

Deriving Specificity, Freechoice and Ignorance with Q-particles in Sinhala

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1. Introduction

Sinhala (an Indo-Aryan language spoken in Sri Lanka) employs two particles: *-hari* and *-də* systematically across disjunction, indefinite and question constructions. They are usually called Q-particles (i.e. Slade (2011)) and their functions (especially of the particle *-də*) have so far been analyzed in terms of either Q(-uestion) Operators (i.e. Kishimoto (2005)) or Choice Functions (i.e. Cable (2010); Slade (2011)). However, building on new insights drawn from re-observation of data, this paper presents a novel account for the two particles based on the inclusivity and exclusivity constraints that they impose on Hamblin style alternatives. This also leads to a unified semantic analysis of the two particles capturing their systematic distribution in such a variety of contexts. It, then, seeks to account for a wide range of phenomena such as free-choice and specificity effects of indefinites in modal contexts, ignorance implicatures in indefinites and exhaustivity implicatures in questions, based on the constraints of the two particles on domain alternatives.

The paper is organized as follows. Section two presents details about the distribution of the two particles in various contexts and quantifiers or operators that show that the semantics of the two particles are different. Section 3 presents the proposal to formally account for the semantic differences of the two particles by analyzing them in terms of exhaustivity and anti-exhaustivity implicatures. Section 4 presents the conclusions.

2. Descriptive Overview of the Two Particles: *-hari* and *-də*

The two particles: *-hari* and *-də* are systematically used across disjunction, indefinite and question constructions in Sinhala. However, their distribution and semantics are significantly different as explained in the following sections.

2.1. In Disjunctions

The particles *-hari* and *-də* are used in nominal disjunction constructions combining disjuncts or alternatives.¹ However, the two particles impose two different types of constraints on the alternatives combined by them. As shown in (1) a, the particle *-hari* marks a constraint akin to inclusive disjunction. And, as shown in (1) b, the particle *-də* marks a constraint akin to exclusive disjunction.²

- (1) a. John bath-**hari** paan-**hari** illəṇəw-a.
John rice-hari bread-hari ask for-A
“John is asking for rice or bread”

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¹ The particles *-hari* and *-də* are used to mark disjunction only at the DP level. Sinhala has the disjunction marker *nəthnam* similar to ‘if not’ in English that is used to mark disjunction at sentence level.

² The disjunction construction with the particle *-də* does not sound good without a clause similar to ‘I don’t know what’ attached at the end of it, it is not ungrammatical though. This will be taken up later in detail.

CONTEXT: John is hungry and is asking for something to eat. He would be happy with any of rice or bread. He would be even happy if he gets both.³

- b. John bath-**də** paan-**də** illənəw-a, (mamə danne næ məkak-də kiyəla).
 John rice-də bread-də ask for-A, I know not what-də COMP
 “John is asking for either rice or bread, (I don’t know what).”

CONTEXT: John is hungry and is asking for something to eat. The speaker knows John is very picky about what he eats. He is sure John is asking for either rice or bread (only one of the two) but he is not sure which one John wants.

Thus, they place inclusivity and exclusivity constraints on their domain or alternatives.

2.2. In Indefinites

The two particles are also used attached to indeterminate pronouns (IDPs) and they are used in indefinite constructions in the form of wh-indefinites.⁴

- (2) a. John monəwa-**hari** biiw-a
 John what-hari drank-A.
 “John drank something.”
- b. John monəwa-**də** biiw-a.
 John what-də drank-A
 “John drank something.”

The two types of indefinites can also be used attached to plain indefinites like *kell-ek* ‘a girl’ to form a complex indefinite like *kauru-hari kell-ek* ‘some girl’ as shown in the examples in (3).

- (3) a. John kauru-**hari** kell-ek dækk-a
 John what-hari girl-INDF saw-A.
 “John saw some girl.”
- b. John kauru-**də** kell-ek dækk-a
 John what-də girl-INDF saw-A.
 “John saw some girl.”

Even though their English translations are the same, their semantics are crucially different, as observable in contexts with quantifiers, modals, etc. as discussed in the next section.

