

On the semantics of multiple wh-exclamatives in Bangla¹

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Abstract. The scope of this paper addresses multiple wh-exclamative structures in Bangla (a.k.a. Bengali; Eastern Indo-Aryan). Though exclamatives are widely studied, the phenomenon of multiple wh-exclamatives is rarely cited. At the onset of analysing multiple wh-exclamatives, this paper revisits the proposition-set theory approach (D’Avis 2002; Zanuttini and Portner 2003; Chernilovskaya 2010) that views wh-exclamatives as having a question-based semantics, and the degree approach (Miró 2006; Rett 2008a, 2011) that claims wh-exclamatives bear a degree component in their domain which is responsible for the surprising element of the clause. However, the degree approach rejects the idea of exclamatives with multiple wh-words (Rett 2008a, 2011). This paper proposes a new unified framework that accounts for the syntax-semantics of Bangla multiple wh-exclamatives and wh-exclamatives in general.

Keywords: multiple wh-exclamatives, question approach, degree approach, Type 1/2 exclamatives, QUD, Bangla.

1. Introduction

Elliott (1974) identifies the following clause type in English and termed it absolute exclamation. Elliott’s (1974) theory on exclamations explains that exclamations involve transformational rules, through which the identical meaning between (1a) and (1b) is conveyed.

- (1) a. She is such an attractive woman!
b. What an attractive woman she is!
c. How beautiful these flowers are! (Elliott 1974: 232)

However, further studies in exclamations notice semantic differences and distinguish (1a) from (1b) and (1c). The former is labelled as proposition exclamation which has proposition as its illocutionary force in the domain, whereas the latter group is termed as exclamatives (Rett 2008a, b, 2011). Though both have the same value of expressing surprise, exclamatives as opposed to proposition exclamations have a degree property as its illocutionary force (Rett 2008a, b, 2011). A citing difference between proposition exclamations and exclamatives is that the presence of an overt wh-word is necessary to form exclamative structures (such as (1b) and (1c)). In contrast, wh-words need not be present to form proposition exclamations (1a).

Unlike English matrix wh-exclamatives that limit themselves to *what-a* or *what* and *how* structures (1b)-(1c), Bangla is flexible and exhibits a range of wh-words in its exclamative repertoire. Therefore, while English matrix exclamatives can be appropriately analysed along the

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line of Miró (2006); Rett (2008a, b, 2011) i.e., exclamatives express surprise at a higher degree, Bangla wh-exclamatives do not fit in the same framework. Due to a variety of uses of wh-words in exclamatives, Bangla displays both degree and non-degree readings. As an alternative to the degree approach, question-based approaches as espoused in D’Avis (2002); Zanuttini and Portner (2003); Chernilovskaya (2010), cannot successfully accommodate all the cross-linguistic instances of wh-exclamatives either.

This paper offers a revised framework. The proposal is built on the widening account of Zanuttini and Portner (2003) for wh-exclamatives and develops unique semantics by adding certain modifications to the existing theory. Though this paper restricts itself to the instances of multiple wh-exclamative structures in Bangla, the proposed framework can account for cross-linguistic evidence of wh-exclamatives from a compositional view.

We begin the paper by introducing exclamative clauses and further divide it into five sections. §2 explains the influential theories and their limitations in analysing multiple wh-exclamatives in Bangla. This section also presents the necessary modifications to the existing widening account that help to extend the analysis in Bangla. §3 evinces Bangla multiple wh-exclamative structures and their intricacies. §4 puts forward a compositional analysis for Bangla multiple wh-exclamatives, and finally, §5 concludes the paper.

2. Background

Wh-exclamatives are either analysed as having a degree semantics (Miró 2006; Rett 2008a, b, 2011) or a question semantics (D’Avis 2002; Zanuttini and Portner 2003; Chernilovskaya 2010). Before we build our analysis, this section briefly discusses the existing theories and their drawbacks in analysing cross-linguistic variations in wh-exclamatives.

2.1. A degree semantics for wh-exclamatives

Rett in her analysis on English wh-exclamatives follows Austin’s (1962) *Speech Act Theory* in claiming that exclamatives are performative speech acts, and they express surprise at a degree higher than the contextually relevant standard. The degree approach bases itself on exclamatives having a degree force (2) as their illocutionary force operator, which states that the domain of an exclamative contains a degree and it is expressively correct if the DEGREE E-FORCE holds in a context C of a degree d that exceeds the standard s , and the speaker expresses surprise at it.

- (2) DEGREE E-FORCE($\mathcal{D}_{\langle d, \langle s, t \rangle \rangle}$) is expressively correct in context C iff \mathcal{D} is salient in C and $\exists d, d > s$ [the speaker in C is surprised that $\lambda w. \mathcal{D}(d)(w)$] (Rett 2008a, b, 2011)

It is well-known that each utterance can be associated with only one illocutionary force operator. Therefore, DEGREE E-FORCE will have only one free degree complement (Rett 2008a, b, 2011). Though it works for English wh-exclamatives as they do not include utterances like (3), following this approach will lead us to a licensing failure for multiple wh-exclamative clauses spotted cross-linguistically. Huddleston (1993) points out that exclamatives like (3) are ungrammatical in English as they do not receive a degree interpretation, and it works in favour of Rett’s theory. However, a Bangla equivalent of (3) (see example (18) in §3.1) is completely

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acceptable and grammatical. Hence, accounting for the cross-linguistic evidence of multiple wh-exclamatives through the degree approach is unsuitable in this concerned language.

(3) *Who married which person! (Rett 2008a: 610)

Apart from the above reason, Banerjee (2022) mentions another case where accepting the degree approach for Bangla wh-exclamatives is ill-suited. Let us go through it quickly.

Along with offering DEGREE E-FORCE as the illocutionary force operator for exclamatives, Rett advocates the degree restriction and the evaluativity restriction on wh-exclamatives. The prior one restricts exclamatives to always having a degree reading and dismisses the idea that non-degree readings of wh-exclamatives exist. The latter defends the idea that exclamatives exceed the contextually standard scale, expressing surprise at a higher degree. The evaluativity restriction says – in a context where Rajiv did not expect Sima to be 4 ft. tall, but he finds out Sima to be actually 4.6 ft. tall, he cannot express surprise in this case. This is because 4.6 ft. is considered to be a short height universally. Therefore, the evaluativity restriction claims that an exclamative utterance that is expressively correct must surpass the contextually set standard.

As for the degree restriction, follow the English example in (4). It is uttered in a context where the speaker expresses surprise at the number of languages Mimi speaks. Though it lacks an overt numeral degree morphology, (4) will have an amount or quantity reading (Rett 2008a, b, 2011). Rett builds her ground of analysis by proposing a null QUANTITY² operator (Cresswell 1976) which covertly supplies the degree reading of quantity for (4).

(4) (My,) What language(s) Mimi speaks! (Rett 2008a: 604)

(4) in Rett's theory also gets a gradable interpretation in a context where the speaker is surprised to know that the languages Mimi speak are exotic to a higher degree. This gradable interpretation of (4) is achieved by assuming that (4) has a covert gradable predicate \mathbb{P} , the value of which is contextually assigned (Milner 1978; Gérard 1980; Gutiérrez-Rexach 1996; Villalba 2003; Miró 2006). This theory, however, rejects the idea that exclamatives can have individual reading i.e., (4) cannot be uttered to express surprise in a context where Mimi speaks a specific language (say Spanish). However, Banerjee (2022) cites that Bangla wh-exclamatives do receive an individual reading depending on the context. Another point noted in Banerjee (2022) is that the degree theory does not consider the manner readings of how-exclamatives. *How* in English ranges over both manner and evaluatives.³ However, Rett claims that since manners do not receive a degree interpretation, they cannot occur in exclamative contexts. Therefore, while uttered in an exclamative context, (5) will only receive an interpretation where Buck rode his horse beautifully, dangerously etc., but never bare-backed or saddled.

(5) How Buck rode his horse!
^{*}**manner:** *bare-backed, saddled*

²[[QUANTITY]] = $\lambda P \lambda d \lambda Q \exists X [P(X) \wedge Q(X) \wedge \mu(X) = d]$

where QUANTITY associates plural individuals with degree arguments corresponding to their quantity and μ measures the size of a plural individual X (Rett 2008a: 604).

