

The role of *so* in German equative comparison

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Standard equative comparisons in German are composed of the expression *so* followed by an adjective providing the property of comparison and a *wie*-phrase providing the comparison base, cf. (1a). The *wie*-phrase may be regarded as elliptical representing a full manner interrogative clause. Instead of an adjective, the property of comparison may also be given by, e.g., a verb phrase, cf.(1b).

- (1) a. Anna ist so groß wie Marie (groß ist).
'Anna is as tall as Marie'
- b. Anna hat das Gemüse so zubereitet wie Marie (es zubereitet hat).
'Anna cooked the vegetables the way Marie did it.'

German *so* is, in the first place, a demonstrative expression that can be used anaphorically referring to various kinds of modifiers (Zifonun et al 1997). This raises the question of whether the expression *so* in equative comparison is identical to the demonstrative anaphor *so*, and if so, what does it refer to in equative constructions? In this paper it will be argued that *so* in equative constructions is in fact an anaphor, and is used as a cataphor referring to a degree or property given by the subsequent *wie*-phrase. This provides a 'semantically transparent' analysis of German equative comparison, the building blocks contributing their regular meaning in order to establish the comparison.

The examples in (2)-(4) demonstrate three types of the anaphoric use of *so*. In (2) *so* modifies an event predicate (*das Fleisch zubereiten* 'cook the meat') by referring back to a previously mentioned manner modifier (*im Wok* 'in a wok'). Instead of a manner modifier, the antecedent of *so* may also be an *indem*-clause introducing an elaboration relation which will be coerced into manner modification (Katz & Umbach 2006).

- (2) a. Anna hat das Gemüse [im Wok]₁ gegart. Das Fleisch hat sie auch so₁ zubereitet.
'Anna cooked the vegetables in a wok. She cooked the meet this way, too.'
- b. Anna hat das Gemüse gegart, [indem sie es in den Ofen schob]₁. Das Fleisch hat sie auch so₁ zubereitet.
'Anna cooked the vegetables by putting it in the oven. She cooked the meet this way, too.'

In (3) *so* relates to gradable property (*groß* 'tall'). (3a) is puzzling at first sight because of the second occurrence of the adjective (underlined), which is obligatory, cf. (3b). Why is it necessary to repeat the adjective to which *so* refers back? This puzzle is easily solved taking into account that the first occurrence of *groß* in (3a) is an unmodified positive. Following, e.g., (Kennedy 1999) unmodified positives relate to a standard of comparison determined by the contextually given comparison class. This suggests that *so* in (3a) does not refer to Anna's actual height but instead to the standard degree introduced by the first occurrence of *groß*, while the second occurrence of *groß* represents the dimension. This is confirmed by the fact that (3a) can be consistently continued by (3c), and by the observation that a shift of comparison class leads to unacceptability, cf. (3d). Note, by the way, that the analysis suggested for (3a) parallels the construction in (3e) where the degree is given explicitly.

- (3) a. Anna ist groß₁. Marie ist auch so₁ groß.
'Anna is tall. Marie is like this, too.'
- b. * Anna ist groß₁. Marie ist auch so₁.
- c. Anna ist groß₁. Marie ist auch so₁ groß. Anna ist 1,80m und Marie sogar 1,90m.
'Anna is tall. Marie is like this, too. Anna is 1,80m and Marie even 1,90m.'
- d. ??? Betty's Mutter ist groß₁. Betty ist auch so₁ groß für eine 7-jährige.
'Betty's mother is tall. Betty is like this, too, taking the usual height of a 7-year old girl into account.'
- e. Anna ist 180₁ groß. Marie ist auch so₁ groß.
'Anna is 1,80m tall. Marie is like this, too.'

The third type of the anaphoric use of *so* is shown in (4). In these examples the antecedent of *so* is provided by a *wie*-interrogative complement of *wissen* ('know'). It is well-known that interrogatives embedded under factive verbs presuppose the existence of a fact resolving the question denoted by the interrogative (cf. Ginzburg & Sag 2000). Thus the *wie*-interrogatives in (4a) and (b) qualify as antecedents for the anaphor *so*, the former representing a degree of height and the latter a manner of cooking vegetables.

