A second-last position clitic in Sm'algyax (Coast Tsimshian)*

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1. Introduction

This paper has two main goals: the first is to argue that the interrogative clitic *=du* in Sm'algyax (Maritime Tsimshianic, ISO 639-3: `tsi`; VSO) is a genuine case of a penultimate ("second-last position") clitic, which is so rare typologically that its very existence has been disputed (Klavans 1985, Marantz 1988, Billings 2002, Cysouw 2005). The second is to show that a two-step model of clitic linearization at spell-out can account for its distribution and allomorphy. The first step involves a morphological clitic placement operation read off a linearized syntactic representation; the second step involves a phonological operation sensitive to local allomorphy.

1.1 The empirical challenge

In Sm'algyax, content *(wh-)*questions are characterized by a clause-initial *wh*-expression together with the clitic *=du*, which appears in three distinct positions: following an argument DP (1); following the predicate (2); or following the initial *wh*-expression (3).[1]

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[1]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 unattributed examples come from elicitation with Velna Nelson, Ellen Mason (Txałgiiw/Hartley Bay), and Beatrice Robinson (Gitxaała/Kitkatla). 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 an interlinear gloss; word-level morphophonological processes are not marked at this level. The third line provides grammatical category labels, and the final line is an English translation. Abbreviations are as follows: 1 = first person, 2 = second person, 3 = third person, AX = agent extraction morpheme, CAUS = causative, CN = common noun connective, COMP = complementizer, I = series I clitic, II = series II suffix, III = series III pronoun, IRR = irrealis, PASS = passive, PFV = perfective, PL = plural, PN = proper noun connective, POSS = possessive, PREP = preposition, PROSP = prospective,

(1) Ndeł wilt gapda ts'u'utsdu laalt?
nde=ł wil-t gap-t=a ts'u'uts**=du**=a laalt
where=IRR.CN COMP-3.I eat-3.II=CN bird**=Q**=CN worm
'Where did the bird eat the worm?' *Argument placement*

(2) Goł gan dawłdut Dzon?
go=ł gan dawł**=du**=t Dzon
what=IRR.CN REAS leave**=Q**=PN John
'Why did John leave?' *Predicate placement*

(3) Naadu gu int yoyksa nooł?
naa**=du**=a gu in=t yoyks=a nooł
who**=Q**=CN REL AX=3.I wash=CN dish
'Who is the one that washed the dishes?' *Wh-placement*

We address the following questions posed by these data: (i) can we find a unified analysis for these placements of *=du*? and (ii) if so, what are the implications of such an analysis?

1.2 Analysis in a nutshell

In subsequent sections, we show that the three linear positions exemplified in (1–3) instantiate a single, penultimate position. In a nutshell, our analysis proceeds as follows. In terms of its syntax, *=du* is base-generated in a high, clause-peripheral position, and in terms of its phonology *=du* is an enclitic. Neither the syntax or the phonology, nor a combination of the two, can account for the linear position of *=du*. We argue instead that *=du* linearization occurs post-syntactically but pre-phonologically: in the *morphology*.

The linearization process occurs roughly as follows. The syntax generates a structure that is shipped off to the morphology (4); there, its structure is read off linearly as indicated by the notation $a * b$, shown in (5) below. Q is lexically associated with a *proclitic feature* and therefore must appear to the left of the closest DP (5). The final step involves spellout of lexical items/allomorph selection: Q is spelled-out as *=du*, which is marked as *phonologically enclitic*, and leans on whatever element that appears to its *left*, as in (6).

(4) $[[_{CP}\ \text{WH}\ [_{TP}\ \text{V+T}\ [_{vP}\ \text{DP}_A\ [_{VP}\ \text{DP}_O\ ]]]]\ \mathbf{Q}]$

(5) $[[_{CP}\ \text{WH} * [_{TP}\ \text{V+T} * [_{vP}\ \text{DP}_A * [_{VP}\ \text{DP}_O *]]]]\ \mathbf{Q=}] \rightarrow$
$[[_{CP}\ \text{WH} * [_{TP}\ \text{V+T} * [_{vP}\ \text{DP}_A * [_{VP}\ \mathbf{Q=} * \text{DP}_O]]]]]$

