A Unified Account of the Yes/No Particle in Hindi, Bangla, and Odia

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1 Introduction

This paper investigates the yes/no particle in Hindi, Bangla, and Odia (HBO henceforth), and offers a uniform syntactic analysis that attempts to account for the range of distribution of this particle and associated interpretations in these languages. We suggest that, despite the difference in the distribution of this particle in HBO, the syntactic derivation for these constructions where a yes/no question is formed with a particle is the same in these three languages. Cross-linguistically, for OV languages the most common occurrence of a yes/no particle (also known as a 'polar particle') is in the sentence-final position. Pertinent in this regard, it is noted in Bailey (2013, pg 21) that 76% of OV languages have final particles and 24% have initial particles. For example, consider the following Japanese example taken from Bailey (2013).

(1) Japanese:
onii'san wa coohii wo nomimasu ka?
brother TOP coffee OBJ drink PRT
'Does your brother drink coffee?' (Bailey attributes the data to Risa Goto, p.c.)

In HBO, all of which are OV languages, the yes/no particle can occur in the cross-linguistically most common sentence-final position in neutral contexts. This is illustrated below in (2)-(4).

(2) Hindi:
raam-ne kitab kharidi (**kya**)?
raam-ERG book buy PRT
'Did Raam buy the book?'

(3) Bangla:
ram boi Ta kinlo (ki)?
ram book CL buy PRT
'Did Raam buy the book?'

(4) Odia:
Raamo bohi Ta kiNila (ki)?
Raam book CL buy PRT
'Did Raam buy the book?'

In addition to this final position, the yes/no particle can also occur in sentence-medial position in HBO, associated with a contrastive focus interpretation. This is illustrated below in (5)-(7). Note that this clause medial occurrence is exclusively associated with a contrastive focus interpretation in Hindi and Odia, but this is not necessarily the case in Bangla, where a neutral yes/no question is possible as well in this clause-medial position¹.

- (5) Hindi:
 raam-ne kya KITAB kharidi?
 raam-ERG PRT book.FOC buy
 'Was it a book that Raam bought?'
- (6) Bangla:
 ram ki BOI Ta kinlo?
 Ram PRT book.FOC CL buy
 'Was it a book that Raam bought?'
- (7) Odia:

 Raamo ki BOHI kiNila?

 Raam PRT book.FOC buy
 'Was it a book that Raam bought?'

Furthermore, the particle can also occur in sentence-initial position in Hindi, but not in Bangla or Odia, as illustrated in (8)-(10) below. This initial occurrence of the particle in Hindi is also the unmarked order.

(8) Hindi:

(kya) raam-ne kitab kharidi?

PRT raam-ERG book buy

'Did raam buy the book?'

(9) Bangla:

*ki ram boi Ta kinlo?

PRT ram book CL buy

'Did Raam buy the book?'

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¹ The clause-medial position of the particle with a neutral yes/no question interpretation in Bangla will be commented on later in the paper.

(10) Odia:

*ki raamo bohi Ta kiNila?

PRT raam book CL buy

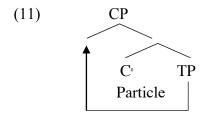
'Did Raam buy the book?'

In anticipation of the analysis that will be developed in this paper, we argue that the initial position of the yes/no particle is the underlying syntactic position of the particle (in a higher focus position) in Hindi, and also in Bangla and Odia. The sentence final position of the particle is derived by movement of the material next to the particle higher up, leaving the particle stranded in the final position. The sentence-medial occurrence of the particle is explained in terms of a different base-position of the particle (in a lower focus position). We also discuss how two existing approaches to yes/no particles, namely a CP analysis (Simpson & Wu 2002, Lee 2005 among others) and a disjunction analysis (Aldridge 2011, Bailey 2013), cannot explain the data from HBO, and how the analysis we provide explains the facts while still maintaining the major insights from both earlier accounts.

The paper is organized in the following way. In section 2, we discuss the previous approaches to analyze yes/no particles, discuss their insights and their shortcomings in explaining the HBO patterns, and then in section 3, we provide an analysis that capture the insights of the previous analyses but also accounts for the HBO data. In section 4, we discuss open questions and limitations of our analysis, and direction for further investigation.

