Scales, quantity and degree
Lecture 3: Intensification

Rick Nouwen (Universiteit Utrecht)

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(1)   John is tall.

(2)   a.   John is very tall.
       b.   John is ridiculously tall.
       c.   What a tall man John is!
       d.   John is sooooo tall.
       e.   Dude, John is tall.
       f.   John is f@#*king tall.

Standard idea: intensifier express that the subject of the adjective has a relative high degree.

(3)   a.   John is tall. $\rightsquigarrow \exists d[tall(x, d) \land d > s]$
       b.   John is very tall. $\rightsquigarrow \exists d[tall(x, d) \land d >> s]$
       c.   John is extremely tall. $\rightsquigarrow \exists d[tall(x, d) \land d >>> s]$

Point of this lecture: some cases of intensification do not involve such manipulation of degree, but are indirect.

The person in the picture has just received a letter from the tax office telling him how much he owes in taxes.[1]

We can infer from the emotion expressed by the faces, how high the tax bill was. Linguistically similar processes exist in the domain of degree intensification.

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[1]Pictures generated by ARTNATOMY/ARTNATOMIA, `www.artnatomia.net`, V.C. Flores 2005.

1 Evaluative intensifiers

(4)   John is surprisingly tall.

1.1 Zwicky's (1970) observations

(5)   The children are unusually noisy.   degree adverb

(6)   The children are usually noisy.   ad-sentential modifier

This contrast appears a general feature of positive-negative pairs:

(7)   a.   John is atypically hard-working.   degree
        b.   John is typically hard-working.   sentential

(8)   a.   John is impossibly tall.   degree
        b.   John is possibly tall.   sentential

Another observation made by Zwicky in the same squib is that there is a resemblance between negative adverbs like *unusually* and evaluative predicates, like *surprising, amazing, terrible,* etc.

(9)   The children are amazingly noisy.   degree

(10)   ?The children are normally noisy.   sentential

Dutch   Dutch marks ad-sentential adverbs.

(11)   a.   verrassend   adjective/adverb
              surprising(ly)
        b.   verrassend genoeg   ad-sentential adverb
              surprisingly enough

(12)   a.   mogelijk   adjective
              possible
        b.   mogelijk-erwijze   ad-sentential adverb
              possibly

(13)   Jasper is verrassend lang.
        Jasper is surprising tall.
        'Jasper is surprisingly tall'

(14)   Jasper is verrassend genoeg lang.
        Jasper is surprising enough tall.
        'It is surprising that Jasper is tall."

Beyond modification of adjectives In Dutch, the combination of a short form adverb and a non-gradable expression is infelicitous.

(15)   Het is verrassend #(genoeg) 3 uur.
        It   is surprising (enough)   3 hour.
        Only: 'It is surprisingly 3 o'clock'

This suggests that *surprisingly* adverbials need to operate on a degree argument. However, there exist gradable predicates that still resist evaluative degree adverbs.

(16)   a.   Jasper is very much a weirdo.
        b.   Jasper is such a weirdo.
        c.   Jasper is quite a weirdo.
        d.   Jasper is more (of) a weirdo than Crazy Carl.

(17)   Jasper is surprisingly a weirdo.

        a. #Jasper is a weirdo to a surprising degree
        b.   It is surprising that Jasper is a weirdo.

(18)   Jasper is verrassend #(genoeg) een weirdo.
        Jasper is surprising enough   a   weirdo
        Only: 'It is surprising that Jasper is a weirdo.'

Indeed evaluative degree adverbs seem restricted to ad-adjectival uses:

(19)   Jasper likes me surprisingly *(much).

Still, the underlying adjectival forms *can* modify *nouns*. And the result is data reminiscent of Zwicky's observations:

(20)   Jasper is an unbelievable weirdo.

(21)   Jasper is a believable weirdo.

(22)   Jasper is an impossible idiot.

(23)   Jasper is a possible idiot.

However:

(24)   a.   Jasper is a surprising idiot   #degree
        b.   Jasper is an unusual idiot   ?degree

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1.2 A preliminary informal characterisation of Zwicky's observations: *standing out*

(25)   *Degree adverbs*: unusually, atypically, abnormally, uncharacteristically, impossibly, uncommonly, unnaturally, extraordinarily, particularly, especially, surprisingly, amazingly, disgustingly, alarmingly, bothersomely, shamefully, fantastically, incredibly, unbelievably, marvelously, dreadfully, awfully, preposterously, terribly

   Sentence adverbs: usually, typically, normally, characteristically, possibly, commonly, naturally, ordinarily, generally

A simple observation is that the degree adverbs are all based on predicates that express some form of *standing out*. Something that is *unusual*, or *atypical*, or *uncommon*, or *preposterous*, or *fantastic*, etc. will stand out in a way that *usual* things, *typical* things, or *common* things do not.

> **Standing Out Generalisation (SOG)**: Degree modifiers tend to be based on predicates that express some extraordinariness. In other words, the objects that satisfy these predicates, in some respect, stand out in their domain. (To be made formally precise, below).