2.2.1. Indefinites with Quantifiers

A **-hari** indefinite is ambiguous between a wide and narrow scope reading with respect to the universal quantifier.

- (4) həmomə monəwa-**hari** biiw-a.
 everyone what-hari drank-A
 “Everyone drank something.”

CONTEXT 1: There were many kinds of drinks at the party. Everybody drank at least one kind.

CONTEXT 2: There were many kinds of drinks at the party. However, there was one thing that everybody drank.⁵

On the other hand, a **-də** indefinite triggers an obligatory wide scope (specificity) reading with respect to the universal quantifier. A reading like that in Context 1 in (5) is not allowed by a **-də** indefinite.

- (5) həmomə monəwa-**də** biiw-a.
 everyone what-də drank-A
 “Everyone drank something.”

CONTEXT 1: *There were many kinds of drinks at the party. Everybody drank at least one kind.

³ It is very normal for Sri Lankans to eat rice and bread together mixed with curries, so there is no restriction to treat the two in terms of their inclusive sense.

⁴ I use the term IDP to refer to ‘wh-words’ in Sinhala in the sense of Kratzer & Shimoyama (2002) referring to ‘wh-words’ in Japanese.

⁵ In the context 1 here, the speaker can well utter the sentence even if the speaker knew what each person drank, thus it does not necessarily convey ignorance. However, in context 2, when the indefinite is interpreted over the scope of the universal quantifier, it expresses obligatory speaker ignorance. This is discussed in detail in 2.2.3

- b. balannə, John kauru-**hari**-**də** kell-ek imbinawa.
see, John who-hari/-də girl-ek kiss
“See, John is kissing some girl.”
- (10) a. Mary sees John kissing a girl close by (clear vision), but she does not know (i.e. the name of) the girl.
b. balannə, John kauru-**də**/*hari kell-ek imbinawa.
see, John who-də/*-hari girl-ek kiss
“See, John is kissing some girl.”

Thus, **-hari** indefinites and **-də** indefinites differ with respect to their conditions for felicitous use.⁸ As we have seen, **-hari** bears some similarity to Spanish *algún*. As reported for *algún* by Alonso-Ovalle & Menéndez-Benito (forthcoming) when **-hari** indefinites are interpreted with scope over a universal quantifier, they convey an ignorance effect. If the speaker in the example in (11) wants to convey that every boy is kissing the same girl, (11) is only felicitous if the speaker cannot identify the student.

- (11) həmə koll-ek-mə kauru-**hari** kell-ek imbinawa.
every boy-INDF-EMPH who-hari girl-INDF kiss
“Every boy is kissing some girl.”

Like Spanish *algún* (Alonso-Ovalle & Menéndez-Benito (forthcoming)), the ignorance effect of **-hari** indefinites disappears if the **-hari** indefinite in (11) is interpreted in the scope of the universal quantifier. On the other hand, a **-də** indefinite is always interpreted with scope over the universal quantifier, and the ignorance effect can never be canceled.

Thus, the ignorance component of the two indefinites differs along two dimensions. On the one hand, they differ with respect to the type of ignorance evoked (and thus have different types of felicity conditions) and they also differ with respect to whether ignorance can be canceled (positive for **-hari** indefinites, negative for **-də** indefinites).

2.3. In Questions

The two particles carry different types of licensing conditions and interpretations in questions.

2.3.1. In Questions with Alternatives

With alternatives, **-hari** can only be used in an inclusive sense to be answered with a Yes or No as in (12) a. On the other hand, **-də** can only be used in an exclusive sense to be answered with an alternative as in (12) b.

- (12) a. John tee-**hari** coopy-**hari** biiwa-də? b. John tee-**də** coopy-**də** biiw-e?
John tea-hari coffee-hari drank-də John tea-də coffee-də drank-E
“Did John drink tea or coffee?” “Was it tea or coffee, John drank?”

Thus, the differences between the two particles are even more evident in the questions with alternatives.

2.3.2. In Yes/NO Questions

A Yes/No question makes use of only the particle **-də**.

- (13) John tee biiwa-**də**? (14) *John tee biiwa-**hari**?
John tea drank-də. John tea drank-hari.
“Did John drink tea?” “Did John drink tea?”

