Cheyenne Connectives\textsuperscript{1}  

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(Draft: 1 Aug 2014; to appear in PAC45, Papers of the Forty-Fifth Algonquian Conference)  

1 Introduction  

Coordinating connectives in English, including and (conjunction), but (contrastive conjunction), and or (disjunction), are monomorphemic. In Cheyenne\textsuperscript{2}, the basic form used for conjunction is naa (Leman 2011), as illustrated in (1).\textsuperscript{3} Other connectives are complex, formed by combining an element with naa, such as ‘and also’ in (2), ‘but’ in (3), and ‘or’ in (4) (Fisher et al. 2006, Leman 2011).

(1) Annie é-ho'soo'e naa Shelly é-néméne.  
Annie 3-dance CONN Shelly 3-sing  
‘Annie danced and Shelly sang.’

(2) naa máto  
CONN also  
‘and also’

(3) naa oha  
CONN CNTR  
‘but’

(4) naa máto=héva  
CONN also=maybe  
‘or’

This paper provides a description of these Cheyenne connectives, with attention to both their form and meaning, as well as to whether they should be treated compositionally. The next section describes basic conjunctions with naa alone. Section 3 looks at other kinds of conjunctions, including additive, as in (2), and contrastive, as in (3). Disjunctions, as in (4),
are described in Section 4. Section 5 is a discussion of potential directions for a semantic analysis, and the complications for a compositional, truth-functional analysis.

2 Basic Conjunctions with *naa*

Cheyenne *naa* can be used to conjoin sentences, as in (1) above and (5) below, as well as verbs, which can stand alone as sentences, as in (6), from Mother’s Day by Elaine Strangeowl.

(5) Xaeh-o é-ohke-móšëškanâhe-o'o méaneva **naa** é-ohke-vó'omâhe-o'o weasel-PL 3-HAB-be.brown-PL summer.OBL **naa** 3-HAB-be.white-PL aénëva. winter.OBL
    ‘Weasels are brown in summer and they are white in winter.’

(6) É-vó’ome-vovó’hâse **naa** é-móšëškânahe. (Leman 1980a, p.72)
    3-white-be.spotted **naa** 3-be.brown
    ‘It (a pinto) was white-spotted and (it was) brown.’

    The same connective can be used to conjoin nouns, as in (7), from The Little Corn Man by Mrs. Allen Flyingout, and with names, as in (8).

(7) Hé’e **naa** hetane é-h-vée-hoono o’hé’e. (Leman 1980a, p.67)
    woman **naa** man 3-PST-camp-NAR.3PL river.OBL
    ‘A woman and a man were camping by a river.’

(8) Annie **naa** Shelly é-ho’soé-o’o.
    Annie **CONN** Shelly 3-dance-PL
    ‘Annie and Shelly danced.’

    When three nouns are combined, *naa* may be repeated between each, as in (9) from The Trek from Oklahoma by Ralph Redfox. However, *naa* is not necessary between the first two nouns, as shown by (10) from My Family Came Back by Elaine Strangeowl.
(9) Ma’háhkéseh-o naa hetane-o’o naa kásováaheh-o old.man-PL CONN man-PL CONN young.man-PL mó-’öhe-mé’etanó’òv-ò-hé-vo-vó-he.  (Leman 1980a, p.9) Q+3-PST-HAB-remember-DIR-NEGAN-3PL-OBV-INF ‘The old men and the men and the young men remembered them (buffalo), it’s said.’

(10) Naa oha hoháesto é-néx-hováneehe-sesto ka’èškóneh-o mé’èševot-o CONN CNTR many 3-CIS-be.gone-RPT.3PL child-PL baby-PL naa māhtamáháaheh-o.  (Leman 1980a, p.10) CONN old.woman-PL ‘But many had died, children, babies, and old women, it’s said.’

Another frequent use of naa is at the beginning of sentences, especially in texts, probably to signal discourse continuity. For example, the text How Birney Got the Name “Oévemanáhéno” by Elaine Strangeowl starts off with (11).

