Deriving ignorance in questions: evidence from Sinhala

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Abstract

The epistemic component of a question has always been a crucial aspect in the analysis of the meaning of a question. However, while the meaning of questions has mostly been analyzed in terms of indirect questions embedded under the factive *know*, the ignorance component associated with a direct question has received very little attention in the literature. This paper highlights the significance of the ignorance component of a matrix question in the analysis of its meaning and proposes to account for it in terms of a presupposition in association with the indefinite component within a question. It develops and tests the hypothesis with some crucial data from Sinhala, an Indo-Aryan language spoken in Sri Lanka.

1 Introduction

Consider the question in (1) in English. Unless it is asked in a context of a quiz competition, its ignorance component (that the speaker does not know who John met) cannot be ignored in the analysis of its meaning.

(1) Who did John meet?

At the same time, this ignorance component cannot be cancelled. For examples, it will be very odd for a speaker to ask the question in (1) and continue to say *In fact, I know who*, as shown in (2).

(2) Who did John meet? # In fact, I know who.

In the face of these observations, one of the goals of this paper is to account for the generation and the nature of this ignorance component in questions. It is hypothesized that this ignorance component is a pre-supposition associated with the indefinite/existential component within a question. However, the issue is that we tend not to see some crucial semantic components associated with the indefinite/existential component, as we do not overtly see it inside a constituent question as in (1) in English. In contrast, like many languages of the world such as Japanese, Korean, Tlingit. Malayalam, etc., indefinites and questions in Sinhala overtly display certain morpho-syntactic and semantic properties shared in common. For instance, indefinites and questions in Sinhala commonly employ wh-words formed with the particle ***-də*** as seen in (3) and (4). As also seen in (3) and (4), the only difference between an indefinite and a question in Sinhala is the clause final marking that changes ***-a*** (usulaay glossed as -A) in a declarative (indefinite) to ***-e*** (usually glossed as -E) in a question. Quite along the same lines, indefinites with the particle ***-də*** as in (3) generate ignorance implicatures (other than the regular meaning of the indefinite) that cannot be cancelled, as shown in (3). It is also observed that the existential and ignorance components associated with the wh-indefinite are carried over to the wh-questions as shown in (4).[2]

(3) John kaawə-də hamu-un-a.
John wh-də meet-PAST-A.
"John met somebody."
Ordinary meaning: John met somebody.

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[2]Technical derivations of these meanings are illustrated in Section 4.

IGNORANCE IMPLICATURES: The speaker does not know who.
IMPLICATURE CANCELATION: # In fact, I know who.

(4) John kaawə-də hamu-un-e?
John wh-də meet-PAST-E
"Who did John meet?"
ORDINARY MEANING: Who did John meet?
EXISTENTIAL COMPONENT: John met somebody.
IGNORANCE COMPONENT: The speaker does not know who.
IGNORANCE CANCELATION: # In fact, I know who.

Following this evidence of morpho-syntactic and semantic properties shared in common by both indefinites and wh-questions in Sinhala, this paper supports the claim that a wh-question carries an indefinite/existential component in the question nucleus of a constituent question (cf. Dayal, 2016, among others). It builds on the account that a question denotes a set of propositions as possible answers to the question (cf. Hamblin, 1973). It claims that the set of alternatives to be derived as possible answers feed into to the derivation of a question by the indeterminate pronoun (IDP) in the question nucleus (cf. Kratzer and Shimoyama, 2002). It argues that the particle *-də* being an alternative/focus sensitive particle introduces a focus element to the IDP and the the alternatives propagate as focus alternatives. It utilizes a multidimensional framework involving ordinary, focus and presuppositional semantic values claimed to be associated with a question to account for its overall meaning. It accounts for the ignorance component of a question as a presupposition. It proposes to derive the overall meaning of a constituent question as the set of propositions which count as possible answers along with the presupposed existential and ignorance components.

The paper is organized as follows. Section 2 presents the data pertaining to the distribution of the particle *-də* in disjunctions, idefinites and questions in Sinhala. Section 3 discusses the theoretical background, tools and assumptions utilized in the analysis and derivation of the meaning in questions. Section 4 presents the proposal and implementation. Section 5 offers the conclusions and implications for further research.

2 Crucial data

This section presents some important descriptive facts pertaining to the form and distribution of disjunctions, indefinites and questions with the particle *-də*. It also offers some crucial data with respect to the positive polarity (PP) behavior of the particle *-də*.

