

‘Irrealis’ *ji* in declarative and interrogative complements in Gitksan

Yurika Aonuki

1. Introduction

This article focuses on occurrences of the morpheme *ji* in attitude complements in Gitksan.¹ The puzzle is that *ji* is observed in both what appear to be polar interrogative complements (1) and declarative complements (2), though obligatorily in the former and optionally in the latter.

- (1) Gida_x-a-[-t]=s Lisa 'nii'y *(**ji**) 'witxw-i'y go'osun ky'oots
ask-TR[-3.II]=PN Lisa 1SG.III IRR arrive-2SG.II here yesterday
'Lisa asked me if I came here yesterday.' (VG-v., HH)²
- (2) Context: Today is Thursday, and Henry usually comes to the department on Thursdays.
Ha'niigood-i'y (**ji**) dim kw'itxw[-t]=s Henry ji gyuu'n
think-1SG.II IRR PROSP arrive[-3.II]=PN Henry IRR now
'I think Henry will be here soon.' (HH-v.)³

The morpheme *ji* in Gitksan, as well as its cognates in Nisga'a and Sm'algyax (a.k.a. Coast Tsimshian), are often glossed as 'irrealis'.⁴ Uses of the irrealis morpheme⁵ in a rather wide range of semantic environments are documented all three languages (Rigsby 1986, Hunt 1993, Bicevskis et al. 2017, Gogag et al. in prep, Brown to appear, Matthewson to appear on Gitksan; Tarpent 1987 on Nisga'a; and Mulder 1988, Sasama 2001, Brown 2022, 2023, 2024a,b on Sm'algyax).

The goal of this article is two-fold. The first is to provide a detailed description of *ji* in declarative complements, which were first documented in Gitksan in Gogag et al.'s (in prep) collection of stories by three speakers. Novel data show that previous descriptions of the morpheme may need to be revised. The second is to consider what meaning could be attributed to this morpheme, if we were to postulate a single

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1. Gitksan is a Tsimshianic language spoken in northern British Columbia, Canada. It constitutes the Interior Tsimshianic branch along with a neighbouring language, Nisga'a.

2. Unless otherwise noted, Gitksan examples are from my elicitation with Vincent Gogag (VG) and Hector Hill (HH). A parenthesis at the bottom right corner of a Gitksan example includes a speaker's initial. "-v." following an initial indicates that the sentence was volunteered by the speaker.

Glosses absent in the Leipzig rules mostly follow conventions in Rigsby 1986. ASSOC: associative; ATTR: attributive; AX: agent (transitive subject) extraction; CCNJ: clausal conjunction; CN: common noun connective; EPIS: epistemic modal; DWID: domain widener; IRR: irrealis; LVB: light verb; MANR: manner; PCNJ: phrasal conjunction; PN: proper noun connective; PROSP: prospective; SX: intransitive subject extraction; T: 'Big T'; TR: transitive; WH: general purpose *wh*-word; I: Series I clitic; II: Series II suffix; III: Series III independent pronouns, =: clitic.

3. The second occurrence of *ji* is puzzling. Both in Gitksan (Hunt 1993) and Nisga'a (Tarpent 1987), *ji* preceding a temporal adverbial results in a future-oriented interpretation. I will set aside this use of *ji*, as it is the only case where *ji* precedes a clearly non-clausal element.

4. Though I will spell and refer to the morpheme as *ji* in Gitksan, it is variably pronounced as *ji/(je)/ja*. Its cognate in Sm'algyax is *dzi/dza* (Brown 2023).

5. I will use the term 'irrealis morpheme' to collectively refer to *ji* and its cognates, for consistency with the descriptive literature. It has no theoretical significance.

lexical entry for the uses in (1) and (2). I will sketch preliminaries of two analyses; one takes *ji* to be a polar interrogative complementizer (Brown 2024b on *dzi* in Sm'algyax), and the other does not.

Section 2 presents data on *ji* in polar interrogative complements and shows that it is obligatory. Section 3 turns to *ji* in what appear to be declarative complements and investigates the exact licensing conditions of the optional *ji*. Section 4 spells out two analytical possibilities, where one relaxes the assumption that *ji* is an interrogative complementizer (Section 4.1), and the other relaxes the assumption that all *ji* clauses occurring with attitude predicates are complements (Section 4.2). Section 5 concludes.

