# Potential possibility: The Tlingit potential mode meets formal semantics

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**Abstract**

I argue that the potential mode of Tlingit verbs is a method of expressing pure possibility modality. I document the morphological and syntactic essentials of the potential mode, showing that it is morphologically limited to the verb and it is syntactically not isomorphic with the subjunctives of European languages. I offer a preliminary semantic definition of the potential operator POT, demonstrate that contra Leer (1991) negation can scope over or under POT, and show from textual and elicited data that it does not encode any particular conversational background.

## 1. INTRODUCTION

Tlingit[1] is a Na-Dene[2] language spoken in southeastern Alaska and neighbouring parts of British Columbia and the Yukon Territory. Like its Athabaskan cousins, Tlingit has a large and labyrinthine system of verb morphology. There is no clear analogue to independent modal elements as found in European languages. Instead, verbs are inflected for tense, aspect, and modality

1. Pronounced /ˈklɪŋˌkɪt/ in English, from Tlingit *Lingít* /ɬìnkít/ 'person; Tlingit'.
2. Pronounced /ˌnaˈdɛne/ or /ˌnadəˈne/, and named by Sapir (1915: 588) who mistakenly included Haida. Also known by the more unwieldy 'Athabaskan–Eyak–Tlingit'.

(TAM) in a paradigm of MODES. Each mode involves at least three affixes in different parts of the verb, and because these affixes only have meaning in cooccurrence relations with other affixes, it is difficult to delineate a compositional morphosemantics. As a consequence, I investigate the semantics of entire modes rather than the semantics of specific morphemes.

In this paper I will look at the potential mode in Tlingit. This mode is usually translated into English with one of the modal auxiliaries 'can', 'could', 'may', or 'might'. I look at textual occurrences and a few controlled contexts and conclude that the potential mode is essentially an instantiation of the possibility operator $\Diamond$ with future orientation and no presupposed conversational background. With this analysis I offer an initial attempt at formalizing the semantics of this mode following e.g. Portner (2009). I first present the morphology of the potential mode and its relation to the rest of the verbal morphology. I then address the syntax of verbs in the potential mode, and argue that the potential mode is not a type of subjunctive. Then I examine the semantics of the potential mode, and I conclude with some comparisons to other modality systems and some potential questions for further research.

Leer (1991: 330–511) insightfully documented the semantics of the TAM categories (his "schetic" categories) as constituted by the inflectional paradigm of verb modes. Unfortunately his semantic analysis used an idiosyncratic formalism that does not account for such essential distinctions as reference time (RT) versus utterance time (UT) or temporal perspective versus temporal orientation, nor for quantification over semantic variables or for different conversational backgrounds of modality. His analysis provides invaluable descriptive generalizations about Tlingit but it is difficult for cross-linguistic comparison and also misses some important language-internal facts. My analysis of Tlingit modality in this paper is crucially based on his extensive documentation, but I have found it necessary to abandon his formalism and most of his assumptions.

## 2. POTENTIAL MORPHOLOGY

The VERB TEMPLATE of Tlingit is a descriptive device used to allocate positions ('slots') to various affixes ('fillers') of the verb. All Tlingit specialists today take it to be an analytical convenience rather than a psychological reality, as Jung (1999: 15) similarly disclaims for Athabaskan languages where there has been much more research (see e.g. Kari 1989, 1992). The template

| *Slot(s)* | *Description* |
|---|---|
| +18 | bound PPs and NPs (lexically specified bound phrases) |
| +17A…F | preverbs (adverbial and PP-like elements) |
| +16 | reciprocal and distributive |
| +15 | plural |
| +14 | objects (1SG/PL, 2SG/PL, 3, 3PRX, IND.H, IND.N, RFLX, PART) |
| +13 … +8 | incorporates (areal, alienable & inalienable nouns, self-benef.) |
| **+7** | outer conjugation (*ga*-conjugation prefix) |
| **+6** | irrealis (*u-*, *w-*, *oo-* prefixes) |
| **+5** | inner conjugation (*Ø-*, *na-*, *g̲a-* conjugation prefixes) |
| **+4** | perfective (*ÿu-*, *u-*) and *g̲a-* mode prefix |
| +3 | distributive |
| +2 | subjects (1SG/PL, 2SG/PL, 3, 3OBV, IND.H) |
| **+1** | classifier CL[±D, S, ±I] |
| 0 | √root |
| **−1** | stem variation (suffixes modifying the root vowel) |
| −2 | derivation |
| **−3 … −5** | duration, mode, and epimode |
| −6 | clause type |
| −7 | auxiliaries |

Table 1: Tlingit verb template sketch

I use follows Cable (2006, 2010b) with a few minor extensions, with positive numbers for prefixes and negative numbers for suffixes. It is sketched in table 1; I have deliberately obscured many details for brevity. The slot numbers in bold, slots +7 through +4, −1, and −3 through −5 are the essential loci for mode marking, as well as the I component [±I] in the classifier in slot +1.

The POTENTIAL MODE is constructed from the *u-*$_{+6}$ irrealis prefix, one of the lexically specified conjugation prefixes symbolized as *CNJ-*$_{+7/+5}$, the *g̲a-*$_{+4}$ mode prefix, the [+I] feature in the classifier (slot +1), and the *-h*$_{-1}$ stem variation suffix (or *-ÿ*$_{-1}$ for a few *Ø*-conjugation class verbs). The potential mode is conventionally represented as a string of affixes *u-CNJ-g̲a-CL[+I]-√…-h* though only the first three prefixes are adjacent. As Leer (1991: 388) puts it, the potential mode indicates that "in one among several alternative fu-

ture 'possible worlds', the speaker has reason to expect a certain outcome". I will address the semantics later in this article. In this section I will briefly review the morphological composition of the potential mode.

