Expressive, much?

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Abstract. This paper investigates a novel use of *much* in a construction that has not yet been recognized in the literature—*Angry, much?*—which we dub "expressive *much*". Our primary proposal is that expressive *much* is a shunting operator in the sense of McCready 2010, which targets a gradable predicate and adds a speaker's evaluative attitude about the degree to which an individual stands out on the relevant scale. In particular, we argue that it does so in a way that allows it to perform an "expressive question", which can be understood as a counterpart to a polar question, but in the expressive meaning dimension.

Keywords: expressives, degree semantics, *much*

1. Introduction

The distribution of *much* has played a major role in debates about the inventory of degree-denoting expressions in natural language and their compositional interpretation. The reason is that *much* appears across a variety of degree constructions. For instance, while *much* usually cannot modify degree adjectives, it is necessary under ellipsis (Corver 1997). That is, if *so* is a pro-form copy of the adjective, then (1a) should be as bad as (1c). Instead, the contrast between (1a) and (1b) shows that *much* is necessary for grammaticality.

(1)   a.   Mary is warm, but Bill is too *much* so.
       b.   *Mary is warm, but Bill is too so.
       c.   *Mary is warm, but Bill is too *much* warm.

Second, *much* has nominal quantifier and frequentative adverbial uses that generate high degree readings with expressions that are not prima facie degree denoting. For instance, as a VP modifier in (2a), *much* requires that John did not sneeze frequently. Similarly, as a degree determiner with mass nouns, as in (3a), *much* ensures that the Bill did not drink a large quantity of beer.[1]

(2)   a.   John didn't sneeze *much*.   (3)   a.   Bill didn't drink *much* beer.
       b.   Did John sneeze *much*?   b.   Did Bill drink *much* beer?
       c.   *John sneezed *much*.   c.   *Bill drank *much* beer.

While only a few examples, (1)-(3) show that *much* does not have a uniform syntactic distribution, and may not have a uniform semantic interpretation. For this reason, previous authors disagree on the number of homophonous versions of *much* there are in English, as well as what their denotations should be. The present paper adds to this literature by investigating a use of *much* in a

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[1]In contrast to other uses of *much*, these readings have roughly the distribution of an NPI.

construction that has not yet been recognized in the literature. What we find is that it behaves in yet another novel way, posing a challenge for unified theories of *much*.

The construction, which we dub "expressive *much*" (henceforth *x-much*), is illustrated in (4), which is a naturally occurring example taken from a comic book.[2]

(4)   A: [Slamming the door just in front of B:] Well, Scott isn't here. So scram.
       B: Wow. **Rude, much?**

The *x-much* construction in (4) immediately raises a series of syntactic, semantic, and pragmatic questions. For instance, while marked with question punctuation, the kind of speech act performed by the use of *x-much* is not at all obvious. In this example it certainly does not seem to be answer-seeking. On the semantic side, note that *much* appears to be modifying a gradable adjective, which is not usually licit (*modulo* its mandatory appearance in ellipsis constructions like (1a)). In addition, the *x-much* construction above is clearly "elliptical". This raises questions about its syntactic properties, as well as how its semantic properties are compositionally derived. As we will see, *x-much* exhibits these special properties and more across all three dimensions: syntactic, semantic, and pragmatic. In order to account for its properties in a unified way, our primary proposal is that *x-much* is a shunting operator in the sense of McCready 2010, which targets a gradable predicate and adds a speaker's evaluative attitude about the degree to which an individual stands out on the relevant scale. In particular, we will argue that it does so in a way that allows it to perform an "expressive question", which can be understood as a counterpart to a polar question, but in the expressive meaning dimension.

Before beginning, though, a quick methodological note is required. While it is not difficult to find English speakers with intuitions about *x-much* (one of the authors, in fact, commands the construction), it is clearly not part of standard English. This can make it difficult to do grammaticality judgments, especially in more complex and artificial contexts where register clash is a danger. For this reason, we rely as much as possible on naturally occurring examples from comic books and social media, especially Twitter and Instagram. This type of data is especially helpful for determining the felicity conditions of *x-much* because they include images that display the world against which *x-much* is used. In the case of social media, before including an example in our corpus, we first checked the user's feed to ensure that they otherwise appeared to be a native speaker of English.

2. Syntax of *x-much*

We start the investigation by considering the syntactic distribution of *x-much*. The use of *much* in this construction stands out in that it can be preceded by a target phrase of a wide variety of types. First, as we have already seen in example (4), *x-much* can target adjectives like *rude*.

We also find *x-much* targeting verbal heads, that is, expressions of category V°. This is illustrated

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[2]Throughout this paper, we use **bold face** to highlight relevant aspects of examples.

in the following examples.

(5)   A: It's not your precious 720, and what
             it *is* is none of your concern! Now
             be off with you!
       B: Geez! **Overreact much?!**

(6)   A: Guessing Upper West Side? For the
             shirt?
   B: **Presume much?**

In addition to verbal heads, there are also examples of *x-much* modifying full VPs, like in the following examples. Speakers, though, have the intuition that these are slightly degraded, and more degraded the heavier the VP happens to be.

