Wh-exclamatives call for a question semantics
The view from Bangla

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Exclamatives have been a subject of study since Elliott (1974), Grimshaw (1979), and others. Although languages have different types of exclamative clauses (cf. Rett 2008a, 2011), this paper mainly focuses on wh-exclamatives in Bangla (a.k.a. Bengali; Indo-Aryan (IA)). While analyzing wh-exclamatives in languages like Catalan (Miró 2006) and English (Rett 2008a, 2011), it has been established that they bear a degree denoting property in the domain, which caters to the surprising element of the clause. However, there is opposing cross-linguistic evidence. Languages like Turkish, Dutch, Russian, Hungarian (Nouwen & Chernilovskaya 2015); Telugu, Kannada (Balusu 2019) show a wide variety in their wh-exclamatives and cannot be analyzed along the lines of Miró (2006); Rett (2008a, 2011). Bangla is no exception. This paper provides a unified compositional analysis for wh-exclamatives in Bangla.

1. Introduction

A composite system for classification of sentence types includes statements, commands, questions and exclamations (Onions 2017). The uniqueness of exclamatives or exclamations was noticed by Elliott (1974). Elliott's account on exclamations includes sentences of the following structures which he terms as *absolute exclamations*:

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

Elliott's analysis of exclamations include transformational rules by which he explains the similarities in meanings between (1)-a & (1)-b.

Rett (2008a, 2011) distinguishes between structures like (1)-a and (1)-b, and notes the semantic differences between them. In Rett's classification, sentences that lack an overt wh-word as in (1)-b are termed *proposition exclamations*, and sentences that have an overt wh-word as

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in (1)-a and (1)-c are termed *exclamatives*. As argued by Rett (2008a), the illocutionary force involved in the former type is that of a proposition, whereas the latter one has a degree illocutionary force. Rett's study on exclamatives is quite different from that of D'Avis (2002) and Zanuttini & Portner (2003). D'Avis (2002), Zanuttini & Portner (2003) analyze exclamatives as having a question denotation *i.e.*, exclamatives denote a set of propositions just like questions. However, exclamatives diverge from questions in the sense that they are factive in nature (Zanuttini & Portner 2003).

In this paper I will analyze Bangla wh-exclamative structures and argue in favour of a question-based approach for exclamatives. Bangla allows a variety of wh-words in forming exclamatives and therefore qualifies for both degree and non-degree contexts in denoting exclamatives. Therefore, neither the degree-based approach (Rett 2008a, 2011) nor the existing question-based approaches like D'Avis (2002) or Zanuttini & Portner (2003) are sufficient to fully capture all the readings of Bangla wh-exclamatives. Though the analysis hugely banks upon the 'widening' account introduced in Zanuttini & Portner (2003), it accepts certain modifications made to the existing approach in Balusu (2019) for analyzing wh-exclamatives in Telugu and Kannada. Before proceeding, let us look at the structure of the paper.

§2 briefly reiterates the influential theories on wh-exclamatives. §3 presents a pan-optic view on Bangla wh-exclamative structures. This section also illustrates the limitations of the existing theories. §4 introduces a composite analysis for Bangla wh-exclamatives. Lastly, §5 concludes the paper.

2. Existing approaches

The existing literature on wh-exclamatives shows two very different approaches to analyzing them. One group of scholars analyze wh-exclamatives as having a question-based semantics (D'Avis 2002; Zanuttini & Portner 2003; Chernilovskaya 2010), popularly referred to as the *proposition-set approach*. The others analyze exclamatives as having a degree denoting property, known as the *degree approach* (Miró 2006; Rett 2008a,b, 2011).

2.1. The proposition-set approach

A distinguishing feature of wh-exclamatives is that they always carry an overt wh-operator. Because of this, proponents of the *proposition-set approach* view exclamatives as a reflection of wh-questions. D'Avis (2002) and later Chernilovskaya (2010) analyze wh-exclamatives using Heim's (1994) *two notions of answerhood*, whereas Zanuttini & Portner (2003) formalize a concept called *widening* to capture the essence of wh-exclamatives. However, these two ideas are very unlike each other in kind and character. §2.1.1 explains the former approach, while §2.1.2 explains the latter.

2.1.1. The Two-Notions of Answerhood Approach

In analyzing wh-exclamatives through question semantics, both D'Avis (2002) and Chernilovskaya (2010) base their analysis on the Karttunen-set (*i.e.*, questions denote a set of true answers (Karttunen 1977)). They argue that just like questions, Heim's answerhood

operator acts on the Karttunen-set in wh-exclamatives. The elements that distinguish wh-exclamatives from wh-questions are two felicity conditions proposed by D'Avis (2002). They are – (i) the speaker's expectations entail the negation of $\textit{answer}_1(w)$, and (ii) the speaker knows $\textit{answer}_2(w)$ (D'Avis 2002; Chernilovskaya 2010). D'Avis's main idea behind these conditions is that the speaker expresses surprise at a particular answer to the wh-clause while uttering an exclamative expression.

The German example in (2) explains a situation where the speaker expected Maria to invite John but to the speaker's surprise, Maria invited Bill as well. Following D'Avis (2002) and Chernilovskaya (2010), (2) will then have the denotation outlined in (3).

(2) *Wen Maria eingeladen hat!*
whom Maria invited has!
'Whom has Maria invited!' (Chernilovskaya 2010:2)

(3) $[\![\text{wh-clause}]\!](w) = \{p : \exists x[p = \lambda w'.[\![\text{invited}]\!](w')(m)(x) \wedge [\![\text{invited}]\!](w)(m)(x))]\}$
$= \{\lambda w'.[\![\text{invited}]\!](w')(j)(m), \lambda w'.[\![\text{invited}]\!](w')(b)(m)\}$ (*ibid.*)

Applying Heim's notion of answerhood to (3), the corresponding $\textit{answer}_1$ and $\textit{answer}_2$ in (4)-a and (4)-b are gotten, respectively. The $\textit{answer}_1$ denotes the weak exhaustive answer, and $\textit{answer}_2$ is the strong exhaustive answer.

(4) a. $[\![\textit{answer}_1]\!](w) = \bigcap[\![\text{wh-clause}]\!](w)$
$= \{w' : [\![\text{invited}]\!](w')(j)(m) \wedge [\![\text{invited}]\!](w')(b)(m)\}$
b. $[\![\textit{answer}_2]\!](w) = \{w' : \textit{answer}_1(w') = \textit{answer}_1(w)\}$
$= \{w' : [\![\text{invited}]\!](w')(j)(m) \wedge [\![\text{invited}]\!](w')(b)(m) \wedge \forall x \notin \{j, m\} \neg [\![\text{invited}]\!](w')(x)(m)\}$
(*ibid.*)

Following the felicity conditions, (2) is considered to be an exclamative because the utterer did not expect Maria to invite Bill, and the speaker knows $\textit{answer}_2$ *i.e.*, who exactly was invited by Maria.

