The role of the particle *-oo* in *wh*-exclamatives in Telugu and Kannada[1]

Rahul BALUSU — *EFL University, Hyderabad*

Abstract. A non-degree approach like d'Avis (2002) doesn't work for degree readings of *wh*-exclamatives since it is based on a Groenendijk and Stokhof (1984) denotation of questions. The Widening account of Zannutini and Portner (2003) doesn't work for individual/event readings of *wh*-exclamatives because of a Karttunen (1977) denotation of questions. Degree denotation approaches to *wh*-exclamatives can't explain the variability either. We propose a solution such that the widening account works if we start with Hamblin alternatives. Evidence for the widening mechanism comes from *wh*-exclamatives in Telugu/Kannada –the particle *-oo* which imposes a *join* requirement on the semantic content of its immediate context (Szabolcsi 2015). We propose that the semantic/pragmatic mechanism of *wh*-exclamatives involves the following three steps –Generating alternatives: wh-focus or other focus mechanisms; Scale to order the alternatives: lexical degree scale/degree morpheme or a likelihood scale; Widening & Dynamic update: Widening of domain from ES to D_2 and Add $\{p\}$ to FC_{spkr}.

Keywords: degrees, widening, wh-exclamative, Dravidian.

1. Introduction

The problem with the theoretical approaches in the analysis of *wh*-exclamatives is the bifurcation in their applicability. A non-degree approach like d'Avis (2002), based on a Groenendijk and Stokhof (1984) denotation of questions, doesn't work for degree readings of *wh*-exclamatives. On the other hand, the widening account of Zannutini and Portner (2003), based on a Karttunen (1977) denotation of questions, doesn't work for individual/event readings of *wh*-exclamatives. The degree denotation approaches to *wh*-exclamatives, like Castroviejo (2006) and Rett (2011), can't explain these readings either.

In this paper we propose an analysis that works for both degree readings and individual/event readings, where we essentially show that the widening account works if we start with Hamblin alternatives. Further, we find evidence for the widening mechanism from *wh*-exclamatives in Telugu/Kannada –the particle *-oo* which imposes a *join* requirement on the semantic content of its immediate context (Szabolcsi 2015). The degree vs. individual/event reading difference is a property of the scale used to order the alternatives –degree or likelihood. More cross-linguistic variation –surprise vs. non-surprise, factivity vs. lack of factivity, fall out of the mechanism of widening and how that updates the discourse structure —choices of Expectation Set; and adding to Common Ground or not.

2. Degrees vs. Propositions

2.1. Grimshaw's s-selection

Grimshaw (1979), based on Elliot (1971, 1974), introduces semantic clause types with the features proposition [P], question [Q], and exclamative [E] to explain why surprise-predicates but not rogative-predicates embed certain types of wh-clauses (data from Abels 2004):

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(1)   a.   Ian {knows / is surprised / *is wondering} that Pam likes parties.

       b.   Ian {knows / *is surprised / is wondering} whether Pam likes parties.

       c.   Ian { knows / is surprised / is wondering} who likes parties.

       d.   Ian { knows / is surprised / *is wondering} what a great success the party was.

       e.   Ian {knows / is surprised / *is wondering} how very wide the Ganges is.

(2)   a.   know   [_____ Š], [_____ { P, Q, E }]

       b.   is surprised   [_____ Š], [_____ { P, E }]

       c.   is wondering [_____ Š], [_____ { Q }]

In her system (1d) and (1e) are unambiguously [E] and (1c) is ambiguous between [E] and [Q].
The necessity of the clausal type feature, [E] in particular, has been questioned by Huddleston
(1993), Lahiri (2000), d'Avis (2001, 2002); Zanuttini and Portner (2000, 2003), Abels (2004),
among others. One leading counter-argument is that (1c) is not ambiguous between [E] and [Q],
it is unambiguously [Q]. As Lahiri (2000) notes "While there is no doubt about the existence of
a class of embedded clauses that one may call embedded exclamatives, the issue is whether all
wh-clause complements of these predicates are embedded exclamatives." d'Avis (2001, 2002),
Abels (2004), and Sæbø(2010) propose that (1d) and (1e) seem to be [E] or 'exclamative-only'
because of independent semantic reasons, though each gives their own proposals for why it is
so. Sæbø (2010) notes that "there are indeed different readings of *wh*-clauses involved, but
these nuances do not concern the meaning type common to exclamatives and interrogatives: a
function assigning to any world a true proposition."

2.2. ⟦*wh*-exclamative⟧ = ⟦*wh*-Q⟧   Gutierrez-Rexach (1996, 2008)

Based on Groenendijk and Stokhof's (1984) notion of strong exhaustivity, Gutierrez-Rexach
(1996, 2008) posits the exclamative operator EXC over propositions, (3).

