

Glossing Dene Languages

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1 Introduction: Glossing principles

General frameworks for glossing linguistic examples (Lehmann 1982, 2004 and particularly the Leipzig Glossing Rules (LGR) by Comrie, Haspelmath, and Bickel 2008, 2015) aim to make the sharing of grammatical information more efficient, consistent and intelligible. While they have improved grammatical communication for many languages, language-family specific facts and conventions can be difficult to integrate into cross-linguistic frameworks. In response to this difficulty for Baltic languages, Nau and Arkadiev (2015) have suggested a general framework for the glossing of the languages of that family. In the spirit of that work, the purpose of this article is to bring up some issues in interlinear glossed text (IGT) in Dene languages and give the rationale for possible solutions. We acknowledge that establishing a glossing standard for Dene, with close to 40 languages in the family, is a much more difficult, maybe even impossible task compared to doing so for the two languages of the Baltic family. But as a step towards doing so, we would like to continue the conversation about glossing Dene languages initiated by Holden (2013) and Kibrik (2019), in order to promote better analytical communication within our subfield and to linguists in general.

The purpose of glossing is to convey information about the morphological structure of complex words and sentences to others. It is important to bear in mind, though, that ‘[g]losses are part of

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the analysis, not part of the data' (Comrie, Haspelmath, and Bickel 2015, 2). This has implications for the development of these guidelines, which need to be adaptable to a variety of analytical and theoretical approaches. In this paper, we make an effort to provide recommendations that do not constrain the analyst in their choice of approach, and that also respect language-particular differences. In places we suggest alternative glossing conventions that may reduce the number of possible versions of glossing.

As specialists in Dene languages, we wish to make our analysis clear not only to colleagues who could have done the same or an analogous analysis, but also to linguists who want to learn about the structures of the languages. Tensions may exist between our wishes and the needs for glosses in particular works. We want to include enough information for our audience to understand the point of each example, but we do not want to clutter our pages so thickly that examples can barely be read. Often we are constrained by word or page limits, which affects the amount of information we can provide. We want to use general linguistic glossing standards, but we do not want to compromise our analysis or mislead readers by over-standardizing.

In the remainder of this paper, we try to apply the following principles, which are more general than the linguistic-structure specific glossing guidelines and lists of abbreviations which can be found in such sources as Lehmann (1982, 2004) and Croft (2003) or Comrie, Haspelmath, and Bickel (2008, 2015).

- **Independence:** Any example, along with its gloss, needs to be self-contained so that non-specialists (e.g. typologists) can use it without introducing mistakes.
- **Explicitness:** The analysis should be clear and evident from the gloss.
- **Consistency:** Labeling and symbolic representation should be consistent within an analysis, and as much as possible, across the discipline. See also Standardization.
- **Appropriateness:** Morphemic glossing is not always the best practice in presenting Dene material. Glossing at word level may be appropriate in different contexts and to make particular points. Glossing also needs to take into consideration the intended audience: different styles may be more appropriate in publications aimed at fellow linguists than in those intended for language community members who are not linguists.

- **Standardization:** Conventional linguistic description of a particular language family may use terms unfamiliar to general linguistics or different from a typological standard, and there may be good reasons for this (see also Good 2012 for discussion). But the most general standard allowing for correct interpretation should be adhered to, both external and internal to the language family.
- **Practicality:** Glosses should be as concise as possible, as glossing takes up not only significant amounts of space on the printed page, but also much of the analyst's time.

In the remainder of this article we will discuss these six principles and how they may be found to interact in the various languages we have studied. As mentioned above, we find that they often are in tension with one another. For this reason, we do not rank them—the order in which they appear above does not reflect their relative importance. Individual analysts must determine for themselves which of these principles is more important for them in a given work.

The motivation for our effort arises partly from the fact that in Dene linguistics, we often consult analyses of other languages of the family in order to understand a phenomenon in the language we ourselves are studying. The results can be frustrating, often due to differences in glossing practice rather than differences among the languages themselves, which we expect to find. For example, quite different degrees of explicitness (and styles of glossing) can be found in works on the same topic. Smith (1991), Axelrod (1993), and Rice (2000) and Wilhelm (2007) describe the aspect system of several Dene languages, but their glossing conventions (and use of terminology) make it difficult to compare these studies directly. (1) illustrates some of these differences between linguists. The examples in (1) are presented here as in their original publication.¹

1. The following abbreviations are used in this example. Axelrod: CL = classifier, M = mode, SML = semelfactive, T = thematic. Wilhelm: cl = classifier, cm = conjugation marker, ep = epenthetic, s = singular, sem = semelfactive. Smith: Perf A = perfective viewpoint in instantaneous situation types, Sem = semelfactive.

(1) Four ways to gloss a semelfactive verb

a. Koyukon

daadlekkuł

de+le+le+kkuł

T+M+CL+cough+SML

's/he coughed once'

Axelrod (1993, 74)

b. Dëne Sųliné

héssił

h-é-Ø-s-Ø-ził

ep-sem-CM-1s-cl-scream

'I'm going to scream once'

Wilhelm (2007, 37)

c. Slave

ya-h-í-tła

preverb-epenthetic-semelfactive situation aspect-stem

's/he jumped (once)'

(Rice 2000, 266)

d. Navajo

shéch'id

'I gave it a single scratch' (Instantaneous) ^{Perf A: Sem}

Smith (1991, 397)

All the verbs in (1) are semelfactive, i.e. they describe a single punctual event. Axelrod, Rice and Wilhelm provide morpheme-by-morpheme glosses, but the authors differ in their approach to the representation of categories that are not overtly expressed. Axelrod posits a semelfactive morpheme that follows, or maybe is part of, the verb stem (note that the gloss SML does not correspond to an overt morpheme in the morpheme line). She does not provide a formative or a gloss for the (in her analysis unmarked) third person singular subject. Wilhelm, by contrast, glosses material without semantic content as "ep" (for epenthetic) and provides Ø-morphemes for categories that are not overtly expressed but semantically present, such as the conjugation/mode marker. Rice glosses ma-

terial without semantic content as “epenthetic” as well, but does not assume \emptyset -morphemes. Smith gives a word gloss which does not show morphological detail. However, she provides explicit information on viewpoint aspect, whereas this information needs to be gleaned from the surrounding discussion in Wilhelm (who cites an imperfective form) and deduced from the prefixes and the gloss in Axelrod and Rice (a. and c. are perfective).

To be most clear: our intention is not to tell our colleagues how to gloss their data! Instead, we wish to discuss several challenges in glossing Dene that all of us have faced at one time or another, and present the strategies which have been used to address these challenges. As mentioned above, we intend our suggestions to be compatible with different theoretical and analytical approaches, as well as to be flexible enough to be able to highlight specific issues in an analysis.

2 Dene language background

Dene languages pose several challenges for glossing. Most of the them center around the verb, which is famously complex.

2.1 Polysynthetic verbs

Dene verbs are polysynthetic and almost exclusively prefixing. The structure of the verb can be represented by a template such as those given in Table 1, following Hoijer (1971) and Leer (2006).

Templates in linguistics have been described as “undertheorized” by Good (2011, 2016), but we use one here because it provides a clear representation of linear morpheme order. The template suggests that affixation is a linear, concatenative process (which, as Kibrik 2019 notes, is implicit in the LGR approach to glossing). As will be seen in 2.3, this is not actually the case in Dene languages. However, we are not trying to solve a morphological problem in this paper, only to talk about how to present morphological analysis. So we hope that the familiarity of the atheoretical template will make up for any explanatory inadequacies.

Hojjer 1971	Leer 2006
Zero, one or more adverbial prefixes	Disjunct prefix
The prefix for the iterative	Incorporated N
	Pronominal prefix
A pluralizing prefix	Pluralizer *qə-
An object pronoun prefix	
A deictic subject prefix	
Zero, one or two adverbial prefixes	Lexical/derivational/classificatory prefix
A prefix marking mode, tense or aspect	Aspect-mode prefix
A subject pronoun prefix	Subject prefix
	Stative prefix
A classifier prefix	Classifier
A stem	Root

Table 1: Two Pan-Dene templates

2.2 Discontinuous lexical entries for verbs

While the templates in Table 1 are helpful for visualization of morpheme order in Dene languages, they obscure one of the more challenging aspects of these languages: the fact that the lexical entries for verbs, known in the Dene literature as *verb themes*, often consist of discontinuous strings of elements where the semantic contribution of each cannot be stated independently of the others. Some Upper Tanana and Lower Tanana examples are given in Table 2. In this notation, # represents the disjunct boundary (Li 1933; Kari 1975) and - represents an ordinary morpheme boundary.²

Inflectional morphemes are then interspersed into lexical entries. Some Upper Tanana words based on two of these verb themes are shown in (2).³

2. In this article we do not notate or discuss other different types of phonological boundaries which have been suggested for verb-internal domains, and under what circumstances it might be worthwhile to include these in glosses.

3. The following abbreviations are used in this paper: 1—first person 2—second person, 3—third person, ADJC—adjacent, ALL—allative, AO—animate object, AR—areal, BEN—benefactive, CAUS—causative, CNJ—conjugation marker, CON—conative, CONT—continuative, CT—contrastive topic, CUST—customary, FUT—future, INCP—inceptive,

Upper Tanana	Lower Tanana	
D-nah	k'o#n-D-neyh	'work'
n-L-jit	n-l-jet	'be scared'
O-n-H-'jh	O-n-l-'anh	'see O'
ti#D-nak	ta#D-nek	'be tired'

Table 2: Discontinuous lexical entries in Upper Tanana and Lower Tanana

(2) Upper Tanana

a. ts'iniljiit

ts'-n-aa-ǰ-l-jiit

1PL.S-QUAL-CNJ-PFV-VV-be.scared:PFV

'we were scared'

UT Notebook #3, p. 72

b. tits'atnak

ti-ts'-a-ǰ-t-nak

tired-1PL.S-CNJ-PFV-VV-be.tired:IPFV/PFV

'we are tired'

UT Notebook #3, p. 72

(2) also shows one way of glossing the lexical and derivational morphemes in verb words formed from such lexical entries.⁴ In 5.3 we refer to this as positional rather than semantic glossing.