2.1 Particle *-də* in Indefinites

Indefinites similar to indefinite pronouns in English can be formed by adding the particle *-də* to wh-words (indeterminate pronouns or IDPs) as shown in (5).[3]

(5) a. monəwa-də
what-də
"something"

b. kau-də
who-də
"somebody"

c. kohe-də
where-də
"somewhere"

Its distribution in sentences is illustrated in (6).

(6) a. John kohe-də yanəw-a.
John somewhere-də go-A.
"John is goiing somewhere."

b. John monəwa-də kanəw-a.
John what-də eat-A
"John is eating something."

[3]Kuroda (1965) uses the term indeterminate pronouns (IDPs) to refer to wh-words in Japanese similar to those in Sinhala. I will use this neutral term to refer to wh-words in Sinhala most of the time (cf. also Kratzer and Shimoyama (2002)).

Thus, wh-indefinites in Sinhala make use of the particle *-də* attached to IDPs.[4]

2.2 Particle *-də* in disjunctions

Disjunctions in Sinhala can be formed with the particle *-də* combining disjuncts (or individual alternatives) as shown in the following examples.

(7) a. tee-də koopy-də
tea-də coffee-də
"tea or coffee"

b. Giita-də Maala-də
Giita-də Maala-də
"Giita or Maala"

Its distribution in sentences is illustrated in (8).

(8) John Giita-də Maala-də hamu-un-a, mamə danne næ kawə-də kiyəla.
John Giita-də Maala-də meet-PAST-A I know not who-də COMP
"John met Giita or Maala, I do not know who/which."[5]

Thus, the particle *-də* is used as a disjunction marker in Sinhala. Its use as a disjunction is more apparent in alternative question constructions as discussed in the next section.[6]

2.3 Particle *-də* in Questions

Constituent, Yes/No and alternative questions in Sinhala are formed with the particle *-də*. This is discussed in the following.

2.3.1 Particle *-də* in alternative questions

The particle *-də* in the form of a disjunction as in (7) is used in alternative questions as illustrated in (9).

(9) oyaa maalu-də mas-də kann-e?
you fish-də meat-də eat-E
"Is it fish or meat that you eat?"[7]

In this example, we observe that the particle *-də* as a disjunction serves to form alternative questions.

2.3.2 Yes/NO questions

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

[4]Sinhala also makes use of the particle *-hari* to form wh-indefinites in an identical manner. However, it is not used in questions in the way that the particle *-də* is used. See Weerasooriya (2019) for an account of the comparison between the two particles in indefinites.

[5]Many speakers of Sinhala report that a declarative disjunction construction with the particle *-də* is odd (i.e. compared to a *-də* disjunction in an alternative question as in (9)). But, they accept that given the right intonation, a particular context and a sentence similar to 'I don't know what/which' following it, it is acceptable as in the example here. I will not be systematic about presenting 'I don't know what/which' in all the examples.

[6]Sinhala also makes use of the particle *-hari* to form disjunctions in an identical manner. However, it is not used in questions in the way that the particle *-də* is used. See Weerasooriya (2019) for an account of the comparison between the two particles in disjunctions.

[7]The morpheme *-e* appears clause finally in a focus, constituent or alternative question construction in Sinhala. In a constituent question, the particle *-də* is used attached to the wh-constituent. In an alternative question, the particle *-də* is used attached to the alternatives and the particle *-e* appears clause finally. The morpheme *-e* is not used in a Yes/No question. The particle *-də* appears clause finally in a Yes/No question. See Ananda (2011) for a detailed account of the use of the two particles in focus and question constructions.

(10) a. John tee biiwa-də?
John tea drank-də
"Did John drink tea?"

b. Oyaa Giita hewwa-də?
you Giita seek-də
"Did you look for Giita?"

Thus, the particle *-də* appearing clause finally serves to form a Yes/No question.

2.3.3 Wh- questions

The particle *-də* attached to IDPs is used to form a wh-question. As seen in (11), the indefinites formed with the particle *-də* are used in wh-questions.

(11) a. John monəwa-də biiw-e?
John what-də drank-E.
"What did John drink?"

b. Siri kaawə-də dækk-e?
Siri who-də see-E.
"Who did Siri see?"

Thus, the particle *-də* is used to ask wh-questions.

The facts presented above show that questions make use of the particle *-də* in all alternative, Yes/No and constituent questions in Sinhala.