Although D'Avis's approach perfectly captures the exclamatives that are inherently non-degree in nature, it cannot comply with the degree interpretation of exclamatives (5).

(5) *How tall John is!* (*ibid.*)

(5) is uttered in a situation where John appears to be taller than what the speaker expected him to be. Here Chernilovskaya (2010) extended D'Avis's analysis on wh-exclamatives, and accommodated the degree or gradable instances. She proposed that the presence of the gradable predicate *tall*[1] in (5) induces a downward monotone relation such that, $\forall w, x, d, d'(d' < d \wedge [\![\text{tall}]\!](w)(d)(x) \rightarrow [\![\text{tall}]\!](w)(d')(x))$. Therefore, (5) can be felicitously uttered in a context where the speaker, for instance, did not expect John to be not more than 5 feet tall but to their surprise, John appears to be 6 feet tall. Building up $\textit{answer}_1$ in this context will include a set of worlds where John is at least 6 feet tall. Therefore, the speaker's expectation now entails the $\neg\textit{answer}_1(w)$, and the speaker knows $\textit{answer}_2(w)$, *i.e.*, John is exactly 6 feet tall.

This paper deals with an expectation to this study where exclamatives are used as compliments (cf. Zanuttini & Portner 2003) *i.e.*, cases where the expectation of the speaker is not

[1] Chernilovskaya's analysis also works for absolute gradable adjectives (like *dry* in '*How dry the cake was!*' (Kennedy 2007)). She suggested to reinterpret the adjective *dry* as a relative adjective.

negated. For example, in a scenario where the speaker expected a house to be as nice as it is, uttering '*what a nice house!*' will not negate the speaker's expectation. To address the issue the concept of two types of *Expectation Set* is introduced (cf. Rett & Murray 2013; Badan & Cheng 2015; Balusu 2019) in §4.

2.1.2. The Widening Approach

In recent times, the most influential theory used in analyzing wh-exclamatives is Zanuttini & Portner's (2003) approach. According to Zanuttini & Portner (2003), wh-exclamatives are inherently scalar and they express surprise. Their view suggests that the wh-operator generates a set of alternatives (alike questions), and they are factive in nature. The central notion of their theory is the concept of *widening*.[2] They claim that widening captures the essence of 'surprise', 'noteworthiness' or 'unexpectedness' of an exclamative proposition. Widening is not present in a physical form in the syntax of exclamatives, rather it is obtained via pragmatic reasoning. Every clause type must be defined in terms of two forces *viz.* sentential force which can be defined in terms of the convention associated with a sentence's form (Chierchia & McConnell-Ginet 1990), and illocutionary force which can be defined in terms of the speaker's intention with an utterance (Searle 1969). The illocutionary force of exclamatives is that of exclaiming, whereas the sentential force of exclamatives is claimed to be widening (Zanuttini & Portner 2003). Although any clause type may be associated with the illocutionary force of exclaiming, the sentential force of widening, however, is exclusively reserved for exclamatives. They assert that exclamatives widen the domain of quantification denoted by the wh-operator.

The Zanuttini & Portner (2003) outlook on wh-exclamatives also carries on with the Karttunen (1977) denotation for wh-questions, *i.e.*, set of true answers, though they keep the option open for using other proposition-set denotations such as, Hamblin's (1973) and Groenendijk & Stokhof's (1984) denotations for questions. With the help of the following example in Paduan (6), let us briefly consider the framework of widening.

(6) *che roba che l magna!*
what stuff that he eats
'The things he eats!' (Zanuttini & Portner 2003:12)

(6) expresses the speaker's surprise in a context where, say, John eats very spicy peppers. In such a context, the initial domain D_1 denoted by the wh-operator indicates a set of spicy peppers (like poblanos, serranos, jalapeños). The entities of this set are ordered in an increasing scale of spiciness. Now, $R_{widening}$ widens D_1 to a new widened set D_2 such that, D_2 additionally includes a very spicy pepper (say, habanero) that John eats. Recall, the widened D_2 set also includes the elements of D_1 in it, implying that eating the peppers in D_1 is more likely than eating the pepper in D_2. For example 'he eats jalapeños' is more likely ($\prec_{likelihood}$) than 'he eats habaneros'. Therefore with respect to (6), it is seen that the propositions in $[\![S]\!]_{w,D_2,\prec} - [\![S]\!]_{w,D_1,\prec}$ are ordered on a *likelihood* scale.[3] Zanuttini & Portner (2003) assert that this domain widening is one of the

[2] Zanuttini & Portner (2003) follow Sadock & Zwicky's (1985) idea in defining the concept of widening. Sadock & Zwicky (1985) interpret a clause type as a combination of grammatical form and conversational use. Zanuttini & Portner argue that the latter is represented in the concept of widening. This concept is somewhat equivalent to the idea of a force in a proposition or sentence.

[3] Similarly, the propositions are ordered in a degree scale when it is a gradable or degree context like (5).

main meaning components of exclamatives, and is only possible when an element is added in a way that is extreme on the relative scale. Let us now define the concept of widening.

(7) *Widening* = For any clause *S* containing $R_{widening}$, widens the initial domain of quantification for $R_{widening}$, D_1, to a new domain D_2, such that:

a. $[\![S]\!]_{w,D_2,\prec} - [\![S]\!]_{w,D_1,\prec} \neq \emptyset$

b. $\forall x \forall y[(x \in D_1 \ \& \ y \in (D_2 - D_1)) \rightarrow x \prec y]$ (Zanuttini & Portner 2003:15)

Another important component of exclamatives is that they are factive. In the context of (6), 'John eats habanero' is a factive presupposition entailed by the notion of *Common Ground* (Stalnaker 1978). Zanuttini & Portner (2003) define factivity in terms of the following:

(8) *Factivity* = For any clause *S* containing $R_{factivity}$ in addition to $R_{widening}$, every $p \in [\![S]\!]_{w,D_2,\prec} - [\![S]\!]_{w,D_1,\prec}$ is presupposed to be true. (*ibid.*:17)

Although the Zanuttini & Portner's (2003) outlook on wh-exclamatives looks very compact, it faces certain limitations in analyzing some data in Bangla. I will discuss this in §3.2 and the modifications required for uniformly analyzing Bangla wh-exclamative structures are defined in §4. Before doing so, I will briefly explain the other influential approach *i.e.*, the degree based approach for analyzing exclamatives.

2.2. The Degree Approach

The degree approach claims that exclamatives denote a degree higher than the contextually determined standard. Following Austin's (1962) speech act theory, Rett claims that exclamatives are performative speech acts, and she formalizes the notion of DEGREE-E-FORCE as the illocutionary force operator of an exclamative clause. The foundation of the DEGREE-E-FORCE is explained in (9).

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

(9) states that the domain of an exclamative expression is a degree. An exclamative 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 about it.

