

# Quantifier Particle Environments\*

Benjamin Slade

*University of Utah*

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## Abstract

I examine the set of environments in which KA-type quantifier particles appear crosslinguistically. These environments include interrogatives, disjunctions, indefinites, all of which arguably involve elements with Hamblin-type ‘alternative’ semantic values. I show that if KA-particles are assigned a uniform denotation as variables over choice functions we can account for their appearance in what otherwise appears to be a set of heterogeneous environments. Crosslinguistic and diachronic variation in the distribution of Q-particles – including, in some cases, the appearance of multiple morphologically-distinct Q-particles in different contexts – can be handled largely in terms of differing formal morphosyntactic features and/or pragmatic components of specific KA-particles. This study focuses on tracking the evolution of KA-type particles in the history of Sinhala, with comparison to other languages of the Indian subcontinent (including Malayalam and Tamil) as well as to Japanese, Tlingit, and English.

**Keywords**— quantifier particles, interrogatives, indefinites, disjunction, wh-words, choice functions, semantics, morphosyntax, Sinhala

## 1 Overview

Crosslinguistically, there is a curious pattern in which a certain class of particles appear in a particular set of syntactic environments – to wit, indefinites, interrogatives, disjunctions (and, in some languages, relative-correlatives) – which are syntactically disparate but which can be considered semantically coherent in that they involve some sort of set union (of a Hamblin variety) or lattice-theoretic join of alternatives. Following Szabolcsi (2013, 2015), I use KA as the generic gloss for this category of elements, based on the phonological form this particle often takes in Japanese, as in (1)–(3).

- (1) a. *gakkoo-ni ik-imas-u ka?*  
school-to go-POL-PRES **ka**  
‘(Are you) going to school?’ (Yoshida & Yoshida 1996)
- b. *John-ga nani-o kaimasita ka?*  
John-NOM what-ACC bought.POL **ka**  
‘What did John buy?’ (Hagstrom 1998: 15)
- (2) *dare-ka-ga hon-o katta.*  
who-**ka**-NOM book-ACC bought.  
‘Someone bought books.’ (Kuroda 1965: 97)
- (3) *John-ka Bill-ka-ga hon-o katta.*  
John-**ka** Bill-**ka**-NOM book-ACC bought.  
‘John or Bill bought books.’ (Kuroda 1965: 85)

Similar, though perhaps not as crosslinguistically robust, is the use of a certain morpheme in the formation of universals, conjunctions, and “even”/“too”/“also” phrases. Again, following Szabolcsi (2013, 2015), I will use MO as the generic gloss for this morpheme, again after the prototypical shape of this particle in

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Japanese, as in (4)–(5). MO can be seen to be somehow involved in set intersection or lattice-theoretic meet of alternatives, functioning as a sort of counterpart of KA.

- (4) a. *John-ga hon-mo zassi-mo katta.*  
 John-NOM book-**mo** magazine-**mo** bought.  
 “John bought both books and magazines.”
- b. *John-ga hon-o kai-mo-si, zassi-o kai-mo sita.*  
 John-NOM book-ACC buy-**mo**-do, magazine-ACC buy-**mo** did.  
 “John bought books and John bought magazines.” (Kuroda 1965: 77–8)
- (5) a. *dare-mo-ga kita.*  
 who-**mo**-NOM came.  
 “Everyone came.” (Kawashima 1994: 147)
- b. *dare-mo hon-o kaw-anakat-ta.*  
 who-**mo** book-ACC bought-NEG.  
 “No-one bought books.” (Kuroda 1965: 94)

The behaviour and distribution of such particles has been a subject of substantial recent interest, being a primary focus of research with representative works including Hagstrom (1998), Jayaseelan (2001, 2008, 2016), Kratzer & Shimoyama (2002), Szabolcsi (2010, 2013, 2015), Slade (2011), Mitrović (2014b), Uegaki (2018), amongst others.

Sinhala (an Indo-Aryan language of Sri Lanka) exhibits a pattern of use of KA-type particles similar to that of Japanese, as do various Dravidian languages (spoken primarily in southern India) including Malayalam, Tamil, and Telugu (Slade 2011, Slade 2018); not dissimilar patterns are found in Tlingit (Cable 2007, 2010), a Na-Dene language spoken in northwestern North America; in Slavic languages and Hungarian (Szabolcsi et al. 2012; Szabolcsi 2013, 2015; Mitrović 2014b), amongst other languages. Thus KA-type particles do not appear to be confined to any particular language families or geographic areas.

Morphemes paralleling Japanese *mo* are similarly found in Sinhala and various Dravidian languages, as well as Hungarian and Russian.<sup>1</sup> The KA-type particle has been referred to in earlier literature as a Question-particle (Baker 1968, 1970; Hagstrom 1998; Cable 2007, 2010; Slade 2011); following Szabolcsi (2015) I will refer to the KA and MO elements together as quantifier particles (or quantifier morphemes), in order to reflect the fact that their distribution includes many non-question environments. The abbreviated form, Q-particle, can be seen as a happy (or at least underspecified) compromise.

Various interesting concerns arise for the analysis of KA and MO. Szabolcsi (2013, 2015) points to one of these: how should KA and MO be analysed? That is, do they bear semantic meanings which are immediately involved in the derivation of questions, indefinites, interrogatives, disjunctions, universals, conjunctions, etc.? Or are they meaningless morphosyntactic elements which do not actually contribute to the semantic derivation? Or are they meaningful, but not immediate contributors to the semantic derivation, but rather act as a sort of pointers to elements which are part of the derivation (that is, KA and MO carry something like a pre- or post-supposition)?

Another relevant concern is one explored in Slade (2011): namely how to account for the details of the variation we find in the distribution of KA and (to a lesser extent) MO in particular languages. That is, for instance, why can Japanese KA appear uniformly across syntactic environments as *ka*, while Tlingit KA takes on a different form in wh-questions and wh-indefinites than it does in yes/no-questions and disjunctions?

Observing the details of the behaviour of full range of constructions involving KA or MO raises numerous other interesting issues. One such is the fact that, crosslinguistically, indefinites formed with KA have, at the very least, a strong tendency to be **epistemic** indefinites. The status of KA-indefinites as epistemic is further complicated by the fact that the precise felicity conditions involved vary – even language-internally in the case of Sinhala, in which *də*-indefinites and *hari*-indefinites are both attested – and carry different signals with respect to precisely what sort of knowledge is lacking.

In this paper, I focus primarily on KA, with only very limited remarks on MO. My goal is to provide a overall sketch for at least a subset of the languages in which KA plays a prominent role, both in terms

<sup>1</sup>Patterns for MO-type particles are seemingly more complex and less consistent.

of highlighting the striking similarities across languages and also in paying attention to those differences which are found.

After examining the behaviour of Q-particles in a selection of languages, I provide an account of the distribution of these elements which relies on both formal semantic analysis and a syntactic analysis couched in terms of feature valuation.

Section 2 provides an overview of Q-particle constructions from a variety of languages, including various stages of Sinhala (Section 2.1) and Dravidian (Section 2.2), Japanese (Section 2.3), Tlingit (2.4), and English (Section 2.5). Sections 3 and 4 provide the semantic side of the analysis, focusing on interrogatives (Section 3) and disjunctions (Section 4). Section 5 provides the syntactic component of the account. Section 6 consists of some discussion of crosslinguistic variation in the morphosyntax and semantics/pragmatics of Q-particles and Q-particle-related constructions. In Section 7, I discuss select previous accounts of Q-particles. A conclusion follows in Section 8.

## 2 Language Overview - Examples

### 2.1 Sinhala

#### 2.1.1 Modern Colloquial Sinhala

In modern colloquial Sinhala<sup>2</sup> we observe a contrast between A-verbal forms (6) and E-verbal forms (7), with the former being “neutral” and the latter occurring (roughly speaking) when a focused element appears in their c-command domain. Wh-words in constituent questions are focused and thus E-verbal forms appear in such contexts, (7). Additionally, Sinhala wh-words in questions are accompanied by an obligatory particle *də*. In general, focused elements have a preference for being dislocated to postverbal/clause-final position, and wh-constituents are no exception, (8).

- (6) *Chitra potə gatta*  
Chitra book bought-A  
‘Chitra bought the book.’
- (7) *Chitra monəwa də gatte?*  
Chitra what *də* bought-E  
‘What did Chitra buy?’
- (8) *Chitra gatte monəwa də?*  
Chitra bought-E what *də*  
‘What did Chitra buy?’

Wh-words in Sinhala are also employed in the formation of a particular type of indefinite (i.e. epistemic indefinite); when used with this function, the element is unfocused and thus the verb appears in the A-form (9-a) in contrast to the interrogative formation in (9-b).

- (9) a. *mokak də wəṭuna.*  
what *də* fell-A  
‘Something (unidentified) fell.’ (Gair & Sumangala 1991)
- b. *mokak də wəṭune?*  
what *də* fell-E  
‘What fell?’ (Hagstrom 1998)

Sinhala wh-indefinites are obligatorily accompanied either by the particle *də* or else by the particle *hari*:

<sup>2</sup>Modern Sinhala exhibits diglossia (see Gair 1968[1998], Gair 1986[1998](a), Gair 1992, Paolillo 1992), with the literary variety representing in many respects a historically prior form to the colloquial variety. The two forms differ in many respects, some of which will be discussed herein. One striking difference is the presence of overt subject-verb agreement morphology in the literary variety as opposed to the complete lack of such morphology in the colloquial variety.

- (10) a. *Kau dā ē potā kieuwa*  
 who *dā* that book read.PAST.A  
 “Someone read that book.”  
 b. *Kauru hari ē potā kieuwa*  
 who *hari* that book read.PAST.A  
 “Someone read that book.”

These two epistemic indefinites, distinguished by choice of particle, have semantic/pragmatic differences as well, which are not entirely clear and in any case involve issues I prefer to avoid here (see Slade (2011, 2015) for more discussion of the semantics/pragmatics of Sinhala epistemic indefinites).

The E-verbal form behaves as a type of “scope marker”, indicating which clause the wh-word takes scope over:

- (11) a. *Ranjit [ [ [ kau dā ] aawa ] kiyāla ] danne?*  
 Ranjit [ [ [ who *dā* ] come.PAST.A ] that ] know.PRES.E  
 ‘Who does Ranjit know came?’  
 b. *Ranjit [ [ [ kau dā ] aawe ] kiyāla ] dannāwa.*  
 Ranjit [ [ [ who *dā* ] come.PAST.E ] that ] know.PRES.A  
 ‘Ranjit knows who came.’

Complex Noun Phrases [CNPs] are islands for movement (overt or covert) and other scope-taking mechanisms, thus (12) is ungrammatical.

- (12) \**Chitra [ [ [ [ Ranjit [ monāwa ] dā gatta ] kiānā ] kaṭākataawā ] āhuwe ?*  
 Chitra [ [ [ [ Ranjit [ what ] *dā* bought-A ] that ] rumour ] heard-E  
 ‘What<sub>i</sub> did Chitra hear the rumour that Ranjit bought t<sub>i</sub>?’

In such configurations, the appearance of the particle *dā* outside of the outermost island (rather than immediately following its associated wh-word, as usual) renders the sentence grammatical:

- (13) *Chitra [ [ [ [ Ranjit monāwa gatta ] kiānā ] kaṭākataawā ] dā āhuwe ?*  
 Chitra [ [ [ [ Ranjit what bought-A ] that ] rumour ] *dā* heard-E  
 ‘What<sub>i</sub> did Chitra hear the rumour that Ranjit bought t<sub>i</sub>?’

That the complex NP in (12) is indeed an island is demonstrated by the fact that overt extraction out of Complex Noun Phrases [CNPs] is also ungrammatical, no matter whether the extracted element is a wh-word (14), (15) or not (16) – regardless of the placement of *dā*.

- (14) \**Chitra [ [ [ [ Ranjit t<sub>i</sub> ] dā gatta ] kiānā ] kaṭākataawā ] āhuwe monāwa<sub>i</sub> ?*  
 Chitra [ [ [ [ Ranjit t<sub>i</sub> ] *dā* bought-A ] that ] rumour ] heard-E what<sub>i</sub> ?  
 ‘What<sub>i</sub> did Chitra hear the rumour that Ranjit bought t<sub>i</sub>?’  
 (15) \**Chitra [ [ [ [ Ranjit t<sub>i</sub> gatta ] kiānā ] kaṭākataawā ] āhuwe monāwa<sub>i</sub> dā ?*  
 Chitra [ [ [ [ Ranjit t<sub>i</sub> bought-A ] that ] rumour ] heard-E what<sub>i</sub> *dā* ?  
 ‘What<sub>i</sub> did Chitra hear the rumour that Ranjit bought t<sub>i</sub>?’  
 (16) \**Chitra [ [ [ [ Ranjit t<sub>i</sub> gatta ] kiānā ] kaṭākataawā ] āhuwe ee potā<sub>i</sub>.*  
 Chitra [ [ [ [ Ranjit t<sub>i</sub> bought-A ] that ] rumour ] heard-E that book  
 ‘It was that book<sub>i</sub> which Chitra heard the rumour that Ranjit bought t<sub>i</sub>?’

The particle *dā* also appears in yes/no-questions in Sinhala:

- (17) *Chitra ē potā kieuwa dā?*  
 Chitra that book read-A *dā*  
 ‘Did Chitra read that book?’ (Kishimoto 2005: 11)

The particle *də* may also appear after a constituent smaller than IP – in which case it marks that constituent as focused (18), and, as expected, the verb appears in the *-e* form.

- (18) *Chitra ē potə də kieuwe?*  
 Chitra that book **də** read-E  
 ‘Was it that book which Chitra read?’ (*Ibid.*)

And *də* appears in the formation of alternative questions:

- (19) *Gunāpālə də Chitra də gaməṭə giyē?*  
 Gunapala **də** Chitra **də** village.DAT go.PAST.E  
 ‘Was it Gunapala or Chitra who went to the village?’
- (20) \**Gunāpālə də Chitra də gaməṭə giyā.*  
 Gunapala **də** Chitra **də** village.DAT go.PAST.A  
 ‘Gunapala or Chitra went to the village.’

In addition to *də* we also find two other particles which are used in the formation of both indefinites and disjunctions: *hari* (mentioned earlier) and *vat*. The particle *də* is used to form interrogative disjunctions, but cannot be used in declarative disjunctions as shown in (20), where we instead find the particle *hari* in affirmative contexts, and *vat* in negative contexts.

- (21) *Gunāpālə hari Chitra hari gaməṭə giyā.*  
 Gunapala **hari** Chitra **hari** village.DAT go.PAST.A  
 ‘Gunapala or Chitra went to the village.’
- (22) *Gunāpālə vat Chitra vat gaməṭə giyē nē*  
 Gunapala **vat** Chitra **vat** village.DAT go.PAST.E NEG  
 ‘Neither Gunapala nor Chitra went to the village.’

### 2.1.2 Modern Literary Sinhala

In Modern Literary Sinhala, much of the same pattern holds as in the Colloquial form.

Wh-questions (and focus constructions more generally) exhibit certain differences, all concerning subject-verb agreement and case assignment. That is, in “neutral” sentences like (23), usually the subject controls agreement on the verb (although different patterns arise in the case of dative subjects, as in (25)). In wh-questions (and, again, other focus constructions), if the subject is nominative, it is demoted to accusative and the verb appears with default third singular agreement in any case, see (24) and (26). Note also that the third singular agreement clitic *ya*, if present, disappears (cp. (25) with (26)).

- (23) *mama ema pota kiyevuvemi*  
 I.NOM that book read.PAST.1SG  
 ‘I read that book.’
- (24) *mā kiyevuvē kumak da?*  
 I.ACC read.PAST.FOC what **da**  
 ‘What did I read?’
- (25) *maṭə ema minissu penunōya*  
 I.DAT those men.NOM see.PAST.3SG  
 ‘I saw those men.’
- (26) *maṭə penunē kau da?*  
 I.DAT see.PAST.FOC who.NOM **da**  
 ‘Who did I see?’

The other notable difference between Literary and Colloquial with respect to wh-questions (in fact, again, a feature common to focus constructions in this variety) is that the wh-word (or other focused element) obligatorily right-dislocates (whereas this is an optional operation in the Colloquial variety; see further Slade (2018)).

Disjunction behaves in the same fashion as in Colloquial, except that the non-interrogative particle employed is *hō* rather than *hari* (interrogative disjunction/alternative questions behave as in the Colloquial).<sup>3</sup>

- (27) *rahul hō amin hō gamaṭa giyāya*  
 Rahul *hō* Amin *hō* village.DAT go.PAST.3SG  
 “Rahul or Amin went to the village.”

The formation of indefinites is similar to Colloquial – again, as for disjunctions, *hari* does not appear, but rather *hō* as in (28) – except that *da* **cannot** participate in the formation of indefinites (that appears to be a Colloquial development).

- (28) *kaluvarē kaurun hō mā ælluvēya*  
 darkness-in who *hō* I.ACC touch.PAST.MASC.3SG  
 “Someone (unknown) touched me in the darkness.”

Alongside of the prenominal modifying type of relative found in Colloquial Sinhala, Literary Sinhala also preserves an earlier type: the relative-correlative construction (Slade 2013). This construction employs *yam* as the relative pronoun (potentially modifying a noun, as in (29)), with either the Q-particle *da* or the conditional particle *nam* “closing” the relative clause. The correlative clause must contain a pronominal element co-referential with the relative element of the relative clause. Such relative constructions seem to – at least typically – have a generalising sense, i.e. to be of the type “whoever speaks thus is a fool”.<sup>4</sup> Example (29) is representative.

- (29) *[yam kumariyak oḥu duṭuvā] RC da/nam [ō oḥu kerehi]*  
 [REL-PRON princess.INDEF him see.PAST.3SG.FEM] RC *da/nam* [she him towards  
*pīliṇḍa sit ætikara gattāya] CC*  
 connected mind developed get.PAST.3SG.FEM] CC  
 “**Whatever** princess saw him fell in love with him.” (cited from Gair & Karunatilaka 1974: 295)

### 2.1.3 Classical Sinhala

Classical Sinhala (ca. 12<sup>th</sup>–15<sup>th</sup> c. A.D.), largely consisting of translations of and commentary on Pāli Buddhist texts, closely resembles Modern Literary Sinhala with respect to the constructions studied in this article. It differs from the Modern Literary variety in the non-obligatoriness of several features – dislocation of focused elements is frequent but non-obligatory, and *da* is at least somewhat optional in many of the contexts in which it appears.

Yes/no-questions usually include *da*, as in example (30).

<sup>3</sup>Gair & Karunatilaka (1974: 45) say : “[*hō*] is the Literary form ‘or’. Like Colloquial [*hari*] ... [*hari*] (C.S. 22,12) it may be repeated after each form to which it pertains”:

- (i) *gurucarayā hō śiṣyā hō*  
 teacher *hō* student *hō*  
 “either the teacher or the student”

“However, unlike [*hari*], the last [*hō*] in the series may be omitted.” (*Ibid.*)

- (ii) *gurucarayā hō śiṣyā*  
 teacher *hō* student  
 “either the teacher or the student”

<sup>4</sup>I suspect that they may not always have this generalising sense, but have not found unambiguous examples of other interpretations.

- (30) *To me suta Budun desannā āsūhu da?*  
 2SG-PRN this sermon Buddha preach.PRES.PTCP.NOM hear.PAST.2SG **da**  
 “Did you hear the Buddha preaching this sermon?” [12<sup>th</sup> c., *Amāvatura* 228, cited from Wijemanne 1984: 71]

While in wh-questions, *da* is common but clearly non-obligatory, cp. (31), (32) with (33), (34):

- (31) *Kotaṭa giyeḥi?*  
 where.DAT go.PAST.2SG  
 “Where did you go?” [12<sup>th</sup> c., *Amāvatura* 136]
- (32) *Mohu koyāṭa yeti?*  
 these (people) where.DAT go.PRES.3SG  
 “Where are these people going?” [12<sup>th</sup> c., *Amāvatura* 189]
- (33) *Dæn pævijī væ kumaṭa kiyaṃ da?*  
 now ordained been what.DAT say.PRES.1SG **da**  
 “Now that I am a monk, why would I say it?” [12<sup>th</sup> c., *Amāvatura* 76]
- (34) *Mese da vaḍane kumaṭa dæ yi kīha.*  
 thus also go.PRES.PTCP.NOM what.DAT **da** QUOT say.PAST.3PL  
 “‘Why do you go thus?’ they asked.” [12<sup>th</sup> c., *Amāvatura* 145]

In alternative questions, *da* appears in be obligatory, as in modern Sinhala:

- (35) *mā ... nuvaṭahu arabhayā kī dæ nīpan da no nīpan da?*  
 my ... religious mendicant about said things QUOT born **da** NEG born **da**?  
 “Did my predictions regarding the religious mendicant prove correct or did they not?” (12<sup>th</sup> c., *Amāvatura* 178) (Wijemanne 1984: 75)

As in Modern Literary Sinhala, Classical Sinhala uses *hō* in non-interrogative disjunctions:

- (36) *yuvaraja-væ siṭiyavun hō ... rāja-kumāra-varun hō ... bisōvarun hō*  
 heir-apparent **hō** ... princes **hō** ... queen **hō**  
 “Either the heir-apparent ... or the princes ... or the queen” (12<sup>th</sup> c. inscription; Wickremasinghe et al. 1912–1933: ii.161B<sup>5-7</sup>)

Classical Sinhala differs from both Modern varieties in not employing either *hō* (*~hari*) or *da* in the formation of wh-based indefinites.

Like Modern Literary Sinhala, Classical Sinhala can form relative-correlative constructions, and, again as in the Modern Literary variety, these always employ either *da* or *nam* as the “closing” particle of their relative clauses (Slade 2013). These *yam... da/nam* relatives tend to have the free relative generalising sense typical of such constructions in modern literary Sinhala (see examples like (29) above), as in example (37).

- (37) *[ yamak’hu paḷamu diṭṭim ]<sub>RC</sub> da [ oḥu marā gaṇan ]<sub>CC</sub>*  
 [ **REL-PRON**.MSC.SG.ACC firstly see.1SG ]<sub>RC</sub> **da** [ him kill.CONV number complete.PRES.1SG ]<sub>CC</sub>  
 “**Whichever person** I see first, I shall kill him and complete the number.” (12<sup>th</sup> c., *Amāvatura* 133, cited from Wijemanne 1984: 210)

This is apparently not always the case, as evidenced by examples such as (38), where the relative appears to refer to a specific individual.

- (38) / *mam yamak'hu-ge savuyem* /<sub>RC</sub> *da* / *ohu-ge guṇa asava* /<sub>CC</sub>  
 [ I REL-PRON.SG.GEN follow(?) ]<sub>RC</sub> *da* [ his virtues listen.IMP ]<sub>CC</sub>  
 “Listen to the virtues of the **person whose** follower I am.” (12<sup>th</sup> c., *Amāvatura* 93, cited from Wijemanne 1984: 210)

However, instead of *da*, we also find – in both Classical Sinhala and modern literary Sinhala – relatives formed with the conditional particle *nam* in place of the Q-particle *da*. The modern literary Sinhala example in (29) may have its *da* replaced by *nam* without change in meaning. An example of a *nam*-type relative from Classical Sinhala appears below in (39).

- (39) / *yam gihi minisek ovun-ge vāda mañḍanaṭa nisi*  
 [ REL-PRON householder person.INDEF their talks trample.INF.DAT suitable  
*vī* /<sub>RC</sub> *nam* / *ohaṭa pādapariṇāṭikā veti* /<sub>CC</sub>  
 be.PAST.3SG ]<sub>RC</sub> COND.PTCP [ him.MASC.DAT wed.PRES.3SG ]<sub>CC</sub>  
 “They become the wives of **any layman who** may be able to refute their arguments.” (12<sup>th</sup> c., *Amāvatura* 150, cited from Wijemanne 1984: 212)

Wijemanne (1984: 212) remarks that in Classical Sinhala “[a]lmost all the relative constructions in the *Amāvatura* [the text from which her examples are drawn–BMS] are exact renderings of Pali relative constructions”. As noted in the following section, relative-correlatives are vanishingly rare in the next prior stage of Sinhala (Old Sinhala), and where found, never occur with *da* as a closing particle – so this use of *da* seems to be a Classical development.

#### 2.1.4 Old Sinhala

In Old Sinhala (represented here by the graffiti texts of the Mirror Wall at Sihigiri, ca. 8<sup>th</sup>–10<sup>th</sup> c. A.D.), the distribution of *da* is similar to that of Classical Sinhala, though variation in the presence/absence of *da* is greater.

In Old Sinhala, *da* is found occasionally in *wh*-questions – in contrast to its obligatory appearance in this syntactic environment in the modern forms of the language. Examples (40)–(42) provide examples of *da*-less Old Sinhala *wh*-questions; examples (43)–(46) provide representative examples of Old Sinhala *wh*-questions including *da*.

- (40) *Digæṣni kum koṭ sahaṇṇemi?*  
 long-eyed.VOC what do.CONV endure.PRES.1SG  
 “O long-eyed one, what may I do to sustain myself?” (lit. “having done what, shall I bear myself up?”) [*Sigiri Graffiti* 123]
- (41) *No balaya yanne kese?*  
 not look.CONV go.PAST.PTCP.NOM how  
 “How does one go away without looking?” [*Sigiri Graffiti* 261]
- (42) *Sav-abaranin saji giri-hisa siṭṭhi kumaṭa?*  
 all-ornaments.INSTR adorned mountain-summit.LOC be.PRES.2SG what.DAT  
 “Why do you, being adorned with all ornaments, stand on the summit of the mountain?” [*Sigiri Graffiti* 3]
- (43) *Sihin pīli hann aga neḷi-pala vann liya tana kiya valā se pæneya*  
 fine cloth clad limb coconut like maiden breast say.IMPV cloud like appear.OPT?<sup>5</sup>  
*ke da?*  
 what *da*  
 “Of that maiden whose limbs are draped with fine-textured garments, her breasts are like coconuts; say, what appears like the clouds?” (A: Her hair.) [*Sigiri Graffiti* 379]

<sup>5</sup>See Paranavitana (1956: §500d) on this form.