⁸ Observations similar to these have also been made by Slade (2015). However, the claims he makes with respect to the ignorance component of the two indefinites are different from those that are here.

2.3.3. In Wh-questions

Only the particle **-də** is used in a wh-question.

- | | | | |
|------|---|------|--|
| (15) | John monəwa- də biiw-e?
John what-də drank-E.
“What did John drink?” | (16) | *John monəwa- hari biiw-e?
John what-hari drank-E.
“What did John drink?” |
|------|---|------|--|

Thus, questions in Sinhala make use of the particle **-də**.

2.4. Polarity Sensitivity

Both disjunctions and indefinites formed with the particles **-hari** and **-də** can not be interpreted under clause-mate (immediate scope of) negation as seen in (17) and (20), and thus are PPIs in Sinhala. The PPI behaviors of the particles **-hari** and **-də** are quite similar respectively to those observed of French *ou* and *soit-soit* by Spector (2014). Spector (2014) argues that PPIs such as *soit-soit* induce obligatory exhaustivity. At the same time, Spector (2014) argues that French *ou* is a very mild PPI and anti-licensing of *ou* is local (can be canceled or rescued) but *soit-soit* is a strong PPI as anti-licensing of *soit-soit* is global (can only be rescued). Following Spector (2014), Nicolae (2015) argues for a link between obligatory exhaustivity and obligatory ignorance inferences. She also argues that PPI disjunctions require obligatory domain exhaustification and in upward entailing contexts the exhaustification of disjunction generates an epistemic inference that leads to strengthening. Building on Spector (2014), I argue that **-hari** and **-də** in Sinhala are PPIs that induce obligatory exhaustivity of domain alternatives.

Building on Spector (2014) and Nicolae(2015), I show that there is a link between the PPI behavior of **-hari** vs. **-də** and the exhaustivity of the interpretation and the rise of epistemic inferences. In particular, the obligatory exhaustivity/ignorance effects observed of **-də** are related to its characterization as a strong PPI. The examples below illustrate the difference in PPI behavior between **-hari** and **-də**.

2.4.1. PPI behaviour of -hari

As observable in (17), Sinhala **-hari** is a PPI. But, it is a mild PPI. As seen in (18) and (19), its in-situ interpretation can be derived under extra clausal negation, or rescued by another negation. As seen in (18) and (19), the same effect can be observed across disjunction and indefinite constructions.

Anti-licensing:

- | | | |
|------|--|--|
| (17) | a. Mo Jo- hari Li- hari dækk-e næ.
Mo Jo-hari Li-hari saw-E not
“Mo didn’t see Jo or he didn’t see Li.
or > not | b. Mo kaawə- hari dækk-e næ.
Mo who-hari saw-E not
“Mo did not see somebody.”
somebody > not |
|------|--|--|

Locality of anti-licensing:

- | | | |
|------|--|--|
| (18) | a. mamə hithanne næ Mo Jo- hari Li- hari dækk-a kiyala.
I think not Mo Jo-hari Li-hari saw-A COMP
“I do not think Mo saw Jo or Li.” not > or | b. mamə hithanne næ Mo kaawə- hari dækk-a kiyala.
I think not Mo who-hari saw-A COMP
“I do not think Mo saw somebody.” not > somebody |
|------|--|--|

Rescuing:

- | | |
|------|---|
| (19) | a. Mo Jo-hari Li- hari dækk-e næ kiyala penennə næ.
Mo Jo-hari Li-hari saw-E neg COMP appear neg
“It is unlikely that Mo did not see Jo or Li.” not > or |
|------|---|

- b. Mo kaawə-**hari** dækk-e næ kiyala penennə næ.
 Mo who-hari saw-E neg COMP appear neg
 “It is unlikely that Mo did not somebody.” not > somebody

2.4.2. PPI behaviour of *-də*

The PPI behavior of *-də* is different from that of *-hari*. It is a rigid PPI whose in-situ interpretation can never be recovered or rescued.