INDF—indefinite, IPFV—imperfective, ITER—iterative, LOC—locative, MED—medial, MOM—momentaneous, NOM—nominalizer, O—object, OPT—optative, P—postpositional object, PFV—perfective, PL—plural, POSS—possessed, PRMB—perambulative, PSR—possessor, PVB—preverb, QUAL—qualifier, S—subject, SG—singular, THM—thematic, UNSP—unspecified, VV—voice/valence marker. Please note that some examples are presented exactly as in the original source; in that case, the abbreviations can be found in Appendix A.1.

4. In many of the examples in this article we use a colon in the glossing line, following LGR 'Rule 4C. (Optional): If an object-language element is formally and semantically segmentable, but the author does not want to show the formal segmentation (because it is irrelevant and/or to keep the text intact), the colon may be used.' (Comrie, Haspelmath, and Bickel 2015 p. 5)

2.3 Derivation

There are numerous derivational processes affecting verbs. In his seminal study, Kari (1979) distinguishes between aspectual and non-aspectual derivation. Aspectual derivation involves aspectual prefix strings (consisting again of potentially discontinuous morphemes) which are added to a verb theme and may affect not only its conjugation pattern but also its stem aspect. Crucially, aspectual prefix strings are mutually exclusive. This is illustrated in (2), using Ahtna examples drawn from Kari (1990, 422–423). The verb theme is \emptyset -yaa ‘singular go’, which by default takes (n, n) conjugation markers and is in the momentaneous aspect. The derivational prefix in (b) is *ts’i#* ‘straight’, which triggers (\emptyset , z) conjugation markers and momentaneous aspect. The prefix in (c) is *n#* ‘continuative’, which triggers (\emptyset , gh) conjugation markers and the continuative aspect, as indicated by the different stem form. Our glossing here uses overt \emptyset - (further discussed in 4.1) for some morphological categories, which reflects Kari’s approach as we understand it. (These examples are not glossed in Kari’s monograph).

(3) Ahtna

a. niyaa

n-i- \emptyset - \emptyset -yaa

CNJ-PFV-3SG.S-VV-SG.go:PFV:MOM

‘s/he arrived’

b. ts’izyaa

ts’i#s-i- \emptyset - \emptyset -yaa

straight#CNJ-PFV-3SG.S-VV-SG.go:PFV:MOM

‘s/he walked straight’

c. nghiya’

n# \emptyset -gh-i- \emptyset -ya’

CONT#CNJ-PFV-3SG.S-VV-SG.go:PFV:CONT

‘s/he kept on walking’

Non-aspectual derivation affects neither the conjugation pattern nor the stem aspect. Non-aspectual derivation is also not mutually exclusive with aspectual derivation. In (4), the (aspectual) momentaneous prefix *sta#* (n, n) ‘away’ is combined with the non-aspectual prefix string *si#t* ‘in fear’ to yield the meaning ‘sg. go/run away in fear’:

(4) Ahtna

stasinif_{yaa}

sta-si#n-i-ø-t-yaa

away-fear#CNJ-PFV-3SG.S-VV-SG.GO:PFV:MOM

‘s/he ran away in fear’

Kari (1979) additionally distinguishes subaspectual derivations (which impact the conjugation marker but not the stem aspect) and superaspectual derivations (which impact both conjugation marker and stem aspect), both of which are compatible with aspectual and non-aspectual derivations alike. In this view, derivation is an intricate, multi-layered process in Dene languages.

3 Levels of glossing

Many bilingual educational and cultural materials for Dene languages do not involve glossing at all, and only employ free translation. Many textual publications, such as Attla (1990) (Koyukon) or Tenenbaum (2006) (Dena’ina), follow this pattern. Tenenbaum (2006) was originally published in four volumes with word glosses as well as a free translation (1973). In preparation for the second edition (published in 1984), the decision was made to highlight narrative features such as breath groups or special prosody at the expense of word glossing (cf. Tenenbaum 2006:xi). Language lessons (print or digital) also often follow this pattern, as does captioning on shared videos. In this approach, users are meant to be led to word meanings through the development of proficiency in reading or conversation, and in the case of lessons, through supplemental vocabulary exercises.⁵

5. This places an enormous burden on the language learner, requiring them to be able to draw varied materials (such as lessons or lexical resources) together in order to read a sentence. We find that for most learners, this approach does not work as intended unless significant instruction in the use of these materials (and materials developed for related languages) is provided.

Dene users of these materials who are new to or ambivalent about linguistics sometimes prefer smooth translation over more detailed glossing approaches. Not only is smooth translation aesthetically pleasing, but learners often feel that glossing (at morpheme or even word level) is actively disrespectful to the target language, even in learning materials. This ideological position, stronger than an aesthetic preference, is more likely to be encountered when morpheme-by-morpheme glosses are provided. When “cutting up the language” feels wrong in an important way to members of the intended audience, glossing is avoided. The Lower Tanana Pocket Dictionary (Tuttle 2009), like many other learner-centered materials, was explicitly required by the elder and learner communities to include no word-internal glossing. Similarly, community members strongly rejected Lovick’s suggestion of including word-level glosses in a collection of Northway texts (Sam, Demit-Barnes, and Northway forthcoming). Here the principle of Independence competes with that of Appropriateness.

Other glossing-free environments include bilingual dictionaries such as Jetté and Jones (2000) (Koyukon) (KAD), where a word under focus may receive a partial or complete gloss, but words and morphemes in examples are not glossed. Consider (5). A main entry is shown in (5a), and an illustrative sentence is provided in (5b) (KAD p. 5):⁶

(5) Koyukon

- a. *te*² /among/, subentry *P + te*, *P + tuh* (*a.n.*) *CLU*, *P + tee* *Utb* among, amid, in between, within during *P*
- b. **saanlaaghe bete edoyh** silver salmon get caught among them (dog salmon) now and then;

When data from such materials are extracted for inclusion in a study or a corpus of some kind, glosses must be added, under the constraints chosen for that study. In these cases, the extractor of the data has the responsibility for providing a level of glossing appropriate for users of the work the example will appear in. In the case of the sentence in (5b), because the sentence is under the *P + te* ‘among *P*’ subentry, it is not difficult to gloss *te* in *bete*. Glosses for the non-verb morphemes can also be found in other parts of the dictionary fairly easily: *be-* third person sg. postpositional object under *be*¹ /third person sg./ (p. 93); *saanlaaghe* ‘silver salmon’ under *laah*² /fish swims/ (p. 380). But in order to gloss the verb form *edoyh*, it is essential to know something about Dene

6. See A.1 for the meaning of abbreviations used in KAD.

linguistics. One possibility is that this word is a form of ‘sg. go’, with the *D-* voice/valence marker serving as onset consonant of the verb stem.⁷ Sure enough, on p. 700 one finds stem sets for ‘sg. go’, including *hoyh* for customary imperfective, and on p. 701 is the verb form *ehoyh* ‘he arrives (cust.)’. However, there is no appropriate gloss for the *D-* in this case (which would be expected to mark iterative or passive, but neither works here). Another possibility for the verb is that it is the customary imperfective stem of *do* /sg., du. sits/ (p. 139), and in the stem set table on p. 140 one finds another match, *doyh*. The gloss of the initial vowel of the verb, is another challenge (4.1), and here we follow Hargus and Tuttle (1997):

- (6) saanlaaghe be-te e-do-yh
 silver.salmon 3SG.P-among IPFV-SG.sit-CUST
 ‘silver salmon get caught among them (dog salmon) now and then’

So in this case, it was impossible to thoroughly gloss every morpheme in the sentence without extra knowledge gleaned from years of study of Dene linguistics, and even so it took Hargus about half an hour to do so. Lovick and Tuttle (2019) report similar issues in using Jetté and Jones (2000) for research on grammar. For a non-expert in Dene linguistics, such materials are close to inaccessible. And yet what choice does the compiler of the dictionary have? Interlinear morpheme glossing would take up far too much space—Jetté and Jones (2000) already comprises 1118 pages. (We also suspect that the amount of time morpheme glossing requires would have pushed publication of this dictionary back by decades.) The principle of Independence here is in strong tension with that of Practicality.

In publications geared at linguists,⁸ we generally require more glossing information so as to allow non-specialists, or even specialists who wish to argue with Dene linguists, to make intelligent use of the example. Suppose, for example, that a typologist wants to include the example in (7) from Rice (1989, 1098) in an article about comparison.

7. Dene linguists typically recognize three or four voice valence markers, depending on whether they posit a \emptyset -voice/valence marker contrasting with *D-* (Howren 1971), *l-* and *l-*. (This would be two or three valence markers for Krauss 1969, where *l-* is analyzed as *D-+ l-*.)

8. We assume that dictionaries are designed to be useful to linguist and non-linguist audiences alike.

(7) Slave

Mary Jim k'e hedli

after

‘Mary is younger than Jim.’

A morphemic breakdown, or even a word gloss, is not provided for the final word of the sentence. Even with the free translation, a typologist unfamiliar with Dene languages might struggle to recognize *hedli* as a form of the verb ‘to be’ and to be able to gloss its component morphemes. Consequently, the example could be misinterpreted or unusable. Therefore, the principle of Independence—allowing the potential for an example to be used as is in a new work and interpreted correctly—cannot be upheld when less than full glossing is used.