Apart from formalizing the concept of DEGREE-E-FORCE, Rett proposes two semantic restrictions *viz. The Degree Restriction* and *The Evaluativity Restriction* on exclamatives.The Degree Restriction on exclamatives strongly rejects the view that exclamatives can have non-degree readings and asserts that exclamatives will always get a degree reading. On the other side, The Evaluativity Restriction on exclamatives suggests that exclamatives are evaluative and hence, it will refer to a degree that surpasses a standard. Let us look at one example from Rett (2008a:604), to understand the concept a bit more.

(10) *(My,) what languages Mimi Speaks!*

As per Rett (2008a), the English utterance in (10) has an *amount* reading in a scenario where Mimi speaks, say, 11 languages and the speaker did not expect Mimi to speak so many lan-

guages. Although (10) lacks an overt degree morphology in terms of denoting the number, Rett asserts that it still has a degree interpretation based on the context. To reason it semantically, she follows Cresswell's (1976) work and proposes a null QUANTITY operator, as in (11). This QUANTITY operator gives *what*-exclamatives in English a degree reading. Based on this, (10) will have the following semantic denotation in (12).

(11) $[\![\text{QUANTITY}]\!] = \lambda P \lambda d \lambda Q \exists X[P(X) \wedge Q(X) \wedge \mu(X) = d]$ 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)

(12) $\exists X$[languages(X)$\wedge$ Speaks(Mimi, X) $\wedge$ $|X| = d > s$] where s denotes standard.

(10) can also get a gradable interpretation where the speaker expected Mimi to speak only English as she has been born and brought up in England. But, surprisingly the speaker learns that Mimi can speak Urdu and/or Swahili. Rett forms her arguments in saying that the languages Mimi speaks are exotic to a degree d such that it exceeds the standard scale. In arguing for the lack of the overt gradable morphology in (10), Rett deploys a covert gradable predicate $\mathbb{P}$ that gets its value from the context.

Apart from the above instances of English *what*-exclamatives, Rett also explains the instances of English *how*-exclamative structures. It is known that 'how' in English can range both over manners as well as evaluatives. Rett (2008a) strictly proposes that 'how' in exclamative use will only range over evaluatives, thereby giving a degree reading. Therefore, a sentence like (13) can only be uttered to describe a situation where Buck rode his horse beautifully, dangerously *etc.*, but never in situations where Buck rode his horse bare-backed. As for the lack of a gradable adverb in (13), Rett again uses the same mechanism; she postulates a null gradable adverb *viz.* ADV to reinstate the degree reading on *how*-exclamative structures.

(13) *How Buck rode his horse!* (Rett 2008a:607)

However, this approach discards the idea of exclamatives getting an *individual reading*; Rett rejects the idea that (10) can also be uttered in a context where the speaker is surprised about the very fact (or event) that Mimi can speak a certain language (say, French).

Although Rett's approach seizes the instances of English exclamative structure perfectly, it fails to fully capture the non-degree instances of exclamatives in other languages including Bangla. The next section reviews the types of exclamative structures available across languages. In doing so, we will see that Rett's understanding on exclamatives are challenged by such diverse data on wh-exclamatives available cross-linguistically.

2.3. The type 1/2 distinction

Nouwen & Chernilovskaya's (2015) analysis sheds light on the types of exclamative readings found cross-linguistically. English wh-exclamative structures are restricted to *what*/*what-a* and *how* constructions, languages from diverse language families (*e.g.* German, Russian, Hungarian, Dutch, Turkish (Nouwen & Chernilovskaya 2015); Telugu, Kannada (Balusu 2019)) use wh-words like *who*, *which*, *whom etc.* in their exclamative structures. Exclamatives with these wh-words show non-scalarity in their nature, and are unable to receive a degree interpretation. Some of these languages also allow the individual reading of exclamative structures. Consider

the following English exclamative in (14).

(14) *What a book John wrote!* (Nouwen & Chernilovskaya 2015:6)

(14) can be uttered in a context where John wrote a beautiful or long book and the speaker is surprised about it. Nouwen & Chernilovskaya (2015) call this category of exclamatives *i*-level exclamatives. Exclamatives that express surprise at the individual singled out by the wh-phrase are termed *Type 1* (or *i*-level) exclamatives. However, in languages like Bangla, Telugu *etc.* (14) can also be uttered in a situation where the speaker is surprised at the very event that John wrote a book. In this context, the speaker is not surprised at how good or bad the book is, rather the surprise is at the instance that John wrote a book. This category of exclamatives are what Nouwen & Chernilovskaya (2015) have termed *e*-level exclamatives. Exclamatives that express surprise at the event that the wh-referent takes part in are termed *Type 2* (or *e*-level) exclamatives. As pointed out in the previous section, Rett's analysis on exclamatives rules out the possibility of *Type 2* or *individual readings* of exclamatives.

In the following section we will see that Bangla has both *Type 1* and *Type 2* instances in its exclamative structures. We will also introduce the modifications to the 'widening' account required to analyze certain Bangla data. While analyzing the Bangla data I will also provide instances where the degree-approach is inadequate in capturing the exclamative readings.

3. An outline of Bangla k-exclamatives

Unlike English, Bangla is flexible in using wh-words like *where*, *who*, *whom*, the manner interpretations of *how*[4] *etc.* in wh-exclamatives. Therefore, both type 1 (degree/gradable) and type 2 (non-degree/non-gradable) readings are available in Bangla wh-exclamative clauses. An important point to mention here is that all wh-words in Bangla start with a k-morpheme, and hence, while referring Bangla wh-exclamatives, I will resort to the term k-exclamatives hereafter.

3.1. Type 1 k-exclamatives

The type 1 or gradable reading of k-exclamatives are achieved in contexts where *ki*[5] 'what' and *koto* 'how' are being used. Let us define some of these contexts.

The utterances in (15) are made under a situation where the speaker did not expect Rishi to be tall, but to their surprise Rishi surpasses the average scale of tallness. A point to notice here is that one can use both the modifier *ki* 'what' and the modifier *koto* 'how' in the same context without changing the meaning of the proposition. In (15), both *ki* and *koto* have a scalar

[4] *How* ranges over manner, evaluation and gradable degrees. Consider the examples below.

a. 'How did Buck ride his horse?
Manner: bare-backed, saddled
Evaluation: beautifully, dangerously, clumsily (Rett 2008a:607)

b. **Gradable degrees:** 'How short you are!' (*ibid.*)

[5] Bangla shows two types of *ki*-s 'what' in its exclamative structures (See §3.3 for a detailed discussion). The use of *ki* in type 1 context is acting like a modifier. Hence, we refer to it as the 'modifier *ki*'. Apart from *ki*, the regular modifier *koto* 'how' is also used in Bangla type 1 exclamatives.

interpretation and hence are likely to get a gradable or type 1 denotation.

(15) *Context: Rishi is more than 6ft. tall, and the speaker is surprised about Rishi's height.*
   a. *Rishi ki lomba!*
      Rishi what tall
      'How tall Rishi is!'
   b. *Rishi koto lomba!*
      Rishi how tall
      'How tall Rishi is!'