- (44) *Ayuyun hay tī kaḷa kima da?*  
 come.PAST.PTCP.GEN.PL with you.GEN do.PAST what **da**  
 “What has been done by you with those who came here?” [Sigiri Graffiti 384]
- (45) *Kum vi da?*  
 What be.PAST.3SG **da**  
 “What happened?” [Sigiri Graffiti 490]
- (46) *Ko ja (=da)<sup>6</sup> giye himiya yi balam siṭiyuyun*  
 where **da** go.PAST.PTCP.NOM lord COMP looking be.PRES.PTCP.PL.OBL  
*vanno?*  
 seem.NOM.PL  
 “They seem as if they stood (there) looking backwards (wondering) ‘Where has their lord gone?’” [Sigiri Graffiti 109]

In Old Sinhala, *da* is extremely frequent in yes/no questions, as in examples like (48) – being found in this environment much more frequently than it is in *wh*-questions. Where *da* is absent in yes/no questions, these often contain matrix negation *no*; however, even non-negative questions do not obligatorily require *da*, as evidenced by examples like (47).

- (47) *Minisek vemī?*  
 man.INDEF be.PRES.1SG  
 “Am I a man?” [Sigiri Graffiti 240]
- (48) *Damak kaṇḍā hāt nigæḷi pat mahanel*  
 chain.INDEF break.PAST elephant fetter.PAST.PTCP.NOM petal blue water-lily  
*kaṇḍanne da?*  
 break.PRES.PTCP.NOM **da**  
 “Does the elephant, having broken a chain (by which it is) fettered, break (then) the petals of the water-lily?” [Sigiri Graffiti 39]

A rough count shows *da* occurring in approximately half of all yes/no-questions (and approximately two thirds of non-negative yes/no questions), but in only about a quarter of *wh*-questions.

Disjunctions in the Sigiri graffiti seem not to be forthcoming, excepting in one fragmentary graffiti:<sup>7</sup>

<sup>6</sup> *Ja* here appears to be a back-spelling for *da* (see Gair 1986[1998](b): 166). In Sinhala, earlier intervocalic *c* became voiced to *j*, subsequently merging with *d* – this also appears to have affected initial *c* in enclitics, e.g. *-uj*, *-uḷ*, *-ud*, *-udu*, *ut* “and” < *-ca*, *-ica* < Skt. *ca* “and” (see Geiger 1941).

<sup>7</sup> Given the etymology of *da/dā*, it is surely an unfortunate gap in the data that we do not find an example of it in an interrogative disjunction in Old Sinhala.

The Sinhala particle *da/dā* derives ultimately from Old Indo-Aryan *utāho* (Turner 1962–1966: #1701), which is itself made up of two particles, *āho* and *utā*. (Cf. Turner (1962–1966: #1701), who agrees with the etymology of *da/dā* given here; see further Slade (2011). Pace Karunatillake (2012: #4541), who connects this particle to Old Indo-Aryan *ca* ‘and, but’.)

The particle *āho* first appears in late Vedic Sanskrit, positioned at the front of the second clause in a disjoint ‘either...or’ construction, see (i). Note here that *utā* appears at the front of the first clause of the disjunction.

- (i) *utā avidvān amūṇ lokāṇ prētya kaścānā gacchatīṣ / āho*  
*utā* one who does not know.NOM.SG yonder.ACC.SG world.ACC.SG depart.GER anyone go.PRES.3SG / **āho**  
*vidvān amūṇ lokāṇ prētya kaścit sāmaśnutāṣi /*  
 one who knows.NOM.SG yonder.ACC.SG world.ACC.SG depart.GER anyone reach.PRES.3SG /  
 ‘Does anyone who does not know, having died, go to yonder world, or does anyone who knows, having died, attain yonder world?’ (Taittirīya Upaniṣad 2.6, cited from Böhtlingk & Roth 1855–1875)

(The *ṣ* in *sāmaśnutāṣi* marks the “overlong vowel”, known as *pluti*; on which see Abhyankar & Shukla 1977: 280.)

In later Sanskrit the collocation of the two particles appears in the formation of alternative questions:

- (ii) *kiṁ mama vadhopāyakramah kubjasya vā utāho anyasya vā kasyacit*  
 Q me.GEN murder-plot.NOM.SG hunchback.GEN or **utāho** other.GEN or someone.GEN  
 “Is it I, against whom the murder-plot is laid, or is it the hunchback or somebody else?” (Pañcatantra 332) (Speijer 1886: §415)

Similarly in Pāli, the cognate form *udāhu*:

- (49) *baseni hō*  
word.PL.LOC *hō*  
“Or at least in words” (trans. from Priyanka 2010: 172, his no. 32)

True relative-correlatives are rare in Old Sinhala, and never involve *da*. It is much more typical of Old Sinhala to use prenominal modifying participles rather than relative-correlative constructions, as in Modern Colloquial Sinhala (see above example (37)); (50) is a typical example of a prenominal modifying participle type “relative” in Old Sinhala (Slade 2013).

- (50) *Nægæ mehi / / ma senehī / himabiyāṇṇa / tupa no*  
rise.CONV this.LOC [ [ 1SG-PRN.GEN love.PAST.PTCP ] lady.DAT.PL ] 2PL-PRN.GEN NEG  
*daha*  
show anger.IMPV  
“Having ascended here, do not show anger towards the ladies who have been loved by me.”  
(Lit., “... towards the loved-by-me ladies”) [Sigiri Graffiti 308]

Turning to an examination of the handful of true relative-correlative constructions found in Old Sinhala: *da* is not found in ANY of these and the conditional particle *nam* occurs in but a single example: graffiti 251, see (51)<sup>8</sup>; the remaining three examples (graffiti 240, 305, 682) employ no particle.

- (51) */ Pere yam hæjin nam ma / pahani-j*  
[ formerly REL-PRON know.PAST **COND-PTC** 1SG-PRN.ACC/GEN ]<sub>RC</sub> [ satisfy.PAST  
**nam** *alalæ mā* ]<sub>RC</sub> [ *e yat me et* ]<sub>CC</sub>  
**COND-PTC** love.LOC 1SG-PRN.GEN ]<sub>RC</sub> [ 3SG.ACC go.COND this come.PAST.3PL ]<sub>CC</sub>  
“She who was known (to me) earlier, who was satisfied in her love of me, when I go to her, these (people) are coming (from her).” [Sigiri Graffiti 251]

In (52) is shown an example of an Old Sinhala relative clause involving the pronoun *yam*, but with no “clause-closing” particle like *nam* or *da*.

- (iii) *kiṇ amhehi saddhiṇ āgamissasi udāhu pacchā?*  
Q us with come.FUT.2SG *udāhu* later  
“Will you come with us or later?” (Buddhaghosa’s commentary on the *Dhammapada* ii.96)

Surely it must thus have occurred in alternative questions in Old Sinhala. Actual examples of *da* in alternative questions would be extremely informative, however, in terms of the precise properties it had at this stage, e.g. did it occur either obligatorily or optionally after each disjunct as in modern Sinhala, or once only per clause as apparently is the case in Sanskrit and Pāli?

<sup>8</sup>Interestingly, (51) involves a “stacking” of left-peripheral relative clauses, observed also in Sanskrit examples like (i) and found in some varieties of “elevated” Hindi like (ii), as discussed by Hock (1989a, 2013).

- (i) */ yó hatvā āhim āriṇat sapta sindhūn /*  
[ REL-PRON.NOM.SG.MASC slay.CONV dragon.ACC.SG.MASC make-flow.IMPF.3SG seven river.ACC.PL.MASC ]<sub>RC</sub> [ *yó gā udājad apadhā valāsyā* ]<sub>RC</sub> [ *yó āśmanor antār agnīṇ jājana* ]  
REL-PRON.NOM.SG.MASC stone.LOC.DU.MASC between fire.ACC.SG.MASC create.PERF.3SG  
*saṁvṛk samātsu / sá janāsa indraḥ*  
overpowering.NOM.SG.MASC battle.LOC.PL.FEM ]<sub>RC</sub> [ CP.NOM.SG.MASC people.VOC.PL.MASC Indra.NOM.SG.MASC ]  
]cc  
]cc  
“Who, having slain the dragon, made the seven rivers flow; who drove up the cows from the cave of Vala; who created fire between the two stones, overpowering in battle; he, O people, (is) Indra.” [RV 2.12.3]
- (ii) */ jis viṣṇu ne jagat kī sṛṣṭi kī / jo*  
[ REL-PRON.OBL.SG Vishnu AGT world of.FEM creation.NOM.SG.FEM do.PERF.SG.FEM ]<sub>RC</sub> [ REL-PRON.NOM.SG *viṣṇu uskī rakṣā kartā hai* ]<sub>RC</sub> ( ... ) [ *vah viṣṇu phir uskā vināś karegā* ]  
Vishnu.NOM.SG.MASC DEM-PR.SG.FEM.GEN protection.NOM.SG.FEM do.IMPF.MASC.SG be.PRES.3SG ]<sub>RC</sub> ( ... ) [ CP.NOM.SG Vishnu.NOM.SG.MASC again DEM-PR.SG.MASC.GEN destruction do.FUT.3SG.MASC ]  
]cc  
]cc  
“Which Vishnu created the world, which Vishnu protects it, ... that Vishnu will again destroy it.” [cited from Hock 2013: 9–10]

- (52) *Sihigiri aṇṇak baṇavat me yannā var sera se ho*  
 Sihigiri.LOC woman.INDEF speak.COND.CAUS this going occasion thief like 3SG.FEM-PRN  
*yam desekæ mā bæli tomo. agan me*  
 REL-PRON direction.LOC.INDEF 1SG-PRN.GEN look.PAST REFLX-PRN.FEM. women this  
*niyā.*  
 manner  
 “When I, while passing by, speak to a lady of Sihigiri, she herself, roguishly, looked in the  
 direction (where) I (was). Women are like this.” [*Sigiri Graffiti* 305]

Not only is (52) lacking a “clause-closing” particle, the correlative pronoun has also been elided, but presumably must be understood as in the reconstruction in (53).

- (53) *[yam desekæ mā ]<sub>i</sub> (e<sub>i</sub>) ho bæli*  
 [ REL-PRON direction.LOC.INDEF 1SG-PRN ]<sub>i</sub> (that<sub>i</sub>) 3SG.FEM-PRN look.PAST  
 “In which direction I (was), that direction she looked at.”

### 2.1.5 Summary of the evolution of Sinhala particles *da* & *hō*

*Da* then begins in questions, presumably first in alternative-questions, spreading then to yes/no-questions (where, in Old Sinhala, it is still more frequent than in wh-questions), and later into wh-questions. In Classical Sinhala it becomes more established in these environments, and also spreads to relative-correlatives. The other particle, *hō*, initially is found only in (non-interrogative) disjunctions, but by Modern Literary Sinhala also forms wh-based (epistemic) indefinites. *Da/də* does not appear in the formation of such indefinites until the Modern Colloquial stage.

## 2.2 Dravidian

In a number of Dravidian languages — which are genetically unrelated to but geographically proximate to Sinhala — we find a similar pattern of environments in which Q-particles appear.

### 2.2.1 Malayalam

In Malayalam, the Q-related particle is invariably *-ō*, in Q-particle environments. It occurs obligatorily in yes/no-questions:

- (54) *John wannu-(w)ō?*  
 John came-*ō*  
 ‘Did John come?’ (Jayaseelan 2001: 67)
- (55) *John wannu-(w)ō, illa-(y)ō?*  
 John came-*ō*, not-*ō*  
 ‘Did John come, or not?’ (Jayaseelan 2001: 67)

It is also obligatory in declarative disjunctions, as in example (56):

- (56) *Mary John-ine-(y)ō Bill-ine-(y)ō cumbiccu*  
 Mary John-ACC-*ō* Bill-ACC-*ō* kissed  
 ‘Mary kissed John or Bill.’ (Jayaseelan 2008: 3)

Furthermore, it is also used in the formation of (epistemic) indefinites, combining with a wh-word as in Sinhala:

- (57) *ñāṇ iruṭṭ-il ār-e-(y)ō toṭṭu*  
 I darkness-in who-ACC-*ō* touched  
 ‘I touched somebody in the dark.’ (Jayaseelan 2001: 66)

In contrast to Sinhala, however, *wh*-questions in modern Malayalam do not employ *-ō*, as shown by examples (58), (59).

- (58) *ārə wannu?*  
 who came  
 ‘Who came?’ (Jayaseelan 2001: 67)
- (59) *[awan ewide pōyi ennə / ñāñ cōdiccu*  
*[ he where went C ] I asked*  
 ‘I asked where he went.’ (Jayaseelan 2001: 67)

However the particle is present in archaic, (60), and old Malayalam, (61), (62), *wh*-questions.

- (60) *it-entu katha-(y)ō?*  
 this-what story-*ō*  
 ‘What story is this?’ (Raman Pilla 1918: 151, cited in Jayaseelan 2001: 68)
- (61) *entu-kil-ō rājya-ttinnu want-a upadrawam?*  
 what-be-*ō* kingdom-DAT came-RELATIVISER trouble  
 ‘What is the trouble that has come to the kingdom?’ (“Ambarrishōpākhyānam”, Narayanapilla 1971: 21)
- (62) *maharṣi nintiruwaḍi entu-nimittam-ākil-ō iwiḍam nookki ezhunnalli?*  
 great-sage (hon. title) what-reason-be-*ō* this-place seeing came.HON  
 ‘For what reason is it that the great sage has been pleased to come to this place?’ (*ibid.*, p. 32, cited in Jayaseelan 2001: 68)

Like Classical and Modern Literary Sinhala, *-ō* appears (usually) in relative-correlatives, occurring clause-finally on the relative clause (though note the absence in (63-c)):

- (63) (Asher & Kumari 1997: 53)
- a. *ētə daivam ellā vastukkaḷilum uṇṭ-ō ā daivate prārthikkunnu*  
 which god all object.PL.LOC be.PRES-*ō* that god.ACC pray.PRES  
 ‘I pray to the god who is in every object.’
- b. *ārə manassə aṭakkunnuv-ō avaṇṇə samādhānam kiṭṭunnu*  
 who mind control.PRES-*ō* he.DAT peace obtain.PRES  
 ‘He who controls the mind obtains peace.’
- c. *ēt-oruvan drōham ceyyunnu avan pāpi ākunnu*  
 which-one.MSC evil do.PRES he sinner become.PRES  
 ‘He who does evil becomes a sinner.’

However, in early Malayalam there is no evidence of *-ō* being used in relative clauses:

- (64) *[yātontu mahārājaniyōgam] RC [atu a-vaṇṇam] CC*  
*[ what.NEUT maharaja-order ] RC [ that.NEUT in-that-manner ] CC*  
 ‘What is the king’s order, (let) that (be done) in that manner.’ (cited from Pillai 1973: 165)  
 [Old Malayalam]

## 2.2.2 Modern Tamil

In yes/no-question, the particle *-ā* appears clause-finally (in neutral contexts), as in (65-b) and (66-b), or after the focused element, as in (66-c)–(66-e):

- (65) (Lehmann 1989: 232)
- a. *kumār vakkīl*  
Kumar lawyer  
“Kumar is a lawyer.”
  - b. *kumār vakkīl-ā?*  
Kumar lawyer-*ā*  
“Is Kumar a lawyer?”
- (66) [*Ibid.*]
- a. *kumār nērru rājā-v-ai aṭi-tt-āṇ*  
Kumar yesterday Raja.ACC beat.PST.3SM  
“Kumar beat Raja yesterday.”
  - b. *kumār nērru rājā-v-ai aṭi-tt-āṇ-ā?*  
Kumar yesterday Raja.ACC beat.PST.3SM-*ā*  
“Did Kumar beat Raja yesterday?”
  - c. *kumār nērru rājā-v-ai-y-ā aṭi-tt-āṇ?*  
Kumar yesterday Raja.ACC-*ā* beat.PST.3SM  
“Was it Raja that Kumar beat yesterday?”
  - d. *kumār nērr-ā rājā-v-ai aṭi-tt-āṇ?*  
Kumar yesterday-*ā* Raja.ACC beat.PST.3SM  
“Was it yesterday that Kumar beat Raja?”
  - e. *kumār-ā nērru rājā-v-ai aṭi-tt-āṇ?*  
Kumar-*ā* yesterday Raja.ACC beat.PST.3SM  
“Was it Kumar that beat Raja yesterday?”

As in modern Malayalam, no particle appears in the formation of wh-questions (although it does optionally appear in Old Tamil; see below):

- (67) (Lehmann 1989: 234)
- a. *kumār nērru va-nt-āṇ*  
Kumar yesterday come.PST.3SM  
“Kumar came yesterday.”
  - b. *yār nērru va-nt-āṇ?*  
who yesterday come.PST.3SM  
“Who came yesterday?”
  - c. *kumār eppōtu va-nt-āṇ?*  
Kumar which.time come.PST.3SM  
“When did Kumar come?”

In alternative questions, the particle *-ā* appears obligatorily on all disjuncts:

- (68) *uṇkaḷ-akku [iṭli-y-ā tōcai-y-ā] vēṇṭ-um*  
you(pl).DAT [idli-*ā* dosa-*ā*] want.FUT.2SN  
“Do you want idli or dosa?” (Lehmann 1989: 247)

As in Malayalam, the particle *ō* appear in the formation of (epistemic) indefinites from wh-words:

- (69) *nērru yār-ō uṇkaḷ-ai-k kūppit-ṭ-ā-ṇ*  
yesterday who-*ō* you(pl).ACC call.PST.3SM  
“Someone called you yesterday.” (Lehmann 1989: 155)

$\bar{O}$  also appears after each disjunct in non-interrogative disjunction:

- (70) *kumār-ō rājā-v-ō varu-v-ārkaḷ*  
 Kumar- $\bar{O}$  Raja- $\bar{O}$  come.FUT.3PL  
 “Kumar or Raja will come.” (Lehmann 1989: 156)

Finally,  $\bar{o}$  appears in the formation of relative-correlatives, as in Malayalam:

- (71) *evan nērru va-nt-ān-ō avan en tampi*  
 which-one.MSC yesterday come.PST.3SM. $\bar{o}$  he I.OBLQ brother  
 “He who came yesterday was my brother.” (Lehmann 1989: 156)

### 2.2.3 Old Tamil

In Old Tamil, there are three interrogative particles which can be used to form yes/no-questions:  $-\bar{o}$ ,  $-kol$ , and  $kollō$ ; any one of these may occur clause-finally to form a neutral yes/no-question:

- (72) *vēlan ... kēṇmai ... ari.y-um-ō ...*  
 priest ... friendship ... know.NON-PAST.3S- $\bar{o}$  ...  
 “Does the priest know friendship?” (*aiṇk* 241.2–4; cited in Lehmann 1998: 91)

Or after a focused element:

- (73) *itu-v-ō nin cemmāl*  
 this- $\bar{o}$  your greatness  
 “Is this your greatness?” (*aka* 306.9; cited in *Ibid.*)

Wh-questions may occur with or without one of these particles, see (74) and (75), respectively:

- (74) *yān en cey-k-ō*  
 I what do.NONPAST.1SG- $\bar{o}$   
 “What shall I do?” (*aka* 50.14; cited in *Ibid.*)
- (75) *ivar yār*  
 these.people who.NOM  
 “Who are these people?” (*pura* 201.1; cited in *Ibid.*)

In relative-correlative constructions in Old Tamil, the particle is often absent:<sup>9</sup>

- (76)  $\left[ \begin{array}{l} e-vaṛi \\ \text{which-place} \end{array} \right]_{RC} \left[ \begin{array}{l} nall-avar \\ \text{good.MASC.3PL} \end{array} \right]_{RC} \left[ \begin{array}{l} āṭavar \\ \text{men.MASC.3PL} \end{array} \right]_{RC} \left[ \begin{array}{l} a-vaṛi \\ \text{that-place} \end{array} \right]_{CC} \left[ \begin{array}{l} nall-ai \\ \text{good.2SG} \end{array} \right]_{CC}$   
 “At which place men are good, at that place you are good.” (cited from Lehmann 1998: 94)  
 [Old Tamil]

But not always:

<sup>9</sup>Also lacking in post-relative clause particles are Old Kannada (Hock 2008), and a number of modern “northern” Dravidian languages (Pengo, Kuvi, Kolami, Parji, Kurukh), on which see Hock (1988, 1989b, 2008). Hock (2008) also notes that even in modern Malayalam the post-relative clause  $-\bar{o}$  is optional (cf. Asher & Kumari 1997: 53; see above).

At least some of the other modern Dravidian languages DO use  $-\bar{o}$  in the formation of relative-correlatives:

- (i)  $\left[ \begin{array}{l} yāva \\ \text{which boy} \end{array} \right] \left[ \begin{array}{l} huḍuga \\ \text{you.GEN} \end{array} \right] \left[ \begin{array}{l} nimm-a \\ \text{hand-shake.PST.3MSC.SG-}\bar{o} \end{array} \right] \left[ \begin{array}{l} ā \\ \text{that boy} \end{array} \right] \left[ \begin{array}{l} huḍuga \\ \text{I.GEN} \end{array} \right] \left[ \begin{array}{l} nann-a \\ \text{friend} \end{array} \right]$   
 “The boy who shook hands with you is my friend.” [Kannada; Krishnamurti 2003: 448]
- (ii)  $\left[ \begin{array}{l} ēdi \\ \text{what} \end{array} \right] \left[ \begin{array}{l} kāwāl(i)-\bar{o} \\ \text{be-wanted-}\bar{o} \end{array} \right] \left[ \begin{array}{l} adi \\ \text{that} \end{array} \right] \left[ \begin{array}{l} paṭṭu-ku-pō \\ \text{take.REFL go.IMP.2SG} \end{array} \right]$   
 “Take away what you want.” [Telugu; *Ibid.*]

- (77) *e-nāl-ō ... nī celvatu a-nāl koṇṭū iṛakkum ivaḷ ... uyir-ē*  
 which-day-*ō* ... you go.NONPAST.NOM that-day from die.NONPAST.3SG.NOM she ... life  
 “On which day you will go, from that day (onwards) her life will die.” (*Kalittokai* 5.18-19,  
 cited from Thomas Lehmann (p.c. w/ H.H. Hock)) [late Old Tamil (500-700 A.D.)]

### 2.2.4 Other remarks

Proto-Dravidian *\*-ō* is suggested (Krishnamurti 2003: 418) to have the basic functions of disjunction, creating indefinite pronouns when added to *wh*-words, and a “dubitative” function. This latter function remains in modern Dravidian languages, for instance the Tamil (78).

- (78) *kumār eppōtu varunvāṇ-ō*  
 kumar when come.FUT.3SG.MASC-*ō*  
 “I wonder when Kumar will come.” (Lehmann 1989: 154)

In Old Tamil, and Malayalam generally<sup>10</sup>, the dubitative *-ō* and the yes/no- and alternative-question *-ā* have fallen together; in other Dravidian languages they remain distinct.<sup>11</sup>

## 2.3 Japanese

Early Japanese employed a construction referred to as *kakari-musubi* (see Sansom 1928, Ogawa 1976, 1977, Whitman 1997, Watanabe 2002, Yanagida 2006, amongst others), which is reminiscent of the focusing constructions employing *-e* verbal forms in Sinhala – in that it involves a clause-internal (rather than clause-final) particle which induces a special marking on the verb. Particles participating in this construction include not only the Q-particle *ka*, but other particles including *koso*, *zo*, and *namu*, which seem to be emphatic particles. An example of an Old Japanese *wh*-construction is given below in (79).

- (79) *sisi husu-to tare ka kono koto oomae-ni maosu*  
 beasts lie-QUOT **who ka** this thing Emperor.DAT say.M<sup>12</sup>  
 “Who reported to the Emperor that beasts were lying?” (*Nihon Shoki* [720]:75, Ogawa 1977: 221, from Hagstrom 1998: 25)

Note however that *ka* was not obligatory in interrogatives in early Japanese, as shown by (80).<sup>13</sup>

- (80) *ima-fa ikani se-mo*  
 now-TOP how do-SUPP.ADN  
 ‘What should we do now?’ (MYS 14.3418, 1.5; cited in Aldridge 2009: 550) [Old Japanese]

The other Q-particles of modern Japanese (*no*, *kai*, *ndai*, *kadooka*) are confined to interrogative environments, and in these environments may serve as alternatives to *ka* – such alternations seem to be largely based on considerations of politeness.<sup>14</sup> The choice of Q-particle in part is a matter of politeness: *ka* is the most polite form, while *no* is less polite than *ka* but not as informal as *kai* or *ndai*: *ka* is the most polite form, and *kai* and *ndai* the most informal, with the latter being appropriate only in male speech (see further Miyagawa 1987, 1998; Ginsburg 2009).

<sup>10</sup>Old Tamil is effectively the ancestor of both Tamil and (Old) Malayalam.

<sup>11</sup>Extant Old Tamil then apparently, at least with respect to this feature, is closer to Malayalam than is it to Modern Tamil; presumably we are dealing here with not only historical change but also dialectal variation.

<sup>12</sup>The gloss “M” (for *musubi*) indicates the special adnominal form that the verb takes in *kakari-musubi* constructions.

<sup>13</sup>On *ka* in early Japanese, see further Sansom (1928), Ogawa (1976, 1977), Whitman (1997), Serafim & Shinzato (2000), Watanabe (2002), Aldridge (2009), Mitrović (2014a), amongst others.

<sup>14</sup>Note however, as pointed out by an anonymous reviewer, that the precise status of the particle *no* is under debate. As discussed below, *no* has a much more restricted syntactic distribution than does *ka*; further, *no* can co-occur with *ka* in certain interrogative clauses, as:

- (i) [ *John-wa noni-o katta-no-ka* ] *shitteiru*  
 [ John-TOP what-ACC bought-*no-ka* ] know  
 ‘I know what John bought.’