2 Background

There have been two major approaches to analyze the yes/no particle in the languages of the world. The first approach generates the particle as C⁰ in the head of CP (see Simpson and Wu 2002, Lee 2005)². The sentence-final order of this particle in such an approach is derived by movement of TP from across the particle to the SpecCP position. Below, we discuss Simpson and Wu (2002) briefly to give a representative idea of such an account. The heart of the idea is illustrated below in (11).



The movement of TP to SpecCP illustrated in (11) is motivated by phonological reasons in Simpson and Wu (2002). They argue that the particle has developed clitic like properties in the process of grammaticalization, and requires phonological material to the left of it, which triggers the movement of the TP. Strong evidence comes in favor of this analysis from the study of the sentence-final particle *kong* in Taiwanese, as illustrated in (12) below.

² Note that there is debate on the head-status of the particle, and it is argued in Biberauer, Holmberg & Roberts (2012) that particles are not heads.

(12) Taiwanese:

A'hui liau'chun A'sin si tai'pak lang *kong* Ahui thought Asin is Taipei person PRT 'Ahui thought that Asin is from Taipei.' (Simpson & Wu 2002)

The particle *kong* is undergoing grammaticalization as a complementizer. Simpson and Wu argue this final position of the particle is rather unexpected in Taiwanese, as this particle is a C-element, and given the initial position of other C-elements in the language. Following several other arguments, Simpson and Wu suggest that *kong*, like other C-elements, is generated in C, and its complement TP move to SpecCP to satisfy the clitic-requirement of *kong*. Although Simpson and Wu specifically discuss *kong*, it is implied that the analysis will be extended to all sentence-final particles in Taiwanese, including the sentence-final yes/no particle *bo*.

Now let's evaluate the HBO data if we adopt such a C-head analysis for the yes/no particle in HBO. If we generate *kya* in Hindi and *ki* in Bangla and Odia as C-heads, what we can straightforwardly get is the attested (and unmarked) word-initial position of *kya* in Hindi. This is schematized below in (13).

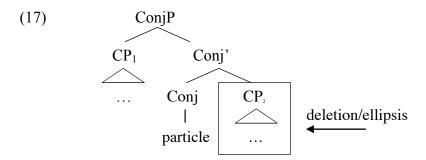
The clause final position of the particle attested in HBO can then be derived by movement of the TP to SpecCP, with a special note that this movement is obligatory in Bangla and Odia but not in Hindi, as the initial-position of the particle is ungrammatical in Bangla and Odia.

However, there are limitations to this approach, as several questions remain unexplained. First, such an approach does not straightforwardly account for the sentence-medial position of the particle that is attested in HBO, usually associated with contrastive focus interpretations, as illustrated earlier in (5)-(7). Secondly, it is not transparent in this approach how generating this particle in the CP-domain gives a polar question interpretation ('polar' = yes/no) to the utterance. Thirdly, this C-head approach predicts that such particles cannot occur in embedded questions where there is a complementizer already occupying the C-position. This prediction is not borne out, as Hindi and Odia allow the yes/no particle to occur in embedded questions (the Bangla equivalent is judged by consultants to not be great, though not fully unacceptable). These examples are provided below in (14)-(16). Note that the complementizer in Odia is homophonous with the yes/no question particle.

- (14) *Odia:*
 - raghav pachaarila **ki** raamo bohi-Ta kiNila **ki** raghav ask.PST.3Sg that raam book-CL buy.PST.3Sg PRT 'Raghav asked if Ram bought the book'
- (15) *Hindi:*
 - raghav ne poocha **ki kya** raam ne kitaab kharidi Comp PRT
- (16) Bangla:

??ram jiggasa korlo **je** sita kheyeche **ki**Comp PRT

Now let's take a look at the other approach adopted in the literature to analyze yes/no particles, namely the disjunction approach (Larson 1985, Jayaseelan 2008, Aldridge 2011, Bailey 2013). This approach stems from two observations: a) in many languages, the yes/no question particle is homophonous with the disjunction particle, and b) the yes/no questions are associated with a readily available 'or not' interpretation. For instance, the examples in (2)-(4) have an associated interpretation 'Did Ram buy the book or not?' Entertaining the hypothesis that the yes/no particle is actually the disjunction particle (or a lexical instantiation of the disjunction operator, as in Jayaseelan 2008), such an approach uses deletion/ellipsis to derive the clause-final order of the particle. The basic idea is that in a yes/no question, the underlying structure has a second clause (CP2, which contains 'or not' or equivalent structures). This CP2 is then elided, stranding the particle in the sentence-final position. This is schematized in (17) below.



