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Q-particles and islands in Sinhala *wh*- and polar questions

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ABSTRACT

This paper is concerned with the Q-particle *də* in Sinhala wh-questions and polar questions. Previous approaches propose a two-legged semantic dependency: (i) the lower leg projects a set of alternatives and (ii) the upper leg forms a choice function dependency. The contribution of the present paper is two-fold. First, it presents novel empirical data on complex questions with islands that pose a serious problem for this architecture when applied to polar questions. Second, it develops a new proposal that maintains a common meaning for the Q-particle in the two question types while avoiding this empirical problem. The key insight of the new analysis is to liberalize the upper dependency leg as to pass up a focus value that can later combine with different operators: with the Q-operator in wh-questions and with the squiggle operator in polar questions.

KEYWORDS

Q-particles, interrogatives, syntax-semantics interface, focus, island-constraints

1. INTRODUCTION

Q(uestion)-particles are used – optionally or obligatorily – in the formation of different interrogative clause types in a variety of languages, e.g. Japanese, Turkish, Tlingit and Sinhala (Hagstrom 1998; Cable 2010; Kamali 2015). In the case of Sinhala, the Q-particle *də* obligatorily appears in wh-questions (WhQs), polar questions (PolQs) and alternative questions (AltQs)

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(Hagstrom 1998; Kishimoto 2005; Slade 2011).[1] Let us see some examples. In (matrix simple) WhQs, *də* mandatorily attaches to the wh-phrase, as shown in (1).[2] In AltQs, *də* mandatorily attaches to each of the contrasting disjuncts, as in (2). As for PolQs, the Q-particle may attach to a specific XP – in which case the sentence is interpreted as having narrow focus on that XP, as in (3) – or it may be placed at the end of the clause – in which case the interrogative has a "neutral" feeling and is interpreted as having broad focus on the entire IP, as in (4).[3] The present paper will be concerned with the semantic contribution of *də* in WhQs and PolQs, using AltQs as a crucial point of comparison.

(1) Chitra monəwa **də** gatte — WhQ
Chitra what **də** bought.E
'What did Chitra buy?' [Slade 2011, (2), p. 19]

(2) oyaa maalu.**də** mas.**də** kanne? — AltQ
you fish.**də** meat.**də** eat.E
'Did you eat meat↑ or fish↓?' [Weerasooriya 2019, (36), p. 12]

(3) Chitra [ee potə]$_F$ **də** kieuwe? — PolQ-narrow
Chitra that book **də** read.E
'Was it that book that Chitra read?' [Kishimoto 2005, (21a), p. 11]

(4) [Chitra ee potə kieuwa]$_F$ **də**? — PolQ-broad
Chitra that book read.A **də**
'Did Chitra read that book?' [Kishimoto 2005, (21b), p. 11]

According to the previous literature, the Q-particle *də* acts syntactically as the head of a Q-particle phrase (QP) (Cable 2010). Semantically, *də* is argued to mediate between the two "legs" of a dependency: (**i**) a set of alternatives contributed by the syntactic sister of *də* and (**ii**) a choice function chain between the Q-operator and *də* (Cable 2010 building on Hagstrom 1998; Slade 2011). The alternatives provided by the sister of *də* arise from the wh-phrase in WhQs via Rooth's (1992) focus value $[\![.]\!]^f$ (Cable 2010) and from a partly elided AltQ disjunctive structure

[1] The particle *də* is also used in declaratives with indefinites and with (exclusive) disjunction. For a recent analysis of these uses, see Weerasooriya (2019).

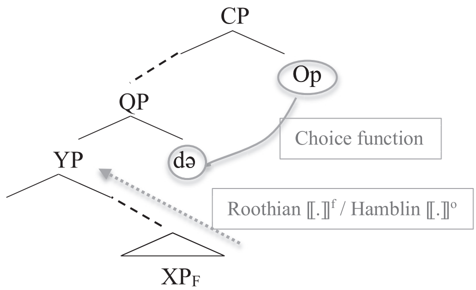
[2] Kishimoto (2005) and Morita (2019) observe three cases in which *də* does not appear next to the wh-phrase but is attached clause-finally in WhQs: (a) *how many*-questions, (b) WhQs embedded under certain verbs, (c) rhetorical WhQs. We do not consider these cases here and refer to Morita (2019) for a recent account. Similarly, we leave multiple WhQs out of the present paper, about which there is some disagreement on the placement of *də*: While some authors report (i) with one *də* per wh-phrase as acceptable (Kishimoto 2005), others judge them as not really good and report preference for a single *də* attached to the lower wh-phrase (Sumangala 1992; Hagstrom 1998).

(i) Kau **də** monə potə **də** kieuwe? — Multiple WhQ
Who **də** what book **də** read.E
'Who read what book?' [Kishimoto 2005, 12]

[3] Sinhala employs the verb ending *-e* to signal that there is a constituent that bears focus within the Verb Phrase, as in (1)–(3). This can be distinguished from the "neutral" *-a* ending in (4), which appears when *də* attaches to – and focus-marks – the entire IP as a case of broad focus (see Slade 2011, 44ff; cf. Kamali & Büring 2011, §2.1 on Turkish *mI*). As for the semantic contribution of the suffix *-e*, we remain agnostic as to whether it bears actual semantic content or it solely triggers syntactic feature checking.

in PolQs via Hamblin's (1973) semantics for the ordinary value ⟦.⟧^{o} (Slade 2011). The two-legged semantic dependency is schematized in (5):

(5) Schema in Cable (2010) and Slade (2011):

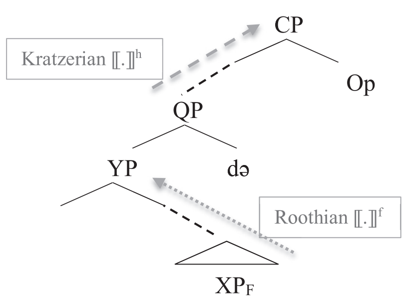


The goal of the present paper is two-fold.

As our first goal, we present novel data on the distribution of *də* in complex questions containing islands that challenge Slade's (2011) analysis of Sinhala PolQs. While *də* in AltQs patterns like *də* in WhQs in being sensitive to islands, *də* in PolQs is island-*in*sensitive. This means that PolQ structures cannot generally be reduced to (partially elided) AltQ structures, and, thus, that Slade's extension of Cable's analysis of WhQs to PolQs fails. Hence, an alternative route must be pursued to unify the role of *də* in the two question types.

This takes us to our second goal: to develop a unified semantic analysis of the Q-particle *də* across WhQs and PolQs that allows to circumvent the problem posed by PolQs for the choice function approach. In a nutshell, the proposed analysis will maintain leg (**i**) as passing up the Roothian focus value ⟦.⟧^{f}, but it will modify leg (**ii**) as to pass up the Kratzerian focus value ⟦.⟧^{h} (Kratzer 1991). The Q-particle *də* will then mediate between these two legs, acting as the converter from Roothian to Kratzerian focus semantics. This is schematized in (6). Crucially, the Kratzerian focus value ⟦.⟧^{h} in leg **(ii)** will end up composing with different focus-sensitive operators in different question types: with the Q-operator for WhQs (à la Beck 2006) and with the squiggle ~-operator for PolQs (à la Rooth 1992 and Roberts 1996/2012):

(6) Our proposal:



A note on the scope of the present paper is in order here. While we are restricting ourselves to Sinhala, Cable's (2010) original analysis was aimed not just at languages with overt Q-particles but also at languages without them, like e.g. English, with the idea that the Q-particle in the latter is phonologically silent. If Cable's idea is on the right track, the analysis to be proposed in the present paper might apply well beyond Sinhala.

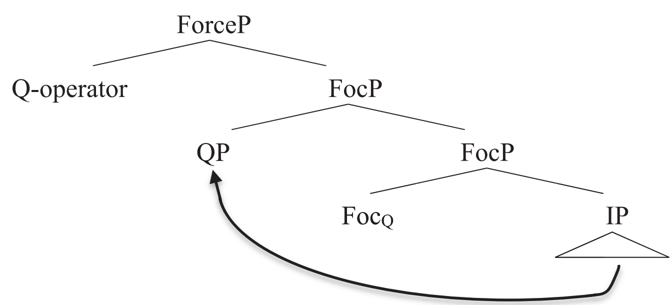
The rest of the paper is organized as follows. Section 2 summarizes recent analyses of the Q-particle *də* in Sinhala, more concretely, Cable (2010) on WhQs and Slade (2011) on PolQs. Section 3 presents novel empirical data on complex WhQ, AltQs and PolQs containing islands. Section 4 introduces some theoretical tools that will be needed for our analysis. Our proposal is developed in section 5. Section 6 concludes.