Anti-licensing:

- (20) a. Mo Jo-**də** Li-**də** dækk-e næ.
 Mo Jo-də Li-də saw-E not
 “Mo didn’t see Jo or he didn’t see Li.
 or > not
- b. Mo kaawə-**də** dækk-e næ.
 Mo who-də saw-E not
 “Mo did not see somebody.”
 somebody > not

‘Locality of anti-licensing’ is vacuous:

- (21) mamə hithanne næ Mo kaawə-**də** dækk-a kiyala.
 I think not Mo who-də saw-A COMP
 “I do not think Mo saw somebody.” somebody > not

‘Rescuing’ is vacuous:

- (22) Mo kaawə-**də** dækk-e næ kiyala penennə næ.
 Mo who-də saw-E neg COMP appear neg
 “It is unlikely that Mo did not see somebody.” somebody > not

Thus, I claim that the particles *-hari* and *-də* are PPIs in Sinhala. *-hari* is only a local PPI (can be canceled or rescued). On the other hand, *-də* is an intrinsic and universal PPI (can never be canceled or rescued). Following this, in the next section, I show that the two particles associate with an obligatory exhaustivity operator. In section 3.2, I show that the non-cancelable obligatory ignorance implicature generated by a *-də* indefinite is related to its non-cancelable exhaustivity.

3. The Proposal

I argue that the inclusivity and exclusivity constraints of *-hari* and *-də* observed in disjunctions are present in indefinites and questions, when they appear attached to IDPs. I present an analysis based on Hamblin semantics (Hamblin, 1973) and the proposals made in Kratzer & Shimoyama (2002), Menéndez-Benito (2010), Alonso-Ovalle & Menéndez-Benito (2010), and Chierchia et al. (2012). I claim that the two particles *-də* and *-hari* with their exclusivity and inclusivity characters impose two different types of constraints on the alternatives for their domains at the outset of computation or derivation. This is the pivotal point of the proposal. I argue that these constraints are selectional requirements/constraints on the sets of alternatives selected for computation or derivation at the outset. Quite different from the standard assumptions about exclusivity constraints, I assume that the particle *-də* blocks a conjunctive alternative from entering the derivation at the outset, thus, it will only allow singular atomic alternatives for computation.⁹ On the other hand, given the inclusivity constraint of *-hari*, I assume that it allows conjunctive alternatives also to enter the derivation at the outset. I show that the two particles with these constraints on alternatives associate with an exhaustivity operator. The ultimate results will be that *-də* indefinites with the exclusivity constraint on alternatives in association with the exhaustivity operator and the force of the existential quantifier will generate exhaustivity implicatures while *-hari* indefinites with the inclusivity constraint in association with the exhaustivity operator and the force of the existential quantifier will generate anti-exhaustivity implicatures (similar to freechoice effects as discussed for Spanish *cualquiera* by Menéndez-Benito (2010)). I show that this way of generating

⁹ The idea that there may be constraints imposed on the alternatives associated with lexical items is reminiscent of discussions regarding membership of the alternatives set as found in e.g. Fox (2007).

exhaustivity and anti-exhaustivity inferences is responsible for a wide range of phenomena such as freechoice and specificity effects of indefinites in modal contexts, ignorance implicatures in indefinites and exhaustivity implicatures in questions. This is discussed in detail in the following sections.

3.1. The Case of Indefinites

As proposed in Kratzer & Shimoyama (2002), I assume that the individual alternatives introduced by IDPs will propagate into propositional alternatives (by way of pointwise function application) and the default existential closure will take place at the sentence level. I argue that both the particles *-hari* and *-də* associate with an obligatory implicit exhaustivity operator (O_{Exh}), similar to *only* in English which exhaustifies the domain alternatives. Following Menéndez-Benito (2010), I propose the denotation in (23) for the exhaustivity operator.

$$(23) \quad O_{Exh}(A) = \{ \lambda w (p(w) \ \& \ \forall q ((q \in A \ \& \ q(w)) \rightarrow (p \Rightarrow q))) : p \in A \} \\ p \Rightarrow q = \forall w (p(w) \rightarrow q(w))$$

(That is, if A is a set of propositions, we get $Exh(A)$ by mapping each proposition p in A into the proposition that is true in a world w iff p is true in w and no other proposition in A is true in w , unless it is logically implied by p (Menéndez-Benito 2010, p. 42)).

