

## Intensifiers and measure phrases combined with verbs

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### 1. The puzzle

Intensifiers are expressions indicating that a gradable property applies to an (unexpectedly) high degree, like German *sehr* and English *very*. Another intensifier in German is the demonstrative *so* when occurring 'out of the blue' (deaccented and without demonstration gesture or antecedent), cf. Umbach, Ebert (2009). The intensifier *so* combines easily with adjectives, nouns and verbs and is a reliable diagnostics for predicates to be gradable (cf. Bolinger 1972 for English *so*). Supposing that *so* in (1) and (2) occurs 'out of the blue', it is interpreted as an intensifier and provides evidence that the verbs in (2a-c) are gradable.

- (1) (Aunt Maggi about her niece) Sie ist **so** groß!  
'She is **so** tall!'<sup>1</sup>
- (2) a. Es ist billiger, wenn man auf der Autobahn nicht **so** rast.  
'It will be cheaper not to **so** race on the highway.'
- b. Ich zieh auf's Land, bau neben 'nem Schweinestall und verklag' dann den Bauern, weil es **so** stinkt.  
'I will move to the country side, build a house next to a pigpen and sue the farmer because it **so** stinks.'
- c. Oh Schatz , du hättest das Essen gestern nicht **so** schlingen sollen.  
'O dear, you shouldn't have **so** gorged the meal yesterday.'

Surprisingly, the majority of verbs found with the intensifier *so* appear marked for intensity even if they occur without the intensifier. On the other hand, the intensifier is ungrammatical with the unmarked versions of these verbs, cf. (3). This finding is particularly striking when comparing verbs to adjectives, which readily combine with the intensifier, even if (apparently) unmarked, e.g., *so groß* ('tall'), *so alt* ('old'). So the first half of the puzzle is this: Why is the intensifier licensed with verbs only if the lexical form of the verb is already intensified, and is ungrammatical with its unmarked counterpart?

- (3) a. Er ist **so** gerast.                      b. \*Er ist **so** gefahren.<sup>2</sup>                      'He **so** raced / drove.'  
c. Es hat **so** gestunken.                      d. ?? Es hat **so** gerochen.                      'It **so** stank / smelled.'  
e. Du sollst nicht **so** schlingen.                      f. \*Du sollst nicht **so** essen.                      'You shouldn't **so** gorge/eat.'  
g. Er hat **so** gebrüllt.                      h. \*Er hat **so** gerufen.                      'He **so** roared / called.'

The second half of the puzzle concerns the distribution of measure phrases with verbs. Measure phrases express degrees of a certain type, e.g., *180cm*, *80 kg*, and relate to a dimension, e.g., height, width, weight. Some adjectives can directly be combined with measure phrases, e.g., *180 cm groß* ('tall'), *60 Jahre alt* ('old'), but many others cannot, e.g., *\*10 € teuer* ('expensive'). Measure phrases also occur with verbs. But different from what we would expect they do not combine with verbs which license intensifiers and are thereby diagnosed as being gradable, and instead combine with their unmarked counterparts, cf. (4).

<sup>1</sup> Bold face **so** in the glosses indicates the German expression.

<sup>2</sup> \* and ?? relate to the intensifier interpretation of *so* – deictic and anaphoric interpretations are available.

Obviously, the distribution of measure phrases with verbs is complementary to the distribution of intensifiers with verbs.

- (4) a. Er ist 100 km/h gefahren.  
 b. ?? Er ist 100 km/h gerast.  
 'He drove / raced 100 km/h.'

## 2. Positive relative predicates

On a degree-based analyses, e.g., Kennedy (1999), the meaning of a gradable adjective is a measure function taking individuals to degrees. The measure function corresponds to the dimension of the adjective. For example, the adjective *tall* denotes a function measuring the height of an individual. The positive form of the adjective is supposed to include a null morpheme POS introducing a contextually determined standard of comparison. If, for example, an individual has a degree of height exceeding the standard, it counts as tall.

What is the dimension in the case of gradable verbs? Intuitively, *rasen* ('race') denotes a high degree of speed of *fahren* ('drive'), *stinken* ('stink') denotes a high degree of intensity of *riechen* ('smell'), *schlingen* ('gorge') denotes a high degree of haste of *essen* ('eat') etc. In general, gradable verbs like *rasen/stinken/schlingen* denote an outstanding degree of intensity of an underlying unmarked activity.