Even in publications geared at other linguists, Independence competes with Practicality. Providing a morpheme gloss is generally desirable, yet the complex morphology of Dene languages often makes it impractical, both from the analyst’s perspective (as noted above, glossing is quite time-consuming), but also from a publication perspective.⁹ During the publication process of Lovick’s *Grammar of Upper Tanana*, the editor worried about the size of the manuscript. To ensure that the book adhered to the page limit, Lovick not only removed about 300 fully-glossed linguistic examples, but changed some of the morpheme-level glosses of the remaining examples to word-level glosses in instances where the morpheme analysis of the example was not relevant to the point under discussion. This is demonstrated in (8): (8a) shows the original morpheme gloss and (8b) the version in Lovick (2020, 179), a somewhat technical word gloss where only participant and aspectual information are preserved.

9. We provide an additional (non-Dene) example of the effect on length of morphemic vs. word glosses. Hargus has prepared two versions of a 0:29:36 duration Sahaptin text recorded by the late Ellen Saluskin. With word glosses the text is 47 pp. With morpheme glosses the text is 52 pp., nearly 10% longer.

(8) Upper Tanana

- a. ... hanuhshyign' tah dzina'altth'ät.

ha-n-uh-shyign' tah dzi-na-al-tth'ät

ADJC-MED-AR-DOWN:ALL among over.edge-down-3SG.S:AA.PFV:L-SG.move.independently:PFV

'... [the bear] tumbled down over the edge.'

UTOLAF09Aug1201:033

- b. ... hanuhshyign' tah dzina'altth'ät.

ADJ:MED:AR:DOWN:ALL among 3SG:fall.down.over.edge:PFV

'... [the bear] tumbled down over the edge.'

UTOLAF09Aug1201:033

Yet, while the morpheme breakdown of (8b) is not relevant at the place where it is included in the grammar (it illustrates that the postposition *P+tah* 'among P' can take a directional adverb as object), morphemic analysis may still be of interest to other users. Thus the decision to shorten the gloss is not ideal.

Practicality and Explicitness also come into play in the next example. Hargus (2012), a study of insubordination in Deg Xinag, used word rather than morpheme glosses. This was partly to speed up the preparation of the article, but also partly because the focus was on use of subordinate marking of main clause sentences. The prefixes on the verb were not relevant. What mattered was whether the verb was marked as dependent—by a suffix—as in the example in (9a) containing *-di*, the temporal/locative relativizer. That sentence could have been presented with morpheme glosses as in (9b), but the morphological detail in the verb distracts from the most important element in the sentence, the final suffix *-di*, which is highlighted with word but not morpheme glossing ('when' ...). Morpheme-level glosses seem to make it harder for the reader to spot insubordination in this case.

(9) Deg Xinag

- a. Axaxiɫdik, ngidugg xizronche xaɫ xiyetidɫts'okdi.

then up evidently pack when it started to be lowered inside

'Then a pack was being lowered down (from that open hole).'

(Hargus 2012:99)

b. Axaxiɫdik, ngidugg xizronche xaɫ xiyetiɫts'okdi.

Axaxiɫdik, ngidugg xizronche xaɫ xiye#ti-Ǿ-l-ts'ok-di

then up evidently pack down.in#INCP-CNJ-THM-HOIST-LOC.REL

'Then a pack was being lowered down (from that open hole).'

As our discussion shows, there can be reasons not to provide morpheme-level glosses, particularly in publications intended for use by the language communities. Respecting their wishes is clearly a priority. At the same time, we suggest that scholars err on the side of providing too much information rather than too little, a point also made by Lehmann (1982), to ensure that materials are as widely accessible as possible. In the Deg Xinag example just mentioned, perhaps the best solution would have been to provide morpheme as well as word glosses, although this might have pushed the article over the page limit.

4 Issues in glossing inflection

In this section we focus on the treatment of zeroes and portmanteaux.

4.1 Unexpressed morphological categories (zeroes)

In all Dene languages, certain forms in inflectional paradigms are not expressed.

- subject: third person singular (animate)
- object: third person singular (transitive verbs), under certain morphological circumstances
- mode: imperfective (some analyses)
- conjugation: \emptyset (some analyses)
- voice/valence: \emptyset (some analyses)

In the area of inflection we are thus confronted with the problem of whether and how to represent unexpressed morphological categories in IGT. This problem is not unique to Dene languages. (What

may be unusual in Dene languages is the number of inflectional categories with one non-overt element.) Comrie, Haspelmath, and Bickel (2015) provide two options for glossing such elements:

- (1) ‘If the morpheme-by-morpheme gloss contains an element that does not correspond to an overt element in the example, it can be enclosed in square brackets.’ (2) ‘An obvious alternative is to include an overt “Ø” in the object-language text, which is separated by a hyphen like an overt element.’¹⁰

Both of these strategies are illustrated in the following example. (10a) uses square brackets to indicate the two inflectional categories and does not assume the existence of a Ø-conjugation marker and a Ø-voice/valence prefix. (10b) posits four separate Ø-morphemes, while (10c) posits one Ø that corresponds to four different categories, which is really a portmanteau approach (4.2), where one element on the language object line corresponds to two or more potentially separate morphological categories on the glossing line. (10c) is an interpretation of the approach implicit in Tenenbaum (1978), who in different places of her dissertation posits four different Ø-morphemes but gives the morphological breakdown, if not the gloss, of (10c) on p. 88.

(10) Dena’ina

a. chegh

CRY[3SG.S:IPFV]

‘s/he’s crying’

b. chegh

Ø-Ø-Ø-Ø-chegh

3SG.S-CNJ-IPFV-VV-CRY:IPFV

‘s/he’s crying’

10. There must have been disagreement among the authors of LGR on this point. Elsewhere Haspelmath (in Haspelmath and Sims 2010, 46) says: “...zero morphemes are ad hoc devices that are posited for no purpose other than to save the principle of a concatenation-only model.”

c. chegh

Ø-chegh

3SG.S:Ø.IPFV:Ø-cry:IPFV

‘s/he’s crying’

The first of these approaches does not seem to have caught on in the Dene literature. Hargus (2007) avoids positing zeroes, as in (11), a sentence of IGT from one of the texts included with the grammar, but the unexpressed morphological categories are not provided within square brackets. The reader has to fill in information about subject (third person singular) and mode from the free translation, supplied by a bilingual speaker.¹¹

(11) Witsuwit’en

Nəxwts’odidle

nəxw-ts’o-d-i-D-le

1pP-P-thm-cnj-thm-disbelieve

‘He didn’t believe us.’

Hargus (2007:813)

By contrast, Holden (2013) always posits a Ø- in the morpheme tier when the verb form is third person singular imperfective with a Ø-conjugation marker, an approach similar to (10c):

(12) Dene Sųliné

łue tahháłtj

łue ta-hhá-Ø-1-tj

fish water-out-3.IPFV-handle.AO

‘s/he fishes’ (lit. ‘takes fish out of the water’)

Holden (2013:178)

A variant of the portmanteau approach is used by Lovick (2020), who glosses the Upper Tanana “peg” syllable *e-* as containing four underlying morphemes:

11. See A.1 for a list of glosses used in the texts included with the Witsuwit’en grammar. (11) is actually interpretable as perfective or imperfective, not shown in the free translation.

(13) etsüh

e-tsüh

3SG.S:Ø.IPFV:Ø-CRY:IPFV

‘s/he cried’

Lovick (2020:360)

Our goal here is not to argue in favor of, or against, the use of Ø-morphemes. Instead, we show a few different ways of dealing with unexpressed morphological categories. We find the approach in (10b) not particularly elegant, but acknowledge that it is quite clear in showing the linear order of morphemes. Less explicit, but perhaps more elegant approaches, like those favored by Hargus (2007), Holden (2013) or Lovick (2020), do, however, require some explanation if the reader is to interpret glosses correctly.

4.2 Morphological fusion

Examples such as in (10c, 12) and (13) show that morphological fusion, especially in the pre-stem syllable, is an issue in some of the languages. (It does not seem to affect all Dene languages or even paradigms within a single Dene language identically.) The adoption of portmanteau glossing for this section of the verb may be helpful for most verbs in the highly fusional languages.¹²

First consider a language with relatively transparent morphological composition throughout paradigms. In Lower Tanana, there is fusion only of the first person singular subject and voice/valence marker *l-* as *dze-*, as seen in (14):¹³

(14) Lower Tanana

ch’eteghedzedzes

ch’e-te-ghe-dze-dzes

INDF-INCP-CNJ-1SG.S:VV-dance:FUT

‘I will dance’

12. See McDonough (1990, 1996, 2000) for theoretical motivation for this approach, and Holden (2013) and Lovick (2020) for practical application.

13. The morphophonemic processes involving the combination of the first person singular subject prefix and the following voice/valence marker in the language family as a whole were already raised by Krauss (1976).

In contrast, in Upper Tanana, verbs undergo significant morphophonemic adaptations particularly in the pre-stem syllable. The entire conjunct zone (including pronominal prefixes such as the lexicalized indefinite prefix) can coalesce into one syllable. The verb theme $P+i\#hu+\emptyset+keet$ ‘pay P’ contains a *hu*-qualifier and requires *aa*-conjugation in the perfective mode. However, in the surface forms in Table 3, the conjugation marker *aa-* is never detectable. Moreover, the perfective prefix is detectable only in forms with an outer subject, and the *hu*-qualifier varies between *h-*, *hu-*, and *hq-* depending on subsequent morphemes.