3.1.1. Indefinites with *-də*: Exhaustivity and Indefinite Specificity Effects

For a *-də* indefinite as in (24) a, I argue that the particle *-də* places a constraint that prevents a conjunctive alternative from entering the computation. So, if we assume that there are only two alternatives in the contextual domain for the construction with the *-də* indefinite in (24) a, we will have the set of alternatives as in (24) b. And, when the exhaustivity operator (O_{Exh}) exhaustifies the propositional alternatives, we will have the result in (24) c.

- (24) a. John monəwa-*də* biw-a.
John what-də drank-A
‘‘John drank something.’’
b. = $\exists [\{ O_{Exh} [\lambda w. \text{John drank tea in } w, \lambda w. \text{John drank coffee in } w] \}]$
c. = $\exists [\{ \lambda w. \text{John drank tea not coffee in } w, \lambda w. \text{John drank coffee not tea in } w \}]$

Thus, I show that a speaker of Sinhala would use a *-də* indefinite in order for a hearer to draw an exhaustivity inference regarding the extension of the indefinite.

At the same time, as we saw above in (7), a *-də* indefinite interacting with a deontic possibility modal like *puluwan* delivers indefinite specificity. In order to account for the derivation of this effect, I assume (25) to be the (simplified) denotation of the deontic possibility modal.

$$(25) \quad [[puluwan_{Deontic}]] = \lambda p. \lambda w. \exists w' (\text{Acc}_{Deontic}(w)(w') \ \& \ p(w'))$$

Accordingly, the propositional alternatives will combine with the denotation of the modal (by way of pointwise function argument application) and will generate modal alternatives, as in (26) a. The exhaustivity operator (O_{Exh}) scoping above the modal and in agreement with the particle *-də*, will exhaustify the modal alternatives as in (26) b.¹⁰

- (26) [[7]] = $\exists [O_{Exh} [puluwan_{Deontic} [\{ \lambda w. \text{John drank tea in } w, \lambda w. \text{John drank coffee in } w \}]]]$
a. = $\exists [O_{Exh} [\{ \lambda w. \exists w' \text{acc}_{Deontic}(w)(w') \ \& \ \text{John drank tea in } w', \lambda w. \exists w' \text{acc}_{Deontic}(w)(w') \ \& \ \text{John drank coffee in } w' \}]]$
b. = $\exists [\{ \lambda w. \exists w' \text{acc}_{Deontic}(w)(w') \ \& \ \text{John drank tea in } w' \ \& \ \neg \exists w'' \text{acc}_{Deontic}(w)(w'') \ \& \ \text{John drank coffee in } w'', \lambda w. \exists w' \text{acc}_{Deontic}(w)(w') \ \& \ \text{John drank coffee in } w' \ \& \ \neg \exists w'' \text{acc}_{Deontic}(w)(w'') \ \& \ \text{John drank tea in } w'' \}]$

¹⁰ I set aside alternative parses of O_{Exh} for the moment.

This derives the indefinite specificity interpretation of a **-də** indefinite with respect to a deontic possibility modal.

3.1.2. Indefinites with **-hari** : Anti-exhaustivity and Freechoice Effects

I argue that the particle **-hari** with its inclusivity constraint allows a conjunctive alternative to enter into the computation from the outset. So, at the propositional level, we will have the set of alternative for **-hari** indefinites as shown in (27) b. When these alternatives are exhausted, we will have the result in (27) c, which is quite similar to result drawn to account for the freechoice effects of Spanish *cualquiera* by Menéndez-Benito (2010). Thus, the implicature in (27) c with its conjunctive alternative and force of the existential operator, I argue, is similar to an anti-exhaustivity implicature.¹¹

- (27) a. John monəwa-**hari** biw-a
 John what-hari drank-A.
 “John drank something.”
 b. = $\exists [O_{Exh} [\{\lambda w. \text{John drank tea in } w, \lambda w. \text{John drank coffee in } w, \lambda w. \text{John drank tea and coffee in } w\}]]$
 c. = $\exists [\{\lambda w. \text{John drank tea not coffee in } w, \lambda w. \text{John drank coffee not tea in } w, \lambda w. \text{John drank tea and coffee in } w\}]$

Following this, I claim that a speaker of Sinhala would use a **-hari** indefinite in order to prevent a hearer from drawing an exhaustivity inference regarding the extension of the indefinite (as proposed for German *irgendein* by Kratzer & Shimoyama (2002)).