³*How* also ranges over gradable degrees such as, *How short you are!* (Rett 2008a: 607).

✓ **evaluatives:** *beautifully, dangerously, clumsily*

(Rett 2008a: 607)

In contrast to Rett’s claim, Bangla wh-exclamatives show manner readings of how-exclamatives (see Banerjee 2022). Therefore, we see that the degree account on exclamatives is inadequate in numerous ways to capture the different instances of wh-exclamatives available in Bangla.

Now we turn to the question-based account on exclamatives.

2.2. A question semantics for wh-exclamatives

As both wh-exclamatives and wh-questions always carry an overt wh-operator, the proponents of this approach view wh-exclamatives as mirror images of wh-questions. There are two sects in this approach. While D’Avis (2002) and Chernilovskaya (2010) explain exclamatives embracing Heim’s two notions of answerhood (1994), Zanuttini and Portner (2003) conceptualised a sentential force called widening, which they claimed to be responsible for the interpretation of wh-exclamatives.

D’Avis’s (2002) and Chernilovskaya’s (2010) analyses of exclamatives follow Karttunen’s view on questions i.e., questions denote set of true answers – exclamatives as a resemblance of questions also denote set of true answers, upon which Heim’s answerhood operator acts (D’Avis 2002; Chernilovskaya 2010). However, D’Avis (2002) proposes the following two felicity conditions that exclusively hold for exclamatives – (i) the speaker’s expectations entail the negation of $answer_1(w)$, and (ii) the speaker knows $answer_2(w)$ (D’Avis 2002; Chernilovskaya 2010). What distinguishes exclamatives from questions is that exclamatives express surprise at a particular answer to the wh-clause. Consider the German example in (6). In (6) the speaker expresses surprise where (s)he expected Maria to invite only John, but Maria invited Bill as well. The semantic representation of the wh-clause in (6) is outlined in (7).

- (6) Wen Maria eingeladen hat!
whom Maria invited has!
‘Whom has Maria invited!’ (Chernilovskaya 2010: 2)

- (7) $\llbracket \text{wh-clause} \rrbracket (w) = \{p : \exists x [p = \lambda w'. \llbracket \text{invited} \rrbracket (w')(m)(x) \wedge \llbracket \text{invited} \rrbracket (w)(m)(x)]\}$
 $= \{\lambda w'. \llbracket \text{invited} \rrbracket (w')(j)(m), \lambda w'. \llbracket \text{invited} \rrbracket (w')(b)(m)\}$ (Chernilovskaya 2010: 2)

Following D’Avis’s and Chernilovskaya’s proposal, Heim (1994)’s answerhood operator acts on the wh-clause giving us $answer_1$ (= weak exhaustive answer) and $answer_2$ (= strong exhaustive answer) in (8). Adhering to the two felicity conditions outlined above, (6) qualifies as an exclamative because the speaker did not expect $answer_1$ i.e., Maria invited Bill, and the speaker knows $answer_2$ i.e., who Maria exactly invited.

- (8) a. $\llbracket answer_1 \rrbracket (w) = \bigcap \llbracket \text{wh-clause} \rrbracket (w)$
 $= \{w' : \llbracket \text{invited} \rrbracket (w')(j)(m) \wedge \llbracket \text{invited} \rrbracket (w')(b)(m)\}$
b. $\llbracket answer_2 \rrbracket (w) = \{w' : answer_1(w') = answer_1(w)\}$
 $= \{w' : \llbracket \text{invited} \rrbracket (w')(j)(m) \wedge \llbracket \text{invited} \rrbracket (w')(b)(m)$
 $\wedge \forall x \notin \{j, m\} \neg \llbracket \text{invited} \rrbracket (w')(x)(m)\}$ (Chernilovskaya 2010: 2)

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Though (6) as an exclamative denotes a non-degree reading and D’Avis (2002) successfully captures it, it falls short when it comes to the degree reading of exclamatives as in (9).

(9) How tall John is! (Chernilovskaya 2010: 2)

(9) expresses the speaker’s surprise in a situation where the speaker did not expect John to be more than 4 ft. tall but John appeared to be 6 ft. tall.⁴ Chernilovskaya (2010) provides a solution to this issue. She uses the downward monotone property of gradable predicates like *tall*⁵ such that, $\forall w, x, d, d' (d' < d \wedge \llbracket \text{tall} \rrbracket(w)(d)(x) \rightarrow \llbracket \text{tall} \rrbracket(w)(d')(x))$. Now, uttering (9) is only felicitous in a context where John appears taller than what the speaker has expected. In this context, answer_1 includes a set of worlds where John is at least 6 ft. tall. Thus, the speaker’s expectation entails the $\neg \text{answer}_1(w)$. And, the speaker knows $\text{answer}_2(w)$, i.e., John is exactly 6 ft. tall.

Although Chernilovskaya’s analysis accounts for both degree (9) and non-degree (6) instances of wh-exclamatives, it raises an interesting point where we use exclamatives as compliments (cf. Zanuttini and Portner 2003). There are cases where the speaker’s expectation is not negated. As an example we have the following scenario from Zanuttini and Portner (2003), where the speaker expected the house to be nice, uttering *what a nice house!* will not negate the speaker’s expectations. The current system does not give an explanation for such instances. The present paper addresses this issue by accepting the concept of expectation set (ES) (Rett 2011; Rett and Murray 2013). The concept of ES is later elaborated on in this section.

Zanuttini and Portner (2003) view exclamatives as inherently scalar. The theory holds a two-part component i.e., exclamatives denote a set of alternatives, just like questions. However, what distinguishes exclamatives from questions is that exclamatives are factive (Zanuttini and Portner 2003). Following Sadock and Zwicky’s (1985) interpretation of clause types i.e., a clause type is a combination of grammatical form and conversational use, Zanuttini and Portner formalise a concept of widening which they claim to be the conversational use of an exclamative. As they claim, widening is responsible for the ‘surprising’ element of exclamatives. It is a fundamental concept similar to a force of a proposition. The claim is that while the illocutionary force of an exclamative is exclaiming, the sentential force of an exclamative is widening⁶ (Zanuttini and Portner 2003). Widening is not hardwired in the syntax of an exclamative, it is rather acquired by pragmatic reasoning. The principle of widening, as mentioned in (10), is to widen the domain of quantification denoted by the wh-operator.

(10) *Widening* = For any clause S containing R_{widening} , widens the initial domain of quan-

⁴However, (9) can be uttered in a situation where John is only 3 ft. tall. In this situation, it will be a case of rhetorical exclamative i.e., unlike a standard exclamative where the asserted proposition is true, in a rhetorical one it would be false (Patricia 2011).

⁵Chernilovskaya’s analysis can be extended to capture absolute gradable adjectives (like *dry* in *How dry the cake was!* (Kennedy 2007)) by reinterpreting them as a relative adjective.

⁶All clause types are associated with two forces viz. sentential force and illocutionary force. The former represents a sentence’s form in a conversation (Chierchia and McConnell-Ginet 1990), whereas the latter represents the intention of a speaker in an utterance (Searle 1969). In the case of exclamatives, the sentential force is widening, however, any clause can have exclamation as its illocutionary force.

tification for $R_{widening}$, D_1 , to a new domain D_2 , such that:

- a. $\llbracket S \rrbracket_{w,D_2, <} - \llbracket S \rrbracket_{w,D_1, <} \neq \emptyset$
- b. $\forall x \forall y [(x \in D_1 \ \& \ y \in (D_2 - D_1)) \rightarrow x <^7 y]$ (Zanuttini and Portner 2003: 15)

The Zanuttini and Portner (2003) account on exclamatives also bases itself on the Karttunen set.⁸ Let us follow the Paduan example in (11) to understand the framework of widening.

- (11) *che roba che l magna!*
 what stuff that he eats
 ‘The things he eats!’ (Zanuttini and Portner 2003: 12)

(11) is uttered in a context where the speaker expresses surprise about the spicy peppers one eats. In this situation, the *wh-che* ‘what’ refers to a set of peppers such as poblanos, serranos, jalapeños that are ordered in an increasing likelihood scale⁹ of spiciness in the initial domain or D_1 . Now, $R_{widening}$, which is a quantificational operator, acts on this set of alternatives and widens it to a new domain D_2 , where the widened D_2 set includes even spicier peppers such as habanero, carolina reaper etc. along with the previous ones. Zanuttini and Portner (2003) claim that widening the domain is only possible when the additional elements in the widened set are extreme on the relevant scale, and it is an essential meaning component of exclamative clauses.