2. *Ji* in embedded polar questions

Ji is required in polar interrogative complements, under both rogative and responsive predicates. With rogative predicates *gidax* 'ask' (1 vs. 3) and *jabaxgoot* 'wonder' (4), the examples with *ji* receive the intended embedded polar interrogative interpretation, while the versions without it are ungrammatical, regardless of whether there is an overt non-interrogative complementizer *win* or not.

- (3) *Gida_x-a[-t]=s Lisa 'nii'y (win) 'witxw-i'y go'osun ky'oots
ask-TR[-3.II]=PN Lisa 1SG.III COMP arrive-2SG.II here yesterday
intended: 'Lisa asked me if I came here yesterday.' (VG, HH)

- (4) Context: John is a huge Canucks fan. Their game should have finished by now, but John forgot his phone at home and can't check the result.
Jabaxgoot[-t]=s John {*(**ji**), *win} xsdaa[-t]=hl Canucks
wonder[-3.II]=PN John IRR COMP win[-3.II]=CN Canucks
'John is wondering whether the Canucks won.' (VG)

Under responsive verbs like *wilaax* 'know' (5) and *mehl* 'tell' (6), complements with *ji* receive a polar interrogative interpretation, while those without it receive a declarative interpretation.

- (5) Context: John is a huge Canucks fan. Their game should have finished by now but John forgot his phone and can't check the results. His friend says, "[...] but I'm not going to tell you."
Wilaay-i-'y {#(**ji**), #win} xsdaa[-t]=hl Canucks
know-TR-1SG.II IRR COMP win[-3.II]=CN Canucks
'I know {whether, #that} the Canucks won.' (VG)
- (6) Context as in (5).
Mehl-d-i[-t]=hl ligi=t naa loo-'y {#(**ji**), #win} xsdaa[-t]=hl Canucks
tell-T-TR[-t]=CN DWID=PN who OBL-1SG.II IRR COMP win[-3.II]=CN Canucks
'Someone told me {whether, #that} the Canucks won.' (VG)

While the irrealis morpheme has been documented in embedded polar questions (Rigsby 1986, Hunt 1993, Matthewson to appear, Gogag et al. in prep on Gitksan; Tarpent 1987 on Nisga'a; Mulder 1988, Brown 2023, 2024b on Sm'algyax), this section provided the first negative evidence explicitly showing the obligatoriness of the morpheme.

3. *Ji* in declarative complements

There is a descriptive consensus in the Tsimshianic literature that the irrealis morpheme marks some sort of uncertainty or falsity. With respect to Gitksan, Hunt 1993 argues that *ji* is "often used when the subordinate clause expresses uncertain or non-factual information" (142). In Sm'algyax, Sasama 2001 describes that *dzi* "is used to express hypotheses" (68). Also in Sm'algyax, Brown documents an occurrence of *dzi* under *ha'ligood-i* 'I thought' when "the speaker likely no longer believes the embedded clause... to be true" (2023:6). In addition, Brown 2022, 2024b provides examples of *dzi* under *wah waa goot* 'doubt' and *xsaanx* 'disagree,' which are compatible with the attitude holder regarding the complement proposition false.

This section examines these intuitions of uncertainty and falsity. The generalization to be formed is that *ji* in a declarative complement is allowed if the attitude holder is uncertain, under the assumption that a belief formed by inference rather than based on direct evidence involves some degree of uncertainty.

With a first-person attitude holder and a matrix present tense interpretation, *ji* is licensed under *ha'niigoot* 'think' if the speaker is uncertain (7, repeated from 2).

- (7) Context: Today is Thursday, and Henry usually comes to the department on Thursday.
 Ha'niigood-i'y (**ji**) dim kw'itxw[-t]=s Henry ji gyuu'n
 think-1SG.II IRR PROSP arrive[-3.II]=PN Henry IRR now
 'I think Henry will be here soon.'
 (HH-v.)

Occurrence of *ji* under *bisxw* 'hope/expect' is also consistent with the speaker being uncertain.