Adopting such an approach in HBO can explain the clause-final occurrence of the particle. In addition, it can also explain why there is an associated 'or not' interpretation. However, the attested sentence-medial position of the particle with a contrastive-focus interpretation remains unexplained³.

It is also pertinent to briefly mention another version of the disjunction approach, as developed in Jayaseelan (2008). In Jayaseelan's analysis, the polar particle is the lexical realization of the disjunction operator. Bailey (2013) argues that this analysis predicts that such particles cannot cooccur with a wh-question, as there are no disjuncts present there. However, in Odia the polar particle can occur in a wh-question, as illustrated below in (18)⁴.

(18) Odia:
raamo koNo kiNila ki?
raam what buy PRT
'What did Raam buy'?

Without going into if the occurrence of the particle in wh-questions is a problem for Jayseelan (2008), we note that the clause-medial occurrence of the particle associated with a contrastive focus cannot be straightforwardly explained in any version of the disjunction approach.

³ Note that a curious reader may think one way of deriving the clause-medial position of the particle in (6) *Ram ki boi Ta kinlo* through ellipsis could be by assuming an underlying structure *Ram boi Ta ki [na boi Ta] kinlo* (where *na boi* = neg book), which then undergoes several deletions to get the right surface order. This is schematized in *Ram [boi Ta] ki [na boi] Ta kinlo*. However, negation cannot occur with a DP in the language, which in turn rules out the possibility of deriving the clause-medial position of the particle through ellipsis/deletion.

⁴ This is also true of Sinhala and Japanese. An anonymous reviewer has, however, noted that Japanese *ka*, which is the Q-particle of the language, and which can occur in a constituent question, is also the disjunction marker in the language.

Below, we attempt a unified analysis of the polar particle in HBO while maintaining the key insights from both the previous approaches.

3 Analysis

Before we illustrate how we get the right word-order involving the yes/no particle in HBO, let us state our assumptions first. Following the general assumptions regarding wh-questions (see Hamblin 1973, Beck 2006 among others), we assume that questioned constituents are essentially focused. We further assume that there are two focus positions in HBO, a higher FocP which is above TP/IP⁵ (following Rizzi 1997 in general, and Choudhury 2010 for Indo-Aryan) and a lower one above the vP that has been argued for in Brody 1989, 1996, Jayaseelan 1989, 1995, Kidwai 1995. The questioned constituents move to a FocP, and generates a set of alternatives.

In our analysis, we suggest that the yes/no particle is a focus sensitive operator adjoined to a FocP, and it needs to be in a c-commanding configuration with a focused constituent to its right⁶. The particle takes the focused constituent as an argument to give focused alternatives. This can be done through two possible configurations: (i) where the focused constituent moves to FocP, and (ii) where the focused constituent remains in situ, but has an established AGREE relation with the Foc⁰ head, and thus in an extended relation with the yes/no particle. Once the set of alternatives is established, the polar particle adds a presupposition that one of the alternatives holds. In anticipation of the derivations later in the paper, we suggest that the polar article is merged with the higher FocP in neutral yes/no questions, whereas it is merged with the lower FocP in contrastive yes/no questions.

In addition to the focus-sensitive yes/no particle, there is an operator in the head of ForceP. This operator has an interrogative force (also known as Q or +Q feature) and specified with +/-polarity⁷. This operator c-commands the polar particle, and establishes an AGREE relation with it⁸. Note that this analysis is inspired by, and is somewhat parallel to Q-particle analyses for whquestions (see Hagstrom 1998, Kishimoto 2005, Cable 2007). It is our ultimate goal to unify the analysis of wh-questions and yes/no questions, and we believe our analysis in this paper is one little step in that direction. In analyses of wh-questions in languages with Q particles, Q particles are treated as focus sensitive operators, and they take the wh-word as their semantic argument/focus associate. The Q-particle adjoins to the phrase containing the wh-word, such that

⁵ For the purpose of this paper, we assume the labels TP and IP to be interchangeable.