Along with $R_{widening}$, factivity acts as the other active meaning component for exclamatives. The factivity component of exclamatives is drawn from the notion of Common Ground (Stalnaker 1978). The following denotes the factivity relation in exclamative clauses:

- (12) *Factivity* = For any clause S containing $R_{factivity}$ in addition to $R_{widening}$, every $p \in \llbracket S \rrbracket_{w,D_2, <} - \llbracket S \rrbracket_{w,D_1, <}$ is presupposed to be true. (Zanuttini and Portner 2003: 17)

The widening approach, though successful in capturing both degree and non-degree instances of *wh-exclamatives*, needs modification to extend the analysis in cross-linguistic contexts. While accounting for *wh-exclamatives* in Telugu and Kannada, Balusu (2019) points out that basing $R_{widening}$ on Karttunen set creates a problem for a data like (13).

- (13) *Heinz is amazed at who Uma married.* (Balusu 2019: 112)

(13) is uttered in a monogamous society where the speaker expresses surprise at Uma marrying Kiran since the speaker expected Uma to marry Ravi. In this context, following Karttunen set would already give us the true answer (i.e., Kiran) in D_1 , and therefore, widening D_1 to D_2 with respect to a context like (13) cannot take place. Balusu (2019) proposes an alternative resort to this. He suggests using Hamblin (1973) alternatives i.e., questions denote a set of possible answers, instead of Karttunen’s. Now, D_1 with respect to (13) will only include possible answers, and widening D_1 to D_2 will give us the true answer at which the speaker expresses surprise.

⁷ $<$ is an ordering relation, with respect to which any domain of quantification is $<$ -inclusive. That means, if x and y are in D and $x < z < y$, then z is also in D .

⁸The option for using Hamblin’s (1973) and Groenendijk and Stokhof’s (1984) denotations for questions is also open.

⁹In case of gradable contexts such as *How tall John is!* the alternatives will be ordered in a degree scale.

Balusu (2019) addresses a second problem in the existing theory. For data like (11) the wh-referents are ordered in an increasing likelihood scale for spiciness, as the context defined in (11) is a scalar context. However, (13) is uttered in a non-scalar context, where we are not attributing any scalar property such as tall, short, beautiful, ugly etc. to it. The ordering of the alternatives in the case of (13) thus remains undefined. In order to resolve this issue, Balusu (2019) embraces the concept of expectation set (ES), where the speaker's expectations are encoded as sets of possible worlds (Rett 2011; Rett and Murray 2013). Now, instead of wh-alternatives, the ordering will take place with respect to the propositional alternatives. Therefore, in (13) the ordering will be like this – *Uma marrying Kiran* is less likely than *Uma marrying Ravi*. With these modifications in hand, let us mention the revised versions of $R_{widening}$ and $R_{factivity}$ (Balusu 2019: 121).

- (14) For any clause S containing an exclamative operator, widen the initial domain ES to a new domain D_2 such that:
- $\llbracket S \rrbracket_{w, D_2} \prec_{\text{likelihood/degree}} - \llbracket S \rrbracket_{w, D_{ES}} \prec_{\text{likelihood/degree}} \neq 0$
 - $\forall x \forall y [(x \in D_{ES} \ \& \ y \in (D_2 - D_{ES})) \rightarrow x \prec_{\text{likelihood/degree}} y]$ and;
 - $\exists p \in \llbracket S \rrbracket_{w, D_2} \prec_{\text{likelihood/degree}} - \llbracket S \rrbracket_{w, D_{ES}} \prec_{\text{likelihood/degree}}$ is presupposed to be true.

Accepting ES into our analysis also helps in resolving the issue of non-surprising exclamative¹⁰ utterances noted earlier in this section. It suggests that in cases of the exclamative expressions (such as the one addressed earlier – *what a nice house!*) that do not express surprise, the ES is based on a normative scale i.e., ES_{NORM} . When compared to the exclamatives expressing the speaker's surprise (such as the one in (13)), the ES is said to be based on the perspective of the speaker i.e., ES_{SPKR} .

Our analysis uses this refined version of widening along with the exclamative operator which is responsible for the semantics of exclamatives, in analysing the multiple wh-exclamative instances of Bangla. Let us now look at the overview of multiple wh-exclamative utterances in Bangla.

3. Overview of Bangla wh-exclamatives

Bangla exhibits both Type 1 or gradable/degree and Type 2 or non-gradable¹¹ readings in wh-exclamative clauses. The wh-words in Bangla begin with a k-morpheme and, following Banerjee (2022), this paper also refers to Bangla wh-exclamatives as k-exclamatives.

While English licenses only *what* and *how* in its wh-exclamatives, Bangla uses *where*, *who*, *whom*, *how_{manner}* apart from *what* and *how* in the same. The Type 1 k-exclamatives are mostly uttered with *ki* 'what' and *koto* 'how', as in (15) where Rahul is more than 6 ft. tall and the speaker expresses surprise at his height. Other wh-words such as *ki*¹² 'what', *kake* 'whom', *ke*

¹⁰See Badan and Cheng (2015) for non-surprising exclamatives in Mandarin.

¹¹Exclamatives that express surprise at the individual singled out by the wh-phrase are termed Type 1 (or i-level) exclamatives, and exclamatives that express surprise at the event that the wh-referent takes part in are termed Type 2 (or e-level) exclamatives. See Nouwen and Chernilovskaya (2015) for further discussion on Type 1/2 exclamatives.

¹²It is worth mentioning that Bangla has two types of *ki* 'what' in its exclamative structure (Banerjee 2022). The

‘who’, *kothae* ‘where’ etc., though typically appear to have Type 2 readings, can also receive a degree interpretation depending on the context. Follow (16) – it can be uttered in a non-degree context where the speaker is surprised at the event of Rahul visiting the Himalayan region (as the speaker is aware that Rahul has altitude sickness). It can also be uttered in a context in which the speaker can express surprise that Rahul visited a dangerous place. In the latter context, (16) receives a degree interpretation whereas, in the former one it only has a Type 2 or non-gradable reading. Albeit the typical Type 2 k-words can occur in degree contexts, it does not work contrariwise i.e., the Type 1 *ki* and *koto* in exclamatives behave only as a modifier and does not occur in non-degree situations.

- | | | | |
|------|---|------|---|
| (15) | Rahul <i>ki/koto</i> <i>lomba!</i>
Rahul what/how tall
‘How tall Rahul is!’ | (16) | Rahul <i>kothae</i> <i>gache!</i>
Rahul where went
‘*Where Rahul went!’ |
|------|---|------|---|

We now take up the instances of multiple k-exclamatives in Bangla.

3.1. Evidence of multiple k-exclamatives

The range of k-words used in Bangla exclamative structures allows them to co-occur with each other in forming multiple wh-exclamatives. Consider the following examples from Bangla:

Type 1 Reading

- (17) *koto* *loke* *koto* *khabar khacche!*
how many person how much food eat.PROG.PRS.3
Lit: ‘How much food how many persons are eating!’

Type 2 Reading

- (18) *kon chele kon meye-ke biye koreche!*
which boy which girl.ACC marriage do.PRF.PRS.3
Lit: ‘Which boy married which girl!’

(17) has a degree interpretation and conveys a quantity reading in a context where lots of people are eating in large quantities, and the speaker expresses surprise both at the amount of food and the number of people eating them. As opposed to it, the utterance in (18) expresses the speaker’s surprise at a situation where couples who were never meant to be together got married, hence yielding a Type 2 reading.

4. Syntax-semantics profile of multiple k-exclamatives

Parallel to multiple wh-questions, multiple wh-exclamatives also allow superiority-obeying and superiority-violating word orders. Both single-pair and pair-list readings are available for each

Type 1 *ki* does not occur in non-exclamative contexts (*rastay ki jol jomeche* [✓!/?] ‘How waterlogged the road has become!’), and therefore Banerjee (2022) termed it exclamatory modifier, whereas Type 2 *ki* and all the other k-words including the Type 1 *koto* can occur in question clauses. When the Type 2 *ki* occurs in a degree context yielding a degree reading, Banerjee (2022) argues that it modifies a null gradable predicate and has the following underlying structure: [*ki* + \emptyset_{gr}].

word order in the case of Bangla Type 2 multiple k-exclamatives. Follow Bhattacharya and Simpson (2007) for a similar observation in Bangla multiple wh-questions.¹³ Reconsider the example in (18) which has superiority-obeying word order. It can also have a superiority-violating word order, as in (19).

