Expressive Modifiers, Measure Phrases, and Degree Types

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1 Introduction

The purpose of this squib is twofold: first, to call attention to an apparently previously unrecognized fact about the interaction of measure phrases and expressive modifiers such as *goddamn*; and second, to show that it follows relatively straightforwardly from some simple assumptions about expressive modifier semantics coupled with a slightly-modified version of the approach to measure-phrase interpretation proposed in Schwarzschild (2005).

Section 2 explores the data. Section 3 presents a rough-and-ready understanding of expressive modification. Section 4 sketches the relevant portion of Schwarzschild's analysis. Section 5 relates the two, developing an account and showing how it constitutes evidence for Schwarzschild's proposal. Section 6 concludes.

2 The Facts

There is a class of expressive modifiers that very naturally occurs pre-adjectivally in English, in roughly the role of a degree word:

(1) Rufus is $\left\{ \begin{array}{l} \text{fucking} \\ \text{goddamn} \end{array} \right\}$ tall.

The exact membership of this class varies widely, but it includes at least *fucking* and *goddamn*. In some dialects, *bloody*, simple *damn*, or *goshdarn* are also possible.

I characterize these as 'expressive modifiers' because they are all homophonous with what are sometimes called expressive adjectives (Huddleston & Pullum 2002, Potts 2003, among others). The defining property

of the class is that they contribute expressive meaning, in the sense of Kratzer (1999), Potts (2003, 2007) and others—that is, meaning that is typically associated with the speaker or judge (in the sense of Lasersohn 2005), does not contribute at-issue truth-conditional content, is difficult to express descriptively, and resists semantic embedding.[1]

These modifiers occur very naturally with degree words:[2]

(2)   a. Rufus is $\begin{Bmatrix} \text{really} \\ \text{pretty} \\ \text{incredibly} \\ \text{too} \end{Bmatrix}$ $\begin{Bmatrix} \text{goddamn} \\ \text{fucking} \\ \text{bloody} \end{Bmatrix}$ tall.

     b. BMWs are $\begin{Bmatrix} \text{really} \\ \text{more} \\ \text{rather} \end{Bmatrix}$ $\begin{Bmatrix} \text{goddamn} \\ \text{fucking} \\ \text{bloody} \end{Bmatrix}$ expensive.

The principal observation at issue here will be that despite this, they are systematically incompatible with measure phrases, as in (4):

(3)   *Rufus is seven feet $\begin{Bmatrix} \text{goddamn} \\ \text{fucking} \\ \text{bloody} \end{Bmatrix}$ tall.

On standard assumptions, this is surprising. Measure phrases are normally regarded as closely related to degree words, both syntactically and semantically. And there is nothing wrong with what (3) is trying to express: that Rufus is seven feet tall, and that this is goddamn tall.

There is in fact a grammar to the distribution of expressive modifiers more generally. I will focus on degree uses here, though there are restrictions on their other uses as well. In general, expressive modifiers are odd when immediately preceding a degree word:

(4)   a. ??Rufus is $\begin{Bmatrix} \text{goddamn} \\ \text{bloody} \end{Bmatrix}$ $\begin{Bmatrix} \text{really} \\ \text{pretty} \\ \text{incredibly} \\ \text{too} \end{Bmatrix}$ tall.

     b. ??BMWs are $\begin{Bmatrix} \text{goddamn} \\ \text{fucking} \\ \text{bloody} \end{Bmatrix}$ $\begin{Bmatrix} \text{really} \\ \text{more} \\ \text{rather} \end{Bmatrix}$ expensive.

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[1]All of these characteristics have been called into question, however. See among others Geurts (2007), Schlenker (2007), Amaral et al. (2007).

[2]A possible exception is *very*: *very fucking tall* is faintly awkward, perhaps because of a mismatch between the registers in which *fucking* and *very* are appropriate.