P ihuhkeet	P i#hu-aa- \dot{i} -ih-keet	‘I paid P’
P ih \dot{o} keet	P i#hu-aa- \dot{i} - \dot{i} -keet	‘you (SG) paid P’
P ih \dot{o} keet	P i#hu-aa- \dot{i} -keet	‘s/he paid P’
P its’ih \dot{o} keet	P i#ts’-hu-aa- \dot{i} -keet	‘we paid P’
P ihahkeet	P i#hu-aa- \dot{i} -ah-keet	‘you (PL) paid P’
P ihih \dot{o} keet	P i#h-hu-aa- \dot{i} -keet	‘they paid P’

Table 3: Morphological fusion in Upper Tanana

Table 4 provides the Upper Tanana and Lower Tanana future paradigms of the verb theme ‘dance’, showing how Lower Tanana and Upper Tanana contrast in degree of fusion in the conjunct syllable.

Upper Tanana	Lower Tanana	
chagndzüh	ch’eteghedzedzes	‘I will dance’
ch \dot{i} ldzüh	ch’eteghildzes	‘you (SG) will dance’
chaldzüh	ch’etoldzes	‘s/he will dance’
ntsaldzüh	tr’etr’etoldzes	‘we will dance’
chaldzüh	ch’eteghwłdzes	‘you (PL) will dance’
ch’ihtaldzüh	ch’ekhetoldzes	‘they will dance’

Table 4: Comparison of fusion in Upper Tanana and Lower Tanana

The Upper Tanana morphophonemic adjustments are not at all transparent, even though they are perfectly regular. The inner subject prefixes (in Upper Tanana, this includes the first and second person singular as well as the second person plural) coalesce with the following voice/valence marker

in complex ways. For example, *agn-* in Table 4 cannot easily be broken up into two components meaning ‘I (first person singular subject)’ and *L-* voice/valence, respectively. Several ways of glossing the first person singular form of this paradigm are shown in (15). In (15a), the pre-stem syllable *chagn-* is broken up into individual underlying morphemes with each morpheme glossed individually (apart from *agn-*). In (15b), *chagn-* is treated as one portmanteau containing six meanings: the thematic indefinite prefix, the inceptive marker *t-* which is part of the future formation, the conjugation marker *aa-* and the (unmarked) imperfective, which are also part of the future formation, and the subject and voice/valence portmanteau *agn-*. The gloss in (15b) preserves information about the linear order of morphemes, but focuses on semantic content rather than on morphophonemic adjustments.

(15) Upper Tanana

a. chagndzüh

ch'-t-aa-Ø-agn-dzüh

INDF-INCP-CNJ-IPFV-1SG.S:VV-dance:FUT

‘I will dance’

b. chagndzüh

chagn-dzüh

INDF:INCP:AA:IPFV:1SG.S:L-dance:FUT

‘I will dance’

Unless the focus lies explicitly on morphophonemics, a gloss like (15b) which treats the entire pre-stem syllable as a portmanteau may be preferable to one like (15a), where each underlying morpheme is glossed separately, although we acknowledge the glossing line are about equally complex in the two examples.

5 Issues in glossing derivation

In this section we discuss issues in semantic transparency, overlapping semantics, and positional vs. semantic glossing.

5.1 Semantic transparency

Verb prefixes in Dene languages are traditionally divided into three classes: lexically specified (also known as *thematic*, 2.2), derivational (2.3) (the addition of which creates the verb *base*), and inflectional. In presenting grammatical information about Dene sentences, it seems uncontroversial to segment and show inflection, as discussed in §4. But what about distinguishing thematic from derivational morphology? When might that be done and what should be shown?

Holden (2013), in his ground-breaking Dene Sų́łíné text collection, takes the position that thematic and derivational morphology (and more) should be distinguished, making three distinctions related to degree of semantic transparency:

- synchronic [analyzable] inflectional or derivational affixes (presented using normal type, with abbreviated glosses in small caps)
- “learned” parts of verb forms, defined as “(completely unanalyzable verb [themes] and morphological idioms)” (p. 448) (presented in italics)
- completely unanalyzable parts of verbs (presented in italics and also underlined)

Some examples will help illustrate Holden’s system. In (16a), *yá-* ‘up’ is semantically transparent, so both language data and gloss are presented in normal type. In (16b), the iterative prefix *na-* ‘back, again’ is semantically transparent in this example, but since the gloss is given in the list of abbreviated glosses for the text collection, it is formatted in small caps. Small caps is also applied to the glosses of *s-* 1.IPFV in (16b) and *ye-* 3D and *H*⁻¹⁴ 3.PFV in (16c). Glosses and abbreviations are presented exactly as in Holden (2013); see the appendix for a list of abbreviations used by him.

14. H represents a high tone in Holden’s usage.

(16) Dene Sų́líné

a. yálgos

yá-Ø-*l.gos*

up-3.IPFV-*jump*

‘he jumps up’

(p. 491)

b. ją nanasther ha

ją na-*na-s-dher* ha

here ITER-*one.stay*-1.IPFV-*one.stay* FUT

‘I will stay here again’

(p. 443)

c. yéłtsi

ye-H-*łtsi*

3D-3.PFV-*make*

‘he made it’

(p. 467)

In (16a), italics are used for the “learned” part of the verb, *l.gos* ‘jump’ (the root and preceding voice/valence prefix); similarly *łtsi* ‘make’ in (16c). Italics are also used in (17) for the parts of this verb form that Holden considers idiomatic: the reciprocal prefix *eł-*, postposition *ta-* ‘among’ and root *-dét* ‘many go’ together mean ‘gather together’, an idiom by Holden’s analysis, since the parts have recognizable meanings to speakers and occur with those meanings in other verbs.

(17) Dene Sų́líné

ełtanıdét

eł-ta-nı-dét

REC-*among*-3.PFV-*many.go*

‘they gathered together’

(34)

The difference between (17) and (16b), which also contains italicized language material on line 2, is that the second prefix *na-* in (16b) is analyzed by Holden as thematic/lexicalized/*learned*, so it is

glossed the same as the root and underlined. When a gloss is repeated and takes up a fair amount of room, Holden abbreviates one of the repeated glosses, as in (18):

- (18) Dene Sų́íné
 łeghálde

 łeghá-N-l-de
many.be.killed-3.PFV-m.b.k.
 ‘they got killed’ (456)

This is the essence of Holden’s proposal for glossing semantic information related to derivational morphology. It may be difficult to implement, however, for two reasons. (1) Speakers and linguists alike may well disagree on which parts of verbs have recognizable meanings. (2) The type/formatting conventions are very complex. They really code various levels of two factors, semantic transparency and our Practicality principle, interacting in ways which are difficult to keep track of, as summarized in Table 5. Unless one can remember the meaning of all the font changes, examples may be difficult to interpret correctly, resulting in diminished Explicitness.

		Practicality	
		not abbreviated	abbreviated
	fully transparent	normal	small caps
Transparency	“learned” w/ literal translation (idiomatic)	italics	–
	“learned” w/o literal translation	italics, underlining	italics, underlining

Table 5: Encoding of Transparency and Practicality in Holden (2013)

Putting these concerns aside, should the system be adopted (if possible) when glossing Dene languages? One can speculate that in his text collection, Holden (2013) was trying to present a large sample of data, an extended case study, to illustrate points made in Holden (2010), a study in lexical semantics. It is admirable that he presented such a long and detailed set of texts, which are in fact unique in their length and glossing detail for any print or electronic text collection in a Dene

language.¹⁵

In general, we are in favor of Holden's recognition of and glossing of morphological idioms. Consider the Kwadacha Tsek'ene example in (19). The verb theme *ti-tsi#O-gh-'q* means 'criticize O', yet as the gloss line reveals, there is an intriguing literal translation (19a). Since speakers are aware of the literal translation and freely offer it, this would be an example of what Holden calls a morphological idiom. Simply treating it as a discontinuous verb theme and repeating the gloss 'criticize', as in (19b), or replacing the prefix glosses with THM, as in (19c), would suppress this information.

(19) Tsek'ene

a. *titsìsighnìi'q*

ti-tsi#si-gh-`n-ii-'q

in.water-head#1SG.O-QUAL-CNJ-PFV-handle.CO.PFV

's/he criticized me' (lit. 's/he put my head in the water')

b. *ti-tsi#si-gh-`n-ii-'q*

criticize-criticize#1SG.O-criticize-CNJ-PFV-criticize.PFV

c. *ti-tsi#si-gh-`n-ii-'q*

THM-THM#1SG.O-THM-CNJ-PFV-criticize.PFV

Once again our general recommendation is that the amount of glossing detail to be shown should depend on the purpose of the work. In a study of causatives, for example, one might well want to distinguish thematic from productive uses of voice/valence markers, but in a study of relative clauses, such detail would be irrelevant. On the other hand, if one makes the decision to provide morpheme glosses, then it seems important to provide information about how independent the meaning of one morpheme is from other morphemes in the word. Whether or not one chooses to adopt all the details in Holden's system is another matter.