(6) /WH/ ∗ /V+T/ ∗ /DP_A/ ∗ **/=du/** ∗ /DP_O/

In other words, *=du* shifts postsyntactically from its head-final position in the syntax to a position to the left of the final DP argument, from where it must encliticize phonologically

Q = question particle, REAS = reason subordinator, REL = relative, SG = singular, SX = subject extraction morpheme, T = T voice suffix, TR = transitive, VER = verum.

to an element to its left. This straightforwardly accounts for the argument and predicate placements of *=du* shown in (1) and (2), above. *Wh*-placement is also accounted for by the same mechanisms if we assume that in these cases, *=du* shifts in the morphology from its final position to procliticize to a DP which takes the form of a *headless relative clause*. We provide support for this analysis in the following sections.

The paper proceeds as follows. In Section 2, we provide a background to the two content question formation strategies in Sm'algyax. In Section 3, we outline the syntax of *=du*, showing that it is base generated in a high right peripheral postion. In Section 4, we turn to the phonology of *=du*, showing that it is phonologically an enclitic. Section 5 presents our morphological analysis of *=du* as a second-last position clitic. Section 6 outlines the theoretical implications of our analysis. Section 7 concludes.

2. Background: two kinds of *wh*-question in Tsimshianic

Following work on the closely related Interior Tsimshianic language Gitksan (Davis and Brown 2011, Davis and Nederveen 2021), we adopt the hypothesis that Sm'algyax has two question-formation strategies, characterized by "direct" versus "indirect" movement.[2]

Direct movement proceeds much as in English: a *wh*-expression undergoes Ā-movement to the left periphery of the clause. Indirect movement structures, on the other hand, feature a predicative *wh*-expression that is base generated in initial position and takes a DP as its argument (typically a headless relative clause; see Aonuki (to appear)).

Though the surface realization of direct and indirect movement is often identical, one construction in Sm'algyax unambiguously signals the indirect movement structure: content questions featuring the relative pronoun *gu*.[3] The examples below show that *gu* introduces relative clauses, both headed (7) and headless (8):

(7) 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.' *Headed relative clause*

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

Gu may also appear in *wh*-questions, as shown in (9) below.

[2] See Brown (2024) for an overview of extraction processes in Sm'algyax.

[3] *Gu* is probably historically a reduced form of the wh-expression *goo* 'what'; however, it is not synchronically a question word.

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

Indirect and direct movement structures are sketched below. We propose that a question like (9) has the structure in (11), with *gu* functioning as a relative pronoun.

(10) Direct movement:
$[_{CP}$ *wh* C $[_{TP}$ ... ___ ...]]

(11) Indirect movement:
$[_{TP}$ *wh* $[_{DP}$ *pro* $[_{CP}$ (*gu*) C $[_{TP}$ ... ___ ...]]]]

We now turn directly to the distribution of *=du*.

3. Syntax and phonology of *=du*

This section covers the syntactic distribution of *=du*, as well as its phonological behaviour. We propose that syntactically, *=du* heads a ForceP projection which takes a CP complement to its left. We then show that phonologically, *=du* is an enclitic. Finally, we point out that appealing to the phonology and syntax either alone or in combination cannot account for the three linear positions of *=du* in the clause (as in (1–3)).

3.1 *=Du* heads a ForceP projection

In terms of its syntax, *=du* is restricted to root-level content questions such as (12); it cannot occur in embedded questions such as (13):

(12) Naadu sibaasis Dzon?
naa**=du**=a si-baas-i[-t]=s Dzon ___
who**=Q**=CN CAUS-afraid-TR-3.II=PN John
'Who did John scare?' *Root question*

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

Non-interrogative *wh*-constructions such as exclamatives (14), free relative clauses (15) and *wh*-indefinite pronouns (16) likewise do not allow the appearance of *=du*.

