DP structure in Dakota: A corpus analysis[*]

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Abstract: We seek to describe the structure of nominal phrases in Dakota, using a corpus of data collected by the Sisseton-Wahpeton Oyate Dakotah Language Institute at the Lake Traverse Reservation. Previous descriptions of Dakota nominal phrases (Riggs 1893; Boas & Deloria 1941;, inter alia) are in some respects inconsistent with current language usage. Our analysis is largely consistent with standard theorizing within the Minimalist Program about the structure of DPs cross-linguistically, although we identify and discuss differences, which include the relationship between articles and demonstratives. We also argue that Dakota has a separate class of adjectives, instead of a subclass of stative verbs, as previous literature assumes.

Keywords: Dakota, DP, nominal phrase, adjective, corpus analysis, noun, demonstrative, Siouan

1   Introduction

The goals of this work are to describe the structure of nominal phrases in the Siouan language Dakota, as spoken by the Sisseton-Wahpeton Oyate (SWO) of the Lake Traverse Reservation, and to offer a preliminary analysis of this structure within a Minimalist framework, to contextualize the description and identify further avenues of inquiry. The SWO community perceives their variety of Dakota to differ in some ways from what has been reported in published grammars and analyses, including the grammars written by Riggs (1893) and Boas and Deloria (1941). This preliminary investigation seeks to identify specific points of departure, for future, lengthier investigation. Our focus in this initial investigation is limited to the distribution of articles, numerals, demonstratives, and modifiers, both adjectival and nominal, meaning that several elements occurring within nominal phrases — specifically, possessors, quantifiers, conjunctions, and other types of modifiers, such as prepositional phrases — are not addressed here.

The data considered come from a general-purpose, handwritten corpus collected by the Sisseton-Wahpeton Oyate Dakotah Language Institute (SWODLI), located in Agency Village, SD, on the Lake Traverse Reservation. The handwritten corpus was digitized by Carleton Linguistics students and faculty and has been proofread and corrected by SWODLI. The majority of entries in this corpus (which, at present, number about 28,000 items) have been collected from small groups of Treasured Elders. The corpus also contains data from approximately 65 children's books created and published by SWODLI. All corpus data are represented in the orthography used by SWODLI, which differs in some respects from other orthographies used in publications on Dakota and Lakhota. All examples in this paper are represented in the same orthography used in the source document. Unless otherwise cited, all data in this paper are from the SWODLI corpus. While we have added the morpheme-by-morpheme glosses, the free translations provided come from the corpus.

From the complete corpus, we identified and extracted approximately 600 examples of nominal phrases for closer examination. These examples were found by searching the corpus for English and Dakota vocabulary items known to be found in nominal phrases, including articles, demonstratives, numerals, quantifiers, and frequently used nouns and adjectives. We also returned to the complete corpus to search further for patterns that did not appear in the subset of the corpus. As of April 2019, there were 57 known native Dakota speakers who are registered members of the Sisseton-Wahpeton Oyate, with a median age of 79–80 years (Ridge 2019). Their language is critically endangered, which underscores the importance of describing, recording and otherwise preserving it with any means possible. While corpus analyses are subject to shortcomings such as lack of negative evidence and speaker intuitions, this project remains a worthy contribution to the preservation of Dakota, given its endangered status.

Dakota is a polysynthetic language, wherein all predicates are encoded for both subject and object (1); it has an active-stative person marking system. Constituent order is typically SOV, and constituents are head-final.

(1)   a.   John iyeciŋkopta   ša   yamni   yuhe.[1]
           John car   red   three   3SG.have.3
           'John has three red cars.'

      b.   Wapaha   to   yamni   bduhe.
           hat   blue   three   1SG.have.3
           'I have three blue hats.'

The remainder of the paper is organized as follows. In Section 2, we briefly review the consensus that emerges from existing descriptions of Dakota nominal phrases. In Section 3, we identify the patterns that are attested in the SWODLI corpus, and in Section 4, we introduce the structure we posit for the Dakota DP. (In this paper, we use the term 'DP' only when discussing theoretical proposals concerning the internal structure of nominal phrases; we use the term 'nominal phrase' elsewhere.) We then turn to what we see as the most significant differences between the data in the SWODLI corpus and the existing literature: articles and demonstratives (Section 5), and the nature of 'adjectives' (Section 6). In Section 7, we identify additional questions for further research, and in Section 8, we conclude.