15. See Hargus (2019) for a discussion of Dene text collections.

5.2 Overlapping semantics in glossing

Another problem that comes up (albeit rarely) with discontinuous lexical/derivational elements in Dene verbs is overlapping glosses. For example, in Kwadacha Tsek'ene, the verb *n-ghèts* 'long object falls' can be seen in *tinèghèts* 'it (tree) fell in the water' (with *ti#(n)* 'into water') and *nùnaghèts* 's/he fell down, fell over' (with *nù#(gh)* 'down'). There is also a derivational prefix sequence *'i#d-n-*, tentatively glossed 'downward movement', as in *'ooshinë'* *'idnèesyìts* 'I broke down the stump' (with *-yìts* 'break') and *'idnèesghàtl* 'I tripped and fell'. The question is how to gloss the prefix *n-* in *gat 'its'idnèhkhèts* 'we felled the spruce'. In this example, the prefix *n-* is shared by two semantic units. There aren't two instances of *n-* on the surface because in most of the languages the verbal template allows only one conjunct *n*. Traditional IGT for this sentence might resemble (20):

(20) *gat 'its'idnèhkhèts*

gat 'i#ts'-d-n-`s-h-khèts

spruce down-1PL.S-down-down.long.o.falls-CNJ-CAUS-long.o.falls.PFV

'we felled the spruce'

But the gloss 'down.long.o.falls' with the period separating semantic elements fails to show that 'down' is one semantic unit and 'long.o.falls' is another. This situation would seem to call for LGR Rule 4B. (p. 4): "If an object-language element is formally unsegmentable but has two or more clearly distinguishable meanings or grammatical properties, the semi-colon may be used." Rule 4B is implemented in (21):

(21) *gat 'its'idnèhkhèts*

gat 'i#ts'-d-n-`s-h-khèts

spruce down#1PL.S-down-down;long.o.falls-CNJ-CAUS-long.o.falls.PFV

'we felled the spruce'

Although the semi-colon does separate the semantic units in (21), the glossing line is still very hard to read. Another approach would be to provide two instances of *n-* on the segmentation line, as in

(22), and assume that the phonology removes one of them. However, the gloss of the verb is still very long and difficult to line up with the corresponding phonological elements:

(22) gat 'its'idnèkhkètš

gat 'i#ts'-d-n-n-`s-h-khètš

spruce down#1PL.S-down-down-long.o.falls-CNJ-CAUS-long.o.falls.PFV

'we felled the spruce'

A final possibility, very radical, would be to put the glosses for the components of the verb in separate columns, as in (23):

(23) gat 'its'idnèkhkètš

gat 'i#d-n- ts'- `s- h- n-ghètš

spruce downward.movement 1PL.S CNJ CAUS long.o.falls.PFV

'we felled the spruce'

Although linear order in the surface form is now not reflected in the glossing lines in (23), the representation in (23) has certain advantages. The gloss is not repeated and it is clear which discontinuous elements share one meaning, in generally greatly improving Explicitness but at the expense of Standardization. However, one can well ask if (23) is now not a self-contained example. Its Independence could perhaps be improved by providing verb prefix numbers (from Hargus in prep.) to show why prefixes end up where they are in the surface form, as shown in (24).

(24) gat 'its'idnèkhkètš

gat 'i₉#d₄-n₄- ts'₅- `s₃- h₁- n₄-ghètš

spruce downward.movement 1PL.S CNJ CAUS long.o.falls.PFV

'we felled the spruce'

To summarize, in this section we have presented the problem of overlapping glosses in the glossing line, an admittedly rare problem even in Dene languages. We have explored a number of different solutions, the choice between which will ultimately have to be made by individual linguists.

5.3 Positional vs. contentful glosses

Adhering to glossing Consistency within a single language seems like it would be ideal but is sometimes undesirable. For example, in a semantic study of the qualifier prefixes in Witsuwit'en it would be necessary to sometimes gloss *d-* as 'heavy', 'wooden', 'oral', etc., depending on the example (25a. vs. b. vs. c.).

(25) Witsuwit'en

a. Dīncagh

d-īn-cagh

wooden-PFV-be.big

'it (wood, rope) is big'

b. Tsë dīncagh

tsë d-īn-cagh

rock heavy-PFV-be.big

'the heavy rock is big'

c. nec'idīlhcot

ne#c'-d-ī-lh-cot

ITER#INDF.O-oral-2SG.S-VV-take.NON-FUT

'take the lead in singing'

However, in a study focusing on morphological position, this same *d-* could simply be labeled with its position, qualifier, without these distinctions, as in (26), a semi-transparent morphological idiom.

(26) sk'ëwdīlts'it

s-k'ë#w-d-ī-l-ts'it

1SG.P-ON#AR-QUAL-CNJ-VV-compact.O.falls.PFV

'I'm sleepy'

This same issue comes up with glossing any lexical elements other than the root, such as preverbs (see Holden 2013 for discussion): sometimes a semantic gloss is needed and at other times a positional gloss (e.g. *preverb*) may be more appropriate. Using different approaches for different morphemes within a language is also conceivable. In a semantic study of qualifiers, semantic glosses for these morphemes will be required but it may be preferable to provide positional glosses for (e.g.) the voice/valence prefixes. Our recommendation to analysts here is to clarify their approach to reduce the potential for misinterpretation and to help readers understand why examples are glossed the way they are.

6 Terminology and abbreviations

This section mainly addresses the principles of Consistency and Appropriateness as well as the list of elements that Dene linguists need when glossing.

As mentioned above, while consistency with the larger field of linguistics is desirable, the nature of Dene constructions makes it impractical to keep strictly to standards such as LGR. Because of the large number of morphological elements that may occur within a couple of syllables in a Dene verb, abbreviations longer than two or three characters may make a gloss ungainly or even unreadable, as pointed out in 5.2.¹⁶ Comrie, Haspelmath, and Bickel (2015, 3) explicitly suggest deviating from their standard abbreviations as needed. (27) contrasts some of the abbreviations used in Lovick (2020, 543) with those suggested by the LGR. The slightly shorter abbreviations in (27a) allow the verb in this example to fit onto one printed line of the book, which the slightly longer ones in (27b) would not allow (cf. Practicality).

(27) Upper Tanana

a. *lehnaan' tät eh natätjettiin* (S)

lehnaan' tät eh na-tät-jet-tiin

both.sides cane with PRMB-CANE-3SG.S>INDF.O:INC:QUAL:Ø.IPV:D-handle.AO:IPV:NOM

'she, going around by using a cane on both sides'

Tyone (1996, 8)

16. Along these lines, Croft (2003) states that the long list of gloss abbreviations in his book includes none that are over five characters in length.

b. lehnaan' tāt eh natätjettiin (S)

lehnaan' tāt eh

both.sides cane with

na-tāt-jet-tiin

PRMB-cane-3SG.SBJ>INDF.OBJ:INCP:QUAL:Ø.IPFV:D-handle.AO:IPFV:NMLZR

'she, going around by using a cane on both sides'

Tyone (1996, 8)

Terminology also affects Accessibility. To make his material accessible to non-Dene linguists, Holden (2013) explicitly chose to use the term *stem* instead of *theme*:

Using theme to refer to the stem could cause confusion with the term used in information and discourse semantics ('theme' and 'rheme'), with the semantic role of theme, or even with the thematic vowels from Indo-European and Romance linguistics. (p. 448)

We recognize that his decision is in keeping with standardization within general linguistics, but it is at odds with standardization within Dene linguistics, where *stem* refers to a unit formed by the verb root + TAM suffix (Leer 1979). Dictionaries contain stem tables, and many Dene scholars discuss stem sets consisting of stems formed through suffixation of different TAM suffixes. Holden (2013, 448), focusing on Dene Sų́łíné, treats this as suppletion, but agrees that, when working with more conservative languages where stem formation is somewhat more transparent, his choice of term is problematic (Holden, personal communication to Lovick, May 18, 2019).

In A.1 we provide a comparison chart of glosses that have been used in a selection of recent grammars (Rice 1989, Hargus 2007, Lovick 2020), text collections (Holden 2013), and one dictionary (KAD), along with LGR for comparison. We have left capitalization as it is used in each source. Some of these differences, such as the various different abbreviations for imperfective, are trivial. Others, such as *classifier* vs. *voice/valence*, are less trivial. Krauss (1969) railed against the term classifier, but ultimately used it, even in the (intended) title of his article. Kibrik (1993, 1996) introduced the term *transitivity indicator*, but this term did not become widely established in the literature on Dene languages. Rice (2000) was the first major work to introduce 'voice/valence' instead, also adopted by Hargus (2007), Lovick (2020), and others, but the term *classifier* remains in

use (e.g. Holden 2013). We acknowledge the difficulty of this task. Even in this article, both UNSP and INDF are used to gloss the possessive prefix and verbal direct object reflexes of *c'-. Nonetheless, we believe Dene linguistics, and its relation to general linguistics, would be improved if Dene linguists could be more consistent with each other.

7 Conclusion

Some of the glossing problems for Dene languages we have observed are:

- Inconsistency in presentation, including gloss abbreviations
- Treatment of opacity in surface forms (more in some languages than others)
- Density of semantic content in brief verb forms
- Truncation or omission of glosses due to space constraints in publication
- Difficulty of creating independent glossing

It is obvious that space constraints, opacity and density are intricately related. Inconsistency in glossing will always be present, as analyses differ. The difficulty of achieving Independence in glossing, and the ever-present constraints on printed space, are separate and very difficult issues.

In glossing for different purposes, we have considered both audience and topic, but we find that the needs of each may conflict. Documents that address the way that morphosyntax works, such as descriptive grammars or comparisons across the Dene language family, need more specificity in glossing. They will be consulted not only by those interested in the language itself, but by others investigating relationships between languages and other topics. Another type of document that demands full glossing is one that addresses derivation, such as Kari (1989) or Holden (2013). Modified, less-than-full glossing is often required for reasons that do not relate directly to the analysis in the document, but to its manner of presentation, where page space can be very important, or to its audience, where community opinion may determine presentation. We hope that when modified glossing or absence of glossing is adopted, the same material may be made available in a different form that includes more morphological information.

We recognize that the solutions to these problems will differ depending on the language-particular facts as well as the analysis, as shown in our examples throughout this paper. Consequently, our final set of recommendations for glossing are quite broad.