(11) Naa tséheškéto ná-nóhtséstóv-o ...  (Leman 1980a, p.21) CONN mother 1-ask-DIR ‘And my mother I asked her...’

In The Whiteman and the Indian by Leonard Yelloweagle (Leman 2011, p.206), nearly every sentence starts with naa.

3 Other Conjunctions

Other Cheyenne connectives are formed by combining an element with naa. One such connective is naa máto ‘and also’, which I will call an additive conjunction. Alone máto means ‘also’ (Fisher et al. 2006), as in (12) from The Scalped Father by Laura Rockroads.

(12) Māhta’so máto nēhéstáhevo ná-htá-hósém-o.  (Leman 1987, p.295) scalped.person also that.kind 1-FUT+TRL-tell.about-DIR ‘A scalped man, also of that kind (of person), I’m gonna tell about him.’

Additional examples of máto alone are (13), from Some Cheyenne Beliefs also by Laura Rockroads, and the question in (14).
É-ohke-éve-e'h-e-o'o máto vékéséhe-méstae-o'o. (Leman 1987, p.214)
3-HAB-about-fear-PSV-3PL also bird-spook-3PL
‘Owls are also feared.’

Máto hénova'e? (Fisher et al. 2006)
also what
‘What else?’

Naa can be combined with máto ‘also’, as in (15) from The Grasshopper and the Ant
by Mrs. Allen Flyingout.

Ná-to'se-éé-ho'soo'e naa máto ná-to'se-néméne. (Leman 2011, p.207)
1-PROS-around-dance CONN also 1-PROS-sing
‘I’m going to dance around and also I’m going to sing.’

Like naa alone, naa máto can conjoin nouns as well as verbs, as in (16) from The Man
Who Turned into Buffalo Bones by Laura Rockroads.

Mó'-éé-máhaét-ae-he-vó-he ho'neh-o naa máto
Q+3-PST-around-eat.all.of-INV-NEG AN-OBV-INF wolf-OBV CONN also
ó'kóhomeh-o. (Leman 1987, p.271)
coyote-OBV
‘He must have gotten eaten by wolves and also coyotes.’

The combination of naa and máto seems straightforwardly compositional: in (15) and
(16), máto seems to contribute the same additive semantics as when found alone, as in (12)
– (14). Similarly, naa can be combined with néhe'se, which alone means ‘then’, as in (17).
Combined naa and néhe'se indicate temporal sequencing, as in (18) from The Rolling Head
by Albert Hoffman.

Néhe'se néhéóhe ná-x-hósé-háóéna. (Leman 1987, p.157)
then there 1-PST-again-pray
‘Then there I prayed again.’

É-s-tá-hóse-émóhó'né-hoo'o. Naa néhe'se
3-PST-TRL-again-hunt-NAR.3SG and then
é-x-hóse-évá-ho'èhné-hoo'o. (Leman 1980a, p.53)
3-PST-again-back-arrive-NAR.3SG
‘He again hunted, it’s told. And then he again came back, it’s told.’
However, the contrastive conjunction *naa oha* is less clearly compositional.\(^5\) Used alone, *oha* is similar to English *only* or *except*, as in (19) – (22). Example (21) is from Turtle Moccasin by Jeannette Howlingcrane and (22) from The Drumming Owls by Mrs. Allen Flyingout.

(19) **oha** na'êstse  

\(\text{CNTR} \quad \text{one} \)  

‘only one’  

(20) **Oha** ná-tséhésenéstse-táno.  

\(\text{CNTR} \quad 1\text{-talk.Cheyenne-want} \)  

‘I want to speak only Cheyenne.’

(21) **Oha** ma'enóhkevo'eha é-mé'-mane.  

\(\text{CNTR} \quad \text{Turtle.Moccasin} \quad 3\text{-should-drink} \)  

‘Only Turtle Moccasin should drink.’