Thus another plausible analysis of *no* is that it is a nominaliser, and that questions with *no* actual involve a *no-ka* structure with ellipsis of the *ka* (see further Hagstrom 1998: 16).

- (81) *gakkoo-ni ik-imas-u (no/kai/ø)?*  
 school-to go-POL-PRES **no/kai/ø**

In contrast to Sinhala and old/archaic Malayalam, in *wh*-questions *ka* appears clause-finally, rather than following the *wh*-word, as shown in (82), (83).

- (82) *John-ga nani-o kaimasita ka?*  
 John-NOM what-ACC bought.POL **ka**  
 ‘What did John buy?’ (Hagstrom 1998: 15)
- (83) *John-ga [ Mary-ga nani-o katta ka ] sitteiru*  
 John-NOM [ Mary-NOM what-ACC bought **ka** ] knows  
 ‘John knows what Mary bought.’ (Hagstrom 1998: 16)

In *wh*-questions like (82), *ka* may be replaced by *no*, *ndai*, or no marking:

- (84) *John-ga nani-o katta no/ndai/ø?*  
 John-NOM what-ACC bought **no/ndai/ø**

*Ka* – though not any of its alternatives – also shows up in the formation of *wh*-based indefinites:

- (85) *dare-ka-ga hon-o katta.*  
 who-**ka**-NOM book-ACC bought.  
 ‘Someone bought books.’ (Kuroda 1965: 97)

Japanese *ka* can also form declarative disjunctions like Sinhala *hari* and Malayalam *-ō*, as in example (86)

- (86) *John-ka Bill-ka-ga hon-o katta.*  
 John-**ka** Bill-**ka**-NOM book-ACC bought.  
 ‘John or Bill bought books.’ (Kuroda 1965: 85)

Japanese alternative questions are somewhat more complicated, involving *ka* appearing after the disjuncts (as in a declarative disjunction), but with an additional *Q*-particle occurring clause-finally (perhaps as a sort of ‘scope-marker’; see Fukutomi 2006), as in (87).<sup>15</sup>

- (87) *John-wa coffee ka ocha ka docchi-o nonda no*  
 John-TOP coffee **ka** tea **ka** which-ACC drank *no*  
 ‘Which of these two things did John drink: coffee or tea?’ (Fukutomi 2006)

## 2.4 Tlingit

Tlingit also uses particles in many of the same syntactic contexts, but displays a different distribution of morphological forms to syntactic environments than the other languages examined above.

- (88) *Lingít gé x’eeyá.áxch?*  
 Tlingit **gé** you.understand.it  
 ‘Do you speak Tlingit?’ (Cable 2007: 74)
- (89) *Daa sá aawaḡáa i éesh?*  
 what **sá** he.ate.it your father  
 ‘What did your father eat?’ (Cable 2007: 75)

<sup>15</sup>As pointed out by an anonymous reviewer, *docchi* ‘which’ in (87) is obligatory; which suggests an analysis in which (87) involves a *wh*-question with explicit domain restriction rather than being a true alternative question. Uegaki (2014) claims that only clausal *ka*-disjunctions can form true alternative questions. See Uegaki (2018) for a more fully worked-out analysis.



The Tlingit particle *sá* also forms indefinites in a limited set of circumstances. It appears to freely form NPI-indefinites, as in (90), and free-choice indefinites, as in (91).

- (90) *Tlél goodéi sá xwagoot.*  
not where.to *sá* I.went  
'I didn't go anywhere.' (Cable 2007: 73)
- (91) *Kéet axá daa sá.*  
killer.whale he.eats.it what *sá*  
'A killer-whale will eat anything.' (Cable 2007: 66)

*Sá* also appears to be able to form plain existential indefinites when followed by the focus particle *wé*, (92), or preceded by *ch'a* "just", (93). Whether these indefinites signal any degree of speaker ignorance, I do not know.

- (92) *Daa sá.wé yóo dikéenax.á*  
what *sá*.FOC-PART yonder far.out.across.one  
'There was something up there.' (Nyman & Leer 1993: 14, cited in Cable 2007: 107)
- (93) *Ch'a daa sá aagáa kukkwatées'...*  
just what *sá* it.for I.will.search ...  
'I'll look for something there.' (Nyman & Leer 1993: 180, cited in Cable 2007: 107)

Declarative disjunctions involve yet a third particle, *khach'u*, as shown in example (94).<sup>16</sup>

- (94) *Tlél aadóoch sá kóox awuxhá khach'u cháayu awdaná.*  
not who.ERG *sá* rice ate *khach'u* tea drank  
'Nobody ate rice or drank tea.' (Seth Cable, p.c.)

Finally, alternative questions have the appearance of yes/no questions, in that *gé* appears in the second position, with the second and subsequent disjuncts being followed by an element *gwáa*, as shown in (95).

- (95) *Káxwei gé i tuwáa sigóo, cháau gwáa, héen gwáa?*  
coffee *gé* you.want, tea *gwáa*, water *gwáa*  
'Do you want coffee, or tea, or water?' (Seth Cable, p.c.)

*Sá* also appears in the formation of free relatives in Tlingit:

- (96) *Át gasa.aaxí aadooch sá has du een kawuneegí*  
to.them let.them.listen who.ERG *sá* them.with they.speak  
'Let them listen to whoever tells them.' (Dauenhauer & Dauenhauer 1990: 224, cited in Cable 2010: 206)

Conditionals in Tlingit (see Cable 2010: 54–5) do not appear to employ particles of any sort.

## 2.5 English

Anticipating the discussion in section 4.1, I follow den Dikken (2006) in treating English *or* not as a lexicalisation of disjunction itself but instead as an element which adjoins to the relevant disjunct. That is, *or* appears to behave rather like Q-particles such as Sinhala *da/hari* or Japanese *ka* in disjunctions.

That *or* is a Q-particle in English is also suggested by the fact that it can act as a Q-particle in yes/no questions in earlier English, both direct, (97) and indirect, (98) (examples cited from the *OED* (Murray

<sup>16</sup>The *sá* of (94) is part of the NPI indefinite *aadóoch sá* "nobody" (see above discussion) and plays no role in the formation of the disjunction.

et al. 1884–2017):<sup>17</sup>

- (97) **Or** not in wrathefulnesse of hym is lettid þe sunne, & oo dai maad as two?  
 “Was not the sun stopped in his anger, and one day made as two?” [Ecclus. 46.5 (Wycliffe Bible, ca. 1382)]
- (98) He asked the lordes... **or** they wolde therfore warre.  
 “He asked the lords if they would therefore go to war.” [Virgilius sig. aiiij<sup>v</sup>, ca. 1518]

*Or* may also appear preceding each of the disjuncts in alternative questions in earlier English, again, in both direct, (99), and indirect, (100), questions.

- (99) How kenst thou, that he is awoke? **Or** hast thy selfe his slomber broke? **Or** made preuie to the same?  
 “How do you know that he is awake? Have you woken him yourself, or have you been made privy (to the knowledge that he is awake)?” [Spenser, *Shepheardes Cal.*, Mar. 29, 1579]
- (100) Tell me where is fancie bred, **Or** in the hart, **or** in the head.  
 “Tell me where is fancy bred: whether in the heart, or in the head.” [Shakespeare, *Merchant of Venice* III. ii. 64, 1600]

Note that in modern English *if* appears to behave rather like a Q-particle in its appearance in embedded interrogatives:<sup>18</sup>

- (101) No-one knows **if** Lee Scratch Perry is in the studio.

In its other function as something like a conditional marker, *if* is similar to Dravidian *-ō*.

## 2.6 Summary

Table 1 provides an overview of Q-particles from the languages discussed above. Note both the substantial variation in morphological forms in many of the languages, including various alternatives in some cases (notably Japanese interrogatives), and the overall coherence of the pattern. Malayalam almost presents the “perfect” picture of a morphonologically uniform KA across all contexts. Thus what is desirable here is an account both of the seeming underlying uniformity (the appearance of KA particles in these environments) and the various patterns of morphonological heterogeneity found in the different languages. From one perspective the variation in some languages of the morphonological form of the particle could be considered as noise obscuring the essential underlying identity of the particle. On the other hand, while one does not wish to miss the forest for the trees, equally it will not do to miss the trees for the forest. That is, an account of the morphological variation is equally to be desired.

The following sections 3–4 focus on the semantic treatment of KA. This will form the basis of my account of the basic underlying uniformity of KA’s behaviour crosslinguistically. Following that, in section 5, I present a sketch of a syntactic analysis which does the bulk of the work in explaining the “morphological noise” that we observe.

## 3 KA in Interrogatives

### 3.1 A Hamblin semantics of *wh*-words

I adopt an analysis of interrogatives as denoting sets of propositions (Hamblin 1973; Karttunen 1977), and more specifically adopt Hamblin’s extension of the formal semantics of English developed by Montague

<sup>17</sup>See also Jayaseelan (2008) for similar observations and a similar argument for treating English *or* as part of the same family of elements as Malayalam *-ō* etc., with additional data from other Germanic languages.

<sup>18</sup>Again, see Jayaseelan (2008) for further discussion of the relation of *if* and similar elements in other Germanic languages to Q-particles like Malayalam *-ō*.

<sup>19</sup>See fn. 15 for more details on KA in this environment.

	y/n-Q	wh-Q	wh-indef	decl. disj.	alt-Q	rel.-correl./ free rel.	cond.
Old Sinh.	(da)	(da)	—	hō, [heva(-t)]?	[da]	(nam)	nam
Class. Sinh.	(da)	(da)	—	hō, heva(-t)	da	da, nam	nam
Lit. Sinh.	da	da	hō, vat	hō, vat	da	da, nam	nam
Colloq. Sinh.	də	də	də, hari, vat	hari, vat	də	N/A	nam
Old Mal.	-ō	-ō	-ō	-ō	-ō	—	-ō
Mod. Mal.	-ō	—	-ō	-ō	-ō	-ō	-ō
Old Tamil	-ō, -kol(lō)	(-ō)	—	—	[-ō]?	(-ō)	[-ō]?
Mod. Tamil	-ā	—	-ō	-ō	-ā	-ō	-ō
Japanese	(ka), (no), (kai), (kadooka)	(ka), (no), (ndai)	ka	ka	[ka] <sup>19</sup>	N/A	N/A
Tlingit	gé	sá	sá	khach'u	gé...gwáa	sá	—
English	or, if	—	—	or	or	—	if

Table 1: The morphological forms of Q-particles in different environments

(1970a; 1970b; 1973) which treats *wh*-words as denoting sets of individuals, so that  $\llbracket \text{who} \rrbracket^g = \{x \in D_e \mid x \in \text{human}'\}$ . For Hamblin, non-*wh* elements denote singleton sets, e.g.  $\llbracket \text{came} \rrbracket^g = \{\lambda x.x \text{ came}\}$ . And thus  $\llbracket \text{who came} \rrbracket^g$  can be straightforwardly calculated via pointwise function application: i.e. each element in  $\llbracket \text{came} \rrbracket^g$  applies to each element in  $\llbracket \text{who} \rrbracket^g$  and the results are collected together into a set, resulting in  $\llbracket \text{who came} \rrbracket^g = \{x \text{ came} \mid x \in D_e \wedge x \in \text{human}'\}$ . I differ from Hamblin (1973) in that I do not treat non-*wh* elements as denoting singleton sets, but rather assign them the standard Montagovian-type denotations. This move requires a special set of function application rules, which following the designation given to a similar formulation in Hagstrom 1998, we may refer to as ‘flexible function application’ (see also Rooth 1985; Bittner 1994; Heim 1994; Rullman & Beck 1998; Sternefeld 2001).

- (102)  $[ \alpha \beta ] = F(\llbracket \alpha \rrbracket^g \llbracket \beta \rrbracket^g)$ , let  $a = \llbracket \alpha \rrbracket^g$ ,  $b = \llbracket \beta \rrbracket^g$ , for any  $a, b$ ,  
 $F(a, b) =$   
a.  $a(b)$   
b.  $\{c \mid \exists y \in b [c = a(y)]\}$   
c.  $\{c \mid \exists x \in a [c = x(b)]\}$   
d.  $\{c \mid \exists x \in a, \exists y \in b [c = x(y)]\}$   
Whichever is defined.

For  $F(a, b)$ , rule (102-a) is the ordinary rule of function-application, applicable where both  $a$  and  $b$  are elements with Montagovian-type denotations; rule (102-b) handles cases where  $a$  bears a Montagovian-type denotation and  $b$  a Hamblin-type denotation; rule (102-c) accounts for cases where  $a$  bears a Hamblin-type denotation and  $b$  a Montagovian-type denotation; and rule (102-d) is Hamblin’s (1973) rule of pointwise function application, appropriate where both  $a$  and  $b$  bear Hamblin-type denotations. The following examples illustrate: given the denotations in (103), the semantic computations of *who saw John*, *John saw whom*, and *who saw whom* proceed as in (104).

- (103) a.  $\llbracket \text{saw} \rrbracket^g = \lambda x. \lambda y. y \text{ saw } x$   
 b.  $\llbracket \text{John} \rrbracket^g = \text{John}$   
 c.  $\llbracket \text{who(m)} \rrbracket^g = \{x \in D_e \mid x \in \text{human}'\}$
- (104) a.  $\llbracket \text{Who saw John} \rrbracket^g = (\text{by (103-a), (103-b), (103-c)})$   
 (i)  $\llbracket \lambda x. \lambda y. y \text{ saw } x \rrbracket(\text{John})(\{x \in D_e \mid x \in \text{human}'\}) = (\text{by (102-a)})$   
 (ii)  $\llbracket \lambda y. y \text{ saw John} \rrbracket(\{x \in D_e \mid x \in \text{human}'\}) = (\text{by (102-b)})$   
 (iii)  $\{x \text{ saw John} \mid x \in D_e \wedge x \in \text{human}'\}$
- b.  $\llbracket \text{John saw whom} \rrbracket^g = (\text{by (103-a), (103-b), (103-c)})$   
 (i)  $\llbracket \lambda x. \lambda y. y \text{ saw } x \rrbracket(\{x \in D_e \mid x \in \text{human}'\})(\text{John}) = (\text{by (102-b)})$   
 (ii)  $\{\lambda y. y \text{ saw } x \mid x \in D_e \wedge x \in \text{human}'\}(\text{John}) = (\text{by (102-c)})$   
 (iii)  $\{\text{John saw } x \mid x \in D_e \wedge x \in \text{human}'\}$
- c.  $\llbracket \text{Who saw whom} \rrbracket^g = (\text{by (103-a), (103-b), (103-c)})$   
 (i)  $\llbracket \lambda x. \lambda y. y \text{ saw } x \rrbracket(\{x \in D_e \mid x \in \text{human}'\})(\{x \in D_e \mid x \in \text{human}'\}) = (\text{by (102-b)})$   
 (ii)  $\{\lambda y. y \text{ saw } x \mid x \in D_e \wedge x \in \text{human}'\}(\{x \in D_e \mid x \in \text{human}'\}) = (\text{by (102-d)})$   
 (iii)  $\{x \text{ saw } y \mid x, y \in D_e \wedge x, y \in \text{human}'\}$

*Wh*-words, at least in languages like Sinhala, Japanese, Tlingit, Malayalam, thus can be analysed as denoting Hamblin-type sets. The purpose of *Q*-particles is thus, I argue, to transform Hamblin-type sets back into ordinary Montagoid-type elements.

### 3.2 Choice-functions & the denotation of *Q*-particles

In this section I argue that *Q*-particles should be treated as denoting variables over choice functions. One fact which argues for such an analysis is the possibility of *wh*-words in Sinhala scoping out of islands – so long as the associated *Q*-particle itself is not inside of the island.

Consider the fact that in Sinhala complex NPs are movement islands, as shown by (105).

- (105) a. \**oyā*  $\llbracket \text{Chitra } t_i \text{ dunna } \rrbracket \text{ potā } \rrbracket \text{ kieuwe Ranjit}_i\text{-tā.}$   
 you  $\llbracket \text{Chitra } t_i \text{ given } \rrbracket \text{ book } \rrbracket \text{ read.E Ranjit}_i\text{-DAT}$   
 “It was  $\text{Ranjit}_i$  that you read the book that Chitra gave to  $t_i$ .”
- b. \**Chitra*  $\llbracket \text{Ranjit } t_i \text{ gatta } \rrbracket \text{ kiēnā } \rrbracket \text{ kaṭakatāwā } \rrbracket \text{ ahuwe ē potā}_i$   
 Chitra  $\llbracket \text{Ranjit } t_i \text{ bought.A that } \rrbracket \text{ rumour } \rrbracket \text{ heard.E that book}$   
 “It was that  $\text{book}_i$  that Chitra heard the rumour that  $\text{Ranjit}_i$  bought  $t_i$ .” (Kishimoto 2005: 27)

*WH*+*dā* cannot appear inside of a complex NP, as shown by (106).

- (106) a. \**oyā*  $\llbracket \text{Chitra } kātā \rrbracket \text{ dā dunna } \rrbracket \text{ potā } \rrbracket \text{ kieuwe?}$   
 you  $\llbracket \text{Chitra who.DAT } \text{dā given } \rrbracket \text{ book } \rrbracket \text{ read.E}$   
 “To whom<sub>*i*</sub> did you read the book that Chitra gave  $t_i$ ?”
- b. \**Chitra*  $\llbracket \text{Ranjit } monāwa \text{ dā gatta } \rrbracket \text{ kiēnā } \rrbracket \text{ kaṭakatāwā } \rrbracket \text{ ahuwe?}$   
 Chitra  $\llbracket \text{Ranjit what } \text{dā bought.A that } \rrbracket \text{ rumour } \rrbracket \text{ heard.E}$   
 “What<sub>*i*</sub> did Chitra hear the rumour that  $\text{Ranjit}_i$  bought  $t_i$ ?” (Kishimoto 2005: 29)

*Wh*-words themselves may be internal to islands, so long as there are no islands between the particle *dā* and the CP over which it takes scope, as shown by (107) and (108).

- (107) a.  $\llbracket \llbracket \text{Ranjit } monāwa \text{ gatta } \rrbracket \text{ kiēnā } \rrbracket \text{ kaṭakatāwā } \rrbracket \text{ dā Chitra ahuwe?}$   
 $\llbracket \llbracket \text{Ranjit what } \text{bought-A that } \rrbracket \text{ rumour } \rrbracket \text{ Q Chitra heard-E}$   
 ‘What did Chitra hear the rumour that  $\text{Ranjit}_i$  bought?’
- b. \* $\llbracket \llbracket \text{Ranjit } monāwa \text{ dā gatta } \rrbracket \text{ kiēnā } \rrbracket \text{ kaṭakatāwā } \rrbracket \text{ Chitra ahuwe?}$   
 $\llbracket \llbracket \text{Ranjit what } \text{Q bought-A that } \rrbracket \text{ rumour } \rrbracket \text{ Chitra heard-E}$

- (108) a.  $[kauru\ liyapu\ pota\ ]\ dā\ Ranjit\ gatte?$   
           [ who written book ] **Q** Ranjit bought-E?  
           ‘Who wrote the book Ranjit bought?’  
       b.  $*[kau\ dā\ liyapu\ pota\ ]\ Ranjit\ gatte?$   
           [ who **Q** written book ] Ranjit bought-E?

One might suppose that in (107-a) and (108-a) the *wh*-word obtains matrix scope by moving covertly to a position within the Spec of the lower CP – an ‘escape hatch’ position from which it is still visible to syntactic operations of the next phase. However, example (109) shows that this cannot be the case, as the *wh*-word may in fact be inside of an island which itself is inside of an island, so long as the **Q**-particle has no island barriers between it and the CP.

- (109) a.  $[ [Ranjit\ [kauru\ liyapu\ pota\ ]\ gatta\ kieəna\ ]\ kaṭakatāwā\ ]\ dā\ Chitra\ əhuve?$   
           [ [ Ranjit [ who written book ] bought-A that ] rumour ] **Q** Chitra heard-E  
           ‘Who is the person *x* such that Chitra heard the rumour that Ranjit bought the book that *x* wrote?’  
       b.  $*[ [Ranjit\ [kauru\ liyapu\ pota\ ]\ dā\ gatta\ kieəna\ ]\ kaṭakatāwā\ ]\ Chitra\ əhuve?$   
           [ [ Ranjit [ who written book ] **Q** bought-A that ] rumour ] Chitra heard-E  
       c.  $*[ [Ranjit\ [kau\ dā\ liyapu\ pota\ ]\ gatta\ kieəna\ ]\ kaṭakatāwā\ ]\ Chitra\ əhuve?$   
           [ [ Ranjit [ who **Q** written book ] bought-A that ] rumour ] Chitra heard-E

Therefore, *wh*-interrogatives in Sinhala cannot be analysed as taking scope via covert (LF) movement. I argue that a choice-functional analysis of the **Q**-particle *dā* provides a natural account of how *wh*-interrogatives may semantically scope out of islands (cp. the similar treatments of Hagstrom 1998; Cable 2007; Yatsushiro 2001, 2009).

Thus, I treat Question-particles like Sinhala *dā* as variables over choice functions (cf. Hagstrom 1998; Yatsushiro 2001, 2009; Cable 2007 on choice-functional analyses of Question-particles; on other uses of choice-functional analyses in natural language semantics, see Reinhart 1994, 1997, 1998, von Stechow 1996, Winter 1997, Sternefeld 2001); where choice functions are defined in (110) below.<sup>20</sup>

(110) **Choice Function:**

A function  $f_{\langle\tau, \alpha\rangle}$  is a choice function (i.e.  $CH(f_{\langle\tau, \alpha\rangle})$  holds) iff for every non-empty set  $\mathcal{S}_\tau$ ,  $f_{\langle\tau, \alpha\rangle}(\mathcal{S}_\tau)$  is defined and  $f_{\langle\tau, \alpha\rangle}(\mathcal{S}_\tau)$  is in the extension of  $\mathcal{S}_\tau$  (i.e.  $\mathcal{S}_\tau(f_{\langle\tau, \alpha\rangle}(\mathcal{S}_\tau))$  holds).

That is, a choice function is a function which when applied to a set returns a member of that set. The denotation of a Question-particle (henceforth **Q**) is given below in (111):

$$(111) \quad \llbracket Q_i \rrbracket^g = g(i) \in D_{cf}$$

Recall that, if we adopt a Hamblin-type analysis of *wh*-words, then, by the rules for flexible function application given above in (102), the Hamblin-type set semantics of a *wh*-word will ‘infect’ any element the *wh*-word composes with. This results in the Hamblin-type semantics ‘spreading’ through the derivation, unless it is closed-off by an element which takes a set and returns a member of that set. A choice function is just such an element. Thus, the semantic role of **Q** (=a choice function variable) can be seen then as a sort of ‘cure’ for Hamblin-type semantics, returning an element with ordinary Montagovian semantics.

I assume that the choice function variables represented by Question-particles like *ni* can be existentially bound by the denotation of the interrogative COMP,<sup>21</sup> see (112).

$$(112) \quad \llbracket [\text{COMP}_i^{\text{INT}}\ XP] \rrbracket^g = \lambda p \left[ \exists f \in D_{cf}. p = \llbracket XP' \rrbracket^{g[i/f]} \right]$$

This allows us to correctly predict the denotations of sentences like (108-a), as follows:<sup>22</sup>

<sup>20</sup>The notion of a choice function itself was introduced by Zermelo (1904), for general mathematical set theory, in a paper which gave a proof of the well-ordering theorem for sets.

<sup>21</sup>I use COMP rather than C in order to prevent confusion between the complementiser and Rooth’s pragmatic variable C.

<sup>22</sup>I here set aside the semantics associated with the focus element -*e*.

$$\begin{aligned}
(113) \quad & \llbracket (108\text{-a}) \rrbracket^g = \\
& \text{a. } \llbracket \llbracket_{\text{CP}} \text{C-INT}_i \llbracket_{\text{IP}} \llbracket_{\text{QP}} \llbracket_{\text{DP}} \text{kauru liyəpu potə}_i \rrbracket \text{də} \rrbracket \text{Ranjit gatte} \rrbracket \rrbracket^g = \\
& \text{b. } \lambda p \left[ \exists f \in D_{cf} \cdot p = \llbracket \llbracket_{\text{IP}} \llbracket_{\text{QP}} \llbracket_{\text{DP}} \text{kauru liyəpu potə} \rrbracket \text{də}_i \rrbracket \text{Ranjit gatte} \rrbracket \rrbracket^{g^{[f/i]}} \right] = \\
& \text{c. } \lambda p \left[ \exists f \in D_{cf} \cdot p = \lambda w. \text{Ranjit bought } \llbracket \text{də}_i \rrbracket^{g^{[f/i]}} \left( \llbracket \llbracket_{\text{DP}} \text{kauru liyəpu potə} \rrbracket \rrbracket^{g^{[f/i]}} \right) \text{ in } w \right] = \\
& \text{d. } \lambda p \left[ \exists f \in D_{cf} \cdot p = \lambda w. \text{Ranjit bought } f \left( \{ \iota x. \text{book}'(x) \text{ in } w \ \& \ y \text{ wrote } x \text{ in } w \mid y \in \text{human}' \text{ in } w \} \right) \right. \\
& \quad \left. \text{in } w \right]
\end{aligned}$$

Thus the analysis of Q-particles as denoting variables over choice functions, combined with a Hamblin semantics for *wh*-words, allows for a natural explanation of the semantic properties of *wh*-words and Q-particles with respect to islands.

## 4 KA in Disjunctions

Disjunctions are one of the most interesting environments of KA. The central reason for this being the fact that disjunctions tend to involve multiple instances of KA, unlike the usual case for other KA-environments (cp. Szabolcsi's (2015) discussion), as in examples like (115) (where both instances of *də* are obligatory). Given the semantic treatment so far developed, this is a somewhat surprising fact.