⁶ Note that this is a language-specific suggestion. We suggest in HBO the particle takes its focus associate to its right, whereas in other languages (like Turkish, for example), the particle may take its focus associate to its left.

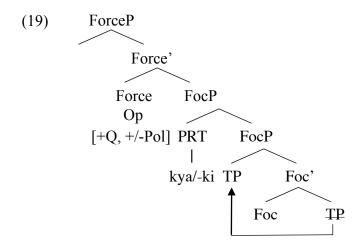
⁷ An operator in ForceP, which has the interrogative force Q, has been argued for in yes/no questions in Bailey (2013) (also see Bhatt & Dayal (2014), although the relationship between this operator and the particle is taken to be different in Bhatt & Dayal). Bailey adopts a *disjunction* + *ellipsis* type analysis to derive the word-orders attested involving the yes/no particle. While our analysis differs from that, we follow Bailey in parametrizing the settings of the operator at ForceP to eventually derive different types of questions. In more precise terms, following Bailey (2013), we assume that this operator in a yes/no question not only has an interrogative Q force, but also has +/-*polarity*. Polarity is the parameter of what the answer should be: it can be +*polarity* if the proposition is presupposed to be true, it can be -*polarity* when the proposition is presupposed to be false, or it can be open polarity +/- *polarity* where no presupposition is made if the proposition is true or false. Different types of questions can be formed with different specification of this operator: in a yes/no question, the polarity is open (+/- *polarity*), whereas, for example, in alternative questions, the operator is +*polarity* as there is a presupposition that the proposition is true.

⁸ We also suggest that there are language-specific requirements regarding the association between the polar-particle and the operator: polar particles can be present only in yes/no questions (Hindi, Bangla), or in all questions (Odia), or even in declaratives (Tlingit).

it can c-command it. The Q particle is a variable over choice functions which needs to be bound by a higher operator. In wh-questions, Cable (2007) argues that this higher operator is a null whoperator present on the C head. Below, we illustrate how applying this analysis can derive the right word-order in HBO. We first start with the analysis for neutral yes/no questions, and then derive the contrastive yes/no questions.

3.1 Deriving the order in neutral yes/no questions

In a neutral yes/no question, the polar particle is generated as being adjoined to the higher FocP. Recall that this particle is a focus sensitive operator and needs to be in a local configuration with a focused constituent to its right. In a neutral yes/no question, the entire clause (i.e the IP) is the focused constituent, which moves to SpecFocP, and generates focused alternatives. The polar particle adds the presupposition that one of the focused alternatives holds, and the higher operator in Force⁰ provides the polarity, yielding a yes/no question interpretation. The relevant structure for a neutral yes/no question is schematized below in (19).



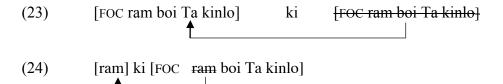
Note that such an analysis straightforwardly derives the word-order where the yes/no particle is attested in the clause-initial position in Hindi (example (8)). As this is the underlying base-order, it also explains why this order is the unmarked order for Hindi neutral yes/no questions. Recall that this sentence-initial occurrence of the particle is however unattested in Bangla and Odia. We summarize the attested position for the particle in a neutral yes/no question in HBO in the following table.

(20)		Sentence-initial	Sentence-medial	Sentence-final
	Hindi	<	×	✓
	Bangla	×	✓	1
	Odia	×	×	1

We derive the sentence-final position of the particle in Bangla and Odia by making use of an observation made in Dasgupta (2007) regarding the properties of ki in Bangla. It is suggested in Dasgupta (2007) that ki has enclitic like properties, and thereby needs phonological material to its left. We assume the same for Odia, but not in Hindi. Let's look at the underlying order of a neutral yes/no question in Bangla and Odia in our analysis:

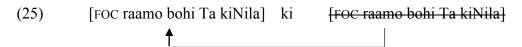
- (21) ki [FOC ram boi Ta kinlo]? PRT IP
- (22) ki [FOC raamo bohi-Ta kiNila]?

