Zero-marked tense: The case of Gitxsan [*]

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1.   Introduction

The underlying question addressed in this paper is how we should analyze languages which lack obligatory overt tense morphology. More specifically, how should we analyze the temporal system of Gitxsan (Tsimshianic)? Is there evidence for non-overt tense morphology in clauses without any overt temporal marking?

We will argue that finite clauses in Gitxsan all contain tense morphology. Non-future-marked clauses contain a phonologically null tense morpheme, which picks out a non-future reference time. A major piece of evidence for our proposal is that Gitxsan possesses an overt instantiation of the future element WOLL (Abusch 1988). In English, WOLL combines with present tense (to give *will),* or past tense (to give *would).* Gitxsan *dim* gives rise to the same readings as English *will* or *would;* the data follow from the proposal that *dim* interacts with referential tense in the same way English WOLL does.

According to our analysis, the same temporal structures and semantics are required for Gitxsan as for an overtly tensed language such as English. This allows us to preserve a uniform analysis of temporal systems. We need only postulate that tenses in some languages are non-overt, and that tenses in some languages do not explicitly differentiate present from past. In both these respects, tenses parallel pronouns, which may be non-overt and which may be more or less unspecified for gender, number or person.

The structure of the paper is as follows. In section 2 we present the basic Gitxsan temporal data. In section 3 we argue that the binary split in readings evidenced in Gitxsan is temporal in nature, rather than representing a mood distinction. In section 4 we present the analysis, and in section 5 we test a prediction arising from the analysis to do with

'past future' readings. Section 6 addresses some further consequences of our findings for the analysis of *will* vs. *be going to,* and section 7 concludes.

2.   Gitxsan temporal data

Gitxsan is an endangered language of the Tsimshianic family, spoken in the northern part of British Columbia, Canada. It is closely related to the neighboring Nisga'a language; the two are often treated by linguists as dialects of a single Nass-Gitksan language (for discussion see Rigsby 1986, Halpin and Seguin 1990). Gitxsan is currently estimated to have no more than 1,000 speakers, most of whom are elders.

Sentences which lack any temporal indicators may not be interpreted with future time reference. They may be generally interpreted as either present or past, although lexical aspectual class influences default temporal interpretations (cf. e.g., Bohnemeyer and Swift 2004).[1]

States generally get a default present tense reading (default readings in the following data are underlined):

(1)   a. Luu am-hl   got-s   Diana
        in   happy-CONNECT   heart-CONNECT   Diana
        'Diana is happy' / 'Diana was happy' / ≠ 'Diana will be happy'

       b. Siipin-s   Henry-hl   nax-st
        love-CNN   Henry-CNN   wife.3SG
        'Henry loves his wife' / ≠ 'Henry loved his wife'[2] / ≠ 'Henry will love his wife'

On the other hand, activities, accomplishments and achievements get a default past tense reading:

(2)   a. Yookw-t   James
        eat-CONNECT   James
        'James ate' / 'James is eating' / ≠ 'James will eat.'

       b. Bax-t   Yoko
        run-CONNECT   Yoko
        'Yoko ran' / 'Yoko is running' ≠ 'Yoko will run'

(3)   a. Ama   japdi-hl   m'al
        fix   make-CONNECT   canoe
        'I fixed my canoe' / 'I'm fixing my canoe' / ≠ 'I will fix my canoe'

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[1] For reasons of space, we are unable to provide arguments for the lexical aspectual classes assumed here. Some aspectual tests are presented in Jóhannsdóttir (2004). Nor do we provide an explanation for the default tense interpretations for each aspectual class. Note that the defaults differ from those discussed in Bohnemeyer and Swift (2004), since Gitxsan activities, although atelic, have a default past tense reading.

[2] Interestingly, the speakers did accept the past tense reading with the verb *happy* but not with the verb *love*. This needs further investigation.

  b. Gub-i-s   Noriko-hl   hon
    eat-TRN-CONNECT Noriko-CONNECT salmon
    '<u>Noriko ate salmon</u>' / 'Noriko is eating salmon' / ≠ 'Noriko will eat salmon'

(4) a. N'uw'-t   John
    die-CONNECT John
    '<u>John died</u>' / ≠ 'John is dying' / ≠ 'John will die'

    b. Daaw'hl-t   Atsushi
    leave-CONNECT   Atsushi
    '<u>Atsushi has left</u>' / ≠ 'Atsushi is leaving' / ≠ 'Atsushi will leave'

    A future temporal adverbial is *not* sufficient to license a future-time interpretation. This is illustrated in (5-6).