2   Existing descriptions of nominal phrases in Dakota

Existing descriptions of nominal phrases in Dakota, and its near relative Lakhota, include two grammars written and originally published many years ago (Riggs 1893; Boas & Deloria 1941); a new, exhaustively researched pedagogical grammar of Lakhota (Ulrich with Black Bear Jr. 2016); and three theses written by linguists for an audience of linguists (de Reuse 1983; Van Valin 1977; Williamson 1984). Although there are differences between the existing descriptions, due to space limitations, we strive to very efficiently characterize here the 'consensus' on the elements that appear within nominal phrases that emerges from these works.

The present investigation encompasses several elements appearing within nominal phrases: articles, numerals, demonstratives, and 'modifiers', a term which we use in a category-neutral way in this paper. We delimit this brief overview of the existing literature accordingly. Articles include

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[1] Abbreviations used in this paper: ART = article, DEM = demonstrative, DEF = definite, FUT = future, INDEF = indefinite, PL = plural, PROP = proper noun, Q = question marker, REDUP = reduplicant, SG = singular.

the indefinite articles *waŋ/waŋji* and the definite article *kiŋ,* and its reduced form *-g.* Numerals include *waŋji* 'one', *num* 'two', and *yamni* 'three'. No plural morphology appears on nouns. Demonstratives encode a proximate–obviative distinction (*de* 'this', *he* 'that'), and are optionally marked for plurality *(dena* 'these', *hena* 'those'). Modifiers appear both prenominally (e.g. *mazaska tipi* 'money house', or 'bank') and postnominally (e.g. *tipi ptecena* 'short house'). There is no morphological case-marking. No elements apart from the noun itself are obligatory, and none of these elements appear to be blocked by another element.

Nominal phrases are head-initial, with all elements following the noun, with a few exceptions. In addition to the set of prenominal modifiers, demonstratives are reported to appear both prenominally, as in *he' wicha'ŝa ki* 'this man the' (example from Van Valin 1977:68) and postnominally. Ordering of elements is otherwise reported to be strict (2).

(2) wicha'ŝa hãs'ka to'pa ki hena' iyu'ha
     man   tall   four   the those all
     'all those four tall men'   (Van Valin 1977:60, ex. 63)

3   Patterns in the SWODLI corpus

We find that the SWODLI corpus data do, by and large, reflect the consensus in the previous literature briefly outlined just above, although there are discrepancies of note, which we consider in more detail in subsequent sections of this paper. In particular, the SWODLI corpus data indicate that the distribution of demonstratives is more limited than has been elsewhere reported. We also see reason to more deeply examine the assumption made in the previous literature that Dakota 'adjectives' are merely a subset of stative verbs; we present arguments that adjectives do comprise, contrary to these earlier assumptions, a distinct syntactic category.

As expected, nominal phrases in the SWODLI corpus are largely head-initial, with a similar, but not identical, set of exceptions. Some modifiers — those which surface as nouns elsewhere, such as *mazaska* 'money' in *mazaska tipi* 'money house' — must precede the head noun. We take these to be nominal modifiers. We also find that ordinal adjectives appear prenominally, in addition to postnominally. Surprisingly, however, we found no clear examples of demonstratives appearing prenominally. Postnominal modifiers appear in two positions, adjacent to the noun (as in (2) above) and in the final position.

The ordering of the elements within the nominal phrase is, once again, strict. All elements apart from the noun are optional. The ordering of the elements within the nominal phrase, based on the data in the SWODLI corpus, is schematized in (3).

(3)   (Nominal Modifier/Ordinal Adjective) – Noun – (Adjective) – (Numeral) –
      (Demonstrative) – (Article) – (Adjective)

As there are no examples containing both a nominal modifier and a prenominal ordinal adjective, we make the simplifying assumption here that there is a single position in which either can appear. The types of nominal phrases that we found attested in the corpus are illustrated in Table 1.