(7)   A: We're definitely not getting back together if that's what you think.
       B: Wow. **Flatter yourself much?**

(8)   Jeez, **live in denial much**, Chase?

Finally, just as there are attested examples of *x-much* preceding expressions of category V° and VP, we also find *x-much* modifying noun heads and NPs, as is illustrated by the following examples.

(9)   A: This will make a safer world.
       B: **Cliché much?**

(10)   Jeez, **birds of a feather much?** Both of you need to breathe, right?
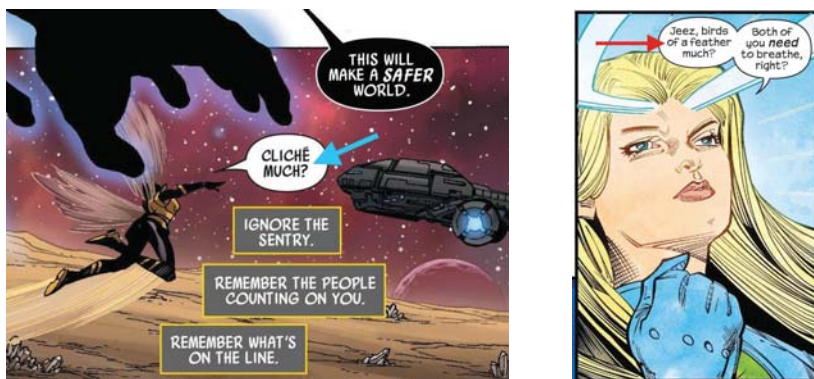
These data show that *x-much*, unlike other uses of *much*, felicitously combines with expressions of all core lexical categories. The second major syntactic generalization about the *x-much* construction is that once formed, it cannot be further modified or embedded by any semantic operation. For instance, examples (11a) and (11b) show that an *x-much* construction cannot be conjoined or disjoined with a second clause. It cannot be part of a conditional, neither as the antecedent (11c), nor as the consequent (11d). As (11e) illustrates, the *x-much* construction cannot be modified by modals. Finally, example (11f) shows that the *x-much* construction cannot be embedded under propositional attitude predicates.

(11)   a.   *Angry, much and he left.
       b.   *Angry, much or not?
       c.   *If angry much, I will not talk to you.
       d.   *If Parker shows up late, angry much?
       e.   *Maybe angry, much?
       f.   *He said/asked angry much?

The fact is that *x-much* derives expressions that do not interact with other expressions in any way. This contrasts with ordinary (NPI)-*much* or other kinds of modification. As we will argue later, this non-interaction can be explained if *x-much* is considered a shunting expression in the sense of McCready 2010. To support this analysis, though, we first need to demonstrate that the *x-much* construction has the conversational force of expressives more generally.

3. The conversational force of *x-much*

Just as we have shown that *x-much* has a different syntactic distribution than (NPI)-*much*, we can also demonstrate that *x-much* can only appear in clauses with expressive force. This is different from (NPI)-*much*, which shows no such restriction. For this reason, we come to treat *x-much* itself in as an expressive operator, which takes at-issue content and shunts it to the expressive domain. While this is the analysis we come to, at first pass, one might think then that *x-much* is some sort of grammaticalized elliptical question. The reason is that uses of *x-much* in the wild often almost always occur with a question mark. This analysis would say that the two examples in (12) are equivalent, modulo ellipsis.

(12)   a.   Angry, much?   b.   Are you angry much?

While tempting, this analysis cannot work. First, note that unlike true questions, the *x-much* construction is not genuinely answer-seeking. We can see this from the behavior of *x-much* with respect to polarity particles in the answer.

(13)   A: Are you angry much?   (14)   A: Angry, much?
        B: No. / Yes.   B: #No. / #Yes.

Polar questions canonically expect a polarity particle response. The fact that the discourse in (14) is infelicitous shows that *x-much* must not be able to raise issues in the same way that a polar question does. The question mark is then misleading.

Furthermore, previous work on response particles (e.g., Farkas and Bruce 2009), and especially in their use as reactions to sentences with appositives (e.g. AnderBois et al. 2013), has shown that bare polarity particles, especially the negative one, can also be used to react to at-issue assertions, such as in (15).

(15)   A: John's pretty angry.   B: No.

The fact that (14) is blanket infelicitous also then suggests that *x-much* does make an at-issue assertion. This is further supported by the fact that it clearly cannot be used to provide an answer to an explicit question, unlike an assertion of intuitively similar propositional content.

(16)   A: What's up with Harry?
        B: [Pointing at Harry:] # Angry, much?

(17)   A: What's up with Harry?
        B: [Pointing at Harry:] He's super angry.

While neither an answer-seeking question nor an assertion, perhaps *x-much* has a different discourse status, for instance, an obligatory rhetorical question—i.e., a non-answer-seeking question. There are at least two arguments that this cannot be the case. First, Sadock (1971) shows that rhetorical questions can be modified by expressions like *after all*, while bona fide answer-seeking questions cannot be. The following example shows that *x-much* resists modification by such modifiers.