(22) **Oha** né-ohkê-sáa'-e't-ô-he  

\(\text{CNTR} \quad \text{owl-PL} \)  

‘I am not afraid of anything except owls who have drums.’

Combined with *naa*, *oha* creates a contrastive conjunction with a meaning similar to English *but*, as in (23).

(23) Annie é-ho'soo'e **naa oha** Shelly é-sáa-ho'sóé-he.  

\(\text{CNTR} \quad \text{Shelly} \quad 3\text{-not-dance-NEG}_{\text{AN}} \)  

‘Annie danced but Shelly didn’t dance.’

It is not obvious how the contribution of *oha* in (23) is related to the uses in (19) – (22): it does not mean something parallel to English *and only* and (23) does not require that only Shelly did not dance. However, they are not completely unrelated – all instances of *oha* contribute some type of contrastive, adversative, or exclusive meaning, similar to English *only*.\(^6\) For example, (21) indicates no one else should drink and (23) requires that Shelly’s
not dancing is contrary to expectations. This sentence without oha, as in (24), is also grammatical, but does not contribute this contrast with prior expectations.

(24) Annie é-ho'soo'e naa Shelly é-sáa-ho'sóé-he.  
     Annie 3-dance CONN Shelly 3-not-dance-NEG_{AN}  
     ‘Annie danced but Shelly didn’t dance.’

When the prior expectations are made explicit in the discourse, as in (25) below, oha is required: (26) is infelicitous.

(25) Máhtohto ka'ěškóneh-o é-tá-hé-ho'sóé-o'o naa oha Annie  
     ten child-PL 3-TRL-PURP-dance-PL CONN CNTR Annie  
     é-no'ké-ho'soo'e.  
     3-one-dance  
     ‘Ten children went to dance but Annie was the only one who danced.’

(26) # Máhtohto ka'ěškóneh-o é-tá-hé-ho'sóé-o'o naa Annie  
     ten child-PL 3-TRL-PURP-dance-PL CONN Annie  
     é-no'ké-ho'soo'e.  
     3-one-dance  
     # ‘Ten children went to dance and Annie was the only one who danced.’

In addition, crosslinguistically there are other examples of coordinators combining with contrast marking to form complex, contrastive conjunctions (Malchukov 2004).

4 Disjunctions

The disjunction naa mátó=héva combines naa, mátó, and héva. As discussed above in Section 3, mátó alone is an additive particle, roughly equivalent to English also. Alone, héva has a wide variety of uses. It can mean ‘maybe’, ‘even’, or ‘like’, depending on the context, as in (27), from The Cheyenne Sacred Way of Thinking by Laura Rockroads and (28) from Straight Teaching by Elaine Strangeowl.

(27) Héva ná-htse-vésé-há'a'ěše-vo'estanéhévé-me.  
     maybe 1-FUT-also-long.time-live-1PL.EXCL  
     ‘Perhaps we will live a long time.’

(Leman 1987, p.211)
(28) **Héva** hé'tóhe é-sáa-péhéva'è-háne he'po-htótse tsé-heşévé-se maybe this 3-not-be.good-NEG<sub>INAN</sub> smoke-NOM IND-do.that-CNJ.2PL
hétsetseha. (Leman 1987, p.216)

now ‘Like this isn’t good, smoking, what you’re doing now.’

**Héva** can also be used in a range of constructions, including the conditional and the inferential evidential (Leman 2011). It may also be combined with various other words and particles, including the question particle **móhe** forming **hévá=móhe** ‘apparently’ (Fisher et al. 2006).

When **héva** combines with **naa** and **méto**, it forms a disjunction, as in (29) from Making Chokecherry Patties by Elva Killsontop.