- Be explicit as well as consistent. There is room in most papers for a “methods” section, yet few morphological analyses use one. A footnote expanding abbreviations is often all that is presented. A paragraph of regular text, along the lines of the introductions to each of the texts in A.2, could explain what glossing decisions were made and why. If a problem was observed but not dealt with, that would also be useful information.
- Fight the editor(s) for the space you need to express necessary information.
- Remember that not everyone is a Dene linguist: explain terminological choices.
- Remember that not everyone is a linguist: glosses, whether at the word- or morpheme-level, are helpful and we may need to find ways to convince communities to accept them. The source of grammatical knowledge, native speaker capacity, is becoming ever more difficult to access. When we know enough to provide a grammatical map of this information, it is very important that we transmit this knowledge.

There are many important topics we did not tackle in this paper, such as which boundaries to include within the verb or how to deal with discontinuous inflectional information (a major point in Kibrik 2019). For the most part, the absence of topics has to do with the space available in the present publication. However, there will always be some new questions about glossing that come out of new analyses or new data. Adopting principles, and perhaps some useful standards, for glossing cannot mean setting limits on analyses. What we want to advocate is a thoughtful approach to the provision of grammatical information that will help all users of Dene language products to understand and learn the languages.

A Appendices

A.1 Appendix of glosses

Category	LGR	Rice 1989	Hargus 2007	Holden 2013	Lovick 2020	KAD
1st person			1	1	1	
2nd person			2		2	
3rd person		3	3		3	
4th person		4	3		3>3	
ablative	ABL				ABL	
adjectival				ADJ		
admirative					ADM	
adverbializer	ADVZR				ADVZR	
adjacent					AJC	
allative	ALL				ALL	
animate object		animate			AO	
areal		area	ar	AR	AR	
assertive				ASRT	ASRT	
avertive					AVERT	
causative			caus			
classifier				CL		
complementizer		COMP			CMP	
completive					CMPL	
compact/round object					CO	
conative				CON	CON	
conclusive					<i>conc.</i>	conclu.
conjugation	CNJ		cnj		CNJ	
consecutive						consec.
construct state				CONS		
continuative			cont	CONT	CONT	cont.
contrastive					CT	
topic						

customary		cust	cust	CUST	CUST	cust.
demonstrative	DEM				DE,	
desire					DES	
diminutive				DIM		
discourse particle				DP		
distributive		distr	dist	DIST	DSTR	dist.
distal				D	DSTL	
dual	DU	dual	d, du	D, DU		
dual or plural			d-p			
dubitative		dubitative		DUB		
durative	DUR				<i>dur.</i>	dur.
emphasis			emph	EMPH	EMPH	
errative			err	ERR	ERR	
evidential	EVID	conjecture				
fabric object					FO	
focus		FOC			FOC	
future	FUT	FUT	f, fut	FUT	FUT	
gender					GEN, QUAL	G
habitual				HAB		
(ex)hortative				HORT		
human			hum	HUM		
imperative	IMP				IMP	
imperfective	IPFV	imp	i, impf	IPFV	IPV	
impersonal			impers		IMPSL	
inceptive			incp	INCEP	INC	
inchoative				INCH		
incorporate						INC
indefinite	INDF		indef		INDF	
inferential				INFR		

iterative			iter	ITER	IT	
linear object					LO	
locative			loc			
long rigid ob- ject					LRO	
medial					MED	
mirative				MIR	MIR	
momentaneous			mom	MOM	<i>mom.</i>	mom.
multiple						mult.
necessitative				NEC		
negation	NEG	NEG	neg	NEG	NEG	
negative exis- tential	NEGEX	be none			NEGEX	
neuter (aspect)					<i>neut.</i>	neu.
neutral					NTRL	
nominalizer	NMLZR			NMLZR	NOM	
noun class marker de-					NCD	
noun class marker ne-			round	NCN		
(direct) object	OBJ		O	OB	O	O
onomatopoeia					ONOM	ono.
object in open container					OOC	
optative	OPT	opt	o, op, opt	OPT	OPT	
postpositional object					P	
passive	PASS		pass		PASS	
past	PST	PAST		PST	PST	
patient						P

pejorative					PEJ	
perambulative				PERM	PRMB	per.
perfective	PFV	pf	p, pf	PFV	PFV	
persistentive						pers.
plural	PL	pl, PL	p, PL	PL	PL	
positive			pos			
possessor			psr	PO	PSR	
possessed	POSS	poss	psd		POSS	
possibility				POSS		
postposition			P		PP	
postpositional			P			
object						
probability				PROB		
progressive			pr, prog	PROG	PROG	prog.
prohibitive				PROHIB	PROH	
pronominal			pron			
proximate					PROX	
punctual	PNCT				PNCT	
purposive					PURP	
qualifier			qual		QUAL	
question	Q	Q			Q	
question, yes/no			y/n Q			
quotative				it.is.said		
reciprocal	RECP	RECIP	recp	REC	RECP	
reflexive	REFL	REFL	refl	REFL	REFL	
relative clause marker				REL		
repetition				REP		
repetitive			rep			rep.

repetitive1					REP ₁	
(aspect)						
repetitive2					REP ₂	
(aspect)						
reversive				REV		
reversative					<i>rev.</i>	rev.
rope-like					RO	
object						
self-				SBEN		
benefactive						
semelfactive					<i>sem.</i>	sem.
singular	SG		s, sg	SG	SG	
seriative				SER		
subject			S		S	
temporal			temp			
terminative				TERM	TERM	
thematic			thm			
topic				TOP		
transitional				TRANS	<i>trans.</i>	tran.
uncertainty		uncertainty				
unspecified		unspec				
voice/valence			v/v		VV	
marker						

A.2 Appendix of texts

As an appendix we have included three short texts from three different Dene languages. For each text, we give an estimate of how long it took us to gloss and format, and the decisions we made about glossing.

A.2.1 Upper Tanana

This brief text (1 minute 54 seconds) by the late Mrs. Cora David is published in the bilingual story collection David (2017), with the Upper Tanana (broken into intonation units) and English text on facing pages.

Below it is glossed following the conventions used in Lovick (2020); due to the fusional nature of Upper Tanana, the portmanteau approach is used both for the prestem syllable and for the unit formed by the stem and productive suffixes. The style of glossing is positional more than semantic, and because it is often hard to identify individual morphemes, information about their shape (e.g. *aa*-imperfective) is included where relevant. Viewpoint aspect (perfective/imperfective) and superaspect (e.g., customary) are indicated as part of the stem gloss, while stem aspect (e.g., momentaneous) is not. Preparing the morpheme glosses in ELAN took Lovick about an hour. Exporting the result and formatting it for inclusion in this paper took about another 45 minutes. This text does not present many challenges to the analyst; most of the morphemes are known and there are no unusual forms.

(28) UTOLVDN11Jul2902

- a. Udzieh ugaay ts'iikeey gaay iin hii'eł natultthagn ha' ay xah huhiiyeh'aał.

udzih u-gaay ts'iikeey gaay iin hii-'eł
caribou 3SG.PSR-young children small PL 3PL.S>3PL.O-with
na-tul-tthagn ha' ay xah
PRMB-3PL.S:INC:OPT:L-SG.RUN:OPT:NOM PURP 3SG because
hu-i-hiiy-eh-'aał
3PL.P-PP-3PL.S>3PL.O-Ø.IPFV:H-feed:IPFV

'Young caribou, so they run like them, that's why they feed it to children.'

b. Diniign du' mbihq̄leek tah ts'udetniik nts'a' k'a xan tah niihaak nts'a'.

diniign du' mb-i-hq̄-leek tah
moose CT 3SG.P-PP-AR:Ø.PFV:Ø-be.born:IPFV:CUST when
ts'-u-det-niik nts'a' k'a xan tah
PEJ-3SG.S:?-QUAL:Ø.PFV:D-be.lazy:IPFV and NEG quickly ADVZR
ni-i-haak nts'a'
up-3SG.S:Ø.IPFV:Ø-SG.GO:IPFV:CUST and

'Moose though, when it is born it is lazy, and it doesn't get up quickly.'

c. Natet-tl'uk k'e diign ha k'ay ay du' ijjih that ts'ikeey taa'aal.

na-tet-tl'uk k'e diign ha k'ay ay du'
IT-3SG.S:INC:DH.PFV:D-be.mushy:IPFV like do:IPFV:CUST.NOM because ? 3SG CT
ijjih that ts'ikeey taa-'aal
forbidden that children 3PL.S:INC:AA.IPFV:Ø-eat:FUT:NEG

'It is weak the way it does things, and that's why it is forbidden that children eat it.'

d. Tsa' du' ukelaagay' dineey gaay iin gaan' k'it hiiyedlaak tsat huuttheel xah.

tsa' du' u-ke-laa-gay' dineey gaay iin gaan' k'it
beaver CT 3SG.PSR-foot-hand-dry man small PL arm on
hiiy-e-dlaak tsat huu-ttheel xah
3PL.S>3PL.O-Ø.IPFV:Ø-keep.PL.O:IPFV:CUST wood 3PL.S:OPT:Ø-chop:OPT PURP

'They put beaver claws around boys' wrists so they can chop wood.'

e. Jign ntl'at <chih> ay chih ts'iikeey k'a ihiitah'aal.

jign ntl'at <chih> ay chih ts'iikeey k'a
blueberries salmonberries also 3PL also children NEG
i-hii-tah-'aal
PP-3PL.S>3PL.O-INC:AA.IPFV:H-feed:FUT.NEG

'Blueberries and salmonberries too they don't feed it to children.'

f. Hut'ay' utaakol, heniik shnaq iin.

hu-t'ay' u-taa-kol he-niik sh-naq
3PL.PSR-strength CON-INC:AA.IPFV:Ø-NEGEX 3PL.S:Ø.IPFV:Ø-say:IPFV:CUST 1SG.PSR-mother
iin
PL

'They will not be strong, they used to say, my mother and the others.'

g. Hu'ihqoŋŋi noo that kind hqo ijjihi hihdijini'.

hu-i-hqo-ŋŋi noo that kind hqo ijjihi
3PL.P-PP-AR:Ø.PFV:Ø-be.born:PFV ahead:ALL that kind thus forbidden
hih-dijini'
3PL.S-QUAL:AA.PFV:Ø-say:PFV

'From the time they are born that time is forbidden, they say.'