2. PREVIOUS ANALYSES

2.1. Cable (2010) on WhQs

Syntactically, all wh-phrases in Sinhala (and Tlingit) must be c-commanded by a Q-particle. Cable (2010) argues that the Q-particle heads a Q-particle phrase (QP) and that what looks like wh-movement is not movement of the WhP per se but of the QP *[$_{QP}$ [$_{WhP}$… wh…] də]* containing the wh-phrase. The movement of QP is triggered by the need to check a syntactic feature in the left periphery of the clause: the interrogative Q-operator carries an uninterpretable feature that must be checked against the corresponding interpretable feature of the wh-phrase. More specifically, Cable proposes that the QP moves – overtly in Tlingit and covertly in Sinhala – to the specifier of a Focus Phrase (FocP) which is obligatorily selected by the Q-operator sitting in C^0, as in (7). From this position, the intended syntactic feature is checked.

(7) [Cable 2010, 78]



In simple WhQs, QP is often located immediately above the WhP and, thus, it solely contains the lexical material of the wh-phrase plus the Q-particle. This is exemplified in (8) for Tlingit, with overt movement of the QP *[what Q]*, and in (1) for Sinhala, where the QP *[what Q]* appears in situ and moves to Spec-FocP only at LF:

(8) Tlingit: [Cable 2010, 79]
[$_{QP}$ Daa **sá**]$_j$ i éesh t_j al'óon?
What Q your father t he.hunts.it
'What is your father hunting?'

However, syntactic considerations may enforce a higher attachment of the Q-particle. One such consideration concerns s(yntactic)-selection. In s-selection, a functional head selects a particular XP type and no extraneous projection is allowed to intervene between the two. This is the case, for example, when a postposition selects its complement DP. In such cases, the Q-particle cannot attach immediately above the interrogative XP but must, instead, attach higher up. This is illustrated in (9), where the QP cannot be located immediately above the interrogative DP *[who]* but must instead be placed above the PP *[who with]*:

(9) a. Chitra [kauru ekka] **də** kataa kalee? [Cable 2010, (9), p. 88]
Chitra who with **də** talk did
'Who did Chitra talk with?'

b. *Chitra [kauru **də** ekka] kataa kalee?
Chitra who **də** with talk did

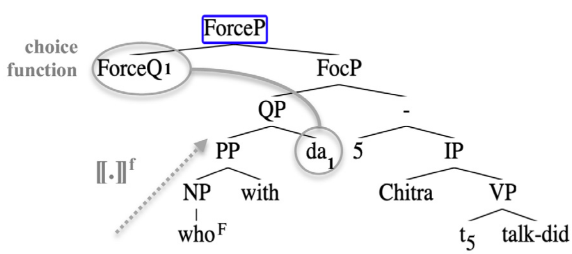
Another syntactic consideration argued to force the Q-particle to attach higher up concerns islands. No syntactic dependency, including movement, can hold across an island. Now, recall that the entire QP needs to move – overtly or covertly – to Spec-FocP. What happens when our *wh*-phrase is buried within an island? If we attach the Q-particle over the wh-phrase but within the island, as in (10), the sentence is ungrammatical. This is because the movement of QP *[what Q]* to Spec-FocP is blocked by the island boundary. In contrast, as first noted by Gair (1983, 1998), if we attach the Q-particle above the wh-phrase and at the outer edge of the island, as in (11), the sentence becomes grammatical. This is because the QP *[[$_{Island}$ ... what...] Q]* can freely move and successfully reach Spec-FocP:

(10) *Chitra [Ranjit monəwa **də** gatta kiənə katəkataawə] æhuwe?
Chitra [Ranjit what **də** bought.A that rumor] heard.E
'What$_i$ did Chitra hear the rumor that Ranjit bought t_i?'

(11) ✓Chitra [Ranjit monəwa gatta kiənə katəkataawə] **də** æhuwe?
Chitra [Ranjit what bought.A that rumor] **də** heard.E
'What$_i$ did Chitra hear the rumor that Ranjit bought t_i?'

We turn now to the semantic side of Cable's analysis. Since, as we just saw, the Q-particle may syntactically c-command the wh-phrase at a short (1), medium (9a) or long distance (11), Cable adopts a flexible semantic analysis that allows for any distance between the Q-particle and the wh-phrase and even for an intervening island boundary between the two. Its tenets are the following, applied to example (9a) in (12) for illustration:

(12) LF of example (9a):



First, in the spirit of Beck (2006), interrogative wh-words are inherently F(ocus)-marked and have a set of alternatives as their focus value $[\![.]\!]^f$, as illustrated in (13a). Second, each of the alternatives in the focus value $[\![.]\!]^f$ composes pointwise with the meaning of the neighboring constituents via the Pointwise Functional Application rule in (14) (Rooth 1992), resulting in (13b). This composition process can continue at any distance and is insensitive to island boundaries. Third, at some point in the semantic derivation, we reach the Q-particle *də*, which bears an index i ranging over choice functions. The corresponding choice function f introduced by g(i) takes the Roothian focus value $[\![.]\!]^f$ of its syntactic sister and selects an element of that set, as in (13c). Fourth, the resulting selected element keeps combining with the denotation of other constituents in the tree, as in (13d). Finally, the Q-operator heading ForceP existentially binds the choice function f introduced by the index of *də*, as in (13e). This derives the correct Hamblin-style denotation of the WhQ structure in (12):

(13)
a. $[\![\text{who}_F]\!]^f$ = { 'Chitra', 'Guna', 'Alis', … }
b. $[\![\text{who}_F \text{ with}]\!]^f$ = { 'with Chitra', 'with Guna', 'with Alis', … }
c. $[\![[\text{who}_F \text{ with}]\text{də}_1]\!]$ = g(1) ({'with Chitra', 'with Guna', 'with Alis', …})
d. $[\![[\text{who}_F \text{ with də}_1]\ 5\ [\text{Chitra}\ \ t_5 \text{ talk-did}]]\!]$
= λw. TALK$_w$ (chitra, g (1)({'with Chitra', 'with Guna', 'with Alis', …}))
e. $[\![\text{Force}_{Q,1}$ Chitra [who$_F$ with] də$_1$ talk-did$]\!]$
= λp. ∃f [p = λw'. TALK$_{w'}$ (chitra, f({'with Chitra', 'with Guna', 'with Alis', …}))]
= { 'that Chitra talked with Chitra', 'that Chitra talked with Guna', 'that Chitra talked with Alis', …. }

(14) Pointwise Functional Application: (Rooth 1992)
$[\![\beta_{<\sigma,\tau>}\ \gamma_\sigma]\!]^f = \{\ x\in D_\tau: \exists y \exists z\ [\ y\in[\![\beta]\!]^f\ \&\ z\in[\![\gamma]\!]^f\ \&\ x=y(z)\ ]\ \}$

In building our proposal in section 5, we will assume Cable's syntactic analysis of WhQs, we will maintain the lower, Roothian "leg" of his semantic dependency – which secures the connection between the wh-phrase and *də* at a short, medium and long distance across an island –, and we will liberalize the upper "leg" of the semantic dependency to account for PolQs.

2.2. Slade's (2011) extension to PolQs

Cable's (2010) analysis works beautifully for WhQs. However, extending Cable's choice function treatment of *də* to AltQs and PolQs is far from trivial.[4] In this paper, we concentrate on the extension to PolQs.

Recall that, to form a PolQ, the Q-particle may attach broadly to the entire IP, as in (15), or narrowly to a specific focused constituent, as in (16). In the latter case, a naïve extension of Cable's choice function treatment of *də* would combine $[\![$*də*$]\!]$ with the Roothian set of focus

[4]In fact, Cable (2010, fn. 21, p. 214) considers *də* in WhQs a true Q-particle but not so *də* in PolQs. We follow Slade (2011, 43) in considering a unified analysis desirable.

alternatives $[\![Ranjit_F]\!]^f$ – namely, {ranjit, chitra, alis…} – and select one element of it as the answer. Clearly, this does not correspond to the actual reading of (16): the PolQ asks the hearer to choose between 'yes' and 'no', not to choose among the alternatives in $[\![Ranjit_F]\!]^f$:[5]

(15) Ranjit aawa **də**? PolQ-broad
Ranjit came.A **də**
'Did Ranjit come?'

(16) Ranjit$_F$ **də** aawe? PolQ-narrow
Ranjit$_F$ **də** came.E
'Was it Ranjit who came?'