(18)   You and the addressee both know that John has a quick temper. Furthermore, the addressee has just related a story about John flying off the handle.
        a.   Figures. After all, isn't John angry all the time?
        b.   Figures. #After all, angry, much?

A second test is that NPIs are only appropriate in rhetorical questions, not ordinary questions (Caponigro and Sprouse 2007). This is demonstrated by the contrast between (19) and (20). Ex-

ample (21) shows that *x-much*, which we already know does not form an ordinary question, also rejects NPIs.

(19)   a.   After all, did John really give a damn?
        b.   After all, did you even lift a finger?

(20)   a.   I'm really curious. #Did John really give a damn?
        b.   I'm really curious. #Did you even lift a finger?

(21)   a.   #Lift a finger, much?
        b.   #Give a damn, much?

Having ruled out treating the *x-much* construction as an assertion or question, we come to our positive proposal, which is that *x-much* forms an expressive (Potts 2005). In particular, the use of an *x-much* construction makes a not-at-issue assertion that a salient individual has the property in question. This is not its only contribution, though. It additionally conveys an evaluative attitude about this fact. While it is hard to pinpoint the quality of this evaluative attitude, we propose that it is something akin to "laughable" or "ridiculous". In most cases, this comes down to the expression of some sort of disdain, which accords with native-speaker intuitions about its use. That said, we cannot treat *x-much* as uniformly expressing a negative evaluative attitude. We find naturally occurring examples used positively in a playful way.

In this first example, for instance, the girls clearly do not have swag. They are making a joke about how they used to look. We can identify this example as a joke because, like many such examples, it is accompanied by the "laugh until crying" emoji. The example in (23) is an even more clearly ironic use of *x-much*. The author does not mean to claim that the subject of the photo is cool and has style. In fact, he clearly does not.

(22)   Um swag much

(23)   Swag much??

While used ironically, these example do not seem to express disdain. Instead, the evaluative attitude expressed is that the fact of the matter is somehow ridiculous. Our proposal is meant to

capture these jocular uses, as well as the more common cases where the speaker coveys disdain by expressing the ridiculousness of some individual standing out so thoroughly on the relevant scale.

4. Semantic properties of *x-much*

The previous section argued that *x-much* derives an expressive construction, one that conveys an evaluative attitude about the degree to which an individual stands out on the relevant scale. The second aspect is clearly semantic in nature, and so this section tackles the question of the semantic contribution of *x-much*. A first-pass analysis of *x-much* would try to assimilate it to other post-predicate uses of *much*, like those in (24) and (25).

(24)   Do you come around here much?   (25)   Bill doesn't dance much.

The core problem for this kind of analysis is that post-predicate *much* only allows frequency readings, but *x-much* admits a wider class of readings. First, *x-much* allows high degree readings that are missing with post-predicate *much*. For instance, the following examples from twitter contain pictures that display that Harry's cousin and the chicken wings truly do stand out on the lexically given scales, namely height and spiciness.
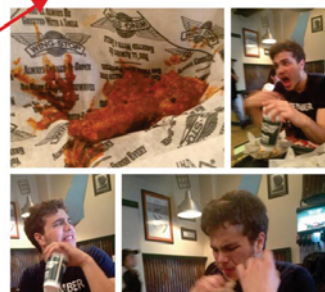
(26)   wow tall much?   (27)   spicy much jorge?


Crucially, the following examples show that high-degree readings are unavailable for canonical examples of post-predicate *much*. This means that we cannot easily assimilate *x-much* to canonical post-predicate *much*.

(28)   Is Harry's cousin tall much? ≠ Is Harry's cousin very tall?

(29)   That wing wasn't spicy much. ≠ That wing wasn't very spicy.

The second argument is that if *x-much* modifies a noun, it allows large cardinality / quantity readings that are missing with post-predicate *much*. For instance, it is clear in the following examples that it is the large amount of guitars and wine respectively that prompt the use of the *x-much* construction.
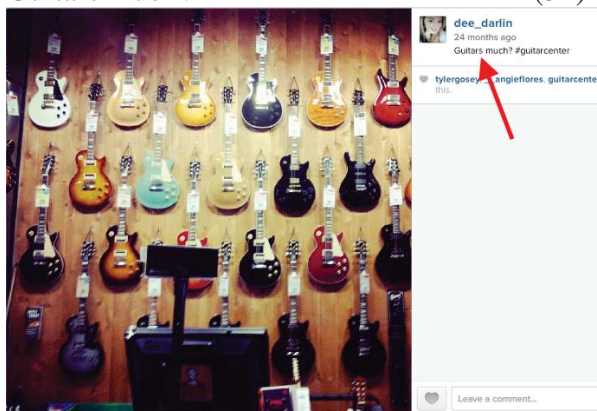
(30)   Guitars much?   (31)   Wine much?