The semantic treatment of Q-particles as variables over choice-functions can account for their appearance in both *wh*-interrogatives as discussed above in Section 3. What of Q-particles in yes/no and alternative questions, as in (114) and (115), respectively?<sup>23</sup>

- (114) *Gunəpālə gamaṭa giya də?*  
 Gunapala village.DAT went.A *də*  
 "Did Gunapala go to the village?"

- (115) *Gunəpālə də Chitra də gamaṭa giye?*  
 Gunapala *də* Chitra *də* village.DAT went.E  
 "Was it Gunapala or Chitra who went to the village?"

I argue that Q-particles like Sinhala *də* play the same role in disjunction that they do in interrogatives and indefinites: they are variables over choice functions. This entails that disjunctive structures, like *wh*-words, involve Hamblin-type sets. The treatment of disjunctions as involving Hamblin-type sets is motivated on independent grounds, as shown by Alonso-Ovalle (2006).<sup>24</sup>

However, that Q-particles act as variables over choice-functions in disjunctions is perhaps not obvious from their surface syntax, given that, for instance, *də* appears *after* EACH of the disjuncts, as in (115).

<sup>23</sup>The difference in the marking on the verb in (114) and (115) is the result of the difference between the two sentences in whether or not there is a focused element in the c-command domain of the verb. Example (114) has no focused element in the c-command domain of the verb, while (115) does.

<sup>24</sup>Specifically, Alonso-Ovalle (2006) shows that:

- (1) A standard semantic treatment of disjunction fails to capture the natural interpretation of counterfactual conditionals which involve disjunctive antecedents, predicting that such counterfactuals are evaluated by selecting the closest worlds from the union of the propositions that *or* operates over; whereas the natural interpretation requires the selection of the closest worlds from *each* of the propositions that *or* operates over – an interpretation predicted under a Hamblin-style semantic analysis if conditionals are analysed as correlative constructions.
- (2) A standard semantic treatment of disjunctions under the scope of modals incorrectly predicts that a sentence like *John may leave or stay* is true so long as John has at least one of the rights (to leave or to stay); whereas a Hamblin-style treatment of disjunction allows for the correct derivation (as an implicature of domain widening) that such a sentence is true iff John has both rights (to leave or to stay).
- (3) A Hamblin-style analysis is better equipped to handle unembedded disjunctions with an exclusive component: where the exclusive component of a disjunction S (with more than two atomic disjuncts) can be derived as an implicature if S competes in the pragmatics with all of the conjunctions that can be formed of the atomic disjuncts – the generation of the pragmatic competitors is difficult under a standard analysis of *or* since the interpretation system does not have access to the atomic disjuncts.

Examples like (115) (typical not only of Sinhala, but also of other languages like Japanese and Malayalam) raise two, related questions: (i) if *də* acts as a choice function and applies to a set, then how is this set created?; (ii) how can *də* apply to the set, since it appears in the surface syntax in a structurally lower position than the set itself (=the entire disjunction)? To put the question another way: how is it that Q-particles like *də* can act as choice functions in disjunctive structures when it appears to be *də* itself that acts as the disjunction?

I will argue that (i) Q-particles themselves do not act as disjunctions, rather the actual disjunction is an unpronounced element (a ‘junction’ element, J, which heads its own projection, JP) whose semantic function is to create a Hamblin-type set; (ii) Q-particles in disjunctive structures actually originate in positions which c-command the disjunct, with PF-level rules accounting for the post-disjunct positioning in surface syntax (unsurprising due to their status as enclitics).

#### 4.1 Evidence for a category J(unction)

English itself furnishes evidence for such an analysis. In English *either... or* constructions, as den Dikken (2006) points out, *either* does not always occur on the edge of the leftmost disjunct; rather it can apparently ‘float’ to positions structurally lower, see (116), *or* structurally higher, see (117), than the leftmost disjunct’s edge.

- (116) a. Either [John ate rice] or [he ate beans].  
b. [John **either** ate rice] or [he ate beans]. [*either* too low]
- (117) a. John ate either [rice] or [beans].  
b. John **either** ate [rice] or [beans]. [*either* too high]  
c. **Either** John ate [rice] or [beans]. [*either* too high]

Based on this evidence, den Dikken (2006) argues that neither *either* nor *or* (nor *both* or *and*) are themselves the lexicalisation of the (dis/con)junction, but rather are phrasal categories which adjoin directly to their (dis/con)junct (or to a node on the  $\theta$ -path projected from the contrastive focus). He proposes that the actual (dis/con)junction is an unpronounced head J (‘junction’).

Den Dikken’s syntactic evidence is persuasive, but the question arises: if elements like *either* and *or* are not themselves lexicalisations of the actual disjunction, then what is their semantic function? I suggest that elements like English *or* are in fact Q-particles, and that, like other Q-particles, their semantic function is that of a variable over choice functions, which apply to Hamblin-type sets.<sup>25</sup>

Alonso-Ovalle’s (2006) Hamblin-style analysis of disjunction involves a very simple disjunction rule, (118).

$$(118) \quad \text{Where } \llbracket B \rrbracket^g, \llbracket C \rrbracket^g \subseteq D_\tau, \left[ \begin{array}{c} A \\ \swarrow \quad \downarrow \quad \searrow \\ B \quad or \quad C \end{array} \right]^g \subseteq D_\tau = \llbracket B \rrbracket^g \cup \llbracket C \rrbracket^g$$

There are at least two difficulties which the straightforward adoption of (118) would present for a unified semantic analysis of Q-particles like Sinhala *də*: (a) Alonso-Ovalle (2006) takes *or* ( $\sim$  Sinhala *də*) itself to be the disjunction operator, and (b) his formulation involves non-binary branching structures.

Taking the ‘junction’ operator in English (and Sinhala etc.) to be an unpronounced J, as argued by den Dikken (2006), we can reformulate (118) as in (119).

<sup>25</sup>That *or* is a Q-particle in English is also suggested by the fact that it can act as a Q-particle in yes/no questions in earlier English, both direct and indirect, see above Section 2.5.

See also Jayaseelan (2008), who makes a similar observation.

(119) ‘Junction rule’ (1st version):

$$\text{Where } \llbracket B \rrbracket^g, \llbracket C \rrbracket^g \in D_\tau, \left[ \begin{array}{c} \text{JP}_a \\ \swarrow \quad \searrow \\ B \quad \text{JP}_b \\ \swarrow \quad \searrow \\ J \quad C \end{array} \right]^g \subseteq D_\tau = \llbracket B \rrbracket^g \cup \llbracket C \rrbracket^g$$

However, (119) is also problematic, if we are not assuming Hamblin-semantics “all the way down”, as the juncts themselves will not generally denote sets. We might then inside revise (119) to:

(120) ‘Junction rule’ (2nd version):

$$\text{Where } \llbracket B \rrbracket^g, \llbracket C \rrbracket^g \in D_\tau, \left[ \begin{array}{c} \text{JP}_a \\ \swarrow \quad \searrow \\ B \quad \text{JP}_b \\ \swarrow \quad \searrow \\ J \quad C \end{array} \right]^g \subseteq D_\tau = \{\llbracket B \rrbracket^g\} \cup \{\llbracket C \rrbracket^g\}$$

However, (120) will not work when dealing with more than two juncts. If we consider something like *John or Bill or Mary*; structurally something like  $\llbracket [\text{John or Bill}] \text{ or Mary} \rrbracket$ , then the result of (120) would be:  $\{\{\text{John}, \text{Bill}\}, \text{Mary}\}$ .<sup>26</sup>

When we consider the role that particles like *də* play, then a rule like (120) will in fact work. That is, in Sinhala, we are actually dealing with a structure like  $\llbracket [\text{John də Bill}] \text{ də Mary} \rrbracket$  də, and thus the result of (120) would be:  $\text{də} \left( \left\{ \text{də} \left( \left\{ \text{də}(\{\text{John}\}), \text{Bill} \right\} \right), \text{Mary} \right\} \right)$ .

While the role of the lowest *də* (adjacent to *John*) still needs explaining, it can be seen in general that *də* works to “undo” the successive embedding that occurs with multiple instances of J.

To put this in a rather stronger manner: the existence of multiple Q-particles in disjunctive structures is in fact predicted under a choice-functional approach.

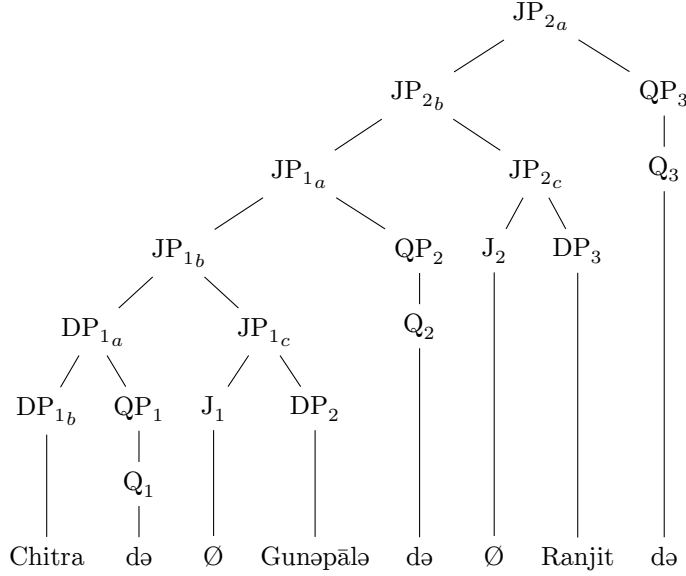
What remains unexpected is the “extra Q” that shows up on the lowest junct. This is not predicted under a choice-functional approach to Q-particles, as the lowest junct will not, unlike higher juncts, be the “victim” of successive set-formation applications. The lowest junct, in this example involving disjunction of individuals, will simply be of type e.

The obligatory appearance of *də* on each of the juncts seems then potentially not to be wholly the result of semantic forces. The forced appearance of *də* on the lowest junct is possibly the result of the requirements of morphosyntax, as discussed in Section 5. However, the “extra” *də*’s semantic function must still be considered in any event. In this case, it appears that the IDENT type-shifting operation (Partee 1986) must apply to the lowest DP, such that  $\llbracket \text{John} \rrbracket$  shifts from denoting *j* to denoting  $\lambda x[x=j]$ . Then *də* can apply to *John* (which, after type-shifting, essentially denotes the singleton set containing *j*). The reason for the presence of *də* on the lowest junct would then have to be explained in terms of morphosyntactic features, e.g. that, for instance, the J head bears some feature that needs checking against features borne by *də*.

<sup>26</sup>Though as noted by an anonymous reviewer, if we allow the type-shifting rule Ident (see below), then (120) is not in fact necessary, as Ident can be applied to each disjunct before the application of the rule in (119).



(121)



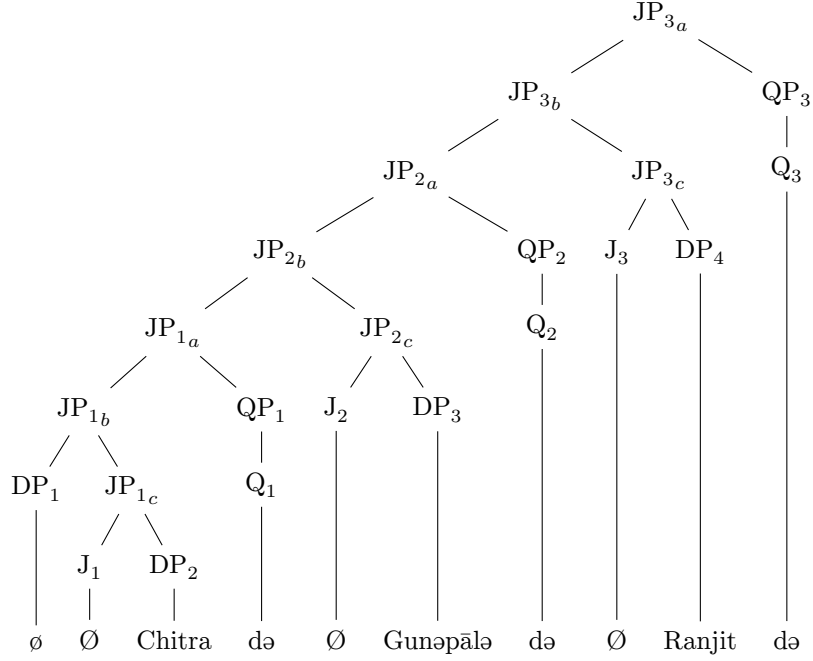
- (122)
- a.  $\llbracket DP_{1b} \rrbracket^g = \lambda x[x = c] \text{ } (< c \text{ by IDENT})$
  - b.  $\llbracket DP_{1a} \rrbracket^g = f_1 \in D_{CH}(\{x|x = c\})$
  - c.  $\llbracket JP_{1a} \rrbracket^g = f_2 \in D_{CH}(\{f_1 \in D_{CH}(\{x|x = c\}), g\})$
  - d.  $\llbracket JP_{2a} \rrbracket^g = f_3 \in D_{CH}(\{f_2 \in D_{CH}(\{f_1 \in D_{CH}(\{x|x = c\}), g\}), r\})$

All of the choice function variables in (121) will then be bound by existential closure.

A more mathematically satisfying solution than type-shifting the lowest junct would be to posit that the actual lowest member of a junction chain is always a (both phonetically and semantically) an “empty” DP. This would mean that the  $J_1$  would effect the union of  $\{\text{Chitra}\}$  and  $\emptyset (= \{\}, \text{i.e. the empty set})$ . The empty DP would function as a sort of chain closure: a signal to close the “list”. This second approach has a number of advantages to recommend it: it alleviates the need for type-shifting of the final junct and allows for a simpler morphosyntax. Its disadvantage is the introduction of a linguistic element that is phonetically vacuous.<sup>27</sup>

<sup>27</sup>Presumably such an element would be difficult for a language learner to acquire. However, if junction works more or less in this fashion universally, then the presence of a phonetically null element in such environments could be part of a human speaker’s language endowment. Interestingly, in Common Lisp, a dialect of the programming language Lisp (which itself was inspired by Church’s (1932; 1936; 1940) lambda calculus), lists (effectively special types of binary-branching trees) are terminated/closed by a nil item itself equivalent to an empty list (Steele Jr. 1990: 32). This of course likely has little bearing on the structure of human language, but it at least provides a logical parallel. Note further that the successive application of choice functions, at each level, essentially chooses either the “unembedded” element or the “remainder”: e.g. in (124),  $f_3$  chooses either  $r$  or  $f_2 \in D_{CH}(\{f_1 \in D_{CH}(\{x|x = c\}), g\})$ , and similarly  $f_2$  chooses either  $g$  or  $f_1 \in D_{CH}(\{x|x = c\})$  (and, finally,  $f_1$  has only one possible choice since it applies to a singleton set). This is reminiscent of the primitive operations **car** and **cdr** in Lisp (McCarthy 1960: 187), where the former chooses the first element of a list and the latter chooses the remainder of the list (which is likewise equivalent to successively embedded elements).

(123)



- (124)
- a.  $\llbracket DP_1 \rrbracket^g = \emptyset$  [that is, it denotes the empty set]
  - b.  $\llbracket JP_{1b} \rrbracket^g = \{\} \cup \{c\} = \{c\}$
  - c.  $\llbracket JP_{1a} \rrbracket^g = f_2 \in D_{CH}(\{f_1 \in D_{CH}(\{c\}), g\})$
  - d.  $\llbracket JP_{2a} \rrbracket^g = f_3 \in D_{CH}\left(\left\{ f_2 \in D_{CH}(\{f_1 \in D_{CH}(\{c\}), g\}) \right\}\right)$

Turning back to English, following up on Section 2.5: in standard modern colloquial English, generally *or* must precede the ultimate disjunct, and may optionally precede each of other disjuncts, with the exception of the first disjunct (in which position we sometimes find *either*, but see above Section 4.1). In earlier English, and even in modern poetical English, the first disjunct may also be preceded by *or*, as shown by the examples below.<sup>28</sup>

- (125)
- a. **Or** he shal singe *si dedero*, **or** al geineth him noht.  
“He shall sing *si dedero*, or all profits him naught.” [ca. 1330; T. Wright, *Polit. Songs Eng.* (1839) 324]
  - b. Loth to leaue vnsought **Or** that, **or** any place.  
“Loath to leave unsought either that or any place.” [a1616; Shakespeare, *Comedy of Errors* (1623) i. i. 136]
  - c. Without **or** wave **or** wind. [1800; S. T. Coleridge, *Anc. Mariner* vi, in Wordsworth & S. T. Coleridge, *Lyrical Ballads* (ed. 2) I. 185]
  - d. Learn that to love is the one way to know **Or** God **or** man. [1867; J. Ingelow, *Story of Doom* vii. 266]
  - e. His eyes are all glazed, **Or** far **or** near he can see nothing straight. [1957; D. L. Sayers, translation of the *Song of Roland* 128]

In view of these data, let us adopt the following working hypothesis: at some level of representation the structure of English disjunction is similar to that of Sinhala, in that each disjunct is associated with *or* – although in English they precede rather than follow the disjunct. In modern colloquial English the *or* preceding the initial disjunct is obligatorily elided (or else appears in the form *either*<sup>29</sup>), and all other instances of *or*, save the one preceding the final disjunct, are optionally elided – but this elision of course takes place on the PF-side, while on the LF-side each disjunct is still preceded by *or*.

<sup>28</sup>Cited from Murray et al. (1884–2017).

<sup>29</sup>Although it may be that *either* has additional semantic and/or syntactic properties, as compared with *or*.

## 5 Syntactic Analysis

In this study the syntactic formalism adopted is essentially that of the Minimalist Program (Chomsky 1995, 2001, 2004, 2007), wherein lexical elements inserted into the derivation may bear formal features. In addition to (semantically) interpretable features, elements may also bear uninterpretable features. Uninterpretable features cannot be interpreted by the interfaces (LF & PF) and thus the presence of any uninterpretable features in the derivation when it is Spelled-out causes the derivation to crash. Uninterpretable features are features with no value – in contrast to interpretable features, which are always valued. Uninterpretable features may pick up a value in the course of the derivation, at which point they are deleted and thence present no interpretation problem for the interfaces. Only unvalued features are active, and only active features can Probe. Note that, unlike Chomsky, I crucially do not assume that only elements bearing active (that is, unvalued) features can be the TARGET of a Probe.

Using this formalism, I present a detailed analysis of the interaction of the formal syntactic features of Q-particles, complementiser heads, ‘junction’ (J), and *wh*-words, which provides the all but last piece of the account of the distribution of Q-particles in Sinhala (early and modern), Malayalam (early and modern), and Tlingit.

I assume that complementisers may be sub-divided into interrogative complementisers (CP-INT) and declarative complementisers (CP(decl)), and that C-INT may bear different features from C(decl). I further posit that CP-INT may be (in some languages) further differentiated as necessary as specific to *wh*- or non-*wh*-questions, and the latter category may distinguish between yes/no and alternative questions. In some languages (e.g. Old Malayalam) these may be the only two types of COMP heads; in other languages C-INT heads may be further subdivided into two subtypes, *wh*-associated interrogative complementisers (C-INT(*wh*)) and non-*wh*-associated interrogative complementisers (C-INT(non-*wh*)); in other languages (e.g. early Sinhala), the non-*wh*-associated interrogative complementiser may occur as two distinct elements: yes/no-complementiser heads (C-INT(y/n)) and alternative-question complementiser heads (C-INT(alt)).

A question arises regarding the nature of the relevant formal syntactic features. Consider again the distribution of Q-particles in the languages under consideration, Table 2.

	Old Sin	Class Sin	Lit Sin	Colloq Sin	Old Mal	Mod Mal	Tlin	Jap
y/n-ques.	(da)	(da)	da	də	-ō	-ō	gé	ka, no, kai, kadooka
<i>wh</i> -ques.	(da)	(da)	da	də	-ō	—	sá	ka, no, ndai
<i>wh</i> -indef.	—	—	hō (aff. & neg.), vat (neg.)	də (aff.), hari (aff.), vat (neg.)	-ō	-ō	sá	ka
decl. disj.	hō, heva(-t)	hō, heva(-t)	hō (aff. & neg.), vat (neg.)	hari (aff. & neg.), vat (neg.)	-ō	-ō	khach’u	ka
interr. disj.	da	da	da	də	-ō	-ō	gé... gwáa	[ka] <sup>30</sup>

Table 2: Distribution of Q particles in various stages of Sinhala & Malayalam; Tlingit, Japanese (repeated)

One feature which immediately suggests itself, particularly in the case of Tlingit, is a [wh] feature, since Tlingit *sá* only occurs with *wh*-words, whereas *gé* occurs in other contexts.

However, in all of the languages under consideration, the semantically simple *wh*-words (the *wh*-words of Tlingit are of this type) share a common syntactic property – while there may be no island barriers between the Q-particle itself and the complementiser head of the clause in which the *wh*-word takes scope – there may be (theoretically an infinite number of) island barriers in-between the *wh*-word and the Q-particle. (See above at (107).)

The relevant contexts do differ with respect to whether a disjunction is present and whether the clause is interrogative or not. Therefore – with the exception of Modern Malayalam, where a Wh[ ] feature is

<sup>30</sup> Again, see fn. 15 for details on KA in interrogative disjunctions.

required – the only relevant features are Q[ ] (a ‘Q-particle feature’), Int[ ] (an ‘interrogative’ feature), and Junc[ ] (a ‘junction’ feature). Since the exact value of these features is irrelevant for my purposes, I indicate valued features simply as ‘+’ (or as ‘–’ where two distinct interpretable values are necessary, as in the case of the interrogative feature Int[ ]).

The follow subsections examine the specific syntactic feature configuration for Sinhala (four stages), Malayalam (two stages), Tlingit, and Japanese.

## 5.1 Modern Colloquial Sinhala

In modern colloquial Sinhala the Q-particle *də* appears obligatorily in all interrogatives; the Q-particle *hari* appears obligatorily in declarative disjunctions; *wh*-based indefinites appear with either *də* or *hari*.<sup>31</sup>

The following constellation of feature-assignments can account (to a large extent) for the distribution of these Q-particles in modern colloquial Sinhala, as shown in Table 3.

Categories for which the feature cell of the table is left empty do not bear any features (which are relevant here).

CATEGORY	FEATURE(S)
<b>C-INT</b>	uQ[ ], iInt[+]
<b><i>wh</i>-pronoun</b>	iInt[+]
<b><i>də</i></b>	iQ[+], uInt[ ]
<b><i>hari</i></b>	
<b>J</b>	

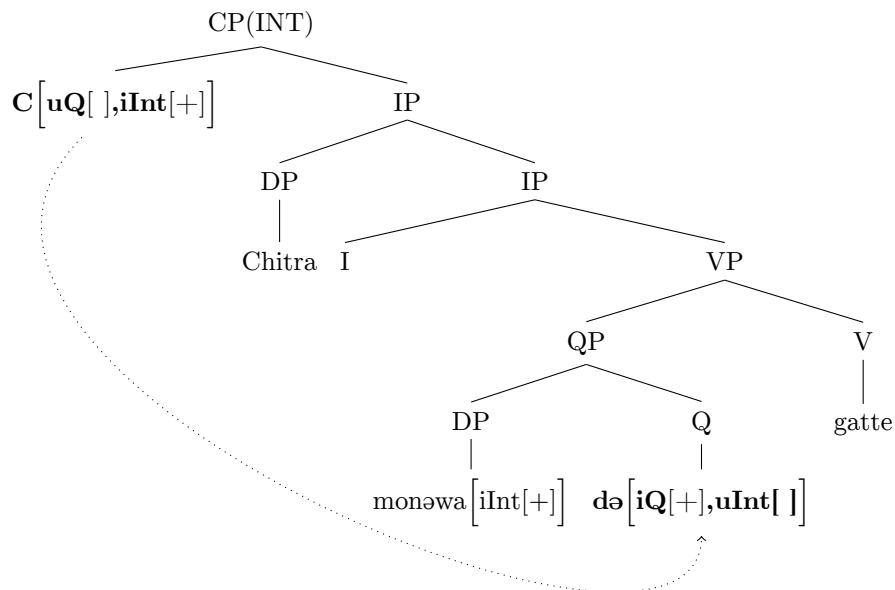
Table 3: Modern Colloquial Sinhala feature assignments [nullDP]

- (126) *Chitra monəwa də gatte?*  
 Chitra what *də* bought-E  
 ‘What did Chitra buy?’

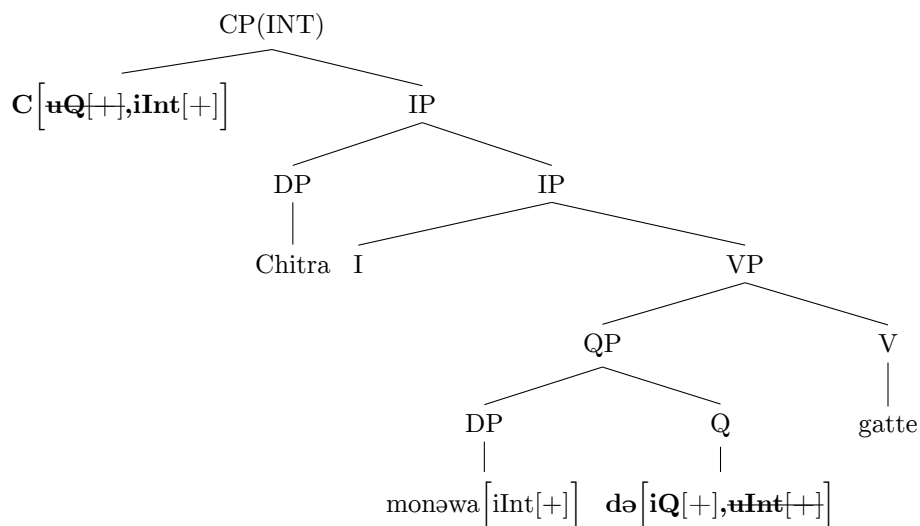
The feature-valuation of (126) is shown below in (127). C, bearing an unvalued uQ[ ] feature, Probes and finds *də* bears a matching iQ[+] feature, allowing an Agree relationship to be established, as shown in (127-a). The Agree relationship results in C’s uQ[ ] feature receiving a value, as in (127-b).