Zwicky focussed on pairs of polar opposites:

(26)   a.   John is unusually tall.
       b.   John is usually tall.

However, when two polar opposites both express standing out, both can be degree adverbs:

(27)   a.   John is marvellously tall.
       b.   John is terribly tall.

By the way:

(28)   Jasper is a terribly nice man.

(29)   Polystyrene is marvellously useful.

Support for SOG comes from a few further observations on possible degree modifiers. Firstly, expletives like *fucking* or *damned*, by which a speaker may signal a marked emotional attitude to what is said, as in (30), have a role as a degree modifier, as in (31).

(30)   Watch out! That's fucking dynamite!

(31)   Lasagne takes a fucking long time to prepare.

(32)   Damn!

(33)   He is damned smart.

1.3 Predicate modification and sentence modification

(34)   Surprisingly, Jasper is tall.

(35)   *Jasper is tall and the speaker is surprised about this*

For degree adverbs, this analysis does not work (cf. Morzycki 2008):

(36)   Jasper is surprisingly tall.

(37)   *I expect Jasper to be tall, but Jasper is even taller than I expected.*
        (34) false
        (36) true

1.4 Explaining SOG

(38)   Morzycki 2004: being surprisingly tall $\neq$ having a surprising height

(39)   Jasper is shorter than expected
    a.   Jasper has a surprising height
    b. #Jasper is surprisingly tall

Katz 2005 solves this by stipulating that degree adverbs contain universal quantification:

(40) $\exists d[\text{John is } d \text{ tall} \ \& \ \forall d' \geq d[surprising(^\wedge \text{John is } d \text{ tall})]]$

I will show that we need no such stipulation

Monotonicity   Gradable predicates are monotone:

(41) $[\![\text{tall}]\!] = \lambda d.\lambda x.x\text{'s height} \leq d$ (von Stechow 1984; Heim 2000)

(42)   (Kennedy 1997)
    a. $[\![\text{tall}]\!] = \lambda x.x\text{'s height}$
    b. $[\![\text{MEAS}]\!] = \lambda M.\lambda d.\lambda x.M(x) \leq d$
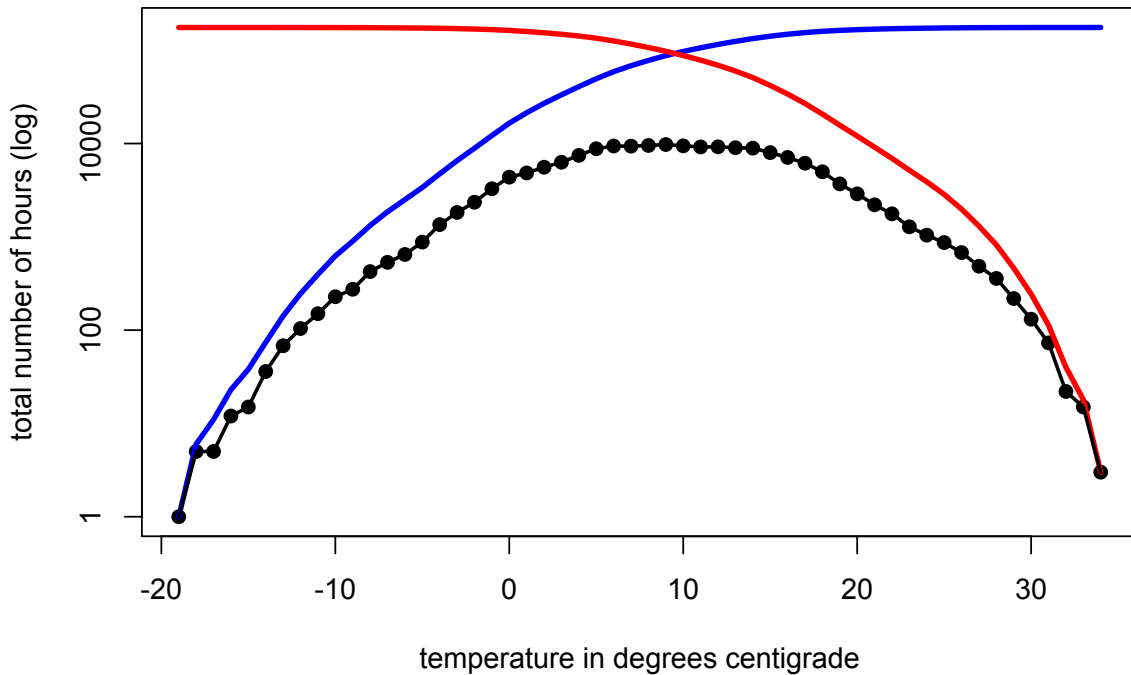   c. $[\![\text{MEAS tall}]\!] = \lambda d.\lambda x.M(x) \leq d$

I will write $tall(x, d)$ for x's height $\leq d$.