Once again, large cardinality / quantity readings are unavailable for the more familiar post-predicate *much*, as the following examples illustrate.

(32)   Were there guitars much? ≠ Were there many guitars?

(33)   There wasn't wine much. ≠ There wasn't much wine.

One thing to note here is that while post-predicate *much* does not have the high degree reading, *x-much* actually shares this reading with determiner *much*, though only with mass nouns.

(34)   Did you drink much wine?

(35)   *Did you play much guitars?

The fact that *x-much* can entail high cardinality with count nouns as in (30), while other uses of *much* cannot, illustrated in (35), is another strong argument that *x-much* should be treated differently.

Finally, while we have seen two arguments that we cannot treat *x-much* as post-predicate *much* with the addition of some expressive component, the semantics of *x-much* does partially overlap with post-predicate *much*. In particular, they share high frequency readings. In the following tweet, Meggers' friend is making fun of her for her frequent absences. Crucially, (37) has the exact same high frequency reading with post-predicate *much*. In particular, it is looking to resolve the issue of whether Meggers was absent to a high degree.

(36)   absent much meggers?
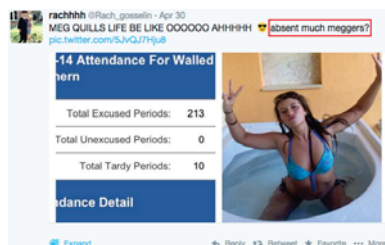
(37)   Was Meggers absent much?

In summary, just as *x-much* has a wider syntactic distribution than (NPI)-*much*, it also has a wider semantic distribution. That said, its contribution is uniform. With gradable adjectives, it requires the individual stand out on the scale provided with the adjective. With mass and count nouns, *x-much* has large quantity and large cardinality readings, respectively. Finally, with verbs and verb phrases, *x-much* has high frequency readings. Because *x-much* only shares frequency readings with other uses of *much*, and post-predicate *much* in particular, we cannot say that *x-much* only differs from other uses of *much* in that it carries some expressive component. Instead, we must give a *de novo* analysis of the semantics of *x-much*.

5. Formal proposal

In order to account for the observed properties of *x-much*, we assume a multidimensional semantics in the Pottsean tradition (Potts 2005). In particular, our analysis is based on the idea of *hybrid semantics* in Gutzmann 2015b, that is, a multidimensional semantics in which the ordinary truth-conditional layer of meaning is supplemented with an additional meaning dimension that captures the *use-conditional* meaning of an utterance. This use-conditional tier does not hold feature expressive content in the narrow sense—as contributed by, say, expressive adjectives, slurs, or interjections—but also other aspects like the discourse-functional meaning of various particles (Gutzmann 2013; McCready and Takahashi 2013), vocatives (Eckardt 2014; Predelli 2008), sentential force (Portner 2007; Gutzmann 2015b), or even the giveness of backgrounded material (Kratzer 2004).[3] For illustration, consider an utterance of the following sentence, which contains the expressive attributive adjective *damn*.

(38)   That **damn** Parker got the best shot of Spiderman.

The idea of a multidimensional approach to use-conditional content, and hybrid semantics in particular, is that *damn*, if used as in (38), contributes just to the expressive/use-conditional dimension of meaning without any truth-conditional effect on its argument. Using, for the sake of illustration, a simple paraphrase for *damn*, we can give the truth-conditional and use-conditional content of (38) as follows.

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[3]In contrast to Potts's second dimension that focused on his notion of *conventional implicatures*, the use-conditional dimension does not include appositives or other supplements, for which a use-conditional analysis seems inadequate. Cf., amongst many others, Amaral et al. (2007); AnderBois et al. (2013); Koev (2013); Nouwen (2007); Schlenker (2010); Syrett and Koev (2014) for some discussion.

(39) $[\![(38)]\!] = \Big\langle$ *Parker got the bets shot of Spiderman,*
  The speaker has a negative attitude towards Parker $\Big\rangle$

The interpretation of (38) consists of a tuple. The first member corresponds to its truth-conditional, and the second its use-conditional content, which we give both as plain paraphrases here.

The general idea of hybrid semantics, which goes back to Kaplan's 1999 influential manuscript, is rather independent of the actual implementation. However, the multidimensional logic called $\mathcal{L}_{\mathrm{CI}}$, as pioneered by Potts (2005), provides a natural formalization of hybrid semantics and sparked a lot of subsequent work that extended and modified Potts's original system.[4] Of particular interest for our purposes is McCready's 2010 extension, which he calls $\mathcal{L}_{\mathrm{CI}}^{+}$. The two main innovations of this logic are that it introduces two new kinds of use-conditional content, both of which come with their own semantic type and corresponding composition rule. First, $\mathcal{L}_{\mathrm{CI}}^{+}$ is able to deal with *mixed* expressions, that is, expressions that in contrast to *damn* in (38), contribute to both meaning dimensions simultaneuosly. Racist slurs like *Kraut* are prime examples for this, as they make a neutral ethnic predication on the truth-conditional dimension, while expressing a negative racist attitude on the use-conditional dimension, as in Williamson 2009; Saka 2007. However, what is more important for the purposes of an analysis of the *x-much*-construction, is the addition of so-called shunting expressions. What is special about such shunting expressions can again best be described with reference to how they differ from simple expressives like *damn* in (38). Note that, from a plain truth-conditional perspective, *damn* does not do anything to its argument. That is, truth-conditionally speaking, the content of *damn Parker* equals that of plain *Parker*.[5]

