

## The role of *so* in German equative comparison

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### 1. German equative comparison constructions:

Structure of German equative comparison:

*so* + feature of comparison + *wie* + comparison base

- |  |                          |
|--|--------------------------|
| (1) a. Marie hat <b>so</b> ein Auto <b>wie</b> Anna (eins hat)           | <u>nominal attribute</u> |
| 'Marie has the same a car as Anna.'                                      |                          |
| b. Marie ist <b>so</b> nach Prag gefahren <b>wie</b> Anna (es getan hat) | <u>manner modifier</u>   |
| 'Marie took the same route to Prag as Anna.'                             |                          |
| c. Marie ist <b>so</b> groß <b>wie</b> Anna (es ist).                    | <u>degree</u>            |
| 'Marie is as tall as Anna.'  |                          |

### 2. Uses of German *so*

German *so* has various uses in addition to its use in equative comparison, e.g.,

– as a **discourse particle** introducing subsequent actions (Ehlich 1986)

- (2) (Teacher, after talking about birds.)  
**So**, jetzt sprechen wir über die Säugetiere.  
'Let us now talk about mammals.'

– as a **connective** indicating a consequence or elaboration relation

- (3) Die Regierung beklagte sich über die mangelnde Unterstützung aus der EU. **So** hat Finnland bislang sehr wenige bosnische Flüchtlinge aufgenommen.  
'The government complained about lack of support by the EU. Finland, for example, accommodated very few refugees from Bosnia.'

– introducing a **result clause** construction (Meier 2001)

- (4) Anna ist **so** groß, dass sie an das oberste Regal kommt.  
'Anna is so tall that she can reach the top shelf.'

– as a **demonstrative expression** (Zifonun et al. 1997)

deictic

- (5) a. (pointing to a cabrio:.) **So** ein Auto will Marie kaufen.  
'Mary wants to buy this kind of car.'  
b. (pointing to a map:.) **So** bin ich gefahren.  
'I went this way.'

anaphoric

- (6) a. Anna hat ein Auto [mit Heckklappe]<sub>1</sub>. Marie hat auch **so**<sub>1</sub> ein Auto.  
'Anna has a car with a hatch. Marie has such a car, too.' nominal attribute
- b. Anna ist [über Dresden]<sub>1</sub> nach Prag gefahren. Marie ist auch **so**<sub>1</sub> gefahren.  
'Anna went to Prag via Dreden. Marie went also that way.' manner modifier
- c. Anna ist 180<sub>1</sub> groß. Marie ist auch **so**<sub>1</sub> groß.  
'Anna is 1,80 tall. Marie is as tall as Anna.' degree modifier

➔ Is the expression *so* in equative comparison identical to the demonstrative *so*?

### Hypothesis:

*So* in equative comparison is a **demonstrative expression** and is used **cataphorically** referring to a property / degree given by the comparison base

### 3. Anaphoric *so*

As shown in (6), *so* can be used as an anaphor relating to, e.g., manner modifiers, nominal attributes and degrees as antecedents

Side note:

For convenience, most examples will be of the form "***auch so*** ...". However, anaphoric *so* need not be combined with *auch* ('too'), cf. 7b-d.

- (7) Anna ist [über Dresden]<sub>1</sub> nach Prag gefahren.  
'Anna went to Prag via Dreden.'
- a. Marie ist **auch so**<sub>1</sub> nach Prag gefahren.  
'Marie also went to Prag that way.' (= 6b)
- b. Marie ist **so**<sub>1</sub> nach Bratislava gefahren.  
'Marie went to Bratislava that way.'
- c. Marie ist **genau so**<sub>1</sub> nach Prag gefahren.  
'Marie went to Prag exactly the same way.'
- d. Marie ist **nicht so**<sub>1</sub> nach Prag gefahren.  
'Marie didn't go to Prag that way.'

Following Krifka (1999) stressed additive particles like German *auch* (and English *too*) allow to get around a distinctiveness constraint imposed by parallel information structure, which is due to the Gricean Maxim of Manner ("Be brief"). Thus the contribution of *auch* is not relevant here and will furthermore be ignored.

### 3.1 Anaphoric manner modifier *so* (Katz & Umbach 2006)

Possible Antecedents:

Manner modifiers, cf. (7a-d), *indem*-clauses, cf. (8a), elaborating propositions, cf. (8b).