- (8) Context: Lisa was sick last week.
 Bisxw-i'y (**ji**) am wila he[-t]=s Lisa gyuu'n
 hope-1SG.II IRR good MANR say[-3.II]=PN Lisa now
 'I hope Lisa is feeling better now.'
 (VG)

However, it should be noted that *ji* differs from morphemes that are labeled 'irrealis' in other languages (von Prince et al. 2022, Grano et al. 2024) in that the future being open is not sufficient to license it. The context in (7) is minimally modified in (9); in the former, what led to the speaker's belief is their inference, whereas in the latter, it is Henry's assertion heard by the speaker.

- (9) Context: Henry told me yesterday that he would come to the department today for sure.
 Ha'niigood-i'y (**#ji**) dim 'witxw[-t]=s Henry sa tun
 think-1SG.II IRR PROSP arrive[-3.II]=PN Henry today
 'I think Henry will be here today.'
 (VG)
 VG: *Changed 'will be' just slightly. Instead of 'will be' you're saying 'I think Henry may be...' So you wouldn't want to use that here. You are giving the impression 'I thought you'll be here today.'*

VG's comment in (9) suggests two distinct ways to modify the context to license *ji*: one is to make the speaker uncertain, and the other is re-interpret the utterance as a report of the speaker's past attitude, which they presently consider false.⁶ Consistent with VG's second repair strategy for (9), *ji* with a first-person attitude holder is allowed and often volunteered when the sentence describes a past, false attitude of the speaker.

- (10) Context: Yurika runs into Lisa after being told she left already, and says to her:
 Ha'niigood-i'y **ji** ha'w-in
 think-1SG.II IRR go.home-2SG.II
 'I thought that you left.'
 (HH-v.)

Under the assumption that a false belief involved an inference and/or some degree of uncertainty, this, too is consistent with the generalization of uncertainty at the time of the attitude.

With a third-person attitude holder, *ji* is allowed and often volunteered when the speaker knows the embedded proposition to be false (11).

- (11) Context: Someone comes in and says "I'm looking for Miss. Davis." (Referring to Henry Davis).
 Ha'niigoot-t **ji** hanak[-t]=s Henry
 think-3.II IRR woman[-3.II]=PN Henry
 'He thinks that Henry is a woman.'
 (VG-v., HH-v.)

Nevertheless, the licensing condition of *ji* should not be stated in terms of falsity. First, falsity of the embedded proposition is not necessary. In (12), John's belief that Mary is 'here' (under the table) is in fact correct, as known to both the speaker and the addressee. The relevant aspect of the context seems to be that his belief is based on an inference.

- (12) Context: Playing hide and seek with her older brother John, Mary hides under the table. Their dad, who's helping Mary, hears John say "Mary must be under the table. I'm sure of it. She always hides there!" The dad comes to Mary and says: "[...] Go hide somewhere else!"
 Ha'niigoot[-t]=s John **ji** wil-in goosun
 think[-3.II]=PN John IRR LVB-2.II here
 'John is thinking that you are here.'
 (HH-v.)

6. Gitksan is morphologically tenseless, and (stative) clauses without an overt prospective marker *dim* are compatible with both relative past and present readings (Jóhannsdóttir & Matthewson 2008, Aonuki 2021).

Second, falsity of the embedded proposition is not sufficient either. In (13), both the speaker and the attitude holder know the embedded proposition to be false.

- (13) Context: John brought store-bought bread to a party. People loved it, so he lied that he made it.
 Mehl-d-i[-t]=s John loo-diit (#ji) 'nit an=t jap[-t]=hl anaax
 tell-T-TR[-3.II]=PN John OBL-3PL.II IRR 3SG.III AX=3.I make[-3.II]=CN bread
 'John told them that he made the bread.' (VG-v., HH-v.)

Another hypothesis to rule out, though consistent with the data presented so far, is that *ji* can occur in declarative complements if the matrix predicate is anti-rogative. This does not hold given its incompatibility with *ee'esxw* 'promise.'

- (14) Context: A little boy is looking sad at the door of his house because his friend Mary has not visited him. His mom asks him what's wrong, and he says:
 Ee'esxw[-t]=s Mary (*ji) dim=t yeexs-i'y sa tun
 promise[-3.II]=PN Mary IRR PROSP=3.I visit-1SG.II today
 'Mary promised that she would visit me today.' (VG-v., HH-v.)
 VG (on the version with *ji*): *You're thinking "probably" so that's not a promise.*

In summary, *ji* is allowed in declarative complements under only a subset of anti-rogative predicates, *ha'niigoot* 'think' and *bisxw* 'hope/expect' in particular, when the attitude holder is uncertain about the complement clause at the time of the attitude.