- h. Ndlaan du' tsat hugn tsat dihdøø ay shyiit hugn ch'elseek hii'ehnay hugn hugn too ay chih ts'iikeey t'ah hiidedlaak hii'eh tsat utnay xah.

n-dlaan du' tsat hugn tsat dihdøø ay shyiit hugn
 3SG.S:Ø.PFV:Ø-be.lots:IPFV:NOM CT wood etc wood ? 3SG here etc
 ch'el-seek hii-eh-nay hugn hugn too
 INDF.O:DH.PFV:L-shave:PFV 3PL.S>3SG.O-Ø.IPFV:H-say:IPFV:NOM etc etc too
 ay chih ts'iikeey t'ah hii-de-dlaak
 3SG too children pocket 3PL.S>3SG.O-QUAL:Ø.IPFV:Ø-keep.PL.O:IPFV:CUST
 hii-'eh tsat ut-nay xah
 3PL.S>3SG.P-with wood OPT:D-work:OPT:NOM PURP

'Lots hollow wood what they call wood shavings they put those in the kids' pockets so they're strong for wood. (strong enough to go out and cut wood)'

- i. Tsat hii'eł ettheel ikeek.

tsat hii-'eł e-ttheel i-keek
 wood 3PL.S>3SG.O-with Ø.IPFV:Ø-chop:IPFV 3SG.S:Ø.IPFV:Ø-handle.PL.O:IPFV:CUST

'They like to cut lots of wood.'

- j. Høø' t'eeey k'a nuh'adetnay nts'a' k'oht'iin na'ahłij k'ahdu'.

høø' t'eeey k'a nuh-a-det-nay nts'a' k'oht'iin
 thus ADVZR NEG 2PL.P-PP-QUAL:Ø.IPFV:D-teach:PASS:IPFV:NEG ADVZR people
 na-ah-łij k'ahdu'
 IT-Ø.PFV:2PL.S:Ø-be:IPFV now

'You guys aren't taught that way, and that's the kind of people you are nowadays.'

- k. Høø' t'eeey ch'a nee'adatni' neexon' du'

høø' t'eeey ch'a nee-a-dat-ni' neexon' du'
 thus ADVZR FOC 1PL.P-PP-QUAL:AA.PFV:D-teach:PASS:PFV:NOM 1PL CT

'That's the way we were taught, us.'

- l. Nts'aa' nts'aa' tsaat'eeł niign t'eeey nee'ahdijini' nts'a'.

nts'aa' nts'aa' tsaat'eeł niign t'eeey
how how 1PL.S:INC:AA.IPFV:Ø-be:FUT CMP ADVZR
nee-a-h-dij-ni' nts'a'
1PL.P-PP-3PL.S-QUAL:AA.PFV:Ø-teach:PFV ADVZR

'The way we should be in the future (when we grow up) they taught us.'

- m. ijijih that ay hq̣q' shyijj' ts'inijithij.

ijijih that ay hq̣q' shyijj' ts'-nij-thij
ijijih that 3SG thus only 1PL.S-QUAL:Ø.PFV:Ø-think:IPFV:CUST

'That's the only way we think, ijijih.'

- n. Hq̣q' shyijj' t'eeey t'axoh.

hq̣q' shyijj' t'eeey t'axoh
thus only ADVZR enough

'That's all.'

A.2.2 Kwadacha (Fort Ware) Tsek'ene

This text from Mike Abou is 0:02:57 in length. It was originally prepared by Hargus with word glosses only, and can be inspected (and listened to) in that form online.¹⁷ The most time consuming part of preparing this text was transcribing, translating and adding word glosses for the online version (maybe six hours altogether). Supplying the morpheme glosses for the present version took about forty-five minutes, and supplying the formatting for inclusion with this article another hour. There is very little fusional morphology in inflection in this language, so no inflectional portmanteau in the pre-stem syllable can be seen in this text. Zeroes are not used in glosses for non-overt members of inflectional paradigms. In the area of lexical and derivational morphology, glosses are contentful rather than positional. With discontinuous themes the gloss is repeated (possibly in abbreviated

17. http://depts.washington.edu/kwatexts/How-to/bannock_recipe.html

form) on the non-rightmost component of the theme, including the voice/valence marker, unless treatment as a morphological idiom is possible. Because the text was meant to be listened to, false starts have not been edited out of the written text. And because the text was intended to have pedagogical as well as academic value, occasional English words used by Mike Abou are translated into Tsek'ene on the glossing line if monomorphemic.

(29) Dèkusk'ehdza soonè' ts'eht'èsii 'The way we cook bannock'

- a. Dune soonè' didat'èse da, dune ts'à' dehgìdla ìkii- soonè' ts'à' dehgìdla 'ìkèhtl'ich.

dune soonè' d-d-a-t'ès-e da, dune ts'à' dehgìdla ìkii- soonè'
 person bannock BEN.REFL-FUT-FUT-COOK-FUT when person flour
 ts'à' d-u-h-gìdla 'ìkì#u-h-tl'ich
 bowl b.r-IPFV-b.r-be.round in#IPFV-pour-pour.CUST

'When a person is going to cook bannock, they pour flour into a round bowl.'

- b. 'Ii tl'qh 'ùkoo mutayut'e 'ìghidii mutaghgheh'ijj.

'ii tl'qh 'ùkoo mutayut'e 'ì#gh-u-dii
 and then those baking.powder 3SG.O#3PL.S-IPFV-call.IPFV
 m-tu#gh-gh-u-h-'ijj
 3PL.P-into#3SG.O-3PL.S-IPFV-do-do.IPFV

'Then they add what they call baking powder.'

- c. 'Ii tl'qh lìsel joo, 'ii sòògah joo mutaghgheh'ijj datsìdla.

'ii tl'qh lìsel joo, 'ii sòògah joo m-tu#gh-gh-u-h-'ijj
 and then salt too that sugar too 3SG.P-into#3SG.O-3PL.S-IPFV-do-do.IPFV
 d-a-tsìdla
 b.l-IPFV-be.little

'Then they add salt and a little bit of sugar.'

d. 'Ii 'èh 'ughè' naghghehkhèhii 'èh, joo mutughehtl'ich.

'ii 'èh 'u-ghè' nu#gh-gh-u-h-khè-h-ii 'èh, joo
and then UNSP.PSR-grease ITER#3SG.O-3PL.S-IPFV-melt-melt-IPFV-and then also
m-tu#gh-u-h-tl'ich
3SG.P-into-3PL.S-IPFV-pour-pour.CUST

'Then they melt grease and pour that in too.'

e. 'Ii tl'qh 'ùkoo diih ghèza lhighè' wuyè two wuyè mutagheh'ũ.

'ii tl'qh 'ùkoo diih ghèza lhighè' wuyè two wuyè
and then those chicken egg one or lhèkwudut'e or
m-tu#gh-u-h-'ji-`
3SG.P-into#3PL.S-IPFV-do-do-IPFV-UNCERT

'And then maybe they add one or two eggs to it.'

f. 'Ii tl'qh kwùla m'iyighghdehgus.

'ii tl'qh kwùla m-iyigh#gh-d-u-h-gus
and then finally 3SG.P-stir#3PL.S-stir-IPFV-stir-stir.NON-PF

'And then finally they stir it.'
Yeah.

g. Miyighghdehgus 'uwute'e.

m-iyigh#gh-d-u-h-gus 'uwute'e
3SG.P-stir#3PL.S-stir-IPFV-stir-stir.NON-PF well

'They stir it well.'

h. 'Ii tl'qh kwùla too mutughehtl'ich.

'ii tl'qh kwùla too m-tu#gh-u-h-tl'ich
and then finally water 3SG.P-into#3PL.S-IPFV-pour-pour.CUST

'Then finally they pour water into it.'

- i. Too enough 'unèt'e mutughehtl'ijii tl'òh mich— mìyighghdeh— michighnehgus.

too enough ' -n-`n-t'e m-tu#gh-u-h-tl'ij-ii tl'òh
 water b.e-b.e-CNJ-be.enough 3SG.P-into#3PL.S-IPFV-pour-pour.CUST-and then
 mich— mìyighghdeh— m-chi#gh-n-u-h-gus
 3SG.P-stir#3PL.S-stir-IPFV-stir-stir.NON-PF

'Then they pour in enough water and then they stir it.'

- j. Kwùla dit'òòdzat'ũh da, dighiilà' 'èh micheghnehdiih.

kwùla d-u-t'òòts 'u#t'ũh da, dugh-iilà' 'èh
 finally b.t-IPFV-be.thick bec.#become when 3PL.REFL.PSR-hand with
 m-che#gh-n-u-h-diih
 3SG.P-knead#3PL.S-knead-IPFV-knead-knead.IPFV

'Finally when it gets thick they knead it.'

Yeah.