- (8) a. Maria hat [das Problem gelöst]<sub>1</sub>, indem sie [nach Barcelona geflogen ist]<sub>2</sub>. Peter hat das<sub>1</sub> auch *so*<sub>2</sub> gemacht.  
'Mary solved her problem by flying to Barcelona. Peter also did it that way.'
- b. Maria hat [das Problem gelöst]<sub>1</sub>. Sie ist [nach Barcelona geflogen]<sub>2</sub>. Peter hat das<sub>1</sub> auch *so*<sub>2</sub> gemacht.  
'Mary solved the problem. She flew to Barcelona. Peter also did it that way.'

$[[so_{manner}]] = \lambda Q \lambda e. Q(e) \wedge \mathbf{P}^*(e)$        $\mathbf{P}^*$  anaphoric property of events

- (7a) Anna ist [über Dresden]<sub>1</sub> nach Prag gefahren. Marie ist auch *so*<sub>1</sub> nach Prag gefahren.  
'Anna drove to Prague via Dresden. Marie also drove to Prague that way.'

$[[über Dresden]] = \lambda Q \lambda e. Q(e) \wedge \mathbf{via-Dresden}(e)$

$[[über Dresden]] \leftarrow_{unification} [[so_{manner}]]$

$\lambda Q \lambda e. Q(e) \wedge \mathbf{via-Dresden}(e) \leftarrow_{unification} \lambda Q \lambda e. Q(e) \wedge \mathbf{P}^*(e)$

$[[so nach Prag gefahren]] = \lambda e. go-to-Prag(e) \wedge \mathbf{via-Dresden}(e)$

(For a different approach to the semantics manner modifier *so* and nominal attribute *so* see Landman & Morzycki 2003).

### 3.2 Anaphoric nominal attribute *so*

- (9) a. Anna hat ein Auto [mit Heckklappe]<sub>1</sub>. Marie hat auch *so*<sub>1</sub> ein Auto. (= 6a)  
'Anna has a car with a hatch. Marie has such a car, too.'
- b. Anna hat ein [italienisches]<sub>1</sub> Auto. Marie hat auch *so*<sub>1</sub> ein Auto.  
'Anna has an Italian car. Marie has such a car, too.'
- c. # Anna hat eine [schwängere]<sub>1</sub> Schwester. Marie hat auch *so*<sub>1</sub> eine Schwester.  
'Anna has a pregnant sister. Marie has such a sister like this, too.'
- d. # Anna hat einen [vermeintlichen]<sub>1</sub> Matisse. Marie hat auch *so*<sub>1</sub> einen Matisse.  
'Anna has an alleged Matisse. Marie has such a Matisse, too.'

Open questions:

- Which nominal attributes are licensed as antecedents for *so* (individual level predicates?)
- How does *so* relate to *solch*?  
(cf. *so ein Auto – solch ein Auto – \*ein so Auto – ein solches Auto*)

$[[so_{attributive}]] = \lambda Q \lambda x. Q(x) \wedge \mathbf{P}^*(x)$        $\mathbf{P}^*$  anaphoric property of individuals

- (9a) Anna hat ein Auto [mit Heckklappe]<sub>1</sub>. Marie hat auch *so*<sub>1</sub> ein Auto.  
'Anna has a car with a hatch. Marie has a car like this, too.'

$[[mit Heckklappe]] = \lambda Q \lambda x. Q(x) \wedge equipped-with-a-hatch(x)$

$[[mit Heckklappe]] \leftarrow_{unification} [[so_{attributive}]]$

$\lambda Q \lambda x. Q(x) \wedge equipped-with-a-hatch(x) \leftarrow_{unification} \lambda Q \lambda x. Q(x) \wedge \mathbf{P}^*(x)$

$[[so ein Auto]] = \lambda x. car(x) \wedge equipped-with-a-hatch(x)$

### 3.3 Anaphoric degree modifier *so* (Umbach 2007)

*So* may relate to a measure phrase:

- (10) Anna ist 180<sub>1</sub> groß. Marie ist auch *so*<sub>1</sub> groß. (= 6c)  
'Anna is 1,80 tall. Marie is that tall, too.'

If *so* relates to an unmodified positive form, the adjective has to be repeated:

- (11) a. # Anna ist groß<sub>1</sub>. Marie ist auch *so*<sub>1</sub>.  
b. Anna ist groß<sub>1</sub>. Marie ist auch *so*<sub>1</sub> groß.  
'Anna is tall. Marie is, too.'

- (12) a. # Anna hat ein schönes<sub>1</sub> Haus. Marie hat auch *so*<sub>1</sub> ein Haus.  
b. Anna hat ein schönes<sub>1</sub> Haus. Marie hat auch *so*<sub>1</sub> ein schönes Haus.  
'Anna has a beautiful house. Marie has one, too.'