(5) *Yookw-t   James ji *taahlakxw*
    eat-CONNECT James PREP tomorrow
    'James will eat tomorrow.'

(6) *Naks 'niin *jo* *ḵ'uul*
    marry you next year
    'You will get married next year'

For a future interpretation, the marker *dim*[3] is both necessary and sufficient:

(7) *Dim* yookw-t   James (ji taahlakxw)
    FUT eat-CONNECT James (PREP tomorrow)
    'James will eat (tomorrow).'

(8) *Dim* naks 'niin (jo ḵ'uul)
    FUT marry you (next year)
    'You will get married (next year)'

(9) **Dim* yookw-t   James k'yots
    FUT eat-CONNECT James yesterday
    'James ate yesterday'

    Summarizing the data so far, we have seen that clauses without any overt temporal marking other than adverbials are restricted to non-future interpretations, and that there is an overt obligatory morpheme which enforces future interpretations. We have also seen that temporal adverbials do not alter the generalizations. That is, future temporal adverbials cannot license a future interpretation in the absence of *dim,* and non-future temporal adverbials cannot license a non-future interpretation if *dim* is present.

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    [3] We have found examples where the future seems to be marked with *nim* rather than *dim*. Bruce Rigsby (p.c.) suggests that this is actually *'nim,* and that it is the verb 'want'. We will have to explore this further in order to see whether all the cases with *nim* can be analyzed as the verb 'want'.

The question now is how to explain these facts. More specifically, the question is whether we should postulate a non-overt tense morpheme in the past/present sentences. This issue is the subject of much current debate. There are many languages which lack obligatory tense morphology, and many researchers propose tenseless analyses of them (see for example Bohnemeyer 2002 on Yukatek Maya, Wiltschko 2003 on Halkomelem, Bittner 2005 on Kalaallisut, Lin 2006 on Chinese). On the other hand, Matthewson (in press) argues that St'át'imcets, a Salish language with very similar basic facts to Gitxsan, is tensed. The analysis we will propose borrows much from Matthewson's analysis of St'át'imcets. We will argue that there is a phonologically null tense morpheme in all finite clauses in Gitxsan. This tense morpheme may co-occur with *dim* to give rise to future readings.

Before presenting our analysis, we first argue against an initially plausible hypothesis which would claim that the effects illustrated in this section represent a mood split rather than a tense split.

3.   It is tense, not mood

Languages with a two-way distinction between past/present and future are often analyzed as possessing a *mood* distinction, as opposed to a tense distinction. (See Comrie 1985:49 for Dyirbal, Chung and Timberlake 1985:243.) The idea applied to Gitxsan would be that *dim* marks *irrealis,* and that realis contexts as in (1-6) are by necessity non-future (since an event cannot be 'realis' if it has not happened yet). This would achieve the non-future status of *dim*-less sentences without appealing to tense.

Our main argument against a mood analysis is that not only realis constructions, but also *irrealis* constructions also show the same restriction to non-future interpretations, unless *dim* is present. This is shown in (10) for sentences containing negation. The inability of (10a) to be interpreted as future does not seem to derive from realis status, since the clause contains a negation and is thus a prototypical case of irrealis.

(10)   *Negation*
    a.   Nee   dii   maadim
        NEG   CONTR snow
        'It didn't snow' / 'It's not snowing' / $\neq$ 'It won't snow.'

    b.   Nee   *dim*   dii   maadim
        NEG   *FUT*   CONTR snow
        'It won't snow.' / $\neq$ 'It didn't snow' / $\neq$ 'It's not snowing'

Further evidence that all clauses, regardless of their realis/irrealis status, are non-future unless *dim* is present is given in (11-12).

(11)   *Counterfactuals*
    Sida-hl hlguulxw-'y hana<u>k</u>''y   ji in diwaat't   as   Philomena
    If-CNN child-1SG   female-1SG then name-3SG PREP Philomena
    'If I had had a daughter, I would have called her Philomena'

Speakers claim that this sentence could be said by a 60 year old woman who's past her childbirth years, and that it cannot be said by a 16 year old girl who still has the opportunity to have a baby. This supports the understanding that the sentence does not have a future reading.

Another prototypical irrealis context – that of questions – also shows the same non-future restriction in the absence of *dim*; this is illustrated in (12).

(12)   *Questions*
        O   'nit-hl   naks-'n   tun-a
        EXCL he-CONNECT   spouce-3SG that-QUESTION
        'Is this his wife?' ≠ 'Will this be his wife?'

We see that the restriction to non-future interpretations of sentences lacking *dim* extends to irrealis clauses. Therefore, the basic non-future/future split presented in section 2 cannot be reanalyzed as a realis/irrealis split. The distinction is one of tense, not mood.