(43)   Monotonicity (Heim 2000):
        $\forall x, d, d'[tall(x, d) \ d' < d \Rightarrow tall(x, d')]$

Temperature distribution in the Netherlands (1981-2000)

I believe that the explanation for Zwicky's observations lies in the inferences triggered by the adverbs about the degrees to which certain predicates hold.

(44)   John is unusually tall.

        a. $\exists d[unusual(^\wedge tall(j,d))]$

Say, John is 1m80 and (44) is true, then it is also true in case John is taller than 1m80, since all the degree to which John is tall if he is 1m80 are included in the degree to which he is tall if he is taller.

NB: Short degrees are *not* unusual.

Now take a non-degree adverb, but try to apply it ad-adjectivally:

(45)   John is usually tall.

        a. $\exists d[usual(^\wedge tall(j,d))]$ trivially true

(46)   Explaining the SOG

        Only predicates that express *standing out* will make $\exists d[P(^\wedge tall(j,d))]$ informative

1.5 The proposal in detail

An adverb like *surprisingly* is given the following semantics:

(47) $[\![\text{surprisingly}]\!] = \lambda p.\lambda w.p(w) \ \& \ \text{surprising}_w(p)$

Adjectival modifiers are of type $\langle\langle d, \langle e, \langle s, t\rangle\rangle\rangle, \langle d, \langle e, \langle s, t\rangle\rangle\rangle\rangle$ and can be derived from propositional modifiers by means of a simple type shift Δ:

(48) $\Delta = \lambda \mathcal{P}_{\langle\langle s, t\rangle, \langle s, t\rangle\rangle}\lambda A_{\langle d, \langle e, \langle s, t\rangle\rangle\rangle}.\lambda d_{\mathrm{d}}.\lambda x_{\mathrm{e}}.\mathcal{P}(A(x, d))$

I furthermore assume that the degree variable is existentially closed after application of the modifier. (Alternatively, we could make this existential closure part of the semantics of the degree modifier, cf. Katz 2005; Morzycki 2008). Here is a worked out example.

(49) $[\![\text{surprisingly tall}]\!]$
$= \Delta \ [\lambda p\lambda w.p(w) \ \& \ \text{surprising}_w(p)] \ [\lambda d.\lambda x.\lambda w.\text{tall}_w(x, d)]$
$\leadsto \lambda A.\lambda d.\lambda x.\lambda w.A(d, x)(w) \ \& \ \text{surprising}_w(A(d, x)) \ [\lambda d.\lambda x.\lambda w.\text{tall}_w(x, d)]$
$\leadsto \lambda d.\lambda x.\lambda w.\text{tall}_w(x, d) \ \& \ \text{surprising}_w(\lambda w'.\text{tall}_{w'}(x, d))$
$\leadsto (\text{existential closure})$
$\lambda x.\lambda w.\exists d[\text{tall}_w(x, d) \ \& \ \text{surprising}_w(\lambda w'.\text{tall}_{w'}(x, d))]$

(50) $[\![\text{Jasper is surprisingly tall}]\!]$
$= \lambda w.\exists d[\text{tall}_w(j, d) \ \& \ \text{surprising}_w(\lambda w'.\text{tall}_{w'}(j, d))]$

1.6 Predictions

Let O be a propositional operator that is monotone:

(51) $p \rightarrow p' \ \Rightarrow \ O(p) \rightarrow O(p')$

Let T also be a degree relation, also monotone

(52) $d > d' \ \Rightarrow T(x, d) \rightarrow T(x, d')$

Modified degree predicate:

(53) $\lambda x.\exists d[T(x, d) \ \& \ O(^{\wedge}T(x, d))]$

Say now that there is a degree d^* for which this predicate holds for some c:

(54) $T(c, d^*) \ \& \ O(^{\wedge}T(c, d^*))$

By monotonicity, it now follows that:

(55) $\forall d < d^*[O(^\wedge T(c,d)]$

In particular if d_0 is the bottom element of the scale:

(56) $O(^\wedge T(c,d_0))$

Since any individual x satisfies $T(x,d_0)$, it follows that (53) is not a discriminant predicate. Thus, only operators that are not monotone in the sense of (51) can be degree adverbs.

This predicts that, very generally, combinations of upward monotone predicates and degree predicates are infelicitous.

(57)   a. $p \models p' \Rightarrow \Diamond p \models \Diamond p'$
         b. $p \models p' \Rightarrow \Box p \models \Box p'$

Naturally, negative modals display the opposite pattern:

(58)   a. $p \models p' \Rightarrow \neg\Diamond p' \models \neg\Diamond p$
         b. $p \models p' \Rightarrow \neg\Box p' \models \neg\Box p$

(59)   a.   John is possibly cute.
         b.   John is impossibly cute.

(60)   a.   John is necessarily cruel.
         b.   John is unnecessarily cruel.

I predict then Zwicky's observation amounts to a contrast of monotonicity: *usually* is upwards monotone, *unusually* is downward monotone.

(61)   a.   Jasper usually wears a black sweater to work.
         b.   Jasper usually wears a sweater to work.