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

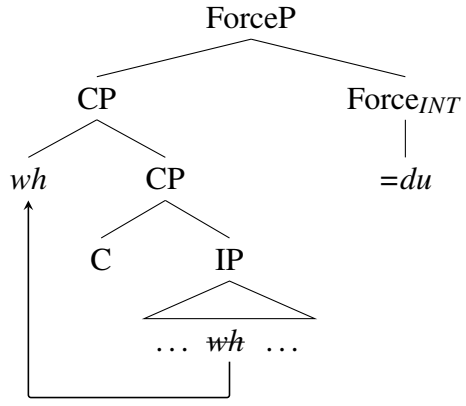
(15) Waayu naa dmt in dzaba ts'ikts'igu.
Waa-i-u=a [**naa(*=du)** dm=t in dzap[-t]=a ___ ts'ikts'ik-u]
find-TR-1SG.II=CN **who(*=Q)** PROSP=3.I AX do[-3.II]=CN car-1SG.II
'I found someone who will fix my car.'
Lit. 'I found who will fix my car.' *Wh-free relative*

(16) 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.' *Wh-indefinite*

Based on examples such as these, we conclude that *=du* is not a C-head, as otherwise we would expect it to occur in both root and embedded content questions.[4] For the same reason, as well as the fact that *=du* does not form a constituent with *wh*-expressions themselves, we also conclude that it not a Q-particle like Japanese *ka* or Tlingit *sá* (Beck 2006, Kratzer and Shimoyama 2002, Cable 2007, 2010, Kotek 2014, Uegaki 2018).

Given that *=du* is associated strictly with root-level content questions, we suggest it is base generated high in the clausal superstructure, heading a ForceP projection, and taking a CP complement. Based on the fact that interrogative clitics in every other Tsimshianic language categorically appear in the final-position of a root clause (Rigsby 1986 on Gitksan; Tarpent 1986 on Nisg̲a'a; Tarpent 1994 on Sgüüxs), and for reasons that will become clear in Section 4, we suggest that *=du* occupies the clausal *right* periphery:[5]

(17)



[4] *=Du* also freely co-occurs with complementizers such as *wil* when they occur in root questions (see example (1)).

[5] This example shows the ForceP head taking a content question complement formed via direct movement as its complement (see Section 2). As we will discuss in detail in subsequent sections, questions formed via indirect movement are also possible complements to Force.

Support for the high base-generation of *=du* comes from coordinated content questions, which commonly feature a single occurrence of *=du* in the first conjunct scoping over two interrogative CPs:[6]

(18) Ndeł nam wil 'waadu gwa'a adat naał nam wil gwin niidznt?
nde=ł na=m wil 'waa-t**=du**=a gwa'a ada=t naa=ł
where=IRR.CN PFV=2SG.I COMP find=3.II**=Q**=CN this and=PN who=IRR.CN
na=m wil gwin niidzn-t?
PFV=2SG.I COMP CAUS see-3.II
'Where did you find this and to whom have you showed this?' (Beynon 1932/1939:vol.2 no.41 pg. 7)

3.2 *=Du* is phonologically enclitic

In this subsection, we provide evidence from linear positioning, clitic clustering, and contextual allomorphy that shows that in terms of its phonology, *=du* is an enclitic.

The first piece of evidence is straightforward: *=du* never appears in initial position. This follows if *=du* is phonologically enclitic and must lean on some element to its left.

(19) *U/Yu/Dunaa liimit?
du=naa=a liimi-it?
Q=who=CN sing-SX
Intended: 'Who sang?'

Second, *=du* may be followed by other enclitic elements, such as the proper noun connective *=t*. By transitivity, if *=du* precedes an enclitic, it must itself be an enclitic. (N.B. Tsimshianic "connectives" are syntactically associated with a nominal to their right, but phonologically encliticize to an element to their left (Davis 2018:and references therein)):

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

Third, we find that *=du* exhibits contextual allomorphy effects that are conditioned by a host to its left. For example, when *=du* immediately follows a *wh*-word, it optionally surfaces as either [ju] or [du], as in (21) and (22) respectively.

(21) Naa**yu** baat?
naa**=du**=a baa-it
who**=Q**=CN run-SX
'Who ran?'

(22) Naa**du** baat?
naa**=du**=a baa-it
who**=Q**=CN run-SX
'Who ran?'

[6] Our analysis in Section 5 accounts for the positioning of *=du* in the first conjunct.

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

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

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

The ban on *=du* appearing in initial position, its ordering with respect to other clitics, and the contextual allomorphy conditioned by an element to its left, all point to the same conclusion: *=du* is phonologically an enclitic.