To circumvent this challenge, Slade (2011) proposes to reduce PolQs – both with broad *də* and with narrow *də* – to the corresponding AltQs with a second elliptical negative disjunct. More concretely, what looks like a PolQ with broad *də* in (15) is argued to have the underlying AltQ-structure in (17), where the IP *Ranjit came* and an elided IP *Ranjit did not come* are disjoined. And what looks on the surface like a PolQ with narrow *də* in (16) is assigned the underlying AltQ-structure in (18), where the DP *Ranjit* and the elliptical DP *not Ranjit* are disjoined:[6]

(17) LF for the PolQ with broad *də* (15):
[Force$_{Q,1,2}$ [**də$_1$** [[$_{IP}$Ranjit came] ~~(or) [$_{IP}$ Ranjit did not come **də$_2$**]~~]]]

(18) LF for the PolQ with narrow *də* (16):
[Force$_{Q,1,2}$ [**də$_1$** [[$_{DP}$ RanjitF] ~~(or) [$_{DP}$ not RanjitF **də$_2$**]~~]] came]

Slade's rule for interpreting disjunction is given in (19):

(19) Junction Interpretation Rule [Slade 2011, (52), p. 101]
$\lambda x_\sigma.\ \lambda f_{<<\sigma,t>,\sigma>}.\ \lambda y_\sigma.\ \{y\} \cup \{\ f\ (\{\lambda z.z\}(x))\ \}$

This rule operates as follows. In the case of the PolQ structure (17) with broad *də*, the λx-slot in (19) will be filled with the proposition 'that Ranjit did not come' expressed by the second disjunct; the λf-slot will be saturated by the choice function variable f_2 introduced by *də$_2$*; and the λy-slot will be filled with the proposition 'that Ranjit came' expressed by the first disjunct. Once all the arguments of the Junction Interpretation Rule are saturated, we obtain the set in (20a),

[5] A naïve extension of Cable's choice function analysis to PolQs with broad *də* like (15) can also be argued to be problematic, though less obviously so. The choice function would be asking us to select one alternative out of a set of propositions containing the prejacent proposition 'that Ranjit came' and some alternatives to it. If the alternatives can be boiled down to just the prejacent and its negation, the set of alternatives to select from would be {'that Ranjit came', 'that Ranjit did not come'} and the desired PolQ meaning would be derived. But, if the alternatives include other salient propositions, we would end up with a set like {'that Ranjit came', 'that Guna left', 'that Chitra met Alis', …}. Asking to choose a proposition from this set would not correspond to a PolQ meaning, but rather to the question meaning 'What happened?'.

[6] In the LF structures (17)–(18), the Q-particle *də$_1$* appearing at the end of the first disjunct at surface structure is analyzed by Slade (2011) as c-commanding the entire disjunction phrase at LF. The interested reader is referred to Slade (2011, 105ff) for further details.

which – given that f_2 is choosing out of a singleton – boils down to the set {'that Ranjit came', 'that Ranjit did not come'}. This set then serves as the argument of the choice function variable f_1 introduced by *də₁*. The result is the final question denotation in (20b):

(20) Interpretation of the Po1Q with broad *də* (17):
a. ⟦[[$_{IP}$ Ranjit came] ~~(or) [$_{IP}$ Ranjit did not come **də**$_2$]~~]⟧
$= \{ \lambda w'.COME_{w'}(Ranjit),\ f_2(\{\lambda w'.\neg COME_{w'}(Ranjit)\})\}$

b. ⟦(18)⟧ $= \lambda p.\ \exists f_1 f_2\ [\ p = f_1\ (\{\lambda w'.COME_{w'}(Ranjit), f_2(\{\ \lambda w'.\neg COME_{w'}(Ranjit)\})\})]$
= { 'that Ranjit came', 'that Ranjit did not come' }

The combinatorics for the PolQ structure (18) with narrow *də* are no different, except that now the disjuncts saturating the λx- and λy-slots are smaller. The λx-slot in (19) is filled with the generalized quantifier 'not Ranjit' denoted by the second disjunct; the λf-slot is saturated by the choice function variable f_2 introduced by *də₂*; and the λy-slot is filled with the generalized quantifier 'Ranjit' denoted by the first disjunct. The result of this composition is the set on (21a), which – similar to the case above – boils down to the set {'Ranjit', 'not Ranjit'}. This set then acts as the argument of the choice function variable f_1 introduced by *də₁*, which delivers the final question meaning in (21b):

(21) Interpretation of the Po1Q with narrow *də* (19):
a. ⟦[[[$_{DP}$ Ranjit$_F$] ~~(or) [$_{DP}$ not Ranjit$_F$ **də**$_2$]~~]⟧
$= \{\ \lambda P.\lambda w'.P_{w'}(Ranjit),\ f_2(\{\lambda P.\lambda w'.\neg P_{w'}(Ranjit)\})\ \}$

b. ⟦(19)⟧ $= \lambda p.\ \exists f_1 f_2\ [\ p = \lambda w'.\ COME_{w'}(f_1(\{Ranjit, f_2(\{not\ Ranjit\})\}))]$
= { 'that Ranjit came',
'that not Ranjit came' (i.e., 'that it wasn't Ranjit that came') }

Importantly, the resulting meanings in (20) and (21) elicit the same answers 'yes, Ranjit came' and 'no, Ranjit didn't come' / 'no, it wasn't Ranjit that came' as *bona fide* PolQs. Hence, if the underlying structures in (17)–(18) can be maintained, the challenge to the choice function treatment of *də* could be evaded. Unfortunately, the novel island data in the next section will make the parse in (18) untenable.

3. NOVEL DATA ON THE Q-PARTICLE IN ALTQS AND POLQS WITH ISLANDS

As we saw in our review of Cable (2010), in Sinhala WhQs, the link between the wh-word and the Q-particle is not island-sensitive, but the link between the Q-particle *də* and the Q-operator is. That is, the wh-word can freely appear inside of a syntactic island, but *də* must be placed at the edge of the island, as shown again in (22):[7]

[7]Evidence that the ill-formedness of low *də* in (22a) is due to the intervening island boundary is provided by the grammaticality of (i), where low *də* is embedded in a simple complement clause instead of in an island:

(i) Chitra [kau **də** aawa kiyəla] kiiwe? [Kishimoto 2005, (35a)]
Chitra [who **də** came.A that] said-E
'Who did Chitra say came?'

(22) WhQ with Complex NP-island:

a. *Chitra [Ranjit monəwa **də** gatta kiənə katəkataawə] æhuwe? (=10)
Chitra [Ranjit what **də** bought.A that rumor] heard.E

b. ✓Chitra [Ranjit monəwa gatta kiənə katəkataawə] **də** æhuwe? (=11)
Chitra [Ranjit what bought.A that rumor] **də** heard.E
'What$_i$ did Chitra hear the rumor that Ranjit bought t_i?'

What about *də* in AltQs and PolQs? Is the link between the Q-particle *də* and the Q-operator in these other question types island-sensitive – i.e., *də* must appear at the edge of the island – or it is island-insensitive – i.e., *də* is free to appear within the island? To the best of our knowledge, no data have been reported in the literature on this matter. Our judgment elicitation led to the following results.[8]

In the case of AltQs, *də* must attach at the edge of the island, just as it must in WhQs. To see this, consider the Complex NP-island in (23). In (23a) and (23b), *də* is attached locally to each small disjunct, which was reported to be marginal.[9] In contrast, (23c), in which the island is duplicated and *də* is attached at the edge of each island, is perfectly fine:[10]

(23) AltQ with Complex NP-island:

a. ??? John **[**Chris **də** Ali **də** French kathə karanawə kiənə kataawə**]** thahawuru kale?
John Chris **də** Ali **də** French speak do that rumor confirm did.E

b. ??? John **[**Chris **də** French kathə karanawə kiənə kataawə**]** (næthnam)
John Chris **də** French speak do that rumor (if.not)
[Ali **də** French kathə karanawə kiənə kataawə**]** tahawuru kale
Ali **də** French speak do that rumor confirm did.E[11]

c. ✓John **[**Chris$_F$ French kathə karanawə kiənə kataawə**]** **də** (næthnam)
John Chris French speak do that rumor **də** (if not)
[Ali$_F$ French kathə karanawə kiənə kataawə**]** **də** thahawuru kale?
Ali French speak do that rumor **də** confirm did.E
'Did John confirm the rumor that Chris speaks French or (did he confirm the rumor) that Ali speaks French?'

In contrast, PolQs differ from WhQs and AltQs in allowing for *də* to appear inside syntactic islands. Consider the Complex NP-island in (24). The Q-particle *də* can appear locally, as

[8]We thank Tharanga Weerasooriya (p.c.) for the judgments in this section.

[9]As in the case of WhQs in footnote 7, that the unacceptability of (23a, b) stems from the island boundary is supported by the acceptability of AltQs like (i), where low *də* is embedded but no island boundary intervenes:

(i) Chitra [Ali **də** Guna **də** aawa kiyəla] kiiw? [AltQ]
Chitra [Ali **də** Guna **də** came.A that] said.E
'Did Chitra say that Ali or that Guna came?'