(40) $[\![\mathbf{damn}(\mathbf{parker})]\!]^{t} = [\![\mathbf{parker}]\!]^{t}$

Because of this behavior in the truth-conditional dimension, expressives like *damn* can be called *expletive* use-conditional items (Cruse 1986; Gutzmann 2013) and they are said to be *non-resource sensitive* (Potts 2005), since their argument is not consumed by the application but can be used more than once (once in the use-conditional tier, and a second time when it is used truth-conditionally).

In Potts's original study, this was considered to be the only way according to which expressive items could compose with truth-conditional arguments. However, as was shown by McCready (2010), there are also expressives that, instead of making their argument available again, "shunt" their truth-conditional argument away to the use-conditional dimension in a resource sensitive fashion, leaving nothing back in the truth-conditional layer. For instance, McCready (2010, § 3.3) discusses the Japanese expression *yokumo*. When used in a declarative, this adverbs transforms an ordinary assertion into a kind of negative exclamative. It does this by taking the propositional content as its argument, returning a negative attitude towards it, together with a display of surprise

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[4]Alternatives to the framework in the Pottsean tradition are suggested, amongst others, by Barker, Bernardi, and Shan (Barker et al.), Gutzmann (2015a), and Kubota and Uegaki (2011), who use continuations, or Giorgolo and Asudeh (2011, 2012), who use an approach based on the application of monads to natural language (Shan 2001).

[5]Notation: we use the superscripted *t* to designate just the truth-conditional dimension of the interpretation of an expression. The analog holds for a superscripted *u* and use-conditional content.

at the use-conditional dimension. We can state this informally as follows.

(41) $|yokomu\ S| = \left\langle \begin{array}{c} \varnothing, \\ \textit{The speaker thinks S is bad and is surprised by S} \end{array} \right\rangle$

Crucially, applying *yokumo* to a sentence does not leave anything meaningful behind in the truth-conditional dimension. Hence, a *yokumo* sentence cannot be used to make an assertion, but instead performs an expressive speech act. Obviously, this seems to be similar to what happens when *x-much* is applied to its target phrase. But before we state a shunting analysis of *x-much*, let us first present the formal system in more detail.

In spite of using McCready's shunting expressions, we will not use his $\mathcal{L}_+$. Instead we will employ a modification of the entire Pottsean framework developed by one of the authors elsewhere (Gutzmann 2015b), for the simple reason that it also allows for expressive modification; something that will be needed when we consider the role of intonation in the *x-much*-construction later.

The system of $\mathcal{L}_{\text{TU}}$, as it is called, introduces new types for use-conditional content, much like $\mathcal{L}_{\text{CI}}$ and $\mathcal{L}_{\text{CI}}^+$. However, instead of having multiple new types for the various ways expressive content can compose, together with corresponding application and elimination rules, it uses just one new kind of type and a total of two composition rules. It achieves this by switching to a strictly multi-dimensional system in which every natural language expression is represented by a 3-dimensional logical expression. But let us first start with the type definitions.

(42)   *Types for $\mathcal{L}_{TU}$*
  a. e, t are basic truth-conditional types for $\mathcal{L}_{\text{TU}}$.
  b. u is a basic use-conditional type for $\mathcal{L}_{\text{TU}}$.
  c.   If τ is a truth-conditional type for $\mathcal{L}_{\text{TU}}$, then $\langle s, \tau \rangle$ is a truth-conditional type for $\mathcal{L}_{\text{TU}}$.
  d.   If σ and τ are truth-conditional types for $\mathcal{L}_{\text{TU}}$, then $\langle \sigma, \tau \rangle$ is a truth-conditional type for $\mathcal{L}_{\text{TU}}$.
  e.   If σ is a type for $\mathcal{L}_{\text{TU}}$ and τ is a use-conditional type for $\mathcal{L}_{\text{TU}}$, then $\langle \sigma, \tau \rangle$ is a use-conditional type for $\mathcal{L}_{\text{TU}}$.
  f.   The set of all types for $\mathcal{L}_{\text{TU}}$ is the union of all truth-conditional and use-conditional types.