4. Two analytical possibilities

The occurrence of *ji* in both declarative and polar interrogative complements is unexpected if we assume that *ji* is an interrogative complementizer (as in Brown's (2024) proposal for *dzi* in Sm'algyax) and that clauses introduced by *ji* are complements. This section explores two possible analyses assuming that *ji* in what appear to be polar interrogative and declarative attitude complements corresponds to a single lexical entry, by modifying each of the above two assumptions, respectively.

4.1. *Ji* clauses as attitude complements

For the first possibility, let's assume that *ji* is not an interrogative complementizer and maintain that *ji*-clauses are complements.⁷ What meaning could be attributed to *ji* in polar interrogative and declarative clauses? Based on the data from the declarative complements alone, the requirement that the attitude holder is uncertain is reminiscent of the uncertainty condition in the literature on *want* (Heim 1992, von Stechow 1999) and the subjunctive mood (Portner 2018, Giannakidou & Mari 2021, and references therein), which requires that both the embedded proposition and its negation are open possibilities in the relevant modal base. To unify the occurrences of *ji* in declarative complements, it must be assumed that a belief based on inference is weaker than a belief based on direct evidence (Giannakidou & Mari 2021; see an analogous claim with respect to *must* in e.g., Karttunen 1972 (contra von Stechow & Gillies 2010)). This view predicts that 'x thinks p' using the predicate *ha'niigoot* 'think' in Gitksan is compatible with x considering $\neg p$ possible. There is empirical support for this prediction, as it is felicitous to say *ha'niigoot (ji) p* and *ha'niigoot (ji) $\neg p$* (15).

- (15) Context: Stacy will be pet-sitting Fluffy. She thinks Fluffy might be a dog, so she buys some bones. She also thinks Fluffy might be a cat, so she buys some cat food.
 Ha'niigoot-t (ji) us[-t]=s Fluffy ii ho_x=dii ha'niigoot-t (ji) nee=dii
 think-3.II IRR dog[-3.II]=PN Fluffy CCNJ again=FOC think-3.II IRR NEG=FOC
 us[-t]=s Fluffy
 dog[-3.II]=PN Fluffy
 'She thinks Fluffy might be a dog, and she also thinks Fluffy might not be a dog.'
 (VG, HH⁸; context from TFS Working Group 2012)

7. I additionally assume that the polar interrogative meaning is contributed by something else, for example, a covert interrogative complementizer (e.g., Bhatt & Dayal 2014 on Hindi-Urdu).

However, the uncertainty condition does not hold for *ji* in polar interrogative complements under *wilaay* ‘know.’ Recall from (5) that *ji* is required for *wilaay-i-’y ji p* ‘I know whether p,’ where the uncertainty condition would contradict the assertion of the sentence. Therefore, the condition has to be weakened. While the uncertainty condition requires that neither *p* nor $\neg p$ is entailed by the local modal base, what is shared between *ji* in interrogative and declarative complements is that the speaker does not commit to the prejacent proposition *p* being entailed by the local modal base. For example, while uttering *x knows p* commits the speaker to *p* being entailed in *x*’s epistemic state, uttering *x knows whether p* does not make such a commitment, as it is left open whether it is *p* or $\neg p$ that *x* knows.

To implement this idea, we need a system that allows us to represent the doxastic/epistemic state of an attitude holder in an attitude report in the same way as the common ground of the interlocutors in a discourse. One such model is Farkas’s model of a speech context (16). For example, after an attitude report with an attitude holder *i* is uttered, D_c would include an epistemic context with the individual *i* and the set of propositions $E_{i,c}$, “the propositions that have been established in *c* as being true for *i*” (Farkas 2003:8).

- (16) Speech context: $c = \langle k, P_c, D_c \rangle$ (adapted from Farkas 2003:4(12), 8(27))
 k : a collective individual consisting of discourse participants in *c*
 P_c : common ground in *c*
 D_c : a set of embedded contexts in *c*, including an attitude holder’s epistemic state
e.g., $D_c = \langle \langle i, E_{i,c} \rangle, \dots \rangle$

Then, (7) can be modeled as post-supposing that the complement proposition is not in the set of propositions believed by the attitude holder, in this case the speaker, as represented in the discourse.