However, this is not always the case. Consider the sentence in (16). (16) is uttered in a context where Rishi runs really fast and the speaker is surprised at the speed.

(16) *Rishi ki/#koto douray!*
   Rishi what/how run.PRS.3
   'How fast Rishi runs!'

Although *ki* reads as the scalar formation 'how' in (16), the default lexical form of 'how' *i.e.*, *koto* cannot communicate the same meaning in (16). To convey the above reading, *koto* requires the presence of an overt gradable adverb *jore* 'fast' to modify it, as in (17). One can also use *jore* with *ki*, also seen in (17), and it will express the same meaning as (16).

(17) *Rishi ki/koto jore douray!*
   Rishi what/how fast run.PRS.3
   'How fast Rishi runs!'

However in a context where Rishi runs for 6 kilometers daily, and the speaker expresses surprise about the amount of distance Rishi covers while running, one can use both *ki* and *koto* (18). Therefore, it is evident that *ki* is flexible in all gradable contexts.

(18) *Rishi ki/koto douray!*
   Rishi what/how run.PRS.3
   'How much distance Rishi covers by running!'

Both *ki* and *koto* receive a gradable or type 1 reading in the above contexts, however in (16) *koto* is inappropriate. I argue that when there is no overt gradable predicate present in the construction, *koto* by default becomes the sentential modifier and an amount reading of exclamatives surfaces. As opposed to that, the modifier *ki* needs to modify an overt or a covert gradable predicate. In (16) and (18), it is covert, while in (17) the gradable predicate is overtly realized. On the other hand, as the context in (18) indicates an amount reading (of running) it felicitously allows the use of *koto* in the structure. However, in (16) the use of *koto* is inappropriate because the sense of what the overt gradable predicate *fast* conveys cannot be covertly supplied.

3.2. Type 2 k-exclamatives

Type 2 k-exclamative structures are diverse. Bangla type 2 exclamatives include k-words like *ki* 'what', *kibhabe/kemon kore* the manner interpretation of 'how', *kothay* 'where', *kake* 'whom (sg.)', *kader* 'whom (pl.)', *etc.* Let us now define the contexts under which these k-words take

type 2 or non-gradable exclamative readings.

The utterer of (19) expresses surprise over an event where Rishi is eating wasp crackers. Wasp crackers are a quite popular delicacy in many places in the world, but suppose that the speaker is not aware of this, and hence expresses surprise. It should be noted that the speaker here is not surprised at the wh-referent, *i.e.*, wasp crackers, rather they are amazed at the whole event of Rishi eating it. Similarly, in a context where running backwards is not a regular thing, the speaker is surprised to see that Rishi is running like that. Therefore, by uttering the proposition in (20) the speaker expresses surprise at the whole event of Rishi running backwards.

(19) *Rishi ki khacche!*
Rishi what eat.PROG.PRS.3
'What Rishi is eating!'

(20) *Rishi kibhabe/ kemon kore douracche!*
Rishi how-manner/ how do.PFV run.PROG.PRS.3
'How Rishi is running!'

Rett's degree approach rejects the possibility of a manner interpretation of 'how' in exclamative contexts. Since 'how-manner' does not receive a degree interpretation, Rett's degree restriction will block sentences like (20) from getting an exclamative reading. Apart from this, in the following data I show k-words such as *kothay* 'where' (21), *kake* 'whom (sg.)' (22) *etc.* that form well-structured exclamative sentences in non-scalar contexts in Bangla.

(21) *Rishi kothay gache!*
Rishi where go.PRF.PRS.3
'*Where Rishi has gone!'

(22) *Rishi kake biye koreche!*
Rishi whom marry do.PRF.PRS.3
'*Whom Rishi married!'

(21) is uttered in a context where the speaker did not expect Rishi to go anywhere, since Rishi suffers from altitude sickness, but to the speaker's surprise, Rishi went to the Himalayan foothills. As for (22), it can be uttered in a context to express surprise where the speaker expected Rishi to marry Kavya (because Rishi loved Kavya), but he is seen to have married someone else (say, Mira). Although, one might argue that some underlying degree attributes are there in (21) and (22) such as Himalayan foothills being an usually rough place, or the person Rishi married being tall, or short. However, this is not the case in Bangla type 2 readings. All the above type 2 exclamatives in Bangla receive readings where the speaker expresses surprise about the whole events, and not about the wh-referents.

As Rett's degree approach does not consider anything to be exclamatives that does not have a degree component in its domain, it certainly cannot work uniformly in a language like Bangla where non-degree or type 2 exclamative readings are quite regular, as in (21) and (22) where both the wh-words are themselves non-scalar in nature and therefore do not have any underlying degree component. On the other hand, the existing approach of Zanuttini & Portner (2003) is also incompatible with data like (22). As pointed out by Balusu (2019), Zanuttini & Portner's (2003) widening approach is based on Karttunen's set of true answer(s). Therefore, for an example like (22), the initial domain D_1 will already include the true answer (*i.e.*, Mira). Hence, with respect to (22) the widened D_2 set cannot include the true answer anymore (considering

the scenario to take place in a monogamous society). Therefore, it violets the first condition of $R_{widening}$. The second problem of their approach is in building the D_1 from the wh-referents. Recall that in (6) the initial domain or D_1 is formed on a scale of spiciness. However, in contexts like (21), (22) the use of k-words are non-scalar in nature[6] (since there are no underlying degree attributes attached to them). Therefore, forming the initial domain D_1 in such contexts will be tricky, as there is no scale to order the alternatives in the domain. The domain of widening, thus, needs to be changed.

With the foundation of data laid out above for Bangla k-exclamatives, it is clearly evident that direct application of the widening account (Zanuttini & Portner 2003) to analyze Bangla k-exclamatives is not possible, and certain modifications are required. Before I propose a formal analysis of k-exclamatives, in the next section I will explain why Bangla has two *ki*-exclamative structures that are used in two very different circumstances.

3.3. Dissociative identities of ***ki*** *in k-exclamatives*

As we saw in §3.1 and §3.2 there are two types of *ki* 'what' evident in Bangla k-exclamatives (see also Guha & Bhattacharya 2020). The type 1 *ki*[7] exclusively occurs in exclamatives, and not in questions (23), whereas the type 2 *ki*, along with all other k-words (including type 1 *koto* 'how') can occur both in questions (24)-(28) as well as in exclamative clauses (shown above).

(23) **Rishi ki lomba?*
Rishi what tall
Int: 'How tall is Rishi?'

(24) *Rishi koto lomba?*
Rishi how tall
'How tall is Rishi?'

(25) *Rishi ki khacche?*
Rishi what eat.PROG.PRS.3
'What is Rishi eating?'

(26) *Rishi kibhabe/ kemon kore*
Rishi how-manner/ how do.PFV
douracche?
run.PROG.PRS.3
'How is Rishi is running?'