3.3 Interim conclusion

We have now shown that in terms of its syntax, *=du* only appears in root content questions, and is absent from embedded questions and incompatible with non-interrogative uses of *wh*-expressions. Based on this distribution, we suggest that *=du* heads a ForceP above CP and selects an interrogative CP complement. In terms of its phonology, we have shown that *=du* is an enclitic.

Observe that, given its clause-peripheral syntactic position and its status as phonological enclitic, we now predict *=du* to surface in clause-final position. However, this is not borne out: *=du* never occurs in final position:[7]

(24) *Naał sa oksgitdu?
naa=ł sa oksk-it**=du** __
who=IRR.CN down fall-SX**=Q**
Intended 'Who fell?'

Furthermore, no attempt to derive the surface positions of *=du* from its base position via syntactic movement is viable: such an operation would have to involve movement out of, or lowering into, syntactic islands — for example, the coordinate structure in (18). We conclude that the linear positions of *=du* cannot be derived solely by the syntax, the phonology, or any combination of the two.

4. Linearization of *=du*

Recall the three placements of *=du* shown in (1–3). We now show that all three can be reduced to a single penultimate position, meaning *=du* is a *second-last position clitic*. We account for its linear position by a lexically encoded, *morphological* proclitic feature: more specifically, *=du* must linearize to the left of the closest accessible DP.

[7]The interaction of syntax and phonology does account for the final position of interrogative clitics in every other Tsimshianic language (Rigsby 1986, Tarpent 1987, 1994).

4.1 Three placements of *=du*

We begin with argument placement, where *=du* linearizes to the left of an argument in O function in a WH-V-A-O configuration (phonologically encliticizing to A):[8]

(25) Dzindeł dmt dzapdit Meelidu ts'ikts'ik?
dzindeh=ł dm=t dzap-t=t Meeli**=du=a ts'ikts'ik**
IRR.when=IRR.CN PROSP=3.I make/fix-3.II=PN Mary**=Q=CN car**
'When will Mary fix the car?'

Argument placement is schematized in (26): Q (*=du*) is base generated in the right periphery, but must appear to the left of the closest accessible DP, since it bears a morphological proclitic feature.

(26) [WH V DP_A **DP_O Q**] ⟶ [WH V DP_A **Q DP_O**] *Argument placement*

Next we turn to predicate placement, where *=du* linearizes to the left of an argument DP in any of S, A, or O function (encliticizing to the inflected predicate):

(27) 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) *=du* precedes S

(28) 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?' *=du* precedes A

(29) 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?' *=du* precedes O

(30) Ndał mi wil giikdu ngwüda'atsn?
ndaa=ł mi wil giik-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?' *=du* precedes O

Just as with argument placement, Q shifts from its right-peripheral position to a clause-internal position to the left of the closest accessible DP.

[8] A = subject of a transitive, S = subject of an intransitive, O = object.

(31) [WH V **DP$_{A/S/O}$ Q**] ⟶ [WH V **Q DP$_{A/S/O}$**] *Predicate placement*

However, *wh*-placement presents an apparent problem for the generalization that *=du* always shifts to a position to the left of the closest accessible DP: while *=du* procliticizes to a DP in (32), it appears to procliticize to a *verb* in (33) and to a *complementizer-like element* in (34).

(32) Naadut Dzon?
naa**=du=t Dzon**
who**=Q=PN John**
'Who is John?'

(33) Naayu ksüüt?
naa**=du=a ksüü-it**
who**=Q=CN leave-SX**
'Who left?'

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

Our solution to this problem is as follows. *Wh*-placement always involves *indirect movement*: therefore *=du* is actually procliticizing to a DP (a relative clause) in these cases. Recall from Section 2 that indirect movement involves a base-generated *wh*-predicate followed by its DP argument, which usually takes the form of a headless relative clause. The (optional) appearance of the relative pronoun *gu* signals the indirect movement construction.

Support for the hypothesis that *wh*-placement involves indirect movement comes from the following generalization: all *wh*-questions with *wh*-placement optionally allow the relative pronoun *gu*, while *gu* may not appear in *wh*-questions with argument placement or predicate placement. The examples in (35) crucially show that only *wh*-placement is available for *=du* in questions containing *gu*.