The IRREALIS PREFIX *u-* in slot +6 is aptly named. As well as in the potential mode, it also occurs in negative and dubitative forms of other modes, in the admonitive mode ('lest V occur'), and in the prohibitive-optative epimode ('don't' or 'hopefully') that can be added to perfectives and imperfectives. The future mode has the related *w-* prefix that is found in the same slot but which has slightly different morphophonology. The habitual and perfective modes of *Ø*-conjugation class verbs have a different *u-* prefix in the same slot as the ordinary perfective *ÿu-* (+4); this is distinct from the irrealis *u-*. The irrealis *u-* is also lexically specified in some verbs such as 'be lazy', 'be afraid', 'try', and 'tempt'.[3]

The CONJUGATION CLASS of a verb is designated by a prefix in the set {*Ø-*$_{+5}$, *na-*$_{+5}$, *g̲a-*$_{+5}$, *ga-*$_{+7}$} that is lexically specified for each verb.[4] Motion verbs are the exception, where instead the verb must be derived into any of the four classes with accompanying morphology for direction and manner. The conjugation prefixes do not occur in all modes, but most modes have morphology that is sensitive to the conjugation class. Although Leer (1991) assigned specific meanings to the conjugation prefixes (his "aspects"), I have encountered too many exceptions to unconditionally accept his assigned meanings. Instead I consider the prefixes to be essentially meaningless and the conjugation classes to be largely arbitrary lexical features.

The *g̲a-* MODE PREFIX in slot +4 is an apparently meaningless prefix that occurs in a number of modes including the potential. It is positionally distinct from the *g̲a-* conjugation class prefix in slot +5, and the two can cooccur. The *g̲a-* mode prefix appears in the future, potential, hortative ('1st/3rd should', 'let's'), and contingent ('whenever') modes. It has an overlapping but different distribution with the irrealis prefix *u-*, the conjugation prefixes, and the stem variation suffixes.

The CLASSIFIER is a prefix immediately preceding the root that indicates voice, valency, noun class, stativity, and realis. It has three featural components, the D component, S component, and I component. The D COMPONENT

3. These are *a-**u**-S-CL[+D,s]-√ka* (*ga*; *-h* Stv) 'S be lazy', *N-x' a-ka-**u**-S-CL[+D,l]-√x̲éetl'*$^{\times}$ (*ga*; Stv) 'S be afraid of N', *O-ka-**u**-S-CL[−D,Ø]-√.ak̲w* (*na*; *-h* Act) 'S try O', and *O-ka-**u**-S-CL[−D,Ø]-√dlén*$^{\times}$*-x̲aa* (*na*; Act) 'S tempt O', respectively.
4. Note that *g̲a-*$_{+5}$ is distinct from *ga-*$_{+7}$, the former is uvular and the latter velar, and *ga-* precedes the irrealis *u-* whereas the others follow it.

indicates middle voice when [+D]. The S COMPONENT has one of four values {*Ø*, *s*, *l*, *sh*} depending on valency and/or noun class, though it often seems to be an arbitrary lexically specified element. The I COMPONENT is always [+I] in the potential mode. In non-negative imperfectives it is [+I] if the verb is a stative predicate, otherwise it is [−I]. In perfectives and realizationals ('finally' + perfective) the I component is [+I] in realis situations, otherwise it is [−I]. Other modes always have [−I] with minor exceptions.

The STEM VARIATION suffixes are a set of suffixes that are used to analytically explain regular patterns of vowel length, tone, and quality in the root across a single verb paradigm. Combining a verb root and a stem variation suffix produces a verb stem. The stem variation suffixes are based on the extinct Tongass dialect (Williams, Williams, & Leer 1978) which had the most explicit system of stem variation, clarifying the patterns found in the other dialects. The potential mode has the 'fading' stem variation suffix *-h* (Leer's -ʻ or -ˋ) which was realized mostly as a breathy second mora in Tongass Tlingit (so √CV(C) + *-h* → C**VV̤**(C)~CV**ɦ**(C)), and is mostly a long vowel with low tone in Northern Tlingit (so √CV(C) + *-h* → C**V̀ː**(C)). Roots which end with ejectives, and a few lexically specified 'glottalized' roots, instead have high tone in Northern Tlingit (so √CVC' or √CV'C + *h* → C**V́ː**C$^{(ʔ)}$), but had a glottalized vowel in Tongass Tlingit (so √CVC' or √CV'C + *h* → CV**ʔ**C$^{(ʔ)}$). A few *Ø*-conjugation class verbs have *-ÿ* rather than *-h* in the potential, which is realized in Northern Tlingit as a short vowel with high tone for CVC roots and as a long vowel with high tone for CV roots. Some verb roots are invariable exhibiting no stem variation, in which case no suffix is used.

The use of *-h* stem variation in the potential mode is correlated with but not exclusive to the irrealis forms of other various modes. To illustrate this, the following examples compare realis and irrealis perfectives along with positive and negative potentials. The same verb is used in every example, namely *O-S-CL[−D,s]-√x̲a* (*Ø*; *-'* Act) 'S eat O' with first person singular subject *x̲a-* and third person object *Ø-*. Leer (1991: 220–233) provided a complete mode paradigm for this verb, which is a fairly unremarkable transitive. The forms in (1) show perfective stems, and in (2) the potential can be compared.