Superiority-Obeying

- (18) kon chele kon meye-ke biye koreche!
 which boy which girl-ACC marriage do.PRF.PRS.3
 Lit: ‘Which boy married which girl!’
Context 1: Surprise at Rajiv marrying Mira.[OK] (single-pair)
Context 2: Surprise at Rajiv marrying Mira, and Rahul marrying Anu.[OK] (pair-list)

Superiority-Violating

- (19) kon meye-ke kon chele biye koreche!
 which girl-ACC which boy marriage do.PRF.PRS.3
 Lit: ‘Which girl married which boy!’
Context 1: Surprise at Rajiv marrying Mira.[OK] (single-pair)
Context 2: Surprise at Rajiv marrying Mira, and Rahul marrying Anu.[OK] (pair-list)

Think about a context with three boys such as Rishi, Rahul, Arjun, and three girls such as Mira, Suman, and Riya. In a monogamous heterosexual society with respect to the data in (18) and (19), following Hamblin (1973) denotation of questions we will have the set of possible answers for its single-pair reading as in (20) for both superiority-obeying and superiority-violating cases. As for the pair-list readings, we get the sets in (21a) and (21b) for superiority-obeying and superiority-violating word order, respectively.¹⁴

- (20) **Single-Pair Reading**
- { Rishi married Mira, Rishi married Suman, Rishi married Riya,
 Rahul married Mira, Rahul married Suman, Rahul married Riya,
 Arjun married Mira, Arjun married Suman, Arjun married Riya }

- (21) **Pair-List Reading**
- a. { { Rishi married Mira }, { Rahul married Mira }, { Arjun married Mira }
 { Rishi married Suman }, { Rahul married Suman }, { Arjun married Suman }
 { Rishi married Riya }, { Rahul married Riya }, { Arjun married Riya } }
- b. { { Rishi married Mira }, { Rishi married Suman }, { Rishi married Riya }
 { Rahul married Mira }, { Rahul married Suman }, { Rahul married Riya }
 { Arjun married Mira }, { Arjun married Suman }, { Arjun married Riya } }

¹³Bangla ‘mostly’ lacks superiority effects (see Bhattacharya and Simpson 2007).

¹⁴A single-pair reading is formed as a set of propositions. As a requirement of the context, a single-pair reading allows us to have only one true answer from the set of possible answers. However, a pair-list reading is modelled as a set of sets of propositions, which allows us to have an answer from each set (cf. Kotek 2018, 2016).

Up until this point, we have the interpretation of multiple k-questions which satisfy the conditions of exhaustivity and uniqueness presuppositions (Dayal 2002).¹⁵ These two presuppositions require that there be exactly one true answer for each set of questions in (21a) and (21b). Now in order to get the exclamative reading, we must allow domain widening. Widening the domain would allow including more unexpected couples, and the speaker will express surprise at one (in the case of single-pair reading) or at some (in the case of pair-list reading) of the couples.¹⁶

Adhering to the above-defined context, let us say that for the single-pair reading, the speaker expresses surprise at Rajiv marrying Mira, and for the pair-list reading the speaker expresses surprise at two couples e.g., Rajiv-Mira and Rahul-Anu, where Anu and Rajiv are added to the extended domains quantified by the wh-items.

The following sub-sections form a compositional profile of these multiple k-exclamative readings.

4.1. Analysing single-pair readings

We now look at the compositional analysis of the single-pair readings available for the superiority-obeying and superiority-violating cases. Though Bangla is a *wh-in-situ* language on the surface, Simpson and Bhattacharya (2003) argued for an overt wh-movement to Spec CP in Bangla. While viewing multiple wh exclamatives, we follow the intuition that Bangla is a multiple wh-fronting language as opposed to English (Bhattacharya and Simpson 2007).^{17,18}

Now, we propose the syntax for both word orders considering the examples in (18) and (19). See below:

¹⁵The presuppositions of a multiple question (Dayal 2002):

- a. Domain exhaustivity: every member of the set quantified over by the overtly moved wh is paired with a member of the set quantified over by the *in-situ* wh.
- b. Point-wise uniqueness (functionhood): every member of the set quantified over by the overtly moved wh is paired with no more than one member of the set quantified over by the *in-situ* wh.

¹⁶In the case of single-pair readings, Dayal's (1996) ANS-D operator ensures that we get one unique maximally true informative answer from the set of propositions. However, in the case of pair-list readings, the same answerhood operator fails to apply as the ANS-D can only apply to a set of propositions and **not** to a set of sets of propositions. Therefore, for analysing multiple k-exclamatives, we follow Kotek's answerhood operator that can recursively act on a set of propositions, a set of sets of propositions, and so on.

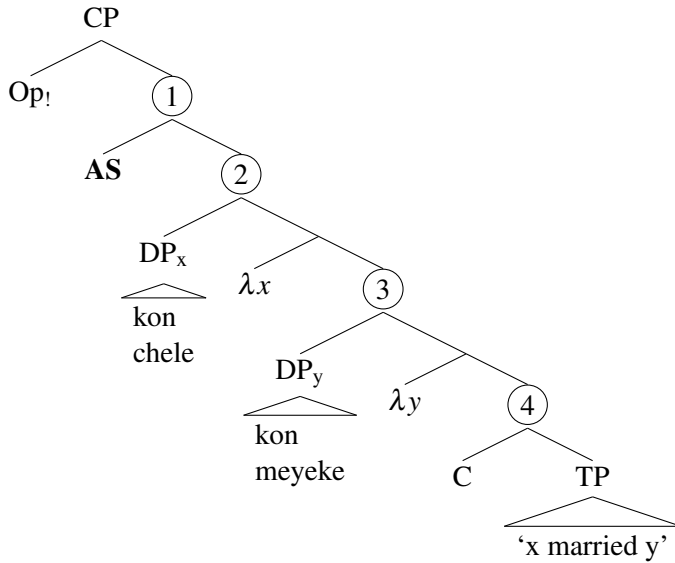
¹⁷As argued in Bhattacharya and Simpson (2007), in Bangla multiple wh-questions, the wh-phrases are overtly moved to a Spec CP. The evidence follows from the embedded multiple wh-questions in Bangla, where the apparently *wh-in-situ* phrases must move to the matrix CP edge.

- a. *tumi **ke_i** bolle [*t_i* **kothay** thakbe]?
you who say where will-live/stay
- b. tumi **ke_i** **kothay_k** bolle [*t_i* *t_k* thakbe]?
you who where said will-live/stay
'Who did you say will stay where?' (Bhattacharya and Simpson 2007: 182)

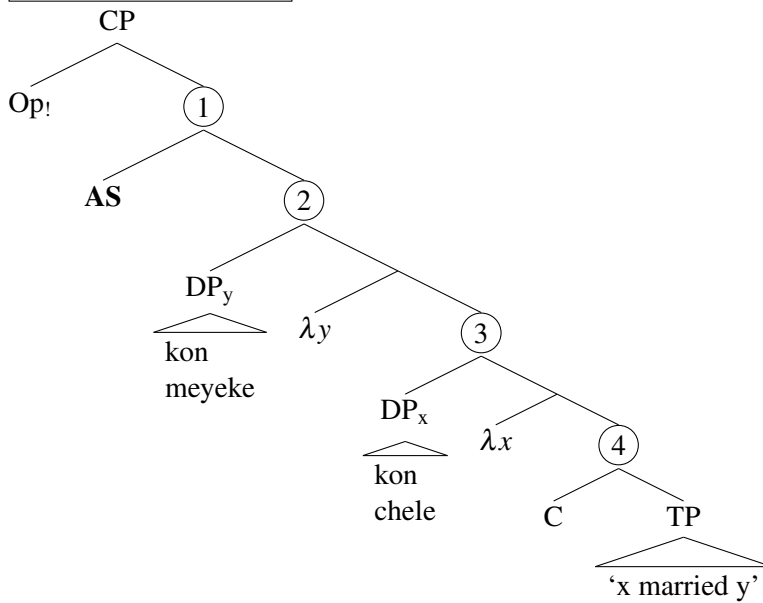
¹⁸On a contra view in order to keep Bangla as SOV, one can possibly argue that due to pragmatic prominence, a [*t*Top] feature is present on the wh-word (it may be the subject or the object wh-word) that will be fronted over the other, and a strong [*u*Top*] feature is on the higher Top projection. One may argue that the movement happens due to checking for this uninterpretable Top* feature.

