

Measure phrases: modifiers or heads?

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1. Introduction

One of the challenges of analyzing constructions involving measure phrases (Klooster 1972, Murphy 2006, Corver 2009, Csirmaz & Stavrou 2017, Scontras 2020) is to determine whether the measure phrase is a modifier or a head. The phrases in bold in the following examples are measure phrases:

- (1) The book cost **75 euros**.
- (2) Lorraine weighs **54 kilos**.
- (3) That swimming pool is **10 metres** long.
- (4) The little girl is **6 years** old.

Measure phrases are analyzed in FDG as involving Quantities (symbolized by the variable 'q') at the Representational Level (RL). This paper will examine three of their commonest occurrences in English grammar: (a) as expressing the absolute measure of Individuals (i.e. first-order entities, both mass and count), as in (1)-(4); (b) as expressing a relative measure of difference in comparative constructions (as in (16) below); (c) as expressing a vector of distance in spatial (and temporal) constructions (as in (18)-(22) below). The focus will be on the status of the measure phrase as head or modifier.

2. Three uses of measure phrases in English

2.1. Absolute measures

In (1) and (2), *75 euros* and *54 kilos* are arguments of the predicates *cost* and *weigh* respectively and will be analyzed at RL as Quantities; here are the relevant Configurational Property analyses:

- (5) $(f_i: [(f_j: \text{cost}_V(f_j)) (1x_i: (f_k: \text{book}_N(f_k)) (x_i))]_U (75q_i: (f_i: \text{euro}_N(f_i)) (q_i))_{\text{Ref}}] (f_i))$
- (6) $(f_i: [(f_j: \text{weigh}_V(f_j)) (1x_i)_U (54q_i: (f_i: \text{kilo}_N(f_i)) (q_i))_{\text{Ref}}] (f_i))$

The semantic functions U and Ref(erence) reflect the stative nature of these predications and the lack of an Undergoer second argument explains the impossibility of such passives as (7) and (8):

- (7) *75 euros are cost by the book.
- (8) *54 kilos are weighed by Lorraine.

In (3) and (4), by contrast, the measure phrase appears to be part of an Adjective phrase and to have a modifying role within that phrase (cf. Schwarzschild's 2005 analysis of such measure phrases as 'adjuncts'). After all, it seems to occur in the same position as what are clearly modifying expressions:

- (9) That swimming pool is too/extremely/wonderfully/surprisingly/etc. long.

However, closer inspection reveals that the measure phrase is in fact the head of the phrase in which it occurs. Modifiers are typically omissible *salvo sensu*, and what appears to be a modifier cannot be omitted without altering the sense of the original:

- (10) That swimming pool is long.

(11) The little girl is old.

In addition, (3) and (4) can be paraphrased as follows:

(12) That swimming pool is 10 metres in length.

(13) The little girl is 6 years of age.

In (12) and (13), *in length* and *of age* are unarguably postmodifiers that specify the dimension (in (12), literally) in terms of which the quantity is to be understood. By analogy, therefore, *10 metres long* and *6 years old* are to be analyzed as Quantities that are attributed (as Ascriptive Subacts at the Interpersonal Level) to the respective Individuals; the postmodifying adjectives *long* and *old* are seen as properties modifying the head of the respective Quantities:

(14) (T_i) (R_i)
(f_i: [(10q_i: (f_j: metre_N (f_j): long_A (f_j)) (q_i)) (1x_i: (f_k: swimming_pool_N (f_k)) (x_i))_U] (f_i))

(15) (T_i) (R_i)
(f_i: [(6q_i: (f_j: year_N (f_j): old_A (f_j)) (q_i)) (1x_i: (f_k: girl (f_k)) (x_i): (f_i: little (f_i)) (x_i))_U] (f_i))

An advantage of this analysis is that it becomes clear that ‘long’ is not being ascribed to ‘swimming pool’, nor ‘old’ to ‘little girl’. It has been noted (Schwarzschild 2005: 210-212; Murphy 2005: 83) that the construction analyzed in (14) and (15) is not fully productive (*30 decibels loud, *12 euros expensive, etc.).¹ This leads Murphy (2005: 78) to the conclusion that languages possessing this construction have “a limited number of partially lexicalised M[asure] P[hrase]+Adj constructions”, which suggests an FDG analysis of such uses of measure phrases along the lines of Keizer’s (2016) “partially instantiated” frames.

2.2. Relative measures

Measure phrases can also be used to indicate the extent of difference within a comparative Adjective phrase; here they occupy the same syntactic position before the Adjective as in (3) and (4), but now are properly modifiers, as is shown by their omissibility without semantic effects:²

(16) This tree is (two metres) taller than that one.

Here the analysis will be as in (17):

(17) (f_i: [(f_j: [(Comp f_k: tall_{Adj} (f_k): (2q_i: (f_i: metre_N (f_i)) (q_i)) (f_k)) (dist1 x_i: (f_m (x_i))_{Standard})] (f_j)) (prox1 x_j: (f_m: tree_N (f_m)) (x_j))_U] (f_i))

Notice that the restrictions on the productivity of the construction in (3) and (4) do not apply to the comparative construction: ✓30 decibels louder, ✓12 euros more expensive.

¹ Both authors note that languages that share this construction differ in which adjectives can participate in it.

² In a language like Icelandic, the difference reveals itself in the case-marking: *þette tré er [tveggja metra]_{Gen} hátt* ‘This tree is two metres tall’ vs. *þette tré er [tveimur metrum]_{Dat} hærra en það* ‘This tree is two metres taller than that one’.