This generalization is obscured somewhat by a particular cousin of *fucking*. There is a use on which it is normally pronounced *fuckin'* (that is, with a final alveolar nasal), and followed by an intonational break. This form is in fact possible preceding a degree word:[3]

(5)   a. Rufus is fuckin', $\left\{\begin{array}{l}\text{REALLY}\\\text{PRETTY}\\\text{INCREDIBLY}\\\text{TOO}\end{array}\right\}$ tall.

       b. BMWs are fuckin', $\left\{\begin{array}{l}\text{really}\\\text{more}\end{array}\right\}$ EXPENSIVE.

As (5) reflects, this form seems to require—or at least strongly favor—a focused constituent. Indeed, it seems to associate with focus, and may perhaps be regarded as simply a focus particle. Once this independent use is controlled for with the appropriate phonology, *fucking* too accords with the generalization that expressive modifiers are odd immediately before degree words:

(6)   a. ??Rufus is fucking $\left\{\begin{array}{l}\text{really}\\\text{pretty}\\\text{incredibly}\\\text{too}\end{array}\right\}$ tall.

       b. ??BMWs are fucking $\left\{\begin{array}{l}\text{really}\\\text{more}\end{array}\right\}$ expensive.

The main relevance of this here is that expressive modifiers are also somewhat odd immediately preceding measure phrases:

(7)   ?Rufus is $\left\{\begin{array}{l}\text{goddamn}\\\text{fucking}\\\text{bloody}\end{array}\right\}$ seven feet tall.

In view of the larger paradigm, this is not especially surprising—though it is interesting in that there is to my knowledge no explanation of these facts. What *is* surprising, however, is that expressive modification should be incompatible with measure phrases in *either* position.

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[3]The comma indicates the distinct prosody of this form, and the small caps focus. I omit *rather* because it belongs in a different register than *fuckin'*.

3   The Semantics of Expressive Modifiers

To get off the ground, it will be necessary to make some assumptions about the semantics of expressive modifiers. There is, however, no clear consensus about how expressive meaning works, much less about how expressive modifiers work. The best known and most influential approach is that of Potts (2003), in which expressive meaning is represented on its own distinct semantic dimension, in parallel with but apart from ordinary descriptive meaning.

For current purposes, though, a slightly less complicated approach will suffice. Schlenker (2007) suggests that expressive meaning can be understood as a particular species of presupposition, which is distinguished from garden-variety presupposition chiefly in being indexical. This indexicality typically takes the form of dependence on a speaker (or Lasersohnian judge) parameter. I will adopt this view, primarily for expository convenience. Nothing crucial hinges on this choice.

The semantics Schlenker provides for the expressive noun *honky* is roughly as in (8), where c is a discourse context:[4]

(8) $[\![\,honky\,]\!]^c = \lambda x :$ the speaker in c believes in c that white people are despicable . x is a white person in c

Expressive modifiers of the variety at hand, unlike *honky*, seem to lack descriptive content entirely. On this kind of approach, then, they would play no role other than to introduce a presupposition. But in another respect they are more complicated than *honky*, because they express an attitude toward what they modify rather than something fixed in the lexicon. The most straightforward use is probably the (quasi-)adjectival one, so let's begin there:

(9)   Rufus is a goddamn chiropractor.

From this one might conclude that the speaker feels strongly—most likely, very negatively—about certain chiropractors (or perhaps all of them):

(10) $[\![\,goddamn\ chiropractor\,]\!]^c = \lambda x :$ the speaker in c feels strongly about x . x is a chiropractor in c

There are several difficulties here, which I will ultimately abstract away from. The first is the question of what the speaker's attitude is, exactly. All things being equal, it seems to default to a negative one, but this is not obligatory— one can perfectly well characterize someone as *a goddamn genius* without having insulted her. 'Feels strongly' is of course quite vague, but it's hard to

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[4]I have simplified this from the original. I have also introduced the Heim & Kratzer (1998)-style colon notation for presupposition.

get very much further. (Potts 2007 calls this 'descriptive ineffability'.) The other major issue is the question of what exactly the attitude is toward. In (10) I suppose that it is toward a particular individual. This would be the case especially clearly in e.g. *Your goddamn mother called yet again today*, where the speaker obviously doesn't intend to convey strong feelings about mothers in general. An alternative would be to suppose that the strong feelings are not about a particular individual, but rather about the extension of the noun more generally, or perhaps even about nothing in particular.[5] A question related to this one is that of how *goddamn* should work compositionally, including whether it could even be interpreted intersectively.