(29) É-ohke-péen-ē-néstse **naa méto=héva** é-ohke-pénôh-ē-néstse.
3-HAB-grind-PSV-PL.INAN CONN also=maybe 3-HAB-pound-PSV-PL.INAN

‘They (chokecherries) are ground or they are pounded.’ (Leman 1980a, p.77)

Importantly, in (29) **méto** and **héva** are pronounced together, as **méto=héva**. When pronounced together, **méto=héva** is three syllables: the sequence tô=hé forms a single, complex syllable (Leman 2011). When pronounced separately, **méto héva** is four syllables. A sequence of **naa méto héva** is also possible, without a change in pronunciation, and with a clearly compositional interpretation. One such example is (30), from Family Harmony by Elaine Strangeowl, where the narrator is discussing married couples and how they should discuss and agree on everything.

(30) **Naa méto héva** tósa’e tsé-s-to’sè-ho’õhtsë-vôse.
CONN also maybe where IND-CNO-PROS-go-CNJ.3PL

‘And also like where they are going to go.’

Like **naa** and **naa méto**, **naa méto=héva** can be used to conjoin other categories in addition to verbs. Example (31), from Flute Playing by Elaine Strangeowl, shows this for nouns and (32), from Cooking Chokecherries by Elva Killsontop, shows this for numbers.
(31) ... héva hetane naa mátô=héva kâsovááhe ... (Leman 1980a, p.11)
may be man CONN also=maybe young.man
‘... maybe a man or a young man...’

(32) Naa néhe’sče é-ohke-ése-énan-ē-néstse na’nohto naa mátô=héva
CONN then 3-HAB-in-put-PSV-PL.INAN eight CONN also=maybe
sóhohto tsé-ová’kan-e’e’êtse.
nine IND-make.patties-PSV-CNJ.PL.INAN
‘And then they are put in, eight or nine patties.’

While the disjunction naa mátô=héva may be related to the morphemes máto and héva,
it no longer seems fully compositional. Indeed, a translation along the lines of (30) would
not be appropriate for (32): it does not mean ‘And then they are put in, eight and also maybe
nine patties’. Yet, even if mátô=héva is analyzed as a unit, it is still combined with naa, the
conjunction, to form a disjunction, which differs significantly in its truth conditions. For
(32), eight or nine patties are added, not both eight and nine patties. Cheyenne (29), (31),
and (32) have a true disjunctive interpretation.

Another way of expressing disjunction in Cheyenne is morphologically similar: naa
mó=héá’e, combing naa with the question particle móhe and the epistemic particle hēá’e.7
Alone, hēá’e is similar to English maybe or perhaps, as in (33) from the anonymous text
The Brothers-in-law.

(33) Hēá’e né-héne’enôv-o Kéhaéné’e. (Leman 1987, p.174)
maybe 2-know.s.o-DIR Squint.Eye.Woman
‘Maybe you know Squint Eye Woman.’

The disjunction naa mó=héá’e is illustrated in (34) from The Rolling Head by Laura
Rockroads, (35) from the anonymous text The Sioux Medicineman8, and (36) from Some
Cheyenne Beliefs by Laura Rockroads.

(34) ... hēá’e né=hé’e naa mó=héá’e né=hetane ... (Leman 1987, p.251)
maybe that=woman CONN Q=maybe that=man
‘...maybe that woman or that man...’
(35) Tótshe a-ta-vööööse na'he èëèhe-o'o naa mó=heá'ëháma hehpeto long.ago 3-TRL-be.gone three sun-PL CONN Q=maybe later
‘She’s been gone a long time, three months or maybe more.’ (Leman 1987, p.112)

(36) Naa hétsëshehá ná-sáa-héne'ëno-he héá'e CONN now 1-not-know.s.t-NEG AN maybe
é-óké-éé-só'-né-hešë-né-hëso naa mó=héá'e 3-HAB-around-still-AN-how-AN-be.the.way CONN Q=maybe
é-óké-sáa'-éé-ëva-në-hëso-hane. (Leman 1987, p.214)
‘But now I don’t know, maybe that is still so or maybe it isn’t so now.’

Though there are morphosyntactic similarities between the disjunctions naa mató=héva and naa mó=héá'e, there are important semantic differences. For example, consider (37), which could be used in a context where the speaker saw Annie drinking something warm, but is not sure if it was coffee or tea.