The two composition rules we will make are called multidimensional application and use-conditional elimination, respectively. In contrast to Potts's system, we follow McCready (2010) and use a proof-style notation.[6]

(43)   *Multidimensional application*

$$\frac{\alpha_1 : \langle \sigma, \tau \rangle \blacklozenge \alpha_2 : \langle \rho, \nu \rangle \bullet \alpha_3 \qquad \beta_1 : \sigma \blacklozenge \beta_2 : \rho \bullet \beta_3}{\alpha_1(\beta_1) : \tau \blacklozenge \alpha_2(\beta_2) : \nu \bullet \alpha_3 \odot \beta_3}$$

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[6]Officially, the 3-dimensional objects are triples. However, we use the bullet and diamond as a nod to the original $\mathcal{L}_{\text{CI}}^{(+)}$-system.

(44)   *Use-conditional elimination*

$$\frac{\alpha_1 \blacklozenge \alpha_2 : u \bullet \alpha_3}{\alpha_1 \blacklozenge \alpha_1 \bullet \alpha_3 \odot \alpha_2}$$

The rule for multidimensional application involves pointwise functional application in the first two dimensions and the merging of use-conditional propositions (i.e. expressions of type u) in the third dimension. The rule for use-conditional elimination takes fully saturated use-conditional content from the second dimension and stores it into the third dimension, while repopulating the second dimension with the content from the first dimension.

How these two rules interact is explained the easiest by way of going through a simple example.

(45)   That damn Daniel is dancing.

We use the following 3-dimensional representation for the derivation of (45). We ignore the demonstrative article as well as the tense and aspect of the original example.

(46)   a. I_e $\blacklozenge$ **damn** : $\langle e,u \rangle \bullet U$
         b.   **daniel** : e $\blacklozenge$ **daniel** : e $\bullet U$
         c.   **dance** : $\langle e,t \rangle$ $\blacklozenge$ **dance** : $\langle e,t \rangle$ $\bullet U$

As usual, I_e is an identity function on expressions of type e. That is, for every expression α of type e, $I_e(\alpha) = \alpha$. The expression U in the third dimension as a dummy expression that corresponds to "empty" use-conditions. It denotes the set of all contexts and hence a trivial use-conditional proposition that is always fulfilled.

With these representations, we can derive the meaning of (45) by a combination of the two combinatoric rules given above.[7]

(47)

$$\cfrac{\cfrac{\cfrac{damn}{I_e \blacklozenge \mathbf{damn} : \langle e,u \rangle \bullet U}\text{Lx} \quad \cfrac{Daniel}{\mathbf{daniel} : e \blacklozenge \mathbf{daniel} : e \bullet U}\text{Lx}}{\cfrac{\mathbf{daniel} : e \blacklozenge \mathbf{damn}(\mathbf{daniel}) : u \bullet U}{\mathbf{daniel} : e \blacklozenge \mathbf{daniel} : e \bullet \mathbf{damn}(\mathbf{daniel}) : u}\text{UE}}\text{MA} \quad \cfrac{is\ dancing}{\mathbf{dance} : \langle e,t \rangle \blacklozenge \mathbf{dance} : \langle e,t \rangle \bullet U}\text{Lx}}{\mathbf{dance}(\mathbf{daniel}) : t \blacklozenge \mathbf{dance}(\mathbf{daniel}) : t \bullet \mathbf{damn}(\mathbf{daniel}) : u}\text{MA}$$

As is illustrated by this derivation, the role of the second dimension is to store all expression that are relevant for the calculation of use-conditional content, which includes both use-conditional functions as well as potential truth-conditional arguments.

Given the derivation in (47), we can equate the interpretation of (45) with the interpretation of the three dimensions of the derived 3-dimensional expression.[8]

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[7]Some notes: Since $[\![I_e(\mathbf{daniel})]\!] = [\![\mathbf{daniel}]\!]$, we drop the identity function and just write **daniel** in the derivation. Also, we just write α for $U \odot \alpha$, since $[\![U \odot \alpha]\!] = [\![\alpha]\!]$.

[8]We can then use a projection function, to define interpretation functions, that pick up just one dimension, such that $|S|^t = \pi_1|S|$ provides the truth-conditional content and $|S|^u = \pi_3|S|$ the use-conditional content. Likewise, we can

(48) $|\textit{That damn Daniel is dancing}| = \langle [\![\mathbf{dance}(\mathbf{daniel}) : t]\!], [\![\mathbf{dance}(\mathbf{daniel}) : t]\!], [\![\mathbf{damn}(\mathbf{daniel}) : u]\!]\rangle$

That is, the truth-conditional content of (45) (in the first dimension) is given by the proposition that
Daniels is dancing, while its use-conditions (in the third dimension) is given by the interpretation
of $\mathbf{damn}(\mathbf{daniel})$, that is, that the speaker has a negative attitude towards Daniel.

Now, *damn* in (45) is an expletive use-conditional item, which can be witnessed by the fact that it
has an identity function in its first dimension (which corresponds to argument type of the function
in the second dimension). So, how shall we model shunting types in $\mathcal{L}_{\mathrm{TU}}$? Remember that in
McCready's $\mathcal{L}_{\mathrm{CI}}^+$, shunting expressions have a dedicated type and compostion rule. Since such
a strategy is not available in $\mathcal{L}_{\mathrm{TU}}$, it must build the difference in composition behavior into the
lexical representation. This can be done by introducing a trivial element T (in analogy to the trivial
use-conditional U) and have the first dimension of a shunting expression map any input onto that
trivial state. That is, for *yokomu*, we get the following representation.