The unmarked verb *fahren* is multidimensional including various aspects or dimensions, one of them being the dimension of speed. This is evident from (5a).<sup>3</sup> The marked verb *rasen* is one-dimensional. This is why B's question in (5b) is infelicitous. (Note that the test in (5) would show *groß* as being one-dimensional, too.) While in the case of *fahren* speed is one dimension among others (e.g., experience, skill etc.), *rasen* expresses only speed. Moreover, the speed of driving must exceed the standard *fahren* speed (in the respective context, for the comparison class) to count as *rasen*. Although *rasen* make use of the same speed dimension as *fahren*, it covers only the upper part of the scale, its minimum being the standard driving speed. With respect to the standard driving speed *rasen* behaves like an absolute minimum predicate (in the sense of Kennedy & McNally 2005): Any degree of speed beyond the standard driving speed is *rasen*. But while regular absolute minimum predicates are context-independent, *rasen* clearly depends on the context and comparison class and thus patterns with relative predicates. Let us call relative predicates which are parasitic on the dimension of a different predicate, taking the standard of comparison of the other predicate as their own minimum, **positive relative** predicates.

- |        |                                    |                             |
|--------|------------------------------------|-----------------------------|
| (5) a. | A: Otto fährt so wie Rudolph.      | 'Otto drives like Rudolph.' |
|        | B: In welcher Hinsicht?            | 'In which respect?'         |
|        | A: Was die Geschwindigkeit angeht. | 'Concerning speed.'         |
| b.     | A: Otto rast so wie Rudolph.       | 'Otto races like Rudolph.'  |
|        | B: # In welcher Hinsicht?          | 'In which respect?'         |

## 3. The semantics of positive relative predicates

Sæbø (2010) in his analysis of embedded exclamatives employs a "split positive formative": The first part, **pos<sub>0</sub>**, lifts a measure function (in the sense of Kennedy 1999) such that it starts from the standard of comparison, and only the second half, **pos<sub>1</sub>** turns the measure function into a predicate, cf. (6a,b). (m is a measure function variable, and S(m) indicates the standard

<sup>3</sup> In general, the scale of these dimensions need not be proportional but may also be, e.g., nominal.

of comparison; note that  $\text{pos}_0$  is of type  $\langle \text{ed}, \text{ed} \rangle$ .<sup>4</sup> Sæbø's split positive accounts for the fact that a gradable adjective in an exclamative sentence presupposes that the degree is higher than the standard of comparison – *How very long the Nile is!* presupposes that the Nile is long. Thus  $\text{pos}_0$  lifts the measure function denoted by *long*,  $\mu_{\text{length}}$ , such that it takes the standard of length (in this context) as its minimum. This function will be combined with the meaning of *very* as in (7) ( $v$  denotes a value associated with *very*), lifting it once more, and is turned into a predicate by  $\text{pos}_1$ , cf. (8a-c).

$$(6) \text{ a. } [[\text{pos}_0]] = \lambda m. \lambda x. m(x) - S(m)$$

$$\text{ b. } [[\text{pos}_1]] = \lambda m. \lambda x. m(x) > 0$$

$$(7) \quad [[\text{very}]] = \lambda m. \lambda x. m(x) - v$$

$$(8) \text{ a. } [[\text{pos}_0]] ([[long]]) = \lambda x. \mu_{\text{length}}(x) - S(\mu_{\text{length}})$$

$$\text{ b. } [[\text{very}]] ([[pos_0]] ([[long]])) = \lambda x. \mu_{\text{length}}(x) - S(\mu_{\text{length}}) - v$$

$$\text{ c. } [[\text{pos}_1]] ([[very]] ([[pos_0]] ([[long]]))) = \lambda x. (\mu_{\text{length}}(x) - S(\mu_{\text{length}}) - v) > 0$$

Sæbø's "split positive formative" is exactly what we need to describe the meaning of positive relative predicates like *rasen*. Adapting  $\text{pos}_0$  and  $\text{pos}_1$  to events, the first one will lift the measure function associated with *rasen*,  $\mu_{\text{speed}}$ , such that it takes the standard driving speed,  $S(\mu_{\text{speed}})$ , as its minimum, cf. (9a). Since the denotation of *rasen* is still a measure function, it can be combined with intensifiers like *so/sehr*, along the lines of *very* in (7) (but see 10a below). The second part of the positive formative finally turns the measure function into a predicate.

$$(9) \text{ a. } [[rasen]] = [[pos_0]] (\mu_{\text{speed}}) = \lambda e. \mu_{\text{speed}}(e) - S(\mu_{\text{speed}}) \text{ (where } e \text{ is a driving event)}$$

$$\text{ b. } [[so/sehr]] ([[rasen]]) = \lambda e. \mu_{\text{speed}}(e) - S(\mu_{\text{speed}}) - v$$

$$\text{ c. } [[pos_1]] ([[so/sehr]] ([[rasen]])) = \lambda e. (\mu_{\text{speed}}(e) - S(\mu_{\text{speed}}) - v) > 0$$