To satisfy the enclitic like properties of the particle, there is a post-syntactic movement of phonological material to the left of the particle. There can be language-specific variation in terms of the size of the phonological material that undergo post-syntactic movement. For example, we suggest that Bangla allows the movement of the entire focused constituent TP/IP to the left of the particle, or an element from inside the focused constituent. This is illustrated below: the movement of the entire focused constituent in (23), and the movement of an element from inside the focused constituent in (24).



Note that the movement of the entire focused constituent derives the clause-final position of the particle. The movement of an element from the constituent, on the other hand, derives the medial position of the particle that is attested in a neutral yes/no question in (only) Bangla.

However, Odia does not allow the movement of an element from inside the focused constituent to satisfy the enclitic particle, and the entire TP/IP has to undergo movement, thus deriving the final position of the particle in Odia. Since Odia does not allow the movement of an element from the constituent to satisfy the properties of the enclitic, the clause-medial position for the particle in a neutral yes/no question is not attested.



3.2 Deriving the order in contrastive focus questions

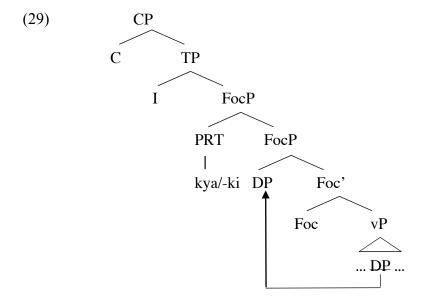
In this section, we will discuss how our analysis can explain the attested word-orders with the yes/no particle related to contrastive focus questions. Recall that Hindi, Bangla, and Odia all attest the clause-medial position of the particle when it is associated with a contrastive focus interpretation. This was illustrated in (5)-(7) earlier, and are repeated below in (26)-(28).

(26) Hindi:
raam-ne kya KITAB kharidi?
raam-ERG PRT book.FOC buy
'Was it a book that Raam bought?'

(27) Bangla:
ram ki BOI Ta kinlo?
Ram PRT book.FOC CL buy
'Was it a book that Raam bought?'

(28) Odia:
Raamo ki BOHI Ta kiNila?
Raam PRT book.FOC CL buy
'Was it a book that Raam bought?'

Our analysis for contrastive yes/no questions is parallel to the analysis of neutral yes/no questions, with one major difference: in contrastive focus cases, the yes/no particle is generated as being adjoined to the lower FocP position. This particle takes as its semantic argument the questioned constituent DP which moves up to SpecFocP such that it is in a local c-commanding relation with the focus sensitive yes/no particle. The particle adds the presupposition that one of the alternatives is true, and the higher operator in ForceP gives the polar interrogative force. This is illustrated below in (29).



Thus, we derive the attested clause-medial position of the yes/no particle in contrastive focus yes/no questions. We will end this section with a note on the role of the particle in both neutral and contrastive yes/no questions. Recall that the movement of the questioned constituent to SpecFocP generates focus alternatives of the questioned constituent. The yes/no particle *ki/kya* takes these alternatives as its semantic argument and gives as its output a presupposition that one of the alternatives holds. In case of the neutral yes/no questions, this presupposition is trivially satisfied as there are only two alternatives. In case of contrastive focus questions, there are multiple alternatives in the focus alternative set; the particle says that one of the alternatives is true. The operator [+Q,+/-polarity] in the Force head adds the interrogative force and polarity, turning this into a yes/no question.

4 Mileage and limitations

In this section, we discuss how our analysis captures the HBO patterns in a way that previous approaches cannot, and how our account has an edge towards an attempt at unifying all types of questions, while still maintaining the important insights from earlier work. We conclude with a discussion on a limitation of our approach.