[10]The elements *Chris* and *Ali* in (23c) receive a pitch accent, which leads to the indicated F-marking.

[11]We thank M. Erlewine (p.c.) for pointing out the need to check the sentence form (23b).

in (24a), as well as at the edge of the island, as in (24b). Note that the final interpretation of the question depends on the placement of pitch accents: If a pitch accent is placed on *Chitra*, as in (24b), the semantic interpretation is identical to the PolQ with local *də* in (24a):

(24) PolQ with Complex NP-island:
a. ✓John **[**Chris **də** French kathə karanawə kiənə kataawə**]** thahawuru kale?
John Chris **də** French speak do that rumor confirm did.E

b. ✓John **[**Chris$_F$ French kathə karanawə kiənə kataawə**]** **də** thahawuru kale a?
John Chris French speak do that rumor **də** confirm did.E
'Was it Chris$_i$ that John confirmed the rumor that t$_i$ speaks French?'

Hence, there is an asymmetry in the island sensitivity of *də* in different question types. WhQs and AltQs, on the one hand, do not allow for *də* to appear inside an island; PolQs, on the other, allow for local *də* inside islands.

With this empirical result in mind, let us go back to the challenge to the choice function approach described above. As we saw in section 2.2, the challenge could be evaded if PolQs – including PolQs with a local, narrow focus *də* – can always be reduced to the corresponding (partly elided) AltQ structures. However, the present island examples show that this reduction will not do. For sentence (24a), the corresponding AltQ parse would be (25), with local *də* inside each of the disjoined islands:

(25) John confirmed [the rumor that Chris **də** speaks French]
~~or John confirmed [the rumor that not Chris **də** speaks French]~~

But (25) corresponds to an AltQ with the Q-particles inside the islands, which, as we saw in (23b), leads to unacceptability. This means that (25) is an ungrammatical structure and, hence, it cannot be the source of the grammatical string (24a).[12]

To sum up this section, since the Q-particle *də* behaves as island-insensitive in PolQs but as island-sensitive in AltQs, the former question type cannot be reduced to the latter in Sinhala. This means that the challenge of *də* in PolQs is not solved and, thus, that the choice function approach faces a serious problem: Since, intuitively, a PolQ with local *də* is not asking us to

[12]A reviewer suggests the possibility that the foci on *Chris* and *Ali* in the AltQs in (23) function merely as contrastive foci, as in Rooth's (1992) example (i), and that such type of focus may not license *də*, in which case the unacceptability of (23a, b) would be expected.

(i) An AMERICAN farmer was talking to a CANADIAN farmer.

However, note that the foci contained in the disjuncts of AltQs cannot be reduced to contrastive foci licensing each other. Rather, just like focus on PolQs serves to pin down the shape of the QUD (see section 4.2), the foci inthe disjunct of AltQs also indicate the shape of the QUD (see footnote 15) (Roberts 1996/2012; Biezma 2009; Meertens et al. 2019). But, no matter how the foci in (23) end up being analysed, the challenge for Slade's analysis pointed out in the text remains: There is no grammatical AltQ-source for the grammatical PolQ (24a), and thus Slade's analysis of *də* in PolQs is untenable.

choose from the focus alternatives of *də*'s syntactic sister, there is no job for a choice function linking the Q-particle *də* to the Q-operator.

4. SOME THEORETICAL BACKGROUND

Before presenting our proposal, there are two analytical ingredients from the literature that we need to introduce. The first ingredient is the focus semantic value $[\![.]\!]^h$ (Kratzer 1991; Wold 1996; Beck 2006, a.o.), which, as we said, will be used for the upper semantic dependency in our analysis. The second ingredient is Roberts' (1996/2012) discourse framework, which will provide the backbone to understanding the role of the Q-particle in PolQs and thus avoid the problem just described.

4.1. The focus semantic value $[\![.]\!]^h$

Next to Rooth's (1992) focus framework with the focus value $[\![.]\!]^f$, Kratzer (1991), Wold (1996) and Beck (2006) develop a framework based on the focus value $[\![.]\!]^h$. As in Rooth, each expression has an ordinary semantic value $[\![.]\!]$ and a focus semantic value $[\![.]\!]^h$. But, contrary to the Roothian framework, in the Kratzerian framework the focus feature F is indexed and its index is interpreted via the assignment function h.

Let us see briefly how the $[\![.]\!]^h$-based focus framework works. We will follow Beck's (2006) version in this paper. Some basic lexical entries are provided in (26)–(29) for illustration.[13] Note that, in Beck (2006), wh-words are inherently F-marked and provide the relevant alternatives via their focus semantic value (and do not have an ordinary semantic value):

(26) a. $[\![\text{John}]\!] = \text{john}$

b. $[\![\text{John}]\!]^h = \text{john}$

(27) a. $[\![\text{John}_{F1}]\!] = \text{john}$

b. $[\![\text{John}_{F1}]\!]^h = h(1)$

(28) a. $[\![\text{who}_{F1}]\!] = \#$ (i.e., undefined)

b. $[\![\text{who}_{F1}]\!]^h = h(1)$

(29) a. $[\![\text{leave}]\!] = \lambda x.\lambda w.\text{LEAVE}_w(x)$

b. $[\![\text{leave}]\!]^h = \lambda x.\lambda w.\text{LEAVE}_w(x)$

Lexical entries combine via the Functional Application rule (30). The steps in (31b/b') and (32b/b') illustrate the result of this composition up to IP:

[13] More precisely, in (27b), $[\![\text{John}_{F1}]\!]^h = h(1)$ if $1 \in \text{Dom}(h)$ and $[\![\text{John}_{F1}]\!]^h = \text{john}$ otherwise (see Beck 2006, fn. 6). Function h always starts up empty (Beck 2006, 14) and grows as operators introduce new mappings (e.g. $[\![\text{IP}]\!]^{hx/i}$ or $[\![\text{IP}]\!]^{h'}$ in the text below). This will be relevant later for PolQs.

(30) Functional Application:
$[\![F\ A]\!] = [\![F]\!]([\![A]\!])$
$[\![F\ A]\!]^h = [\![F]\!]^h([\![A]\!]^h)$

(31) JOHN left.
a. LF: $[_{IP}$ $John_{F1}$ left $] \sim C$
b. $[\![John_{F1}\ left]\!] = \lambda w.LEAVE_w(j)$
b'. $[\![John_{F1}\ left]\!]^h = \lambda w.LEAVE_w(h(1))$ [To be completed]

(32) Who left?
a. LF: $[_{CP}$ Q_1 $[_{IP}$ who_1 left$]$ $]$
b. $[who_1\ left]\!] = \#$
b'. $[\![who_1\ left]\!]^h = \lambda w.LEAVE_w(h(1))$ [To be completed]

Next, we add Beck's (2006) interpretation rule for the ~-operator in (33).[14] This allows us to complete the derivation (31) as in (34):

(33) a. $[\![IP \sim C]\!]$ is defined only if $[\![C]\!] \subseteq \{p: \exists h'\ [h' \in H \wedge h'$ is total $\wedge\ p=[\![IP]\!]^{h'}]\}$;
if defined, then $[\![IP \sim C]\!] = [\![IP]\!]$
b. $[\![IP \sim C]\!]^h = [\![IP]\!]^h$

(34) JOHN left.
a. LF: $[John_{F1}$ left $] \sim C$
b. $[\![John_{F1}\ left]\!] = \lambda w.LEAVE_w(j)$
b'. $[\![John_{F1}\ left]\!]^h = \lambda w.LEAVE_w(h(1))$ (=31b')
c. $[\![[John_{F1}\ left]\sim C]\!]$ is defined only if
$[\![C]\!] \subseteq \{p: \exists h'\ [h' \in H \wedge h'$ is total $\wedge\ p=[\![John_{F1}\ left]\!]^{h'}]\}$;
$[\![C]\!] \subseteq \{p: \exists h'\ [h' \in H \wedge h'$ is total $\wedge\ p=\lambda w.LEAVE_w(h'(1))]\}$;
$[\![C]\!] \subseteq \{\ \lambda w.LEAVE_w(john),$
$\lambda w.LEAVE_w(bill),$
$\lambda w.LEAVE_w(chris), \ldots\ \}$
If defined, $[\![[John_{F1}\ left]\sim C]\!] = \lambda w.LEAVE_w(j)$

Finally, we introduce Beck's (2006) interpretation rule for the Q-operator. With (35), we can complete the semantic derivation (32) as in (36):

[14] Beck (2006) assumes that ~ resets $[\![.]\!]^h$, as in (i). We follow Romero (2015) in (33b) in departing from this assumption.