Table 1: Observed co-occurrence patterns within nominal phrases in the SWODLI corpus[2]

	Pattern	Example	Gloss	
a.	N	śuŋka	dog	'dog(s)'
b.	N ART	tapa kiŋ	ball DEF	'the ball'
c.	N DEM	wapaha he	hat DEM	'that hat'
d.	N NUM	taspaŋhiŋśma śakpe	peaches six	'six peaches'
e.	N ADJ	pahiŋ sapa	hair black	'black hair'
f.	N ADJ ART N ART ADJ	śuŋka haŋska waŋ śuŋkpana waŋ cistiŋna	dog tall INDEF puppy INDEF tiny	'a tall dog' 'a tiny puppy'
g.	N ADJ DEM	tapa taŋka he	ball big DEM	'that big ball'
h.	N ADJ NUM N NUM ADJ	naġi cekpa num iyokapte waŋji to	spirit twin two cup one blue	'two twin spirits' 'one blue cup'
i.	N ART DEM	aŋpetu kiŋ de	day DEF DEM	'today'
j.	N ADJ ADJ	iyeciŋkopta zi taŋka	car yellow big	'big yellow car'
k.	N ADJ ART ADJ	koka taŋka waŋ to	box big INDEF blue	'a big blue box'
l.	ORDADJ[3] N N ORDADJ	iyamni onajin onajin iyamni	third base base third	'third base' 'third base'
m.	NMOD N	mazaska[4] tipi	money house	'bank'
n.	NMOD N ART	zitkaŋna wahohpi waŋ	bird nest INDEF	'a bird nest'

[2] An accounting of co-occurrence patterns that are expected to be grammatical, but which were not observed in the corpus, is in Section 7.

[3] Ordinal adjectives appear with some frequency in the corpus in the prenominal position, which is why we've labeled this category 'ORDADJ', but two comments are necessary. A handful of other modifiers, however, including *wakaŋ* 'holy', are attested in the corpus both postnominally (i), and prenominally (ii). *Wakaŋ* is defined in SWODLI's *English to Dakotah Dictionary* as both 'miracle' and 'holy, mysterious, sacred', raising the possibility that prenominal *wakaŋ* is a nominal modifier. This possibility is supported by (ii.b), where *wakaŋ* is modified by *taŋka* 'big'.

i.	a.	tipi wakaŋ house holy 'church'	b.	aŋpetu wakaŋ day holy 'Sunday'	ii.	a.	wakaŋ tipi miracle house 'church'	b.	wakaŋ taŋka miracle big 'God'

This raises the further question of whether prenominal ordinal adjectives are also, instead, nominal.

Rosen (2015) identifies in Hocąk a class of prenominal modifiers, which encode nationality, origin, and material, which he takes to be denominal adjectives. In Hocąk, as in Dakota, there is no overt derivational morphology accompanying the proposed change of class. It is presently unclear whether prenominal modifiers in Dakota map onto the same semantic categories as in Hocąk, because nationality/origin modifiers are not prevalent in the SWODLI corpus. We must leave for future investigation the question of whether 'true' adjectives appear prenominally in Dakota.

[4] The modifying noun, *mazaska* 'money', also has internal structure: *maza* 'metal' + *ska* 'white'.

4   Proposed structure of Dakota DP

We now turn to a brief examination of the internal structure of these nominal phrases within current models of generative syntax. Dakota DPs are broadly compatible with extant analyses of internal DP structure (e.g. Brugè 2002; Giusti 2002). We posit that the spine of the Dakota DP minimally contains the phrases shown in (4). As is standardly assumed, N raises at least as high as *n*, the functional head which nominalizes the acategorial root.
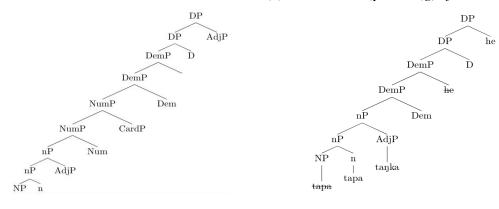
(4)   DP > DemP > NumP > nP > NP