(3)   Let a be an agent (the speaker), w a world (typically the actual world), p a proposition,
       and P $\in$ EMOT (the set of emotive properties). Then,
       EXC $=_{df} \lambda a_i \lambda w_s \lambda p_{\langle s,t \rangle} \exists P_{\langle s, \langle \langle s,t \rangle, \langle e,t \rangle \rangle \rangle}[P(w)(p)(a)]$

EXC takes the unique true proposition that interrogatives denote, in a Groenendijk and Stokhof
(1984) fashion of interpretation, (4):

(4)   How tall is John?   (5)   ¡Qué/lo alto que es Juan!
       What is the maximal degree d such that John is dtall?   what/the tall that is Juan
       $\iota p \exists d [p(w) \& p = \lambda w'[d = \text{MAX}(\lambda d'[\text{tall}(w')(j,d')])]]$ 'How tall Juan is!'

The major drawback of this analysis is that the workings of the EXC operator in an exclamative
like (5) are opaque. In a way, it is a black box whose internal workings are unmotivated.

2.3. ⟦*wh*-exclamative⟧ = ⟦*wh*-Q⟧   d'Avis (2002)

d'Avis (2001, 2002) proposes that there is no [E] type. So-called *wh*-exclamatives are of the
same semantical type as *wh*-interrogatives (at least for German). The way independent *wh*-

clauses can be used as exclamations in this analysis is that exclamations denote a relation between the speaker and at least two propositions. The first proposition describes the true state of affairs, i.e the speaker knows the strongly exhaustive answer. The second proposition, the *norm-proposition*, is a subset of the complement set of the weakly exhaustive answer that the speaker expected to be true, as illustrated in (6).

(6)   a.   'Heinz is amazed at who came.'
        b.   Heinz knows: answer_2 (who came) and Heinz expected: $\neg \text{answer}_1$ (who came) (here answer_2 is strongly exhaustive & answer_1 is weakly exhaustive)
        c.   "at least these two propositions are ordered on a scale in a way that the expected proposition is the one that sets the norm, and the true proposition is orderd at a distance that reflects the strength of the deviation from the norm."

d'Avis notes that "existence of a certain state of affairs, evaluation part, derivation of an object of comparison are given by the function of the obligatory exclamative accent as a reflex of the emotional involvement of the speaker. The interrogative meaning of the wh-clause provides the set of propositions that are needed to compute the relevant norm-proposition." The biggest drawback of the d'Avis proposal is that it won't work for degree *wh*-exclamatives like 'How expensive gucchi is!'

2.4. R*widening* & R*factivity*: Zannutini and Portner (2003)

Zannutini and Portner (2003) [ZP] propose two syntactic properties which define the class of exclamatives: exclamatives contain a *wh*-operator–variable structure; and exclamatives contain an abstract morpheme FACT in the CP domain. These contribute the two crucial components of meaning to the denotation: exclamatives denote a set of alternative propositions, a result of the operator–variable structure; and exclamatives are factive, their propositional content is presupposed; the result of the abstract morpheme FACT. The 'use' of exclamatives is analyzed in terms of another fundamental concept, that of WIDENING, which is their sentential force: exclamatives widen the domain of quantification for the *wh* operator. Widening is not in general directly encoded in the syntax; it is, however, derived on the basis of pragmatic reasoning: widening is the only use available to root sentences with the two semantic properties in question, i.e. self-presupposed questions.

R*factivity*, the syntactic element that represents factivity, introduces a presupposition that the propositional content of the exclamative is true, (7).

(7)   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.

R*widening*, the syntactic element that represents the pragmatic operation of widening, has the semantics of a quantificational operator, (8). An example of widening is given in (9).

(8)   For any clause *S* with R*widening*, widen initial domain D_1, to new domain, D_2, such that:
      a. $[\![\, S\,]\!]_{w,D_2,\prec} - [\![\, S\,]\!]_{w,D_1,\prec} \neq 0$
      b. $\forall x \forall y [(x \in D_1 \,\&\, y \in (D_2 - D_1)) \rightarrow x \prec y]$

(9)   a. che roba che l magna!   PADUAN
          what stuff that he eats
          'The things he eats!'

      b. ⟦che roba che l magna!⟧$_w$ = {p: p is true in w and ∃a [p='he eats a']}

      c. ⟦ che roba che l magna! ⟧$^{D_{1/2}}$ = $\left\{ \begin{array}{l} \left\{ \begin{array}{l} \text{He eats poblanos} \\ \text{He eats jalapeños} \end{array} \right\}^{D_1} \\ \textbf{He eats habaneros} \end{array} \right\}^{D_2}$

ZP also explain *wh*-phrases that only occur in exclamatives, 'E-only' *wh*-phrases, in Paduan, via the extra CP layer in *wh*-exclamatives.

However, the ZP proposal won't work for an exclamative like in (10). The Karttunen denotation (true answers) won't work for determining the set of alternatives, as here there is only one alternative.

(10)   a. *Heinz is amazed at who Uma married.*
       b. Suppose the alternatives are [Kiran, Bhanu, Ravi] and the True answer is {Ravi}
       c. Domain$_1$ = Uma married Ravi   Domain$_2$ = ???

2.5. ⟦*wh*-exclamative⟧ = degree denotation

Quite a few analyses of exclamatives propose that they are based on degrees. Of these, only Villalba (2003) and Castroviejo (2006) propose formal accounts which explicitly restrict the interpretations of exclamatives to degree readings. But the accounts of both focus on a particular subtype of exclamative in Catalan, one with explicit degree morphology. Rett (2011) draws on their observations and accounts to make broader claims about exclamatives generally.