(i) $[\![IP \sim C]\!]^h = [\![IP]\!]$

(35) a. $[\![Q_i \text{ IP}]\!] = \{p: \exists x\ [p = [\![\text{IP}]\!]^{hx/i}]\}$

b. $[\![Q_i \text{ IP}]\!]^h = [\![Q_i \text{ IP}]\!]$

(36) Who left?

a. LF: $[_{CP}\ Q_1\ [_{IP}\ \text{who}_1 \text{ left}]\ ]$

b. $[\![\text{who}_1 \text{ left}]\!] = \#$

b'. $[\![\text{who}_1 \text{ left}]\!]^h = \lambda w.\text{LEAVE}_w(h(1))$ (=32b')

c. $[\![Q_1\ [_{IP}\ \text{who}_1 \text{ left}]]\!] = \{p: \exists x\ [p = [\![\text{who}_{F1} \text{ left}]\!]^{hx/1}\}$
$= \{p: \exists x\ [p = \lambda w.\text{LEAVE}_w(h^{x/1}(1))\}$
$= \{p: \exists x\ [p = \lambda w.\text{LEAVE}_w(x)\}$
$= \{\ \lambda w.\text{LEAVE}_w(\text{john}),$
$\lambda w.\text{LEAVE}_w(\text{bill}),$
$\lambda w.\text{LEAVE}_w(\text{chris}), \ldots\ \}$

In our proposal, we use Rooth's focus value $[\![.]\!]^f$ for the lower leg of the dependency and Beck's version of $[\![.]\!]^h$ for the upper leg of the dependency. The two legs will be connected by the Q-particle *də*.

4.2. Focus in PolQs and discourse structure

To model the contribution of F-marking in questions, we follow Roberts' (1996/2012) and take discourse structure to consist of a stack of hierarchically ordered (explicit or implicit) Questions Under Discussion (QUDs), as illustrated in (37). Hierarchically lower QUDs are subquestions of hierarchically higher QUDs, in that the complete answer to the lower QUD contextually entails a partial answer to the higher QUD (Roberts 1996/2012). For example, the complete answer to QUD (37.1.a.i) entails a partial answer to the hierarchically preceding QUD (37.1.a):

(37) 1. 'Who$_{\{john,bill\}}$ visisted whom$_{\{alice,karen\}}$?'

a. 'Who visited Alice?'

i. 'Did John visit Alice?'

ii. 'Did Bill visit Alice?'

b. 'Who visited Karen?'

i. 'Did John visit Karen?'

ii. 'Did Bill visit Karen?'

Importantly for us, explicit moves must obey *congruence* requirements with (explicit or implicit) hierarchically preceding moves. For declaratives, an explicit move *m* is congruent with its hierarchically preceding QUD in the stack if and only if the location of the foci in the uttered declarative corresponds to the location of the wh-phrase in the hierarchically preceding QUD.

This is illustrated in the question-answer sequences in (38). Likewise, explicit PolQ moves are congruent with their hierarchically preceding QUD if and only if the location of the foci in the uttered question corresponds to the location of the wh-phrase in the hierarchically preceding QUD (Bäuerle 1979; Roberts 1996/2012; Biezma 2009). This is exemplified by the WhQ-PolQ sequences in (39):[15]

(38) a. Q: Who visited Alice?
A: JOHN visited Alice.

b. Q: Who visited Alice?
A: #John visited ALICE.

(39) a. Who visited Alice? ✓Did JOHN visit Alice?

b. Who visited Alice? #Did John visit ALICE?

Formally, congruence is secured by computing the focus value of (the relevant constituent) of the current declarative or interrogative utterance and inserting the ∼-operator. This is illustrated in (40)–(41) using the focus value $[\![.]\!]^h$, as it will later be used in our proposal.[16] The QUD corresponds to the value of the free variable *C*. In (40) with narrow focus on *John*, the resulting QUD in (40b) can be paraphrased as 'Who left?'. In (41) with broad focus on the entire IP *[$_{IP}$ John left]*, the QUD obtained in (41b) can be paraphrased as 'What happened?':

(40) PolQ with narrow focus:
a. $[\ Q\ \ [_{IP}\ John_{F1}\ leave] \sim C\ ]$

b. $QUD/[\![C]\!] \subseteq \{\ p: \exists h'\ [h' \in H \wedge h' \text{ is total} \wedge p=[\![[_{IP}\ John_{F1}\ leave]]\!]^{h'}]\ \}$,
i.e., $[\![C]\!] \subseteq \{\ p: \exists h'\ [h' \in H \wedge h' \text{ is total} \wedge$
$p = \lambda w: h'(1) \in \{j, b, c, \ldots\}.\ LEAVE_w(h'(1))]\ \}$;
i.e., $[\![C]\!] \subseteq \{\ \lambda w.LEAVE_w(john), \lambda w.LEAVE_w(bill), \lambda w.LEAVE_w(chris), \ldots\ \}$

[15]Similarly, the location of the foci in an AltQs must match the location of the wh-phrase on the preceding QUD, as illustrated in (i). Note that, if the foci in AltQs were mere contrastive foci licensing each other, the contrast between (i.a/a') and (i.b/b') would remain unexplained:

(i) a. Who visited Alice? ✓Did JOHN or BILL visit Alice?
a'. Who visited Alice? ✓Did JOHN visit Alice or did BILL visit her?
b. Who visited Alice? #Did John visit ALICE or KAREN?
b'. Who visited Alice? #Did John visit ALICE or did he visit KAREN?

[16]Roberts (1996/2012) has been adapted to the framework followed in this paper in two respects. First, Roberts checks the definedness condition of the ∼-operator via the Roothian focus value $[\![.]\!]^f$ while we check it via the Kratzerian focus value $[\![.]\!]^h$. Second, Roberts attaches the ∼-operator to the CP of the PolQ, while we attach it to its IP. Nothing essential for the analysis of PolQs hinges on these choices.

(41) PolQ with broad focus:

a. [Q [$_{IP}$ John leave]$_{F1}$ ~ C]

b. QUD/⟦C⟧ ⊆ { p: ∃h' [h'∈ H ∧ h' is total ∧ p=⟦[$_{IP}$ John leave]$_{F1}$⟧$^{h'}$] },
i.e., ⟦C⟧ ⊆ { p: ∃h' [h'∈ H ∧ h' is total ∧
p = λw: h'(1)∈ { λw.LEAVE$_w$(john), λw.ARRIVE$_w$(mary), λw.CALL$_w$(pat), … }. h'(1)] };
i.e., ⟦C⟧ ⊆ { λw.LEAVE$_w$(john), λw.ARRIVE$_w$(mary), λw.CALL$_w$(pat), … }

As we will shortly see, the implication for Sinhala will be that, in PolQs with narrow and broad *də*, the ~-operator will target the focus value ⟦.⟧^{h} triggered by the Q-particle in order to check discourse congruence à la Roberts (1996/2012).[17]

5. PROPOSAL

The key idea of our proposal is the following. We maintain, following Hagstrom (1998), Cable (2010) and Slade (2011), that the Q-particle acts as mediator between two legs of a semantic dependency. The lower leg corresponds to the Roothian focus value ⟦.⟧^{f}. But, for the upper leg, instead of using a choice function selecting at a distance, we will use the Kratzerian focus value ⟦.⟧^{h}. This minimal change will allow us to connect *də* not only with the Q-operator but with any focus-sensitive operator, crucially with the ~-operator.

More concretely, our implementation of the two-legged focus dependency has the following three ingredients. First, we saw that the Kratzerian focus framework uses F(ocus)-marking and Focus indices. We propose the division of labor in (42) for Sinhala, where these two Focus components are expressed by different surface cues – prosody and inherent F-marking vs. lexical *də* – and modelled using different focus formalisms – Roothian ⟦.⟧^{f} vs. Kratzerian ⟦.⟧^{h}:

(42) i. The **focus feature F** is expressed **prosodically** by a focal accent or it is carried **inherently** by a *wh*-word. It is modelled via the **Roothian** **⟦.⟧**$^{\mathbf{f}}$.

ii. The **focus index i** is carried by the **Q-particle.** It is modelled via **Kratzerian** **⟦.⟧**$^{\mathbf{h}}$.

The role of *də* is, then, to convert the Roothian focus value ⟦.⟧^{f} triggered by an F feature within its syntactic sister into a Kratzerian focus value ⟦.⟧^{h}. More concretely, *də$_i$* takes as input the Roothian focus value ⟦XP⟧^{f} of its syntactic sister and outputs as Kratzerian focus value ⟦.⟧^{h} the function [λw.h(i)], with the precondition that h(i) belong to ⟦XP⟧^{f}. We define this operation in (43b):

(43) a. ⟦XP də$_i$⟧ = ⟦XP⟧

b. ⟦XP də$_i$⟧^{h} = λw: h(i) ∈ ⟦XP⟧^{f}. h(i)

[17]The idea that Q-particles in PolQs are related to discourse structure is not new. See e.g. Kamali & Büring (2011) and Meertens et al. (2019) on the Q-particle *mI* in Turkish. However, Turkish *mI* does not appear in (information-seeking) WhQs and, thus, no unified analysis of *mI* across WhQs and PolQs is pursued in those works.