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(22) **Superiority-Obeying**



(23) **Superiority-Violating**



In (22), both the wh-phrases overtly move to the CP edge retaining the superiority-obeying word order. However, in the case of superiority-violating word order, we argue along the line of Bhattacharya and Simpson (2007) that the overtly raised object wh-phrase over the subject wh-phrase can be seen as a case of pragmatic prominence i.e., the object wh-phrase being the centre of interest can lead us to have a superiority-violating word order.

Now, let us look at the crucial steps of composition for (22) in (24):

- (24) a. $\llbracket \textcircled{4} \rrbracket^o = \lambda w.x \text{ married } y \text{ in } w$; $\llbracket \textcircled{4} \rrbracket^f = \{ \llbracket \textcircled{4} \rrbracket^o \} = \{ \lambda w.x \text{ married } y \text{ in } w \}$
 b. $\llbracket \textcircled{3} \rrbracket^f = \{ \lambda w.x \text{ married } y \text{ in } w : y \in \text{girl} \}$

- c. $\llbracket \textcircled{2} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}, x \in \text{boy}\}$
d. $\llbracket \mathbf{AS} \textcircled{2} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f ; \llbracket \mathbf{AS} \textcircled{2} \rrbracket^f = \{\llbracket \mathbf{AS} \textcircled{2} \rrbracket^o\}$
e. $\llbracket \textcircled{1} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}, x \in \text{boy}\}$

We follow a Kotek (2016, 2018)-style semantics for composing both single-pair and pair-list readings of the Bangla multiple k-exclamatives. In Kotek’s system, **AS** is not the complementiser. Rather, it is the question operator on the clausal spine responsible for the interrogative semantics. Kotek’s ALTSHIFT (**AS**) operator needs to be introduced in the syntax. This **AS** converts the focus value of the set into its ordinary value.¹⁹ It is the type-flexible version of the Q operator (see Beck 2006; Beck and Kim 2006). The complementiser C remains semantically vacuous in her system. At the compositional level, node $\textcircled{4}$ represents the open proposition ‘x married y’. In the next few steps, the free variables become bound and pointwise composed with the denotation of the wh-phrases in (24b) and (24c), resulting in the focus value of the set of propositions in node $\textcircled{2}$. Follow (24c). The **AS** operator converts the focus value of node $\textcircled{2}$ and returns the ordinary value of it in node $\textcircled{1}$. $\textcircled{1}$ corresponds to the flat set outlined in (20) in the single-pair context. At the next step, the exclamative operator Op_i will take the ordinary value obtained via the application of **AS**, as in node $\textcircled{1}$, and gives us the semantics of exclamatives. Before looking at the semantics of Op_i , let us look at the main compositional steps in (25) for the superiority-violating word order (23) in a single-pair reading.

- (25) a. $\llbracket \textcircled{4} \rrbracket^o = \lambda w.x \text{ married } y \text{ in } w ; \llbracket \textcircled{4} \rrbracket^f = \{\llbracket \textcircled{4} \rrbracket^o\} = \{\lambda w.x \text{ married } y \text{ in } w\}$
b. $\llbracket \textcircled{3} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : x \in \text{boy}\}$
c. $\llbracket \textcircled{2} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : x \in \text{boy}, y \in \text{girl}\}$
d. $\llbracket \mathbf{AS} \textcircled{2} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f ; \llbracket \mathbf{AS} \textcircled{2} \rrbracket^f = \{\llbracket \mathbf{AS} \textcircled{2} \rrbracket^o\}$
e. $\llbracket \textcircled{1} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : x \in \text{boy}, y \in \text{girl}\}$

The alternatives in both cases are composed pointwise resulting in a flat set of type $\langle st, t \rangle$ (like simplex wh-questions), and a single **AS** operator takes the focus value of the entire set and returns us the ordinary value of the set, yielding a single-pair reading.

Now, let us look at the compositional steps required to derive the pair-list readings.

4.2. Analysing pair-list readings

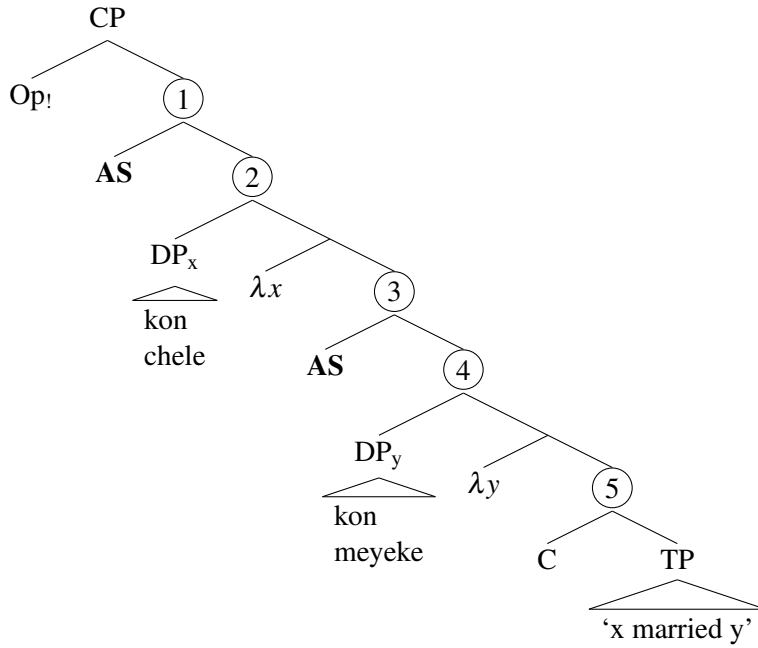
In the instance of pair-list readings, the superiority-obeying and superiority-violating word orders follow the same mechanism used for single-pair readings. The only noticeable difference associated with pair-list readings following Kotek (2018) is that they allow each wh-phrase to be interpreted individually by the **AS** operators. Therefore, in pair-list readings, we have a second **AS** operator. This permits the formation of the set of sets of answers (of type $\langle \langle st, t \rangle, t \rangle$) necessary to produce the pair-list readings. The following are the proposed structures for the pair-list denotations for superiority-obeying and superiority-violating word orders:

¹⁹The semantics of the ALTSHIFT (**AS**) operator is as follows:

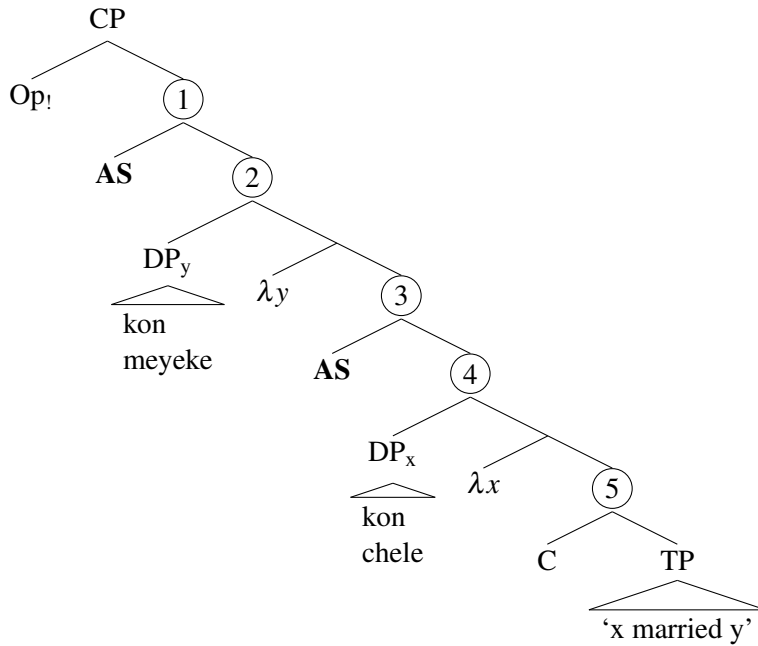
- a. $\llbracket \text{ALTSHIFT } \alpha_\sigma \rrbracket^o = \llbracket \alpha \rrbracket^f$
b. $\llbracket \text{ALTSHIFT } \alpha_\sigma \rrbracket^f = \{\llbracket \text{ALTSHIFT } \alpha_\sigma \rrbracket^o\} \quad (\sigma \in \{\langle st, t \rangle, \langle \langle st, t \rangle, t \rangle, \dots\})$ (Kotek 2018: 32)