2.5.1. Castroviejo (2006) and Villalba (2003)

Villalba (2003) posits a null degree operator, (11), in Catalan *que*-exclamatives, a maximality operator over degrees, following Rullmann (1995), and Gutierrez-Rexach (1996) for Spanish degree neuter constructions. Only *wh*-degree/amount words can make *wh*-exclamatives, and only degree/amount readings are possible.

(11)   [$_{CP2}$ DegOp [$_{C2'}$ [$_{CP1}$ FACT [$_{C1'}$ que [$_{IP}$ n'és de car aquest vi]]]]]

Castroviejo (2006, 2008) analyses the semantics and pragmatics of *wh*-exclamatives in Catalan, like in (12), as in (13).

(12)   a. Quina pel·lícula **més/tan** entretinguda que vaig veure
          what   movie   more/so entertaining that I   saw
          'What an entertaining movie I saw!'

(13)   a. Fact: ∃x[pel.lícula(x) ∧ TAN(entretinguda(x))(d$_i$) ∧ veure(s)(x)]
          Where:

      i. $[[\text{TAN}(d_S)(d_R)]] = 1$ iff $d_S \geq d_R$

     ii. $d_S = d_i$

    iii. d_i is a degree recovered from context that is high.

  b. Contribution: the speaker experiences an attitude towards ˆTAN(entretinguda(x))(d_i)

But the problem with both approaches is that they won't extend cross-linguistically, because they are too specific to Catalan.

2.5.2. Rett (2011)

Rett (2008, 2011) capitalize on 'Q-only' *wh*-words (*who/when/where*) and propose that *wh*-exclamatives denote degrees, not what *wh*-questions denote –sets of propositions, (14)-(15).

(14) [what$_j$ [[$t_{j_{\langle d\rangle}}$ delicious desserts]$_i$ John baked $t_{i_{\langle x\rangle}}$]]

    a. $[\![$John baked $t_{i_{\langle x\rangle}}]\!] = \text{baked}'(j,x)$

    b. $[\![t_{j_{\langle d\rangle}}$ delicious desserts$]\!] = \lambda x.\text{desserts}'(x) \wedge \text{delicious}'(x,d)$

    c. $[\![t_{j_{\langle d\rangle}}$ delicious desserts$]\!] (\lambda x_i. [\![$John baked $t_{i_{\langle x\rangle}}]\!])$
       $= \lambda x.\text{baked}'(j,x) \wedge \text{desserts}'(x) \wedge \text{delicious}'(x,d)$

    d. $[\![$what$]\!](\lambda d_j.[\![t_{j_{\langle d\rangle}}$ delicious desserts John baked $t_{i_{\langle x\rangle}}]\!])$
       $= \lambda d\lambda x.\text{baked}'(j,x) \wedge \text{desserts}'(x) \wedge \text{delicious}'(x,d)$

    e. $\leadsto_{\exists closure} \lambda d\exists x[\text{baked}'(j,x) \wedge \text{desserts}'(x) \wedge \text{delicious}'(x,d)$

(15) What a song John wrote!
    $\lambda d\exists x[song(x) \wedge wrote(j,x) \wedge \mu_\alpha(x) = d]$

Rett models the illocutionary force of exclamations 'E-FORCE', as a function from propositions to speech acts of exclamation. The degrees get converted to propositions along the way, (16).

(16) E-FORCE*(p)*, uttered by s_C, is appropriate in a context C if p is salient and true in w_C. When appropriate, E-FORCE*(p)* counts as an expression that s_C hadn't expected that p.

Rett notes that in degree exclamatives an individual reading is not possible, only a degree-reading is available, (17), using the 'card test'.

(17) *Context*: Drawing the same unremarkable card (six of spades) for a 3rd time:
     # What a card he drew!

Similarly Rett (2011) observes that an evaluative reading is good, whereas a manner reading is not possible, (18), with *wh*-exclamatives.

(18) *Context*: Ravi writes {complex, elegant, simple, beautiful} sentences.
    a. How Ravi writes!
    Context: Ravi writes {left-to-right, non-cursive} sentences.
    b. # How Ravi writes!

Finally, she notes that unexpected alternatives are also not available, (19), with *wh*-exclamatives.

(19) *Context*: Ravi speaks English and Hindi, which is unexpected, since his parents speak Kannada and Telugu.

    a. # What languages Ravi speaks!

    Context: Ravi speaks many languages, including exotic ones like Ibibio.

    b. What languages Ravi speaks!

2.6. Type1 vs. Type2 *wh*-exclamatives

2.6.1. Type2 *wh*-exclamatives: Nouwen and Chernilovskaya (2015)

Nouwen and Chernilovskaya (2015) [NC] find many languages like Dutch, German, Russian, Hungarian, Italian, and Turkish, with matrix *who/when/where*-exclamatives, (20).

(20) Wie ik gisteren tegenkwam!   DUTCH
    Who I yesterday came-across
    (roughly) 'You wouldn't believe who I met yesterday!'