(49) $\lambda p.T \blacklozenge \mathbf{yokumo} : \langle\langle s,t\rangle, u\rangle \bullet U$

With this translation, we can derive a *yokumo*-sentence just as before by using a combination of
multidimensional application and use-conditional application. The only difference is that the first
dimension of *yokumo* is such that it's argument is "consumed", only leaving behind the trivial
truth-conditional element T.

(50)
$$
\dfrac{\dfrac{\overset{\textit{yokumo}}{\rule{4cm}{0.4pt}}}{\lambda p.T \blacklozenge \mathbf{yokumo} : \langle st,u\rangle \bullet U}\ \mathrm{Lx} \quad \dfrac{\overset{S}{\rule{3.5cm}{0.4pt}}}{\mathbf{p} : \langle s,t\rangle \blacklozenge \mathbf{p} : \langle s,t\rangle \bullet U}\ \mathrm{Lx}}{\dfrac{T \blacklozenge \mathbf{yokumo}(\mathbf{p}) : u \bullet U}{T \blacklozenge T \bullet \mathbf{yokumo}(\mathbf{p}) : u}\ \mathrm{UE}}\ \mathrm{MA}
$$

From this derivation, we then get the following 3-dimensional interpretation for a *yokumo*-sentence.

(51) $|\textit{yokumo(S)}| = \langle [\![T]\!], [\![T]\!], [\![\mathbf{yokumo}(\mathbf{p}) : u]\!]\rangle$

Note that the interpretation of the first dimension does not contain any meaningful content, which
models the fact that shunting expressives do not leave any truth-conditional content behind.[9]

With this general approach to use-conditional/expressive content and analysis of shunting expres-
sions as the background, we can now state the lexical representation for *x-much*. Like, *yokumo*, it
must have a "shunting-function" in its first dimension. The important difference, however, is that

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use $|S|^s = \pi_2|S|$ for the second dimension, which may be called *s*-dimension.

[9]The interpretation equals the one that $\mathcal{L}_{\mathrm{CI}}^+$ also yields. However, using a tautology may not be the best way to
model this effect. First, actual tautologies in natural language still license a response like *Of course!* – which is not
true for a shunting sentence. Secondly, one could, in principle add a negation to the deriavtion in (51), which would
result in a contradiction in the truth-conditional dimension, but without any effect on the use-conditional content.
However, empirically, this is not possible. A technically better way to model this could be to introduce a dedicated
output type, that can neither serve as the input of a functional expression nor be used for sensibly perform assertions.
See Barker, Bernardi, and Shan (Barker et al.) for a suggestion along such lines (in a different setting though).

x-much does not take propositional arguments, but instead takes a degree relation of the usual type as its argument.

(52) $\lambda G.T \blacklozenge \mathbf{xmuch} : \langle\langle d, \langle e, t\rangle\rangle, u\rangle \bullet U$

Using this 3-dimensional semantic representation, we can derive a *x-much*-construction like (4) by applying *x-much* to a degree-denoting expression and using use-conditional elimination afterwards.

(53)   Rude, much?
$$\cfrac{\cfrac{\overset{rude}{\rule : \langle d, \langle e, t\rangle\rangle \blacklozenge \mathbf{rude} : \langle d, \langle e, t\rangle\rangle \bullet U}}{} \text{Lx} \quad \cfrac{\overset{much}{\lambda G.T \blacklozenge \mathbf{xmuch} : \langle\langle d, \langle e, t\rangle\rangle, u\rangle \bullet U}}{} \text{Lx}}{\cfrac{T \blacklozenge \mathbf{xmuch}(\mathbf{rude}) : u \bullet U}{T \blacklozenge \mathbf{xmuch}(\mathbf{rude}) : u \bullet \mathbf{xmuch}(\mathbf{rude}) : u} \text{UE}} \text{MA}$$

From this, we then get the following interpretation. First, since T denotes the set of all worlds, the truth-conditional content is trivial.

(54) $|Rude, much?|^t = [\![T]\!] = W$

As for the lexical semantics for *x-much*, we give a denotation along the lines of (55), which then gives us the interpretation in (56) for the use-conditional dimension of (53).

