A seeming violation to the Monotonicity Constraint: evidence from Spanish verbal comparatives.

Degrees & Monotonicity. VPs (and certain domains within NPs) can only give rise to dimensions for measurement and comparison that track the part-whole structure of their domain. This is known as the Monotonicity Constraint (MC) ([1]; [2]; [3]; [4]; [5]) (1a). The MC prevents unattested readings in comparatives and other degree constructions. For example, atelic predicates can be interpreted in terms of e.g. duration, but never in terms of speed (1b): subparts of a running event do not necessarily have the same degrees of speed, so the comparison cannot be interpreted in terms of speed ([3]). Thus, speed violates MC.

(1) a. A measurement $\mu$ is MONOTONIC relative to a domain $D$ if for all $x$ and $y$ in $D$, if $x$ is a proper subpart of $y$, then $\mu(x) < \mu(y)$.

   b. Bolt runs more than Powell does for an hour $\quad$ [FREQUENCY/*SPEED]

A challenge for MC. The MC has been attested cross-linguistically ([2]; [3]). In Spanish, comparison always obeys the MC when the predicate is telic, i.e. (2a). However, más ‘more’ can also be ambiguous between a monotonic and non-monotonic interpretation with the subclass of atelic manner of directed motion predicates (run, swim, walk etc.): (2b). In fact, when using in terms of speed with these predicates, más gives rise to non-monotonic interpretations (2c). Crucially non-monotonic readings are never available with tanto ‘as much’ (2b & 2c). Thus, despite the descriptive adequacy of the MC, some Spanish verbal comparatives seem to violate it. The goal of this paper is to (i) identify what drives the ambiguity of ‘as much’ (2b & 2c).

The proposal. To solve this puzzle, I make two proposals. First, I formulate the hypotheses in (3):

(3) a. más is just -er, i.e. a generalized degree quantifier $\lambda P_{<dt>} \cdot \lambda Q_{<dt>}. \text{MAX}(Q) > \text{MAX}(P)$.

   b. tanto is the spell-out of a degree head t- ‘as’ and a quantity degree morpheme -nto.

As opposed to English more which is decomposed into [much + -er] ([6]), there is no evidence that Spanish más is a suppletive morpheme composed of a quantity degree adjective and the degree head. This entails that más is more underspecified and, by hypothesis, should not be restricted to only combine with quantity denoting measure functions. In fact, más combines with a null measure function which is underspecified as well. On the other hand, tanto is morphologically complex (3b) and already has the quantity measure built in just like English more: much is spelled out as -(n)to.

In addition to this, I propose an elaboration on where the null measure function can be quantity and where it cannot be: the (non-)monotonic requirements are determined by the syntactic position that the comparative occupies in the VP. In fact, I argue that that there are three different syntactic positions that the comparative can occupy: an argument position and two distinct adjoinment sites.

Three different positions for más. The comparative can act as an argument of telic manner of directed motion verbs. Like measure verbs (weigh, measure, cost), they can take Measure Phrase (MP) complements such as 20km ([7]): (6). As a monotonic adjunct (7), the comparative adjoins to the VP as proposed by [8] for English adverbial comparatives. Here, más is compatible with both telic and atelic predicates (4); it cannot be made into a question with qué, but cuánto ‘how much’ (4b), as opposed to arguments which are compatible with both; and it can be substituted by degree adverbials (4c) ([9]; [10]). In the two monotonic
positions, a covert measure function $\mu_{\text{MON}}$, identical to English *much* ([3]), is responsible for introducing degrees and imposing the monotonicity requirement: ([9a]). [3] As a non-monotonic adjunct más is only compatible with atelic manner of directed motion verbs (2c), can only be made into a question with the *wh*-adjunct *cómo* *how* ([5]), and cannot be replaced by degree adverbials (4c). The position of the non-monotonic adjunct is higher than the monotonic counterpart in its own functional projection (8), [11]. In this position, $\mu_{\text{NON-MON}}$ introduces a degree and the non-monotonic requirement (9b).

(4) a. Juan {baila/ baila ese tango} más que Inés
   Juan dances that tango more than Inés
   ‘Juan {dances/ dances that tango} more than Inés’ [FREQUENCY/*SPEED]
   b. {*Qué/ Cuánto} baila Juan? ⇒ más que Inés
      what how-much does Juan dance? ⇒ more than Inés
   ‘{*What/How much} does Juan dance?’ ⇒ more than Inés [FREQUENCY/*SPEED]
   c. Juan {baila/ corre} {bastante/ mucho/ poco}
      Juan dances runs enough much little
   ‘Juan {dances/ runs} {enough/ a lot/ little}’ [FREQUENCY/DURATION/*SPEED]

(5) {*Qué/ *Cuánto/ *Cómo} corre Juan? ⇒ más que Inés
   what how-much how many runs Juan more than Inés
   ‘{*What/ How much/ How} does Juan run?’ ⇒ more than Inés [DURATION/*DISTANCE/ SPEED]

(6) Mon Arg. (7) Mon adj. (8) Non-Mon adj. After QR, más leaves a trace of type $d$ that $\mu$
   takes as an argument. CP is late-merged [12].

This is the same position that can be occupied by an overt PP headed by a ‘up to’. This PP is in complementary distribution with non-monotonic más (10). The presence of the α-PP blocks the non-monotonic
terpretation from the comparative, since the PP itself introduces a non monotonic MP, e.g. 20km/h.

(9) a. $[\mu_{\text{MON}}] = \lambda d.\lambda e. \mu_{\text{MON}} (e) \geq d$;
   $\mu$ is monotonic iff $e \subseteq e' \to \mu(e) < \mu(e')$, where $<$ is a strict ordering of degrees in the range of $\mu$
   b. $[\mu_{\text{NON-MON}}] = \lambda d.\lambda e. \mu_{\text{NON-MON}} (e) \geq d$ ;
   $\mu$ is non-monotonic iff $e \not\subseteq e' \to \mu(e) \nless \mu(e')$ where $\less$ is not a strict ordering of degrees in
   the range of $\mu$

(10) Durante 50 min Juan corre [más que Miguel] [a 20km/h]
   for 50 min Juan runs more than Miguel up-to 20km/h

“For 50’, Juan runs more times than Miguel up to a speed of 20km/h” más = [FREQUENCY/*SPEED]

Equative tanto. tanto is incompatible with non-monotonic interpretations. Since tanto can be decomposed
into a degree head and a quantity degree morpheme it can only be merged in a position compatible with the
MC, i.e. (6) and (7). The ungrammaticality of non-monotonic interpretations follows: [* $\mu_{\text{NON-MON}}$ [tan-]].

Conclusion. Novel observations from Spanish verbal comparatives illuminates our understanding of
dimensions for measurement. The MC, though apparently violated, is in fact not: the underspecificity of más
allows for non-quantity measure functions and enables an additional adjunction site where a non-monotonic
interpretation is composed. This site is only available iff the comparative morpheme is not decomposable
into a quantity degree morpheme. The MC applies only within a particular syntactic domain in the VP, much
like [1] showed that it is syntactically constrained in the NP. A deeper explanation for (8) is still outstanding.