Following Brugè (2002),[5] we propose that articles are base-generated in D, while demonstratives are generated in [Spec, DemP]. Brugè posits a strong +REF(erential) feature on D, which must be checked in one of two ways: a demonstrative raises to [Spec,DP], or an article is spelled out in D. Numerals manifest as CardP, which (as standardly assumed) resides in [Spec, NumP]. Num is phonologically null but may contain a [+pl] feature. A [+pl] feature can be realized in several ways: CardP can contain a numeral greater than *num* 'two'; the demonstrative can be marked for plural (*hena* 'those' v. *he* 'that'); or a plural quantifier (e.g. *oŋǵe* 'some', *owas* 'all') can appear. Plurality can also be marked in multiple ways simultaneously (e.g. *waṡkate to hena owas* 'all those blue toys'). A DP containing none of these elements can also be interpreted as plural, in an appropriate pragmatic context (5).

(5)   a.   Saksanica   waṡte   opewatuŋ.   b.   Saksanica   zi   ciŋpi.
              dress   good   1SG.buy   dress   yellow   3PL.want.3
              'I bought a nice dress.'   'They want yellow dresses.'

Lastly, we posit that AdjP adjoin (following e.g. Jackendoff 1977) in two positions, one high and the other low. For concreteness, we assume the high position involves right-adjunction to DP and the low position involves right-adjunction to *n*P. Following e.g. Harley (2009), we posit prenominal modifiers are maximally nP and left-adjoin to NP.[6] Representative constituent structures illustrating a subset of the patterns in Table 1 follow.
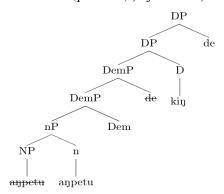
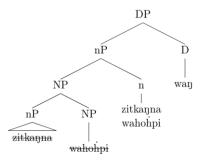(6)   *Dakota DP Structure:*   (7)   *N ADJ DEM (pattern (g) of Table 1):*

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(8) *N ART DEM (pattern (i) of Table 1):*

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                DP
               /  \
            DP      de
           /  \
       DemP     D
       /  \     |
   DemP    de   kiŋ
   /  \
  nP    Dem
 /  \
NP    n
|     |
aŋpetu  aŋpetu
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(9) *NMOD N ART (pattern (n) of Table 1):*

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          DP
         /  \
       nP     D
      /  \    |
    NP     n   waŋ
   /  \    |
  nP    NP  zitkaŋna
         |  wahohpi
zitkaŋna
      wahohpi
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(10) *N ADJ ART ADJ (pattern (k) of Table 1):*

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          DP
         /  \
       DP     AdjP
      /  \    |
    nP     D   to
   /  \    |
  nP   AdjP waŋ
 /  \   |
NP    n  taŋka
|     |
koka  koka
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In the subsequent sections, we consider more closely the differences observed between the SWODLI corpus and the consensus in the existing literature. We begin with a closer look at demonstratives and articles, and then turn to adjectives.

5 Articles and demonstratives

Dakota has inventories of articles and demonstratives, elements which readily co-occur in the same DP (Williamson 1984, Van Valin 1977). The definite article *kiŋ*, and its reduced form *-g,* co-occurs with demonstratives such as *de* 'this' or *he* 'that'. These co-occurrences, however, may be less frequent in the SWODLI corpus than previous literature suggests. Typical constructions with articles and/or demonstratives are exemplified in (11).

(11) a. Wi-g   de   ḣtani teca bduhe.
         month-DEF DEM   work new   1SG.have.3
         'This month, I got a new job.'

b. wi   de
    month DEM
    'this month'

c. Ḣeyata   wi   waŋji   ḣtani   abduśtaŋ.
    behind   month   INDEF   work   1SG.resign.3
    'Last month I quit working.'