2.4 Particle *-də* as a positive polarity item (PPI)

The particle ***-də*** functions as a positive polarity item (PPI) in both disjunctions and indefinites in Sinhala (i.e. they are anti-licensed in the semantic scope of negation) as shown in (12) (disjunctions) and (13) (indefinites).

(12) John Gita-də Mala-də dækk-e næ kiyala penennə næ.
John Gita-də Mala-də saw-E neg COMP appear neg
"John did not see Gita or he did not see Mala. $\surd$ -də (OR) > NEG / *NEG > -də

(13) John kaawə-də dækk-e næ.
John who-də saw-E not
"John did not see somebody." $\surd$ -də (somebody) > NEG / *NEG > -də

The particle *-də* used in indefinites and questions as a PPI has important consequences for deriving the related ignorance component associated with questions as discussed in Sections 3 and 4.

3 Theoretical background

The analysis of direct questions in this paper builds on a number of seminal accounts in the history of the analysis of indefinites and questions. In the following, I briefly discuss some of those accounts used for the purposes in this paper.

3.1 Questions as denoting the set of propositions as possible answers: Hamblin (1973)

In his seminal paper, Hamblin (1973) claimed that the denotation of a question is the set of propositions which count as possible answers to the question. Hamblin proposed to analyze questions by way of compositional computation of alternative sets. In that, all expressions denote sets of 'traditional' denotations as alternatives. Most lexical items such as verbs denote singleton sets. Question words such as *who* denote sets of individuals rather than as properties. The sets of alternatives keep expanding by way of Hamblin function application which is given in (14) (as given in Kratzer and Shimoyama (2002)).

(14) Hamblin Functional Application: If α is a branching node with daughter β and γ and $[[\beta]]^{w,g} \subseteq D_\sigma$ and $[[\gamma]]^{w,g} \subseteq D_{<\sigma,\tau>}$, then $[[\alpha]]^{w,g}$ = { a $\in D_\tau$:$\exists$ b $\exists$ c [b $\in$ $[[\beta]]^{w,g}$ & c $\in$ $[[\gamma]]^{w,g}$ & a = c (b)]}

For an example, a constituent question such as *Who slept?* is analyzed as in (15).[8]

(15) Who slept?

a. [[who]] = {x: human (x) } = {Saman, Kamal, Siri,...}

b. [[slept]]= {λx. slept (x)}

c. [[Who slept?]]
=[[slept]] ([[who]])
= λx [slept (x)] ({Saman, Kamal, Siri,...})
={λx. [slept (x)] (Saman), λx. [slept (x)] (Kamal), λx. [slept (x)] (Siri)....})
={that Saman slept, that Kamal slept, that Siri slept, ...}

In (15), the wh-word [[who]] denotes the set of all humans in w. [[slept]] denotes the singleton set introducing just one alternative, the property of sleeping. To compute the meaning of [[Who slept?]], Hamblin function application is applied point-wise, and the denotation of *Who slept?* as in (15) is the set of propositional alternatives: {that Saman slept, that Kamal slept, that Siri slept, ...}.

Following Hamblin (1973), I assume that a constituent question denotes the set of propositions that count as possible answers to the question. The set of propositions is shown constitute the ordinary semantic value of the question as discussed in Section 4.

3.2 Indefinites as introducing contextually relevant alternatives: Kratzer and Shimoyama (2002)

Kratzer and Shimoyama (2002) argue that, like focus Rooth (1985), indefinites introduce sets of alternatives.They base their analysis of indefinites on Hamblin type semantics applied to Japanese indeterminate and German *irgendein* phrases. They argue that indeterminate pronouns denote sets of individuals as individual alternatives. The sets of alternatives keep 'propagating' by way of Hamblin functional application. Kratzer and Shimoyama illustrates how the interpretation of a simple indefinite sentence works in a Hamblin semantics, with the Japanese example **Dare(- ga) nemutta** as shown in (16).

(16) For all possible worlds w and the variable assignment g, we have
$[[\textbf{dare}]]^{w,g}$ = {x:human (x) (w)}
$[[\textbf{nemutta}]]^{w,g}$ = {λx.λw. slept (x) (w)}
$[[\textbf{Dare(- ga) nemutta}]]^{w,g}$ = {p : $\exists$[human(x)(w)and p = λw. slept (x) (w)]}

As in the case of wh-question constructions that we saw above, [[**dare**]] denotes the set of all humans in w. [[**nemutta**]] denotes the singleton set introducing just one alternative, the property of sleeping. To compute [[**Dare(- ga) nemutta**]] functional application is applied point-wise, and the denotation of **Dare(- ga) nemutta** is as in (17).