<sup>31</sup>See Section 2.1.2 above on the difference between the two types of indefinites.

(127) a.



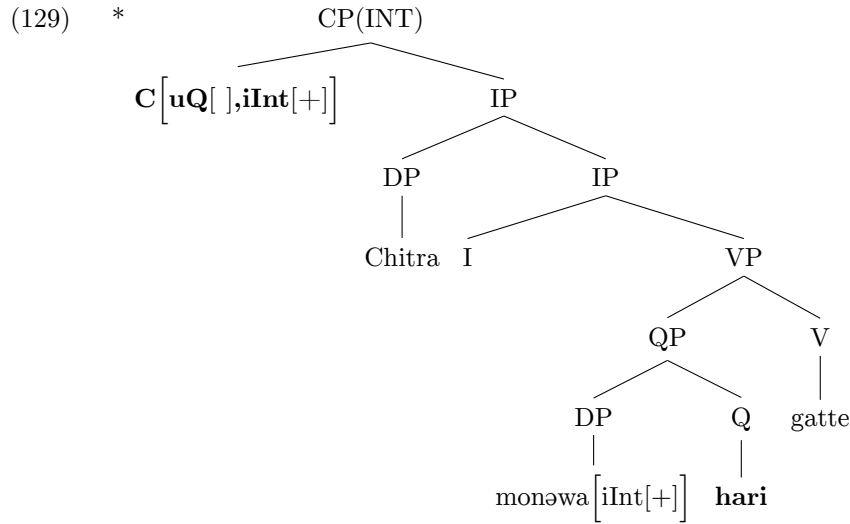
b.



The Q-particle *hari* is disallowed in interrogative contexts, thus a sentence like (128) is ungrammatical.

- (128) \**Chitra monəwa hari gatte?*  
 Chitra what *hari* bought-E  
 ‘What did Chitra buy?’

This ungrammaticality can be derived syntactically as resulting from the failure of the  $uQ[ ]$  feature of C to acquire a value. *Hari* does not bear any Q feature and thus when C Probes, it finds no matching feature and remains unvalued, as shown in (129). Unvalued features are uninterpretable at the interface, and thus this lack of a value for C’s  $uQ[ ]$  feature results in a crash when the CP is sent to Spellout/Transfer.

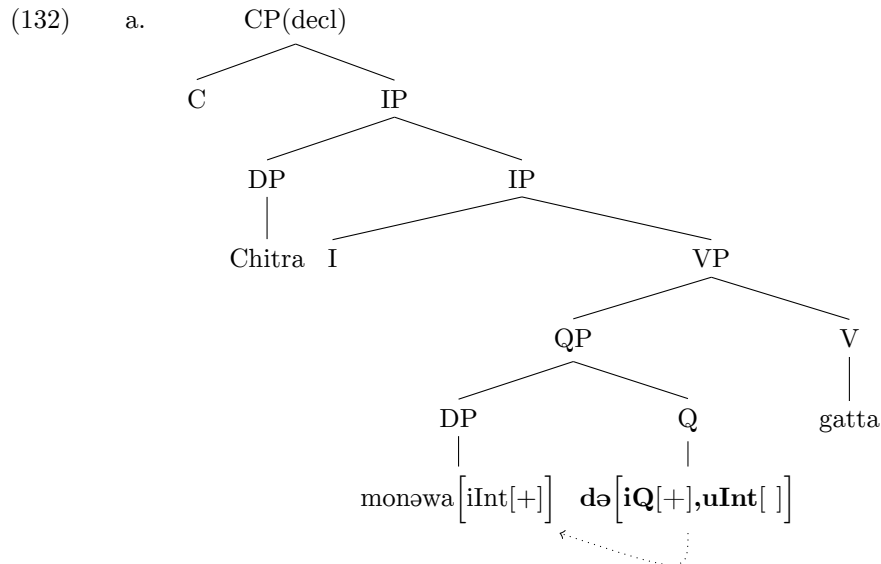


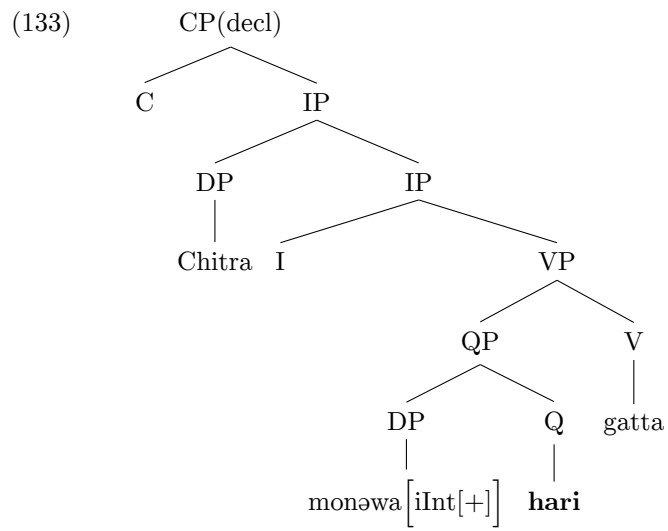
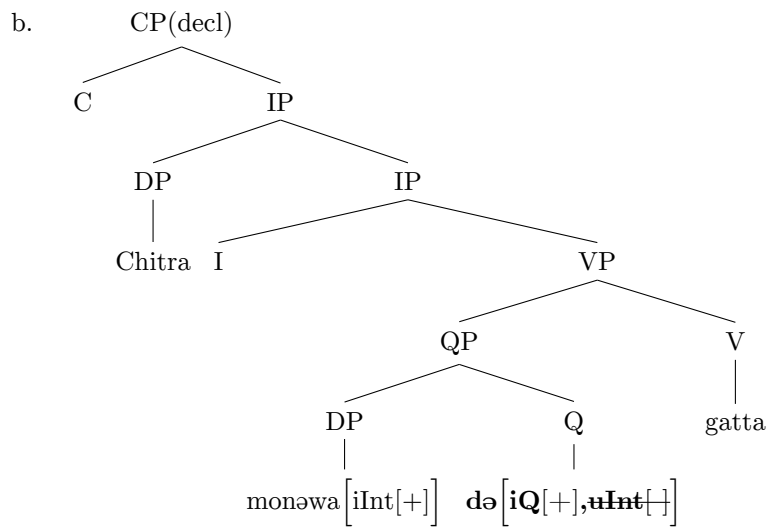
In indefinite contexts, both *də* and *hari* are permissible, see (130), (131), as in fact neither *də* or *hari* nor the declarative C head bear any unvalued features, see (132-a), (133), respectively.

- (130) *Chitra monəwa də gatta.*  
 Chitra what *də* bought-A  
 ‘Chitra bought something.’

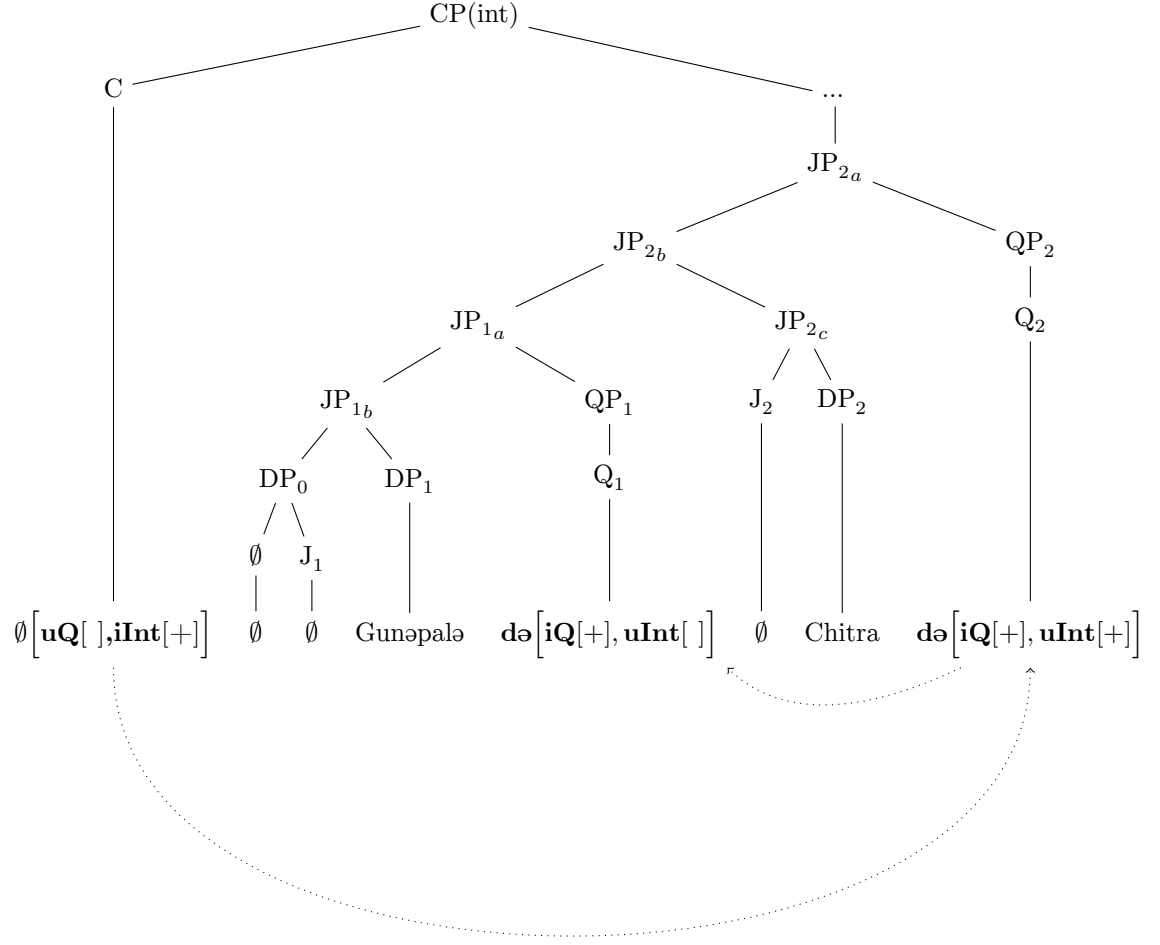
- (131) *Chitra monəwa hari gatta.*  
 Chitra what *hari* bought-A  
 ‘Chitra bought something.’

(132) shows the derivation of an interrogative disjunction with *də* attached to each of the juncts; (135) shows a failed derivation of an interrogative disjunction where *hari* appears rather than *də*; (136) shows a failed derivation of a non-interrogative disjunction where *də* appears rather than *hari*.

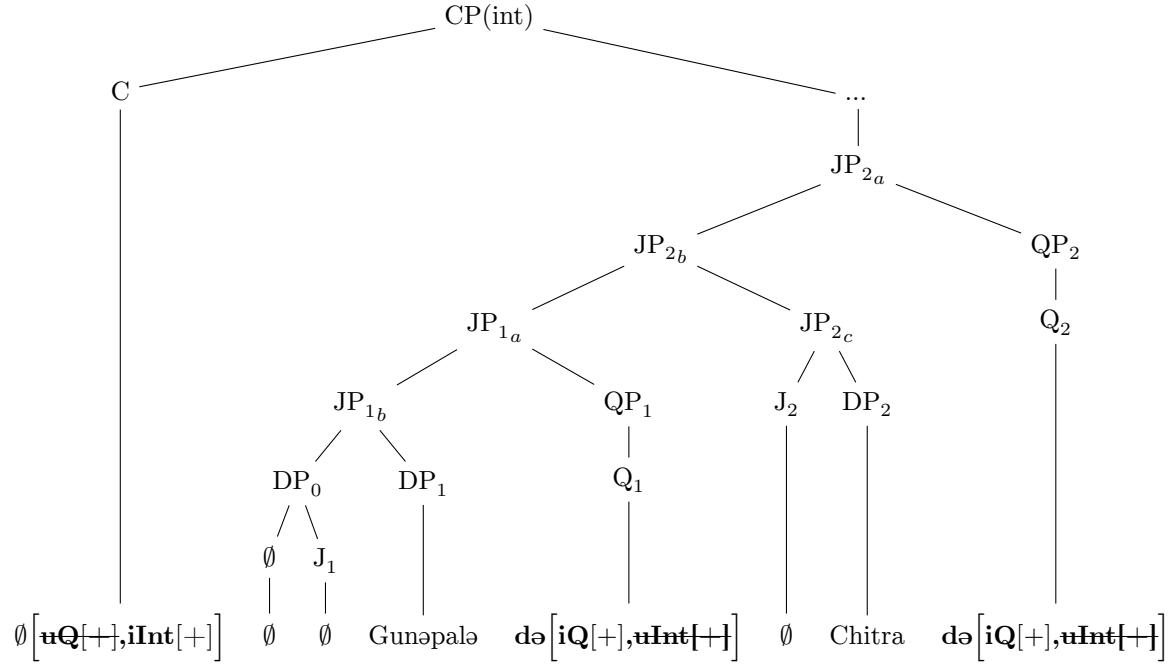




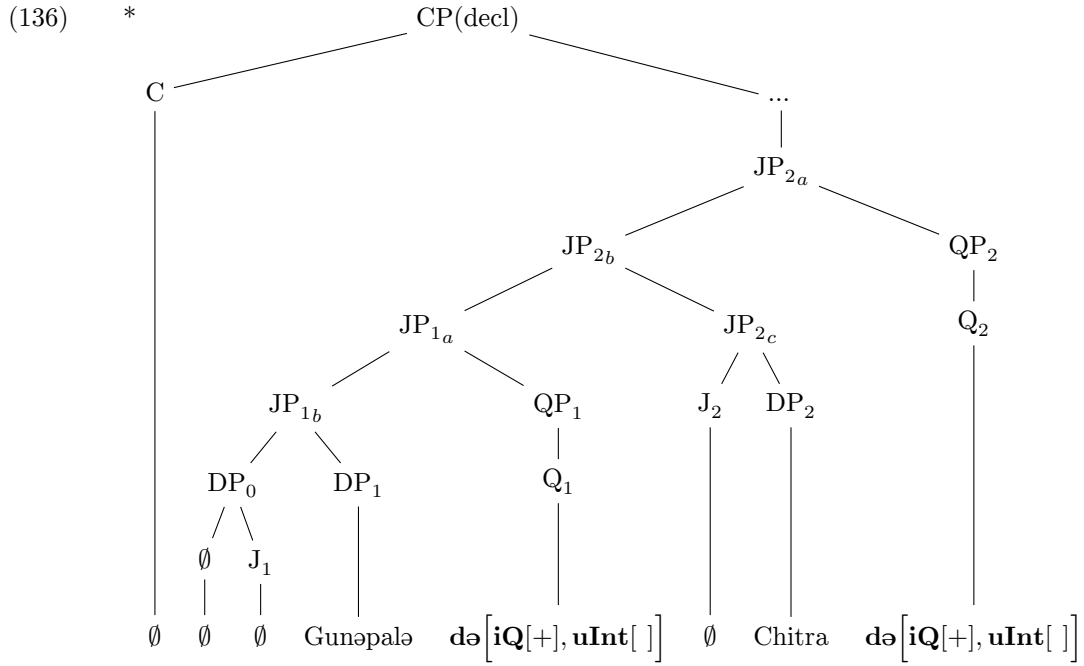
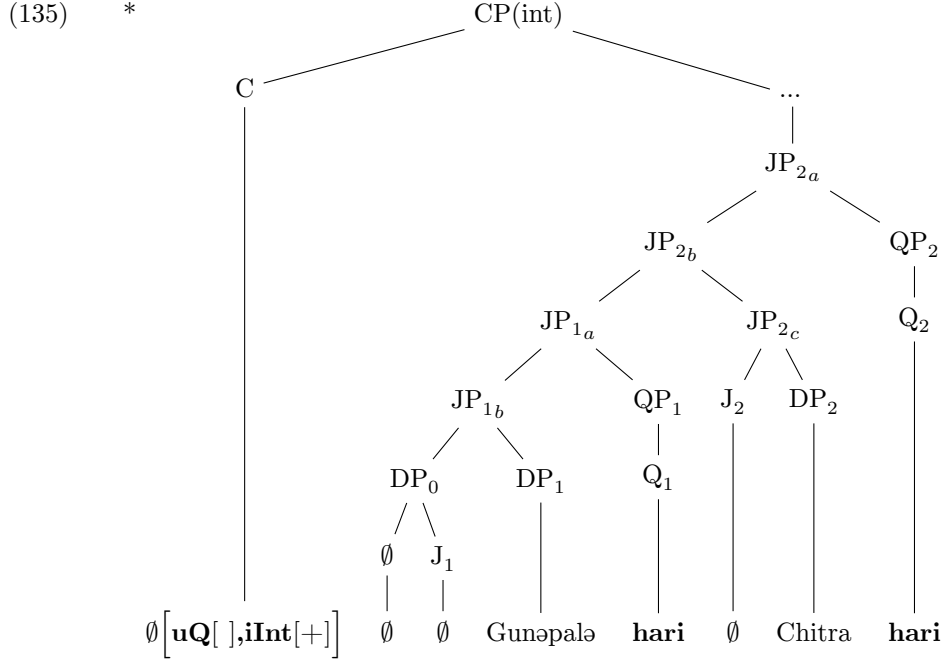
(134) a.



b.





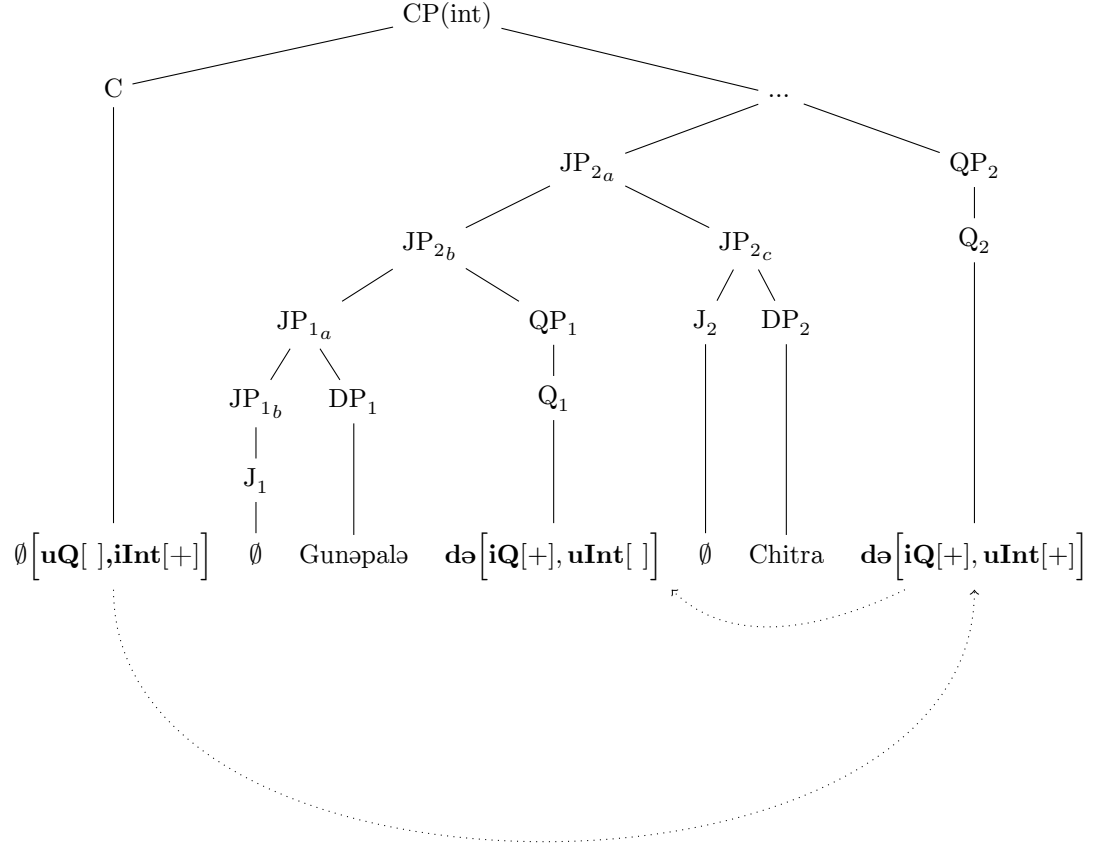


If we adopt the analysis without null “closing” DPs in Junction chains, but instead allow for “ident” type-shifting of the lowest DP, then the following feature specifications are needed:

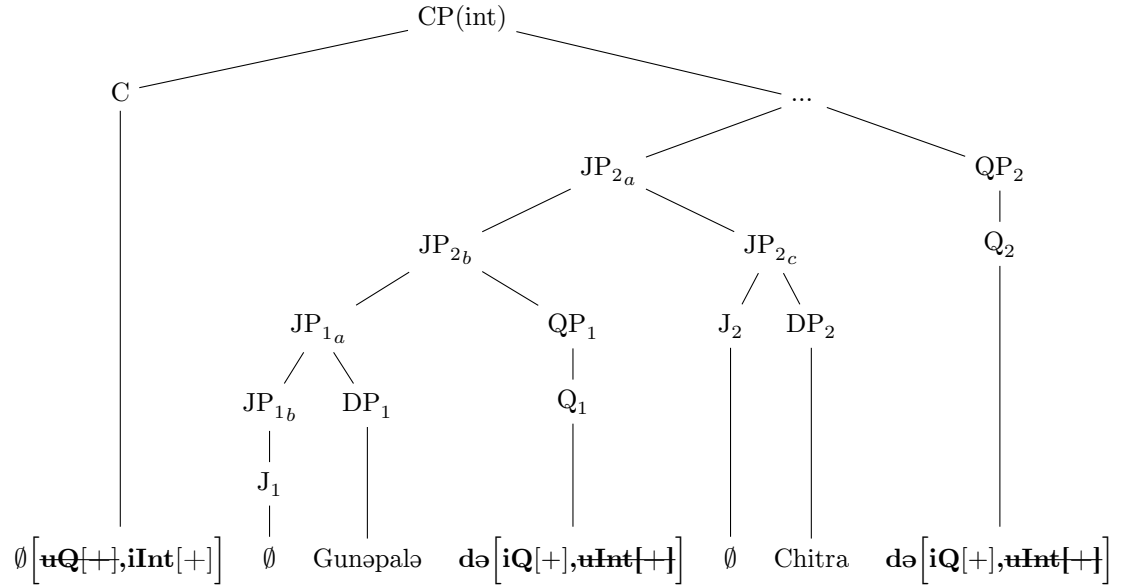
CATEGORY	FEATURE(S)
<b>C-INT</b>	uQ[ ], iInt[+]
<i>wh-pronoun</i>	iInt[+]
<i>də</i>	iQ[+], iX[+], uInt[ ]
<i>hari</i>	iX[+]
<b>J</b>	uX[ ]

Table 4: Modern Colloquial Sinhala feature assignments [ident]

(137) a.



b.



## 5.2 Modern Literary Sinhala

The relevant feature assignments for Modern Literary Sinhala are shown in Table 5.

With respect to the formal syntactic features of Q-particle structures, Literary Sinhala differs fairly minimally from Colloquial Sinhala. Relevant differences include the use of *hō* rather than *hari*, and the inadmissibility of *da* in non-interrogative contexts; i.e. *da* cannot be used to form indefinite pronouns. This latter difference is captured by assigning *da* an unvalued *uInt[ ]* feature, thus requiring the presence of an interrogative C head to value it.

CATEGORY	FEATURE(S)
C-INT	uQ[ ], iInt[+]
<i>wh</i> -pronoun	
<i>da</i>	iQ[+], uInt[ ]
<i>hō</i>	
J	

Table 5: Modern Literary Sinhala feature assignments

### 5.3 Early Sinhala

In Old and Classical Sinhala, there are no *wh*-based indefinites. Instead, alongside of the possibility of using indefinite NPs (a possibility which still exists in modern Sinhala), we find the monomorphemic elements *kisi* and *yam*.<sup>32</sup>

There is a certain amount of variation in both Old and Classical Sinhala, with respect to the use of *da* in yes/no and *wh*-questions; I posit two grammars to handle this variation. Table 6 represents the feature assignments for the grammar in which *wh*- and yes/no questions appear without *da*; the feature assignments for the grammar in which *da* appears in yes/no and *wh*-questions are given in Table 7.

CATEGORY	FEATURE(S)
C-INT( <i>wh</i> )	iInt[+]
C-INT( <i>y/n</i> )	iInt[+]
C-INT( <i>alt</i> )	uQ[ ], iInt[+]
<i>wh</i> -interrog.	
<i>indef. pronoun</i>	
<i>da</i>	iQ[+], uInt[ ]
<i>hō</i>	
J	

Table 6: Early Sinhala I feature assignments

CATEGORY	FEATURE(S)
C-INT	uQ[ ], iInt[+]
<i>wh</i> -interrog.	
<i>indef. pronoun</i>	
<i>da</i>	iQ[+], uInt[ ]
<i>hō</i>	
J	

Table 7: Early Sinhala II feature assignments

As shown by Tables 6 and 7, this variation is handled by the presence or absence of a uQ[ ] feature on the interrogative C head. I posit that at this stage of Sinhala *da* bears an unvalued uInt[ ] feature, which in effect disallows *da* from appearing in any environment in which there is no element available to value this feature. In the Early Sinhala I grammar, see Table 6, the only element available for valuing uInt[ ] is C-INT(*alt*) and thus *da* only appears in alternative questions in this grammar (and there too obligatorily). In the Early Sinhala II grammar, see Table 7, the C-INT category is collapsed (in other

<sup>32</sup>*Kisi* derives from Sanskrit *kin̄cit* (> Pāli *kin̄ci*), which is composed of *kim* ‘what’ and the particle *cit* – and thus is in fact diachronically a *wh*-based indefinite – but by the time of Sinhala has become a non-analysable monomorphemic element. *Yam* is based on the Old Indo-Aryan *ya*- stem (used to form relatives in relative-correlative structures).