As noted above, following Brugè (2002), we propose that demonstratives in Dakota are always generated in [Spec, DemP], while articles are generated in D. In (11b), the demonstrative raises to [Spec, DP] to check the strong [+REF] feature on D, while in (11c), the article surfacing in D serves

to check that feature. Examples like (11a) provide a challenge for Brugè's analysis. Within Minimalism, it is standardly assumed that a head and specifier cannot both be lexically filled to realize a single feature because of economy constraints, so (11a) — which, under Brugè's analysis, contains *-g* in D and *de* in [Spec, DP] — is predicted to not be possible. One possibility is that articles in Dakota are not Last Resort as Brugè proposes (for Spanish articles), but instead realize some feature that a demonstrative alone cannot. In Lakhota, the co-occurrence of a demonstrative and article, as in (12), is reported to add extra emphasis to the demonstrative (Van Valin 1977:68). It is possible that some sort of interpretational difference also arises in Dakota when both article and demonstrative are present, as in (11a). An alternative view is taken by Williamson (1984), who suggests that demonstratives co-occurring with articles are appositives. This possibility could be investigated further with a consideration of prosodic structure. We leave investigation of the potential feature differences to future work.[7]

Additionally, previous research reported that demonstratives also appear prenominally (12a). As there was no unambiguous evidence of this pattern in the SWODLI corpus, we do not examine it in this analysis.[8]

(12) a. he' wicha'ŝa ki ksa'pe   b. wicha'ŝa ki he ksa'pe
         DEM man   DEF smart   man   DEF DEM smart
         'That man is wise.'   'That man is wise.'
                                                    (Van Valin 1977:68, ex. 74a–b)

6   Adjectives as a separate word class

We turn next to adjectives. Rosen (2015) provides a wealth of evidence to defend his novel claim that Hocąk, another Siouan language, has a distinct lexical category adjective. As he observes, "much of the Siouanist literature has stated or assumed that the language family does not have adjectives… further investigation might reveal that other Siouan languages have adjectives, just like Hocąk" (82–83).

Although a complete investigation of whether Dakota has a distinct lexical category of adjective is beyond the scope of this paper, we believe that there is excellent reason to believe that Dakota does have a distinct lexical category of adjective. The previous literature on Dakota has indeed assumed that "adjectives" in Dakota are simply stative verbs. Some of the terminology used in this literature is, from a modern perspective, less than clear. Boas and Deloria (1941) and Riggs (1893) both use the term 'adjective', which they define as a 'verbal form' that is contained within a noun phrase. De Reuse (1983), Williamson (1984), and Van Valin (1977) all consider adjectives to be a subclass of (stative) verbs. We seek to avoid introducing additional terminological muddiness, and below we use the term 'modifier' in a category-neutral way, and the term 'adjective' when we wish to make a claim about the categorial status of that modifier.

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[7] Dakota and Lakhota are not the only languages in which demonstratives and articles co-occur together postnominally, although this pattern may be cross-linguistically rare. Hungarian demonstratives obligatorily appear with articles postnominally (Giusti 2015), and in some creoles, demonstratives may appear alone or with an article postnominally (Samarin 1967).

[8] Although the SWODLI corpus contains strings in which demonstratives appear preceding a noun, all such examples are structurally ambiguous. For example, *wiŋyaŋ de šina kaǧe* has two possible interpretations: 'she made this blanket' (under which *de šina* is a constituent) or 'this woman made a blanket' (where *wiŋyaŋ de* is a constituent). Presentational sentences are also structurally ambiguous; for example, *de tiwahe mitawa* could mean 'this family is mine' (where *de tiwahe* is a constituent) or 'this is my family' (where *tiwahe mitawa* is a constituent).

In what follows, we assume that defining 'adjective' as a subclass of stative verbs requires the corollary that modification within nominal phrases is accomplished via relative clauses. (To add to the confusion, Van Valin 1977 and Williamson 1984 appear to assume that this corollary need not hold, such that only some adjectives are contained within a relative clause structure; we return to this below.) We find little empirical support for treating all (or some) modifiers internal to a nominal phrase as being contained within a relative clause — namely, that corollary stated above does not hold — indicating these modifiers are instead best viewed as direct, attributive adjectives.

Postnominal modifiers appear in two positions, both of which are robustly attested in the corpus data: in the final position, following an article or a numeral (13), and immediately adjacent to N, preceding an article or a numeral (14).

(13) a. Caŋhaŋpa tob   teca   yuhapi.
         shoe   four   new   have.3PL.3
         'They have four new pairs of shoes.'

    b. Tipi   waŋ   sa   haŋska   wabdake.
         house INDEF red   tall   see.1SG.3
         'I saw a tall red house.'