These *wh*-exclamatives, that they label as Type2 are fine in Rett's card test, devised to test non-degree readings. There seems to be no degree intensification of an implicit or explicit gradable property. NC conclude that these readings are non-scalar. They propose that the degree-scalar *wh*-exclamatives of Rett, referring to scalar properties of the *wh*-referent, that they call Type1 *wh*-exclamatives, target the individual singled out by the *wh*-phrase. Further, they propose that Type2 *wh*-exclamatives are event-scalar, and target the event the *wh*-referent takes part in, rather than the *wh*-referent. They do not offer a formal semantic model of the reported variation.

NC find that Dutch Type1 may be either V-2 or V-final, (21), while Type2 are only V-final, (22). Type1 involve non-standard *wh*-constructions, whereas Type2 are like interrogatives.

(21)   a. Wat **maakte** Jan een herrie!   b. Wat Jan een herrie **maakte**!
        What made Jan a racket   What Jan a racket made
        'What a racket Jan made!'   'What a racket Jan made!'

(22)   a. *Wie **zag** ik net!   b. Wie ik net **zag**!
        Who saw I just   Who I just saw

NC note that Type1 can be structurally more enriched (articles, etc.) than Type2, (23).

(23)   a. Wat een kaarten hij toen (weer) trok!   [not good in card-trick context]
        what a cards he then again picked

    b. Wat hij toen (weer) trok!   [good in card-trick context]
        what he then again picked

2.6.2. Morpho-Syntax of Type1 vs. Type2 *wh*-exclamatives: Repp (2016)

Repp (2016) finds that in German the V-2 order can only be a Type1 reading. V-2 exclamatives involve a subset of the wh-words – those that can be used in a degree reading, (24), unless there is a degree word like *all* in the clause along with a non-degree *wh*-word like *who*, *where*, etc.

(24)   a. Was **war** das für ein Traum!
          what was that for a   dream
          'What a dream that was'
          (*like matrix Q*)

        b. Was das für ein Traum **war**!
           what that for a   dream was
           'What a dream that was'
           (*like embedded Q*)

Repp finds that only the V-final order can host Type2 readings, (25).

(25)   a. Wen   der eingeladen **hat**!
          who.ACC he invited   has

        b. Wann der gekommen **ist**!
           when he come   is

2.6.3. Morpho-Syntax of Type1 vs. Type2 *wh*-exclamatives: Lipták (2005)

Lipták (2005) finds that in Hungarian, the inversion order, which is the interrogative order can be either Type1 or Type2, (26), whereas the non-inversion order can only be Type1, (27).

(26) Mennyi   könyvet olvastál el!
      how.many book.ACC read.2SG PV
      'How many books you read!'
      (*like wh-Q*)

(27) Mennyi   könyvet el-olvastál!
      how.many book.ACC PV-read.2SG
      'How many books you read!'
      (*not like wh-Q*)

2.6.4. Semantics of Type1 vs. Type2 *wh*-exclamatives: Repp (2016)

Repp (2016) proposes that in German, V-2 and V-final *wh*-exclamatives differ in the kind of speech act operator they combine with –a degree property taking operator in V-2 *wh*-exclamatives which also triggers verb movement, and an individual or degree property taking operator in V-final *wh*-exclamatives that does not trigger verb movement (28).

(28)   a.

$[\![\text{Excl-degree}]\!] = \lambda D_{\langle d,t \rangle} \exists d$ [speaker finds $\lambda w.D(d)(w)$ surprising]

(to be expressively correct, the speaker must be suprised by the degree to which the property applies)

b.

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                    CP
                   /  \
                wh     CP
                      /  \
                  Excl    TP
                 [+wh]   [EF]
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$[\![\text{Excl}]\!] = \lambda P_{\langle \tau,t \rangle} \exists x$ [speaker finds $\lambda w.P(x)(w)$ surprising]
$\langle \tau,t \rangle = \langle e,t \rangle$ or $\langle d,t \rangle$
(to be expressively correct, the speaker must be suprised that a property applies to an individual, or by the degree to which the property applies)

Repp (2016) proposes that the degree property taking operator thus composes only with degree property denoting *wh*-words,(29b), (or when a degree property is created via a degree word like *alles*). Individual property denoting *wh*-words, (29a), compose with the V-final operator.

(29)   a. $[\![\text{who}]\!] = \lambda Q \lambda x[human(x) \wedge Q(x)]$
       b. $[\![\text{what a}]\!] = \lambda Q \lambda d[D(d) \wedge d \succ s]$

3. Telugu/Kannada *wh*-exclamatives

3.1. Telugu/Kannada: degree *wh*-words with Type2 reading

So far, we have seen that a Type1 (degree) *wh*-item cannot get a Type2 (event/individual) reading. But in Telugu/Kannada we have cases where an individual *wh*-item is not only Type1, (30), but the same *wh*-item is also Type2, (31)-(32). The examples given in this paper are from Telugu unless otherwise mentioned.

(30)   a. ravi **enta**   navveeD-oo!
           Ravi how-much laughed-OO
           'How much Ravi laughed!'

       b. ceTTu **eemi** ettu   und-oo!
           tree   what height be-OO
           'How tall the tree is!'

Context: Ravi says he can pick up the exact amount of rice that you ask:

(31)   ravi **enta**   biyyam leepeeD-oo!
       Ravi how-much rice   lifted-OO
       'How much rice Ravi picked up!'