- (17) $c + \llbracket (7) \rrbracket^{w,g} = \langle k, P_{c'}, \langle \text{Speaker}, E_{\text{Speaker},c'} \rangle \rangle$
defined only if $\lambda w'. \text{Henry will be here soon in } w' \notin E_{\text{Speaker},c'}$

The incompatibility of *ji* with *mehl* ‘tell’ (13) and *ee’esxw* ‘promise’ (14) is explained as incompatibility between the post-supposition of *ji* and the assertion of the entire sentence. Assuming that the local modal base is what is compatible with what the attitude holder said or promised, respectively, the speaker does intend to add the prejacent to the local modal base.

A potential advantage of an analysis along these lines is that, due to the admittedly weak meaning attributed to *ji*, it has a possibility of extending to occurrences of *ji* in other environments, namely, conditional antecedents (18),⁹ negated conditional antecedents (19), and disjunction (20).

- (18) Context: We are looking at our friend John leaving his house 5 minutes before his work starts.
Ji *bax-t nee=dim=dii gina hetxw-t*
IRR run-3.II NEG=PROSP=FOC behind stand-3.II
‘If he runs, he won’t be late.’ (VG)
- (19) A: “Where is Lisa?” B:
Ji *nee ji luu wil-t go’o=hl win hahla’ls-i-t yugw=ima’a daa’whl ha’w-t*
IRR NEG IRR in LVB-3.II LOC=CN COMP work-i-3.II PROG=EPIS leave go.home-3.II
‘If she is not in her office, she must have gone home.’ (VG)
- (20) Context as in (5).
Nee=dii *hasag-a’y dim=in mehl-i-t loo-n ji xsdaa[-t]=hl Canucks ji*
NEG=FOC want-1SG.II PROSP-1SG.I tell-T-3.II OBL-2SG.II IRR win[-3.II]=CN Canucks IRR
ligi jahl-diit
DWID lose-3PL.II
‘I don’t want to tell you whether the Canucks won or lost.’ (HH)

8. VG accepts the version with no *ji*, while HH rejects it and accepts the version with *ji* in the second clause.

9. Gitksan (Tsimshianic languages in general) distinguishes ‘independent’ and ‘dependent’ clause types, the latter of which are often embedded. Clause types can be distinguished by pronominal elements. *Ji* is one of the morphemes that induce the dependent clause type (Rigsby 1986). Regarding (18), simply removing *ji* and leaving the antecedent clause in the dependent order (i) nor removing *ji* and putting the antecedent in the independent order (ii) (as evidenced by the use of a series III pronoun ‘*nit*’ as an intransitive subject; see Rigsby 1986) is acceptable.

In (18), the sentence does not commit the speaker to adding the proposition that ‘he runs’ into their epistemic modal base. In (19), the lower *ji* prevents adding the proposition that ‘she is in her office’ to the speaker’s epistemic modal base, and the higher *ji* prevents adding to it the proposition that ‘she is not in her office.’ Finally in (20), the speaker does not tell the addressee that ‘the Canucks won’ or that they lost.

A downside of this line of analysis is that it does not offer an explanation for the obligatoriness of *ji* in polar interrogatives and conditional antecedents.

4.2. *Ji* clauses as adjuncts to anti-rogative predicates

The second analytical possibility is to maintain that *ji* is an interrogative complementizer, following Brown’s analysis of *dzi* in Sm’algayax. That would immediately account for the obligatoriness of *ji* in polar interrogatives. Its obligatoriness in conditional antecedents would be at least empirically unsurprising, given the cross-linguistically observed connection between conditionals and interrogative complements (see Bhatt & Pancheva 2006, Starr 2014, and references therein). The puzzle now is why a polar interrogative clause can occur with anti-rogative predicates such as *ha’niigoot* ‘think’ and *bisxw* ‘hope/expect.’

Occurrence of an interrogative complementizer with an anti-rogative verb is also observed in Japanese, and the resulting interpretation is similarly that of epistemic uncertainty. Goodhue & Shimoyama 2022 observe that the Q-particle *ka* in Japanese can occur in what appear to be complements of anti-rogative verbs like *omou* ‘think’ and *kitaisuru* ‘hope.’ (21a) has what they call a ‘hedging’ effect relative to the version without *ka* (21b), as seen in the approximate English translation with *might* for the former.