*Yam* and *kisi* can also co-occur, and thus we find both *kisi-yam* and *yam-kisi*, “some, any”. Geiger (1938: §134.2) also cites a 10<sup>th</sup>-c. instance where *yam* does in fact occur with a *wh*-word (*kavari* “what, which”), but this appears to be a rather marginal construction.

(i) *mahan-vannavun atin yam- kavari vatak no gannā isā*  
*yam- what/which hand.INDEF*

“To receive nothing whatever from the hand of those entering the order” (10<sup>th</sup> c. inscription; Wickremasinghe et al. 1912–1933: I.49<sup>51</sup>)

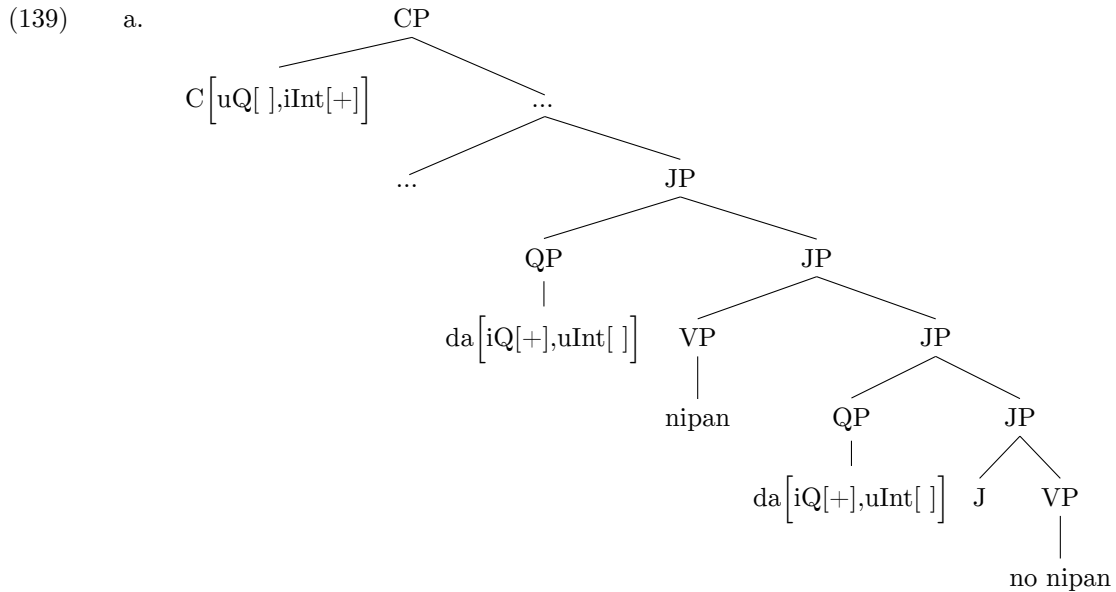
words all subcategories of C-INT bear the same set of features) and *da* is therefore allowed and obligatory in all interrogative environments.

In terms of the syntactic features involved, in regard to the differences between the various stages of Sinhala (with respect to the distribution of Q-particles) note that the changes involved are relatively minimal: in early Sinhala, there is variation in which interrogative heads bear unvalued  $uQ[ ]$  features. This variation is settled in favour of all interrogative heads bearing unvalued  $uQ[ ]$  features in modern literary Sinhala. The only difference in terms of syntactic features between the system of Q-particles in modern literary Sinhala and modern colloquial Sinhala is that the particle *da/də* in modern colloquial Sinhala no longer enters the derivation with an unvalued  $uInt[ ]$  feature.

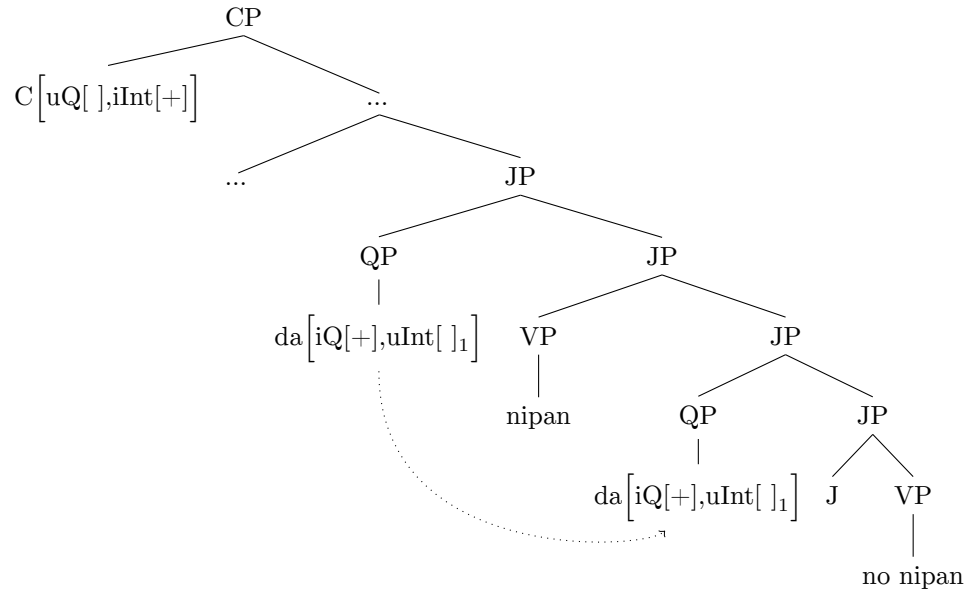
Let us consider the case of alternative questions in Early Sinhala grammar. In this situation the use of the notion of “feature-sharing” (adopted from Pesetsky & Torrego (2007)) is crucial. Consider an alternative question like (138), where we find two Q-particles.

- (138)    *mā ... nuvaṭahu                      arabhayā kī                      dē    nīpan da no    nīpan da?*  
           my ... religious mendicant about    said things QUOT born **da** NEG born **da**?  
           “Did my predictions regarding the religious mendicant prove correct or did they not?” (12<sup>th</sup>  
           century, *Ama.* 178) (Wijemanne 1984: 75) [CS]

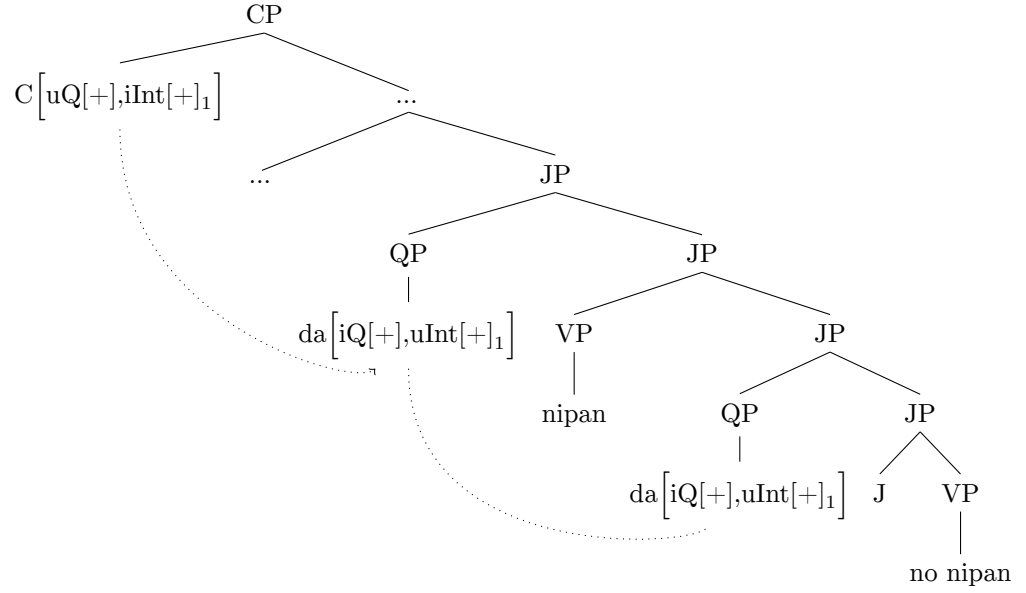
According to the analysis adopted here, each Q-particles bears an unvalued  $uInt[ ]$  feature which needs valuing. The process of feature-valuation is shown in (139): first the higher *da* (active due to its unvalued  $uInt[ ]$  feature) Probes and Agrees with the lower *da*, establishing a feature-sharing relationship (for  $uInt[ ]$ ) as shown in (139-b); then C Probes and Agrees with the higher *da*, resulting in the valuing of C’s  $uQ$  feature and the valuation of the higher *da*’s  $uInt$  feature – the latter, since it shares its value with that of the lower *da*’s  $uInt$  feature, results in the valuation of the lower *da*’s  $uInt$  feature as well, as shown in (139-c). The valued uninterpreted features then are deleted, as shown in (139-d).



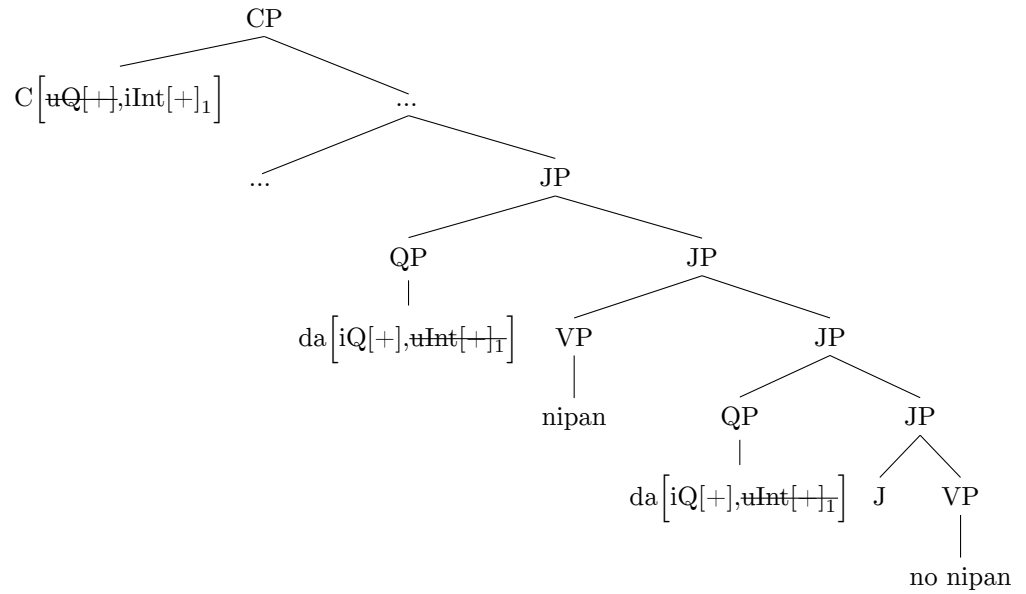
b.



c.



d.



## 5.4 Old Malayalam

I present the Old Malayalam Q-particle related feature system before the Modern Malayalam system because the former is simpler. In Old Malayalam the particle *-ō* appears in obligatorily yes/no, alternative, and *wh*-questions, in disjunctions, and in the formation of *wh*-indefinites. The feature assignments are shown below in Table 8; the Old Malayalam system is thus similar in many respects to the modern colloquial Sinhala system, though it is simpler in that there is only one Q-particle.

CATEGORY	FEATURE(S)
<b>C-INT</b>	uQ[ ], iInt[+]
<b><i>wh</i>-pronoun</b>	
<b>-ō</b>	iQ[+]
<b>J</b>	

Table 8: Old Malayalam feature assignments

## 5.5 Modern Malayalam

The Q-particle valuation system of Modern Malayalam closely resembles that of Old Malayalam, except that in the modern language *-ō* no longer appears in *wh*-interrogatives, which requires treating the interrogative complementiser of *wh*-questions separating from that of other questions, as indicated in Table 9, as bearing an additional unvalued feature: a Wh-feature. The only element which can value this feature is the interrogative pronoun, bearing valued iQ[+] and iWh[+] features.<sup>33</sup>

CATEGORY	FEATURE(S)
<b>C-INT(wh)</b>	uQ[ ], uWh[ ], iInt[+]
<b>C-INT(non-wh)</b>	uQ[ ], iInt[+]
<b>C(decl)</b>	
<b>-ō</b>	iQ[+]
<b>J</b>	
<b><i>wh</i>-words</b> (sem. simple)	
<b><i>wh</i>-interrog.</b> (sem. complex)	iQ[+], iWh[+]

Table 9: Modern Malayalam features

## 5.6 Tlingit

I posit the following set of feature assignments for Tlingit, shown in Table 10

CATEGORY	FEATURE(S)
<b>C-INT</b>	uQ[ ], iInt[+]
<b><i>wh</i>-pronoun</b>	
<b><i>sá</i></b>	iQ[+]
<b><i>gé</i></b>	iQ[+], uJunc[ ], uInt[ ]
<b><i>khach'u</i></b>	uJunc[ ], iInt[-]
<b>J</b>	iJunc[+], uInt[ ]

Table 10: Tlingit feature assignments

The Q-particle *sá* appears obligatorily in *wh*-questions (see example (140)) and is also used to form *wh*-based indefinites (see example (141)), thus similar in some respects to modern colloquial Sinhala *dā*.

<sup>33</sup>This is accompanied by a lexico-semantic split of *wh*-words from being uniformly semantically-simple elements which could act either as interrogative or indefinite pronouns in Old Malayalam to being either semantically-simple (and serving only as indefinite pronouns) or else being semantically-complex (*wh*-interrogative pronouns).

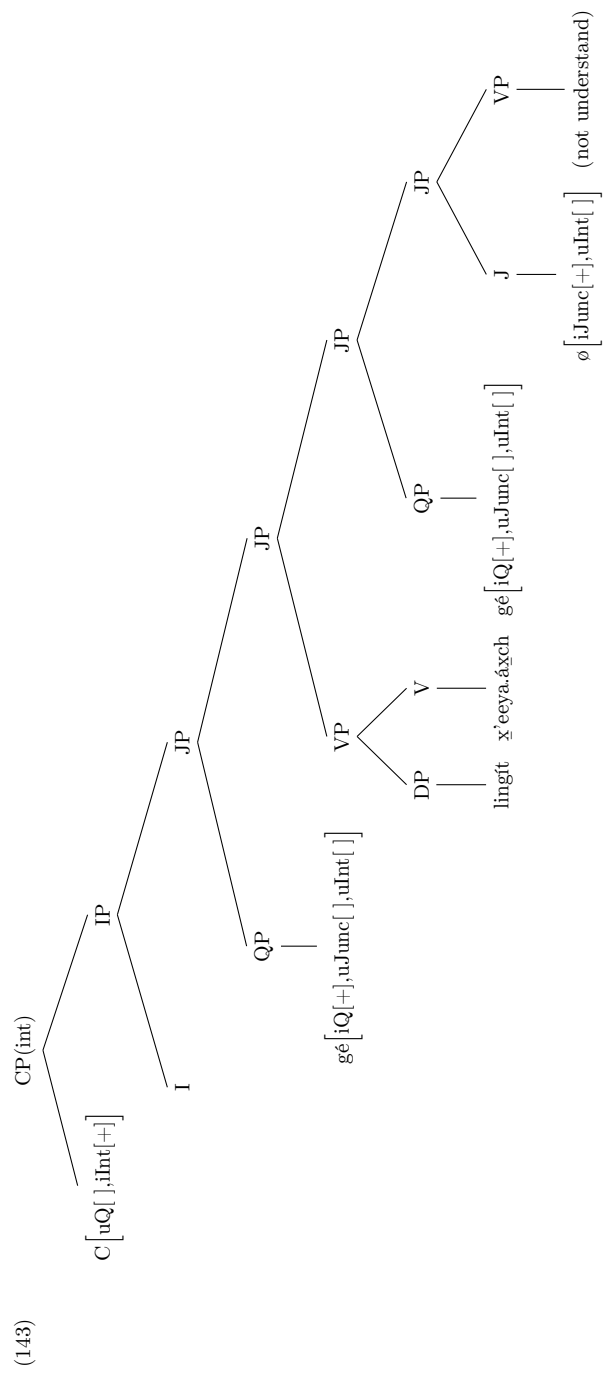
- (140) *Daa sá aawaxáa i éesh?*  
 what *sá* he.ate.it your father  
 ‘What did your father eat?’ (Cable 2007: 75)
- (141) *Kéet axá daa sá.*  
 killer.whale he.eats.it what *sá*  
 ‘A killer-whale will eat anything.’ (Cable 2007: 66)

However, a distinct particle, *gé*, is employed in yes/no-questions, as in (142).

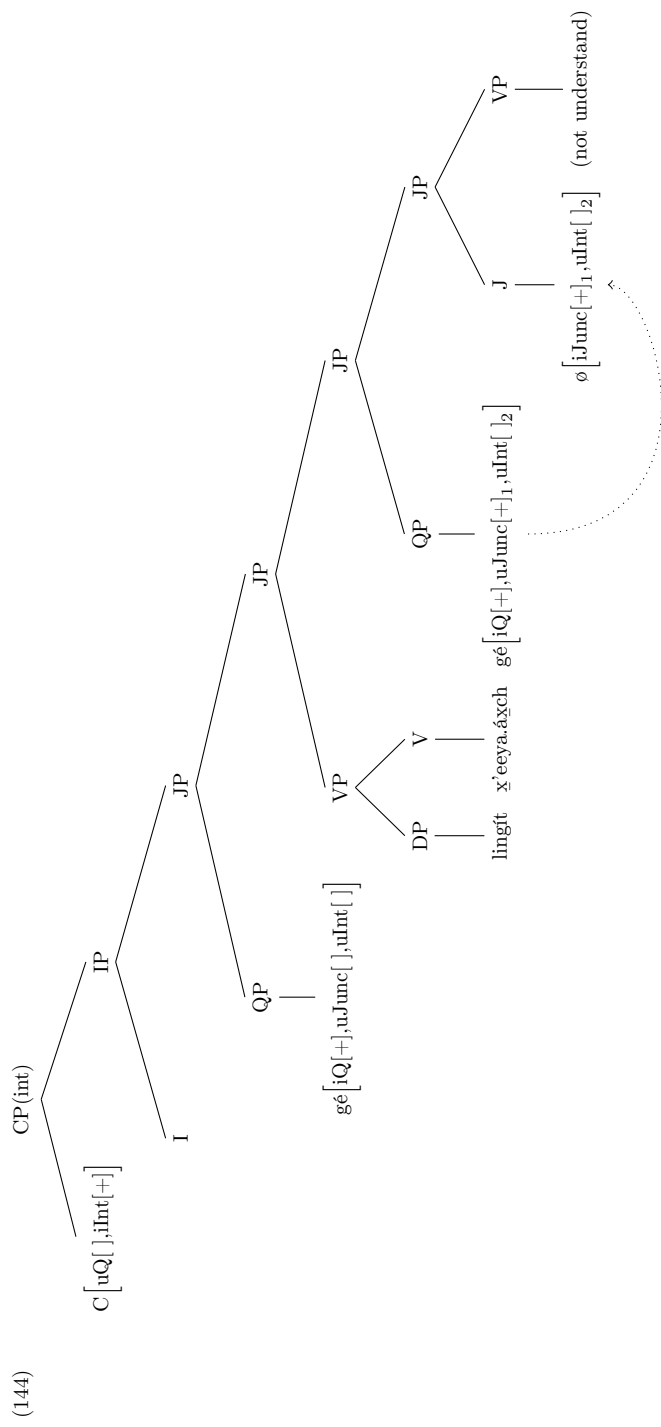
- (142) *Lingít gé x’eeya.áxch?*  
 Tlingit *gé* you.understand.it  
 ‘Do you speak Tlingit?’ (Cable 2007: 74n40)

The distinct feature assignments for *gé* and *sá* predict the complementary distribution of these two particles: *sá* bears no unvalued features and is thus possible in *wh*-indefinites (where no Agree operations are necessary) and in *wh*-interrogatives (where C-INT simply requires a valued Q feature, which *sá* provides), while *gé* bears both an unvalued uJunc[ ] and an unvalued uInt[ ] feature, rendering it admissible only in interrogatives contexts containing a disjunction.

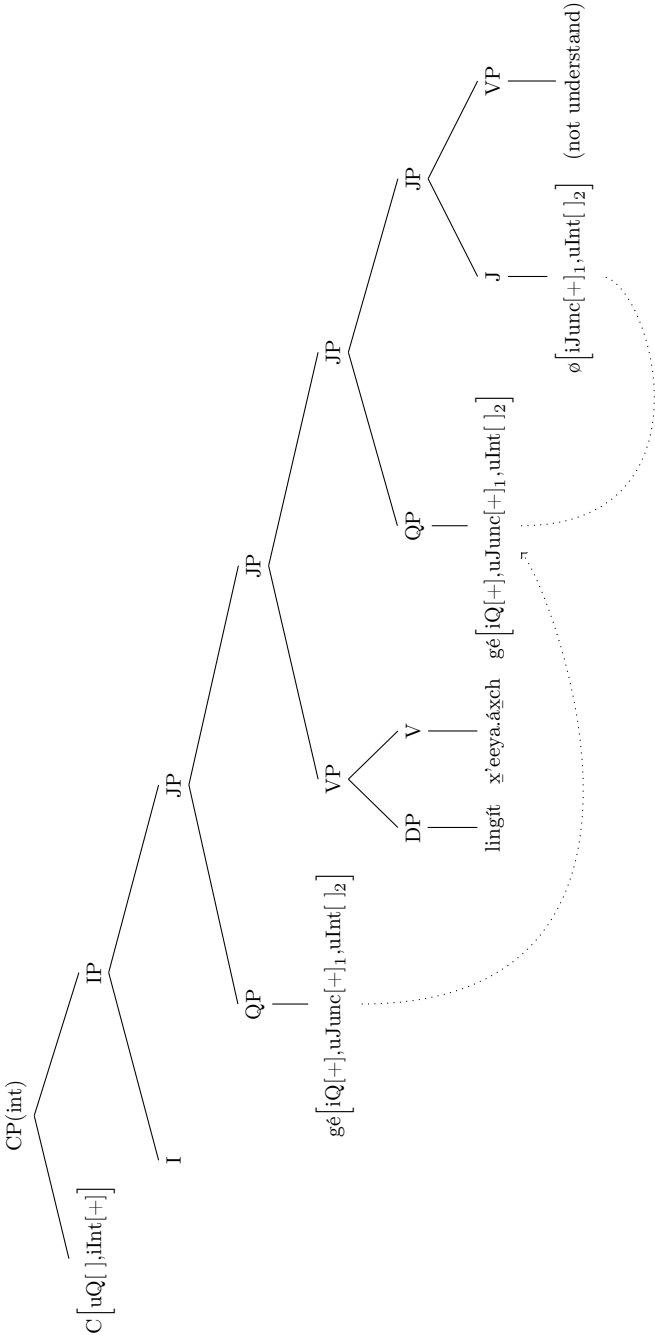
Assuming the above feature assignments, the derivation of feature assignments for (142) is shown below in (143)–(147), following a pattern similar to that observed for Early Sinhala alternative questions shown above in (139).