4.   The analysis
4.1   Evidence for a null tense morpheme

We have argued so far that the binary split in interpretation in Gitxsan sentences is semantically a tense split (rather than a mood split). The question still is whether there is a phonologically null tense morpheme present in the non-future cases. We argue that there is. Consider the alternative. Suppose we assume there is no tense morpheme present in sentences containing no *dim*. How then could we account for the impossibility of a future reading for these clauses (bearing in mind that we have just ruled out a mood explanation)? Recall that the effect is very strong, and cannot be attributed to pragmatics, since even the presence of explicit temporal adverbials is insufficient to alter the non-future/future division.

Given the facts outlined above, the logical and natural assumption is that in clauses which lack *dim,* there is a semantically contentful but phonologically null element which restricts the reference time to non-future. Note that the postulation of semantically contentful, phonologically null elements is well-accepted within current theory; for example, third person pronouns (*pro*s) are often phonologically null. In direct parallel with the treatment of pronouns, we assume a covert referential tense morpheme for Gitxsan.

4.2   Denotations

The denotation for the covert tense morpheme is given in (13). This denotation is borrowed from Matthewson's (in press) analysis of a parallel morpheme in St'át'imcets. This in turn adapts a common referential analysis of tense, according to which the restrictions on the reference time are presuppositions restricting the denotation of a time variable (Heim 1994).

(13) $[[\text{NON-FUT}_i]]^{g,c}$ is only defined if no part of g(i) is after t_c.
   If defined, $[[\text{NON-FUT}_i]]^{g,c} = g(i)$.

We propose that every finite clause in Gitxsan contains an instance of the NON-FUT tense. This tense introduces a time variable which picks out either a past or present reference time, based on discourse context and interaction with aspectual class. This accounts straightforwardly for the interpretation of sentences which contain no overt temporal marking, as in (1-6) above.

As for sentences containing *dim,* we find that an analysis which is commonly assumed for English *will* extends easily to the Gitxsan data. As first proposed by Abusch (1988), we adopt the idea that future tense is obtained by a combination of a (referential) non-future tense with a temporal ordering predicate (commonly called WOLL). In English, WOLL combines either with present tense (to give *will),* or with past tense (to give *would).* In Gitxsan, *dim* (= WOLL) co-occurs with the covert NON-FUT tense. The denotation of *dim* is given in (14).[4]

(14) $[[\ dim \ ]] = \lambda P \in D_{<i,st>} \ . \ \lambda t \ . \ \lambda w \ . \ \exists t' \ [t < t' \ \& \ P(t')(w) = 1]$

The combination of NON-FUT with the temporal ordering predicate *dim*, giving rise to a future reading, is illustrated in (15).

(15)   *dim*   yookw-t   James
         FUT   eat-CONNECT James
         'James will eat.'

a.
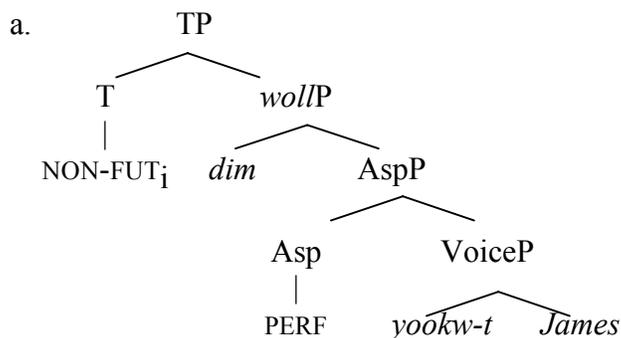
b. $[[\ AspP \ ]]^{g,c} = \lambda t \ \lambda w \ \exists e \ [eat(e)(w) \ \& \ agent(James)(e)(w) \ \& \ \tau(e) \subseteq t]$

c. $[[\ wollP \ ]]^{g,c} = \lambda t \ \lambda w \ \exists t' \ [t < t' \ \& \ \exists e \ [eat(e)(w) \ \& \ agent(James)(e)(w) \ \& \ \tau(e) \subseteq t'] \ ]$

d. $[[\ TP \ ]]^{g,c} = \lambda w \ \exists t' \ [g(i) < t' \ \& \ \exists e \ [eat(e)(w) \ \& \ agent(James)(e)(w) \ \& \ \tau(e) \subseteq t'] \ ]$ (where no part of g(i) follows t_c)

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    [4] According to many authors, the future operator (WOLL) is actually modal in nature, introducing universal quantification over accessible possible worlds. The same may well be true of Gitxsan *dim,* but for simplicity's sake we set this issue aside here.

e.   There is an event e of James eating, whose running time τ is included in a time t' which follows the contextually salient non-future time g(i).