Second, the focus value $[\![.]\!]^h$ delivered by *də* will be manipulated by different operators in different question types, via binding of the Focus index *i* carried by *də*. In WhQs, the Focus index *i* will be (selectively) bound by the Q-operator (Beck 2006). The general WhQ structure is sketched in (44a). In PolQs, *də*'s index *i* will be (unselectively) bound by the ~-operator to check discourse congruence as in Roberts (1996/2012). The corresponding PolQ structure is provided in (44b):

(44) a. WhQ: [$\mathbf{Q_i}$ . . . [$_{QP}$ [. . .who$_F$. . .] $\mathbf{də_i}$]]

b. PolQs: [**Q** . . . [. . . [$_{QP}$ [. . .XP$_F$. . .] $\mathbf{də_i}$]. . .]**~**C]

Third, to interpret these structures, we assume the following lexical entries. Run-of-the-mill Focus-marked XPs have the same ordinary and focus semantic values as in Rooth (1992), illustrated in (45). Following Beck (2006) in general and Cable (2010) for Sinhala, wh-phrases are constructed in parallel, with the idea that they are inherently F-marked and contribute the relevant alternatives via the focus semantic value, as in (46):[18]

(45) a. $[\![\text{Chitra}_F]\!] = \text{chitra}$

b. $[\![\text{Chitra}_F]\!]^f = \{x: x \in D_e\}$

(46) a. $[\![\text{who}_F]\!] = \#$

b. $[\![\text{who}_F]\!]^f = \{x: x \in D_e\}$

Additionally, we need lexical entries for the focus-sensitive operators. The rule for the ~-operator is the same as introduced in section 3, namely (47). The rule for the Q-operator in (48) is a generalized version of Beck's (2006) rule in (35), whereby the Q-operator may bear one or several binding indices, as in WhQs,[19] or no binding index whatsoever, as it happens in PolQs:

(47) The squiggle operator ~: (=33)

a. $[\![\text{IP} \sim \text{C}]\!]$ is defined only if $[\![\text{C}]\!] \subseteq \{p: \exists h'[h' \in H \wedge h' \text{ is total} \wedge p = [\![\text{IP}]\!]^{h'}]\}$;
if defined, then $[\![\text{IP} \sim \text{C}]\!] = [\![\text{IP}]\!]$

b. $[\![\text{IP} \sim \text{C}]\!]^h = [\![\text{IP}]\!]^h$

[18]Treating the ordinary semantic value of wh-phrases as undefined, as in (46a), is not essential for our analysis. What is crucial for us is that the alternatives arising from bona fide focus – e.g. on *Chitra$_F$* – and the alternatives arising from a wh-word – e.g. *who* – are handled and passed up the tree via a single, unified mechanism. See also section 6 below. We thank an anonymous reviewer for making us clarify this point.

[19]The possibility for the Q-morpheme to bear more than one binding index is needed to account for multiple WhQs with multiple occurrences of the Q-particle, e.g. as in Tlingit (i) below. On Sinhala multiple WhQs, see footnote 2.

(i) Aa **sá** daa **sá** aawaxáa? Multiple WhQ in Tlingit
Who Q what Q they.ate.it
'Who ate what?' [Cable 2010, 29]

(48) The Q-operator: [generalized version of (35)]

a. $[\![Q_{i,\ldots,j}\ IP]\!] = \lambda p.\ \exists x_i,\ldots,z_j\ [p=[\![IP]\!]^{hx/i,\ldots,z/j}]$

b. $[\![Q_{i,\ldots,j}\ IP]\!]^h = [\![Q_{i,\ldots,j}\ IP]\!]$

To see how the proposed analyses delivers the correct results, we will apply it to WhQs in subsection 5.1 and to PolQs in subsection 5.2. The main point will be to show that, with the proposed modification of the upper dependency leg, a unified analysis of the Q-particle can be maintained that derives the correct truth conditions not only for WhQs but, crucially, also for PolQs with broad and narrow *də*, thus circumventing the problem that the choice function approach could not evade.

5.1. Application to WhQs

We start with **WhQs**. A sample syntactic structure is given in (49), where the Q-operator bears the same index as the Q-particle *də* c-commanding the wh-phrase:[20]

(49) WhQ:
$[Q_1\ [_{IP}$ Ali saw $[_{QP}$ whom$_F$ də$_1]$]]

The semantic derivation of this WhQ structure proceeds as follows. Next to the undefined ordinary semantic value of the wh-phrase in (50a), we have its focus semantic value in (50b), which in this first “leg” corresponds to the Roothian focus value $[\![.]\!]^f$. For the sake of concreteness, we will assume that the set of individuals $\{x: x \in D_e\}$ equals the set {a(li), c(hitra), g(unapala)}. Then, the Q-particle *də₁* combines with (its syntactic sister containing) the wh-phrase in (51). The resulting ordinary value is still undefined, as in (51a); the resulting focus value, now corresponding to the Kratzerian $[\![.]\!]^h$, is the constant individual concept [λw.h(1)], provided that h(1) is a member of $[\![\text{whom}_F]\!]^f$, i.e., of {a, c, g}. The QP combines via the Functional Application rule (30) with the rest of the constituents in the sentence up to the IP node, resulting in (52):

(50) a. $[\![\text{whom}_F]\!]$ = #

b. $[\![\text{whom}_F]\!]^f$ = $\{x: x \in D_e\}$
= {a(li), c(hitra), g(unapala)}

(51) a. $[\![\,[_{QP}\ \text{whom}_F\ \text{də}_1]\,]\!]$ = #

b. $[\![\,[_{QP}\ \text{whom}_F\ \text{də}_1]\,]\!]^h$ = λw: $h(1) \in [\![\text{whom}_F]\!]^f$. h(1)
= λw: $h(1) \in \{a, c, g\}$. h(1)

[20]For the sake of simplicity, and since the main point now is to see our semantic analysis at work, we will ignore Cable’s (2010) covert movement of QP to Spec-FocP in this section. The LF corresponding to (49) with movement would be (i). As the reader can check for herself, the result of the semantic derivation would be the same.

(i) $[Q_1\ [_{FocP}\ [_{QP}$ whom$_F$ də$_1]$ $5[_{IP}$ Ali saw $t_5]$]]

(52) a. $[\![[_{IP}$ Ali saw [whom$_F$ də$_1$]]$]\!]$ = #

b. $[\![[_{IP}$ Ali saw [whom$_F$ də$_1$]]$]\!]^h$ = λw: h(1)∈{a, c, g}. SEE$_w$(a, h(1))

The final step in the semantic derivation adds the Q-operator, in (53). The Q-operator instructs us to build a set of propositions by manipulating the focus assignment h in $[\![IP]\!]^h$ with respect to the targeted index *1*, resulting in propositions of shape $\lambda w.SEE_w(a, h^{x/1}(1))$ where x∈{a, c, g}. This gives us the set { λw. SEE$_w$(a, a), λw. SEE$_w$(a, c), λw. SEE$_w$(a, g) }, listed on the last line of (53a). Finally, the focus value in (53b) is equated to the ordinary value just computed:

(53) a. $[\![$Q$_1$ [$_{IP}$ Ali saw [whom$_F$ də$_1$]]$]\!]$
= λp. ∃x [p = $[\![IP]\!]^{hx/1}$]
= λp. ∃x [p = λw: x∈{a, c, g}. SEE$_w$(a, $h^{x/1}$(1))]
= λp. ∃x [p = λw: x∈{a, c, g}. SEE$_w$(a, x)]
= { λw. SEE$_w$(a, a), λw. SEE$_w$(a, c), λw. SEE$_w$(a, g) }

b. $[\![$Q$_1$ [$_{IP}$ Ali saw [whom$_F$ də$_1$]]$]\!]^h$ = $[\![$Q$_1$ [$_{IP}$ Ali saw [whom$_F$ də$_1$]]$]\!]$

In sum, as seen in this semantic derivation, the focus value $[\![.]\!]^h$ triggered by the occurrences of *də* in WhQs is manipulated higher up by the Q-operator and, thus, it is used to generate the question meaning.

5.2. Application to PolQs

This subsection applies the proposed analysis to PolQs. We start with PolQs like (3) with narrow *də* and then show that the same rationale derives PolQs like (4) with broad *də*.