To sidestep this dangerous morass, I will represent the expressive content of *goddamn* using an abstract predicate $goddamn$:

(11) $[\![\,goddamn\,]\!]^c = \lambda f\,\lambda x : goddamn(x, c)\,.\,f(x)$

Given this denotation, the semantic type of *goddamn* is $\langle et, et \rangle$, though it could just as easily have been written as a simple property with no non-presupposed content.

Either way, the particular type of *goddamn* is important, because it will rule out a variety of uses that are not possible. It will be especially important that *goddamn* is not of type $\langle \langle et, t \rangle, \langle et, t \rangle \rangle$—that is, a modifier of generalized quantifiers. If it were, (12) would be expected to be good:

(12) *$\left\{ \begin{matrix} \text{Goddamn} \\ \text{Fucking} \\ \text{Bloody} \end{matrix} \right\}$ $\left\{ \begin{matrix} \text{the} \\ \text{three} \\ \text{most} \\ \text{every} \\ \text{some} \end{matrix} \right\}$ chiropractor(s) might be fraudulent.

But it errs too much in the other direction to restrict *goddamn* only to $\langle et, et \rangle$. It also has adverbial uses, as in (13), in addition to the degree uses that are the focus here:

(13) Rufus might $\left\{ \begin{matrix} \text{goddamn} \\ \text{fucking} \\ \text{bloody} \end{matrix} \right\}$ murder everyone in the room.

What we need, then, is a denotation of type $\langle \langle \tau, t \rangle, \langle \tau, t \rangle \rangle$, where τ can be

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[5]Potts (2003) proposes that *damn* is usually predicated of a kind corresponding to the modified NP, except in cases in which *damn*, despite its position inside a DP, takes scope over the whole sentence. Morzycki (2008) suggests instead that expressive modifiers are predicated of a something like a definite description formed from the modified expression.

individuals, events, or degrees. The only change required to (11) is to replace x with a variable for any of these types, as in (14):

(14) $[\![\,goddamn\,]\!]^c = \lambda f_{\langle \tau, t \rangle} \lambda \alpha_\tau : goddamn(\alpha, c) \, . \, f(\alpha)$

4   Measure Phrases as Predicates of Gaps

The other—and more important—ingredient in the story will be the Schwarzschild (2005) approach to measure-phrase modification. In a degree semantics, the standard assumption is that adjectives denote relations between individuals and degrees. Among the canonical pieces of evidence that motivate this assumption are positive (i.e., morphologically unmarked) adjectives with measure phrases, as in sentences like *Rufus is six feet tall*. In such cases, it is very natural to suppose that *six feet* and *Rufus* are both arguments of *tall*. Schwarzschild, however, observes that such examples are actually very much the marked case, both within English and cross-linguistically. It is in fact far more typical for positive adjectives to be incompatible with measure phrases.

Within English, many adjectives that use a scale associated with a well-established system of measurement nonetheless do not accept measure phrases in the positive form:[6]

(15)   a. *200 pounds heavy
       b. *30°hot
       c. *80 miles per hour fast
       d. *$5 million rich
       e. *2 inches big
       f. *50 decibels loud
       g. *120 IQ points intelligent
       h. *30 miles far
       i. *20 points well on the exam

Across languages, there is variation in which positive adjectives support measure phrases. In Dutch, for example, *rijk* 'rich' supports a measure phrase, as in (16); in German, *heiss* 'hot', *schwer* 'heavy', and *schnell* 'fast' all do, as in (17):

(16)   is 2 boeken rijk   (Corver 1990)
       is 2 books   rich
       'owns two books'

_____

[6]These are among many more examples Schwarzschild cites. Negative adjectives are generally assumed to resist measure phrases, so I omit them here.

(17) a. 35° heiss   (Schwarzschild 2005)
         35° hot

      b. 100 Tonnen schwer
         100 tons   heavy

      c. 60 Stundenkilometer   schnell
         60 kilometers-per-hour fast

In many languages, measure phrases are in fact systematically impossible
with all positive adjectives. Among these are Japanese (Snyder et al. 1995),
Russian (Matushansky 2002), and Spanish (Bosque 1999).