Context: Ravi picks up the same card (six of spades) from the deck again:

(32)   ravi **eemi** card leepeeD-oo!
       Ravi what card lifted-OO
       'What card Ravi picked!'

Adverbial *wh*-phrases also show a Type1 (evaluative: fast) and a Type2 (manner: backwards) pattern, (33a). The *wh*-item *elaa* is also acceptable (for some speakers at least) as a non-adverbial Type1 or Type 2 *wh*-exclamative, (33b).

(33)   a. **elaa/eemi** parigettutaaD-oo!
           how/what runs-OO
           'How (he) runs!'

       b. ravi **elaa** navveeD-oo!
           Ravi what laughed-OO
           'How much Ravi laughed!'

3.1.1. Telugu/Kannada: Only Type2 *wh*-exclamatives

Telugu/Kannada also have only Type2 *wh*-phrases: those that explicate the cross-linguistically uncommon exclamative construction, ranging over individuals or entities (or what NC call *e(vent)*-level interpretation), (34).

(34) a. bus-loo **evvvar**-ni cuuseen-oo!
          bus-in   who-ACC saw-OO
          (roughly) 'You wouldn't believe who I saw in the bus!'

      b. ravi **enduku** vacceeD-oo!
          Rav what-for came-OO
          (roughly) 'You wouldn't believe what for Ravi came!'

3.1.2. The Telugu/Kannada Type1/2 problem

For Repp, and other degree-approach extensions, Type1 *wh*-items are degree set restrictors. Type1 *wh*-exclamatives denote degree properties and they cannot get a Type2 reading. Type2 *wh*-items are Individual set restrictors, which denote individual properties. They can however combine with a degree morpheme and get a Type1 reading. But how do we explain the Type1 *wh*-items in Telugu/Kannada that can get a Type2 reading? Is type shifting at work? Our answer is that the denotations are invariant (propositions), and another mechanism is responsible for Type1 vs. Type2 interpretation, the scale used to order them, which we elaborate on in the next section.

3.2. The role of -oo in *wh*-exclamatives: to signal Domain Widening

3.2.1. Distribution of *-oo*: Matrix *wh-* clauses

In matrix clauses in both Kannada and Telugu, a plain question interpretation arises only when the particle *-oo* is left out, and the *wh*-clause is unmarked with particles, (35).

(35) enta duuram velleeDu?
      how far   went
      'How far did (he) go?'

The particle *-oo* is good in matrix *wh*-clauses, in both Kannada and Telugu, only when interpreted either as being embedded under *wonder* (36); or as an exclamation (37); depending on the intonation — (?) or (!).

(36) enta duuram velleeD-oo ?   (37) enta duuram velleeD-oo !
      how far   went-OO   how far   went-OO
      'I wonder how far (he) went.'   'How far (he) went!'

3.2.2. The wonder reading with *-oo*: Non-Intrusive Questions

The 'wonder' use of *-oo* goes beyond the English *wonder*, (38).

(38) nii   peeru eemiT-oo
      your name what-OO
      'May I know your name please'
      'I wonder what your name is'

What *-oo* delivers is a non-canonical meaning, namely, a non-intrusive question, as noted by Farkas (2018) for *oare* interrogatives in Romanian, (39).

(39)   oare pe.cine   a   invitat Rodica?
       oare who.Acc has invited Rodica
       'Who has Rodica invited, I wonder'

Like in canonical questions, the Speaker raises an issue and thereby signals that he wishes to have it resolved. But unlike canonical questions, the Speaker signals that he does not wish to put the Addressee on the spot for providing the answer.

3.2.3. Testing *-oo*'s non-intrusive contribution

It is infelicitous in contexts where the Addresse is mandated to answer the question, (40).
       Doctor to patient
(40) *ivala enni   gooliilu tiisukunnaav-oo
       today how-many tablets   take-OO
       'How many tablets did you take today, I wonder.'

It is appropriate in contexts where Addressee competence is presupposed, but Addresse may have reasons to withhold the anwer, (41).
       Chef to guest:
(41)   miiku ee-kuura   naccind-oo
       you   which-curry like-OO
       'Which curry did you like, I wonder.'

It is appropriate as an 'engaging' question, in which Addresse competence assumption is absent, (42).
       Host of party to co-host:
(42)   enta   mandi vastaar-oo
       how-many people come-will-OO
       'How many people will come, I wonder.'

It is even appropriate in some self-addressed contexts (though not in *I-can't find-the-value* questions), (43).
       Exasperated friend to a troublesome friend:
(43)   ninnu enduku piliseen-oo
       you   why   called-OO
       'Why did I call you, I wonder.'

It is not necessarily addressed to the Hearer, it can express a wish to know the answer, (44).

(44)   a. *A movie goer to a friend*:
             Speaker: eppuDu avutund-oo
                      when   finish-OO

'When will it finish, I wonder.'
b. Addressee: *nannu enduku aDugutunnaavu?
       me   why   asking
       'Why are you asking me?'

But it is not good when the Speaker knows the answer –'obvious anwer' rhetorical questions, (45).

   A race car driver at a car rental:
(45) *naaku toolaDam enta baagaa vacc-oo
       I.DAT driving   how well   come-OO
       'How well do I know driving, I wonder.'

