A second-last position clitic in Sm'algyax: a puzzle

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1 Introduction

1.1 Preamble

We're very happy to be included in this volume celebrating Hotze and his work; one of us is a long-time colleague and some time co-author of his, and the other a past undergraduate student in his semantics class.

Our contribution comes in two parts. In the first, we present a particularly puzzling set of data involving the *wh*-clitic *=(d)u* in Sm'algyax (Coast Tsimshian); in the second, we propose a solution.

The reader (and Hotze himself) might wonder how work on the morphosyntax of clitics in a Tsimshianic language relates to his own research, which — while it encompasses a wide variety of topics and languages — has never, as far as we are aware, touched on either of these areas. The answer is that though the subject matter might not relate directly to his own work, Hotze's influence can be felt in several ways in our contribution. First, though his background is in formal semantics, he has always paid close attention to the empirical details of natural language, which has made him for many years an ideal ally and resource for fieldworkers such as ourselves working on less-studied languages. Second, he has always appreciated puzzles and solutions (as evidenced by his strong support for the NACLO competition over the years). And third, an aspiration of ours which Hotze's work seems to embody effortlessly (though we know that a great deal of effort goes into it) is to take complex and apparently confusing data, reduce it to its essence, and offer a solution that in retrospect — but only in retrospect — seems intuitively correct.

We hope Hotze enjoys our attempt to emulate him!

1.2 Introduction to the puzzle

The Tsimshianic languages are known for their complex and varied clitic systems (see e.g. Mulder and Sellers 2010). In this squib, we examine a particularly challenging and intriguing clitic in Sm'algyax (Maritime Tsimshianic, ISO 639-3: `tsi`): the *wh*-clitic *=(d)u*. Our contributions are as follows: (i) we outline the syntactic distribution of the *wh*-clitic and suggest that it occupies a position high in the syntactic superstructure, taking an interrogative CP as its complement (Section 2); (ii) we show that it is phonologically an enclitic (Section 3); and (iii) we present a linearization puzzle associated with the *wh*-particle: sometimes it appears in a left-peripheral position encliticized to a *wh*-expression, and sometimes it appears in a clause-internal position encliticized to the predicate or a DP element (Section 4). The data and generalizations presented here lay the groundwork for Davis and Brown (this volume), which puts forth an analysis of the *wh*-clitic as a second-last position (penultimate) clitic.

2 The syntax of content questions and the *wh*-clitic

In this section, we describe content (*wh*-) question formation and outline the syntactic distribution of the *wh*-question marker *=(d)u*; we show that it is a root-level clitic that is restricted to content questions. It is neither a marker of clause type nor intrinsically associated with *wh*-expressions. Based on its behaviour and distribution, we suggest that the *wh*-clitic is a marker of interrogative illocutionary mood and is base generated above CP.

2.1 The structure of content questions

Content questions in Sm'algyax are characterized by the appearance of a *wh*-expression in clause-initial position together with extraction morphology that indicates the grammatical role of the extracted element, distinguishing between S (the subject of an intransitive predicate), A (the subject of a transitive verb), O (the object of a transitive verb), and others (adjuncts and oblique arguments). We illustrate this extraction morphology in the examples below. Content questions are additionally marked by the presence of the *wh*-clitic *=(d)u*, which appears in all the examples

below.[1,2]

(1) Naayu sis'aaxsit?
naa=**du** sis'aaxs-**it** __
who=**Q** laugh-**SX**
'Who laughed?' S-extraction

(2) Goyu gaba gyet?
goo=**du** gap-**i**=a gyet __
what=**Q** eat-**TR**-3.II=CN person
'What do the people eat?' O-extraction

(3) Naayu int gaba ts'ik'aaws?
naa=**du** **in=t** gap=a __ ts'ik'aaws
who=**Q** **AX=3.I** eat=CN split.salmon
'Who eats split dried salmon?' A-extraction

[1] Content questions, relative clauses, and focus fronting constructions are all marked with the same extraction morphology. Only content questions are marked with the *wh*-clitic. See Brown (2024) for a detailed description of the morphosyntax of extraction in Sm'algyax.