(1) a. *(positive) realis perfective* — ÿu-CL[+I]-…-ÿ
x̲**w**a**a**x̲**áa**
Ø-**ÿu**-x̲a-**ÿa**-√x̲a-**ÿ**
3.O-**PFV**-1SG.S-CL[−D,Ø,**+I**]-√eat-**VAR**
I.eat.**PFV**.it
'I ate it', 'I have eaten it' (Leer 1991: 222)

b. *negative + irrealis perfective* — u-ÿu-CL[−I]-…-h
tléil x̲**w**ax̲**aa**
tléil Ø-**u**-**ÿu**-x̲a-**Ø**-√x̲a-**h**
NEG 3.O-**IRR-PFV**-1SG.S-CL[−D,Ø,**−I**]-√eat-**VAR**
not I.eat.**IRR.PFV**.it
'I didn't eat it', 'I haven't eaten it' (Leer 1991: 222)

c. *dubitative + irrealis perfective* — u-ÿu-CL[−I]-…-h
gwál x̲**w**ax̲**aa**
gwál Ø-**u**-**ÿu**-x̲a-**Ø**-√x̲a-**h**
DUB 3.O-**IRR-PFV**-1SG.S-CL[−D,Ø,**−I**]-√eat-**VAR**
maybe I.eat.**IRR.PFV**.it
'I maybe ate it' (Leer 1991: 222)

(2) a. *(positive) potential* — u-CNJ-g̲a-CL[+I]-…-h
**k̲waax̲aa**
Ø-**u**-**Ø**-**g̲a**-x̲a-**ÿa**-√x̲a-**h**
3.O-**IRR-ZCNJ-G̲MOD**-1SG.S-CL[−D,Ø,**+I**]-√eat-**VAR**
I.eat.**POT**.it
'I can eat it' (Leer 1991: 223)

b. *negative + potential* — u-CNJ-g̲a-CL[+I]-…-h
tléil **k̲waax̲aa**
tléil Ø-**u**-**Ø**-**g̲a**-x̲a-**ÿa**-√x̲a-**h**
NEG 3.O-**IRR-ZCNJ-G̲MOD**-1SG.S-CL[−D,Ø,**+I**]-√eat-**VAR**
not I.eat.**POT**.it
'I can't eat it' (Leer 1991: 224)

Finally, there are two types of EPIMODE which are TAM categories that can be added to certain modes. One is the PROHIBITIVE-OPTATIVE EPIMODE translating as 'hopefully' when positive and 'don't' or 'hopefully not' when negative. The other is the DECESSIVE EPIMODE indicating that the situation described by the verb was previously the case but is no longer the case (Leer 1991: 87). This was named by Story (1966) from Latin *dēcēssus* 'going down, decreasing'. The decessive has [−I] in the classifier and the *-éen*$_{-5}$ suffix, and can be added to imperfectives, perfectives, futures, habituals, and potentials. When the decessive is combined with the potential the potential's [+I] feature is overridden by the decessive's [−I]. The combination is generally translated into English with auxiliary verbs like 'could' or 'might have'. Example (3) below demonstrates the decessive potential in the same morphological context as used in (2) previously.

(3) a. *(positive) decessive potential* — u-CNJ-g̲a-CL[−I]-…-h-éen
**k̲wax̲aay̲éen**
Ø-**u**-Ø-**g̲a**-x̲a-Ø-√x̲a-**h**-**éen**
3.O-**IRR-ZCNJ-G̲MOD**-1SG.S-CL[−D,Ø,**−I**]-√eat-**VAR-DEC**
I.eat.**POT.DEC**.it
'I could have eaten it' (but didn't) (Leer 1991: 224)

b. *negative + decessive potential* — u-CNJ-g̲a-CL[−I]-…-h-éen
tléil **k̲wax̲aay̲éen**
tléil Ø-**u**-Ø-**g̲a**-x̲a-Ø-√x̲a-**h**-**éen**
NEG 3.O-**IRR-ZCNJ-G̲MOD**-1SG.S-CL[−D,S,**−I**]-√eat-**VAR-DEC**
not I.eat.**POT.DEC**.it
'I couldn't have eaten it' (but maybe can now) (Leer 1991: 224)

To summarize the morphology, the potential is made from the affix string *u-CNJ-g̲a-CL[+I]-√…-h* marked on the verb. Only one of these affixes has any clearly identifiable meaning, namely the irrealis prefix *u-*, so that no particular elements can be identified as encoding possibility. I currently conceive of the affix string which constitutes the potential mode as being mapped to an abstract POT operator in the semantics, but I have no suggestions yet for how such a mapping between the morphology and the semantics should work. I hope that further semantic analysis of the mode system will help winnow out the meanings of the affixes involved and eventually lead to a compositional morphosemantics.

## 3. POTENTIAL SYNTAX

According to Leer (1991: 385) the potential mode "occurs mainly in relative clause constructions". This is perhaps a slight exaggeration, and it might be better to say that potentials are 'often' or 'commonly' found in relative clauses. The potential mode does occur in main clause verbs, it is simply that this is less common. The following example of a main clause potential is from an unspecified speaker transcribed by Story (1966: 183).

(4) ánáx̲ tsá áa g̲waax̲dzigeet

| | | |
|---|---|---|
| ánáx̲ | tsá | áa g̲waax̲dzigeet |
| á-náx̲ | tsá | á-'=u-g̲a-g̲a-Ø-dzi-√git-h |
| 3.N-PERL | PCL | 3.N-LOC=IRR-G̲CNJ-G̲MOD-3.S-CL[+D,S,+I]-√fall-VAR |

[PP it-through ] then there-at=he.fall.POT
'he could fall through it there' (*Asx̲'áak* George Betts? in Story 1966: 183)

Potentials also occur in contexts which could be construed to be dependent clauses, but which lack any sort of syntactic or morphological indications of dependency. The following example shows a potential after an imperative, with both morphosyntactically appearing to be main clauses.