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(26) **Superiority-Obeying**



(27) **Superiority-Violating**



Analysing (26) compositionally, we have the following key steps of derivations in (28):

- (28)
- $\llbracket \textcircled{5} \rrbracket^o = \lambda w.x \text{ married } y \text{ in } w$; $\llbracket \textcircled{5} \rrbracket^f = \{\llbracket \textcircled{5} \rrbracket^o\} = \{\lambda w.x \text{ married } y \text{ in } w\}$
 - $\llbracket \textcircled{4} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}\}$
 - $\llbracket \text{AS } \textcircled{4} \rrbracket^o = \llbracket \textcircled{4} \rrbracket^f$; $\llbracket \text{AS } \textcircled{4} \rrbracket^f = \{\llbracket \text{AS } \textcircled{4} \rrbracket^o\}$
 - $\llbracket \textcircled{3} \rrbracket^o = \llbracket \textcircled{4} \rrbracket^f = \{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}\}$;
 $\llbracket \textcircled{3} \rrbracket^f = \{\{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}\}\}$

- e. $\llbracket \textcircled{2} \rrbracket^f = \{\{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}\} : x \in \text{boy}\}$
 f. $\llbracket \text{AS } \textcircled{2} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f$; $\llbracket \text{AS } \textcircled{2} \rrbracket^f = \{\llbracket \text{AS } \textcircled{2} \rrbracket^o\}$
 g. $\llbracket \textcircled{1} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f = \{\{\lambda w.x \text{ married } y \text{ in } w : y \in \text{girl}\} : x \in \text{boy}\}$

The pointwise derivation is similar to the one in (24) and (25), but with a crucial difference that the wh-phrases are individually interpreted by two **AS** operators here. Following Rooth's (1985; 1992) notion of non-focused nodes, we assume that the focus value of $\textcircled{3}$ is exactly the ordinary value of it in a singleton. This node composes with the other wh-phrase by pointwise predicate abstraction resulting in the set of sets of alternative propositions in node $\textcircled{1}$. The difference in the pointwise composition of (26) and (27) can be spotted in the denotation of the set of sets of possible answers which is grouped by the wh-phrase that occurs in the higher position in syntax. Therefore, in (27), node $\textcircled{3}$ has the following focus value in (29a), and moving up further, node $\textcircled{1}$ will have the following interpretation in (29b).

- (29) a. $\llbracket \textcircled{3} \rrbracket^f = \{\{\lambda w.x \text{ married } y \text{ in } w : x \in \text{boy}\}\}$
 b. $\llbracket \textcircled{1} \rrbracket^o = \llbracket \textcircled{2} \rrbracket^f = \{\{\lambda w.x \text{ married } y \text{ in } w : x \in \text{boy}\} : y \in \text{girl}\}$

The derivations in (28) and (29) yield a set of sets of answers to form the pair-list denotations for the superiority-obeying and superiority-violating instances. In the case of (28), node $\textcircled{1}$ corresponds to the pair-list set outlined in (21a), and the same in (29) corresponds to the pair-list set outlined in (21b).

Let us now proceed to explain the semantic tool that is liable for the interpretation of exclamative clauses.

4.3. On the semantics of $\text{Op}_!$

As we have the single-pair and the pair-list denotations for both superiority-obeying and superiority-violating instances, we can now move on to obtain the exclamative interpretation. The exclamative operator $\text{Op}_!$ introduced on the clausal spine is responsible for giving the semantics of exclamatives. Before we read out the semantic denotation of $\text{Op}_!$, we must form an answerhood operator. This answerhood operator is deemed to act on the ES, in order to pick out the maximal true informative answer. As we are following the semantics proposed in Kotek (2018) in order to analyse multiple wh-exclamatives, it seems feasible to opt for the answerhood operator formalised in Kotek (2018) to analyse multiple wh-questions in English. Unlike **ANS-D** (Dayal 1996) that only applies to a flat set, this answerhood operator introduced in Kotek (2018) can recursively apply to a set of sets of answers. This captures both the single-pair and pair-list readings available for multiple wh-questions. (30) shows us a recursive definition for generalised **ANS**. As mentioned in Kotek (2018), this **ANS** can act on a set of propositions iff the set is answerable, i.e., if it has a maximally true informative answer.²⁰

- (30) a. $\llbracket \text{ANS} \rrbracket(P_{\langle st, t \rangle}) = \lambda w. \text{Max}_{\text{inf}}(P)(w)$

²⁰A recursively defined filter on question meanings using **ANS** (Kotek 2018: 39):

- a. $\llbracket \text{ANSWERABLE} \rrbracket(P_{\langle st, t \rangle}) = \exists q : \llbracket \text{ANS} \rrbracket(P) = q.P$
 b. $\llbracket \text{ANSWERABLE} \rrbracket(K_{\langle \sigma, t \rangle}) = \forall P_\sigma \in K(\exists q : \llbracket \text{ANS} \rrbracket(P) = q).K$ ($\sigma \in \{\langle st, t \rangle, \langle \langle st, t \rangle, t \rangle, \dots\}$)

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- where $\text{Max}_{\text{inf}}(P)(w) = \iota p \in P$, such that $w \in p$ and $\forall q \in P (w \in q \rightarrow p \subseteq q)$
- b. $\llbracket \text{ANS} \rrbracket (K_{\langle \sigma, t \rangle}) = \lambda w. \bigcap P_{\sigma} \in K(\llbracket \text{ANS} \rrbracket (P)(w))$
 [i.e., $\lambda w. \lambda w'. \forall P_{\sigma} \in K(\llbracket \text{ANS} \rrbracket (P)(w)(w'))$]
 ($\sigma \in \{\langle st, t \rangle, \langle \langle st, t \rangle, t \rangle, \dots\}$) (Kotek 2018: 38)

Though introducing generalised ANS to our semantics for Op_i will work in the case of single-pair readings of multiple k-exclamatives because the maximally informative true answer will be the surprising one, it will, however, overgeneralise things in the case of pair-list readings as in (31) (obtained by widening (21a) or the ES) where Rajiv and Anu are new additions, whom the speaker knew to be haters of the marriage system. Now, maybe, the speaker finds the actual couples are Rajiv-Mira, Arjun-Suman, Rahul-Anu, and Rishi-Riya. Here the amazement comes only from the first and third couples, whereas the second and last one was expected by the speaker. Though there are four distinct answers from the four question sets in (31), each of them is not surprising to the speaker. In such a scenario, the speaker will not express surprise at each true answer picked out by the answerhood operator in the pair-list readings. The bold-faced propositions below are those answers that can instigate the speaker's surprise.

- (31) $\left\{ \left\{ \begin{array}{l} \text{Rishi married Mira} \\ \text{Rishi married Suman} \\ \text{Rishi married Riya} \\ \text{Rishi married Anu} \end{array} \right\}, \left\{ \begin{array}{l} \text{Rahul married Mira} \\ \text{Rahul married Suman} \\ \text{Rahul married Riya} \\ \text{Rahul marrying Anu} \end{array} \right\}, \left\{ \begin{array}{l} \text{Arjun married Mira} \\ \text{Arjun married Suman} \\ \text{Arjun married Riya} \\ \text{Arjun married Anu} \end{array} \right\}, \left\{ \begin{array}{l} \text{Rajiv married Mira} \\ \text{Rajiv married Suman} \\ \text{Rajiv married Riya} \\ \text{Rajiv married Anu} \end{array} \right\} \right\}$

Therefore we need to restrict the generalised ANS operator with respect to exclamative context. Following Grice's (1975) maxim of quantity, which suggests not to contribute more information than is needed in a context, will exactly give us those answers required for the exclamative context. Hence forcing an informativity restriction on the Max_{inf} operator can be done by viewing the discourse topic as Question Under Discussion (QUD), the notion of which dates back to Roberts (2012). QUD is a semantic question corresponding to the current discourse topic (Roberts 2010; Simons et al. 2010). QUDs can be overt questions or they can remain implicit in discourse. A QUD can be addressed by complete or partial answers or by another question that entails the complete or partial answer to it. We propose that while dealing with exclamative clauses, there will always be an implicit QUD relative to the context c , viz. $!QUD^c$ which is defined as the following:

- (32) $!QUD^c$: What surpasses the norm or the speaker's expectation in context c ?