(14) a. Mary   wowapi teca   yamni ciŋ.
         Mary   book   new   three   want.3SG.3
         'Mary wants three new books.'

    b. śuŋka   haŋska waŋ
         dog   tall   INDEF
         'a tall dog'

From the English equivalents provided in the corpus, there is no evident difference in interpretation associated with the two positions, although a subtle difference in interpretation might not be reflected in the English equivalents. This informs our proposal that there are two base positions for AdjP: right-adjoined to DP (13) and right-adjoined to nP (14), as in (10) above.

Under Van Valin's analysis, the constituent order shown in (13b) — where the adjectives appear following the article *waŋ* — involve a relative clause structure, and the constituent order shown in (14b) — where the adjective precedes the article, does not. Similarly, in (10), under Van Valin's analysis, the adjective appearing immediately after the noun — *tanka* 'big' — directly modifies the noun, while the adjective appearing finally — *to* 'blue' — is contained within a relative clause. Positing this type of structural distinction is supported in many languages (see e.g. Cinque 2010 for discussion; for example, attributive adjectives typically are subject to ordering effects, while relative clauses are not). We have yet, however, to identify any concrete empirical support for positing this type of difference in structure in Dakota. In the absence of an identifiable relative clause structure, the line between 'verbs which directly modify a noun' and adjectives is vanishingly elusive. We discuss this further in the next subsection.

6.1 On relative clauses

We begin with an observation made by Boas and Deloria (1943:69), as explicated by Williamson (1984). Williamson distinguishes between modifiers describing a permanent state (e.g. *sa* 'red'), which she argues directly modify N, and those describing a temporary state (e.g. *iyokpi* 'happy'),

which she argues are contained within relative clauses. Although *kuža* 'sick' can reflect both a permanent state and a temporary one, she argues that in (15) — in which *kuža* directly modifies *šųkawakhą* 'horse' — the temporary reading is unavailable.

(15) šųkawakhą kuža   wą   wąblake.
      horse   sick   a   see.1SG.3
      'I saw a sick / *temporarily sickly horse.'   (Williamson 1984:41, ex. 23)

Identifying a relative clause in Dakota takes care. There is no relative pronoun in Dakota, unlike its close relative Lakhota, which displays in some relative clauses the pronoun *cha*. (Following Williamson, *cha* is glossed as 'INDEF' in (16).)

(16) Mary owįža wą   kağe   cha   he   ophewathų.
      Mary quilt INDEF   3SG.make.3 INDEF DEM   1SG.buy.3
      'I bought a quilt that Mary made.'   (Williamson 1987:171, ex. 4b)

Van Valin (1977:81–82) describes a particular co-occurrence pattern of indefinite and definite articles, which he argues is characteristic of a relative clause. He argues, "when the predicate in a relative clause is a stative verb [(17a)], the only thing differentiating it from a simple noun + adjective construction is the article on the head noun [(17b)]."

(17) a. wichī'cala   wa   pte'chela ki   he   ixa't?e.
          girl   INDEF   short   DEF   DEM   laugh
          'The girl who is short is laughing.'

      b. wichī'cala   pte'chela ki   he   ixa't?e.
          girl   short   DEF   DEM   laugh
          'The short girl is laughing.'   (Van Valin 1977:81–82, ex. 92)

Relative clauses can thus be identified by the presence of an indefinite article adjacent to the head noun, which co-occurs with a definite article, which yields a definite interpretation. The same pattern is identified and discussed in detail by Williamson (1987), and is noted in other existing published works. Boas and Deloria (1943:67), for example, provide the minimal pair in (18).

(18) a. cega-taŋka   b. cega   wa   taŋka kiŋ
          kettle-large   kettle INDEF   large DEF
          'the large kettle'   'a kettle a certain one that is large'

In the SWODLI corpus, the characteristic pattern shown in (17a) is, as far as we can determine, unattested. There are numerous examples that are translated with an English relative clause with a VP predicate, which raises the possibility that the examples have a relative clause structure in Dakota as well (19). These, however, do not have any unique morphosyntactic properties that can be used to readily locate possible relative clauses within nominal phrases.