(17) $[[\textbf{Dare(- ga) nemutta}]]^{w,g}$ = {'a slept', 'b slept', 'c slept', etc }

According to Kratzer and Shimoyama (2002), the alternatives will expand until they meet a relevant operator that operates on the set of alternatives to derive a particular type of quantificational (existential/universal), interrogative, modal, or some other force. They show that the propositional operators such as [$\exists$], [$\forall$], [Neg], [Q] operate over propositional alternatives. The denotations of these operators are explained in (18) and (19).

[8]Proposals differ with respect to whether the denotation of questions should be analyzed in terms of the set of true answers (e.g. Karttunen, 1977) or the set of all possible answers (Hamblin, 1973; Groenendijk Stokhof 1984). See Dayal (2016) for an overview.

Propositional Quantifiers

(18) Where A is a set of propositions, we have:
[∃](A) = {the proposition that is true in all worlds in which some proposition in A is true}
[∀](A) = {the proposition that is true in all worlds in which every proposition in A is true}
[Neg](A) = {the proposition that is true in all worlds in which no proposition in A is true}
[Q](A) = A

More technically,

(19) For All $[[\alpha]]^{w,g} \subseteq D_{\langle st \rangle}$
(i) $[[\exists\alpha]]^{w,g} = \{\lambda$ w'. ∃ p [p ∈ $[[\alpha]]^{w,g}$ & p(w')=1]}
(ii) $[[\forall\alpha]]^{w,g} = \{\lambda$ w'. ∀ p [p ∈ $[[\alpha]]^{w,g} \rightarrow$ p(w')=1]}
(iii) $[[Neg\alpha]]^{w,g} = \{\lambda$ w'. ¬∃ p [p ∈ $[[\alpha]]^{w,g}$ & p(w')=1]}
(iv) $[[Q\alpha]]^{w,g} = [[\alpha]]^{w,g}$

Kratzer and Shimoyama (2002) also argue for a syntactic agreement/feature movement relation between the operators such as [∃], [∀], [Neg], [Q], etc, and different types of indefinites with such interpretable or uninterpretable features. They argue that if the features do not match or a DP is found within the scope of an incompatible operator, the sentence would result in ungrammaticality. Kratzer (2005) essentially argues that indefinites carry an uninterpretable existential feature that has to agree with an existential operator carrying an interpretable existential feature. In line with this body of work, I argue that the particle *-dɔ* caries inherent uninterpretable features such as an uninterpretable exhaustivity [*un*Exh] feature, an uninterpretable focus [*un*F] feature and an uninterpretable Q [*un*Q] feature that will enter into agreement relations with the respective operators with counterpart interpretable features. Following Slade (2011), I also assume that the verb-final morpheme $-e$ that appears in both question and focus constructions carries an uninterpretable presuppositional feature: [*un*PS] that enters into an agreement relation with the interpretable feature: [*in*PS] of the respective operator.

Building on Kratzer and Shimoyama (2002), I assume that it is the IDP that introduces the existential component and the set of individual alternatives into the Hamblin semantic computation.

3.3 A multidimensional framework: Rooth (1985;1992)

Rooth's (1985; 1992) 'alternative set' theory shows that an expression with focus as in (20) has two different semantic values: the expression's 'ordinary semantic value' and its 'focus semantic value'.

(20) John introduced $[\text{Bill}]_F$ to Sue.

The ordinary semantic value of an utterance is the regular semantic denotation of the sentence. For instance, the ordinary semantic value for (20) is its proposition that John introduced Bill to Sue. Its focus semantic value is the set of all alternative propositions to the proposition that John introduced Bill to Sue in the form 'John introduced Bill to x': {that John introduced Bill to Ben, that John introduced Bill to Kate, that John introduced Bill to Kim,...} including the proposition that John introduced Bill to Sue. Thus, the focus semantic value is said to consist of a set of alternatives from which the ordinary semantic value is drawn.

Inspired by Rooth (1985, 1992), a multidimensional approach to meaning calculation in questions is used in the proposal in Section 4.