- (4) a. Hans weiß, [wie groß Anna ist]₁. Marie ist auch so₁ groß.
'Hans knows how tall Anna is. Marie is like this, too.'
- b. Marie weiß, [wie Anna das Gemüse zubereitet hat]₁. Sie wird es auch so₁ zubereiten.
'Marie knows how Anna cooked the vegetables. She will also do it that way.'

The examples in (2)-(4) show that the anaphor *so* can refer to manner antecedents as well as degree antecedents, and the antecedents can be provided by VPs, adjectives and also *wie*-interrogatives. In the examples in (2)-(4) the anaphor was 'looking backward' referring to a previously introduced antecedent. But there is no reason to exclude 'forward looking' cataphoric uses of *so*. Assuming that the *wie*-interrogatives in (5) presuppose a resolving fact, similar to the interrogatives in (4), the anaphor *so* can be viewed as referring to the degree (cf. 5a) or the manner (cf. 5b) provided by the subsequent interrogative. According to this analysis the expression *so* in standard equative comparisons like (5a,b) is in fact an anaphor cataphorically referring to the comparison base.

- (5) a. Anna ist so₁ groß [wie Marie (groß ist.)]₁.
'Anna is as tall as Marie'
- b. Anna hat das Gemüse so₁ zubereitet [wie Marie (es zubereitet hat.)]₁
'Anna cooked the vegetables the way Marie did it.'

Regardless of whether (backward) anaphoric or cataphoric the anaphor *so* may refer to either a degree antecedent or a manner antecedent. The degree-referring interpretation fits nicely with the analysis of degree modifiers suggested in Kennedy&McNally (2005). Assuming that gradable adjectives are relations between individuals and degrees and include measure functions mapping the argument onto a scale the degree-referring interpretation of *so* is shown in (6) (where G is a gradable adjective and d* is a free variable to be identified with the antecedent of *so*). The manner-referring interpretation of *so* is shown in (7) (where Q is an event predicate, P* is a free variable to be identified with the antecedent of *so*, and *c-veg* stands for "cook the vegetables"). Both allow for a straight-forward compositional interpretation of the comparison construction:

- (6) a. $[[so_{degree}]] = \lambda G \lambda x. \exists d. G(d)(x) \ \& \ d = d^*$
 b. $[[so \text{ groß}]] = \lambda x. \exists d. \text{tall}(x) \geq d \ \& \ d = d^*$
 c. $[[wie \text{ Marie groß ist}]] = \iota d'. (\text{tall}(\text{Marie}) = d')$ [to be identified with d*]
 d. $[[so \text{ groß wie Marie groß ist}]] = \lambda x. \exists d. \text{tall}(x) \geq d \ \& \ \exists d'. d = d' \ \& \ \text{tall}(\text{Marie}) \geq d'$
- (7) a. $[[so_{manner}]] = \lambda Q. \lambda e. Q(e) \ \& \ P^*(e)$
 b. $[[so \text{ gemüse-bereitet}]] = \lambda e. c\text{-veg}(e) \ \& \ P^*(e)$
 c. $[[wie \text{ Marie gemüse-bereitet}]] = \lambda e. \exists e'. c\text{-veg}(e') \ \& \ ag(e', \text{Marie}) \ \& \ P(e') \ \& \ P(e)$ [to be identified with P*]
 d. $[[so \text{ gemüse-bereitet wie Marie gemüse-bereitet}]] = \lambda e. c\text{-veg}(e) \ \& \ \exists e'. c\text{-veg}(e') \ \& \ ag(e', \text{Marie}) \ \& \ P(e') \ \& \ P(e)$

This analysis suggests that German *so* in equative constructions is used as an anaphor referring to degrees as well as manner modifiers, just as it does in backward anaphoric cases like (2)-(4). Moreover, it suggests to include the backward anaphoric cases in the range of constructions considered a equative comparison. The analysis can easily be extended to noun modification (*so ein Auto* 'a car like this') and also to deictic uses (*SO groß* 'tall like this') which require an accent on *so* and have to be accompanied by a demonstration gesture. The analysis proposed in this paper is, of course, crucially based on the fact that German equative comparison is composed out of *so* – *wie*, and does not apply to, e.g., English *as* – *as*. But instead of viewing the transparency of the German construction as pure chance, it might be regarded as facilitating further insight into the mechanism of comparison, and give rise to cross-linguistic semantic research on the system of comparison expressions.

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