5.   Prediction: past future readings

The analysis outlined in the previous section makes a clear and immediate prediction: just like in English, the temporal ordering predicate *dim* (= WOLL) should be able to combine with a past-denoting time variable to give rise to 'past-future' readings (in English rendered by *would).*

This prediction is upheld: *dim* does allow 'past-future' readings parallel to those of English *would*. In (16), the event time of Diana's going to Winnipeg is before the utterance time, but follows the reference time set up by the matrix clause.

(16)   gibi-hl   ganutxw-hl   dat   mahl-i-s   Diana *dim* will
        two-CONNECT weeks-CONNECT when tell-TRN-CONNECT Diana *FUT* COMP
                yee-t   go-hl   Winnipeg ama k'i'y-hl   ganutxw
                go-3SG to-CONNECT Winnipeg in   one-CONNECT week
        'Diana said two weeks ago that she would go to Winnipeg after one week.'

More examples are given in (17-18); in each case the reference time of the subordinate clause can be interpreted as preceding the utterance time of the sentence.

(17)   Hlis   het   dim-t   litxw saw'nsxw as   Yoko
        Finished promise FUT-3SG read paper   PREP Yoko
        'He promised he would read Yoko's paper'

(18)   Sim   hasak̲'-y dim algali ahl   wiilitsxw
        Really want-1SG FUT watch PREP film
        'I wanted to watch the film' (but it's not being shown anymore)
        (Literally: I wanted that I would watch the film.)

As outlined above, the constructions in (16-18) parallel those in English which are standardly analyzed as involving the co-occurrence of a (possibly modal) temporal ordering operator WOLL with a present or past tense. The same analysis applies to Gitxsan, with the only twist being that in Gitxsan, there is no morphological contrast between past and present, but instead a single non-future tense which picks out any (contextually salient) non-future reference time.[5]

It is worth pausing to consider how an alternative analysis which did not assume covert tense could account for the data presented here. Recall that under our analysis, it is the appeal to a past reference time that accounts for the availability of past-future readings in (16-18). It is difficult to see how a tenseless analysis could account for the

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[5] Of course, the question remains as to why *dim* does not allow past-future readings in ordinary matrix clauses, as in e.g., (7-8) above. We have to set this issue aside here, but we note that the same facts hold in English. That is, past-future readings of *would* are not available in simple matrix clauses such as *James would leave town.*

appearance of 'past-future' readings, since a tenseless analysis by definition cannot restrict the reference time to being in the past.

6.   Consequences for the analysis of *be going to* vs. *will*

So far we have seen that Gitxsan, a language which on the surface does not share the same tense system as English, nevertheless can be analyzed as possessing a very similar tense system to English. In particular, we have argued that Gitxsan possesses a tense morpheme which parallels those often assumed for English present and past tense. The only differences between the English tenses and the Gitxsan NON-FUT is that the latter is semantically somewhat underspecified (crucially not completely underspecified), and that the latter is phonologically null. We have also shown that past-future readings arise with Gitxsan *dim* in contexts similar to those in which English allows past-future *would*-readings. In this section we briefly discuss another way in which the temporal system of Gitxsan parallels that of English. The data involve the difference between (the Gitxsan counterparts of) *be going to* vs. *will*.

Copley (2002) proposes that English *be going to* involves the future WOLL plus progressive aspect, while *will* under one of its readings is bare (aspectless) WOLL. Copley's analysis accounts for several differences between *will* and *be going to,* including the fact that only *will* is good in so-called offering contexts, as in (19).

(19)   *Offering context:*

A sign seen (and one not seen) on the highway:

a.   We'll change your oil in Madera.
b.   # We're going to change your oil in Madera.   (Copley 2002:95)

While we do not have space to present Copley's analysis in any detail, the basic idea is as follows. Copley assumes that an offer of the form *will q* contains an elided *if you want q, ...* . She further proposes that for an utterance to count as an offer, the speaker has to be in a position to assert not only *if you want q, will q,* but also *if you don't want q, won't q.* So, the puzzle is why attempted offers containing *be going to* cannot have this meaning. Copley's explanation is that whereas aspectless *will* quantifies over worlds compatible with what the hearer wants at the utterance time, *be going to* (by virtue of being a progressive) quantifies over worlds compatible with what the hearer wants at a larger interval surrounding the utterance time. So in (19b), for example, the sentence is compatible with a situation in which the driver wants their oil changed at the time of reading the billboard, then changes their mind one minute later, but still gets their oil forcibly changed in Madera. This would not count as an offer. See Copley (2004:94-104) for more detailed explanation.