It is also not good when the addressee is competent and there is no reason for non-cooperation, (46).

   To the session chair who is keeping track of time:
(46) *inkaa enta   seepu und-oo
       still how-much time be-OO
       'How much time is still there, I wonder.'

3.2.4. The semantics/pragmatics of non-intrusive *-oo*

Following Farkas (2018), we propose that *-oo* weakens the Addressee compliance effect of canonical questions, to form non-intrusive questions. *-oo* questions widen the range of projected futures, which now include not only ones in which the Addressee resolves the issue just raised, but also a future in which (s)he choses not to, leaving the Addressee more choice, allowing for no Addressee response.

(47) a. Contribution of *-oo* in interrogatives
         Add $DC_{Ad,i}$ to ps_o

      b. A question is non-intrusive iff the form used to ask it adds the input $DC_{Ad,i}$ to ps_o. As a result, **Addressee compliance no longer requires the Addressee to resolve the issue raised.**

The Addressee therefore can comply with an *-oo* question without resolving the issue, though futures in which he does resolve it would be preferable, since those involve information increase. Following Farkas (2018), we model unmarked polar questions vs. *-oo* marked polar questions as in (48)[2].

(48) a. uma vellind-aa?
         Uma went-Q_p
         'Did Uma go?'

---

[2]Here, the Inquisitive Semantics notations used are: CDE = Conventional Discourse Effects, DC = Discourse Commitments, *i* = input, *o* = output, Sp = Speaker, Ad = Addresse; ps = projected set, *s* = state in which Uma went, $\bar{s}$ = complement of *s.*, Table = stack of propositions.

    i. Semantics: $p = \{s, \bar{s}\}$
    ii. CDE: basic

       1. $DC_{o,Sp} = DC_{i,Sp} \oplus info(p)$ $= s \cup \bar{s}$ added to $DC_{i,Sp}$
       2. $Table_o = Table_i \circ p$ $= \{s, \bar{s}\}$ added to top of Table stack
       3. $ps_o = \{DC_{i,Ad} \oplus s, DC_{i,Ad} \oplus \bar{s}\}$ $=$ each element in p added to Addressee
                                                       commitments, $DC_{i,Ad}$

  b. uma vellind-oo leed-oo?
    Uma went-OO   not-OO
    'Did Uma go or not, I wonder.'
    i. Semantics: $p = \{s, \bar{s}\}$
    ii. CDE: augmented by contribution of *-oo*

       1. $DC_{o,Sp} = DC_{i,Sp} \oplus info(p)$ $= s \cup \bar{s}$ added to $DC_{i,Sp}$
       2. $Table_o = Table_i \circ p$ $= \{s, \bar{s}\}$ added to top of Table stack
       3. $ps_o = \{DC_{i,Ad} \oplus s, DC_{i,Ad} \oplus \bar{s}, DC_{i,Ad}\}$ $=$ each element in p added to
                                                    Addressee commitments, plus an
                                                    option of an unchanged $DC_{i,Ad}$.

-oo marks a question for being non-intrusive. *-oo*'s role is to signal widening of ps_o to include, besides context states in which the Addressee resolves the issue, a context state in which he does not. Interrogatives place an inquisitive proposition on the Table and project canonical states in which the Addressee volunteers information that settles the issue. Adding a non-intrusive marker allows the Addressee to comply without volunteering such information, either because he doesn't have it or because he doesn't wish or is not willing to provide it. The Speaker is still seen as wishing to have the issue resolved; if he didn't, he could have remained silent. *-oo* marked interrogatives are appropriate when the Addressee is assumed to know the true answer, but the context justifies asking a 'softened' question, and also in contexts in which the Addressee is not assumed to know the answer.

Similarly in *wh*-exclamatives, we propose that *-oo* signals domain widening. The exact nature of the domain widening that *-oo* is signalling in exclamatives is elaborated in the next section.

4. A unified analysis for *wh*-exclamatives

4.1. Starting with Type2 *wh*-exclamatives

The Type2 *wh*-exclamative is repeated here, (49), from Telugu and German.

(49)   a. **evar-ni** pelli-ceesukund-oo!   b. wen   DIE geheiratet hat!
       who-m married-OO   whom she married   has
       'Whom (she) married!'   'Whom she married!'

The problem for the ZP analysis with Type2 *wh*-exclamatives is that the Karttunen denotation (true answers) won't work for determining the set of alternatives, as there there is only one alternative. Our solution to this problem is to consider the alternatives that are the *wh*-focus alternatives, the Hamblin alternatives.

Another issue is how to arrive at D_1, the initial domain that undergoes domain widening. Our solution is to consider the Expectation Set (already in Rett 2011, Rett and Murray 2013) —the Speaker's expectations are encoded as sets of possible worlds, the Expectation Set (ES).

And finally, the last piece of the puzzle is how the alternatives are ordered. Our solution is that they are ordered based on likelihood (like *even*). Now the widening analysis works, the true answer is to be found in the widened domain, (50).

$$
(50) \quad \left\{ \left\{ \begin{array}{c} \text{She married Kiran} \\ \text{She married Bhanu} \end{array} \right\}^{ES} \atop \textbf{She married Ravi} \right\}^{D_2}
$$

4.2. Moving on to Type1 *wh*-exclamatives

The Type1 *wh*-exclamative is repeated here, (51).