    In stark contrast, comparatives support (differential) measure phrases
systematically, whenever an appropriate measure is available:

(18) a. 200 pounds heavier
      b. 30 degrees hotter
      c. 80 miles per hour faster
      d. $5 million richer
      e. 2 inches bigger
      f. 50 decibels louder
      g. 120 IQ points more intelligent
      h. 30 miles farther
      i. 20 points better on the exam

This is not only the case in English, but also a common state of affairs cross-
linguistically, including in languages that exclude measure phrases entirely
from positive adjectives.

    Viewed this way, the question is what is it about comparatives that
licenses measure phrases, and what is it about positive adjectives that gener-
ally precludes them? Schwarzschild's answer is to return to the intuition,
expressed in McConnell-Ginet (1973), that measure phrases are 'predicates
of gaps'. Comparatives inherently present a gap between two degrees, the
difference between them. It is such gaps that measure phrases measure. In
a positive adjective, there is no analogous gap, and therefore nothing for a
measure phrase to measure.

    Formally, he represents this difference by distinguishing two types of
degrees: points (which he calls simply 'degrees') and intervals (what Kennedy
1997, 2001 and others call 'extents'). I'll represent the type of degrees as
d, and intervals, because they are sets of point-degrees, as $\langle d, t \rangle$. I will
depart from Schwarzschild's assumptions in at least one significant way to
grease the compositional wheels: I will assume an 'exactly' rather than an
'exceeds' interpretation of adjectives—that is, I will assume $[\![\textit{tall}\,]\!]([\![\textit{Rufus}\,]\!])$

is a predicate that holds of precisely one degree, that of Rufus's height, rather than that degree and all below it. This is not the standard view, but a defensible one.[7] Several further departures will follow from this.

Measure phrases, I will assume, have denotations such as (19), where $\mu_{decibels}$ represents a measure function that applies to a (proper) interval and yields its measure in decibels:

(19) $[\![\textit{50 decibels}\,]\!] = \lambda I_{\langle d, t\rangle}[\mu_{decibels}(I) = 50]$

This has the consequence that *50 decibels* is defined for proper intervals that can be measured in decibels—that is, I cannot be a discontinuous, empty, or singleton set, and it must be on the scale of loudness—and holds of ones that measure 50 decibels. Being a predicate of intervals, $[\![\textit{50 decibels}\,]\!]$ is of type $\langle dt, t\rangle$. With this in mind, a positive AP could be interpreted as in (20):

(20) a.
$$
\begin{array}{c}
\text{AP} \\
\langle d, t\rangle
\end{array}
$$

DP   A′

e $\langle e, dt\rangle$

Rufus   *loud*

    b. $[\![\textit{loud}\,]\!] = \lambda x \lambda d[loud(x) = d]$
    c. $[\![\textit{Rufus loud}\,]\!] = \lambda d[loud(Rufus) = d]$

This assumes the subject begins inside AP and is interpreted there; and it leaves the degree argument free, to be bound higher in the tree by existential closure. Crucially, the resulting AP denotation is of type $\langle d, t\rangle$, so it can't apply to a measure phrase such as (19), which is of type $\langle dt, t\rangle$. Nor can the measure phrase apply to it, because the AP does not denote a proper interval for which $\mu_{decibels}$ is defined, but rather (by hypothesis) a singleton set of a single degree. It is here that the 'exactly'-interpretation assumption is crucial.

Comparatives, on the other hand, inherently make available intervals, as (21) reflects:[8]

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[7]Kennedy (1997), for example, proposes that adjectives denote measure functions and therefore associate an individual with exactly one degree (though for him this degree is itself an interval).

[8]The label AP here is for convenience only. The comparative denotation assumed here is equivalent to Schwarzschild's but expressed differently.

(21) a.