Another difference between *will* and *be going to* discussed by Copley is that only *be going to* is possible in 'present temporal input' cases such as (20).

(20)   *Present temporal input context:*

a.   # Oh look! It'll rain!

b.   Oh look! It's going to rain!

Copley's explanation for (20) relies on the proposal that aspectless *will* does not have the subinterval property, while progressive *be going to* does. In the context in (20), the assertion is being made on the basis of the state of the clouds right at the moment of utterance. Since predicates lacking the subinterval property cannot be true at moments of time such as the utterance time (cf. Bennett and Partee 1978), only *be going to* is predicted to be acceptable in these present temporal input contexts.

Gitxsan possesses a progressive morpheme *yukw* (Rigsby 1986, Jóhannsdóttir 2006), and the interaction of *yukw* with *dim* provides striking cross-linguistic support for Copley's analysis. According to Copley's claims about the aspectual status of the two future strategies, the combination of *yukw* with *dim* should correspond to English *be going to,* while *dim* by itself should correspond to aspectless *will*. Just as Copley would predict, we see in (21) that only *dim* is possible in offering contexts. We also see in (22) that only *yukw dim* is possible in present-temporal-input contexts. These data directly parallel their English counterparts, offering support to the idea that *be going to* includes a progressive.

(21)   A sign seen (and one not seen) on the highway:

        a.   *dim*   jam-'m-hl   wiineex   lun   goohl   Ansbayax
             FUT   make-we-CONNECT   meal   for.you   PREP   Kispiox
             'We'll cook your dinner in Kispiox'

        b. # *yukw*   *dim*   jam-'m-hl   wiineex   lun   goohl   Ansbayax
             PROG   *FUT*   make-we-CONNECT   meal   for.you   PREP   Kispiox
             'We are going to cook your dinner in Kispiox'

(22)   a.   gy'a! *yukw*   *dim*   wis
          see   *PROG*   *FUT*   rain
          'Look! It's going to rain!'

        b. # gya'a! *dim*   wis
          see   *FUT*   rain
          'Look! It will rain!'

(23)   a.   o yukw dim g̲us   sust
          oh PROG FUT jump INDICATIVE
          'Oh no, he's going to jump'

        b.   o dim g̲us   tust
          oh FUT jump INDICATIVE
          'Oh no, he will jump'[6]

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[6] In the sentence with 'jump', the speaker accepted the exclamation but explained the meaning of the sentence in a way which suggests that the jump is not imminent. She added: "If you don't have the *yukw,* the guy is maybe not standing at the edge yet."

Not only do the Gitxsan data provide cross-linguistic support for Copley's analysis of English, they provide further support for the analysis of *dim* as a future operator paralleling WOLL. Only under the assumption that *dim* instantiates WOLL do we have an account for the parallels between *dim* and *will* on the one hand, and *yukw dim* and *be going to* on the other.

7.   Conclusion

In this paper we have argued for an analysis of Gitxsan as possessing covert tense. The Gitxsan tense morpheme restricts reference times to non-future. This correctly accounts for the temporal interpretation possibilities of sentences which contain no overt tense marking, as well as of sentences in which the covert tense co-occurs with the temporal ordering predicate *dim* to give rise to (past or present) future readings. We have also provided preliminary evidence that just as in English, there may be an aspectual distinction between two ways of marking future: bare (aspectless) *dim* (parallel to English *will)* as opposed to progressive *yukw dim* (parallel to English *be going to).*

The evidence presented here leads us to the following conclusions. First, we conclude that tenselessness cannot be assumed merely based on the absence of obligatory overt tense morphemes, or the absence of a distinction between past and present. While tenseless languages may exist, the arguments for their existence should not rely on superficial morphological diagnostics or on partial semantic underspecification.

Second, we observe that there are striking similarities in the way unrelated languages deal with the future. In both English and Gitxsan (and also St'át'imcets; see Matthewson in press), future is obtained by means of a WOLL predicate which combines with non-future tense. Further, in both English and Gitxsan (as well as Blackfoot (Silva 2006) and possibly also St'át'imcets (Glougie 2006)) there is a distinction between aspectless and progressive futures. Much of the evidence for these underlying similarities is not plausibly available in the Primary Linguistic Data heard by children (e.g., the past future cases in (16-18), and the offering and present temporal input cases in (21-23)). This suggests that these features may be part of universal grammar. Obviously, this suggestion is controversial and much further empirical research is required before it can be asserted with any finality.

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