2.3. Vectors of distance

The issue of determining modifier or head status also applies to those locative (and temporal) expressions that contain measure phrases. In recent months, we have been repeatedly told:

- (18) a. Stand at a distance of **one and half metres**.
b. Stand at **one and half metres'** distance.
- (19) a. Stand **one and a half metres** apart.
b. Stand **one and a half metres** apart from each other.
- (20) Keep **one and a half metres** away (from other people).
- (21) Keep **one and a half metres** from the next person.
- (22) Do not come within **one and a half metres** of another person.

The constructions in question can be used whenever distance is involved. As Zwarts (2020: 620) has observed, they are ungrammatical with expressions of proximity or contact:

- (23) *He is standing **less than one and a half metres** near me!
- (24) *He is standing **one and a half metres** in my space!

Distance is a stative relation, as is reflected in the locative preposition *at* in (18).

However, distance can also be conceptualized as a pair of vectors³ (Zwarts 2017: 5) of equal length that run in opposite directions simultaneously, i.e. from *self* to *other* and from *other* to *self*, as shown in Figure 1:

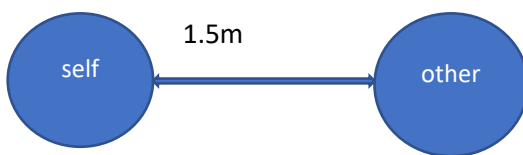


Figure 1: *apart*

This relation is expressed by the adverb *apart*, cf. (19a), which can be optionally complemented by *from each other* as in (19b), a fact that reveals the co-presence of the two vectors shown in Figure 1. Following the proposal in Giomi (forthcoming), the reciprocal *each other* will arise from the operator *distr(ibutive)* and the relevant Configurational Property will be provisionally analyzed as follows:

- (25) $(f_i: [(f_j: \text{stand}_V(f_j)) (2x_i)_A (l_i: [(f_k: \text{apart}_{Ad}(f_k)) (\text{distr } x_i)_{L-AbI}] (l_i)): (1\frac{1}{2}q_i: (f_i: \text{metre}_N(f_i)) (q_i)) (l_i)] (f_i))$

In (20), there is only one vector, whose initial point is *other* and terminal point is *self*:

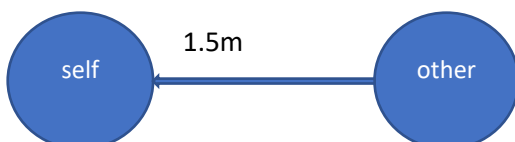


Figure 2: *away*

³ A vector is a geometric object that has length and direction.

Here, too, the measure phrase is omissible and therefore is a modifier of the adverb *away*. Again, a complement with *from* is available, denoting the other.

(21) looks almost identical to (20) and can also be conceptualized as in Figure 2, but here the measure phrases cannot be omitted:

(26) *Keep from the next person.

This indicates that the measure phrase is here no longer a modifier, but the head of the construction, with *from the next person* functioning as its modifier. This is in line with an analysis of the preposition *from* as a grammatical morpheme since only lexical 'Ads' (adverbs/adpositions) like *apart (from)* or *away (from)* can be modified.

Finally, the formulation in (22) involves the conceptualization of a region (Zwarts 2017: 8), in this case a circle defined by a set of vectors whose initial point is *other* and whose length is the radius of that circle, as in Figure 3. Here the vector runs from *self* to the circumference of the circle, beyond which *self* may not go. At RL, *one and a half metres* as in (21) does not modify the preposition *of* (another grammatical position), but is head of the Location defined by the measure phrase.

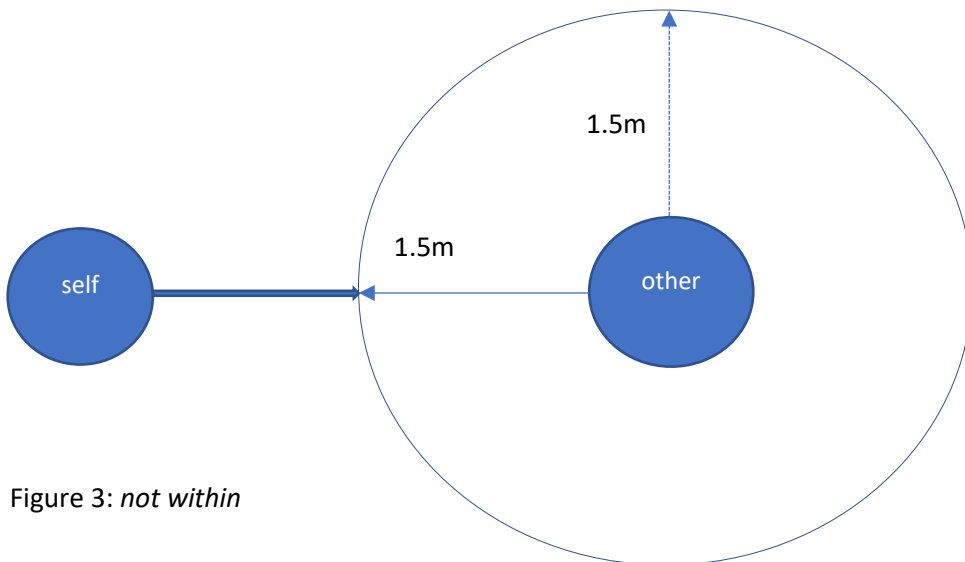


Figure 3: *not within*

3. Conclusion

The purpose of this paper, many details of which remain to be worked out, is to elucidate the status of measure phrases in FDG, specifically with regard to the analytical distinction between heads and modifiers.

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