3.4 Wh-phrases as introducing a focus semantic value to the interpretation: Beck (2006)

Beck (2006) claims that interrogative wh-words are inherently marked for focus and focus gives rise to a set of alternatives: $[[.]]^f$ (cf. Rooth, 1991). Wh-phrases are interpreted with the same mechanism as focus. Beck argues that wh-words contribute only a focus semantic value to the interpretation and have no ordinary semantic value: $[[.]]^0$. In Beck's account, the wh-phrase is marked with a focus index and a distinguished variable assignment h interprets this index. Accordingly, a wh-construction like the one in (21-a), without focus marking and the Q-operator has no defined value. At the same time, the one in (21-b) with focus marking but without the Q-operator has only a focus semantic value.

(21) a. $[[\text{who}_1 \text{ left}]]^g$ is undefined
b. $[[\text{who}_1 \text{ left}]]^{g,h} = \lambda$w. h(1) left in w (Beck, 2006, pp 15)

Then, the Q-operator binds the distinguished variable introduced by the wh-phrase and assigns an ordinary semantic value to the wh-question. For example, according to Beck (2006), a wh-question like the one in (22-a) has the Logical Form in (22-b). The semantic effect of the question operator is specified in (23). The meaning of the question in (22) is given in (24).

(22) a. Who left?
b. $[\text{Q}_1 \text{ [who}_1 \text{ left]}]$

(23) If X = $[\text{Q}_i \text{ Y}]$ then $[[\text{X}]]^g = \lambda\text{p}\exists\text{x}[\text{p}=[[\text{Y}]]^{g,h[x/i]}]$
and $[[\text{X}]]^g = \lambda\text{p}\exists\text{x}[\text{p}=[[\text{Y}]]^{g,h[x/i]}]$

(24) $[[\text{ [Q}_1 \text{ [who}_1 \text{ left]] }]]^g = \lambda\text{p}\exists\text{x}[\text{p}=[[\text{ [who}_1 \text{ left] }]]^{g,h[x/i]}]$
$= \lambda\text{p}\exists\text{x}[\text{p}=\lambda\text{w. x left in w}]$ (Beck, 2006, pp 16)

Building on Beck (2006), I assume that wh-words with focus in questions introduce a focus semantic value to the interpretation process at the outset. I show that the alternatives introduced by the IDP marked with focus by the particle *-də* propagate as focus alternatives, as discussed in Section 4.

3.5 Positive polarity items and exhaustivity: Spector (2014); Nicolae (2017)

Showing a correlation between PPIs such as *soit-soit* in French and exhaustivty, Spector (2014) has argued that PPI disjunctions associate with an obligatory exhaustivity operator. Recently, Nicolae (2017) has shown a link between positive polarity (PPI) disjunctions and the ignorance inferences that they generate. Following Spector (2014), she argues that French *ou* as in (25) has a PP behavior because it obligatorily associates with a domain exhaustifier.

(25) Marie n'a pas invité Léa ou Jean à dîner.
"Marie has not invited Lea or Jean for dinner."'
a. Marie didn't invite Lea or she didn't invite Jean for dinner. or > not
b. *Neither Lea nor Jean were invited to dinner by Marie. not > or

Nicolae claims that exhaustification of disjunction in upward entailing (UE) environments gives rise to ignorance inferences, leading to strengthening. Building on Chierchia et al. (2012), she assumes that ignorance implicatures are derived in the grammar by way of an exhaustivity operator placed in the syntactic structure. Building on Alonso-Ovalle and Menéndez-Benito (2010), Nicolae also assumes that a covert doxastic operator akin to a necessity modal adjoined at the matrix level at LF serves in generating the epistemic effects. She derives the ignorance implicatures of a PPI disjunction as shown in (26).

(26) a. $\Box$ [p $\vee$ q]
b. Alt_D ($\Box$ [p $\vee$ q]) = {$\Box$p, $\Box$q}
c. Exh_D[$\Box$ [p $\vee$ q]] = $\Box$ [p $\vee$ q] $\wedge \neg \Box$p, $\wedge \neg \Box$q

In the derivation in (26), there is the doxastic operator scoping over the disjunction at LF as in (26-a). In (26-b), we have the domain alternatives: Alt_D of the disjunction with the doxastic operator in (26-a). In (26-c), we have the uncertainty implicatures derived by way of exhaustification with respect to domain alternatives. Thus, according to Nicolae (2017), an ignorance implicature arises as an uncertainty implicature due to the presence of an obligatory exhaustivity operator. Association with the exhaustivity operator results in PP since it must lead to strengthening.