For the case of evaluative predicates, the downward monotonicity is observable in that they license negative polarity items Kadmon and Landman (1993):

(62)   a.   She was amazed that there was any food left.
         b.   I was surprised that he budged an inch.
         c.   We were astounded that she lifted a finger.

(63)   #She expected that there was any food left.

The proposal further predicts that non-monotone operators, like downward monotone operators, form discriminating properties if they are used as degree modifiers of gradable predicates.

(64) a. The water is pleasantly warm.
      b. The city centre of Utrecht is cosily small.

(65) (Morzycki 2009)
      a. He is a { big / huge / enormous } idiot.
      b. #He is a { tiny / small / minute } idiot.

We might also find support in cases of modification by size-adjectives:

(v)   I'm an enormous fan of Motörhead,   (upward)
      a. ...#but a small fan of Mötley Crüe.   (downward)
      b. ...but only a small fan of Mötley Crüe   (non-monotone)

1.7 Summary

- Some adverbials are purely local propositional operators

- That is, they do not directly manipulate a scale or scalar value

- Only operators of a particular monotonicity pattern yield informative combinations with gradable predicates

$\star$

2 Wh-exclamatives

Based on joint work with Anna Chernilovskaya

(66) How beautifully the birds sing!

(67) What a wonderful song she sang!

Wh-exclamatives obviously connected to questions, but quite loosely so.

(68) a. How beautifully did the birds sing?
      b. *What a wonderful song did she sing?

(69) a. What did John eat?
      b. *What John ate!

More generally, English lacks *who*, *where*, *which* and *why* matrix exclamatives.

(70)   a. *Who I just saw!
        b. *Where he lives!
        c. *Which book he picked!
        d. *Why John chose to move to the US!

There are unacceptable for straightforward semantic reasons:

(71)   *the speaker is amazed at John's reason for moving to the US*

To make things more complicated, the potential wh-exclamative clauses in (70) *are* felicitous in embedded contexts; for instance as complements of what are sometimes called *exclamative verbs*, verbs expressing an exclamative stance.

(72)   a. You wouldn't believe who they hired!   (Michaelis 2001)
        b. I can't believe where he lives!
        c. I am amazed at which book he picked!
        d. I am amazed at why John chose to move to the US!

Scalarity   (Michaelis and Lambrecht 1996; Michaelis 2001)

(73)   a. Let S be a scale of people, ranked in accordance to their incompetence w.r.t. the job in question.
        b. The exclamative in (73-a) expresses that who got hired is relatively (surprisingly) high on that scale

(74)   Wh-words like *who*, *where*, *which*, *why* are not inherently scalar, so they need a context that enforces a scalar meaning

(75)   *How* is inherently scalar
        a. How tall is John?
        b. How many books did you publish?

(76)   Issues
        a. how do particular syntactic context create scalar meanings out of non-scalar expressions?
        b. what independent evidence is there that *what* *can* have scalar interpretations?

Crucial issue: the above facts are very particular to English

(77)   (Dutch)
        a. Wie ik gisteren   tegenkwam!
            Who I   yesterday came-across
            (roughly) 'You wouldn't believe who I met yesterday!'

    b.   Welk   boek hij nu   aan het lezen is!
        Which book he now on   it   read is!
        (roughly) 'You wouldn't believe which book he's reading now'
    c.   Waar   hij op vakantie gaat!
        Where he on holiday   goes!
        (roughly) 'You wouldn't believe where he goes on holiday to'

(78)   (Turkish, Michaelis 2001)
    a.   Kimleri   gördük!
        who.PL.OBJ saw.PST.1PL
        (roughly) 'You wouldn't believe who I saw!'
    b.   Neler   bulduk!
        what.PL find.PST.1PL
        (roughly) 'You wouldn't believe what we found!'

In the remainder of this part of the talk   The literature contains lots of claims that wh-exclamatives are inherently scalar. We will show that at some level wh-exclamatives always concern some scale, but that the semantic mechanism expressed by wh-exclamation is not itself scalar in a straightforward sense (such as e.g. (73-b)).

2.1   *What* exclamatives and scalarity

What exactly does it mean to say that wh-exclamation is, in essence, a scalar phenomenon? Rett 2008 provides a test (see also Rett 2011:

(79)   *Imagine John is doing a card trick. He blindfolds himself, then shuffles a deck of cards and seemingly randomly picks two cards: the three of diamonds and the six of hearts. He puts the cards back, shuffles again and once more picks two cards. Again, he picks 3♢ and 6♡. Then, he puts the cards back, shuffles again and, lo and behold, he picks the 3♢ and 6♡ for a third time in a row. Witnessing this amazing run of events, Mary now utters:*

(80)   #What cards John picked!

Rett: wh-exclamatives express surprise at a degree property associated with the cards, rather than surprise at the cards themselves.