AP
$\langle dt, t \rangle$

MP $\langle dt, t \rangle$ — *50 decibels*

AP $\langle dt, t \rangle$

DP e — *Rufus*

A′ $\langle e, \langle dt, t \rangle \rangle$ — *louder than Alfred*
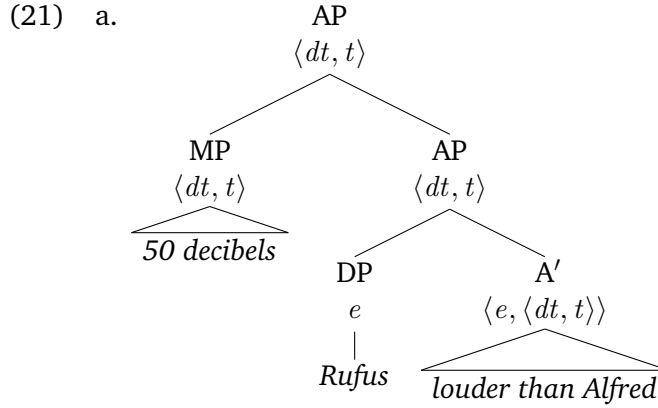
b. ⟦ *Rufus louder than Alfred* ⟧
   $= \lambda I_{\langle d, t \rangle}[I = (loud(Alfred), loud(Rufus))]$

c. ⟦ [$_{MP}$ *50 decibels*] [$_{AP}$ *Rufus louder than Alfred*] ⟧
   $= \lambda I_{\langle d, t \rangle}[\mu_{decibels}(I) = 50 \wedge I = (loud(Alfred), loud(Rufus))]$

The denotation of the comparative AP itself in (21b) is a property that holds of the interval that starts just above loudness of Alfred and extends to that of Rufus. Because this is of type $\langle dt, t \rangle$, as the measure phrase is, they can combine intersectively to yield (21c), which additionally requires that the interval measure 50 decibels.

This accounts for why measure phrases are in general impossible in positive forms. Something special, however, needs to be said about the positive adjectives that *do* allow measure phrases, such as *tall*. Schwarzschild proposes that these involve a distinct denotation for the adjective, derived by an optional lexical rule (a type shift, essentially). Adjusting it only to reflect the current assumptions, it is as in (22):

(22) a. HOMONYM RULE: from degrees to intervals.

   If *A* has meaning that relates individuals to degrees via a measure function A', then *A* has a secondary meaning relating individuals to sets of degrees (intervals). The secondary meaning is given by:

   $$\lambda x \lambda I_{\langle d, t \rangle} . I = \{d : d \leq A'(x)\}$$

   b. Homonym Rule applies to *tall, wide, deep, thick, old, long, high*

Thus alongside the ordinary denotation of *tall* in (23a), there is the shifted denotation in (23b):

(23) a. ⟦ *tall* ⟧ $= \lambda x \lambda d . [tall(x) = d]$
      b. ⟦ *tall₂* ⟧ $= \lambda x \lambda I_{\langle d, t \rangle}[I = \{d : d \leq tall(x)\}]$

9

The denotation of *tall₂* in (23b) relates an individual and an interval consisting of all degrees of height up to and including the individual's height. Once the individual argument is saturated, this yields an AP denotation of type $\langle dt, t \rangle$, which can combine intersectively with the measure phrase:

(24)   a.

```
                        AP
                     ⟨dt, t⟩
              _____|_____
             |                 |
            MP                 AP
          ⟨dt, t⟩            ⟨dt, t⟩
            |             _____|_____
         six feet        |           |
                        DP           A′
                         e     ⟨e, ⟨dt, t⟩⟩
                         |           |
                       Rufus       tall₂
```

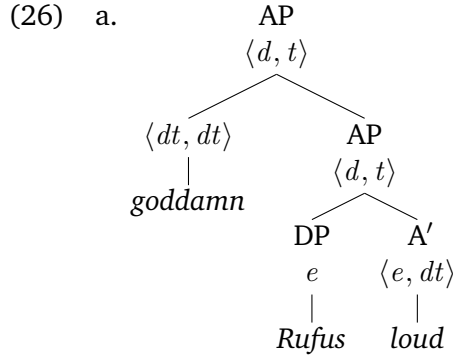b. $[\![[_{MP} \text{ six feet }] [_{AP} \text{ Rufus tall}_2]]\!]$
    $= \lambda I_{\langle d, t \rangle} [\, \mu_{feet}(I) = 6 \wedge I = \{ d : d \leq tall(Rufus) \} \,]$

