at variance with the meaning of restrictive RCs, for if the head is already familiar to the hearer, further specification by the RC is, at best, unnecessary. While I agree with Williamson's analysis of IHRCs, she does not provide a motivation for why it is true.

6.3 Basilico's account of IHRCs and Diesing's mapping theory

Basilico (1996) notes that most theorists working in a transformational framework posit that the internal head moves to an external position at some point in the derivation. Examples of this have been shown above with the work of Cole (1982; 1987), Williamson (1987), Culy (1990), Kayne (1994) and Bianchi (1999), among others. With the exception of Kayne and Bianchi, most researchers working on IHRCs have posited that this movement takes place at LF (or its predecessor D-Structure).

Prior to Basilico (1996) there were two general approaches to head movement in IHRCs. In the first approach, advocated by Broadwell (1985; 1987), Cole (1987), Lefebvre & Muysken (1988), and Cole & Hermon (1994), the head moves to a position external to the CP of the relative clause. The second approach, advocated by Williamson (1987), Brass et al. (1989), and Bonneau (1992), postulates that the head moves to the [SPEC, CP] of the RC but not out of the clause itself. While all of these works have arguments supporting the nature of the movement, none of them provide a detailed explanation as to why the head needs to move.

Basilico presents evidence that in some languages with IHRCs, movement of the head occurs in the overt syntax. He argues that the head need not necessarily move to a position external to the clause and that while the head is not in its usual place it nevertheless remains within the RC in the overt syntax. Drawing from

the previous work of Williamson (1987), Jelinek (1987), and Culy (1990), Basilico adopts the notion that IHRCs are not cases of relativization semantically, but cases of quantification. Following Heim (1982), Basilico argues that IHRCs are associated with quantificational elements that bind variables within the subordinate clause itself. The sentential part of the IHRC is interpreted semantically as an open sentence. According to Basilico the Hidatsa relative clause in (42) would have the semantic interpretation shown in (43).

(42) *wáceewa   akuʔawákaaš*
      wácee-wa aku-awákaa-š
      man-DET.I REL.S-1A.see-DET.D
      'the man that I saw'

(43) ι x [man (x) & I saw (x)]

In this example, the sentential part of the IHRC 'man I saw' should be interpreted semantically as *man (x) & I saw (x)*, an open sentence with two unbound variables. According to Basilico, the definite determiner -š functions as an (iota) operator that binds the variables within the relative clause.[10] Following Culy (1990), the sentential part of the IHRC functions as the restriction on the operator associated with the relative clause.

In this analysis, one of the variables associated with the sentence is provided by the head noun. The importance of this, namely the indefiniteness restriction on the head NP, was first noted by Williamson (1987). She showed that the head NP in IHRCs is not allowed to be marked as definite. According to Basilico, this follows from Heim's (1982) analysis that indefinite NPs are not associated with quantificational force (as presented above) and Kratzer's (1989) Prohibition Against Vacuous Quantification. In a similar manner to Culy (1990), Basilico follows Heim (1982) in treating indefinites as having no quantificational force. He argues that they provide only a variable, which must be bound by another operator in the representation. In IHRCs this operator is the determiner associated with the entire IHRC itself; it comes to bind the variable associated with the indefinite head. Basilico argues that if there was a definite marker on the head then the variable provided by the head would be unavailable for binding. Since the operator associated with the IHRC would not bind a variable, this would be a violation of the prohibition against vacuous quantification (as shown in 44).

(44) For every quantifier Q, there must be a variable x such that Q binds an

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[10] See Jelinek (1987) for the proposal concerning the use of the iota operator with IHRCs.

occurrence of x in both its restrictive clause and its nuclear scope
(Kratzer 1989).

Since the sentential part of the IHRC forms the restriction on the operator, there would be no variable for the operator to bind if there were no indefinite within the subordinate sentence to provide this variable.

Basilico then goes on to apply Diesing's (1990; 1992; 1992) Mapping Hypothesis to the head movement in IHRCs. Her mapping hypothesis, which holds at LF, proposes two notions:

(45)   a.   Material from VP (vP) maps into nuclear scope, which is the domain of existential closure.
       b.   Material from TP maps into a restrictive clause.