(5) ch'a yáax' g̲anú ix̲duwajaak̲
ch'a yáax' g̲anú
ch'a yá-x' g̲a-Ø-Ø-√nu(k)-ÿ
just PROX-LOC ĢCNJ-2SG.S-CL[−D,Ø,−I]-√sit.SG-VAR
just here-at you.SG.sit.down.IMP
ix̲duwajaak̲
i-u-Ø-g̲a-du-ÿa-√jak̲-h
2SG.O-IRR-ZCNJ-ĢMOD-IND.H.S-CL[−D,Ø,+I]-√kill-VAR
someone.kill.POT.you.SG
'sit down right here; someone might kill you'
(unspecified song cited in Leer 1991: 386)

The relationship between the two verbs in (5) may be discursive parataxis or coordination rather than true syntactic dependency, but this is as yet not understood due to the limited documentation and analysis of Tlingit syntax and discourse. In addition to the system of explicitly marking clause type on verbs, Tlingit appears to have a fairly productive and frequently employed method of indicating discourse dependency through syntactic insubordination (Cable 2010a; cf. Evans 2007 & Mithun 2008). This INSUBORDINATION is where apparently subordinate clauses appear in contexts without main clause matrices, so that the subordinate is positionally a main clause but morphosyntactically a dependent clause, as in the examples in (6). The first is a true insubordinate formed with the subordinate-marked verb *wu.aadí* 'that they went'. The second is an 'irrelative' formed from a relative clause rather than a subordinate clause. In context, both occur without any surrounding main clause matrix.

(6) a. a x̲ léelk'u hás a tóodáx̲ wu.aadí
a x̲ léelk'u hás a tóodáx̲ wu.aadí
a x̲ léelk'w=hás a tú-dáx̲ ÿu-Ø-Ø-√.at-h-ée
1SG.PSS g'parent=PL 3.N.PSS inside-ABL PFV-3.S-CL[−D,Ø,−I]-√go.PL-VAR-SUB
[Sub my grandparents its inside-from they.go.PFV-SUB ]
'that my grandfathers went from inside it'
(*Keiḵóok'* George Jim in Dauenhauer & Dauenhauer 1990: 304.126)

b. ách áwé du tláax̲ wusiteeyi aa

| | | | | | |
|---|---|---|---|---|---|
| ách | áwé | du | tláax̲ | wusiteeyi | aa |
| ách | á-wé | du | tláa-x̲ | Ø-ÿu-si-√ti-h-i | aa |
| EXPLN | FOC-MDST | 3.H.PSS | mother-PERT | 3.O-PFV-CL[−D,S,+I]-√be-VAR-REL | PART |
| [Rel bec. | FOC | her | mother-of | she.be.member.PFV-REL | ] one |

'one who became her mother because of it'

(*K̲aal.átk'* Charlie Joseph in Dauenhauer & Dauenhauer 1990: 178.55)

Further research on clause type in Tlingit is necessary so that we can understand whether there are main clause–appearing structures that are actually dependent clauses, the morphosyntactic converse of insubordination. It seems likely that unmarked syntactic or discourse dependency between main clauses as in (5) occurs elsewhere. Since we are far from having a coherent theory of compositional semantics in Tlingit, the theoretical lacuna of unexplained structural relationships between verbs is not particularly crippling. I will for now simply handwave in the general direction of 'context'.

Relativized verbs are not unusual contexts for potential mode marking. Leer (1991: 385–387, 390–392) documents the syntactic phenomena of relativized potentials in some detail, so I will merely summarize here. A basic relativized potential has the structure [Rel … V.POT.REL] N which usually translates as 'N that … may/can/could V' (Leer 1991: 390). Leer says they are often found in a matrix [CP *tléil* … *k̲oostí*] translated as '… doesn't exist' with the negative particle *tléil* and with the verb *k̲oostí* optionally elided (Leer 1991: 391). I have only rarely seen the matrix verb *k̲oostí*, however. Probably the most frequent relativized potential has the form [CP *tléil* … [Rel *aadé* … V.POT.REL ] *yé* …] where the relative clause head is the noun *yé* 'way, manner' and the matrix is negated with *tléil*. These are usually translated as something like '(there is) no way/manner that … may/can/could V', or more idiomatically as '… cannot V' (Leer 1991: 392). This construction is sometimes called the INABILITATIVE in Tlingit linguistic discussions. Example (7) is a fairly minimalist inabilitative from the early 20th century.

(7) *ɬél 'àdé hàt' g̲ayìy'àdìyá* — tléil aadé haat g̲ayeey.aadi yé

| | | | | |
|---|---|---|---|---|
| tléil | aadé | haat g̲ayeey.aadi | | yé |
| tléil | á-dé | haa-t=u-Ø-g̲a-ÿi-ÿa-√.at-h-i | | yé |
| NEG | 3.N-ALL | here-PNCT=IRR-ZCNJ-G̲MOD-2PL.S-CL[−D,Ø,+I]-√go.PL-VAR-REL | | way |
| not | [Rel it-ward | here-to=you.PL.go.POT.REL | | ] way |

'there's no way for you (pl.) to get here', 'you (pl.) cannot get here'

(*Stoowuk̲áa* Louis Shotridge in Boas 1917: 92)

Because potentials are commonly found in relative clauses, it might be tempting to conclude that the potential mode in Tlingit is somehow isomorphic with European subjunctives which are also usually limited to dependent clause contexts. Portner (2009: 259) states that "subjunctive verbs can also occur in [main] clauses with a meaning similar to that which would be expressed by a sentence containing a main verb that would trigger the subjunctive". This analysis applied to Tlingit would require showing that spelled-out matrix clauses always have some property that triggers the potential. But there are recorded examples of potentials with matrix verbs that have most of the other verb modes. The variety of main clauses in which relativized potentials appear makes the existence of such a property doubtful, even ignoring the occurrence of potentials in main clauses. I conclude that the potential mode is a syntactically independent category of modality in Tlingit, and that the potential mode is not homologous with subjunctive categories in European languages.