Thus, given their PP character and building on Spector (2014) and Nicolae (2017), I assume that the particle *-də* associates with an *Exh* operator placed in the syntactic structure of a question construction with the particle *-də*. For the exhaustivity operator, I will adopt the formulation in Nicolae (2017) as in (27).

(27) Exh(p) = $p \wedge \forall q \in$ IE (p, $Alt(p)$): $\neg q$
where: IE (p, Alt (p)) = λq $\in Alt(p)$. $\neg \exists$ r $\in$ Alt (p): ($p \wedge \neg\ q$) $\longrightarrow$ r.

As also is the case with any other *Exh* operator that includes innocent exclusion (cf. Fox, 2007), (27) amounts to the meaning that p is true and any alternative q not entailed by p is false, as long as negating q is consistent with negating any other non-weaker alternatives (cf. Nicolae, 2017). This *Exh* operator serves in generating the ignorance component claimed to associate with question.

3.5.1 The doxastic operator for assertions: Alonso-Ovalle and Menéndez-Benito (2010)

Building on Kratzer and Shimoyama (2002), Alonso-Ovalle and Menéndez-Benito (2010) claim that the free-choice effect that Spanish *algún* induces is an epistemic effect. For this, they argue that assertions are implicitly modalized, which serves to derive the epistemic effects of an indefinite construction without a modal. They define the assertoric operator as in (28).

(28) $[[\text{ASSERT}]]^c = \lambda$p. λw. $\forall$w′: $\text{Epistemic}_{\text{Speaker of c}}$ (w) [p (w′)]

This amounts to the meaning that the assertoric operator takes a propositions p, a world w as its arguments and asserts that for all worlds w′ epistemically accessible to the speaker in w, this proposition is true in w′.

Given the epistemic effects in the wh-question constructions, I also assume that assertions are implicitly modalized and a doxastic operator akin to an epistemic necessity modal is combined with the existential component in a question to account for the existential presupposition. I employ an assertoric operator defined as in (28) by Alonso-Ovalle and Menéndez-Benito (2010) for the derivation of the epistemic effects of the ignorance component in question constructions. I present this assertoric/doxastic operator as a necessity epistemic modal represented with $\Box$ in the derivations.

4 Proposal

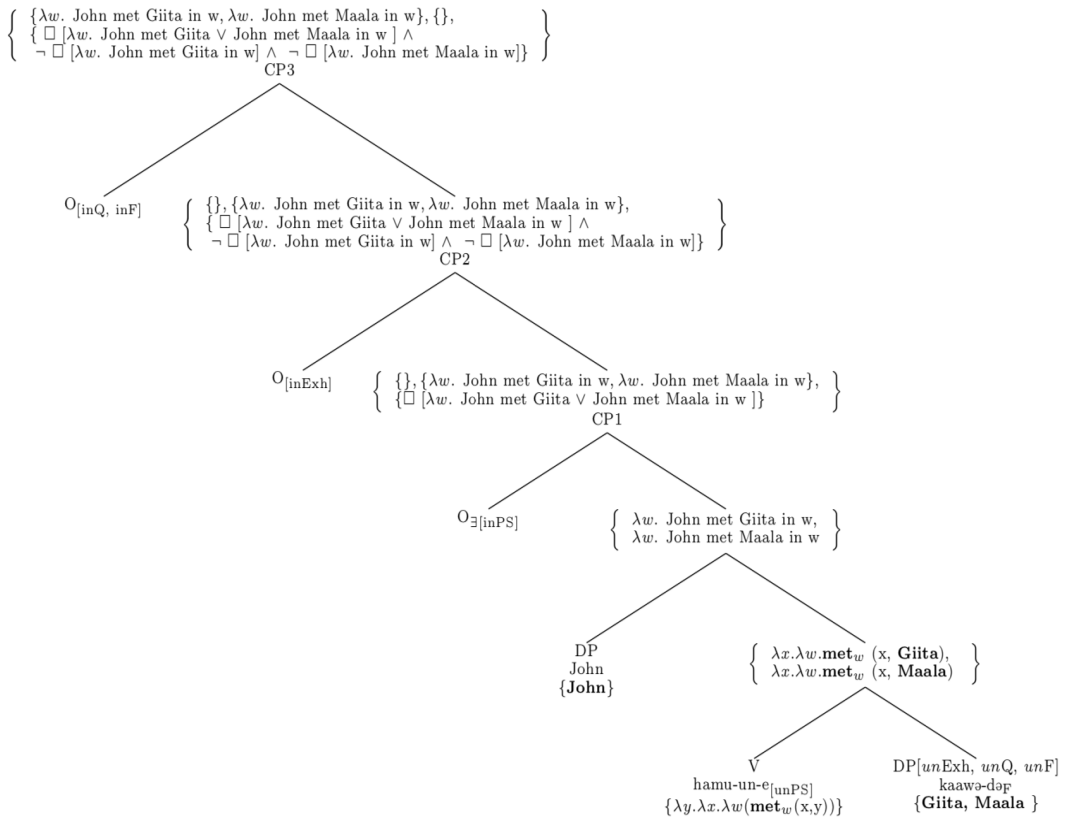
It is assumed that a presupposition (PS) is a property of an expression/question and presuppositions in matrix contexts project. Accordingly, a threefold framework with ordinary semantic value (OSV), focus semantic value (FSV) and presuppositional semantic value (PSV) claimed to be associated with a question is used to account for its overall meaning. It is assumed that a given operator can see all three: ordinary, focus and presuppositional semantic values in principle, as illustrated in (29).