(81)   a.   It is surprising how beautiful the cards John picked were
    b.   It is surprising how oddly shaped the cards John picked were
    c.   It is surprising how high in value the cards John picked were
    d. #The cards John picked were surprising

Rett presents her ideas in terms of gradability, but her observation is also compatible with the following generalisation:

(82)   **Scalarity Generalisation:**
        semantically, wh-exclamatives always involve a scale.

A generalisation like (82) is very common in the literature: Michaelis and Lambrecht 1996; Michaelis 2001; Castroviejo Miró 2010; Zanuttini and Portner 2003.

2.2   Two kinds of wh-exclamatives

(83)   Wie ik net op straat tegenkwam!
       who I   just on street encountered

(84)   a. #*The speaker has just met an extremely tall man in the street and wants to communicate
          her surprise at the man's height*
      b.   *The speaker was told by John that he was too ill to come to work and that he was
          going to stay in bed today. The speaker, however, then encounters him in the street and
          communicates her surprise of seeing him there.*

Is the lack of a reading like (84-a) perhaps due to the fact that *who* leaves no room for an adjective?

(85)   Welke man ik net op straat tegenkwam!
       which man I   just on street encountered
       acceptable in (84-b), but not (84-a)

The situation in (84-b) resembles the card trick scenario. In fact, some Dutch exclamatives are felicitous in this scenario:

(86)   Welke kaarten hij toen (weer) trok!
       which cards   he then again picked

Differences between Dutch and English:

- Dutch *who* exclamatives are felicitous

- These exclamatives are not scalar as tested by Rett's test

But English and Dutch also overlap:

(87)   Wat een kaarten hij toen (weer) trok!
       what a   cards   he then again picked

As in English, (87) is only felicitous in a scenario in which the cards in question are placed high on some scale, because they were exceptionally beautiful or high-valued, etc.

Other languages   Is the non-scalarity of *who* and *which* exclamatives a cross-linguistically general pattern?

(88)   (Hogy) kiket   láttam   az utcán!   (Hungarian)
       Comp   who.PL.ACC saw.1SG the street.on

(89)   a. #the speaker has seen two extremely tall people in the street
       b. the speaker has seen two people in the street of which she did not expect them to be
           there

Nevertheless there are cases where *who* exclamatives or *which* exclamatives are clearly scalar. Swedish, for instance, uses *which* where in English exclamatives one would find *what*. Abels and Vangsnes 2010 give the following example.

(90)   Vilken lärare   du har!
       which teacher you have

Compare also archaic Dutch:

(91)   Welk een man ik gisteren   tegenkwam!
       which a   man I yesterday encountered

Generalisation

(92)   Two types of exclamatives—
           Type 1: wh-exclamatives in accordance to the scalarity generalisation
           Type 2: wh-exclamatives not in accordance to the scalarity generalisation

English is in full accordance to the scalarity generalisation: it only hosts type 1 wh-exclamatives. Swedish is exactly comparable. That is to say that *who* and *what* exclamatives are simply ungrammatical in Swedish, witness (93) and (94) (L.-O. Delsing, p.c.).

(93)   *Vem jag träffade igår!
       Who I   met   yesterday

(94)   *Vad jag köpte   igår!
       What I   bought yesterday

Other languages we looked at above have both type 1 and type 2 exclamatives. Here is a partial overview:

		Type
English	what (a)	1
Swedish	which	1
Dutch	what (a)	1
	who	2
	which	2
	what	2
	. . .	2
Hungarian	what kind	1
	who	2
	which	2
	what	2
	. . .	2

Summary

- There exist wh-exclamatives that are not scalar in the sense of Rett's test

- As a consequence, existing scalar approaches to wh-exclamatives have limited empirical coverage

2.3 The nature of the type 1 / 2 distinction

The two kinds of wh-exclamatives not only show differences in interpretation.

Dutch (SVO+V2 for main clauses, SOV for embedded clauses):

(95)   Wat   maakte Jan een herrie!
        What made   Jan a   racket
        "What a racket Jan made!"

(96)   Wat   Jan een herrie maakte!
        What Jan a   racket made
        "What a racket Jan made!"

(97)   Wie ik net zag!
        Who I   just saw

(98)   *Wie zag ik net!
        Who saw I   just

Another discerning property for the type 1/2 property is *reducibility*. Type 1 exclamatives can and type 2 exclamatives cannot be reduced to structures containing only a wh phrase.

(99)   What a book!

(100)   Wat een boek!
         what a   book!

(101)   *Wie!
          who

(102)   *Welk (mooi)   boek!
          which beautiful book

Quirks of type 1

(103)   Wat   een boeken leest die   Jan toch!
         What a   books   reads that Jan TOCH

(104)   Jan las   een boeken*(!)
         Jan read a   books

Dutch *what* exclamatives with and without indefinite articles:

(87)   Wat een kaarten hij toen (weer) trok!   (type 1)
        what a   cards   he then again picked

(105)   Wat hij toen weer trok!   (type 2)
         what he then again picked

Similarly, Dutch has an archaic usage for *welke* (which) that shows a similar pattern:

(106)   %Welk een kaarten hij toen (weer) trok!   (type 1)
         which a   cards   he then again picked
         Infelicitous in the card trick scenario; archaic

(86)   Welke kaarten hij toen (weer) trok!   (type 2)
        which cards   he then again picked
        Felicitous in the card trick scenario

In English, the indefinite article in a *what a* exclamative does import a number semantics. That is, (107) is simply ungrammatical.