## 4. Potential semantics

From the available evidence, the potential mode seems to denote situations that are possible. Leer (1991: 334) says that his Pot operator for the potential makes "deictic reference to the set of possible worlds that are judged real or realizable". His "real" appears to mean a world that is coincident with the real world up to the utterance time or reference time (he does not differentiate these two), and "realizable" means a world that is accessible from the real world. Leer's model does not address the accessibility relation nor does it address conversational backgrounds, but nonetheless his description appears to fit with the basic idea of possibility modality.

Leer describes the application of his potential operator as "$\text{Pot}^{\text{R}}$(S(x))" which denotes that a "situation S(x) is true in some world W which is possible but not necessarily likely with respect to the real world $W_0$ and is thus outside the reality-window R" (Leer 1991: 334). If we take Leer's "S(x)" to be a proposition $\varphi$ and we select an appropriate real world $w \in W$, then we can say that there is a potential world $w'$ that is accessible from $w$ where the proposition $\varphi$ is true. More formally:

(8) $[\![\text{Pot}(\varphi)]\!]^{w,\mathcal{R}} \equiv \exists w' \in W : [\mathcal{R}(w, w') \wedge \varphi(w') = 1]$

This definition then means that the Pot operator existentially quantifies over worlds. Furthermore, it derives its actual world $w$ and its accessibil-

ity relation $\mathcal{R}$ from the evaluation context. This is quite similar to conventional possible worlds–based definitions of ◊ for human language (e.g. Portner 2009: 142). Thus I hypothesize that POT is a semantic representation of the potential mode which expresses pure possibility modality.

Leer (1991: 388) describes the potential mode as meaning that "in one among several alternative future 'possible worlds', the speaker has reason to expect a certain outcome; this expected outcome is expressed by the Potential form". His use of "future" here is an artifact of his theory. He says "semantically the Potential has future tense reference and no aspectual connotation" (Leer 1991: 385) and so he encodes this future tense as part of the potential mode. Thus the potential mode is not simply POT, but is instead "$\text{POT}^{\text{R}}(\text{FUT}^{\text{N}}(\text{S(x)}))$" (Leer 1991: 508) with FUT scoped over by POT.[5] Taken literally this seems to mean that all potentials have event times following utterance times (UT ≺ ET).[6] This follows from Leer's definition of FUT as "S(x) is FUT with respect to $\text{N}_\text{i}$ if, for an interval $\text{N}_{\text{i}+1}$ temporally following $\text{N}_\text{i}$, S(x) is true for some subinterval within $\text{N}_{\text{i}+1}$" (Leer 1991: 385). In context his $\text{N}_\text{i}$ becomes the utterance time, so that UT ≺ ET for FUT. But I have found that including FUT will not work for all instances of the potential mode. Boas (1917: 85) provides a counterexample in the form of a counterfactual conditional from *Stoowuḵáa* Louis Shotridge.

(9) *x̱àx̱ùàx̱ì k'át' 'ìqwàq'ùsàt'ìnín* — x̲'ax̲wa.aax̲í kát iḵ̲waaḵ̲wasateenéen

| | |
|---|---|
| x̲'ax̲wa.aax̲í | kát |
| Ø-x̲'a-ÿu-x̲a-Ø-√.ax̲-h-í | ká-t |
| 3.O-mouth-PFV-1SG.S-CL[−D,Ø,−I]-√hear-VAR-SUB | HSFC-PNCT |
| I.hear.PFV.him.speech.SUB | if.only |

iḵ̲waaḵ̲wasateenéen
i-u-g̲a-g̲a-x̲a-sa-√tin-h-éen
2SG.O-IRR-ǴCNJ-ǴMOD-1SG.S-CL[−D,S,−I]-√see-VAR-DEC
I.see.POT.DEC.you.SG

'if I had heard from him, I might have seen you'

(*Stoowuḵáa* Louis Shotridge in Boas 1917: 85)

5. Leer's "R" is his "reality-window" that is loosely equivalent to our actual world *w* (though his could cover multiple *w*s?), and "N" is his temporal variable (Leer 1991: 334) that defaults to $\text{N}_0$ 'now'.
6. Recall that Leer does not have a distinct RT; it is instead collapsed with either UT or ET.

The potential verb *i<u>k</u>waa<u>k</u>wasateenéen* 'I might have seen you' here is marked with the decessive suffix *-éen* and [−ɪ] in the classifier.[7] The decessive locates the situation in the past and presupposes that the situation no longer holds. The interpretation is that, if the 'hear' event had occurred in the past, then the 'see' event would have occurred after it. Both of these events must necessarily precede the utterance time ($ET_1 \prec ET_2 \prec UT$). Thus the potential-marked verb here looks forward from $ET_1$ toward $ET_2$. But because both $ET_1$ and $ET_2$ precede UT, the potential-marked verb cannot possibly be occurring in the future, despite the future-like relationship between $ET_1$ and $ET_2$. Rather, the potential-marked verb describes a situation in the past before UT, even though this past did not actually occur. Following Condoravdi (2002), I will say that the potential-marked verb here has a past temporal perspective, but a future temporal orientation. The temporal perspective comes from context, here from the perfective-marking of the subordinate clause verb *<u>x</u>'a<u>x</u>wa.aa<u>x</u>í* 'I heard him'.