- (21) a. Yoko_k-wa [kanojo_k-no jooshi-ga hannin **ka** to] omot-te iru
 Yoko-TOP she-GEN boss-NOM culprit Q to think-te ASP.NPST
 ‘Yoko thinks that her boss might be the culprit.’ (Goodhue & Shimoyama 2022:100(13))
- b. Yoko_k-wa [kanojo_k-no jooshi-ga hannin da to] omot-te iru.
 Yoko-TOP she-GEN boss-NOM culprit COP to think-te ASP.NPST
 ‘Yoko thinks that her boss is the culprit.’ (Goodhue & Shimoyama 2022:98(1))

Goodhue & Shimoyama 2022 analyze all clauses marked with a complementizer-like element *to* as adjuncts to the matrix VP, with the internal argument of the matrix verb being a covert free variable over propositions (cf. Özyıldız & Uegaki 2023). The idea is that in (21a), the value of this propositional variable is constrained by the question denoted by the *to*-adjunct, in particular, the positive evidential bias of a positive polar question.

To adapt Goodhue & Shimoyama’s analysis to Gitksan, one modification is necessary. In their analysis, *to*-clauses denote a Speech Act; this is appropriate for Japanese because the Q-particle *ka* can appear in matrix questions as well. However, in Gitksan, *ji* is limited to embedded polar questions (see Hill & Matthewson 2025, Matthewson to appear for matrix polar questions in Gitksan and Brown 2023, 2024a,b for Sm’algayax), and the only environments in which *ji* is documented in a simple clause is in one of the imperative constructions (Rigsby 1986). Instead of the Speech Act analysis, I extend a propositional analysis of adjunct clauses to attitude predicates (Bondarenko 2022) and propose that they can also denote a question meaning.

Concretely, I will modify Bondarenko’s covert Cont (for ‘content’) head so that it can take a question meaning of type ⟨st,t⟩. (22) takes a question meaning and returns a predicate of eventualities whose content is the question.

$$(22) \llbracket \text{Cont} \rrbracket^{w,g,c} = \lambda Q_{st,t}. \lambda e. \text{Cont}(e) = Q \quad (\text{adapted from Bondarenko 2022:119(150)})$$

In (7), the *ji*-clause with a covert Cont head (23) denotes a predicate of eventualities whose content is the question of whether Henry will be here soon.^{10,11}

- | | |
|--|---|
| (i) *Bax-t nee=dim=dii gina hetxw-t
run-3.II NEG=PROSP=FOC behind stand-3.II
intended: ‘If he runs, he won’t be late.’ (VG) | (ii) *Bax ’nit nee=dim=dii gina hetxw-t
run 3SG.III NEG=PROSP=FOC behind stand-3.II
intd.: ‘If he runs, he won’t be late.’ (VG, HH) |
|--|---|

10. In Bondarenko’s analysis, the Cont head is below a complementizer, but in the current analysis assuming *ji* to be a complementizer, the order must be reversed. In addition, I will take propositions to be predicates of worlds, while Bondarenko 2022 analyzes them as predicates of situations. This is not significant for the present purposes.

11. I attributed a bipolar question meaning to *ji* clauses here. Brown 2024b proposes that an interrogative complement

- (23) $\llbracket \text{Cont } ji \text{ dim kw'itxw[-t]=s Henry } ji \text{ gyuu'n} \rrbracket^{w,g,c} = \lambda e. \text{Cont}(e) = \{ \lambda w'. \text{Henry will be here soon in } w', \neg \lambda w'. \text{Henry will be here soon in } w' \}$

Then following Goodhue & Shimoyama (2022:100(11), with modifications), *ha'niigoot* ‘think’ (24) takes the value of a covert variable over propositions, p_7 . The attitude report without the *ji*-clause denotes a predicate of considering events e such that the agent of e is the speaker and there is a world in the set of doxastically accessible worlds projected from e in which the proposition mapped to p_7 is true.