(19) Caŋiyowa   bduhe   nina   pe.
      pencil   1SG.have.3 very   sharp
      'The pencil I have is very sharp.'

In the SWODLI corpus, adjectives which appear within a nominal phrase typically describe the same types of permanent states identified by Williamson (1987), and appear in both positions within the nominal phrase. Categories of adjectives robustly attested in the corpus include colors (e.g. *to* 'blue'); size (e.g. *haŋska* 'tall'), temperature (e.g. *kata* 'hot'), and other qualities (e.g. *teca* 'new', *suta* 'strong'). Although some of these states would seem, intuitively, to be temporary — a cup of hot tea does not stay hot forever — they nevertheless are the kinds of states that Williamson characterizes as permanent. When working with a corpus, it cannot be determined whether a particular instantiation of a state such as *wayazaŋka* 'sick' — which Williamson suggests can be both permanent and temporary — is intended to represent a permanent state or a temporary one. Regardless, *wayazaŋka* appears only as a main clause predicate in the corpus. More generally, the types of states that Williamson takes to be temporary, which include emotions such as *iyokpi* 'happy', appear only as main clause predicates in the corpus (20).

(20) a. Waniyazaŋka   he?
          2SG.sick   Q
          'Are you sick?'

      b. He   John yaku ḳiŋhaŋ iyokpi kte.
          DEM John give if   happy FUT
          'If you give (that) to John, he will be happy.'

6.2   Adjectives as a universal category

Dixon (2004) and Baker (2003) both argue that adjectives in all languages constitute a separate word class from verbs, and we see no reason to view Dakota as an exception. Following Dixon (and Rosen's (2015) extensive investigation of the distinguishing morphosyntactic characteristics of Hocąk adjectives), we expect there to be empirical differences between adjectives and stative verbs. Several morphosyntactic differences between predicate adjectives and adjectives appearing within a nominal phrase can be seen in the corpus. The plural marker *-pi* can appear on predicate adjectives (21a) (and in Lakhota does so in relative clauses, per Ulrich 2016:68). Person markers also appear on predicate adjectives (21b). Additionally, predicate adjectives can be modified by degree modifiers such as *nina* 'very' (22). Neither *-pi* nor degree modifiers appear with adjectives within a nominal phrase, either in high or in low position, in the SWODLI corpus.[9]

(21) a. Ṡuŋka hena   taŋkiŋkiya-pi.   b. Hu maptecena.
          dog   those big.REDUP-PL   leg 1SG.short
          'Those dogs are really big.'   'My legs are short.'

(22) Koṡka   he nina haŋska.
      young.man DEM very tall
      'That young man is very tall.'

Another area to be investigated further involves the availability of 'non-intersective' readings, which are not available in a predicate position. The availability of such a reading, then, indicates that the adjectives are attributive, and not contained within a relative clause. Consider the well-

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[9] As seen in (22), the marker for third person singular that appears on predicate adjectives is phonologically null, and we wouldn't expect to see other person markers on attributive adjectives.

known example (23), which permits both intersective and non-intersective interpretations. Example (24), in contrast, permits only the intersective interpretation.

(23) a. She is an old friend.
    b. intersective interpretation: She is an elderly friend. [She is both a friend, and old.]
    c. non-intersective interpretation: She is a longtime friend.   [She may not be elderly.]

(24) a. She is a friend who is old.
    b. intersective interpretation: She is an elderly friend. [She is both a friend, and old.]
    c. non-intersective interpretation: * She is a friend who is longtime.

Rosen (2015:27) observes that Hocąk expresses the two interpretations of 'old' with different modifiers, and the one which provides the 'longtime' (non-intersective) interpretation cannot appear as a predicate, as predicted. If the same distinction is borne out in Dakota, this would provide additional support for treating the forms within nominal phrases as attributive adjectives.

Comparatives (and superlatives) offer another domain for contrasting the behavior of adjectives and verbs: only adjectives should appear in these forms. As our initial exploration of the corpus located no comparative structures, this is an area for future investigation.

Dixon (2004) identifies three tiers of semantic types of adjectives (25), and predicts that the inventory of adjectives in a language will conform to this typology: in order to have tier three adjectives, a language must also have adjectives from tiers one and two, but not vice versa. He notes that adjectives in a language often group into particular semantic categories, such that languages with a 'restricted' set of adjectives might have adjectives only from a few of the categories in the first tier.