The temporal orientation of potentials is indeed specified as part of the potential mode semantics, and it is this which Leer was trying to derive from the combination of his FUT operator with POT. Temporal perspective on the other hand is context-derived, rather than semantically specified. I will therefore expand the definition of POT in (8) to accomodate the temporal orientation:

(10) $[\![\textsc{Pot}(\varphi)]\!]^{w,\mathcal{R},i} \equiv \exists w' \in W \exists i' \in I : [i \prec i' \wedge \mathcal{R}(w, w') \wedge \varphi(w', i') = 1]$

This then means that the potential mode obtains a time $i$ from context and existentially quantifies over another time $i'$ that is preceded by $i$, asserting that the proposition $\varphi$ is true at that time $i'$. The $i \prec i'$ precedence relation provides the temporal orientation dependent on context. I assume that composition with the decessive operator DEC should produce the appropriate binding for the contextually derived $i$ in counterfactuals. I leave the semantics of DEC and its composition with POT for later research.

I have proposed that the potential mode expresses what is essentially pure possibility modality. If my hypothesis is correct then there are two facts which should hold for the potential mode. One is that it should be independent of conversational background, so that a potential could denote an

7. This potential mode verb is in a main clause. The initial verb in the sentence is a subordinate clause that is the possessor of the inalienable noun *–ká* 'horizontal surface', and that within a PP headed by *-t*. I have not seen this described elsewhere, but apparently [$_{CP}$ [$_{PP}$ [$_{NP}$ [$_{Sub}$ V.SUB] *ká*] *-t*] V.POT.DEC] expresses counterfactuality.

epistemic, deontic, bouletic, or circumstantial possibility. The other fact is that it should interact with negation. I will look at negation first because – perhaps surprisingly – it is somewhat simpler.

## 4.1. Potential negation

Given that the potential means something like ◊, there are two possibilities for the scope of negation with a potential, either ¬◊$\varphi$ or ◊¬$\varphi$. I exclude instances where the negation scopes over a potential in a relative clause because such structures may have other compositional elements that would interfere with the basic interaction between negation and possibility. Thus I am only interested in intraclausal negation. But unfortunately for me, intraclausal negation of potentials in Tlingit is curiously difficult to find in texts. Instead, extraclausal negation of relative clauses is far more common, as in the inabilitative *tléil* [*aadé* V.POT.REL] N construction discussed earlier.

Leer provides two simple examples of intraclausally negated potentials in his example paradigm of the verb *O-S-CL[–D,s]-√x̲a* (Ø; -' Act) 'S eat O' (Leer 1991: 221–233).

(11) a. *negative + potential*
tléil k̲waax̲aa
tléil Ø-u-Ø-g̲a-x̲a-ÿa-√x̲a-h
NEG 3.O-IRR-ZCNJ-G̲MOD-1SG.S-CL[–D,Ø,+I]-√eat-VAR
not I.eat.POT.it
'I may/might not eat it' (Leer 1991: 224)

b. *negative + decessive potential*
tléil k̲wax̲aayéen
tléil Ø-u-Ø-g̲a-x̲a-Ø-√x̲a-h-éen
NEG 3.O-IRR-ZCNJ-G̲MOD-1SG.S-CL[–D,Ø,–I]-√eat-VAR-DEC
not I.eat.POT.DEC.it
'I would not eat it; I would/might not have eaten it' (Leer 1991: 224)

These illustrate that intraclausal negation is in fact possible. They do not however lend much insight into the scope of negation. Both seem to imply the order ¬◊$\varphi$, at least if we accept the English translations. Syntax also implies ¬◊$\varphi$ since the negative particle *tléil* occurs at the left edge of the clause and is probably high in the CP, whereas the potential mode is in the verb and is normally near the right edge and hence is deep within the VP, schematically [$_{CP}$ *tléil* … [$_{VP}$ … V.POT …] …]. But as English amply demonstrates we

cannot rely solely on syntactic position to determine negation scope. I think that the syntactic position of the negative particle is probably not connected to its scopal relationship with the potential mode, and I will show why below.

Leer claims that his POT always scopes over his NEG, arguing that because the I component of the classifier is always [+I] in potentials but it is [−I] in other negatives, the potential must be semantically higher. Leer seems to be confusing morphology and semantics; his argument would mean that a negative potential is always POT(NEG($\varphi$)). This is actually a testable prediction, that all negated potentials should mean something like 'I can not-do it' and never 'I cannot do it', i.e. that negated potentials are always $\Diamond\neg\varphi$ and never $\neg\Diamond\varphi$. I think that this is highly counterintuitive since every unelicited example of negated potentials that I have ever encountered has been translated as $\neg\Diamond\varphi$, never as $\Diamond\neg\varphi$. To assuage my doubt I tested the potential mode in a controlled semantic context.[8]

> CONTEXT: In the US everyone has to pay their taxes every year. But in Canada it's permissible to file and not pay for a year if you fill out the right forms. I'm running low on money this year and I owe some taxes, so I'm going to not pay them this year. You, being a Tlingit from Alaska, can't believe that people can skip paying their taxes. I say:

(12) aaá, Ginjuchwaan Aaníx' áwé ax̲ táaksís tléil unk̲aak̲ei

| | | | | | | |
|---|---|---|---|---|---|---|
| aaá, | Ginjuchwaan | Aaníx' | áwé, | ax̲ | táaksís | tléil |
| aaá | Ginjuchwaan | Aan-ÿí-x' | áwé | ax̲ | táaksís | tléil |
| yes | Englishman | Land-PSS-LOC | FOC-MDST | 1SG.PSS | taxes | NEG |
| yes | Canada | Country-in | so | my | taxes | not |

unk̲aak̲ei
Ø-u-na-g̲a-x̲a-ÿa-√k̲e-h
3.O-IRR-NCNJ-G̲MOD-1SG.S-CL[−D,Ø,+I]-√pay-VAR
I.POT.pay

'yes, in Canada, I can not-pay my taxes' (i.e. 'I am allowed to not pay')

(*Kaséix̲* Selena Everson)

This sentence was accepted by my consultant wholeheartedly without any hesitation. To produce as little ambiguity as possible I right-dislocated both the focused PP [*Ginjuchwaan Aaní -x'*] *áwé* and the object DP [*ax̲ táaksís*]. This leaves the negative particle *tléil* with nothing between it and the

8. This particular context is due to Patrick Littell.

verb. We lack a theoretical understanding of dislocation in Tlingit, so I cannot say for certain that the *tléil* was not moved, or that the entire sentence was base-generated in the surface form. As a quick sanity check I also suggested having *tléil* before *aẋ táaksís* but my consultant did not care one way or the other. I therefore suspect that the surface position of *tléil* does not matter as much as I had supposed.

In the context given, the sentence in (12) does permit the deontic reading given in the English translation. Thus the ordering of the two operators is $\Diamond\neg\varphi$ with negation of the proposition before application of modality. But my consultant also said that the reading 'in Canada I don't have the ability to pay my taxes' was also possible given some other more prototypical context. The availability of this reading implies the ordering $\neg\Diamond\varphi$ instead. I conclude then that the potential mode is ambiguous with regard to the scope of negation. Indeed, it would seem that the negative particle *tléil* is not the sole locus of semantic negation, a fact which should not be surprising given that other verb modes have special irrealis forms when negated, so that the verb 'agrees' with the negative particle. I cannot say more about the exact compositionality of negation, but I can say from my data that Leer was incorrect in his claim that Pot necessarily scopes over Neg, regardless of the status of the I component in the classifier. I do not have an answer for how Neg and Pot should be composed, nor do I know if the lexical entry for Pot would need to be adjusted to fit.

## 4.2. Potential conversational background

Recall that if Pot is an expression of pure possibility modality then I need to show that the potential mode is independent of conversational background. Thus Pot should at least permit epistemic, circumstantial, deontic, and bouletic readings of possibility.

The reading given for the sentence in example (12) presupposes a deontic modality where I am permitted by the government to not pay my taxes. The alternative ability reading where I am unable to pay my taxes presupposes a circumstantial conversational background. Thus it is established from this one example that Pot permits deontic and circumstantial readings. In reviewing the published corpus of Tlingit I have found that the majority of potentials seem to have circumstantial conversational backgrounds, so that the 'ability' reading seems to be a kind of default. Leer actually pointed out a rare example of a bouletic potential.

(13) tlél aadé aax̲ g̲unayéi k̲waanoogu yé

| | | | | |
|---|---|---|---|---|
| tlél | aadé | aax̲ | g̲unayéi | |
| tlél | á-dé | á-dáx̲= | g̲unaÿéi= | |
| NEG | 3.N-ALL | 3.N-ABL= | INCEP= | |
| not | [Rel it-ward | it-from= | begin= | |
| k̲waanoogu | | | | yé |
| u-Ø-g̲a-x̲a-ÿa-√nuk-h-i | | | | yé |
| IRR-ZCNJ-G̲MOD-1SG.S-CL[−D,Ø,+I]-√sit.SG-VAR-REL | | | | way |
| I.sit.POT.REL | | | ] | way |

'(there is) no way I can start sitting (elsewhere) from here'

(*Seidaayaa* Elizabeth Nyman in Leer 1991: 392)

In context, the speaker had previously said *tléik', de yan x̲á x̲waanúk* 'no, I've already sat down, y'know'. Leer says that she was thus expressing her desire not to move, even though she certainly had the ability to move at the time. The construction here is expressing the speaker's lack of any potential desire to move and sit somewhere else. This use of the potential is thus a polite way to refuse to do something.

Deontic possibility is also a permitted reading of the potential as shown by the following elicited example.

> CONTEXT: The dog is outside playing. There's a bear in the neighbourhood and you're worried about the dog, thinking maybe he should come inside. But it's still light outside, so I'm not worried.

(14) tléil kooshg̲eetch, ch'a yeisú

| | | | |
|---|---|---|---|
| tléil | Ø-ka-u-Ø-sha-√g̲it-ch | ch'a | yeisú |
| NEG | 3.O-HSFC-IRR-ZCNJ-CL[−D,sh,−I]-√dark-VAR-ERG | just | still |

| | |
|---|---|
| gaanx' | ung̲aatee |
| gaan-x' | Ø-u-na-g̲a-ÿa-√ti-h |
| outside-LOC | 3.O-IRR-NCNJ-G̲MOD-CL[−D,Ø,+I]-√be-VAR |

'it's not dark, so he can still be outside' (*Kaséix̲* Selena Everson)

The textual examples of epistemic modality with the potential that I encountered were all somewhat ambiguous between a true epistemic reading and something else such as circumstantial ability. I include one example here for illustration, taken from a song transcribed by Swanton (1909).