[2] Sm'algyax, also known as Coast Tsimshian or the Ts'msyen language, is spoken along the coast of Northern British Columbia, and on the island of Metlakatla, Alaska. All uncited examples come from elicitations with Velna Nelson, Ellen Mason (Txałgiiw/Hartley Bay), and Beatrice Robinson (Gitxaała/Kitkatla). Linguistic examples are given in a four-line format: the top line is given in the Sm'algyax community orthography (Dunn 1978), the second line is presented in the same orthography, but indicates morpheme breaks — word-level morphophonological processes such as obstruent voicing before vowels are not marked at this level. The third line provides grammatical category labels, and the final line provides an English translation. Abbreviations for linguistic glosses are as follows: 1 = first person, 2 = second person, 3 = third person, AX = agent extraction morpheme, CN = common noun connective, COMP = complementizer, FOC = focus, I = series I clitic, II = series II suffix, III = series III pronoun, IRR = irrealis, NEG = negative, OBL = oblique, PASS = passive, PFV = perfective, PL = plural, PN = proper noun connective, POSS = possessive, PREP = preposition, PROSP = prospective, Q = question particle, REAS = reason subordinator, REL = relative, SG = singular, SX = subject extraction morpheme, T = "Big T" verbal morpheme, TR = transitive, VER = verum.

(4) Ndeyu wil sa oksga łgwoomłk?
ndeh=**du** **wil** sa=oks-k=a łgwoomłk ___
where=**Q** **COMP** off=fall-PASS=CN child
'Where did the child fall?' Adjunct-extraction

Following earlier work on Ā-movement in Tsimshianic (Davis and Brown 2011; Davis and Nederveen 2021), we adopt the hypothesis that there are two types of *wh*-questions, characterized by Davis and Brown as cases of "direct" versus "indirect" movement. Direct movement proceeds as in English: a *wh*-expression undergoes Ā-movement to the left periphery. Indirect movement structures feature a predicative *wh*-expression that is base generated in initial position and takes a DP as its argument (typically a headless relative clause). Though the surface realization of direct and indirect movement is often identical, there is one construction in Sm'algyax that unambiguously signals the indirect movement structure: content questions featuring the relative pronoun *gu*. Originally, *gu* was likely a reduced form of the *wh*-expression *goo* 'what', but in the contemporary language it is not a question word. Instead, it introduces a relative clause, as shown below with a headed relative clause in (5) and a headless relative clause in (6).

(5) Wilaayu hana'a gu sis'aaxsit.
wilaay-i-u=a hana'a=a [**gu** sis'aaxs-it ___]
know-TR-1SG.II=CN woman=CN **REL** laugh-SX
'I know the woman that laughed.'

(6) Gabu gu nah dzabn.
gap-i-u=a [**gu** nah dzap-i-n ___]
eat-TR-1SG.II **REL** PFV make-TR-2SG.II
'I ate what you made.'

Gu may also appear in *wh*-questions, as shown in (7) below.

(7) Godu gu yoyksis Meeli?
goo=du [**gu** yoyks-i[-t]=s Meeli ___]
what=Q **REL** wash-TR-3.II=PN Mary
'What did Mary wash?' Literally: 'What is [(the thing) that Mary washed]?'

We suggest that the *gu*-marked question in (7) has the following structure: a predicative *wh*-expression *goo* is base generated in initial position (which is the canonical position for predicates), and takes as its argument a headless relative clause introduced by *gu*.

(8) [**Goo** [___ [___ [**gu** [yoyksis Meeli ___]]]]]
[$_{IP}$ **WH** [$_{DP}$ *pro* [$_{CP}$ ~~Ø$_{rel}$~~ [**C** [$_{IP}$ yoyksis Meeli ~~Ø$_{rel}$~~]]]]]

We further address the difference between questions with direct and indirect movement in Davis and Brown (this volume).

2.2 The *wh*-clitic as illocutionary mood

The *wh*-clitic is restricted to root-level questions. The examples in (9)–(11) show that while questions may be freely embedded under typical question embedding predicates such as *wilaay* 'know', *güüdax* 'ask', or *aap'ax* 'remember', the *wh*-clitic is not able to appear in embedded questions. We conclude from these data that the *wh*-clitic is not a marker of (interrogative) clause type — for example, an instantiation of a [+Q] C-head — since if it were, we would expect it to occur in both matrix and embedded interrogative clauses.