(27) *Rishi kothay gache?*
Rishi where go.PRF.PRS.3
'Where has Rishi gone?'

(28) *Rishi kake biye koreche?*
Rishi whom marry do.PRF.PRS.3
'Whom did Rishi marry?'

While the type 1 *ki* acts like a modifier (cf. §3.1), leading to a degree reading, type 2 *ki* in (19) acts like a thematic one.[8] In (19), the type 2 *ki* behaves as an object argument of the transitive

[6] The data in (19) and (20) are uttered in a scalar context where one can form the likelihood scale for D_1 based on exotic food items (for (19)) or the likely way of walking (for (20)). Even though, following Zanuttini & Portner (2003), D_1 for (19) can be formed by ascribing a degree denotation in terms of exoticism on the wh-referent, the D_1 for (20) cannot be formed along the same lines because, in case of (20) the scale does not concern the wh-phrase itself, but instead the set of eventualities. For example, if a car moves in a backward direction (for parking purposes) it is not surprising to anyone, but it will definitely surprise someone if a person runs backward since it is not usual to run in a backward direction. This is the reason why Balusu (2019) proposed to deploy widening over the set of propositions, instead of the set of alternatives picked up by wh-phrases. This point will be more clear when discussing the notion of Expectation Set in §4.

[7] Here, I am not referring to the Bangla polar question particle *ki*. I am only mentioning the instances of thematic *ki* and modifier *ki*. I show that the former occurs both in questions and exclamatives, while the latter does not go with questions.

[8] Here I am not claiming that the thematic *ki* cannot have any underlying degree attributes ever. For example,

verb *khacche* 'eating'. An interesting fact to be noted is that the following sentence without any context mentioned is ambiguous:

(29) *Rishi ki khacche!*
Rishi what eat.PROG.PRS.3S

(29) can be interpreted quite differently in different contexts. In a context where Rishi is eating more than what the utterer expected Rishi to eat, it can refer to a quantity/amount reading (type 1 reading). I argue that in such cases *ki* modifies a null gradable predicate, and has an underlying structure like the following: [*ki* $\varnothing_{gr}$]. Again in another context like (19), it can convey the amazement at Rishi eating wasp crackers (type 2 reading). This type of ambiguity with *ki*, I argue, arises when the verb is a transitive one like *eat*, *read*, *etc.* When the main verb is an intransitive one, no ambiguity is expected to surface because *ki* there can never gain a thematic position. This is why sentences like *Rishi ki douray!* can never get a type 2 reading. Such sentences always have to denote a degree or amount/quantity reading (see (16), (18)).

Therefore, it is evident that Bangla has two types of *ki*. It is also noteworthy that Bangla has two k-modifiers. The regular modifier *koto* can occur both in questions and in exclamatives, whereas the modifier *ki* can only occur in exclamative clauses. Therefore, I resort to the term *exclamatory modifier* while denoting the type 1 *ki*. The featural distinction shown between these two types of modifiers shows how they are stored in our mental lexicon. While both are k-words and therefore have a [*u*Q] feature, the exclamatory *ki* additionally carries a [*u*Excl] feature because it uniquely occurs in exclamative clauses. Table 1 captures the core idea of this section.

***k*-modifiers**	**Clause type**	
	?	**!**
ki 'what'	✗	✓
koto 'how'	✓	✓

Table 1. Two types of Bangla *k*-modifiers: Exclamatory & Regular

With these observations, I now proceed to the compositional analysis.

4. Semantic profile of Bangla k-exclamatives

As mentioned in §3.2, some modifications are needed in the widening account to analyze Bangla k-exclamatives. I follow Balusu's (2019) alternations in analyzing them. To speak on the first problem in domain widening, he suggested to follow Hamblin's (1973) alternatives *i.e.*, questions denote a set of possible answers (instead of Karttunen's (1977) alternatives). Doing so,

the following can be uttered in a context where the speaker was mesmerized by a beautiful sunrise:
i. (*Uff,*) *ki dekhlam!*
(Wow), what saw.PST.1S
'(Wow), what I saw!'
I am only stating the possibility that thematic *ki* can be totally non-scalar in nature, while the modifier *ki* is exclusively type 1.

widening from D_1 to D_2 will work for data like (23). Now, D_1 will only contain possible answers, and the widened domain D_2 will include the true surprising answer. Working on the second problem, Balusu (2019) suggested to execute $R_{widening}$ over the set of propositions instead of the set of wh-alternatives. This set of propositions is called the *Expectation Set* (ES) (Rett 2011; Rett & Murray 2013) where the speaker's expectations are encoded as sets of possible worlds. Now the ordering will occur between propositions, and not on the alternatives generated by the wh-operator. Therefore, in a context like (22) now the ordering in D_1 and in D_2 can take place as in, 'Rishi married Mira' is less likely than 'Rishi married Kavya'. For type 1 exclamatives, the propositions are ordered in a degree scale, and for type 2 exclamatives, they are ordered in a likelihood scale. These orderings are triggered by the context (similar to the analysis of 'even'). With these modifications in hand, let us re-explain the concept of $R_{widening}$ once more (Balusu 2019:pp. 121).

(30) For any clause *S* containing an exclamative operator, widen the initial domain ES to a new domain D_2 such that:

a. $[\![S]\!]_{w,D_2 \prec_{\text{likelihood/degree}}} - [\![S]\!]_{w,D_{\text{ES}} \prec_{\text{likelihood/degree}}} \neq 0$

b. $\forall x \forall y[(x \in D_{\text{ES}} \,\&\, y \in (D_2 - D_{\text{ES}})) \rightarrow x \prec_{\text{likelihood/degree}} y]$ and;

c. $\exists p \in [\![S]\!]_{w,D_2 \prec_{\text{likelihood/degree}}} - [\![S]\!]_{w,D_{\text{ES}} \prec_{\text{likelihood/degree}}}$ is presupposed to be true.

The concept of $\text{ES}_{\text{SPKR/NORM}}$ suggests that not every exclamative expresses surprise (see Badan & Cheng (2015) for non-surprising exclamatives in Mandarin). An expression like the one in (31) represents that the curry is on a higher scale of hotness but does not exceed the speaker's expectations (may be because in a restaurant it is supposed to be served hot). In such cases where the expression is not denoting a surprise, the ES is based on a normative set *i.e.*, ES_{NORM}.

(31) *It is not surprising, how very hot the curry is!* (Balusu 2019:122)

However, the context under which (19) is uttered expresses surprise from the speaker *i.e.*, (19) is uttered in a context where Rishi eating wasp crackers is surprising to the speaker, because they are not aware that eating wasp crackers is a common delicacy in Omachi, Japan. Therefore, in (19) the scale on the ES is based on the speaker *i.e.*, ES_{SPKR}.

4.1. Analyzing type 1 readings in k-exclamatives

Before heading off towards the formal analysis of type 1 k-exclamatives, let us repeat (15), for the reader's convenience.