(55) $[\![\mathbf{xmuch}]\!]$ = the function f, such that for any degree relation G, contextually determined individual x and standard of comparison for Std_G, $f(G) = \{c :$ there is a degree d such that x is G to degree d in c and d largely exceeds Std_G in c and c_S think that degree is ridiculous$\}$

(56) $|Rude, much?|^u = [\![\mathbf{xmuch}(\mathbf{rude})]\!] = \{c :$ there is a degree d such that x is rude to degree d in c and d largely exceeds Std_G in c and c_S think that degree is ridiculous$\}$

To sum up, the use of *x-much* is felicitous—or, as Kaplan (1999) put it, "expressively correct"—if the inferred referent exhibits the property denoted by the target to a very high degree (given the standard of comparison) and if the speaker judges that degree to be ridiculous or excessive. This approximates the contribution of *x-much* closely enough. But the shunting analysis also captures the fact that the entire contribution of the *x-much*-construction is in the use-conditional dimension and that it therefore is not asserted, while still committing the speaker to its content. The analysis also correctly captures the fact that *x-much* cannot compose with truth-conditional operators like conjunction and disjunction, as no meaningful truth-conditional content is left behind after *x-much* is applied to its argument.

6. Directedness

One aspect we have not addressed so far is why the *x-much* construction, when written, is used with a question mark. The answer is, we think, twofold. First, when spoken, it is used with a rising intonation akin to that used in bona fide rising declaratives, which are also mostly written with question marks due to their question-like conversational force (Gunlogson 2003). Secondly,

as we will argue, the effect of this rising intonation is that the entire *x-much*-construction may be considered to be a special kind of question which is similar to a biased polar question, but in the expressive dimension instead of the truth-conditional level. This has, as we will see, special ramifications for their discourse status.

The first observation to be made is that an *x-much*-utterance needs an interlocutor to which it is directed. You cannot just utter it for yourself. For instance, consider the follow scenario.

(57)   [Walking through the forest alone, a giant tree crashes down in front of you.]
    a.   #Scary, much?
    b.   That was very scary!
    c.   Scary!
    d.   How scary that was!

The *x-much*-utterance in (57a) is ruled in contexts like this in which there is no adresse. In contrast, using a plain declarative as in (57b) or just elliptical version of it as in (57c) is perfectly fine (*pace* all approaches to think of declaratives as putting forward a proposal). Interestingly, exclamatives, which seem to be very similar to utterances of *x-much*, are also possible in such a context, as witnessed by (57d).

A similar observation can be made for questions posed with rising declaratives. As illustrated by the following, different forest scenario, using a rising declarative in self-directed speech is ruled out, while the use of a simple polarity question is fine.

(58)   [Walking through the forest alone, you come upon what you think might be an old oak.]
    a.   Is that an oak?
    b.   #That's an oak?

That is, *x-much* seems to be necessarily directed at someone besides oneself, just like rising declaratives. However, given the aforementioned fact that *x-much* utterances have the same intonation as rising declaratives, it should be of no surprise that both share this kind of directedness. In particular, Gunlogson 2003 has argued that it is precisely the rising intonation that, in combination with the contribution of simple declaratives, gives rising declaratives their question-like conversational force. In the rest of this paper, we briefly explore the ramifications of taking the intonation in *x-much*-constructions at face value, assigning it the same kind of meaning as in rising declaratives, and combining it with the expressive semantics of *x-much* as presented in the previous section.

The basic idea of Gunlogson's analysis of rising declaratives is that the rising intonation has the effect of trying to place the proposition at hand on the addressee's commitment set, which in turn presupposes that such an addressee exists in the first place. That is, the difference between rising and ordinary, falling declaratives is that the latter update the speaker's commitment set, while the former target the hearer's set (see also Davis 2011).

Along these lines, what we propose is that the rising intonation of *x-much*-utterances has a parallel effect. Instead of updating the speaker commitment set with expressive content, it instead places the expressive proposition on the hearer's commitment set. However, since what is put forward to the addressee comes in the form of expressive content, the addressee cannot react in a direct, at-issue way and hence, it does become a bona fide question. That is, much like exclamatives or other expressive utterances which can be thought of as being "expressive assertions" that cannot update the speaker commitment set without being negotiable, we can think of *x-much*-utterances as "expressive questions", that seek to update the hearer's commitment set.

(59)

	speaker update	hearer update
negotiable	declaratives	rising declaratives
unnegotiable	exclamatives	*x-much*-utterances

In this sense, the *x-much* construction is good tool to seek mutal alignment of expressive attitudes without putting them directly on the discourse table, which explains their use to establish a connection (mostly when used about another person/object) or to accuse the hearer of exaggerating.

7. Conclusion

This work provides the first detailed discussion of English *x-much*, and in doing so, makes a series of novel empirical and theoretical claims. First, we have shown that *x-much* is different from more familiar uses of *much* in terms of its syntactic, semantic, and discourse properties. In particular, *x-much* is an expressive operator of the shunting kind, targeting a gradable predicate and adding a speaker's evaluative attitude about the degree to which an individual stands out on the relevant scale. Second, we have suggested that the rising intonation that necessarily accompanies the construction's use can be assimilated to that which accompanies a rising declarative. In this way, *x-much* might behave like a kind of expressive question seeking alignment of attitudes. While we did not have space to tackle this aspect of the meaning of *x-much* in detail, studying the relation between use-conditional content and the different discourse update types is an understudied area and ripe for subsequent research that we intend to do. Showing, as we have done here, that English has a novel use of *much* that derives inherently directed expressives is a solid first step.

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