With the split positive interpretation in (9) we can come back to the puzzle we started out from. The first question concerned the incompatibility of the unmarked verb and the intensifier – why is *so fahren* ungrammatical (assuming the intensifier interpretation of *so*)? The answer is simple: intensifiers operate on the "upper half" a scale. Let us call a measure function lifted by  $\text{pos}_0$  the **positive section** (of this measure function). Intensifiers are restricted to apply to positive sections only by presupposing that the minimum value corresponds to some standard of comparison (and is thus lower than zero), cf. (10a).<sup>5</sup> Suppose that the intensifier *so* is able to pick out the driving speed dimension. Since the measure function associated with this dimension,  $\mu_{\text{speed}}$ , has a zero minimum, *so fahren* violates the presupposition of the intensifier.<sup>6</sup>

The answer to the second question is similar: Measure phrases are doubtlessly insensitive to the context and start from zero. Thus measure phrases can be taken to presuppose that the function they modify has a zero minimum, cf. (10b).<sup>7</sup>

<sup>4</sup> In Sæbø (2010) the interpretations include world indices, cf. (31), (32), which are skipped here for ease of exposition.

<sup>5</sup> The underlined part is presupposed.

<sup>6</sup> Note that the present paper is restricted to the intensifier use of *so*. The same lexeme *so* occurs, e.g., in equative comparison constructions, like *Anna ist so groß wie Berta* 'Anna is as tall as Berta.'. This occurrence of *so* has to combine with plain measure functions. It appears to be related to the intensifier use in the same way the wh-word *how* in questions is related to its use in exclamatives.

<sup>7</sup> The unit of the measure phrase must, of course, match the measure function. Also, note that measure phrases are analyzed independent of the split positive, turning the measure function directly into a predicate.

- (10) a.  $[[so/sehr]] = \lambda m. \lambda e. \underline{\min(m)} < 0. m(e) - v$   
 b.  $[[100 kmh]] = \lambda m. \lambda e. \underline{\min(m)} = 0. m(e) \geq 100kmh$

#### 4. Conclusion

The type of gradable verbs discussed here differs from, e.g., degree achievements like *widen* and *cool* (cf. Kennedy & Levin (2008) in that the underlying scale is not aligned with time – the degree of speed of a *rasen* event is independent of its duration. The *rasen* type of gradable verbs is in fact very close to gradable adjectives. However, the contrast between *fahren* and *rasen* makes it necessary to distinguish the plain measure function from its positive section. Plain measure functions combine with measure phrases, positive sections combine with intensifiers. In the case of adjectives, the plain measure function and its positive section are often denoted by the same lexeme, for example *tall / groß*, thereby giving the impression that measure phrases and intensifiers are complementary in distribution while applying to the same entity. Kennedy & McNally (2005) take the complementary distribution of intensifiers and measure phrases as indicating that they are of the same type, their example being *\*Yao is seven feet very tall*. The above analysis suggests, however, that the reason why the combination of a measure phrase and an intensifier is ungrammatical is not that they compete for the same position but that they come with different presuppositions.

How general is the idea of 'positive relative predicates' as denoting the 'positive section' of an underlying measure function? Applying it to adjectives like *tall / groß* will introduce an additional ambiguity: The lexeme *tall* denotes the measure function HEIGHT and, with a silent positive morpheme, the predicate of being tall. Assuming a split positive formative the lexeme *tall* will be three-way ambiguous, denoting in addition the positive section of HEIGHT, thus raising the question of whether the additional complexity is justified. Sæbø introduces the split positive in order to interpret exclamatives. It turns out in present paper, however, that this idea is more general, explaining the complementary distribution of measure phrases and intensifiers, and providing a semantics for positive relative predicates like *rasen*. Crucially, this type of gradable predicates is not exceptional. Most dimensional adjectives in German have to use unmarked verbs in order to express a measure phrase, cf. (11).

- (11) a. ?? Das Buch ist 5 €teuer.  
 b. Das Buch kostet 5 €  
 'The book is 5 €expensive / costs 5 €'

To conclude, from a broad perspective including evaluative predicates like *beautiful* in addition to dimensional ones, cases like *tall* appear as exceptions – gradable predicates are positive relative as a rule. From this point of view, an explanation is required for the systematic ambiguity of predicates like *tall*.

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