(15) *Context: Rishi is more than 6ft. tall, and the speaker is surprised about Rishi's height.*

a. *Rishi ki lomba!*
Rishi what tall
'How tall Rishi is!'

b. *Rishi koto lomba!*
Rishi how tall
'How tall Rishi is!'

(15)-a and (15)-b can be uttered in a context where the speaker expresses surprise at Rishi's height, and both *ki lomba* 'what tall (lit.)' and *koto lomba* 'how tall' convey the same reading

in the exclamative context. The only distinguishing feature between them is that the former is expressively correct only in an exclamative sense, whereas the latter can be used in asking a question about Rishi's height. In this context, however, the focus is only on the exclamative reading.

To analyze the type 1 readings of (15), let us assume a scale of tallness shown below in Figure 1. The exclamatory *ki* will denote a set of degrees that are already placed high on a contextually relevant scale. In contrast, the regular modifier *koto* 'how' will denote a set of degrees that are in the normal scale of tallness, thereby capturing the set of alternates for its interrogative counterpart. Based on the scale drawn in figure 1, let us define the set for *ki lomba* 'what tall' and *koto lomba* 'how tall' in (32) and (33), respectively.

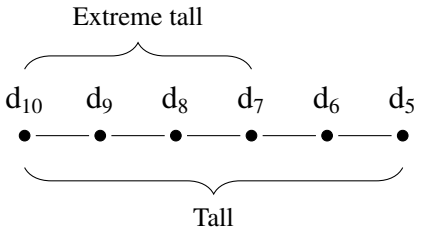


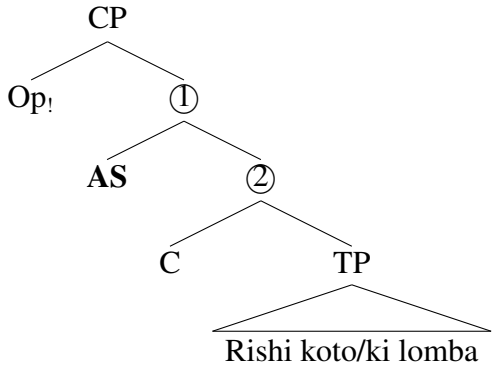
Figure 1. Scale of tallness

(32) $[\![$*ki lomba*$]\!]^f = \{d : d$ is a degree of tallness $\wedge\ d > s\}$ where s denotes the maximum expected standard.; $[\![$*ki lomba*$]\!]^o =$ undefined

(33) $[\![$*koto lomba*$]\!]^f = \{d : d$ is a normal degree of tallness$\}$; $[\![$*koto lomba*$]\!]^o =$ undefined

In Figure 1, d_5 to d_{10} represent degrees of tallness, and d_7 to d_{10} refer to the extreme degrees. With reference to this scale, (32) will therefore denote the set, $\{d_7$-tall, d_8-tall, d_9-tall, d_{10}-tall$\}$ and (33), $\{d_5$-tall, d_6-tall$\}$. Now for the compositional part, I propose the following compositional structure for type 1 k-exclamatives.

(34)



Since Bangla is a wh-*in situ* language, I follow a Hamblin-style semantics for Bangla k-exclamatives, and therefore no movement of the wh-clause is required. The **AS** operator[9](Kotek 2018) introduced on the clausal spine is responsible for the question semantics. The semantics of the ALTSHIFT *operator* is given below.

[9] I extend the Kotek-style analysis for Bangla wh-exclamatives to accommodate the pair-list readings available for multiple wh-exclamatives in Bangla.

(35) a. $[\![\text{ALTSHIFT } \alpha_\sigma]\!]^o = [\![\alpha]\!]^f$
b. $[\![\text{ALTSHIFT } \alpha_\sigma]\!]^f = \{[\![\text{ALTSHIFT}\alpha_\sigma]\!]^o\}$
$(\sigma \in \{\langle st,t\rangle, \langle\langle st,t\rangle,t\rangle, ...\})$ (Kotek 2018:32)

The complementizer C remains semantically vacuous in Kotek's system, and (34) supports the claim that wh-exclamatives have a question semantics. My question-based analysis of Bangla k-exclamatives is supported cross-linguistically too. The following data from Meeteilon (Tibeto-Burman) shows that the wh-exclamatives in that language bear the question particle *-no*:

(36) *Kari isei ta-ri-no!*
What song hear-PROG-Q
'What a song you are listening to!' (Bhattacharya et al. 2020)

I argue that this question particle *-no* is the lexical realization of Kotek's (2018) **AS** operator. This is a strong foothold to claim that not only in Bangla, but in languages from different families wh-exclamatives can be analyzed from the viewpoint of a question-based semantics that I have argued for in this paper.

Now, we get back to our Bangla analysis. The [*u*Excl] feature on *ki* forces the exclamative operator $\text{Op}_!$ to sit on top.[10] This $\text{Op}_!$ takes ① as its complement, giving the semantics of exclamatives. Let us now look at the step-by-step semantic compositions of (15)-a.

(37) a.$[\![\text{VP}]\!]^f = \{\lambda x \lambda w.x \text{ is } d\text{-tall in } w : d \in (32)\}$ (via PFA)
b.$[\![\text{TP}]\!]^f = \{\lambda w.\text{Rishi is } d\text{-tall in } w : d \in (32)\}$ (via PFA)
c.$[\![\textbf{AS } ②]\!]^o = [\![②]\!]^f$; $[\![\textbf{AS } ②]\!]^f = \{[\![\textbf{AS } ②]\!]^o\}$

As the C is semantically vacuous the interpretation of the node TP remains the same until node ②. The **AS** operator takes the focus value and returns the ordinary value of it as a result in ①. The $\text{Op}_!$ now acts on the ordinary value of ①. Before I define the semantics of $\text{Op}_!$, the answerhood operator which will extract the true informative answer needs an introduction. As I am following Kotek (2018), I will adopt the *recursive generalized* ANS (38) in forming the semantics of $\text{OP}_!$.

(38) *A recursive definition for generalized* ANS
a. $[\![\text{ANS}]\!](P_{\langle st,t\rangle}) = \lambda w.\text{Max}_{\text{inf}}(P)(w)$
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. $[\![\text{ANS}]\!](K_{\langle\sigma,t\rangle}) = \lambda w. \bigcap P_\sigma \in K([\![\text{ANS}]\!](P)(w))$
[i.e., $\lambda w.\lambda w'.\forall P_\sigma \in K([\![\text{ANS}]\!](P)(w)(w'))$]
$(\sigma \in \{\langle st,t\rangle, \langle\langle st,t\rangle,t\rangle, ...\})$ (Kotek 2018:38)

However, the Max_{inf} operator in (38) may overgeneralize in certain contexts. Consider the following:

(39) *Context: Maya suffers from altitude sickness, therefore she never visits any hilly region. In a recent vacation, Maya took a trip to the Maldives, the Himalayan region and the Trans-Himalayan region. The speaker is expressing her surprise to one of her friends about Maya visiting those mountain regions, in spite of having altitude sickness.*

[10] In case of *koto*, the $\text{Op}_!$ is optional, as *koto* can occur both in questions as well as in exclamatives.