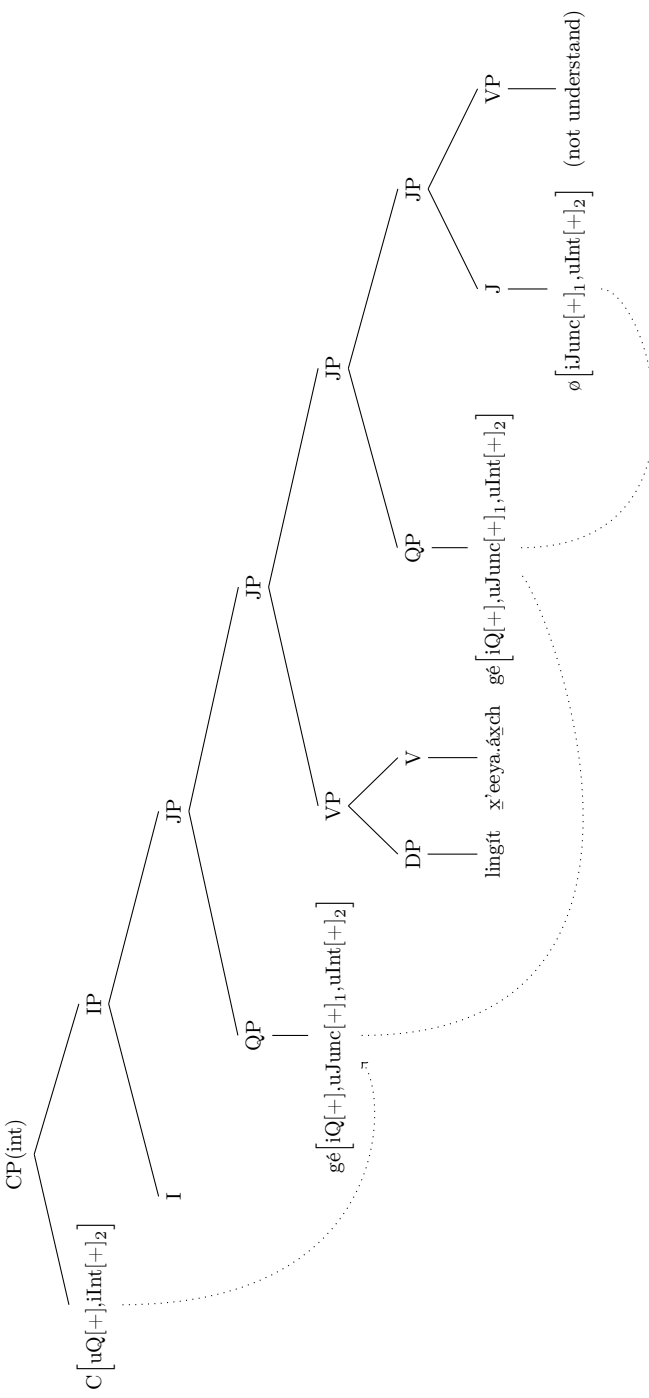




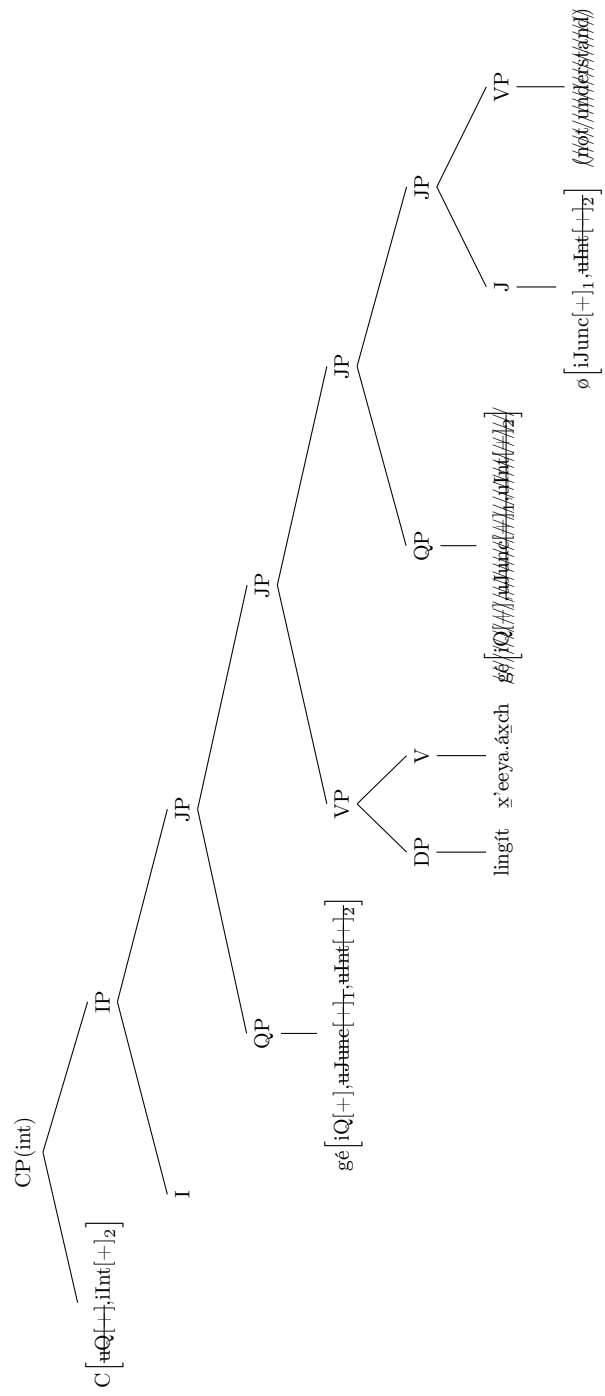
(145)



(146)



(147)



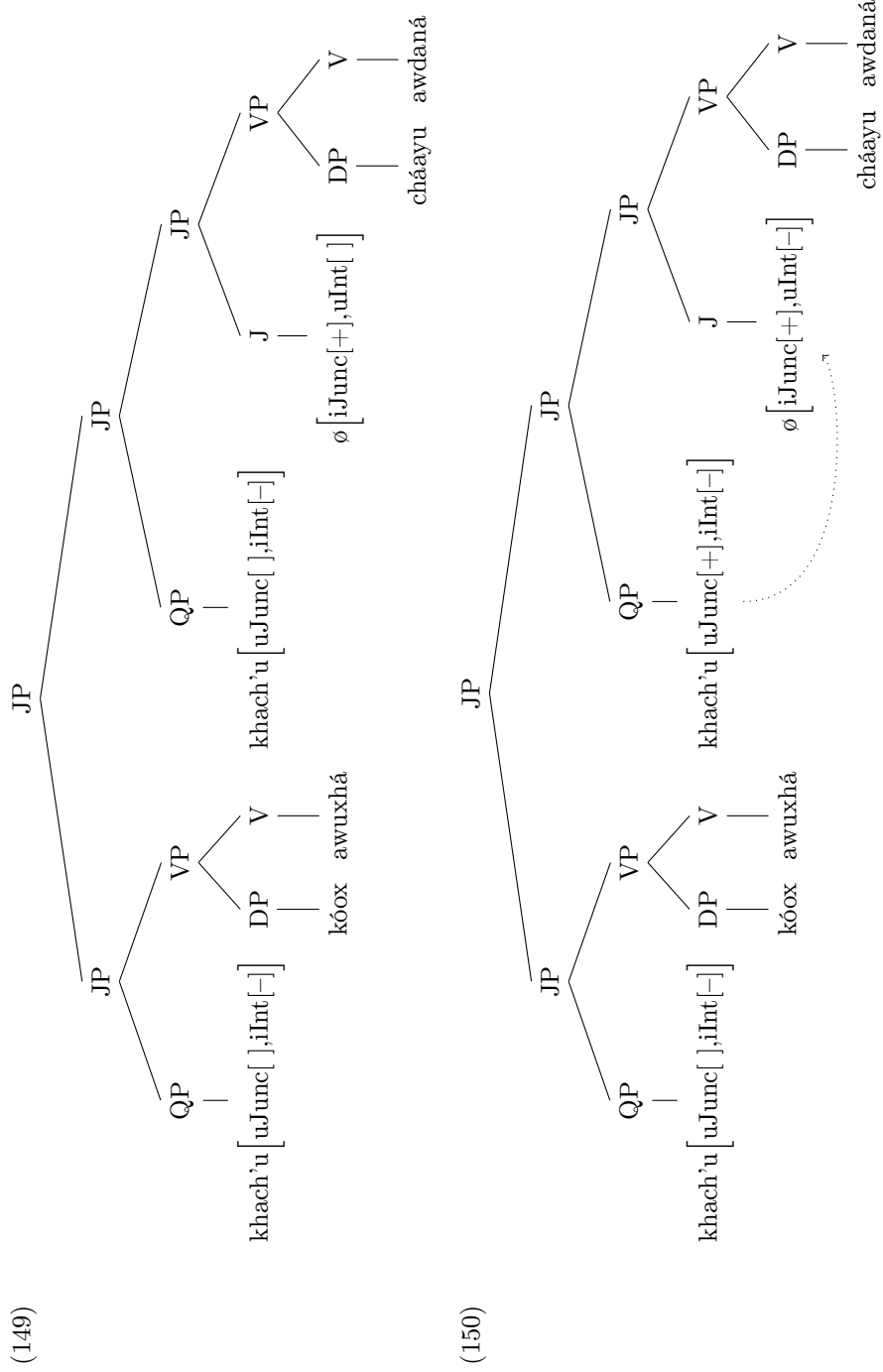
In step (144), the lower *gé* Probes and Agrees with J, valuing its uninterpretable uJunc[ ] feature, additionally a feature-sharing relationship is established between the unvalued uInt[ ] features of *gé* and J. Next, as shown in (145), the higher *gé* Probes and Agrees with the lower *gé*, picking up the shared value for the Junc feature, and extending the feature-sharing relationship of the uInt feature. Finally, in (146), the interrogative C head Probes and Agrees with the higher *gé*, valuing its own uQ[ ] feature and providing a value for the shared uInt[ ] feature of the other elements.

The grammaticality of (142) is therefore correctly predicted (step (147) shows the apparently obligatory elision of the *or not...* constituent). The Q-particle *sá* is also correctly predicted to be ungrammatical in yes/no-questions given that it lacks a uJunc[ ] feature, and thus J would remain with an unvalued uInt[ ] feature since no constituent would enter into an Agree relationship with it.

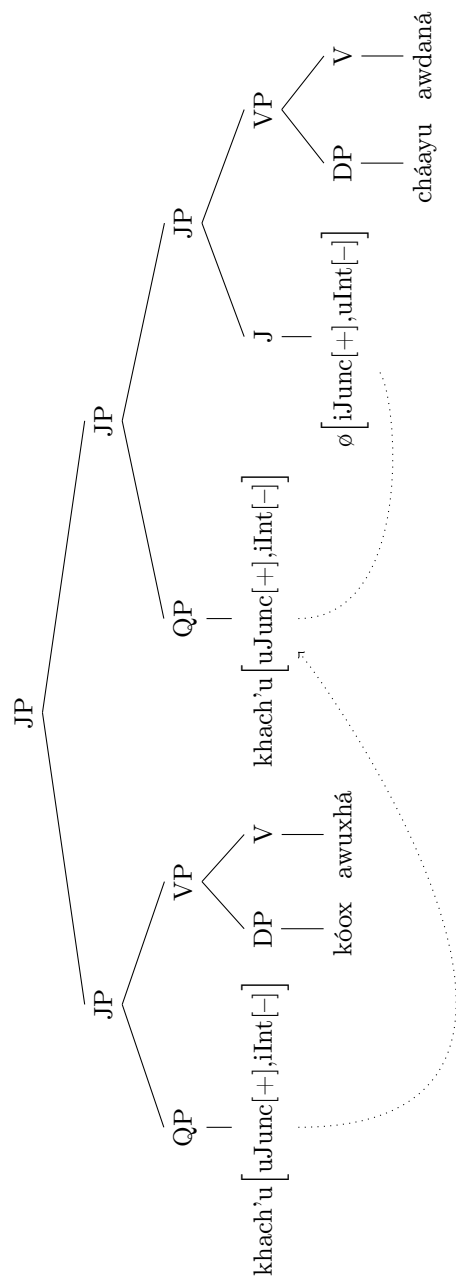
Tlingit shows a further complication in that yet another Q-particle, *khach'u*, appears in declarative disjunctions, as shown in (148)

- (148)     *Tlél aadóoch sá kóox awuxhá khach'u cháayu awdaná.*  
              not who.ERG *sá* rice ate     *khach'u* tea     drank  
              “Nobody ate rice or drank tea.” (Seth Cable, p.c.)

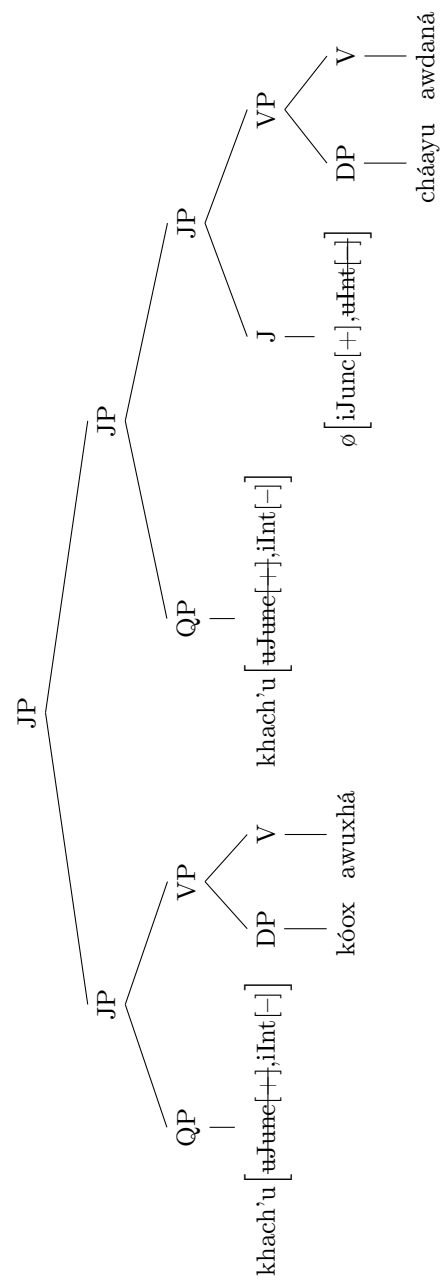
The feature valuation for (148) is shown below in (149)–(152).



(151)



(152)



Here *khach'u* crucially bears a valued *iInt*[-] feature, thus allowing J's *uInt*[ ] feature to be valued. Neither *sá* or *gé* are admissible in place of *khach'u* in this syntactic context since either would result in J bearing an unvalued *uInt*[ ] at the interface.<sup>34</sup>

## 5.7 Japanese

In Japanese only *ka* occurs in the full range of possible Q-particle environments. None of the other Q-particles can occur in declarative disjunctions or in the formation of *wh*-based indefinites. The Q-particle *ndai* is restricted solely to *wh*-questions, and the particles *kai* and *kadooka* are restricted to yes/no-questions.

I propose the following set of features for Japanese:

CATEGORY	FEATURE(S)
<b>C-INT</b>	<i>uQ</i> [ ], <i>uInt</i> [+]
<b><i>wh</i>-pronoun</b>	<i>iWh</i> [+]
<b><i>ka</i></b>	<i>iQ</i> [+]
<b><i>no</i></b>	<i>iQ</i> [+], <i>uInt</i> [ ]
<b><i>ndai</i></b>	<i>iQ</i> [+], <i>uInt</i> [ ], <i>uWh</i> [ ]
<b><i>kai/kadooka</i></b>	<i>iQ</i> [+], <i>uInt</i> [ ], <i>uJunc</i> [ ]
<b>J</b>	<i>iJunc</i> [+]

Table 11: Japanese feature assignments

The interrogative C-head requires the presence of some Q-particle due to its unvalued *uQ*[ ] feature. The Q-particle *kai* and *kadooka* can occur only in yes/no-questions due to their unvalued *uInt*[ ] and *uJunc*[ ] features; while *ndai* is restricted to *wh*-questions due to its unvalued *uInt*[ ] and *uWh*[ ] features. The particle *no* is restricted to interrogatives due to its unvalued *uInt*[ ] feature. Only *ka* may occur in declarative contexts, due to the fact that bears no *uInt*[ ] feature which needs valuing.

There are additional restrictions on the distribution of these particles which concern politeness-marking and matrix/embedded clause restrictions which I do not treat here.<sup>35</sup>

Additionally, Yoshida & Yoshida (1996) and Hagstrom (1998) report that in informal speech, *wh*- and yes/no-questions can occur without any Q-particle (see also Ko 2005). This suggests the co-existence of a grammar in which C-INT bears no unvalued Q feature (and thus does not require the presence of a Q-particle).<sup>36</sup>

The use of formal syntactic features can thus serve to constrain the environments in which certain Q-particles may appear in particular languages. In some cases there may be additional pragmatic constraints on Q-particles, including issues of politeness, as in Japanese (see fn. 35). The Sinhala Q-particles also show pragmatic-differentiation in the case of the formation of epistemic indefinites (cf. Slade 2011, Slade 2015 on *wh-də* vs *wh-hari* indefinites).

## 6 Morphosyntactic & Semantic/Pragmatic Variation Crosslinguistically

Entities identifiable as Q-particles appear in a wide-range of languages (see Slade 2011, Szabolcsi 2015), yet the distribution of these particles (and other morphosyntactic properties) can differ significantly from

<sup>34</sup>Tlingit alternative questions involve complexities I do not attempt to explain here. See the example below in (i).

(i) *Káxwei gé i tuwáa sigóo, cháau gwáa, héen gwáa?*  
 coffee *gé* you.want, tea *gwáa*, water *gwáa*  
 ‘Do you want coffee, or tea, or water?’ (Seth Cable, p.c.)

(i) probably is actually three matrix questions: ‘Is it coffee you want?’ ‘Or else is it tea?’ ‘Or else is it water?’

<sup>35</sup>Specifically, only *ka* may be appear in both matrix and embedded clauses, while *no*, *ndai*, and *kai* are restricted to matrix clauses and *kadooka* to embedded clauses. *Ka* is the most polite form, with *no* being of middling politeness, and *kai* and *ndai* occurring in informal speech. See further Ginsburg (2009).

<sup>36</sup>Such questions, however, can differ semantically from their Q-particle-ful counterparts: see further Hagstrom (1998), esp. chapter 6 and following chapters.



language to language. As discussed in the previous section, some languages associate pragmatic components with Q-particles that bear different surface forms (e.g. Sinhala *də* vs *hari*) which may also have other morphosyntactic differences (cf. Japanese), resulting in languages with a variety of phonologically- as well morphosyntactically- and/or pragmatically-different (KA-type) Q-particles. On the other hand there are languages like Malayalam, which show absolutely no variation in form for their KA-type Q-particles. So the apparent tight connection between wh-interrogatives and wh-indefinites found in Tlingit is far from universal: wh-indefinites in Sinhala are not found in combination with Q-particles until the modern era. And while early Dravidian shows the use of Q-particles in both contexts, in both modern Malayalam and modern Tamil Q-particles appear only in wh-indefinites and cannot appear in wh-interrogatives. Q-particles are apparently also subject to minor developments such as the appearance of NPI-variants like Sinhala *wat*.

I have posited that KA-type Q-particles bear an interpretable  $iQ[+]$  features, this would then be the basic morphosyntactic property associated with this type of Q-particle, and one that can correlate with other elements bearing uninterpretable  $uQ[-]$  features in the case of obligatory appearance of the Q-particle. In many languages, KA particles end up associated with interrogatives environments or some subset thereof, which can lead to linking of Q and Int features (which may be responsible for the spread of KA from a small subset of interrogative environments to a larger subset). Likewise, association of Q-particles with wh-words in wh-interrogatives may lead to wh-words becoming Q-associated, with Q-particles appearing in wh-indefinite contexts (as appears to have occurred in the history of Sinhala). The range of environments in which KA-type Q-particles may appear is fairly broad, including not only interrogatives and disjunctions, where it may be predicted to most naturally occur given the analyses proposed here – i.e. wh-words denote Hamblin-type sets of possibilities, the J-head of junction also creates Hamblin-type sets, and Q-particles can apply to such entities to convert them into more standard Montagovian elements — but also (although apparently less frequently) in relative-correlative constructions and even in conditional formations. For the last of these, the association of English *if* with both (embedded) yes/no-questions and conditionals is of interest.

Further consistent patterns are more difficult to discern given the set of data considered here. In Sinhala, *da* seems to have started its life in a small groups of contexts (given earlier Sanskrit and Pali data, specifically in fact in alternative questions and nowhere else), and broadened over time, both appearing in additional environments and becoming more frequent/obligatory in prior environments. However, at the same time, other Q-particles arise (e.g. *hō* and then *hari*, as well as NPI *wat*, though the precise time line for *da* vs *hō* is not entirely clear) which in some cases expand the environments Q-particles appear in generally, but which can also end up in a sense competing for the same environment (i.e. both *də* and *hari* appear in wh-indefinites, though their distribution within this environment is somewhat complementary in terms of their pragmatic import). For Southern Dravidian, the picture is somewhat similar, with Dravidian *-ō* apparently expanding into new environments between the stage of Old Tamil (the oldest attested Southern Dravidian variety) and Old/Modern Malayalam and Modern Tamil, though gaps in the early Dravidian Q-particle environments may also reflect some accident gaps present in extant data. But Modern Tamil also shows the apparent splitting of Q-particle environments/ creation of a new Q-particle (*-ā*), and Q-particles have retreated from wh-interrogative environments entirely in modern Dravidian.

The limited amount of (analysed) data available (especially those of a diachronic nature) makes discerning further patterns difficult, but what data have been examined suggest a fairly wide variety of possible Q-particle patternings, presumably related to the large set of possible interactions of Q-particle-associated features with other syntactic features.

## 7 Comparison with other accounts

Studies which take seriously the need to provide a semantics for KA have, following Hagstrom (1998), tended to treat KA as an choice-function variable which ends up being existentially quantified (see Yatsushiro 2009, Cable 2010, Slade 2011). In Slade (2011), in contrast to earlier accounts, I attempt to provide a unified semantics for KA in the entirety of its environments, adopting a syntactic analysis of disjunction similar to that of den Dikken (2006), in which apparent disjunction (and conjunction) operators like “or” and KA in fact play a different role, with the actual work of set union (or intersection) being accomplished by an element which is (at least in most languages) silent (den Dikken’s J(unction) head) – see above at Section 2.5. The approach adopted here thus diverges from a number of earlier

choice-functional accounts in not treating the phonological-identity of elements appearing in apparently distinct syntactic environments like Sinhala *də* and Japanese *ka* as accidental homophony (see Cable 2010 for an explicit statement of this approach), which seems to have been implicitly or explicitly the assumption of this variety of analyses prior to Slade (2011).<sup>37</sup>

Cable (2007; 2010) asserts – on the basis of the difference of the patterning of Tlingit *gé* and *sá* – that the *də/da* which occurs outside of wh-contexts (constituent questions and indefinites) in Sinhala is simply homophonous with the wh-associated Q-particle, but constitutes a distinct element whose distribution and properties have no direct bearing on the analysis of the wh-associated Q-particle. And likewise for Japanese *ka* and Malayalam *-ō*. The recurrent phonological identity of these two elements crosslinguistically, especially when considered from the perspective that all of the contexts in which these elements occur involve something akin to existential quantification over a set of alternatives, strongly suggests that to treat these phonologically identical elements as only accidentally so (an instance of massive crosslinguistic homonymy) is to miss a crucial component of the properties of quantifier particles.

Szabolcsi (2013, 2015) presents a different analysis – though in a similar spirit to Slade (2011) – in part motivated by worries about the problems involved with a choice-functional analysis of indefinites (on which see Brasoveanu & Farkas 2011, Heim 2011, amongst others), within the framework of Inquisitive Semantics (Ciardelli et al. 2012, 2013, 2014). As in Slade (2011), Szabolcsi adopts the notion of an abstract Junction phrase (from den Dikken 2006) which is involved in both disjunction and conjunction. She treats Junction as a pair-former (Winter 1995, 1998), with  $\cap$  as the default operation. On this account, while MO and KA occur in contexts interpretable as involving meets (greatest lower bounds) and joins (least upper bounds), they themselves do not instantiate meet or join operators, but rather KA and MO impose constraints that are only satisfied when their contexts are interpreted as the join (in the case of KA) or the meet (in the case of MO) of the contribution of their host and something else. Thus, Szabolcsi (2015: 169) formulates the requirement as KA and MO, respectively, as:<sup>38</sup>

(153) KA requires that the alternatives in  $\llbracket X \rrbracket$  be preserved and boosted in  $\llbracket Y \rrbracket$ .

(154) MO requires that another proposition parallel to  $\llbracket X \rrbracket$  hold in  $\llbracket Y \rrbracket$ .

On the parallelism required by MO, see further Brasoveanu & Szabolcsi (2013). KA’s ‘boosting’ requirement roughly requires that additional (meaningful) alternatives to  $\llbracket X \rrbracket$  must exist in  $\llbracket Y \rrbracket$  (see further Szabolcsi 2015: 170).

Cable’s (2007; 2010) account, with respect to quantifier particles, only explicates a subset of the (coherent class of) elements analysed herein (though, of course, Cable also deals with topics not treated here, such as pied-piping). Szabolcsi’s analysis, on the other hand, treats a superset of what is dealt with herein, since she presents a coherent, unified treatment for both KA as well as MO type Q-particles. While the general analogue within the choice-functional approach is obvious: MO-particles involve a universally-quantified variable over choice functions (in contrast to KA-particles’ existentially-quantified variable over choice functions), the details of how this could be implemented are far from clear (e.g. where does the universal force arise from?).

Szabolcsi’s account is also attractive in that she presents a reason for the elision of MO in many contexts ( $\cap$  is the default operation), while KA is more frequently required since it can bleed  $\cap$ . Further, the fact that the content of KA and MO is purely postsuppositional in nature, and thus KA and MO do not themselves change the interpretation of elements in their environment but rather simply impose constraints on how their contexts must be interpreted also could account for those cases of absent KA where we might otherwise expect it. Szabolcsi (2015) points, for instance, to examples like the Hungarian main clause question *Táncolt Mari?*  $\uparrow$  ‘Did Mary dance?’ (where  $\uparrow$  is final rising intonation), which lacks any manifestation of the KA particle, in contrast to *Táncolt-e Mari?*  $\downarrow$  (with  $\downarrow$  falling, declarative intonation), where Szabolcsi takes the *-e* to be a KA-particle. Here *Táncolt Mari?*  $\uparrow$  is ‘logically equivalent to a disjunction, but compositionally speaking it is not one’ (Szabolcsi 2015: 190). Likewise, Hagstrom

<sup>37</sup>See now also Uegaki (2018) for a detailed analysis of Japanese *ka* which argues for a unified semantics for *ka* across interrogatives, indefinites and disjunctions.

<sup>38</sup>The requirements on KA and MO given in (153) and (154), respectively, Szabolcsi (2015) suggests are implemented as post-suppositions, which are tests that are ‘delayed and checked simultaneously after the at-issue content is established’ (Szabolcsi 2015: 168); see further Brasoveanu & Szabolcsi (2013).

(1998: 16) notes that Japanese wh-questions can appear without a final KA (but with rising intonation, as in the Hungarian example just discussed):

- (155)     *dare-ga kuru?* ↑  
               who-NOM come  
               ‘Who will come?’

However, one advantage of the approach developed herein here is that it offers a unified semantic account of Q-particle phenomena which remains within a more standard Montagovian semantics (albeit supplemented with Hamblin-type semantics).<sup>39</sup>

Szabolcsi (2015) also does not offer any particular account of variation in Q-particles, e.g. why is the Hungarian KA particle *vala* in indefinite contexts (e.g. *vala-ki* ‘someone’), but *vagy* in disjunctive (and numeral approximating) contexts, and as *-e* in yes/no contexts.<sup>40</sup>

It is also not clear how the account offered by Szabolcsi would extend to some more unusual Q-particle environments, such those as found in relative-correlative clauses in Classical/Literary Sinhala and in various Dravidian languages (see further Slade (under review)):

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<sup>39</sup>Remaining within a more Montagovian semantics also has the advantage of being able to capture the notion of LISTS, while it is less clear how an Inquisitive Semantics account would handle objects of this sort (although see Roelofsen 2015/2017, who, however, has somewhat different phenomena in mind), given that within the Inquisitive Semantics approach there is no obvious way of relating propositions to one another in a fashion that is not either MEET or JOIN.

That is: lists themselves do not appear to require the imposition of any sort of quantification on their members. Thus the list in (i) could be a list of all of the people receiving Christmas bonuses or a list of chair applicants from which a single person will be chosen or a list of possible baby names.