(29) OP(OSV1, FSV1, PSV1) = (OSV2, FSV2, PSV2)

The compositional derivation of the three components of meaning for the question in (4) repeated in (30) is illustrated in the tree diagram in (31). The explanation follows it.

(30) John kaawə-də hamu-un-e?
John wh-də meet-PAST-E
"Who did John meet?"

(31)



In (31), at the bottom, we have the DP with the particle *-də* with its [*un*Exh], [*un*Q], and [*un*F] features.[9] The individual alternatives {Giita, Maala} introduced by the IDP are collected at DP level. Then, by way of point-wise function application (Hamblin function application), the individual alternatives are combined with the denotation of V and propagate upto the propositional level by combing with the denotation of the subject DP. Thus, the individual alternatives propagate up the tree as focus alternatives. At the propositional level we have the two alternatives as in (32).

(32) {λw. John met Giita in w, λw. John met Maala in w }.

At this level, there is no ordinary or presuppositional semantic value, as seen with {{}, {λw. John met Giita in w, λw. John met Maala in w }, {}}. As also seen here, we only have the two alternatives as the focus semantic value. The existential presuppositional operator at

[9]It is assumed that the particle *-də* is both an alternative and focus sensitive particle. It, as an alternative sensitive particle, associates with an exhaustivity operator and as a Q and focus sensitive particle associates with a Q operator. It is assumed that even though the Exh operator has the semantics similar to the meaning of *only*, it does not create any intervention effects as the focus and domain alternatives work at two different dimensions.

the CP level with its [*in*PS] feature in agreement with the [*un*PS] feature of the morpheme $-e$ introduces the existential presupposition combined with the assertoric operator into the derivation as in (33), and as illustrated in (34).

(33) $O_{\exists[\text{inPS}]}$ ({}, {G,M}, {}) = ({}, {G,M}, { □ (G ∨ M)})

(34) {{}, {λw. John met Giita in w, λw. John met Maala in w }, { □ [λw. John met Giita ∨ John met Maala in w.] }}.

At the same time, it just passes up the focus and presuppositional semantic values and there is no ordinary semantic value at this level as seen with (34). Then, the exhaustivity operator (O_{Exh}) with its interpretable feature [*in*Exh] agreeing with the uninterpretable feature [*un*Exh] of the particle *-də* applies exhaustification to the presuppositional proposition and derives the ignorance implicatures as a presupposition by way of exhaustification with respect to epistemically modalized alternatives as in (35), and as illustrated in (36).

(35) O_{Exh} ({}, {G,M}, { □ (G ∨ M)}) = ({}, {G,M}, { □ (G ∨ M) ∧ ¬ □ G ∧ ¬ □ M})

(36) a. Presupposition: □ (G ∨ M)
b. Alt_D (□ [G ∨ M]) = {□ G, □ M }
c. Ignorance Implicatures: Exh_D (□ [G ∨ M]) = □ (G ∨ M) ∧ ¬ □ G ∧ ¬ □ M

In (36-a), we have the existential presupposition. The domain alternatives associated with the presupposition are represented in (36-b). The implicatures drawn by exhaustification with respect to domain alternatives result in the uncertainty implicatures as represented in (36-c). This serves to generate the ignorance component of meaning as uncertainty implicatures, that the speaker is not sure that John met Giita and the speaker is not sure John met Maala.