(9) Wilaayu naa łimoom sm'ooygit.
wilaay-u [naa**(*=du)** łimoom-i[-t]=a sm'ooygit ___]
know-1SG.II who**(*=Q)** help-TR-3.II=CN chief
'I know who the chief helped.'

(10) Güüdagu naa łimoom sm'ooygit.
güüdax-u [naa**(*=du)** łimoom-i[-t]=a sm'ooygit ___]
ask-1SG.II who**(*=Q)** help-TR-3.II=CN chief
'I asked who the chief helped.'

(11) Akandi aap'ax ndeł
aka=n=di aap'ax[-t] [ndeh**(*=du)**=ł
NEG=1SG.I=FOC remember[-3.II] where**(*=Q)**=IRR.CN
habit.
hap-i-t __]
PL:go-TR-3.II
'I don't remember where they went.'

Wh-expressions also appear in a number of non-interrogative contexts, including as indefinite/indeterminate nouns (12)–(14), in headless relative clauses (15), and in exclamatives (16). The *wh*-clitic is strictly prohibited from appearing in any of these constructions.

(12) Ła'a ligi goo haasgu.
ła'a=a ligi **goo(*=du)**=a haas-k-u
bite=CN LIGI **what(*=Q)**=CN dog-PASS-1SG.II
'Something bit my dog.'

(13) Nah niidzu ligit naa.
nah niits-u ligi=t **naa(*=du)**
PFV see-1SG.II LIGI=PN **who(*=Q)**
'I saw someone.'

(14) Dm małdu txa'nii goo da k'wan.
dm mał-t-i-u txa'nii **goo(*=du)** da k'wan
PROSP tell-T-TR-1SG.II all **what(*=Q)** PREP 2SG.OBL
'I will tell you everything.'

(15) Waayu naa dmt in dzaba
Waa-i-u [**naa(*=du)** dm=t in dzap[-t]=a ___
find-TR-1SG.II **who(*=Q)** PROSP=3.I AX do[-3.II]=CN
ts'ikts'igu.
ts'ikts'ik-u]
car-1SG.II
'I found someone who will fix my car.' Lit. 'I found **who** will fix my car.'

(16) Goł waalt!
goo(*=du)=ł waal-t ___
what(*=Q)=IRR.CN be-3SG.II
'What a thing!'

From the examples above, we conclude that the *wh*-clitic is not associated with *wh*-expressions themselves. This means that it cannot be analyzed as a Q-particle like Japanese *ka* or Tlingit *sá* (Beck 2006; Cable 2007, 2010; Kotek 2014; Kratzer and Shimoyama 2002; Uegaki 2018). Instead, we suggest that *=(d)u* is an illocutionary mood operator: that is, a morpheme that is conventionally linked to the conversational function of "asking" (Portner 2018:122). We suggest that syntactically, *=(d)u* occupies a functional projection high in the syntactic superstructure and takes an interrogative CP as its complement. For concreteness, we adopt Cinque's (1999) $\text{Mood}_{\text{SpeechAct}}$ projection for this position; however, for reasons which will become clear in Davis and Brown (this volume), we base-generate *=(d)u* on the right rather than the left periphery of CP.[3]

(17) $[_{\text{MoodP}}\ [_{\text{CP}}\ \text{WH} \ldots [_{\text{IP}}\ \ldots] \ ]\ $ *=(d)u*]

An interrogative embedding predicate such as 'ask' or 'know' selects an interrogative CP, and not a MoodP as its complement, which accounts for the prohibition against *=(d)u* appearing in embedded contexts such as (9) above:

(18) $[_{\text{IP}}\ \text{ASK/KNOW}\ [_{\text{CP}}\ \text{WH} \ldots [_{\text{IP}}\ \ldots] \ ] \ ]$

Further syntactic evidence for *=(d)u* occupying a position above the root CP comes from coordinated *wh*-questions, which commonly feature a single instance of *=(d)u* inside the first conjunct scoping over two interrogative clauses, as illustrated in (19) and schematized in (20).

[3] Though incompatible with Cinque's own (antisymmetrical) views, there is Tsimshianic-internal evidence supporting an underlyingly right-peripheral position for *=(d)u*: in all other Tsimshianic languages, question particles (including polar clitics as well as *wh*-clitics) occupy final position in a root clause.