- k. Micheghnehdiih 'ii tl'òh kwa 'ii ts'awèt 'ughd[n]iìhsulh.

m-che#gh-n-u-h-diih 'ii tl'òh kwa 'ii ts'awèt
 3SG.P-knead#3PL.S-knead-IPFV-knead-knead and then finally that frying.pan
 '-gh-d-n-ìi-h-sulh
 UNSP.O-3PL.S-BEN.REFL-W.U-W.U.-CAUS-warm.up.PROG

'They knead it and then they warm up the frying pan.'

- l. Tlugh mèkèh 'awweh'ijh.

tlugh m-èkèh 'u#w-w-u-h-'ijh.
 grease 3SG.P-in[ar] do#AR-3PL.S-IPFV-do-do.IPFV

'They put grease in it.'

m. 'Ii soonè' mìkighu'āhii melheghneh— sòdh 'uwute'e milheghnehdiih.

'ii soonè' m-ìkì#gh-u-'ā-h-ii melheghneh— sòdh
that dough 3SG.P-in#3PL.S-IPFV-handle.compact-CUST-and really
'uwute'e m-lhe#gh-n-u-h-diih.
well 3SG.P-knead#3PL.S-knead-IPFV-knead-knead.IPFV

'They put the dough in it and knead it nicely (into the right shape).'

n. 'Ii la kwùn ts'è' kwùdah ghigheht'ès.

'ii la kwùn ts'è' kwùdah gh-gh-u-h-t'ès.
that CERT fire at by.fire 3SG.O-3PL.S-IPFV-CAUS-COOK.NON-PFV

'They cook it on the fire.'

o. Tazowe kwùdah ghigheht'ès.

tazowe kwùdah gh-gh-u-h-t'ès
outside by.fire 3SG.O-3PL.S-IPFV-CAUS-COOK.NON-PFV

'Outside they cook it by the (camp)fire.'

p. 'Uwute'e 'ut'ès 'ii tl'òh kwùla ts'à' 'ìkighghuleh.

'uwute'e 'u-t'ès 'ii tl'òh kwùla ts'à' 'ìkì#gh-gh-u-le-h
well IPFV-fry.NON-PFV and then finally plate in#3SG.O-3PL.S-IPFV-handle.PL-CUST

'It cooks nicely and then they pile them on a plate.'

- q. 'Ii kwùla maybe dahdeda 'unèt'e kaghniizü de all ghigheht'èsii tl'òh gwa neh- kwa 'ii la deda 'uwutsuts de neghehkùch de, nighghukah.

'ii kwùla maybe dahdeda 'n-`n-t'e ka#gh-n-ii-zü
 that finally sq whenever b.e-b.e-CNJ-be.enough want#3PL.S-want-IPFV-want.IPFV
 de all gh-gh-u-h-t'ès-ii tl'òh gwa neh- kwa 'ii
 when 3SG.O-3PL.S-IPFV-CAUS-COOK.NON-PFV-and then there finally that
 la deda '-w-u-tsuts de nì#'-gh-h-kùch
 CERT whatever UNSP.O-IMPRS.S-IPFV-eat when to.ground#UNSP.O-3PL.S-slap-slap.CUST
 de, nì#gh-gh-u-ka-h.
 when to.ground#3SG.O-3PL.S-IPFV-handle.contained-CUST

'They put it in a dish and when they want to eat it they put it there on the ground.'¹⁸

- r. 'Ii wuts'eh 'ùkoo lidii kooht'e ya ghighutsudzii all tl'ònaghduleh.

'ii wuts'eh 'ùkoo lidii kooht'e ya gh-gh-u-tsudz-ii all
 that after those tea etc. what 3SG.O-3PL.S-IPFV-eat-NON-PFV-and
 tl'òn-nu#gh-d-u-le-h
 in.circle-ITER#3PL.S-i.C-IPFV-handle.PL-CUST

'They put everything around, tea, everything.'

- s. Kwa 'ii la 'ùkoo ts'òòdawa 'ide tunìne'ò tl'òh 'uwute'e 'ughutsuts.

kwa 'ii la 'ùkoo ts'òòdawa 'ide tu#n-`n-'ò-` tl'òh 'uwute'e
 finally that CERT those kid.PL there PL#all-CNJ-all-UNCERT then well
 '-gh-u-tsuts
 UNSP.O-3PL.S-IPFV-eat-NON-PFV

'And all the kids there eat.'

t. 'Ii, kwùla finish 'ughutsudzii tl'qh kwùjoo khudà'— khutà' ts'è' tinaghdididlii.

'ii, kwùla finish '-gh-u-tsudz-ii tl'qh kwùjoo khudà'— khutà'
that finally UNSP.O-3PL.S-IPFV-eat-NON-PFV-and then again God
ts'è' ti-nu#gh-d-d-u-dlii
to pray-pray#3PL.S-BEN.REFL-pray-IPFV-pray.IPFV

'They finish eating and they pray to God for themselves.'¹⁹

u. Tinaghdidlii 'ii tl'qh kwùla all 'utunaghìdùlh.

ti-nu#gh-d-u-dlii 'ii tl'qh kwùla all
pray-pray#3PL.S-BEN.REFL-pray-IPFV-pray.IPFV and then finally
'utu-nu#gh-ì-dùlh
scatter-ITER#3PL.S-scatter-PL.go.CUST

'They pray and then they all go away after that.'

v. Ts'òòdawa joo kighnètal.

ts'òòdawa joo ki#gh-n-`n-tal
kid.PL too play#3PL.S-play-CNJ-play.IPFV

'Kids play too.'

w. Kusk'ehdze la dune yijhdze du- dune k'e'it'ũh ghiilè'.

kusk'ehdze la dune yijhdze du- dune k'e#'-u-D-ũh ghiilè'
thus CERT people here people PRMB#do-IPFV-do-do.NON-FUT PAST

'That's how people here used to do things long ago.'

A.2.3 Lower Tanana

Glossing for non-print media

Siri Tuttle

The type of glossing exemplified here is quite distinct from that required for paper publication, but is available whenever space is not at a premium - as, for example, in materials archived online or provided as an online supplement to a text published otherwise. This section of Moses Charlie's "Dotrotsela Tsoni 'eł", or "Raven and Brown Bear", represents glossed utterances exported to interlinear text from an ELAN transcription. With page space not an issue, additional lines can be added to a gloss to allow for both semantic and positional glossing. The entire story, which is 67 utterances in length (4 minutes 5 seconds) would take about 35 pages to print in this expanded, highly redundant format, but the text file comprises only 41 KB. Naturally, each linguist creates their own templates for ELAN transcriptions. For each utterance, it may take several minutes to fill in all the lines. Word division and the separation of semantic from templatic annotation take the most time. I have included the first three units of the story.

This story is part of the Moses Charlie collection, which includes the original transcriptions by Michael Krauss and much subsequent work by other linguists, most notably James Kari. None of the material in that collection is glossed, and the present effort is a move toward completion and publication of the stories with supplemental material online. The archived materials can be found in the Alaska Native Language Archive at this handle: <http://www.uaf.edu/anla/item.xml?id=TNMN981K1991d>.

In this transcription I have included no "zeros", but have included information about what is understood but not morphologically coded within the word segment in the semantic gloss, roughly where it might have appeared. If a morphological element that is realized does not seem to contribute to word meaning, or I do not yet know what it contributes, I have left the semantic line empty but included templatic information.

Identifier	RavBear001
utt	Iga'i sanhti xulanh ts'e koxt'ana, koxt'ana luk'a ghwnh nelneyh.
free trans	Well, it was summer and the people the people were working on fish.
words	Iga'i sanhti xulanh ts'e koxt'ana, koxt'ana
w trans	So summertime it.is and people people
DividedWords	Iga'i sanh-ti xu-lanh ts'e koxt'ana, koxt'ana
Segments	Iga'i sanh ti xu lanh ts'e koxt'ana, koxt'ana
SemanticGloss	so summer in AR:STAT:3S be:IPFV and people, people
TemplaticGloss	SBJ:CNJ:ASP STEM

words luk'a ghwnh neŋneyh.
 w trans fish for they.are.working
 DividedWords luk'a ghwnh n-e-ŋ-neyh.
 Segments luk'a ghwnh n e ɬ neyh.
 SemanticGloss IPFV:3pS VV work:IPFV
 TemplaticGloss QUAL ASP CLF STEM

Identifier RavBear002
 utt Iga' tsoni, tsoni koxt'ana dogha noxwniɬtsinh.
 free trans Then the brown bear the brown bear made a fish-fence downriver
 from the people.
 words Iga' tsoni, tsoni koxt'ana dogha noxwniɬtsinh
 w trans so grizzly grizzly people downriver he.built.it

DividedWords no-xw-n-i-ŋ-tsinh
 Segments no xw n i ɬ tsinh
 SemanticGloss across AR PFV:3sS VV make:IPFV
 TemplaticGloss ADV OBJ CNJ ASP CLF STEM

Identifier RavBear003
 utt Łuk'a ghelex xw
 free trans there where the fish run,
 words Łuk'a ghelex xw,
 w trans fish they.swim where

DividedWords Łuk'a ghe-lex xw
 Segments Łuk'a ghe lex xw
 SemanticGloss PROG:3pS swim:IPFV
 TemplaticGloss ASP:INSUB STEM

Identifier RavBear004
 utt ina ghodo noxwniɬtsinh.
 free trans he blocked it off downstream of the people.
 words ina ghodo noxwniɬtsinh.
 w trans them downstream he.is.building.it

DividedWords ina ghodo no-xw-n-i-ŋ-tsinh.
 Segments ina ghodo no xw n i ɬ tsinh.
 SemanticGloss across AR PFV:3sS VV make:PFV
 TemplaticGloss ADV OBJ CNJ ASP:INSUB CLF STEM

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