A restrictive clause is that part of the representation which forms the restriction on some operator. That is, an indefinite that restricts some operator will be in a different syntactic position at LF than an indefinite that receives an existential interpretation by VP-level existential closure. The former indefinite NPs (the heads of the IHRCs) must not be within the VP at LF, while the latter must be in the VP at LF (Basilico 1996). Therefore, the indefinite head of an IHRC must move out of VP simply because it is indefinite. RCs are quantificational and are selected by the determiner. The head must move out of its argument position in order for the quantificational operator that is associated with it (as shown by the final determiner of the RC) to bind the variable introduced by the head (which is indefinite or null).

Basilico argues that there is an operator associated with the IHRC, which must come to bind the variable associated with the indefinite head. In order for an indefinite to become bound by an operator and not undergo existential closure, it must move out of the VP by LF. Thus, the quantificational approach to IHRCs and the mapping hypothesis provide a motivation for head movement. The head must move in order to be bound by the operator associated with the IHRC. If there is no head movement, and the head remains in the VP, then there will be no variable to bind, and as a result, this will violate the prohibition against vacuous quantification.

Basilico, like others before him, claims that IHRCs are DPs. Like other DPs, IHRCs can appear as arguments. For Basilico the difference between IHRCs and other DPs lies in what the head D of the DP takes as its complement. Noun phrase DPs must take NPs as the complement to the head D; this NP functions as the restriction on the head of D. IHRC DPs on the other hand take sentences (TPs)

as their complements and these sentences function as the restriction on the head D (Basilico 1996).

Unfortunately, Basilico is only examining languages (Diegueño, Mojave, and Cocopa) that have evidence of movement in the overt syntax of their IHRCs. As a result of this, the structures he posits show movement taking place prior to Spellout. In these structures, either the head or the entire IHRC move, thus allowing the head to escape existential closure.

By only examining IHRCs that show some evidence of movement overtly in the syntax, Basilico avoids the more general consideration of what happens in languages with IHRCs that show no evidence of movement. As a result, he need not posit any structure for the majority of languages with IHRCs where head movement is done covertly at LF.
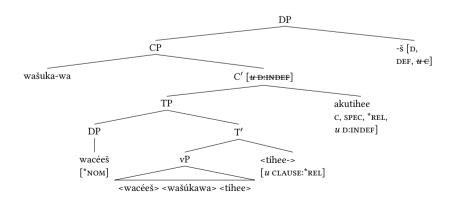
6.4 The semantic motivation for movement at LF

Consider again example (11) repeated here as (46).

(46) **Hidatsa internally headed relative clause**
[*Wacéeš   wašúkawa akutíheeš*]   *šipíšac.*
[wacée-š   wašúka-wa aku-tí-hee-š]   šipíša-c
[man-DET.D dog-DET.I   REL.S-die-3.CAUS.D.SG-DET.D] black
'[The dog that the man killed] is black.'

This is an unambiguous IHRC. In this sentence the head of the RC is *wašúkawa* 'a dog'. The structure of this sentence given above in example (38) is repeated here as (47).

(47)

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As Basilico (1996) has shown, relative clauses are quantificational. A determiner selects a relative clause as its complement. In addition, all IHRCs are restrictive, which means it is part of the representation which forms the restriction on some operator. An indefinite that restricts some operator must be in a different syntactic position at LF than an indefinite that receives existential interpretation by VP-level existential closure. Given this, the head of the IHRC, which must be indefinite, must not be within VP at LF. The head must move out of its argument position in order for the quantificational operator that is associated with it (as shown by the final determiner on the RC) to bind the variable introduced by the head (which is indefinite or null). The indefinite determiner is not associated with any quantificational force: it is an identity function. The semantics of the Hidatsa indefinite can be seen in (48).