(19) Context: You're talking to a friend who returned from a baking exchange:

Goyu	nah	gabn		ada	naał	nah	int
[goo=**du**	nah	gap-i-n ___]		[ada	naa=ł	nah	in=t
what=Q	PFV	eat-TR-2SG.II		and	who=IRR.CN	PFV	AX=3.I
dzapt?							
dzap-t ___]							
make-3.II							

'What did you eat and who made it?'

(20) $[_{MoodP}\ [_{ConjP}\ [_{CP}\ WH \ldots [_{IP}\ \ldots]\ ]\ [_{Conj'}\ \&\ [_{CP}\ WH \ldots [_{IP}\ \ldots]\ ]\ ]\ ]\ =(d)u\ ]$

The *wh*-clitic cannot scope over the second conjunct from its surface position inside the first conjunct. Furthermore, syntactic movement into a c-commanding position would violate the Coordinate Structure Constraint (Ross 1967). The only other possibility — which we will adopt — is that *=(d)u* is base-generated in a c-commanding position above both conjuncts (as in (20)) and is positioned inside the first conjunct post-syntactically.

To conclude this section, the *wh*-clitic *=(d)u* only appears in root *wh*-questions; it is absent from embedded questions and incompatible with non-interrogative uses of *wh*-expressions. We suggest, based on this distribution, that the *wh*-clitic is generated in an illocutionary MoodP above CP and selects an interrogative CP complement.

3 Phonology

The goal of this section is to show that, phonologically, *=(d)u* must lean on some phrase to its left. We present four pieces of evidence for this claim. First of all, the *wh*-clitic never appears in initial position: this follows straightforwardly from its enclitic status.

(21)

*U/Yu/Dunaa	liimit?
du=naa=a	liimi-it?
Q=who=CN	sing-SX

Intended: 'Who sang?'

The second piece of evidence comes from the interaction of *=(d)u* with the determiner-like elements known as "connectives" in the literature on Tsimshianic (see Davis 2018 and references therein). Connectives are syntactically associated with a nominal element to their right, but phonologically encliticize to a phrase to their left (Mulder and Sellers 2010). For example, in (22) below, the proper noun (PN) connective *=t* introduces the pronoun *'nüün* that appears to its right, but encliticizes to the sequence of the *wh*-expression *naa* plus the *wh*-clitic *=(d)u* that appears to its left.[4] If *=t* is encliticized to the *wh*-phrase, and *=(d)u* precedes it, *=(d)u* must also be an enclitic.

(22) Naayut 'nüün? (not: ***naa=t=(d)u 'nüün***)
naa**=du** [**=t** 'nüün]
who**=Q** **=PN** 2SG.III
'Who are you?'

Third, we observe contextual allomorphy effects that are triggered when *=(d)u* encliticizes to a *wh*-word. When the *wh*-clitic immediately follows a *wh*-word, it optionally surfaces as either [ju] or [du]:

(23) Naayu baat?
naa**=du** baa-it
who**=Q** run-SX
'Who ran?'

(24) Naadu baat?
naa**=du** baa-it
who**=Q** run-SX
'Who ran?'

However, when the *wh*-clitic follows a non-*wh* word, it obligatorily surfaces as [du]:[5]

(25) Goł wils liimidu dm yaatm?
goo=ł wils liimi**=du** dm yaat-m
what=IRR.CN kind song**=Q** PROSP tell/sing-1PL.II
(not: ***goł wils liimiyu***)
'What kind of song will we sing?' (SLLTD)

[4] Proper noun connectives (also known as "determinate" connectives in the Tsimshianic literature) introduce independent (Series III) pronouns as well as proper nouns in Sm'algyax.

[5] We address the linear position of *=du* in such cases in Section 4 immediately below.

Assuming that contextual allomorphy of this type requires not only adjacency but phonological integration with the preceding word, these data provide another argument that *=(d)u* must be enclitic to the *wh*-word.[6]

A fourth piece of evidence comes from deletion of final /t/ when immediately followed by *=du*. Recall that when the *wh*-clitic follows a non-*wh* element, it always surfaces as [du]. In (26) below, we see a *wh*-clitic following the possessive *wh*-phrase *naał naboodit* 'whose boat', which ends with the *-it* suffix characteristic of possessor extraction. The surface form shows that sequences of *-it* and *=du* reduce to [idu], rather than surfacing as [i**t**du], suggesting that *=du* is phonologically integrated enough with the phrase to its left to condition deletion.[7]

(26) Naał naboodidu giikt?
naa=ł na=boot**-it=du** giik-t
who=IRR.CN POSS=boat**-SX=Q** buy-3.II
(not: ***naboodi*t*du***)
'Whose boat did she buy?'