- (24) $\llbracket ha'niigoot-i-'y p_7 \rrbracket^{w,g,c} = \lambda e. \text{consider}(e,w) \wedge \text{Ag}(e)=\text{Speaker} \wedge \exists w' \in \text{DOX}_{Sp,w,e} [g(7)(w')=1]$

The matrix attitude report and the *ji*-clause combine by Predicate Modification (Heim & Kratzer 1998), with the eventuality argument existentially closed.¹² The resulting denotation of (7) in (25) is true iff there is a considering event e in the actual world w whose agent is the speaker, and there is a world in the set of doxastically accessible worlds projected from that event in which $g(7)$ is true, and the content of the considering event is the question of whether or not Henry will be here soon.

- (25) $\llbracket (2) \rrbracket^{w,g,c} = \exists e [\text{consider}(e,w) \wedge \text{Ag}(e)=\text{Speaker} \wedge \exists w' \in \text{DOX}_{Sp,w,e} [g(7)(w')=1] \wedge \text{Cont}(e) = \{ \lambda w'. \text{Henry will be here soon in } w', \neg \lambda w'. \text{Henry will be here soon in } w' \}]$

Following Goodhue & Shimoyama 2022, I assume that the value of $g(7)$ is constrained by the *ji* clause, and in this case $g(7)$ amounts to the proposition that Henry will be here soon. In other words, (25) is true iff the speaker considers it possible that Henry will be here soon by entertaining the question of whether Henry will be here soon.

As hinted at in the beginning of this section, I maintain that when the matrix predicate is rogative or responsive and *ji* is obligatory for a polar interrogative interpretation, the *ji* clause is the internal argument of the predicate, not an adjunct; this explains its obligatoriness. Moreover, the incompatibility of *ji p* with *mehl* ‘tell’ (13) and *ee'esxw* ‘promise’ (14) is also explained because the content of an event of promising or telling that p cannot be the question of whether p .

At this point, the potential adjunct status of declarative *ji*-clauses is simply a hypothesis based on the interpretive similarities with Japanese, and it must be tested from both semantic and syntactic standpoints. In addition, there is a question of whether the interrogative complementizer analysis of *ji* explored in this section could be extended to conditional antecedents, under negation, and in disjunction (see Section 4.1) as well as imperatives. These environments intuitively involve (comparison of) alternatives and in that sense are not far from question meanings, but a unified analysis must be left for the future.

5. Conclusion

This paper provided a description of the morpheme *ji* in Gitksan, which has often been glossed as ‘irrealis,’ with a focus on its occurrence in what appear to be attitude complements. The generalization is that *ji* is obligatory for polar interrogative questions under rogative and responsive predicates, and it is allowed in combination with a subset of anti-rogative predicates such as *ha'niigoot* ‘think’ and *bisxw* ‘hope/expect’ if there is a degree of uncertainty. The generalization is surprising under the assumption that *ji* is an interrogative complementizer and that all *ji*-clauses occurring with attitude predicates are complements.

Given this dilemma, I spelled out the beginning of two distinct analyses. One maintains that all *ji*-clauses occurring with attitude predicates are complements, and postulates that *ji* encodes a post-supposition that the prejacent presupposition is not added to the local context, or in this case the set of propositions consistent with the attitude holder’s epistemic/doxastic state. This meaning has the potential of extending to other contexts in which *ji* is observed, namely, conditional antecedents, negated conditional antecedents, and disjunction, but it is silent about the obligatoriness of *ji* for polar interrogative complements. The other analysis maintains that *ji* is an interrogative complementizer and postulates that, when a *ji*-clause occurs with an anti-rogative predicate, it is an adjunct to the matrix VP. This analysis predicts the obligatoriness

formed with the irrealis morpheme *dzi* in Sm'algyax is monopolar, and a bipolar meaning is coerced. If *ji* outputs a monopolar question, then given the adjunct status of a *ji* clause in the current analysis, there is a question of what causes the coercion to a bipolar meaning.

12. I will set aside tense and aspect, but assume that the existential closure of the eventuality argument actually comes from a covert perfective aspect.

and optionality of *ji* in attitude complements depending on the matrix predicate, but does not immediately extend to other environments. I hope to have shown what it would take to unify the rather wide range of uses of *ji*. Whether a single or multiple lexical entr(ies) are desirable and if the latter, which uses should be grouped together, is still an open question.

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