5   Bringing Things Together

Together, these assumptions about expressive modifiers and measure phrases yield an account of their incompatibility. The denotation of *goddamn* in (14), repeated here in its degree-form, is as in (25):

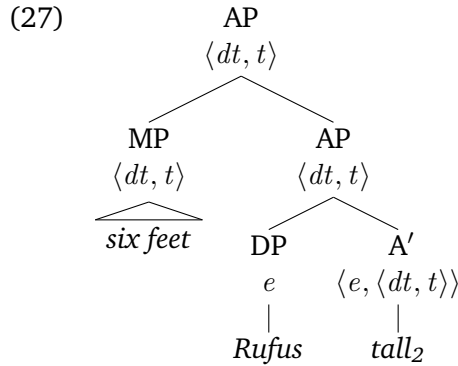(25) $[\![goddamn]\!]^c = \lambda f_{\langle d,t \rangle} \lambda d : goddamn(d, c) \,.\, f(d)$

This is of type $\langle dt, dt \rangle$—that is, it is a modifier of degree properties, or, equivalently, degree intervals. This is perfectly compatible with ordinary adjective denotations:

(26) a.

```
                    AP
                   ⟨d, t⟩
          _____|_____
         |                 |
      ⟨dt, dt⟩             AP
         |               ⟨d, t⟩
      goddamn        _____|_____
                    |             |
                    DP            A′
                    e          ⟨e, dt⟩
                    |             |
                  Rufus         loud
```

b. $[\![\, Rufus\ loud\,]\!]^{c} = \lambda d[loud(Rufus) = d]$

c. $[\![\, goddamn\ Rufus\ loud\,]\!]^{c} = [\![\, goddamn\,]\!]^{c}([\![\, Rufus\ loud\,]\!]^{c})$
    $= \lambda d : goddamn(d, c)\ .\ [\![\, Rufus\ loud\,]\!]^{c}(d)$
    $= \lambda d : goddamn(d, c)\ [loud(Rufus) = d]$

This seems an appropriate denotation. Importantly, the higher AP here remains of type $\langle d, t\rangle$, meaning that degree words can be layered above this structure in the ordinary way, making possible *really goddamn loud*, *more goddamn loud*, and the like.

With measure phrases, however, there is no place for *goddamn* to fit type-theoretically. Repeating the structure in (24):

(27)

```
                    AP
                  ⟨dt, t⟩
          _____|_____
         |                 |
        MP                AP
      ⟨dt, t⟩           ⟨dt, t⟩
        ___           _____|_____
       six feet      |           |
                     DP          A′
                     e      ⟨e, ⟨dt, t⟩⟩
                     |           |
                   Rufus       tall₂
```

There is no node here of type $\langle d, t\rangle$ for *goddamn* to modify.

One could of course simply posit a denotation for *goddamn* that would be of the right type—that is, that would be a modifier of properties of degree intervals, type $\langle\langle dt, t\rangle, \langle dt, t\rangle\rangle$. This type, however, has already been explicitly rejected for independent reasons. If it were available, its individual counterpart would be of type $\langle\langle et, t\rangle, \langle et, t\rangle\rangle$—that is, a modifier of generalized quantifiers. But as we have already seen in section 3, expressive modifiers are systematically incapable of modifying generalized quantifiers. So two sources of evidence converge here.

6   Final Remark

The central empirical observation here has been that measure phrases are systematically incompatible with expressive modifiers. This is a surprising and unexpected fact on standard assumptions, but it is precisely what one might expect if Schwarzschild (2005) is right that measure phrases are predicates of intervals and that there is an important distinction between intervals and ordinary degrees. There is an ancillary but important point underlying this discussion as well—that expressive modifiers are not simply a kind of linguistic litter with a haphazard distribution, but rather have a restrictive and potentially interesting grammar of their own.

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