The ban on the *wh*-clitic appearing in initial position, as well as the contextual allomorphy and deletion facts associated with the element to the left of the *wh*-clitic all point to the same conclusion: *=du* is phonologically an enclitic.

4 Linearization

So far, nearly all the cases of *wh*-questions we have seen show *=du* in the clausal second position, immediately following a *wh*-expression.[8] This is compatible with both its syntactic position, as expounded in Section 2, and its phonological properties, as described in Section 3: it occupies a

[6] Since the appearance of the allomorph [ju] is a predictable (albeit optional) consequence of the *wh*-clitic encliticizing to a *wh*-word, from now on, we write the morpheme *=(d)u* simply as *=du*.

[7] Another possible explanation for this alternation is that the onset of the *wh*-clitic undergoes deletion, and the coda of the *-it* morpheme undergoes voicing before [u] resulting in the attested surface form of [idu]. Either option supports the central claim that *=du* is phonologically integrated with the phrase to its left.

[8] The exception is (25) above.

position high in a root clause (with CP as its sister), and must attach to a phrase to its left, as a prosodically dependent enclitic.

However, in spite of what might appear to be the case from the examples provided so far, *=du* is not at all confined to second position. In fact, it turns out to be a typologically unusual second *last* position (penultimate) clitic, as we now show by giving a more complete picture of its distribution.

We can characterize this distribution as falling into three patterns. The first is where *=du* occurs attached to a *wh*-phrase at the left periphery of the clause, as schematized in (27).

(27) [WH**=du** […]] *Wh-placement*

This is the main environment where we have encountered *=du* so far. See examples (5), (7), etc.

Second, *=du* encliticizes to the inflected predicate (typically but not exclusively a verb) following a *wh*-phrase and preceding an argument DP in any of S, A, or O function, as schematized in (28).

(28) [WH…[V**=du** $DP_{S/A/O}$]] *Predicate placement*

Examples of this pattern are given below. In (29), O is extracted and *=du* precedes A;[9] in (30), A is extracted and *=du* precedes O, and in (31) and (32), an adjunct is extracted and *=du* precedes S.

(29) Goł gabidu gyet?
goo=ł gap-i-t**=du**=a gyet
what=IRR.CN eat-TR-3.II**=Q**=CN person
'What do the people eat?'

(30) Naał int gapdu ts'ik'aaws?
naa=ł in=t gap-t**=du**=a ts'ik'aaws
who=IRR.CN AX=3.I eat-3.II**=Q**=CN split.salmon
'Who ate the split salmon?'

[9] The example in (29), which exemplifies *predicate placement*, forms a minimal pair with (2), which exemplifies *wh-placement*.

(31) Dzindał dm 'ap yaltgidut Norman?
dzindaa=ł dm 'ap yaltk-t=**du**=t Norman
IRR.when=IRR.CN PROSP VER return-3.II=**Q**=PN Norman
'When is Norman really coming back?' (Sasama 2001:64)

(32) Ndał mi wil gyiikdu ngwüda'atsn?
ndaa=ł mi wil gyiik-t=**du**=a n-gwüda'ats-n
where=IRR.CN 2SG.II COMP buy-3.II=**Q**=CN POSS-coat-2SG.II
'Where did you buy your coat?'

Third, *=du* attaches to the end of a DP in A function in a WH-V-A-O configuration, as schematized in (33) below.

(33) [WH V DP_A=**du** DP_O] *Argument placement*

Such examples involve the *wh*-extraction of either an adjunct, as in (34), or an oblique argument, as in (35).

(34) Goł gant dzapdit Meelidu ts'ikts'ik?
goo=ł gan=t dzap-t=t Meeli=**du**=a ts'ikts'ik
what=IRR.CN REAS=3.I do-3.II=PN Mary=**Q**=CN car
'Why did Mary fix the car?'