A sample **PolQ** structure with **narrow *də*** is provided in (54):

(54) PolQ with narrow *də*:
[Q [$_{IP}$ Ali saw [$_{QP}$ [Chitra$_F$] də$_1$]]~C]

This PolQ LF differs from the WhQ LF above in two important respects. First, while the Q-operator in WhQs bears at least one index, the Q-operator in PolQs bears no index whatsoever. Indeed, since intuitively the question is not asking us to choose among alternatives to Chitra, there should be no interrogative link between the Q-operator and *də* and, thus, the two should not be co-indexed. This means that the Q-operator will have to operate on the $[\![.]\!]^h$ of its syntactic sister *without* manipulating h's value for any index. Second, the ~-operator has been inserted into the LF to secure Roberts' (1996/2012) discourse congruence on PolQs. As we will see, it will be the ~-operator that manipulates (unselectively) the focus value $[\![.]\!]^h$ triggered by *də* in PolQs.

The semantic derivation of this PolQ structure proceeds as follows. We start with the F-marked NP *Chitra* in (55), whose ordinary value is the individual c(hitra) and whose Roothian focus value is the domain of individuals, here again the set {a, c, g} for concreteness. The QP is composed in (56): The ordinary value is passed up unaltered in (56a); the focus value is transformed by *də* from the Roothian set of alternatives $[\![.]\!]^f$ to the Kratzerian h-based focus value $[\![.]\!]^h$ in (56b), exactly as in (51b) above. The two semantic values keep composing with the rest of the sentence up to the IP node to deliver (57):

(55) a. $[\![\text{Chitra}_F]\!] = \text{c(hitra)}$

b. $[\![\text{Chitra}_F]\!]^f = \{x: x \in D_e\}$
$= \{a, c, g\}$

(56) a. $[\![\text{Chitra}_F\ \text{də}_1]\!] = c$

b. $[\![\text{Chitra}_F\ \text{də}_1]\!]^h = \lambda w\text{: } h(1) \in [\![\text{Chitra}_F]\!]^f.\ \ h(1)$
$= \lambda w\text{: } h(1) \in \{a, c, g\}.\ \ h(1)$

(57) a. $[\![\text{Ali saw [Chitra}_F\ \text{də}_1]]\!] = \lambda w.\ SEE_w(a, c)$

b. $[\![\text{Ali saw [Chitra}_F\ \text{də}_1]]\!]^h = \lambda w\text{: } h(1) \in \{a, c, g\}.\ SEE_w(a, h(1))$

Now the IP combines with the ∼-operator. The ∼-operator imposes a definedness condition. It instructs us to build the set of propositions that result from replacing h in $[\![IP]\!]^h$ by a (total) focus assignment function h' that may differ from the original h with respect to any index. In other words, in constructing this set of propositions, we are "closing off" the focus index *1* on *də* unselectively. The resulting set of propositions in (58a) is $\{\lambda w.\ SEE_w(a, a), \lambda w.\ SEE_w(a, c), \lambda w.\ SEE_w(a, g)\}$:

(58) a. $[\![[_{IP}\ \text{Ali saw [Chitra}_F\ \text{də}_1]]{\sim}C]\!]$ is defined only if
$[\![C]\!] \subseteq \{p: \exists h'\ [h' \in H \wedge h' \text{ is total} \wedge p=[\![IP]\!]^{h'}]\}$,
i.e., $[\![C]\!] \subseteq \{p: \exists h'\ [h' \in H \wedge h' \text{ is total} \wedge p=\lambda w{:}h'(1) \in \{a, c, g\}.\ SEE_w(a, h'(1))]\}$,
i.e., $[\![C]\!] \subseteq \{\lambda w.\ SEE_w(a, a), \lambda w.\ SEE_w(a, c), \lambda w.\ SEE_w(a, g)\}$;
if defined, then $[\![[\text{Ali saw [Chitra}_F\ \text{də}_1]]{\sim}C]\!] = \lambda w.\ SEE_w(a, c)$

b. $[\![[_{IP}\ \text{Ali saw [Chitra}_F\ \text{də}_1]]{\sim}C]\!]^h = \lambda w\text{: } h(1) \in \{a, c, g\}.\ SEE_w(a, h(1))$

As we saw in section 4, via the definedness condition imposed by the ∼-operator, this resulting set indicates the shape of $[\![C]\!]$, that is, the shape of the hierarchically preceding QUD in Roberts' discourse framework (Roberts 1996/2012; Biezma 2009). In this case, it indicates that the current PolQ *Did Ali see [Chitra$_F$ də]?* is the daughter of the WhQ *Who did Ali see?*, as sketched in (59), and not e.g. of *Who saw Chitra?*:

(59) 1. 'Who did Ali see?'
a. 'Did Ali see [Chitra$_F$ də]?'

The last step in the semantic derivation brings in the Q-operator, which, as pointed out, bears no index in the case of PolQs. Since there is no index on the Q-operator, in (60a) we build a set of propositions based on $[\![IP]\!]^h$ without manipulating any index. The result will be a singleton set. More concretely, since the focus assignment h starts empty and no manipulation of h is operative in (60a), h(1) will default to the ordinary value of *[Chitra$_F$ də$_1$]*, i.e., to the individual c(hitra) in the third line of (60a).[21] This gives us the final line in (60a), which corresponds to the correct singleton PolQ reading à la Roberts (1996/2012) and Biezma & Rawlins (2012).[22] Finally, as we saw for WhQs, the focus value of [Q IP] is reset to the ordinary value of [Q IP], as in (60b):

(60) a. $[\![$Q [$_{IP}$ Ali saw [Chitra$_F$ də$_1$]]~C$]\!]$
$= \lambda p.\ p = [\![IP]\!]^h$
$= \lambda p.\ p = \lambda w\!: h(1) \in \{a, c, g\}.\ SEE_w(a, h(1))$
$= \lambda p.\ p = \lambda w.\ SEE_w(a, c)$
$= \{\ \lambda w.\ SEE_w(a, c)\ \}$

b. $[\![$Q [$_{IP}$ Ali saw [Chitra$_F$ də$_1$]]~C$]\!]^h$ = $[\![$Q [$_{IP}$ Ali saw [Chitra$_F$ də$_1$]]~C$]\!]$

We turn now to **PolQs** with **broad *də***. A sample structure is given in (61). Instead of having narrow F-marking and *də* on a smaller constituent, we have broad F-marking on the entire IP and *də* attached to it:

(61) PolQ with broad *də*:
[Q [$_{QP}$ [$_{IP}$ Ali saw Chitra]$_F$ də$_1$]~C]

The steps in the semantic derivation are parallel to the ones for PolQs with narrow *də*, modulo the size of the F-marked constituent and, thus, the shape of the Roothian focus value $[\![.]\!]^f$ serving as argument of *də*. We start with the ordinary and Roothian focus values of the IP, in (62). The Roothian focus value in (62b) is the set of propositions $\{p\!: p \in D_{<s,t>}\}$. For the sake of concreteness, we will limit ourselves to sample propositions like ‘that Ali saw Chitra’, ‘that Chitra came’, ‘that Guna loves Ali’, . . ., as indicated in the last line of (62b):

(62) a. $[\![$[$_{IP}$ Ali saw Chitra]$_F]\!]$ $= \lambda w.\ SEE_w(a, c)$

b. $[\![$[$_{IP}$ Ali saw Chitra]$_F]\!]^f$ $=\{p\!: p \in D_{<s,\ t>}\}$
$=$e.g. $\{\lambda w'.SEE_{w'}(a, c), \lambda w'.COME_{w'}(c), \lambda w'.LOVE_{w'}(g, a)\ldots\}$

Next, we add the Q-particle *də*. As before, the ordinary value in (63a) remains untouched. But the focus value is transformed from the Roothian format to the Kratzerian format in (63b):

[21]See footnote 13. Note that Beck introduces the refinement described in footnote 13 in order to deal with focus evaluation out of a question, as in (i). See Beck (2006, 31ff) for details. That is, this refinement, crucial to derive the appropriate PolQ interpretation in our analysis, is motivated by Beck on independent grounds.

(i) I only wonder who BILL$_F$ invited.

[22]Karttunen (1977), Groenendijk & Stokhof (1984) and a long tradition thereafter assume that PolQs denote a two-membered set {p, ¬p}containing the prejacent proposition p and its negation. Roberts (1996/2012) and Biezma & Rawlins (2012), in contrast, assume that PolQs denote a singleton set {p} containing just the prejacent proposition. In a nutshell, the latter account maintains that, just like a set containing several alternatives is passed up in a Hamblin-style fashion in AltQs, a set containing a single alternative is passed up in PolQs; the alternative(s) within that set keep combining pointwise until they encounter the question operator (see e.g. Biezma & Rawlins 2012, 385ff for details.).