First, by using the already existing idea of two available focus positions, our analysis can explain both neutral and contrastive focus yes/no questions as well as the attested orders of the ves/no particle in HBO, which is a problem for both the C-head analysis and a disjunction approach. At the same time, our analysis retains the key insights from these previous approaches. In a C-head analysis, the yes/no particle is the C-head and has an interrogative force. In our analysis, there is a null operator in ForceP that carries the interrogative force, which is in a ccommanding relation with the particle. This also has a typological edge over a C-head analysis, as our analysis is compatible with the occurrence of this particle in wh-questions or even in declarative sentences (as happens in Tlingit). In other words, having the particle separate from the operator carrying the interrogative force lets us cover more ground empirically, particularly as we take this paper as a step towards a model that can explain all types of questions. On the other hand, in the disjunction approach, the yes/no particle is the disjunction head, and it involves an ellipsis of the second CP. There are two parts of such an approach: one is the disjunction semantics, and the other is ellipsis in the syntax. In fact, this approach has to commit to obligatory ellipsis in the syntax for all yes/no questions. As discussed earlier, an ellipsis account runs into trouble explaining the clause-medial occurrence of the yes/no particle in HBO. Our account, while deriving the attested word orders in HBO, maintains the disjunction semantics (by focused alternatives) without ellipsis in the syntax. Our account, coupled with the previous claim that ki in Bangla has enclitic like properties (Dasgupta 2007), also captures the difference in the distribution of the yes/no particle in a clause initial position – attested in Hindi, but not attested in Bangla and Odia. Furthermore, our analysis is parallel to proposals made about wh-questions. For instance, in a wh-question, the Q particle is a focus sensitive operator, which takes the wh-word as its semantic argument. In our analysis, the yes/no particle is a focus sensitive operator that takes the questioned constituent as its focus associate. The Q particle in wh-questions needs to be bound by a higher operator (Cable 2007), and in our analysis, there is a higher operator in ForceP that binds the yes/no particle.

It is also important to mention the insights of Bhatt & Dayal (2014) on Hindi polar *kya*. Bhatt and Dayal argue that the polar *kya* is a speech act operator present in the Force-head above the CP, and the clause-final position of the particle is derived by topicalization of the entire TP/IP – by moving the TP/IP further up to a TopP. They further argue that this polar *kya* is not the interrogative operator which is null and located at the C head. They derive the clause-medial occurrences of the polar *kya* by moving material to the left of *kya* to the topic position. In both clause-final and clause-initial occurrences of the particle, all the material on the left of the particle is argued to be presupposed and hence can't be questioned. However, it is argued in Jabeen & Butt (2016) that this division in the information structure of questions would necessarily have a prosodic correlate, and it is predicted that the intonation patterns for the clause-initial and clause-final positions of *kya* would be different. Jabeen and Butt, in their study, show that irrespective of the position of *kya*, the intonation patterns remain the same. Furthermore, they argue that if the material on the left of the polar *kya* is focused, they can indeed be questioned suggesting that the

intonational patterns do not provide support for the topicalization hypothesis in Bhatt and Dayal⁹. Note that our analysis does not commit to the idea of any material being presupposed, and hence does not commit to any element not being able to be questioned.

We will conclude this paper by drawing attention to a shortcoming of our analysis. Recall that in our analysis, the underlying position of the yes/no particle in neutral yes/no questions in HBO is clause-initial, and we derive the final order of the particle by suggesting post-syntactic movement of the entire focused constituent TP/IP to the left of the particle. We have suggested that this movement happens to satisfy the enclitic-like properties of the particle in Bangla and Odia, thus accounting for the never-attested order of clause-initial particle in Bangla and Odia. Furthermore, we have assumed that *kya* in Hindi does not have such enclitic-like properties, and thus the initial order of the particle, which is also the unmarked order, is attested in the language. However, one question remains: if the Hindi particle does not have enclitic like properties, then why is a [[focused constituent TP] Q] order attested in the language? If this surface order is derived by post-syntactic movement of the focused constituent across the particle in Bangla and Odia, then what is the motivation for this movement in Hindi? At this moment, we do not have any satisfactory answer to this issue. We speculate that Hindi may have stronger scrambling properties than Bangla and Odia, and thus derives this order by scrambling.

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⁹ Also note that if polar *kya* is the speech act operator, this predicts that the occurrence of this operator should be limited to yes/no questions (or questions in general), but not in declaratives, which involves a different speech act operator. However, we know that Tlingit allows such particles to occur in declaratives. This presents a problem for a unified analysis of these particles across different languages.

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