The argument in favour of $!QUD^c$ is – only that maximally informative true answer will be picked out which is not more informative than is needed for answering the $!QUD$ in c . Hence, pragmatically modifying the Max_{inf} operator with respect to $!QUD^c$ gives us the following denotation in (33). This $\text{Max}_{\text{inf}}^{!QUD^c}$ operates on the set of propositions and returns the unique maximal true answer which is most informative for the current discourse topic, given there is an answer that is true and surpasses the speaker's expectation or norm. And whenever there is no informative true answer relevant to the current discourse topic, the operator results in giving the set of all possible words W (i.e., trivial; non-informative).

$$(33) \quad \text{Max}_{\text{inf}}^{\text{!QUD}^c}(\mathcal{Q})(w) = \begin{cases} \iota p[p(w) = 1 \wedge p \text{ is not more informative than is needed for answering} \\ \text{!QUD}^c \wedge \forall q \in \mathcal{Q} [[q(w) = 1 \wedge q \leq_{\text{inf}} p \text{ for answering the !QUD}^c] \rightarrow \\ p \subseteq q]] & \text{if } \exists q : \llbracket \text{ANS} \rrbracket(\mathcal{Q}) = q \wedge q \text{ is informative to answer !QUD}^c. \\ W & \text{otherwise} \end{cases}$$

Now, replacing the Max_{inf} operator with $\text{Max}_{\text{inf}}^{\text{!QUD}^c}$ in the generalised ANS, we get the following revised notion of generalised ANS as in (34) that is sensitive to exclamative readings.

$$(34) \quad \text{Generalised ANS relative to !QUD}^c (\text{ANS}^{\text{!QUD}^c}):$$

- a. $\llbracket \text{ANS}^{\text{!QUD}^c} \rrbracket(P_{\langle st, t \rangle}) = \lambda w. \text{Max}_{\text{inf}}^{\text{!QUD}^c}(P)(w)$
- b. $\llbracket \text{ANS}^{\text{!QUD}^c} \rrbracket(K_{\langle \sigma, t \rangle}) = \lambda w. \bigcap \{p : \forall P_{\sigma} \in K(\llbracket \text{ANS}^{\text{!QUD}^c} \rrbracket(P)(w)) = p\}$
 $(\sigma \in \{\langle st, t \rangle, \langle \langle st, t \rangle, t \rangle, \dots\})$

This generalised ANS operator will act on the widened set (D_2) and would pick out only the maximally true surprising answer(s). As we dealt with all the relevant issues, we are now ready to formalise the semantics of the exclamative operator $\text{Op}_!$ as in (35) which is accountable for the interpretation of exclamative readings.

$$(35) \quad \llbracket \text{Op}_! \rrbracket^{c,w} = \lambda Q_{\langle \langle st, t \rangle, t \rangle} : \exists p \in (\bigcup \llbracket Q \rrbracket_{w, D_2^{wh1}, D_2^{wh2}, \dots} - \bigcup \llbracket Q \rrbracket_{w, D_{ES_{\text{SPKR}/\text{NORM}}^{wh1}}^{wh2}, D_{ES_{\text{SPKR}/\text{NORM}}^{wh2}}^{wh2}, \dots}}) [p(w) = 1]. \{p : p = \text{ANS}^{\text{!QUD}^c}(\llbracket Q \rrbracket_{w, D_2^{wh1}, D_2^{wh2}, \dots}) \wedge p \notin \bigcup \llbracket Q \rrbracket_{w, D_{ES_{\text{SPKR}/\text{NORM}}^{wh1}}^{wh2}, D_{ES_{\text{SPKR}/\text{NORM}}^{wh2}}^{wh2}, \dots}}\}$$

Let us now turn to the Type 2 cases where the propositions are always ordered on a likelihood scale. With this definition of the exclamative operator, let us elaborate on (26) that denotes a pair-list reading of a superiority-obeying k-exclamative. The presupposition component of the $\text{Op}_!$ semantics ensures the factivity criterion associated with wh-exclamatives. Let us now work with the set defined in (21a) that is non-widened version of (28g). While $\text{Op}_!$ works on the set (28g), widening it would give us the set mentioned in (31). Now, the $\text{ANS}^{\text{!QUD}^c}$ operator would pick out only that maximally informative true proposition that contains nothing more informative than is needed for answering the !QUD^c . In a context like (18), this type of proposition will be the set of worlds that are compatible only with Rajiv marrying Mira and Rahul marrying Anu, but do not contain information about Arjun marrying Suman and Rishi marrying Mira. The same mechanism would be applied to the pair-list reading available for superiority-violating word order.

The problem arises when we try to accommodate the single-pair readings because the generalised union needs a family of sets to act on. Therefore, in the single-pair case, we must first type-shift it from $\langle st, t \rangle$ to $\langle \langle st, t \rangle, t \rangle$. Here we tap into the Ident type-shifter (cf. Partee 1986; Uegaki 2019) to transform the flat set into a singleton. It is defined as what follows:

$$(36) \quad \text{Ident} = \lambda Q_{\langle \langle st, t \rangle, t \rangle} . \{Q\}$$

Now, in a single-pair context, the set defined in (20) is the ES, and widening (20) would include all the new bold propositions in the D_2 . The ANS operator in $\text{Op}_!$ will act on D_2 picking out the maximally true surprising answer relevant to the context. Recall context 1 (which was a single-pair context) in (18) where the maximally true answer was ‘Rajiv married Mira’.

4.4. Extending the analysis to Type 1 readings

In this section, we move ahead with the Type 1 instance. The Type 1 instance of the multiple k-exclamative in (17) will be analysed following the same mechanism used above. As described earlier, (17) is uttered in a situation where the speaker expresses surprise at the amount/quantity of people and food. The k-words in (17), will therefore be interpreted in the following ways:

- (37) a. $\llbracket \text{koto loke} \rrbracket^f = \{d : d \text{ is the number of people}\}; \llbracket \text{koto loke} \rrbracket^o = \text{undefined}$
 b. $\llbracket \text{koto khabar} \rrbracket^f = \{d' : d' \text{ is the degree denoting the quantity of food}\};$
 $\llbracket \text{koto khabar} \rrbracket^o = \text{undefined}$

A pointwise composition would give us the following set for Type 1 k-exclamative sentence uttered in (17). The alternative propositions in the ES of Type 1 instances are ordered relative to a degree scale.

- (38) $\left\{ \begin{array}{l} d \text{ number of people are having } d' \text{ amount of food} \\ d_1 \text{ number of people are having } d'_1 \text{ amount of food} \\ \dots \end{array} \right\}$

Now, widening this set would include higher degrees of both food and people at which the speaker can express surprise. As widening (38) would result in a flat set, application of the exclamative operator $\text{Op}_!$ would require the set to be type-shifted using the Ident operator. The ANS would then pick out the maximally true surprising answer relevant to the context from the widened set.

5. Conclusion

Bangla multiple wh-exclamatives show both Type 1 (or degree) and Type 2 (or non-degree) readings. Since Bangla uses a variety of k-words in its exclamative structures, it also shows a combination of k-words in its multiple wh-exclamative structures, yielding single-pair and pair-list readings in both superiority-obeying and superiority-violating word orders.

As the diverse nature of k-exclamatives is introduced in this paper, we see that they cannot be analysed along the lines of Rett's degree approach. We, therefore, base our analysis on the question approach and precisely follow the widening account (Zanuttini and Portner 2003). The course of the analysis, however, uses the modifications in the existing widening approach, mentioned in Balusu (2019) for analysing wh-exclamatives in Telugu and Kannada.