(107)   *What a cards John picked!

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Nevertheless, there is some evidence that type 1 exclamatives in English are marked not just by the presence of *what*.

(108)   a.   What a song!
           b.   What songs!
           c.   *What three songs!
           d.   *What the song!
           e.   *What some song!

(109)   Welke drie boeken Jan nu   weer gekozen heeft!   (type 2)
           which three books   Jan now again chosen had

Typically, type 2 exclamatives bear more of a resemblance to questions and have less obligatory exclamative marking.

(110)   *What a tall man is John?

In German questions, wh-determiners like *which* inflect for gender and number. This inflection may disappear in exclamatives (Repp 2013).

(111)   Welch*(er)   Mann hast du geholfen?   (German)
           which.MASC.SG man   have you helped.
           Which man did you help?

(112)   Welch schwerer   Irrtum!   (German, Repp 2013)
           which serious.MASC.SG mistake
           'What a serious mistake!'

(113)   *Welcher   schwerer   Irrtum!   (German, Repp 2013)
           which.MASC.SG serious.MASC.SG mistake

Notice that (112) and (113) are reduced and therefore candidates for type 1. Non-reduced exclamatives may indeed contain the inflected *which*, and get a type 2 interpretation.

(114)   Welches   Buch der Jan gelesen hat!   (German, Repp 2013)
           Which.MASC.SG book the J.   read   has
           'The book Jan read!'

Crucially, non-inflected *which* involves scalarity.

(115)   Interpretation for (112)
           a.   the mistake was very serious
           b.   the serious mistake was surprisingly A

		Type
German	which (uninflected)	1
	which (inflected)	2
	who (inflected)	2
	was (inflected)	2
	. . .	2

Are type 2 wh-exclamatives rhetorical questions? (No)

(116) Waar koop je tegenwoordig nog echte koffie?   (rhetorial question, V2)
Where buy you nowadays still real coffee?
"You can't buy real coffee anywhere"

(117) Waar hij naar toe is gegaan!   (wh-exclamative, V-final)
Where he to to is went
"You wouldn't believe where he went to"

2.4   Adverbial *how* and *what* exclamatives

(118)   How tall he is!

(119)   Wat is hij lang! (Dutch)
what is he tall

(120)   Kor høg han er! (Norwegian)
How tall he   is

(121)   Vad   han är lång! (Swedish)
what is   he tall

(122)   milyen magas embert   (Hungarian)
how   tall   man.ACC

These are adverbial to adjectives and depend on the presence of gradable material.

(123)   Wat   heeft Jan drie *(prachtige) boeken gelezen!
What has   Jan three beautiful   books   read

(124)   *Wat heeft Jan drie   symfonische werken gecomponeerd!
what has   Jan three symphonic   works   composed

Thus, these are clearly degree exclamatives and thus is Rett's card trick test useless. Rett 2008 provides a different test.

(125)   How tall is John?   degree

(126)   Q: How does Buck ride his horse?   (Rett 2008)
   a.   A: elegantly   evaluation
   b.   A: bare-backed   manner

In contrast to *how* questions, *how* exclamatives cannot involve manners. That is, (127) can only be used to express that the speaker is surprised or amazed at how elegantly / beautifully / clumsily etc. Buck rides his horse.

(127)   How Buck rides his horse!

It is infelicitous to use (127) to express surprise at the fact that Buck rides his horse bare-backed. Since evaluations, but not manners, are gradable, Rett concludes from these data that *how* exclamatives are necessarily about degree. We fully agree with this, but we disagree with the wider conclusion that this shows that exclamatives are generally scalar. A good illustration once more comes from Dutch. Adverbial (degree) exclamatives are expressed using *wat* (what).

(128)   Hoe lang is Jan?   (Dutch, degree question)
         how tall is J.
         'How tall is Jan?'

(129)   Wat is Jan lang!   (Dutch, degree exclamative)
         what is J.   tall
         'How tall Jan is!'

When we now turn to Dutch *how* exclamatives, we see that they behave different from English ones. Crucially, (130) is fully compatible with either a manner or an evaluation reading.

(130)   Hoe Jan zijn paard berijdt!
         how J.   his horse rides

(131)   a.   *The speaker is impressed by how beautifully Jan rides his horse*   (evaluation)
         b.   *The speaker is impressed by the manner at which Jan rides his horse*   (manner)

Are wh-words in all type 1 exclamatives adverbial to an adjective?   (No)

(132)   Jan heeft een boel   meegemaakt.
         Jan has   a   BOEL experienced
         'Jan has been through a lot'

Een boel is not gradable, as (133) shows. Also, there is no way to modify the noun *boel*.