- (i)        John, Bill, Mary, Susan

In a more fully integrated natural language example, one can quite easily imagine an energetic television game show host (before a commercial break) excitedly reading out the list of contestants in (ii) and following up on that with either (ii-a) or (ii-b).

- (ii)       John, Bill, Mary, Susan ...  
           a.     ...after the break we’ll find out which one of these lovely contestants has won our fabulous grand prize.  
           b.     ...after the break we’ll reveal which fabulous grand prize all of these lovely contestants will be going home with.

Continuing in the same vein, Eco’s *The Infinity of Lists* (2009), contains numerous lists of which nothing is predicated at all: lists of angels and demons; lists of propositions which could be asserted eventualities or pondered possibilities, and even lists like Borges’s ([1942]1999) imagined ancient Chinese encyclopædia entry dividing animals in 14 categories, which sneaks in Russell’s paradox concerning sets:

1. Those that belong to the emperor;
2. Embalmed ones;
3. Those that are trained;
4. Suckling pigs;
5. Mermaids;
6. Fabulous ones;
7. Stray dogs;
8. Those that are included in this classification;
9. Those that tremble as if they were mad;
10. Innumerable ones;
11. Those drawn with a very fine camel’s-hair brush;
12. Et cetera;
13. Those that have just broken the flower vase;
14. Those that at a distance resemble flies.

<sup>40</sup>Even if both *vala* and *vagy* are forms of ‘be’, their difference in morphological form remains to be explained.

- (156) / *yamak’hu* *paḷamu diṭim* /<sub>RC</sub> *da* / *ohu marā gaṇan*  
 [ **REL-PRON.MSC.SG.ACC** firstly see.1SG ]<sub>RC</sub> *da* [ him kill.CONV number  
*sapurami* /<sub>CC</sub>  
 complete.PRES.1SG ]<sub>CC</sub>  
 “**Whichever person** I see first, I shall kill him and complete the number.” (*Amāvatūra* 133, cited from Wijemanne 1984: 210) [Classical Sinhala]
- (157) / *Yamek* *yamak’hu* *gætte* / *da he*  
 [ **REL-PRON.INDEF.NOM REL-PRON.INDEF.GEN** taken ] *da* DEM-PRON.NOM  
*ovhaṭa mæ ve vayi*  
 DEM-PRON.DAT EMPH be be.OPT  
 “May the respective owner of each item have it back.” (*Amāvatūra* 301, Slade 2013) [Classical Sinhala]
- (158) / *ēṭ-oruvan* *drōham ceyy-unnuv-* /-*ō* *avan pāpi ākunnu*  
 [ which-one.MSC.SG evil.ACC do.PRES ]-*ō* he sinner become.PRES  
 “Whoever does evil, he becomes a sinner.” (*Ibid.*) (Krishnamurti 2003: 448) [Malayalam]
- (159) / *uṇkaḷ-ukku evvaḷavu vēṇṭ-um-* /-*ō* *avvaḷuvu nān taru-kir-ēn*  
 [ you.PL.DAT how\_much want.FUT.3NEU.SG ]-*ō* that\_much I give.PRES.1SG  
 “However much you want, that much I’ll give you.” (Krishnamurti 2003: 448) [Tamil]
- (160) *e-nāl-ō* ... *nī celvatu a-nāl koṇṭū iṛakkum ivaḷ* ...  
 which-day-*ō* ... you go.NONPAST.NOM that-day from die.NONPAST.3SG.NOM she ...  
*uyir-ē*  
 life  
 “On whichever day you will go, from that day (onwards) her life will die.” [**OR?** developed from indefinite(?): “On some day you will go, from that day ...”] (*Kalittokai* 5.18–19, cited from Thomas Lehmann, p.c.) [late Old Tamil (500–700 A.D.)]

The data analysed herein have the advantage of representing historical development involving Q-particles, and thus reveal how the properties (semantics, pragmatic, syntactic) of such particles may (or may not) change over time. The diachronic patterns we find essentially require a unified treatment of KA; and would remain inscrutable were we to treat the wh-associated KA as only accidentally homophonic with KA in other environments.

## 8 Conclusion

The present study has attempted to build upon earlier studies, and offer a more complete picture of Q-particles (focused, admittedly, on the KA-type), their semantic and syntactic properties in the full range of environments in which they appear, concentrating the analysis on several stages of Sinhala, with comparison to South Dravidian, Japanese, and Tlingit, using the diachronic development of Sinhala and Dravidian to shed light on the underlying mechanisms involved in Q-particle constructions.

However, two areas in particular are still in need of further investigation and analysis, namely relative-correlatives (Slade under review) and epistemic indefinites whose morphosyntax includes KA (Slade 2015).

Further, the current analysis is largely restricted to handling the KA-type Q-particles. Whether it can be usefully extended to handle MO-type Q-particles, and what shape that extension would take, remains to be determined.

## References

- Abhyankar, Kashinath Vasudev & J.M. Shukla. 1977. *A dictionary of Sanskrit grammar*. Baroda, Gujarat: Maharaja Sayajirao University, Oriental Institute.
- Aldridge, Edith. 2009. Short *wh*-movement in Old Japanese. In Shoichi Iwasaki, Hajime Hoji, Patricia M. Clancy & Sung-Ock Sohn (eds.), *Japanese/Korean linguistics*, vol. 17, 549–563. Stanford, CA: CSLI.
- Alonso-Ovalle, Luis. 2006. *Disjunction in alternative semantics*. Amherst, MA: University of Massachusetts, Amherst dissertation.
- Asher, Ronald E. & T.C. Kumari. 1997. *Malayalam*. London: Routledge.
- Baker, Carl LeRoy. 1968. *Indirect questions in English*. Urbana: University of Illinois dissertation.
- Baker, Carl LeRoy. 1970. Notes on the description of English questions: the role of an abstract question morpheme. *Foundations of Language* 6. 197–219.
- Bittner, Maria. 1994. Cross-linguistic semantics. *Linguistics and Philosophy* 17. 53–108.
- Böhtlingk, Otto & Rudolph Roth (eds.). 1855–1875. *Sanskrit-Wörterbuch*. St. Petersburg: Kaiserlichen Akademie der Wissenschaften.
- Borges, Jorge Luis. [1942]1999. John Wilkins’ analytical language. In Eliot Weinberger (ed.), *Borges: Selected non-fictions*, 229–232. New York, NY: Penguin. Originally published as “El idioma analítico de John Wilkins”, *La Nación*, 8 February 1942.
- Brasoveanu, Adrian & Donna Farkas. 2011. How indefinites choose their scope. *Linguistics and Philosophy* 34(1). 1–55.
- Brasoveanu, Adrian & Anna Szabolcsi. 2013. Presuppositional *too*, postsuppositional *too*. In Maria Aloni, Michael Franke & Floris Roelofsen (eds.), *The dynamic, inquisitive, and visionary life of  $\phi$ ,  $?\phi$ , and  $\diamond\phi$ . A festschrift for Jeroen Groenendijk, Martin Stockhof, and Frank Veltman*, <http://www.illc.uva.nl/Festschrift-JMF/>.
- Cable, Seth. 2007. *The grammar of Q: Q-particles and the nature of Wh-fronting, as revealed by the Wh-questions of Tlingit*. Cambridge, MA: MIT dissertation.
- Cable, Seth. 2010. *The grammar of Q: Q-particles, wh-movement and pied-piping*. Oxford: Oxford University Press.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A life in language*, 1–53. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2004. Beyond explanatory adequacy. In Adriana Belletti (ed.), *Structures and beyond*, 104–131. New York: Oxford University Press.
- Chomsky, Noam. 2007. Approaching UG from below. In Uli Sauerland & Hans-Martin Gartner (eds.), *Interfaces + Recursion = Language?: Chomsky’s Minimalism and the view from syntax-semantics*, 1–29. Berlin: Mouton de Gruyter.
- Church, Alonzo. 1932. A set of postulates for the foundation of logic. *Annals of Mathematics* 33(2). 346–366. doi:10.2307/1968337.
- Church, Alonzo. 1936. An unsolvable problem of elementary number theory. *American Journal of Mathematics* 58(2). 345–363. doi:10.2307/2371045.
- Church, Alonzo. 1940. A formulation of the simple theory of types. *Journal of Symbolic Logic* 5(2). 56–68. doi:10.2307/2266170.
- Ciardelli, Ivano, Jeroen Groenendijk & Floris Roelofsen. 2012. Inquisitive semantics. NASSLLI 2012 Lecture notes. <https://sites.google.com/site/inquisitivesemantics/courses/nasslli-2012>.

- Ciardelli, Ivano, Jeroen Groenendijk & Floris Roelofsen. 2013. Inquisitive semantics: A new notion of meaning. *Language and Linguistics Compass* 7(9). 459–476.
- Ciardelli, Ivano, Jeroen Groenendijk & Floris Roelofsen. 2014. Information, issues and attention. In D. Gutzmann, J. Köpping & C. Meier (eds.), *Approaches to meaning, composition, values, and interpretation*. Current Research in the Semantics Pragmatics-Interface (CRISPI) 32, 128–167. Leiden: Brill.
- Dauenhauer, Nora Marks & Richard Dauenhauer. 1990. *Classics of Tlingit oral literature, volume 2: Haa tuwunáagu yís, for healing our spirit: Tlingit oratory*. Juneau, AK: Sealaska Heritage Institute.
- den Dikken, Marcel. 2006. Either-float and the syntax of co-or-dination. *Natural Language and Linguistic Theory* 24(3). 689–749.
- Eco, Umberto. 2009. *The infinity of lists*. New York: Rizzoli.
- Fukutomi, Yasuyuki. 2006. Japanese alternative questions and intervention effects in DP. In Changguk Yim (ed.), *Minimalist views on language design: Proceedings of the 8th Seoul International Conference on Generative Grammar*, 53–60. Seoul: The Korean Generative Grammar Circle.
- Gair, James W. 1968[1998]. Sinhalese diglossia. *Anthropological Linguistics* 10(8). 1–15. [Reprinted with additional notes in Gair 1998:213–223].
- Gair, James W. 1986[1998](a). Sinhala diglossia revisited, or diglossia dies hard. In Bhadriraju Krishnamurti, Colin P. Masica & Anjani Kumar Sinha (eds.), *South Asian languages: Structure, convergence and diglossia*, 322–336. Delhi: Motilal Banarsidass. [Reprinted with additional notes in Gair 1998:224–236].
- Gair, James W. 1986[1998](b). Sinhala focused sentences: Naturalization of a calque. In Bhadriraju Krishnamurti, Colin P. Masica & Anjani Kumar Sinha (eds.), *South Asian languages: Structure, convergence and diglossia*, 147–164. Delhi: Motilal Banarsidass. [Reprinted with additional notes in Gair 1998:155–169].
- Gair, James W. 1992. AGR, INFL, Case and Sinhala diglossia, or Can linguistic theory find a home in variety. In Braj Kachru, Edward C. Dimock & Bhadriraju Krishnamurti (eds.), *Dimensions of South Asia as a sociolinguistic area: Papers in memory of Gerald B. Kelley*, 179–197. Delhi: Oxford India Book House.
- Gair, James W. 1998. *Studies in South Asian linguistics: Sinhala and other South Asian languages*. New York: Oxford University Press.
- Gair, James W. & W.S. Karunatilaka. 1974. *Literary Sinhala*. Ithaca, NY: South Asia Program and Department of Modern Languages and Linguistics, Cornell University.
- Gair, James W. & Lelwala Sumangala. 1991. What to focus in Sinhala. In Germán F. Westphal, Benjamin Ao & Hee-Rahk Chase (eds.), *ESCOL '91: Proceedings of the Eighth Eastern States Conference on Linguistics*, 93–108. Columbus: Ohio State University Working Papers.
- Geiger, Wilhelm. 1938. *A grammar of the Sinhalese language*. Colombo: Royal Asiatic Society. [reprinted, New Delhi: Asian Educational Services, 1995].
- Geiger, Wilhelm (ed.). 1941. *An etymological glossary of the Sinhalese language*. Colombo: The Royal Asiatic Society, Ceylon Branch. [Reprinted, New Delhi: Asian Educational Services, 1997].
- Ginsburg, Jason Robert. 2009. *Interrogative features*. Tucson, AZ: University of Arizona dissertation.
- Hagstrom, Paul. 1998. *Decomposing questions*. Cambridge, MA: MIT dissertation.
- Hamblin, Charles Leonard. 1973. Questions in Montague English. *Foundations of Language* 10(1). 41–53.
- Heim, Irene. 1994. Questions. Lecture notes, MIT, Fall 1994.
- Heim, Irene. 2011. Definiteness and indefiniteness. In K. von Stechow, C. Maienborn & P. Portner (eds.), *Semantics. an international handbook of natural language meaning. vol. 2*, 996–1025. Berlin: de Gruyter.

- Hock, Hans Henrich. 1988. Review article: Finiteness in Dravidian. *Studies in the Linguistic Sciences* 18(2). 211–231.
- Hock, Hans Henrich. 1989a. Conjoined we stand: Theoretical implications of Sanskrit relative structures. *Studies in the Linguistic Sciences* 19(1). 93–126.
- Hock, Hans Henrich. 1989b. Review of Steever (1988): *The serial verb formation in the Dravidian languages*. *Language* 65. 398–405.
- Hock, Hans Henrich. 2008. Dravidian syntactic typology: A reply to Steever. In Rajendra Singh (ed.), *Annual Review of South Asian Languages and Linguistics*, 164–198. Berlin: Mouton de Gruyter.
- Hock, Hans Henrich. 2013. Proto-Indo-European verb finality: Reconstruction, typology, validation. In Leonid Kulikov & Nikolaos Lavidas (eds.), *Proto-Indo-European syntax and its development*, 49–76. Amsterdam: John Benjamins.
- Jayaseelan, Karattuparambil A. 2001. Questions and question-word incorporating quantifiers in Malayalam. *Syntax* 4(2). 63–93.
- Jayaseelan, Karattuparambil A. 2008. Question particles and disjunction. Ms., Hyderabad, English and Foreign Languages University. <http://ling.auf.net/lingBuzz/000644>.
- Jayaseelan, Karattuparambil A. 2016. Decomposing coordination: The two operators of coordination. *Linguistic Analysis* 40(3–4). 237–253.
- Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1(1). 3–44.
- Karunatilake, W.S. 2012. *Etymological lexicon of the Sinhala language*. Colombo: S. Godage & Brothers.
- Kawashima, Ruriko. 1994. *The structure of noun phrases and the interpretation of quantificational NPs in Japanese*. Ithaca, NY: Cornell University dissertation.
- Kishimoto, Hideki. 2005. *Wh*-in-situ and movement in Sinhala questions. *Natural Language and Linguistic Theory* 23(1). 1–51.
- Ko, Heejeong. 2005. Syntax of *why*-in-situ: Merge in [Spec, CP] in the overt syntax. *Natural Language and Linguistic Theory* 23(4). 867–916.
- Kratzer, Angelika & Junko Shimoyama. 2002. Indeterminate phrases: the view from Japanese. In Yukio Otsu (ed.), *The Proceedings of the Third Tokyo Conference on Psycholinguistics*, 1–25. Tokyo: Hituzi Syobo.
- Krishnamurti, Bhadriraju. 2003. *The Dravidian languages*. Cambridge: Cambridge University Press.
- Kuroda, Sige-Yuki. 1965. *Generative grammatical studies in the Japanese language*. Cambridge, MA: MIT dissertation.
- Lehmann, Thomas. 1989. *A grammar of modern Tamil*. Pondicherry: Pondicherry Institute of Linguistics and Culture.
- Lehmann, Thomas. 1998. Old Tamil. In Sanford B. Steever (ed.), *The Dravidian languages*, 75–99. London: Routledge.
- McCarthy, John. 1960. Recursive functions of symbolic expressions and their computation by machine, part I. *Communications of the ACM (=Association for Computing Machinery)* 3(4). 184–195.
- Mitrović, Moreno. 2014a. Deriving and interpreting ‘ka(karimusubi)’ in premodern Japanese. *Acta Linguistica Asiatica* 4(3). 9–28.
- Mitrović, Moreno. 2014b. *Morphosyntactic atoms of propositional logic: a philo-logical programme*. Cambridge: University of Cambridge dissertation.
- Miyagawa, Shigeru. 1987. LF affix raising in Japanese. *Linguistic Inquiry* 18(2). 362–367.
- Miyagawa, Shigeru. 1998. On islands. Ms., MIT.

- Montague, Richard. 1970a. English as a formal language. In Bruno Visentini et al. (ed.), *Linguaggi nella società e nella tecnica*, 188–221. Milan: Edizioni di Comunità.
- Montague, Richard. 1970b. Universal grammar. *Theoria* 36. 373–398.
- Montague, Richard. 1973. The proper treatment of quantification in ordinary English. In K.J.J. Hintikka, J.M.E. Moravcsik & P. Suppes (eds.), *Approaches to natural language*, 221–242. Dordrecht: Reidel.
- Murray, James, John Simpson & Edmund Weiner et al. (eds.). 1884–2017. *The Oxford English dictionary (online)*. Oxford: Oxford University Press.
- Narayanapilla, P.K. (ed.). 1971. *Prācīna-Malayāla-gadya-mātrkāḷ*. Thiruvananthapuram: Kerala University.
- Nyman, Elizabeth & Jeff Leer. 1993. *Gágiwdul.àt: Brought forth to reconfirm. The legacy of a Taku River Tlingit clan*. Fairbanks, AK: Alaska Native Language Center.
- Ogawa, Kunihiko. 1976. *Japanese interrogatives: A synchronic and diachronic analysis*. San Diego: University of California dissertation.
- Ogawa, Kunihiko. 1977. Where diachronic and synchronic rules meet: A case study from Japanese interrogatives and kakari-musubi. *Papers in Japanese Linguistics* 5. 193–242.
- Paolillo, John C. 1992. *Functional articulation in diglossia: A case study of grammatical and social correspondences in Sinhala*. Stanford, CA: Stanford University dissertation.
- Paranavitana, Senarat. 1956. *Sigiri graffiti, Sinhalese verses of the eighth, ninth and tenth centuries*. London: Oxford University Press.
- Partee, Barbara H. 1986. Noun phrase interpretation and type-shifting principles. In Jeroen Groenendijk, Dick de Jongh & Martin Stokhof (eds.), *Studies in discourse representation theory and the theory of generalized quantifiers*, 115–143. Dordrecht: Foris. [Reprinted in Portner and Partee (2002), pp.357–381].
- Pesetsky, David & Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In Simin Karimi, Vida Samiian & Wendy K. Wilkins (eds.), *Phrasal and clausal architecture: Syntactic derivation and interpretation*, 262–294. Amsterdam: John Benjamins.
- Pillai, P.V. 1973. *Early Malayalam prose: A study*. Trivandrum, Kerala: University of Kerala.
- Priyanka, Benille. 2010. *Recently deciphered records from the Mirror Wall at Sigiriya (7th to 13th centuries)*. Colombo: Godage International Publishers.
- Raman Pilla, C.V. 1918. *Rāmarājabahadur*. [Reprinted by Little Prince Publishers, Kottayam, Kerala. 1983].
- Reinhart, Tanya. 1994. *Wh-in-situ: in the framework of the Minimalist Program*. University of Utrecht: OTS Working Papers.
- Reinhart, Tanya. 1997. Quantifier scope: how labor is divided between QR and choice functions. *Linguistics and Philosophy* 20. 335–397.
- Reinhart, Tanya. 1998. *Wh-in-situ in the framework of the Minimalist Program*. *Natural Language Semantics* 6(1). 29–56.
- Roelofsen, Floris. 2015/2017. The semantics of declaratives and interrogative lists. Ms., University of Amsterdam. <https://semanticsarchive.net/Archive/jdiNjlj0/paper.pdf>.
- Rooth, Mats. 1985. *Association with focus*. Amherst, MA: University of Massachusetts, Amherst dissertation.
- Rullman, Hotze & Sigrid Beck. 1998. Reconstruction and the interpretation of *which*-phrases. In Graham Katz, Shin-Sook Kim & Heike Winhart (eds.), *Reconstruction: Proceedings of the 1997 Tübingen Workshop* Arbeitspapiere des Sonderforschungsbereichs 340, Nr. 127, 233–256. Tübingen and Stuttgart: Universities of Tübingen and Stuttgart.



- Sansom, George. 1928. *An historical grammar of Japanese*. Oxford: Oxford University Press.
- Serafim, Leon A. & Rumiko Shinzato. 2000. Reconstructing the Proto-Japonic kakari musubi, ... *ka* ...-(a)m-wo. *Gengo Kenkyu* 118. 81–118.
- Slade, Benjamin. 2011. *Formal and philological inquiries into the nature of interrogatives, indefinites, disjunction, and focus in Sinhala and other languages*. Urbana: University of Illinois dissertation.
- Slade, Benjamin. 2013. Question particles and relative clauses in the history of Sinhala, with comparison to early and modern Dravidian. In Shu-Fen Chen & Benjamin Slade (eds.), *Grammatica et verba/Glamor and verve: Studies in South Asian, historical, and Indo-European linguistics in honor of Hans Henrich Hock on the occasion of his seventy-fifth birthday*, 245–268. Ann Arbor, MI: Beech Stave Press.
- Slade, Benjamin. 2015. Sinhala epistemic indefinites with a certain *je ne sais quoi*. In Luis Alonso-Ovalle & Paula Menéndez-Benito (eds.), *Epistemic indefinites: Exploring modality beyond the verbal domain*, 82–99. Oxford: Oxford University Press.
- Slade, Benjamin. 2018. History of focus-concord constructions and focus-associated particles in Sinhala, with comparison to Dravidian and Japanese. *Glossa: a journal of general linguistics* 3(1). 2. doi:10.5334/gjgl.241.
- Slade, Benjamin. under review. The role of Q-particles in the formation of relative clauses in Sinhala and other languages. In Moreno Mitrović (ed.), *Logical vocabulary & logical change*, John Benjamins.
- Speijer, J.S. 1886. *Sanskrit syntax*. Leiden: E.J. Brill. [Reprinted, Delhi: Motilal Banarsidass, 1973].
- von Stechow, Arnim. 1996. Some remarks on choice functions and LF-movement. In Klaus von Heusinger & Urs Egli (eds.), *Proceedings of the Konstanz workshop “reference and anaphorical relations”*, Fachgruppe Sprachwissenschaft, Universität Konstanz.
- Steele Jr., Guy Lewis. 1990. *Common Lisp: The language*. Newton, MA: Digital Press. [2nd rev. edn.].
- Sternefeld, Wolfgang. 2001. Partial movement constructions, pied piping, and higher order choice functions. In C. Féry & W. Sternefeld (eds.), *Audiatur vox sapientiae: a festschrift for Arnim von Stechow*, 473–486. Berlin: Akademie Verlag.
- Szabolcsi, Anna. 2010. *Quantification*. Cambridge: Cambridge University Press.
- Szabolcsi, Anna. 2013. Quantifier particles and compositionality. In Maria Aloni, Michael Franke & Floris Roelofsen (eds.), *Proceedings of the 19th Amsterdam Colloquium*, 27–34.
- Szabolcsi, Anna. 2015. What do quantifier particles do? *Linguistics and Philosophy* 38. 159–204.
- Szabolcsi, Anna, James Doh Whang & Vera Zu. 2012. Compositionality questions: Quantifier words and their multi-functional(?) parts. Ms., New York University. <http://ling.auf.net/lingbuzz/001560>.
- Turner, Ralph Lilley. 1962–1966. *A comparative dictionary of Indo-Aryan languages*. London: Oxford University Press. [Reprinted, Delhi: Motilal Banarsidass, 1999].
- Uegaki, Wataru. 2014. Japanese alternative questions are disjunctions of polar questions. In *Proceedings of SALT 24*, .
- 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. doi:10.5334/gjgl.238.
- Watanabe, Akira. 2002. Loss of overt wh-movement in Old Japanese. In David Lightfoot (ed.), *Syntactic effects of morphological change*, 179–195. Oxford: Oxford University Press.
- Whitman, John. 1997. Kakarimusubi from a comparative perspective. In Ho-min Sohn & John Haig (eds.), *Japanese/Korean linguistics*, vol. 6, 161–178. Stanford, CA: CSLI.
- Wickremasinghe, Don Martino De Silva, Humphry William Codrington & Senarat Paranavitana (eds.). 1912–1933. *Epigraphia Zeylanica: being lithic and other inscriptions of Ceylon*. London: H. Frowde for the Govt. of Ceylon.

- Wijemanne, Piyaseeli. 1984. *Amāvatura, a syntactic study*. Colombo: Ministry of Higher Education.
- Winter, Yoad. 1995. Syncategorematic conjunction and structured meaning. In *Semantics and linguistic theory (SALT)* 5, .
- Winter, Yoad. 1997. Choice functions and the scopal semantics of indefinites. *Linguistics and Philosophy* 20. 399–467.
- Winter, Yoad. 1998. *Flexible Boolean semantics: Coordination, plurality and scope in natural language*: Utrecht University dissertation.
- Yanagida, Yuko. 2006. Word order and clause structure in early Old Japanese. *Journal of East Asian Linguistics* 15(1). 37–67.
- Yatsushiro, Kazuko. 2001. The distribution of *mo* and *ka* and its implications. In Maria Christina Cuervo, Daniel Harbour, Ken Hiraiwa & Shinichiro Ishihara (eds.), *Formal approaches to Japanese linguistics* 3, Cambridge, MA: MIT Working Papers in Linguistics.
- Yatsushiro, Kazuko. 2009. The distribution of quantificational suffixes in Japanese. *Natural Language Semantics* 17(2). 141–173.
- Yoshida, Keiko & Tomoyuki Yoshida. 1996. Question marker drop in Japanese. *ICU Language Research Bulletin* 11. 37–54.
- Zermelo, Ernst. 1904. Beweis, daß jede Menge wohlgeordnet werden kann. *Mathematische Annalen* 59. 514–516.