Consequently, we have the presuppositional existential and ignorance components of the meaning as in (37).

(37) □ [λw. John met Giita ∨ John met Maala in w] ∧ ¬ □ [λw. John met Giita in w] ∧ ¬ □ [λw. John met Maala in w]

At the same time, it passes up the focus and presuppositional semantic values as seen in (38).

(38) {{}, {λw. John met Giita in w, λw. John met Maala in w }, { □ [λw. John met Giita ∨ John met Maala in w] ∧ ¬ □ [λw. John met Giita in w] ∧ ¬ □ [λw. John met Maala in w]}}.

Finally, the Q operator with its [*in*F] and [*in*Q] features agreeing with the [*un*F] and [*un*Q] features of the particles *-də* operates on the focus semantic value and converts it to an ordinary semantic value, as we have a question, as derived in (39).

(39) O_Q ({}, {G,M}, { □ (G ∨ M) ∧ ¬ □ G ∧ ¬ □ M }) = ({G,M}, {}, { □ (G ∨ M) ∧ ¬ □ G ∧ ¬ □ M })

Consequently, we have the set of propositions as the denotation (the ordinary semantic value) of a question as illustrated in (41).

(40) {λw. John met Giita in w, λw. John met Maala in w }.

Thus, as derived, the overall meaning of a constituent question as in (4) is characterized as including the denotation (the ordinary semantics value): the set of propositions that count as possible answers to the question, and the presuppositions (presuppositional semantic value): the existential and ignorance component as shown in (41).

(41) a. Given the principle of PS projection: (OSV, FSV, PSV) in (29)
b. [[4]] = { {λw. John met Giita in w, λw. John met Maala in w }, {} { $\Box$ [λw. John met Giita $\vee$ John met Maala in w] $\wedge$ $\neg \Box$ [λw. John met Giita in w] $\wedge$ $\neg \Box$ [λw. John met Maala in w]}}.

At the same time, it passes up the ordinary and presuppositional semantic values (i.e. the set of propositions and the existential and ignorance components) as in (41) for further computation processes in the discourse (i.e. for focus in answers, etc).

4.1 Extending the proposal to constituent questions in English and other languages

Consider PPIs such as *somebody* or *something* in English. They behave in two different ways: one that takes wide scope and interpreted in a referential sense (known as 'wide scope indefinites' (cf. Kratzer, 1998; Matthewson, 1998), as shown in (42) and the other that gives rise to ignorance inferences (known as 'epistemic indefinites': cf. Alonso-Ovalle and Menéndez-Benito (2010) as shown in (43).

(42) John met somebody. I know who. (The speaker knows who John met)

(43) John met somebody. I don't know who. (The speaker doesn't know who John met)

In the former, the PP behavior is usually accounted for by way of syntactic mechanisms such as movement. (cf. Homer and Bhatt, 2019, among many others). In the latter, I assume that the PP behavior of the indefinite is derived by way of exhaustification with respect to the domain alternatives associated with the indefinite as in the indefinites with the particle *-də* in Sinhala. Building on the evidence from the Sinhala indefinites, I argue that the indefinite that enters the derivation in a question in English is a PPI of the epistemic indefinites type (i.e. an indefinite associated with ignorance). If this proposal is in the right track, it will make right predictions not only for deriving the ignorance component of constituent questions in English and other languages, but also for accounting for their overall meaning.

5 Conclusions and further work

In this paper, I have shown that ignorance component of a question is a crucial aspect of its interpretation when accounting for the overall meaning. I proposed to account for this ignorance component of the meaning of a question in terms of a presupposition derived in association with the existential component presupposed in a question. Evidence from the morpho-syntactic and semantic properties shared in common by both indefinites and wh-questions in Sinhala was taken up to support the claims. I proposed to derive the overall meaning of a constituent question as the set of propositions which count as possible answers along with the presupposed existential and ignorance components.

This paper is a result of work in progress. There remains much work to make it complete. For instance, the specific definitions of some of the operators in the derivations is yet to be determined. At the same time, accounting for the answers in terms of question answer congruence is yet to complete.

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