(133)   Jan heeft erg {   veel / *een boel   } meegemaakt.
         J.   has   very much /   a BOEL experienced
         'Jan has been through a lot' (intensified)

(134) *Jan has   een { grote / enorme   / erge / mooie   } boel   meegemaakt.
       Jan heeft a   big   / enormous / very / beautiful   BOEL experienced.
       Intended: 'Jan has been through a great many things'

Despite the restrictions in (133) and (134), Dutch *what a* exclamatives with such nouns are felicitous.

(135) Wat   heeft Jan toch een boel   meegemaakt.
       What has   Jan PRT a   BOEL experienced.
       'What a lot of things Jan has been through'

These data extend to English. In English, *a lot* is also not gradable.

(136) a. John ate a lot of apples.
       b. *John ate very (much) a lot of apples.
       c. John ate very many apples.

(137) What a lot of apples John ate!

The wh-words in type 1 exclamatives are not (necessarily) degree adverbs.

2.5   The type 1 / 2 distinction and domain widening

Zanuttini and Portner 2003 propose a very specific scalar theory. We will apply this to the type 1 / 2 distinction to pinpoint where problems arise.

Two mechanism:

- Domain widening

- Factivity

(138) Let D be the domain of quantification. If a clause S contains DW, then widen this domain
       to D' in such a way that:
       a. The domain widening effectively extends the interpretation of S
       b. There exists a salient ordering such that any entity in the widened part of the domain
           (the set theoretical difference of D' and D) outranks all entities in D.

Factivity, which we will write as FACT, interacts with DW in a compositionally opaque way (more on this below):

(139) Let S be a clause containing FACT as well as DW, where the original domain is D and the
       widened domain is D', then S presupposes that:
           $\forall p \in [\![S]\!]^{w,D'} \setminus [\![S]\!]^{w,D} : p$ is true

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This formula says that any proposition that concerns entities in the widened part of the domain is true.

(140)   How tall John is!

The interpretation of (140) relies on possible true answers to the question variant of (140), which all have the form:

(141)   John's height is d

$FACT + DW$ say that there is a true answer of the form (141) that is in the *widened* part of the domain. In other words: John's height is off the normal scale.

The more interesting case, however, is that of a *what (a)* exclamative. Take (142), once more.

(142)   What cards John picked!

(143)   there are cards that John picked such that these cards are outside the regular domain (outranking other cards on some salient ordering)

The result is that (143) is (rightly) predicted to be infelicitous in the card trick scenario, since the cards in question, 3♢ and 6♡, are not particularly high on any scale.

But what does the *regular* (non-widened) domain look like?

- Does it contain all 52 cards? (Yes, *All cards are in the pack* seems to always mean that all 52 cards are in the deck)

- But perhaps the domain is context-dependent:

- Perhaps in a poker game, we exclude A♢+A♡+A♠+A♣+K♡ from the non-widened domain. Hence: *What cards she is holding!*

- But then why can we not exclude 3♢+6♡ in the context of the card trick scenario?

As soon as we turn to type 2 exclamatives the Zanuttini and Portner framework is in trouble:

(144)   Wie ik net op straat tegenkwam!
         who I   just on street encountered

In ZP's system (144) would presuppose that the person the speaker met in the street is outside of the default domain of quantification and that he or she thus outranks individuals in that default domain with respect to some salient scale. This gives exactly the wrong result.

Intuition behind what goes wrong in Zanuttini and Portner's theory

- The mechanism behind DW is inherently scalar

- The scalar mechanism is applied in the wrong place

    - the person that the speaker met in the street is not off some scale
    - rather, the fact that the speaker met this person in the street is off some scale

2.6   Noteworthiness

what attitude does exclamation express?

(145)   What a beautiful song!
  a.   it is remarkable how beautiful the song is
  b.   it is amazing how beautiful the song is
  c.   it is surprising how beautiful the song is
  d.   it is noteworthy how beautiful the song is

Portner & Zanuttini:

- the attitude in question is an indirect result of domain widening

- entities that are in the widened part of the domain are typically remarkable, amazing, surprising, noteworthy, astonishing etc.

- exclamatives does not express such an attitude

Our perspective is the reverse

- exclamative express a noteworthiness evaluation

- entities that are noteworthy are typically high on the scale

- exclamative differ in the *scope* of the noteworthiness evaluation

(146)   a.   Type 1 exclamatives: the answer referent of the wh-word is noteworthy
  b.   Type 2 exclamatives: the answer proposition is noteworthy

(147)   What a song!
  the song is noteworthy

(148)   Wie ik net gezien heb!
  it is noteworthy that I saw who I just saw

Exclamative attitudes are typically both applicable on individual and on propositional level:

(149)   a.   John is amazing.
          b.   This is a remarkable book.
          c.   Minted prunes are a noteworthy idea for dramatising your meat platter.[2]