Maldives-er kotha char, altitude sickness thaka shotteo Maya kothay kothay
Maldives.GEN talk leave, altitude sickness being in spite of Maya where where
gache!
go.PRF.PRS.3

'I am not concerned about Maya's Maldives trip. But, I am surprised at her visiting those high altitude zones despite having altitude sickness.'

(39) is a construction that is perfectly okay in Bangla, and it has a type 2 reading as can be attested.[11] In (39), the speaker expresses surprise about the fact that despite suffering from altitude sickness Maya visited two hilly regions *i.e.,* the Trans-Himalayan and the Himalayan region. Following the analysis, the maximally true informative answer here will be 'Maya visited the Maldives+the Trans-Himalayan regions+The Himalayan region'.[12] However, this will be a wrong prediction, since the speaker does not express surprise about Maya visiting the Maldives. The speaker is surprised that Maya visited the Trans-Himalayan and Himalayan regions, and therefore, the true informative answer at which the speaker is surprised in this context would be 'Maya visited the Trans-Himalayan region+the Himalayan region'. To restrict the over-generalization there is a need to establish a pragmatic constraint. Here I follow Grice's (1975) maxim of quantity which suggests not to contribute more information than is needed in a context. I argue that the over-generating nature of the Max_{inf} operator must be curbed by some restriction on informativity relative to the need of the current discourse topic. In other words, the idea is to extract the maximally true informative answer which does not contain any surplus information relative to the requirement of the current discourse topic. I follow Roberts (2011) in viewing discourse topic as Question Under Discussion (QUD). QUD is a semantic question corresponding to the current discourse topic (Roberts 1996/2012; 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 which entails the complete or partial answer to it. I propose that while dealing with exclamative clauses, there will always be an implicit QUD, *i.e.*, QUD_{Excl} which is defined as the following:

(40) QUD_{Excl}: What surpasses the norm or speaker's expectation?

I argue that only the maximally true informative answer will be picked, which is not more informative than is needed for answering the QUD_{Excl}. Hence, a modification with a pragmatic solution is required in the Max_{inf} which I propose as the following:

(41) $$\text{Max}_{\text{inf}^{\text{QUD}_{\text{Excl}}}}(Q)(w) = \begin{cases} \iota p[p(w) = 1 \wedge p \text{ is not more informative than is needed for answering } \text{QUD}_{\text{Excl}} \wedge \forall q \in Q\,[[q(w) = 1 \wedge q \leq_{\text{inf}} p \text{ for answering the } \text{QUD}_{\text{Excl}}] \rightarrow p \subseteq q]] & \text{if there is at least one } p \in Q \text{ informative for answering the } \text{QUD}_{\text{Excl}} \\ W & \text{otherwise} \end{cases}$$

[11] Reduplication of the wh-words in k-exclamatives is a common phenomenon in Bangla and, given the domain is set of entities, it refers to plurality.

[12] Here the *sum* operation (+) (after Link 2002) is used to denote plurality.

Now this pragmatically restricted answerhood operator will pick the answer 'Maya visited the Trans-Himalayan region+the Himalayan region' requirement of the current discourse topic in (39) because the information about Maya's visiting the Maldives is not at all needed for the current discourse requirement, though the information is true. Thus, the answer 'Maya visited Maldives+Trans-Himalayan region+the Himalayan region' gets ruled out since it is more informative than is needed for addressing the QUD_{Excl} in question. To answer the QUD_{Excl}, the two pieces of information about Maya's visiting the Trans-Himalayan region or the Himalayan region are obviously less informative than the information about her visiting both the regions. The bigger piece of information will undoubtedly entail those two smaller information pieces.

Now, I modify the generalized ANS relative to QUD_{Excl}, in the following way:

(42) **Generalized ANS relative to QUD_{Excl} ($\text{ANS}^{\text{QUD}_{\text{Excl}}}$):**

a. $[\![\text{ANS}^{\text{QUD}_{\text{Excl}}}]\!](P_{\langle st,t\rangle}) = \lambda w.\text{Max}_{\text{inf}^{\text{QUD}_{\text{Excl}}}}(P)(w)$

b. $[\![\text{ANS}^{\text{QUD}_{\text{Excl}}}]\!](K_{\langle \sigma,t\rangle}) = \lambda w.\bigcap\{p : \forall P_\sigma \in K([\![\text{ANS}^{\text{QUD}_{\text{Excl}}}]\!](P)(w)) = p\}$
$(\sigma \in \{\langle st,t\rangle, \langle\langle st,t\rangle,t\rangle, ...\})$

With this definition at hand, I finally propose the semantics for $\text{Op}_!$, as in (43).

(43) $[\![\text{Op}_!]\!]^w = \lambda Q_{\langle\langle s,t\rangle,t\rangle} : \exists p \in ([\![Q]\!]_{w,D_2,\prec} - [\![Q]\!]_{w,D_{ES_{\text{SPKR/NORM}}},\prec})[p(w) = 1].\{p : p = \text{ANS}^{\text{QUD}_{\text{Excl}}}([\![Q]\!]_{w,D_2,\prec}) \wedge p \notin [\![Q]\!]_{w,D_{ES_{\text{SPKR/NORM}}},\prec}\}$

$\text{Op}_!$ presupposes that there is only one true maximally true informative answer relevant to the current discourse topic in the widened set but not in the 'normal' set, which is picked up by the $\text{ANS}^{\text{QUD}_{\text{Excl}}}$ operator. The $\prec$ denotes the ordering on the alternative propositions (degree for type 1, and likelihood for type 2). The presuppositional content in (43) advocates for the factivity component of exclamatives.