(51) a. **enta** vinta dosalu tinTaaD-oo!
      how weird dosas eats-OO
      'What weird dosas (he) eats!'

    b. **eemi** dosalu tinTaaD-oo!
      what dosas eats-OO
      'What dosas (he) eats!'

In a Type1 *wh*-exclamative, the alternatives are ordered by a gradability scale, (52).

$$
(52) \quad \left\{ \left\{ \begin{array}{c} \textbf{He eats plain dosas} \\ \text{He eats masala dosas} \end{array} \right\}^{ES} \atop \begin{array}{c} \text{He eats chicken dosas} \\ \textbf{He eats pepperoni dosas} \end{array} \right\}^{D_2}
$$

We reformulate ZP's WIDENING (signalled in Telugu/Kannada by *-oo*) to work with hamblin alternatives, (53).

(53) For any clause S with Op_{EXCLM}, widen initial domain *ES*, to new domain, D_2, such that:

    a. $[\![S]\!]_{w,D_2,\prec} - [\![S]\!]_{w,D_{ES},\prec} \neq 0$

    b. $\forall x \forall y [(x \in D_{ES} \,\&\, y \in (D_2 - D_{ES})) \rightarrow x \prec y]$

    c. $\exists p \in [\![S]\!]_{w,D_2,\prec} - [\![S]\!]_{w,D_{ES},\prec}$ is true.

4.3. Alternatives in coincidence scenarios

Our analysis still cannot account for the alternatives in the repeated/matching coincidence scenarios, (54).

       Context: Think of a whole number between [1-12] and Ravi will guess it:

(54) eemi/ee number guess ceeseeD-oo!
    what   number guess do-OO
    'What/Which number he guessed!'

Here the domain of alternatives is 1 to 12 . All have equal likelihood. Then, the question is how does domain widening work.

We propose that here the alternatives have to be identified in terms of conceptual covers (Aloni 2001), instead of entities. Conceptual covers are different ways of conceiving the elements of the domain. The question is relativized to contextually given conceptual covers, (55).

(55)   CC = $\{\lambda w[\text{number thought of}]_w, \lambda w[\text{number not thought of}]_w\}$

Thus the guessing-game alternatives are: [He guessed a number I thought of] and [He guessed a number I didn't think of]. This satisfies the Uniqueness condition: In no world is an individual counted twice; and the Existential condition: Each individual is identified by at least one concept.

Now the alternatives are not of equal likelihood, since the likelihood of guessing a number not thought of is much more than guessing the number thought of. Thus the alternatives can be ordered on the likelihood scale.

Some evidence for this analysis comes from a possible answer to the question, 'What number did he guess?' The answer can be: *adee number* 'same number' (that I thought of). Also quantifying into the exclamative gives further evidence: *prati saari eemi number guess ceeseeDoo!* 'Each time what number he guessed!'

4.4. Two Expectation Sets: Speaker & Norm

It is known that not every *wh*-exclamative expresses surprise, (56). In this sentence the exclamation is expressing that the curry is hotter than normal, but not exceeding the speaker's expectations.

(56)   It is not surprising how very hot the curry is!

We model this in our analysis by setting the Expectation Set to the normative set, i.e. ES_{NORM} when the expression is not surprise.

When the Speaker's expectations are exceeded, and the expression is that of surprise, (57), we model that in our analysis by setting the Expectation Set to that of the Speaker, i.e. ES_{SPKR}, so that Speaker's expectations are exceeded, even if normative ones are not.

(57)   How very cold it is! (says someone with a fever, even as it is warm outside.)

In Telugu, *wh*-exclamatives can express surprise or not, (58a), but the dem(onstrative)-exclamatives are exclusively surprise expressing, (58b). So going by our analysis, the *wh*-exclamative can take either ES_{SPKR} or ES_{NORM}, whereas the *dem*-exclamative can only take ES_{SPKR}.

(58)   a. kuura **enta**   baagund-oo!   b. kuura **inta**   baagund-ee!
           curry how-much nice-OO   curry this-much nice-EE
           'How nice the curry is!'   'The curry is SO nice!'

In Mandarin, Badan and Cheng (2015), one exclamative type is exclusively surprise, (59), and another exclusively non surprise, (60). Therefore we conclude that the first takes ES_{SPKR} and the second ES_{NORM}.

(59) Nǐ de wǎncān duōme   hǎo a!
     You DE dinner much.ME good SFP
     'How delicious your dinner is!'

(60) Nǐ de wǎncān zhème hǎo a!
     You DE dinner this.ME good SFP
     'How delicious your dinner is!'

4.5. Denotation to Dynamic Discourse effect

The *wh*-exclamative denotation that we have arrived at so far in our analysis is given in (61).

(61) $\exists p.p \in D_{2 \prec} - ES_{\prec}$ is true (where *p* is one of the ordered Hamblin alternative, ES is the ExpectationSet, and D_2 is the widened domain signalled by *-oo*)

What is this denotatum used to do? How does it change the context? What is the discourse update of the *wh*-exclamative? How do the perceived effects of the *wh*-exclamative come about, based on the denotation proposed? We propose that the discoure update of the exclamative is to add the proposition to the Firm Commitments (FC) of the Speaker, (62).