(35) a. Naadu gu int yoyksa nooł?
naa**=du**=a **gu** in=t yoyks[-t]=a nooł
who**=Q**=CN **REL** AX=3.I wash[-3.II]=CN dish
'Who washed the dishes?'

b. *Naał gu int yoyksadu nooł?
naa=ł **gu** in=t yoyks-t**=du**=a nooł
who=IRR.CN **REL** AX=3.I wash-3.II**=Q**=CN dish

The object questions in (36) make the same point: without *gu*, *=du* can either attach to the *wh*-phrase (36a) or in penultimate position (36b), reflecting ambiguity between direct and indirect movement; however, with overt *gu* only indirect movement is possible, and therefore *=du* must attach to the *wh*-phrase (36c). Attempts to attach *=du* to the predicate in penultimate position are ungrammatical, as shown in (36d).

(36) a. Godu yoyksis Meeli?
goo**=du**=a yoyks-i[-t]=s Meeli
what**=Q**=CN wash-TR-3.II=PN Mary
b. Goł yoyksadut Meeli?
goo=ł yoyks-i-t**=du**=t Meeli
what=IRR.CN wash-TR-3.II**=Q**=PN Mary
c. Godu gu yoyksis Meeli?
goo**=du**=a **gu** yoyks-i[-t]=s Meeli
what**=Q**=CN **REL** wash-TR-3.II=PN Mary
'Who washed the dishes?'
d. *Goł gu yoyksadut Meeli?
goo=ł **gu** yoyks-i-t**=du**=t Meeli
what=IRR.CN **REL** wash-TR-3.II**=Q**=PN Mary

Crucially, we assume that DPs (including headless relative clauses) constitute spellout phases (Chomsky 2000, 2001) and therefore their internal structure is impenetrable to *=du* linearization.

We schematize *wh*-placement below; *=du* linearizes to the left of a DP/headless relative clause:

(37) [WH $\mathbf{DP_S}$ **Q**] $\longrightarrow$ [WH **Q** $\mathbf{DP_S}$] *Wh-placement*

4.2 What linearization is *not* sensitive to

An important component of our analysis is that linearization of *=du* is *only* sensitive to the syntactic category DP. It follows that it is *in*sensitive to all other elements of the clause, including prepredicative functional elements (38),[9] as well as adjuncts (39) and non-core arguments (40). Irrespective of this "extra" linguistic material, *=du* categorically appears to the left of the final DP argument.

(38) 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?'

(39) 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?'

[9] Except, of course, relative *gu*.

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

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

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

Not only is the bracketed CP unavailable for *=du* placement, but its own internal DP constituents are also unavailable. This indicates that CP is opaque for clitic placement, and therefore must constitute a phase according to our analysis.

To conclude this section, we have shown that the three linear positions occupied by *=du* (argument placement, predicate placement, and *wh*-placement) instantiate a single morphologically determined penultimate position, employing an analysis where *=du* procliticizes to the closest accessible DP (which, in the case of *wh*-placement, may be a headless relative clause).

(42) [WH V DP_A $\mathbf{DP_O}$ **Q**] ⟶ [WH V DP_A **Q** $\mathbf{DP_O}$] *Argument placement*

(43) [WH V $\mathbf{DP_{A/S/O}}$ **Q**] ⟶ [WH V **Q** $\mathbf{DP_{A/S/O}}$] *Predicate placement*

(44) [WH $\mathbf{DP_S}$ **Q**] ⟶ [WH **Q** $\mathbf{DP_S}$] *Wh-placement*

We have also shown that functional elements, adjuncts, and CP complements do not affect the placement of *=du*.

5. Theoretical implications

We have now established the following:

(i) In order to account for the distribution of *=du*, clitic placement must occur in a post-syntactic, pre-phonological component of the grammar: i.e., *the morphology*.

(ii) Morphological clitic placement is partially sensitive to syntactic information: in particular, *=du* only "sees" DPs, which means it is sensitive to (a) categorial information; (b) the distinction between heads and phrases.

(iii) However, clitic placement is *insensitive* to depth of embedding: *=du* always procliticizes to the *linearly* closest DP to its left, even when another DP is hierarchically closer.

(iv) The domain of morphological clitic placement is local, as defined by phases: only DPs within the same phase are accessible, while spelled-out phases (DPs and CPs) are impenetrable.[10]

Given these findings, we clearly need a model of the morphological component which provides a partial linearization of syntactic structure, relativized to the lexical properties of individual clitics.