(37) Annie é-noméë mo'kóhtëvë-hëhe naa mó=héá'e véhpotsë-hëhe. Annie 3-drink black-broth CONN Q=maybe leaf-broth
‘Annie drank coffee or tea.’

In such a context, replacing the disjunction in (37) with naa mató=héva is unacceptable.

Interestingly, naa alone can be used as a disjunction in certain contexts, as in (38).

(38) Mó=hëtëhe naa mó=hëtëhe? Q=this.one CONN Q=this.one
‘Do you mean this one (pointing) or this one (pointing)?’

The question in (38) could be used in a context where the speaker was asked to pass something, say a cup, but is not sure which cup was intended and so asks (38) to clarify. It is an alternative question: possible answers include ‘that one (pointing)’ but not ‘yes’ or ‘no’. So, in (38) naa is interpreted disjunctively. However, this use of naa appears to be limited to interrogatives: naa does not seem to be a “general use connective” like COORD in ASL (Davidson 2013). An additional example of such a question is (39) from the anonymous text The Sioux Medicineman.

9
5 Towards an Analysis

In philosophical logic and semantics, it is common to assume a truth functional analysis of connectives: the truth value of a complex sentence is a function of the truth values of its parts. For example, consider English *and* and *or*. A complex sentence *A and B* is true just in case *A* is true and *B* is also true: both sentences have to be true. A complex sentence *A or B* is true just in case *A* is true or *B* is true: at least one of the sentences has to be true (inclusive disjunction). Thus, (inclusive) disjunction is logically weaker than conjunction: if *A and B* is true, *A or B* is also true, but not vice versa. This semantics for connectives is compositional: the meaning of a complex expression is determined by the meaning of the parts and how they are combined.

For Cheyenne, because many connectives are complex, built on *naa* ‘and’, the issue of a compositional analysis is unavoidable. One option that would maintain compositionality would be to analyze each complex connective as a unit, lexicalized as is. Another analysis would be ambiguity – each lexical item involved in the complex connectives would be (potentially) ambiguous. However, both of these options ignore the morphosyntax of the complex connectives, the semantic similarity between them, and the semantic relation of the parts of the complex connectives to their independent uses. An explanatory analysis should account for these facts.

A truth functional analysis of connectives can be extended to Cheyenne for *naa* alone and clearly compositional combinations such as *naa máto* and *naa néhe’še*. For example, a complex sentence *A naa B* is true just in case both *A* and *B* are true. However, a simple extension of this analysis is not compatible with the interpretation of *naa* in interrogatives (see, e.g., (38)), where neither conjunct has a truth value.
Further complications for a truth functional analysis of Cheyenne connectives come from the contrastive conjunction *naa oha* and the disjunctions *naa mátö=héva* and *naa mò=héá’e*. For a complex sentence *A naa oha B*, we do still want to require both *A* and *B* to be true. However, there are two issues: what meaning to assign to *oha* so it can combine with *naa* to form a contrastive conjunction (see (23)) and whether a uniform meaning can be assigned for all occurrences of *oha*.

Difficulties for a truth functional analysis become more acute with the disjunctions: for example, a complex sentence *A naa mátö=héva B* requires at least one of *A* or *B* to be true. Even though it includes *naa*, it does not require both *A* and *B* to be true. What kind of meaning could be assigned to *mátö=héva* so it could combine with logical conjunction and return disjunction? There is also the issue of what, if any, relation *mátö=héva* and *mò=héá’e* have to *mátö*, *héva*, *mòhè*, and *héá’e*.

Since all of the complex forms include *naa*, a crucial component of any analysis will be what meaning to assign to *naa*, and whether or not it can be given a uniform analysis. Recently, Davidson (2013) has developed an analysis for a general coordinator in ASL where it has a basic meaning that can take on either conjunctive or disjunctive force, depending on the context. However, Cheyenne *naa* does not seem to take on the same range of interpretations in the same contexts as the general coordinator in ASL, so this type of analysis does not seem directly extendable to *naa*.