(150)   a.   It is amazing that John managed to stop smoking.
          b.   It is remarkable that no-one complained.
          c.   It is noteworthy that many Biblical characters bore animal names.[3]

We will stipulate that *noteworthy* is an umbrella term for all exclamative attitudes. We don't think we need to give a definition, but here is an attempt:

(151)   an entity is noteworthy iff its intrinsic characteristics (i.e. those characteristics that are independent of the factual situation) **stand out considerably** compared to a comparison class of entities

(152)   some noteworthy things
          a.   the titanic
          b.   Frank Zappa's discography
          c.   the Texas Rangers
          d.   blackberry, chicken liver and cauliflower cake

Our proposal is now a revision of the scalarity features of exclamation:

(153)   **Scalarity Generalisation (reject):**
        semantically, wh-exclamatives always involve a scale.

(154)   **Noteworthiness Generalisation:**
        semantically, wh-exclamatives always involve a noteworthiness evaluation.

(155)   **Scope Generalisation:**
        semantically, wh-exclamatives may involve a noteworthiness evaluation either on DP-level or on clause-level. The former is a type 1 exclamative. The latter is a type 2 exclamative.

This entails that Rett's card trick test should not be seen as a test for scalarity, but rather as a test of scope.

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[2]The spokesman review, December 25th, 1945, via `http://news.google.com`.
[3]`en.wikipedia.org/wiki/Caleb`

Once more, consider (156) and (157). Recall that (156) is infelicitous and (157) is felicitous in the card trick scenario.

(156)   What cards he picked!

(157)   Welke kaarten hij toen weer trok!   (Dutch)
         which cards   he then again picked

Abstracting away from details, both (156) and (157) will underlyingly have the following core semantic structure:

(158) x is a group of cards & he picked x

One could see this structure as an open proposition, i.e. a proposition that denotes a truth-value only once the value for x is filled in. We will assume that at a high level, some operation akin to ZP's factivity transforms (158) into a presupposition of existential import: there exists a value for x which makes the structure in the scope of the factivity operator true. Within the scope of factivity, however, we assume not widening, but a noteworthiness evaluation: either of the referent or of the proposition itself. So, for (156) and (157) we would get respectively (159) and (160).

(159)   FACT [x is noteworthy & x is a group of cards & he picked x]   (type 1)

(160)   FACT [it is noteworthy that [x is a group of cards & he picked x]]   (type 2)

It should be clear that (159) and (160) make crisp predictions with respect to Rett's card trick test: (160), but not (159), is felicitous in the card trick scenario, since in that scenario the fact that the cards were picked, but not the cards themselves were noteworthy.

(161)   Wie ik net op straat tegenkwam!
         who I   just on street encountered

(162)   FACT [it is noteworthy that [I encountered x in the street]]

2.7   Adverbial wh-exclamatives

(163)   How tall he is!

(164)   FACT [It is noteworthy that he is d-tall]

We can now assume that the monotonicity mechanisms we introduced above are at play. As a consequence, (164) indicates that the person in question is taller than expected / normal.

What is slightly unexpected under this analysis is that *how*-exclamatives are reducible, just like type 1 exclamatives are. For instance, upon seeing an impressive sky scraper for the first time, one could exclaim (165) in English, or similarly (166) in Dutch.

(165)   How tall!

(166)   Wat hoog!
          what high!

We have presented no real theory of what makes reducibility possible in these cases and we will leave an analysis of these facts for future research. Nevertheless, here are our intuitions:

- type 1: core semantic contribution is noteworthiness of wh-referent

- it follows that type 1 exclamatives need no propositional structure, a DP suffices to make the speech act

- reducibility of (165) and (166) versus the non-reducibility of *Wie ik net op straat tegenkwam!* are for entirely independent reasons.

- In particular, the same contrast in reducibility is found in non-exclamative contexts too

- Propositions can be reduced to constituent predicates

(167)   [Someone mentions *The Godfather*:] O, completely overrated!

(168)   [Someone mentions *The Godfather*:] *O, I hate!

2.8   Summary

- Cross-linguistically there are two types of wh-exclamatives

- These differ in their scalar properties

- The literature seems to have focused only on type 1 exclamatives

- We propose to get rid of any scalar mechanism in exclamative semantics

- and account for the type distinction in what the scope of a noteworthiness evaluation is

3   Loose final thought: Discourse markers

McCready 2009, discusses *man*, which has two functions:

- mark a proposition in some emotive or evaluative way   comma intonation

- modify degrees within that proposition   integrated intonation

(169) a. man, boy, gosh, dude, gee, god   English
       b. tjonge-jonge, jeetje, god, hoor, amai, ze(nne)   Dutch

(170) Man, Obama got elected.   good / bad

(171) Man it's hot.

We could assume that all these interjections are in some sense *standing out* expressions. But then we need an explanation of how degree modification at a distance is possible. Possibility: with integrated intonation, the interjections combine with exclamatives.

(172) Tjonge-jonge, wat is dat lekker!   (comma intonation / integrated intonation)
       BOY   what is that tasty

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