5.1 Implementation

First of all, we adopt from Davis and Huijsmans (in press) and Huijsmans (2023) the idea that clitics come lexically equipped with linearization features. These specify:

(a) The direction of cliticization (pro- vs. en-cliticization)

(b) The category of the host: DP, in the case of *=du* (which may be further broken down into [+D, –head])

A lexical entry for *=du* will therefore look like that in (45), including both phonological (top) and morphological (bottom) features:

(45) Lexical entry for *=du*: $[\text{Q}] \leftrightarrow \left\{ \begin{array}{c} /\text{=du}/ \\ \_\_\text{=}[_{\text{DP}} \end{array} \right\}$

Second, we need a partially linearized syntactic representation as the input to the morphology. For present purposes, we modify the standard linearization operation of Marantz (1988) and Embick and Noyer (2001), which converts hierarchical structures such as (46) to linearized structures such as (47).[11]

(46) $[_{\text{XP}}\ \text{X}\ [_{\text{YP}}\ [_{\text{ZP}}\ \text{Z}\ ]\ \text{Y}]\ ]$ (47) $[\ \text{X} * [\ \text{Z} * \text{Y}\ ]\ ]$

However, crucially, we do not delete all hierarchical structure when linearization takes place. In particular, we keep structure intact in the current phase, as in (48):

(48) $[_{\text{XP}}\ \text{X} * [_{\text{YP}}\ [_{\text{ZP}}\ \text{Z}\ ]\ * \text{Y}\ ]\ ]$

We do, however, delete internal bracketing of completed phases, meaning they are automatically inaccessible for clitic placement, as desired. This means that at the first (morphological) stage of spell-out for the expanded CP phase containing *=du*, the following representations will act as input for clitic linearization for argument placement (50a), predicate placement (50b), and *wh*-placement (50c).

[10] We assume that clauses introduced by the subordinating conjunction element *ada* 'and', such as those in (18), also constitute a CP phase and are likewise impenetrable for *=du* linearization. As a result, *=du* occurs in the first (i.e. the matrix) conjunct.

[11] Recall that the notation $a * b$ indicates that a is left adjacent to b.

(49) a. [[$_{CP}$ WH ∗ [$_{TP}$ V+T ∗ [$_{vP}$ DP_A ∗ [$_{VP}$ **DP_O** ∗]]]] **Q=**]
b. [[$_{CP}$ WH ∗ [$_{TP}$ V+T ∗ [$_{vP}$ **$DP_{A/S/O}$** ∗]]] **Q=**]
c. [[[$_{TP}$ WH_{PRED}+T ∗ [$_{vP}$ **DP_S** ∗]]] **Q=**]

As required, *=du* will pick out the rightmost DP, leading to the intermediate representations in (50):

(50) a. [[$_{CP}$ WH ∗ [$_{TP}$ V+T ∗ [$_{vP}$ DP_A ∗ [$_{VP}$ **Q=** ∗ **DP_O**]]]]]
b. [[$_{CP}$ WH ∗ [$_{TP}$ V+T ∗ [$_{vP}$ **Q=** ∗ **$DP_{A/S/O}$**]]]]
c. [[[$_{TP}$ WH_{PRED}+T ∗ [$_{vP}$ **Q=** ∗ **DP_S**]]]]

At the second stage of spell-out, we assume bracket erasure as input to the phonological component, as in (51):

(51) a. /WH/ ∗ /V+T/ ∗ **/DP_A/** ∗ **/=du/** ∗ /DP_O/ — WH V **A=du** DP_O
b. /WH/ ∗ **/V+T/** ∗ **/=du/** ∗ /$DP_{S/A/O}$/ — WH **V=du** $DP_{A/S/O}$
c. **/WH_{PRED}+T/** ∗ **/=du/** ∗ /DP_S/ — **WH=du** DP_S

6. Conclusion

Sm'algyax has a second-last position clitic, the Q-marker *=du*. Its position in the clause cannot be handled by the syntax, phonology, or a combination of the two. Its behaviour provides evidence for a two-step spell out process, in which the first step involves morphological linearization. Linearization can be handled via a phase based analysis, which allows the clitic to attach only to DP constituents in its phasal complement.