At the same time, as we saw above in (6), a **-hari** indefinite in the scope of the deontic possibility modal generates freechoice effects. I argue that the set of alternatives with the conjunctive alternative as we saw in (27), and the force of the existential quantifier contributes to the derivation of the freechoice effects of **-hari** indefinites under the deontic possibility modal, as shown below.

- (28) [[6]] = $\exists [\text{puluwan}_{Deontic} [O_{Exh} [\{\lambda w. \text{John drank tea in } w, \lambda w. \text{John drank coffee in } w\}]]]$
 a. = $\exists [\text{puluwan}_{Deontic} [\{\lambda w. \text{John drank tea not coffee in } w, \lambda w. \text{John drank coffee not tea in } w, \lambda w, \text{John drank tea and coffee in } w\}]]$
 b. = $\exists [\{\lambda w. \exists w' \text{ acc}_{Deontic} (w) (w') \ \& \ \text{John drank tea not coffee in } w', \lambda w. \exists w' \text{ acc}_{Deontic} (w) (w') \ \& \ \text{John drank coffee not tea in } w', \lambda w. \exists w' \text{ acc}_{Deontic} (w) (w') \ \& \ \text{John drank tea and coffee in } w'\}]$

This way, when the deontic possibility modal is combined with the set of alternatives that also includes the conjunctive alternative, we derive the result that there is an accessible world for every alternative created by the indefinite, which is the signature of freechoice effects.

3.2. Deriving Ignorance

In section 2, we saw that both **-hari** and **-də** indefinites express ignorance overtly. We also saw that the particles **-hari** and **-də** are used in disjunction constructions combining individual alternatives. I argue that as ‘disjunction markers’, both **-hari** and **-də** impose an anti-singleton constraint on the domain of alternatives (none of **-hari** or **-də** will have a domain with an individual alternative). I claim that the two particles impose the same anti-singleton constraint on the domain alternatives of indefinites. So, none of the **-hari** or **-də** indefinites can ever have a singleton domain. This is expected to give rise to an ignorance implicature.¹² Accordingly, I claim that **-hari** and **-də** indefinites give rise to ignorance effects as a result of the domain necessarily having more than one alternative (i.e. the anti-singleton constraint).

¹¹ Menéndez-Benito (2010) derives the freechoice effects for *cualquiera* by way of a universal quantifier and compares it with English *any* which induces universal domain widening and freechoice. However, a **-hari** indefinite does not induce universal domain widening or freechoice, but context dependant domain widening and free choice. Sinhala has the universal domain widener *oone* similar to *any* in English. For a detailed explanation of how the freechoice for Spanish *cualquiera* is derived see Menéndez-Benito (2010).

¹² See Alonso-Ovalle & Menéndez-Benito (2010), who argue that Spanish *algún* places an anti-singleton constraint on its domain of quantification and that a ignorance inference arises as a result.

This is also in line with Zimmermann (2000) that shows that a disjunction construction without an overt epistemic modal can be interpreted as if it carries an implicit epistemic modal and claims that ‘disjunctions are conjunctive lists of epistemic possibilities’. Alonso-Ovalle & Menéndez-Benito (2010) and Nicolae (2015) (among many others) have also proposed application of an implicit modal (assertoric) operator to derive the ‘modal variation’ component of indefinites both with and without an overt modal. Inspired by these accounts, I assume that, with respect to the ignorance inferences, the two particles associate with an implicit epistemic necessity modal (whose denotation is as in (29)) that scopes above the exhaustivity operator associated with the two particles.

$$(29) \quad [[O_{Epistemic}]] = \lambda p. \lambda w. \forall w': \text{Acc}_{Epistemic}(w)(w'), p(w')$$

Then, I argue that the ‘exhaustivity’ and ‘anti-exhaustivity’ implicatures generated with the constraints of the two particles in association with the implicit assertoric operator induce different ways of ignorance. This is discussed next.