(62) Add $\{p\}$ to FC_{spkr}

This is its *descriptive content*. But does any other part of the discourse structure get updated or downdated? What about the *expressive content*? Rett (2018) proposes that exclamations update the Discourse Commitments of the Speaker as a pair of propositional attitude and proposition, (63).

(63) $DC_{o,S} = DC_{i,S} \cup \langle \texttt{is-surprised, } p \rangle$

But as we saw, there are non-surprise expressions of wh-exclamatives, and they are too varying and wide-ranging to be captured as DC updates. We leave them out as pragmatic inferences of WIDENING.

4.6. Back to Grimshaw: Explaining Factivity

How do we explain the factivity generalization of English? We propose that in English, $\{p\}$ gets added to the Common Ground (CG) directly, making this an automatic dynamic update, which is not-at-issue. This derives the factivity restriction of English *wh*-exclamatives.

The Telugu facts are different –*wh*-exclamatives are embeddable under *think* and *say*, (64).

(64) ravi eemi baagaa aaDeeDoo anukunnaa
     Ravi what well   played-oo thought
     'I thought how very well Ravi played.'

So in Telugu, $\{p\}$ does not get added to CG directly. This allows *wh*-exclamatives to be embedded under anti-factives like *think*.

4.7. Cross-linguistic variation: Strictly Type1 *wh*-exclamative languages

How do we explain the cross-linguistic differences? We propose that there are two variants of the operator, tuned to the choice of the scale –degree or likelihood. English, Catalan, and Swedish only have access to the degree scale in matrix *wh*-exclamatives, (65). However, English embedded *wh*-exclamatives have access to the likelihood scale or the embedding predicate does, since in English, Type2 exclamatives are possible in embedded contexts.

(65) For any clause S with Op_{EXCLM}, widen initial domain *ES*, to new domain, D_2, such that:

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

    b. $\forall x \forall y[(x \in D_{ES} \& y \in (D_2 - D_{ES})) \rightarrow x \prec_{degree} y]$

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

Dutch, German, Hungarian, Telugu, and Kannada have access to the likelihood scale in matrix *wh*-exclamatives, (66).

(66) For any clause S with Op_{EXCLM}, widen initial domain *ES*, to new domain, D_2, such that:

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

    b. $\forall x \forall y[(x \in D_{ES} \& y \in (D_2 - D_{ES})) \rightarrow x \prec_{likelihood} y]$

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

4.8. Type1 = flexible vs. Type2 = inflexible word-order

We go with Lipták (2005) in saying that the V-2 and V-final word order differences are syntactic. In Hungarian, the canonical-order allows for both high amount and low amount readings, the non-canonical order only for high amount readings. This has to do with the quantificational projection rather than the scale available. *ManyP* in Hungarian is in fact a specialized projection for high amount evaluatives. Items lexically or morphologically marked for amount/plurality can occupy the quantificational position, which is V-2. This explains the V-2 vs. V-final order difference in German and Dutch *wh*-exclamatives, where V-2 can host only Type1 *wh*-exclamatives, whereas V-final can host Type1 or Type2 *wh*-exclamatives.

5. Conclusion

The final mechanism that we propose as to how an exclamative (whether *wh*- or otherwise, whether Type1 or Type2) works i.e. the semantic/pragmatic mechanism of exclamatives is the following:

1. Generating alternatives:
   - wh-focus
   - other focus mechanisms
2. scale to order the alternatives:
   - lexical degree scale, or degree morpheme in structure

- likelihood scale

3. Widening and Dynamic update:
    - Widening of domain from ES to D_2
    - Add $\{p\}$ to FC_{spkr}

$$\{ \text{Alt}_1, \text{Alt}_2, \text{Alt}_3 \} \xrightarrow{likelihood/degree} \left\{ \begin{array}{c} \text{Alt}_1 \\ \text{Alt}_2 \\ \text{Alt}_3 \end{array} \right\} \rightarrow \left\{ \left\{ \begin{array}{c} \text{Alt}_1 \\ \text{Alt}_2 \end{array} \right\}^{ES} \\ \mathbf{Alt_3} \right\}^{D_2} \rightarrow \text{Add } \{p\} \text{ to } FC_{Spkr}$$

here p $= \exists q \in [\![\text{ S }]\!]_{w,D_2,\prec_{likelihood/degree}} - [\![\text{ S }]\!]_{w,D_{ES},\prec_{likelihood/degree}}$ is true.[3]

Cross-linguistic points of variation can be attributed to three places in the interpretation that give rise to cross-linguistic parametric variation or differences between various exclamative types in the same language:

1. choice of scale:
    - degree = Type1 reading
    - likelihood = Type2 reading

2. choice of ES:
    - Speaker = Surprise
    - Normative = No surprise

3. Choice of update to CG:
    - Add $\{p\}$ to CG = Factivity
    - Don't add $\{p\}$ to CG = No Factivity

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[3]Here, p = Alt$_3$, in this illustration.

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