References

Aonuki, Yurika. to appear. Free relatives in Gitksan. In *Proceedings of Semantics of Under-Represented Languages in the Americas (SULA) 11*. GLSA Amherst.

Beck, Sigrid. 2006. Intervention effects follow from focus interpretations. *Natural Language Semantics* 14:1–56.

Beynon, William. 1932/1939. *Tsimshian texts*. Special Collections, Columbia University Archives, New York.

Billings, Loren A. 2002. Phrasal clitics. *Journal of Slavic Linguistics* 10:53–104.

Brown, Colin. 2024. Questions and their relatives in Sm'algyax. *International Journal of American Linguistics* 90:277–326.

Cable, Seth. 2007. The grammar of Q: Q-particles and the nature of Wh-Fronting, as Revealed by the Wh-Questions of Tlingit. Doctoral dissertation, MIT, Cambridge, MA.

Cable, Seth. 2010. Against the existence of pied-piping: Evidence from Tlingit. *Linguistic Inquiry* 41:563–594.

Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on Minimalist syntax in honour of Howard Lasnik*. Cambridge: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, 1–52. MIT Press.

Cysouw, Michael. 2005. Morphology in the wrong place. A survey of preposed enclitics. In *Morphology and its demarcations*, ed. by Wolfgang U. Dressler, 17–37. Amsterdam: Benjamins.

Davis, Henry. 2018. Only connect! Determiners, case and agreement in Tsimshianic. *International Journal of American Linguistics* 84:471–511.

Davis, Henry, and Jason Brown. 2011. On A'-dependencies in Gitksan. In *Papers for the 46th International Conference on Salish and Neighbouring Languages*, 43–80. UBC Working Papers in Linguistics.

Davis, Henry, and Marianne Huijsmans. in press. Clitics and coordination in two Salish languages. In *Proceedings of the 39th west coast conference on formal linguistics*. Cascadilla Proceedings Project.

Davis, Henry, and Sander Nederveen. 2021. Hli, focus and relativization in Gitksan. In *Papers for the 56th International Conference on Salish and Neighbouring Languages*, ed. by D. K. E. Reisinger, Hannah Green, Laura Griffin, Marianne Huijsmans, Gloria Mellesmoen, and Bailey Trotter., 1–32. UBC Working Papers in Linguistics.

Dunn, John Asher. 1978. *A practical dictionary of the Coast Tsimshian language*. Ottawa, ON: Canadian Ethnology Service paper 42.

Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.

Huijsmans, Marianne. 2023. Second-position clitics, from morphosyntax to semantics: the ʔayʔaǰuθm (Comox-Sliammon) perspective. Doctoral dissertation, University of British Columbia.

Klavans, Judith L. 1985. The independence of syntax and phonology in cliticization. *Language* 61:95–120.

Kotek, Hadas. 2014. Composing questions. Doctoral dissertation, MIT, Cambridge, MA.

Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate pronouns: The view from Japanese. In *The 3rd Tokyo Conference on Psycholinguistics*, ed. by Yukio Otsu, 1–25. Tokyo: Hituzi Syobo.

Marantz, Alec. 1988. Clitics, morphological merger, and the mapping to phonological structure. In *Theoretical morphology*, 253–270. Leiden, The Netherlands: Brill.

Rigsby, Bruce. 1986. Gitxsan grammar. Ms. University of Queensland.

Sasama, Fumiko. 2001. A descriptive study of the Coast Tsimshian morphology. Doctoral dissertation, Kyoto University.

SLLTD. 2017. Sm'algyax living legacy talking dictionary. `https://www.webonary.org/smalgyax/`.

Tarpent, Marie-Lucie. 1986. Nisgha possessives. In *Papers for the International Conference on Salish and Neighbouring Languages 21*, 18–34.

Tarpent, Marie-Lucie. 1987. A grammar of the Nisgha language. Doctoral dissertation, University of Victoria.

Tarpent, Marie-Lucie. 1994. Between realis and irrealis, Tsimshianic negation and the status of the morpheme =L. Paper given at the AAA/CAIL meeting, Atlanta, Ga.

Uegaki, Wataru. 2018. A unified semantics for the Japanese Q-particle ka in indefinites, questions and disjunctions. *Glossa: a journal of general linguistics* 3(1): 14:1–45.

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