3.2.1. Ignorance Expressed with *-də*

I argue that the flavor of ignorance expressed by *-də* indefinites amounts to the meaning that the existential claim made of the indefinite be true of at most one alternative in any world epistemically accessible to the speaker. In association with the assertoric operator, this gives rise to the inference that while at most one alternative is true, the speaker does not know which one. This is illustrated in (30).

- (30) John monəwa-*də* bonəwa.
 John what-*də* drinking
 “John is drinking something.”
 = Assertion = $O_{Epistemic} [\lambda w'. \text{John is drinking tea and not coffee in } w' \vee \lambda w'. \text{John is drinking coffee and not tea in } w']$
 = Implicature = $\neg O_{Epistemic} [\lambda w'. \text{John is drinking tea and not coffee in } w'] \ \& \ \neg O_{Epistemic} [\lambda w'. \text{John is drinking coffee and not tea in } w']$

This can be shown to be an ‘uncertainty implicature’ in the sense of Sauerland (2012) and Nicolae (2015) amounting to the meaning that the speaker is uncertain about which of the alternatives is true.

At the same time, I argue that obligatory (non-cancelable) exhaustivity of indefinites with *-də* (as observed of *-də* as a PPI item) generates an ignorance inference that is not cancelable. The obligatory requirement of the ignorance inference of *-də* is also evident from the obligatory requirement of the clause ‘I don’t know what’ attached to the end of a disjunction construction with the particle *-də* as noted with reference to the example in (1).¹³

3.2.2. Ignorance Expressed with *-hari*

I argue that the flavor of ignorance expressed by a *-hari* indefinite amounts to the meaning that the existential claim made of the indefinite be true of any alternative in any epistemically accessible world.

- (31) John monəwa-*hari* bonəwa.
 John what-*hari* drinking
 “John is drinking something.”
 = Assertion = $O_{Epistemic} [\lambda w'. \text{John is drinking tea not coffee in } w' \vee \lambda w'. \text{John is drinking coffee not tea in } w' \vee \lambda w'. \text{John is drinking tea and coffee in } w']$
 = Implicature = $\neg O_{Epistemic} [\lambda w'. \text{John is drinking tea and not coffee in } w'] \ \& \ \neg O_{Epistemic} [\lambda w'. \text{John is drinking coffee and not tea in } w'] \ \& \ \neg O_{Epistemic} [\lambda w'. \text{John is drinking tea and coffee in } w']$

Thus, *-hari* leads not only to the ignorance associated with the anti-singleton effects of disjunction but also to ignorance associated with widening/ anti-exhaustivity as represented in (31).

¹³ The proposal presented here does not address the differences in the flavors of ignorance discussed in section 2.2.3 and deriving the flavors of ignorance remains for future work.

3.3. The Case of Questions

I argue that the particle **-də** with its exclusivity constraint in yes/no, alternative and wh-questions combining with the exhaustivity operator generates exhaustivity implicatures in questions. As proposed in Kratzer & Shimoyama (2002), the exhausted alternatives will be caught by the Q operator at the matrix level in questions as opposed to the \exists operator in indefinites. Thus, a question like in (15) repeated here in (32), will have the derivation as follows.

- (32) John monəwa-**də** biiw-e?
 John what-də drank-E
 ‘‘What did John drink?’’
 = Q [O_{Exh} [{ λw . John drank tea in w , λw . John drank juice in w , λw . John drank milk in w ,...}]]
 = Q [{ λw . John drank tea, not juice, not milk, not... in w , λw . John drank juice, not tea, not milk, not... in w , λw . John drank milk, not tea, not juice, not... in w }]

The same effects of indefinite specificity, ignorance, etc observed of the particle **-də** in indefinites are to be discussed in relation to questions in the future work.

4. Conclusions

This paper makes a case for a novel analysis of the Q-particles in Sinhala based on the inclusivity and exclusivity constraints that they place on domain alternatives. It argues that the two particles **-hari** and **-də** with their constraints induce anti-exhaustification and exhaustification of domain alternatives. These processes are shown to be responsible for a range of phenomena such as freechoice, specificity and ignorance effects of indefinites and exhaustivity implicatures of questions.

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