(15) Ỵā′q!gwa axhu′nxo-hAs qâkxAsîtī′n
ÿáax’ gwá ax̲ hunx̲u hás k̲waak̲x̲asiteen
ÿáax’ gwá ax̲ hunx̲u hás
ÿáx’ gwá ax̲ húnx̲w=hás
PROX-LOC SURP 1SG.PSS elder.bro=PL
here-at oh my elder.brothers
k̲waak̲x̲asiteen
Ø-u-g̲a-g̲a-x̲a-si-√tin-h
3.O-IRR-ǴCNJ-ǴMOD-1SG.S-CL[−D,S,+I]-√see-VAR
I.see.POT.it
‘oh I might see my elder brothers here’
(*Kaaguntóox’* in Swanton 1909: 405.61)

The speaker in this song (not the singer *Kaaguntóox’*) is a girl who thinks she might wake up to see the return of her brothers. This apparently is to be interpreted as expressing the possibility of her seeing them based on her knowledge of the situation. It might also be read as expressing her ability to see them, but using the verb *O-S-CL[−D,s]-√tin* (*g̲a*; Evt) ‘S see O’ to express the ability to see is dispreferred by all speakers I have worked with. Instead there is another verb *O-S-CL[−D,Ø]-√tin* (*ga*; *-ː* Stv) ‘S can see O, have sight of O’ which emphasizes the speaker’s visual ability, and which obviates the need for the potential mode to express ability with the ‘see’ verb.

(16) ch’a ax̲ shantóox’ x̲aatéen aadé
ch’a ax̲ shá-tú-x’ Ø-Ø-x̲a-ÿa-√tin-ː á-dé
just 1PL.PSS head-inside-LOC 3.O-ZCNJ-CL[−D,Ø,+I]-√see-VAR 3.N-ALL
just my head-in I.can.see.IMPFV.it [Rel it-ward
yéi kwk̲asanei yé
yéi=Ø-ga-w-g̲a-x̲a-sa-√ne-i yé
thus=3.O-GCNJ-IRR-ǴMOD-1SG.S-CL[−D,S,−I]-√do-REL way
thus=I.do.FUT.it.REL ] way
‘I can see in my head the way I’m going to do it’ (Story & Naish 1973: 183)

The verb *x̲aatéen* here is an unambiguous example of a stative imperfective. It is in no way a potential, but the presupposition of ability is clear from the use of ‘can’ in the English translation.

Epistemic possibility is fairly unambiguous in the following elicited example. The elicitation context is adapted from work on Nez Perce modality by Deal (2011).

CONTEXT: We're going berry picking around a place where people say there used to be a village. In a bunch of alders and grass near the beach you find a fairly large squarish pit. You're not sure that it was where a house was built, but you have the feeling that it might be given what you know about traditional houses.[9] (Deal 2011: 570)

(17) yáat hít has ooxlayeixéen, ch'áagu kwáanch áwé

| | | | |
|---|---|---|---|
| yáat | hít | has ooxlayeixéen, | ch'áagu |
| yá-t | hít | has=a-u-Ø-ga-Ø-li-√yex-h-éen | ch'áagu |
| PROX-PNCT | house | PL=3.O-IRR-ZCNJ-3.S-CL[−D,l,+I]-√build-VAR-DEC | ancient |
| here-at | house | they.build.POT.DEC.it | ancient |

| | |
|---|---|
| kwáanch | áwé |
| kwáan-ch | á-wé |
| people-ERG | FOC-MDST |
| people | so |

'they might have built a house here, the ancient people'

(*Kaséix* Selena Everson)

Here the decessive potential is unquestionable, and the context forces this to be interpreted as epistemic modality since the English phrase 'given what you know' makes the dependency on knowledge explicit.

Given that the potential mode permits circumstantial, deontic, bouletic, and epistemic readings, I feel comfortable in assuming that it could permit other conversational backgrounds as well. Since the potential mode does not seem to be sensitive to any particular conversational background, I argue that it is similar to the English modal 'can' in that it does not encode any conversational background in its lexical entry, but rather derives this from context. All the examples of the potential that I have encountered only express possibility and never necessity, so though I have not tested the infelicity of a necessity reading I also feel comfortable in saying that the potential is limited to possibility modality.

## 5. CONCLUSION

I have shown that the potential mode in Tlingit encodes possibility modality without presupposing a particular conversational background, though probably circumstantial readings are the default interpretation. I have also

9. Traditional Tlingit houses were built around a square firepit (Emmons 1991: 59–68).

shown that it does not presuppose negation scoped over possibilty despite the linear order in morphosyntax, and that it does not presuppose possibility scoped over negation despite Leer's counterintuitive claim that this is the only permitted scope. I have only briefly touched upon counterfactuals in this paper, and I hope to return to this facet of the potential mode in the near future.

There are a number of other areas for the expression of modality in Tlingit beyond just the potential mode. Among the modes there are also the imperative, admonitive, and hortative, the last of which seems to encode deontic weak necessity for first and third person. The conditional mode 'if' marked with *CNJ-[−I]-√...-n-ée* and the contingent mode 'whenever' marked with *CNJ-g̲a-CL[−I]-√...-n-ín* are probably connected to modality since they apparently quantify over possible worlds. Beyond the verb there are also dubitative particles like *gwál* 'perhaps', *kwshé* 'maybe', *gu.aal* 'hopefully', and *shágdé* 'probably', all of which seem to express some kind of modality. The hypothetical construction involving *óosh* 'if only; even if' is bound to involve modality, as are the various counterfactual particles like *x̲ach* 'actually' and *k̲ashde* 'it seemed that'. Finally there are also apparently evidentials in Tlingit which might be amenable to semantic investigation along the lines of modality, such as the deductive *ásé* and reportative *ásgé*, and the assertive particle *(s)dágáa* may be connected to this too. In short, the probe of modality represented by this paper is only a hesitant first step into a large and varied semantic landscape.

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