For the syntax of multiple k-exclamatives, we follow the insights of Bhattacharya and Simpson (2007) where the wh-phrases are overtly fronted in Bangla. At the level of compositional analysis, we follow Kotek (2016, 2018) in positioning the **AS** (or **ALTSHIFT**) operator on the clausal spine. This **AS** operator is accountable for the interrogative semantics. The **AS** operator converts the focus value of the set of alternatives to its ordinary value, upon which the exclamative operator $\text{Op}_!$ acts, giving us the semantics of multiple k-exclamatives. It will work for single k-exclamatives too. The answerhood operator posited in the semantics is mainly drawn from Kotek's generalised ANS used for multiple wh-questions. But, the answerhood operator in $\text{Op}_!$ is pragmatically modified with the concept of QUD (Roberts 2012) so that it can extract only those true answers that are relevant to the exclamative contexts.

References

- Austin, J. L. (1962). *How to do things with words*. William James Lectures. OUP.
- Badan, L. and L. Cheng (2015). Exclamatives in Mandarin Chinese. *Journal of East Asian Linguistics* 24(4), 383–413.
- Balusu, R. (2019). The role of the particle *-oo* in wh-exclamatives in Telugu and Kannada. In *Proceedings of 23rd Sinn und Bedeutung (SuB 23)*, pp. 109–126.
- Banerjee, K. (2022). Wh-exclamatives call for a question semantics: the view from Bangla. In *Proceedings of the 30th edition of the Conference of the Student Organisation of Linguistics in Europe (ConSOLE XXX)*, pp. 125–144.
- Beck, S. (2006). Intervention effects follow focus interpretation. *Natural Language Semantics* 14, 1–54.
- Beck, S. and S.-S. Kim (2006, 11). Intervention effects in alternative questions. *Journal of Comparative Germanic Linguistics* 9, 165–208.
- Bhattacharya, T. and A. Simpson (2007). Argument prominence and the nature of superiority violations. In G. S. Eric Reuland, Tanmoy Bhattacharya (Ed.), *Argument Structure*, pp. 175–211. Amsterdam: John Benjamins.
- Chernilovskaya, A. (2010). Exclamatives have a question semantics! Presentation at the 6th International Symposium of Cognition, Logic and Communication, “Formal Semantics and Pragmatics: Discourse, Context, and Models”, Riga, Latvia.
- Chierchia, G. and S. McConnell-Ginet (1990). *Meaning and Grammar: An Introduction to Meaning*. The MIT Press.
- Cresswell, M. (1976). The Semantics Of Degree. In B. H. Partee (Ed.), *Montague Grammar*, pp. 261 – 292. Academic Press.
- D’Avis, F.-J. (2002, 01). On the interpretation of wh-clauses in exclamative environments. *Theoretical Linguistics* 28, 5–31.
- Dayal, V. (1996). *Locality in WH quantification*. Kulwer Academic Publishers.
- Dayal, V. (2002). Single-pair versus multiple-pair answers: Wh-in-situ and scope. *Linguistic Inquiry* 33(3), 512–520.
- Elliott, D. E. (1974, Mrach). Toward a Grammar of Exclamations. *Foundations of Language* 11(2), 231–246.
- Gérard, J. (1980). *L’exclamation en français*. Berlin, Boston: Max Niemeyer Verlag.
- Grice, H. P. (1975). Logic and Conversation. In P. Cole and J. L. Morgan (Eds.), *Syntax and Semantics*, Volume 3, pp. 41–58. Academic Press.
- Groenendijk, J. and M. Stokhof (1984). On the Semantics of Questions and the Pragmatics of Answers. In F. Landman and F. Veltman (Eds.), *Varieties of Formal Semantics: Proceedings of the Fourth Amsterdam Colloquium*, pp. 143–170. Foris.
- Gutiérrez-Rexach, J. (1996). The Semantics of Exclamatives. In E. Garrett and F. Lee (Eds.), *Syntax at Sunset: UCLA Working Papers in Linguistics*. Los Angeles: Univ. of California.
- Hamblin, C. L. (1973). Questions in Montague English. *Foundations of Language* 10(1), 41–53.
- Heim, I. (1994). Interrogative semantics and Karttunen’s semantics for know. In *Proceedings of 1st Isreal Association for Theoretical Linguistics (IATL 1)*, pp. 128–144.
- Huddleston, R. (1993). Remarks on the construction you won’t believe who ed has married. *Lingua* 91(2), 175–184.
- Karttunen, L. (1977, 01). Syntax and semantics of questions. *Linguistics and Philosophy* 1,

3–44.

- Kennedy, C. (2007). Vagueness and grammar: The semantics of relative and absolute gradable adjectives. *Linguistics and Philosophy* 30(1), 1–45.
- Kotek, H. (2016). On the semantics of wh-questions. In *Proceedings of 20th Sinn Und Bedeutung (SuB 20)*, pp. 430–447.
- Kotek, H. (2018). *Composing Questions*. MIT Press.
- Milner, J.-C. (1978). *De la syntaxe à l'interprétation: quantités, insultes, exclamations*. Paris: Éditions du Seuil.
- Miró, E. C. (2006). *Wh-exclamatives in Catalan*. Ph. D. thesis, Departament de Lingüística General, Universitat de Barcelona.
- Nouwen, R. and A. Chernilovskaya (2015, 01). Two types of wh-exclamatives. *Linguistic Variation* 15, 201–224.
- Partee, B. (1986). Noun phrase interpretation and type-shifting principles. In J. Groenendijk, D. de Jongh, and M. Stokhof (Eds.), *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, pp. 115–143. Dordrecht: Foris.
- Patricia, L. A. (2011). *Rhetorical Exclamatives in Spanish*. Ph. D. thesis, The OSU.
- Rett, J. (2008a). A Degree Account of Exclamatives. In *Proceedings of 18th Semantics and Linguistic Theory (SALT 18)*, Ithaca, NY. CLC Publications.
- Rett, J. (2008b). *Degree Modification in Natural Language*. Ph. D. thesis, Graduate School-New Brunswick Rutgers, The State University of New Jersey.
- Rett, J. (2011). Exclamatives, Degrees and Speech Acts. *Linguistics and Philosophy* 34(5), 411–442.
- Rett, J. and S. Murray (2013). A semantic account of mirative evidentials. In *Proceedings of 23rd Semantics and Linguistic Theory (SALT 23)*, pp. 453–472.
- Roberts, C. (1996/2012). Information structure in discourse: Toward an integrated formal theory of pragmatics. *Semantics & Pragmatics* 5(6), 1–69.
- Roberts, C. (2010). Topics. In C. Maienborn, K. von Stechow, and P. Portner (Eds.), *Semantics: An International Handbook of Natural Language Meaning*, Volume 33.2, pp. 1908–1934. Mouton de Gruyter.
- Rooth, M. (1985). *Association with Focus*. Ph. D. thesis, University of Massachusetts, Amherst.
- Rooth, M. (1992). A Theory Of Focus Interpretation. *Nat Lang Semantics* 1(1), 75–116.
- Sadock, J. M. and A. M. Zwicky (1985). Speech Acts Distinctions in Syntax. In T. Shopen (Ed.), *Language Typology and Syntactic Description*, pp. 155–196. Cambridge: CUP.
- Searle, J. R. (1969). *Speech Acts: An Essay in the Philosophy of Language*. CUP.
- Simons, M., J. Tonhauser, D. Beaver, and C. Roberts (2010). What projects and why. In *Proceedings of 20th Semantic and Linguistic Theory (SALT 20)*, pp. 309–327.
- Simpson, A. and T. Bhattacharya (2003, 12). Obligatory overt wh -movement in a wh -in-situ language. *Linguistic Inquiry* 34, 127–142.
- Stalnaker, R. (1978). Assertion. *Syntax and Semantics* 9, 315–332.
- Uegaki, W. (2019). The semantics of question-embedding predicates. *Language and Linguistics Compass* 13(1), 1–17.
- Villalba, X. (2003, 08). An exceptional exclamative sentence type in romance. *Lingua* 113(8), 713–745.
- Zanutini, R. and P. Portner (2003). Exclamative Clauses: At the Syntax-Semantics Interface. *Language* 79(1), 39–81.