Now, referring to Figure 1, the ES and the widened D_2 set with respect to (15)-a will be the following:

(44) $[\![Q]\!]_{w,D_2,\prec_{degree}} = \{\text{Rishi is } d_{10}\text{-tall, ..., Rishi is } d_7\text{-tall}\}$

(45) $[\![Q]\!]_{w,D_{\text{ES}},\prec_{degree}} = \varnothing$

(45) denotes an empty set only in case of the exclamatory *ki lomba*, since it already denotes a set higher than the expected maximum. In contrast, the ES in case of the regular modifier *koto lomba* will denote a set such as $\{\text{Rishi is } d_5\text{-tall, Rishi is } d_6\text{-tall}\}$. Based on this, for (15)-a say the true answer is 'Rishi is d_8 tall', the $\text{ANS}^{\text{QUD}_{\text{Excl}}}$ will pick up the maximally true informative answer *i.e.*, 'Rishi is d_8-tall' from the widened set, as per the requirement of the current discourse. Therefore, CP will have the following denotation in w with respect to (15)-a:

(46) $[\![\text{CP}]\!]^w = \{\text{Rishi is } d_8\text{-tall}\}$, given $\exists!p[p = \text{Rishi is } d_8\text{-tall} \wedge \text{Rishi is } d_8\text{-tall} \notin [\![\{\lambda w.\text{Rishi is d-tall in } w : d \in (32)\}]\!]_{w,D_{\text{ES}_{\text{SPKR}}},\prec} \wedge \text{Rishi is } d_8\text{-tall in } w]$

The denotation in CP indicates that the maximally true informative answer relevant to the discourse topic is not in the expectation set of the speaker, and hence it is surprising to the speaker that Rishi is d_8 tall in the world of evaluation, w. It would take the normative expectation set into consideration in cases where the surprise is not on the speaker's end. In the cases of (15)-b, the compositional procedure should be same, only (33) instead of (32) will then be used as the

$D_{\text{ES}_{\text{SPKR}}}$. I will now proceed to the type 2 readings of Bangla k-exclamatives. The compositional analysis will remain the same.

4.2. Analyzing type 2 readings in k-exclamatives

Recall the data in (21) which is repeated below for the reader's convenience.

(21) *Context: Rishi visited the Himalayan foothills.*
Rishi kothay gache!
Rishi where go.PRF.PRS.3S
'*Where Rishi has gone!'

Here the speaker is surprised at the fact that Rishi visited the Himalayan foothills. Notably, the speaker is not amazed at the Himalayan foothills. Rather, they are surprised at the event of Rishi visiting the Himalayan foothills, maybe because Rishi suffers from altitude sickness. Hence, this is purely an event-level exclamative.

As per native speaker's judgements, data like (21) cannot be used where Rishi visited more than one place.

(47) *Context: Rishi visited Himalayan foothills and K2.*
#Rishi kothay gache!
Rishi where go.PRF.PRS.3

Thus, the relevant k-word refers to strict singularity in that context. Following the ontology of individuals where the domain of discourse can include both singular and plural entities (Srivastav 1991b,a; Sharvy 1980; Dayal 1996; Link 2002), the set of normal answers will be as in (48).

(48) {Rishi visited Kolkata, Rishi visited Chota Nagpur Plateau}

This is the ordinary set on which $\text{Op}_!$ acts, widening it and giving us the maximally true informative answer relevant to the current discourse topic (*i.e.*, 'Rishi visited the Himalayan foothills') from the widened set, which was not in the expectation set of the speaker. The ordering on the widened set is then based on likelihood, where Rishi visiting the Himalayan foothills is less likely than him visiting plateaus and plainlands.

Exclamatives with all other individual-denoting k-words such as *ke* 'who', *kake* 'whom', *etc.* will have the exact same line of analysis, except for *kibhabe* 'how-manner' because *kibhabe* does not denote a set of e-type individuals, but a set of sets of eventualities, of type $\langle\langle v, t\rangle, t\rangle$. Unlike previous k-words, *kibhabe* can be uttered in a context where it can denote more than one manner in exclamatives. Therefore, the following proposition can be uttered in a context where Rishi is running both backwards and naked.

(49) *Rishi kibhabe/ kemon kore douracche!*
Rishi how-manner/ how do.PFV run.PROG.PRS.3
'How Rishi is running!'

In (49), given a contextually relevant set of $\langle v, t\rangle$-type running manners – $\{\lambda e.\text{looking-ahead}(e), \lambda e.\text{bouncing}(e)\}$, *kibhabe* 'how-manner' denotes the following:

(50) $\{\bigcap Y | Y \subseteq \{\lambda e.\text{looking-ahead}(e), \lambda e.\text{bouncing}(e)\} \wedge Y \neq \varnothing\}$
= $\{\lambda e.\text{looking-ahead}(e), \lambda e.\text{bouncing}(e), \lambda e.\text{looking-ahead}(e) \wedge \text{bouncing}(e)\}$

The manner adverbial, as in (50), conjoins with the neo-Davidsonian denotation of the VP via the rule of Point-wise Predicate Conjunction (PPC). Following the insights of Hamblin (1973), Rooth (1985, 1992) for lifting an ordinary semantics into one with alternatives, this rule can be defined as follows:

(51) **Point-wise Predicate Conjunction (PPC):**
If $\{\alpha, \beta\}$ is the set of γ's daughter nodes, and $[\![\alpha]\!] \subseteq D_{\langle\sigma,\tau\rangle}$ and $[\![\beta]\!] \subseteq D_{\langle\sigma,\tau\rangle}$, then $[\![\gamma]\!] = \{a \cap b \mid a \in [\![\alpha]\!] \wedge b \in [\![\beta]\!]\} \subseteq D_{\langle\sigma,\tau\rangle}$

Thereafter, the agent of the event is introduced and the event variable is existentially closed off in a point-wise manner. Eventually, the ordinary set on which the $\text{Op}_!$ will act on is as follows:

(52) {Rishi is running looking ahead, Rishi is running bouncing, Rishi is running looking ahead and bouncing}

I am assuming, in (52), that running in a bouncing manner is less likely than running looking ahead. Also, running looking ahead while bouncing is less likely than running looking ahead. Now, when the $\text{Op}_!$ acts on it, it widens the domain, resulting in the following bigger set:

(53) {Rishi is running looking ahead, Rishi is running bouncing, Rishi is running looking ahead and bouncing, Rishi is running backwards, Rishi is running naked, ..., Rishi is running backwards and naked, ...}

This widened domain also has ordering on a likelihood scale. For instance, running backwards and naked is less likely than either of running backwards or running naked. Here the maximally true informative answer relevant to the discourse topic in (49) would be 'Rishi is running backwards and naked' which is not in the expectation set of the speaker. Thus, the speaker's surprise comes to the fore regarding Rishi's way of running.

5. Conclusion

In this paper, I analyze Bangla matrix k-exclamatives that show both degree and non-degree readings, depending on the context. Bangla also shows two types of *ki* 'what' in its exclamative structures. The exclamatory modifier *ki* exclusively occurs in exclamatives and, I argue, has an underlying [*u*Excl] feature, whereas the type 2 *ki* occurs both in exclamatives and in questions. I base my analysis on the question approach and precisely follow the modified version of the widening account (Zanuttini & Portner 2003; Balusu 2019), and argue in favor of a question-style semantics along the line of Kotek (2018). I introduce a pragmatic modification to Kotek's (2018) answer operator to restrict its use in exclamative contexts. Lastly, I introduce an exclamative operator $\text{Op}_!$ that is responsible for the exclamative semantics.

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Abbreviations

ES_{NORM}	normative expectation set	PROG	progressive
ES_{SPKR}	expectation set of speaker	PRS	present
$Op_{!}$	exclamative operator	PST	past
PFV	perfective	Q	question particle
PPC	point-wise predicate conjunction	1	first person
PRF	perfect	3	third person

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