(35) Goł naht giindit Michaeldut Henry?
goo=ł nah=t giin-t=t Michael=**du**=t Henry
what=IRR.CN PFV=3.I give-3.II=PN Michael=**Q**=PN Henry
'What did Michael give Henry?'

These three patterns (*wh-placement*, *predicate placement*, and *argument placement*) constitute the core distribution of *=du*. Note that *predicate-placement* and *argument placement* are in free variation with *wh-placement*, but they are never in free variation with each other.

Before we put forth an explanation for this distribution, it is important to note elements which do not affect the position of *=du*. To start with, functional heads such as complementizers, tense/aspect markers, and subject clitics have no effect on its placement.

(36) Ndeł nam wil niisdu ol?
ndeh=ł **nah=m** **wil** niis-t=**du** ol
where=IRR.CN **PFV=2.I** **COMP** see-3.II=**Q** bear
'Where did you see the bear?'

(37) Ndeł wil sa oksgadu łgwoomłk?
ndeh=ł **wil** sa=oks-k-t=**du**=a łgwoomłk
where=IRR.CN **COMP** off=fall-PASS-3.II=**Q**=CN child
'Where did the child fall?'

These examples show that the linear position of *=du* is at least partially insensitive to syntactic structure: even though, as shown in Section 2, *=du* is base-generated at the very top of a root clause, in these cases it surfaces inside its CP complement. On a syntactic account, lowering would be required to derive its surface position; we take it that this is not a viable option.

Second, the presence of PPs (including oblique arguments as well as adjuncts) does not affect placement of the *wh*-clitic. This means that examples such as (38) and (39) below involve predicate placement: the bracketed PPs introduced by the preposition *da* have no effect on the linear position of *=du*, which ends up encliticized to the verb, followed by an argument DP (rather than encliticizing to the argument DP, as would be expected if the PP counted for clitic placement).

(38) Goł ky'ilamdu 'yuuta da haas?
goo=ł ky'ilam-i-t=**du** 'yuuta [da=a haas]
what=IRR.CN give-TR-3.II=Q man PREP=CN dog
'What did the man give the dog?'

(39) Naał nah habooltidut Dzon asda
naa=ł nah habool-t-i-t=**du**=t Dzon [asda
who=IRR.CN PFV look.after-T-TR-3.II=**Q**=PN John PREP
gits'iipda?
gits'iipda]
yesterday
'Who did John look after yesterday?'

The same is true of CPs, as illustrated by the long-range *wh*-dependencies in (40)–(41):

(40) Ndeł małdidut Betty gooys Meeli?
ndeh=ł mał-t-i-t=**du**=t Betty [goo-i[-t]=s Meeli]
where=IRR.CN say-T-TR=**Q**=PN Betty go-TR-3.II=PN Mary
'Where did Betty say Mary went?'

(41) Goł ha'ligoodut Bettyt giindit
goo=ł ha'ligoot-t=**du**=t Betty [=t giin-t=t
what=IRR.CN think-3.II=**Q**=PN Betty =3.I give-3.II=PN
Michaelt Henry?
Michael=t Henry]
Michael=PN Henry
'What does Betty think Michael gave Henry?'

In these examples, *=du* again encliticizes to the verb rather than to the subject, as would be expected were the embedded CP to be treated like a DP object. In other words, these are again cases of predicate placement rather than argument placement: the embedded CP has no effect on clitic linearization. It is also important to note that the argument-adjunct distinction is not at play here: the embedded CPs in (40)–(41) are complements of the matrix predicate (and as such allow *wh*-extraction), yet as *non-DP* complements, they are invisible for the purposes of clitic linearization.

The relevant generalization covering all these cases is as follows:

(42) *Only the predicate and its DP arguments count for the linearization of =du*

This shows that linearization of *=du* is partially *sensitive* to syntactic structure, in that it pays selective attention to the categorial signature of potential hosts.

5 Interim conclusion

This squib has introduced the *wh*-clitic *=du*, and outlined (i) its syntactic position in MoodP above CP; (ii) its phonological status as an enclitic; and (iii) the three linear positions it occupies (following a *wh*-phrase, following the predicate, and following an object DP). In Davis and Brown (this volume), we sketch a unified account of these three linear positions.

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