(63) a. $[\![[_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]]\!]$ $=\lambda w.\ SEE_w(a, c)$

b. $[\![[_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]]\!]^h$
$= \lambda w$: $h(1)\in\{\lambda w'.SEE_{w'}(a, c), \lambda w'.COME_{w'}(c), \lambda w'.LOVE_{w'}(g, a), \ldots\}.\ h(1)(w)$

In the next step, we check the definedness condition imposed by the ~-operator. By cycling in different (total) h' functions in (64a), we end up with the set of propositions {'that Ali saw Chitra', 'that Chitra came', 'that Guna loves Ali', . . .}. Via ⟦C⟧, the hierarchically preceding QUD in the discourse structure is indicated to be a subset of that set. In other words, broad *də* indicates that the current PolQ is the daughter of a general WhQ *What happened?*, as sketched in (68), and not of a more specific WhQ like *Who saw Chitra?* or *Who did Ali see?*:

(64) a. $[\![[_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]{\sim}C]\!]$ is defined only if
$[\![C]\!] \subseteq \{p: \exists h'\ [h'\in H \wedge h'$ is total $\wedge\ p=[\![IP]\!]^{h'}]\}$;
i.e., $[\![C]\!] \subseteq \{p: \exists h'\ [h'\in H \wedge h'$ is total $\wedge$
$p = \lambda w$: $h'(1)\in\{\lambda w'.SEE_{w'}(a, c), \lambda w'.COME_{w'}(c), \lambda w'.LOVE_{w'}(g, a), \ldots\}.\ h'(1)(w)\}$;
i.e., $[\![C]\!] \subseteq \{\lambda w.\ SEE_w(a, c), \lambda w.\ COME_w(c), \lambda w.\ LOVE_w(g, a), \ldots\}$;
if defined, then $[\![[_{QP}\ [_{IP}$ Ali saw Chitra$]$ $dә_1]{\sim}C]\!] = \lambda w.\ SEE_w(a, c)$

b. $[\![[_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]{\sim}C]\!]^h =$
λw: $h(1)\in\{\lambda w'.SEE_{w'}(a, c), \lambda w'.COME_{w'}(c), \lambda w'.LOVE_{w'}(g, a), \ldots\}.\ h(1)(w)$

(65) 1. 'What happened?'
a. 'Did ⟦Ali see Chitra$]_F$ də]?'

Finally, we compose QP with the Q-operator in (66). As before, to construct the ordinary value in (66a), the Q-operator combines with the focus value $[\![QP \sim Q]\!]^h$ of its syntactic sister; but, since the Q-operator bears no index, it builds a set of propositions based on $[\![QP \sim Q]\!]^h$ without manipulating any index. The result is, again, a singleton set containing a single proposition for which each lexical entry has defaulted to its ordinary meaning. This is shown in the last line of (66a), which, again, corresponds to the correct singleton PolQ denotation à la Roberts (1996/2012) and Biezma & Rawlins (2012). Finally, the focus value of the entire PolQ is equated to its ordinary value in (69b):

(66) a. $[\![Q\ [_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]{\sim}C]\!]$
$= \lambda p.\ p = [\![QP \sim Q]\!]^h$
$= \lambda p.\ p = \lambda w$: $h(1)\in\{\lambda w'.SEE_{w'}(a, c), \lambda w'.COME_{w'}(c), \lambda w'.LOVE_{w'}(g, a),\ldots\}.\ h(1)(w)$
$= \lambda p.\ p = \lambda w.\ SEE_w(a, c)$
$= \{\ \lambda w.\ SEE_w(a, c)\ \}$

b. $[\![Q\ [_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]{\sim}C]\!]^h = [\![Q\ [_{QP}\ [_{IP}$ Ali saw Chitra$]_F$ $dә_1]{\sim}C]\!]$

In sum, as shown in the semantic derivations, the focus value $[\![.]\!]^h$ triggered by *də* in PolQs is manipulated solely by the ~-operator, and the goal of this manipulation is to situate the current PolQ in the discourse hierarchical structure. Note, furthermore, that the current analysis delivers the same denotation for narrow-focus PolQs and broad-focus PolQs. This is a desirable result, since the crucial difference between the two PolQ types is not semantic, but rather pragmatic: they are felicitous in different contexts, signaling the corresponding QUD.

With this treatment of PolQs, the problem faced by the choice function analysis of *də* has been solved. The Q-particle *də* uniformly turns the Roothian focus value $[\![.]\!]^f$ into a Kratzerian focus value $[\![.]\!]^h$ across WhQs and PolQs. The difference between the two, as we saw, lies simply on what operator will end up manipulating the focus value $[\![.]\!]^h$: the Q-operator in WhQs vs. the ∼-operator in PolQs.

6. CONCLUSIONS AND OUTLOOK

In a prominent line of work (Hagstrom 1998; Cable 2010; Slade 2011, a.o.), Q-particles like Sinhala *də* have been analyzed as introducing a choice function variable that mediates between the Roothian focus value $[\![.]\!]^f$ and the Q-operator located in Force_Q. This line of work has been shown to face a challenge: in PolQs, *də* is intuitively not choosing from the focus value $[\![.]\!]^f$ of its syntactic sister. Trying to reduce PolQs to partially elided AltQs to avoid this problem, as in Slade (2011), is proven to be an inviable option in Sinhala by our novel island data. Our data show that, while *də* cannot appear inside an island in AltQs, it can in PolQs, and thus, PolQs cannot generally be reduced to underlying AltQ-structures in Sinhala. This leaves the choice function approach with the serious problem of finding a unified semantic contribution of *də* in WhQs and PolQs.

A new analysis has been proposed whereby the Q-particle *də* mediates between two kinds of focus values: *də* converts the Roothian focus value $[\![.]\!]^f$ into the Kratzerian focus value $[\![.]\!]^h$. This semantic contribution of *də* is kept constant across WhQs and PolQs. The crucial insight is that, by liberalizing the upper "leg" from a choice function dependency into a focus dependency, this upper dependency can serve not only the Q-operator (in WhQs) but also the ∼-operator (in PolQs).

This new analysis circumvents the problem faced by the choice function view. In PolQs, the Q-operator bears no binding index and, thus, the contribution of *də* does not combine with the Q-operator; as a result, there is no link between *də* and interrogativity or choice of answer. Instead, the focus value $[\![.]\!]^h$ triggered by *də* combines simply with the ∼-operator to check discourse congruence (à la Roberts 1996/2012).

If our analysis of Sinhala questions is on the right track, there are several potential extensions that would be worth pursuing.

A first extension concerns the obligatory appearance of *də* in each disjunct in AltQs (Slade 2011). This was illustrated in (2), repeated below:

(67)	oyaa	maalu.**də**	mas.**də**	kanne?	AltQ	(=2)
	you	fish.**də**	meat.**də**	eat.E		
	'Did you eat meat↑ or fish↓?'					

A second potential extension concerns indefinites in Sinhala, which also use the particle *də* in combination with a *wh*-stem (see e.g. Gair & Sumangala 1991; Slade 2011; Weerasooriya 2019). The sentences in (68)–(69), reported in Slade (2011), present a minimal pair exemplifying the interrogative and the indefinite versions respectively. To cover indefinites, the present proposal would have to be extended from a mechanism passing up focus alternatives to a mechanism passing up alternatives in general, no matter whether those alternatives are focus-based or arise from the ordinary semantic value of the expression. Additionally, valuable insights from Slade's (2011) and Weerasooriya's (2019) analyses of different indefinite series could be incorporated.

(68) mokak **də** wætune? [Hagstrom 1998]
what **də** fell-E
'What fell?'

(69) mokak **də** wætuna [Gair & Sumangala 1991]
what **də** fell-A
'Something (unidentified) fell.'

A third potential extension concerns Q-particles in so-called Q-adjunction languages like Japanese and Korean as opposed to Q-projection languages like Sinhala and Tlingit (Hagstrom 1998; Cable 2010), as well as languages without overt Q-particles, e.g. English. To see one contrast, while Q-projection in Sinhala disallows placement of *də* between a postposition and its complement, as we saw in (9) (repeated below as (70), Q-adjunction in Japanese allows for the Q-particle *ka* to intervene between the two, as in (71):

(70) a. Chitra [kauru ekka] **də** kataa kalee? (=9)
Chitra who with Q talk did
'Who did Chirtra talk with?'

b. *Chitra [kauru **də** ekka] kataa kalee?
Chitra who Q with talk did

(71) Taroo-ga [dono tosi]-**ka**-e ryoko sita-rasii [Cable 2010, p. 91]
Taro-TOP which city-**ka**-to travel did-seems
'Taro seems to have traveled to some city.'

We leave all these potential extensions for future research.

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