One potential avenue of analysis for Cheyenne *naa* is simply as sequential update, a standard way of treating conjunction in dynamic semantics (e.g., Groenendijk and Stokhof 1991). That is, *naa* would sequence together two contributions without adding any additional contribution. This analysis would make sense of its use in texts and interrogatives. It would also allow for a compositional analysis of the complex connectives, up to a point: *mátö=héva* may have to be treated as a unit in the analysis of the disjunction *naa mátö=héva*. This component of this disjunction may be historically related to its parts (*mátö* and *héva*), but it seems to be grammaticized. However, the disjunction *naa mò=héá’e*
seems more transparent, allowing variations like naa mó=heá’heáma, which pose similar issues for compositionality. Any uniform analysis of naa faces the challenge of reconciling what seems to be a true conjunctive marker with uses in a logically weaker construction, disjunction.

Notes

1I would like to thank my Cheyenne consultants, and others I have talked with about Cheyenne, for their collaboration and discussion of Cheyenne data. I would also like to thank Wayne Leman, Monica Macaulay, William Starr, audiences at the 45th Algonquian Conference in Ottawa, and two anonymous PAC45 reviewers for comments and helpful discussion. Any errors are my own.

2Cheyenne is a Plains Algonquian language spoken in Montana and Oklahoma. The data presented in this paper was collected by the author during several fieldwork trips to Montana during summers since 2006 and draws on a Cheyenne grammar (Leman 2011), collections of texts (Leman 1980a, 1987), and a dictionary (Fisher et al. 2006). Examples are from fieldwork unless otherwise cited. For all included Cheyenne examples, the morphological analysis, glossing, and translation is my own.

3Orthography and Abbreviations: V high pitch vowel, ¯V mid pitch vowel, ˙V voiceless vowel (all final vowels are voiceless, but not marked), 1 first person, 2 second person, 3 third person, AN animate, CIS cislocative (toward speaker), CONN connective, CNJ conjunct (dependent) clause, CNOB conjunct oblique (past tense, location, or cause in conjunct verbs), CNTR contrastive, DIR direct voice, EXCL exclusive, FUT future, HAB habitual, INAN inanimate, IND indicative conjunct mode, INF inferential evidential (mode), INV inverse voice, IOAM inanimate object agreement (Rhodes 1976), NAR narrative (preterit) evidential (mode), NEG negation agreement suffix, NOM nominalizer, OBL oblique, OBV obviative, PART participle, PL plural, PST past, PROS prospective, PSV passive, Q interrogative proclitic, PURP purposive, RPT reportative, TRL translocative (away from speaker).

4This is unlike in Menominee, where there are separate coordinators for phrases and clauses (Johnson et al. 2014).

5This construction could also be called ‘adversative coordination’, as in Haspelmath (2007).

6English only has adversative uses, as in Annie went to dance, only she got nervous. However, in such cases it is not combined with and: #Annie went to dance, and only she got nervous.

7Semantically, this disjunction might be analyzed along the lines of Zimmerman (2000), as a conjunction of epistemic possibilities. This seems especially appropriate given the option of having an additional hēā’a at
the beginning of the disjunction (see (34)), though this can affect the meaning. However, this analysis does not seem appropriate for the disjunction naa māt̄o=héva, given the semantic differences (see, e.g., (37)).

8In example (35), the particle hāma occurs in the disjunction, attached to hēə'e: naa mō=hēə'ęhāma, compared to naa mō=hēə'e in examples (34) and (36). Alone, hēə'ęhāma can be used as ‘maybe’ and hāma can occur with other particles, as in tā'sēhāma ‘isn’t that right?’ (Fisher et al. 2006).

9See also Winter (1995), where conjunctive morphemes are analyzed as syncategorematic, as not having any denotational contribution to meaning.

References

Davidson, Kathryn. 2013. ‘And’ or ‘or’: General use coordination in ASL. Semantics and Pragmatics 6:1–44.