(48)   [-wa] = λ P<et>.P

Given this, the head must move; if it does not, it will not escape the existential closure of the VP. The head must be indefinite (or generic with null morphology) if it is to be bound by this outside operator. Given that the head of the IHRC is in-situ at Spellout, any movement must take place at LF. If this movement does not take place, the derivation will crash.

Although Basilico (1996) postulates structures with either IP or VP adjunction, this cannot be correct for Hidatsa, as IHRCs show no evidence of movement. However, I have postulated that Hidatsa does show clear evidence for a CP structure as the overt relative markers act as complementizers. This overt evidence for a complementizer shows that Culy (1990) was correct in postulating the complementizer position for IHRCs and while it is rarely filled overtly in many of the world's languages that have these structures, it is in Hidatsa. In Hidatsa the head of the IHRC moves to the [SPEC, CP] position at LF.

6.5 A unified account of IHRCs and EHRCs

Given the above analysis, we can see that IHRCs and EHRCs are remarkably similar. EHRCs serve as complements (restrictive RCs) or adjuncts (non-restrictive RCs) to NPs, which are arguments of a predicate. IHRCs are DPs that serve as arguments of a predicate. In EHRCs, the head that is modified by the clause is coindexed with an element inside the RC. This is either a relative pronoun or an operator. This relative pronoun or operator is coindexed with the head outside of the RC. In IHRCs, the head stays inside of the RC, but it is coindexed with the determiner that takes the IHRC as its complement. This head must move to

[SPEC, CP] at LF to escape existential closure, just as the relative pronoun or operator moves to [SPEC, CP] in an EHRC.

7 Conclusion

In this paper I have shown that Hidatsa has IHRCs. I have examined previous attempts at describing their syntactic structure and provided a new one based on data from Hidatsa. In addition, I have provided theory external evidence for the possibility of complementizer in these clauses (namely the *aku-* and *aru-* markers). Following Culy (1990), I have argued that this complementizer has a strong feature, and that in Hidatsa this is different from all other complementizers triggering movement. This accounts for the morpheme order in Hidatsa relative clauses. Following previous work on IHRCs (most notably Williamson 1987 and Culy 1990) I have expanded and simplified how the semantics of IHRCs functions. I have provided motivation for the movement of the head of the IHRC at LF in addition to explaining why Williamson's indefiniteness restriction holds true.

Acknowledgment

Abbreviations

1.A = first person active, 3.CAUS.D.SG = third person causative, 3.POSS.A = third person alienable possessive, CONT = continuative, DECL = declarative, DET.D = definite determiner, DET.I = indefinite determiner, DET.S = specific determiner, EHRC = externally headed relative clause; EMPH = emphatic, EPE = epenthetic consonant, IHRC = internally headed relative clause; INDEF = indefinite, LOC = locative, NE = narrative ending, NEG = negative, PL.D = plural definite, PL.I = plural indefinite, RC = relative clause; REL.N = nonspecific relative, REL.S = specific relative, TEMP = temporal, TOP = topic

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Back Title

The Siouan family comprises some twenty languages, historically spoken across a broad swath of the central North American plains and woodlands, as well as in parts of the southeastern United States. In spite of its geographical extent and diversity, and the size and importance of several Siouan-speaking tribes, this family has received relatively little attention in the linguistic literature and many of the individual Siouan languages are severely understudied. This volume aims to make work on Siouan languages more broadly available and to encourage deeper investigation of the myriad typological, theoretical, descriptive, and pedagogical issues they raise.

The 17 chapters in this volume present a broad range of current Siouan research, focusing on various Siouan languages, from a variety of linguistic perspectives: historical-genetic, philological, applied, descriptive, formal/generative, and comparative/typological. The editors' preface summarizes characteristic features of the Siouan family, including head-final and "verb-centered" syntax, a complex system of verbal affixes including applicatives and subject-possessives, head-internal relative clauses, gendered speech markers, stop-systems including ejectives, and a preference for certain prosodic and phonotactic patterns.

The volume is dedicated to the memory of Professor Robert L. Rankin, a towering figure in Siouan linguistics throughout his long career, who passed away in February of 2014.