(25) *Dixon's three tiers of semantic types of adjectives:*

Tier one: Dimension, age, value, color
Tier two: Physical properties, human propensity, speed
Tier three: Difficulty, likeness, qualification, quantifiers, position, cardinal/ordinal
             numbers   (Dixon 2004:3–4)

Dakota has adjectives from all three tiers, such as those describing physical properties including size (26a) and ordinal numbers (26b), indicating that the inventory of adjectives in Dakota is not what Dixon characterized as 'restricted'.

(26) a. Tipi waŋ   toto   ptecena wabdake   b. caje   tokaheya
        tipi INDEF green   short   1SG.see.3   name   first
        'I saw a short green tipi.'   'first name'

Although work remains to be done to fully address this important question, we believe there exists sufficient evidence to posit that Dakota does have a category adjective that is distinct from stative verbs.

7   Future research questions

In addition to the questions raised above, future work must expand the scope of inquiry to address the full inventory of elements appearing within nominal phrases, including quantifiers (27),

possession-marking strategies (of which there are several) (28), coordination (29), and PP modifiers, of which there are no clear examples in the corpus.

(27) a. yatke   ota
        drink   many
        'many drinks'

    b. Woyute   oŋġe   yaciŋ   he?
        food   some   2SG.want.3   Q
        'Do you want some food?'

(28) a. De   Kuŋśi   waḣca oju.
        DEM   grandmother   flower garden
        'This is Grandma's flower garden.'

    b. Buddy   huŋku   kiŋ   nina   itaŋ.
        Buddy   mother   DEF   very   proud
        'Buddy's mother was very proud of him.'

(29) Kuŋśi   waŋji   ḳa   Uŋkaŋna   waŋji   wica-bduhe.
     grandmother   INDEF   and   grandfather   INDEF   human-1SG.have.3
     'I have a grandmother and a grandfather.'

Additionally, although the SWODLI corpus is large, some expected patterns were not located.

Table 2: Predicted patterns unattested in the SWODLI corpus

a.	N NUM DEM
b.	N NUM ART_DEF
c.	ORDADJ N ART
	N ORDADJ ART
d.	N DEM ADJ
e.	ORDADJ NMOD N
	NMOD ORDADJ N

In Table 2, (a–c) are patterns that we expect to be permitted, and which have no implication for the analysis discussed in Section 4. Of pattern (b), although the indefinite article *waŋ* is singular, and could semantically clash with a numeral, there is no semantic reason for the definite article *kiŋ* to be unable to co-occur with a numeral, as in 'the three books'. We assume that patterns (a–c) are in fact permitted, and that their absence reflects gaps in the corpus, although further research is needed to confirm this. The absence of pattern (d), however, raises the possibility that demonstratives and adjectives compete for position in [Spec, DP]. As noted previously, we assume DP-final adjectives instead adjoin to DP, and thus should not block demonstratives; more than one adjective can appear DP-finally (13b), indicating there is more than one 'slot' for an element following D. Similarly, the absence of the patterns in (e) raises the question of whether there is a single prenominal 'slot'. Further research is needed to determine whether the patterns in (d) and (e) are permitted.

There are also a few predicted patterns that appear only once or twice in the SWODLI corpus, such as NMOD N ART ADJ (30). Further investigation is required here as well.

(30) bdoketu   aŋpetu   waŋ   owaśtecake
     summer   day   INDEF   fine
     'a fine summer's day'

8   Conclusion

We have presented the results of a preliminary investigation of Dakota nominal phrases, drawing from data in a large, general-purpose corpus of data created by the Sisseton-Wahpeton Oyate Dakotah Language Institute. We offered a preliminary analysis of this structure within a Minimalist framework, to contextualize the description. While the corpus data are largely consistent with existing descriptions, we identified several differences which merit further inquiry. We also questioned the previously held assumption that Dakota lacks the category Adjective. Although many questions remain due to the limitations inherent in relying upon corpus data, this project is a contribution to the preservation of Dakota, given its endangered status.

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