- (13) a. # Anna hat laut<sub>1</sub> gesungen. Marie hat auch *so*<sub>1</sub> gesungen.<sup>1</sup>  
b. Anna hat laut<sub>1</sub> gesungen. Marie hat auch *so*<sub>1</sub> laut gesungen.  
'Anna sang loudly. Marie did, too.'

➔ Why is it obligatory to repeat the expression licensing the anaphor (cf. (b)-sentences)?  
What does the anaphor *so* in the (b)-sentences refer to?

The antecedents in the (b)-sentences are

- gradable adjectives
- appear as an unmodified positive
- employ a relative standard of comparison (provided by the comparison class)

<sup>1</sup> *So* may refer to *laut* without repetition of the adjective, cf. (i). Note, however, that in (i) *laut* is interpreted as *piano*, which is not gradable (cf. Umbach 2007)

(i) Anna hat die Pianostelle laut gesungen. Marie hat sie auch *so* / ?? *so laut* gesungen.  
'Anna sang the piano part loudly. Marie sang it loudly, too.'

(Many thanks to Martin Schäfer for providing this example)

- Two options for the reference of *so* in (11b):
- (i) Anna's actual height
  - (ii) the standard of comparison

Evidence for (ii):

- (14) a. Anna ist groß<sub>1</sub>. Marie ist auch **so**<sub>1</sub> groß. Anna ist 1,80 und Marie sogar 1,85.  
(Anna ist 1,80 und Marie immerhin 1,75.)  
'Anna is tall. Marie is like this, too. Anna is 1,80 and Marie even 1,85.  
(Anna is 1,80 and Marie at least 1,75.)'

The use of *genauso* instead of plain *so* excludes (ii):

- b. Anna ist groß<sub>1</sub>. Marie ist **genauso**<sub>1</sub> groß. # Anna ist 1,80 und Marie sogar 1,85.  
'Anna is tall. Marie is like this, too. Anna is 1,80 and Marie even 1,85.'

### Gradable adjectives (Kennedy & McNally 2005)

- Gradable adjectives denote relations between individuals and degrees, and are associated with measure functions:  
[[ [A groß] ] ] =  $\lambda d \lambda x. \mathbf{tall}(x) \geq d$
- The unmodified positive form includes a null degree morpheme *pos* which provides a standard of comparison  $\mathbf{d}_C$  (cf. Kennedy & McNally 2005, fn 3)  
[[ *pos* ] ] =  $\lambda G \lambda x. \exists d_C G(d_C)(x)$   
[[ [AP *pos* groß] ] ] =  $\lambda x. \exists d_C. \mathbf{tall}(x) \geq \mathbf{d}_C$
- Degree modifiers denote functions from gradable adjectives to properties of individuals, restricting the value of the degree argument  
[[ *very* ] ] =  $\lambda G \lambda x. \exists d. G(d)(x) \wedge \mathbf{high}(d)$  (simplified)

→ The degree anaphor *so* is a degree modifier with an anaphoric restriction.

Possible antecedents:

- measure phrases
- unmodified positive form of a gradable adjective with a relative interpretation (for the distinction between relative and absolute adjectives cf. Kennedy & McNally 2005). Repetition of the dimension is obligatory.

[[*so*<sub>degree</sub>]] =  $\lambda G \lambda x. G(\mathbf{d}^*)(x)$        $\mathbf{d}^*$  anaphoric degree variable  
presupposition: dimensions are compatible

- (15) Anna ist 1,80 groß. Marie ist auch **so** groß.  
'Anna is 1,80. Marie is that tall, too'.  
[[ [1,80] ] ] =  $\lambda G \lambda x. G(1,80)(x)$   
[[ [1,80] ] ]  $\leftarrow$  unification [[*so*<sub>degree</sub>]]  
 $\lambda G \lambda x. G(1,80)(x) \leftarrow$  unification  $\lambda G \lambda x. G(\mathbf{d}^*)(x)$   
[[*so* groß]] =  $\lambda x. \mathbf{tall}(x) \geq 180$

- (16) Anna ist groß. Marie ist auch **so** groß.      option (ii)  
'Anna is tall. Marie is like this, too'.

[[ *pos* ] ] =  $\lambda G \lambda x. G(d_C)(x)$   
[[*pos*]]  $\leftarrow$  unification [[*so*<sub>degree</sub>]]  
 $\lambda G \lambda x. G(d_C)(x) \leftarrow$  unification  $\lambda G \lambda x. G(\mathbf{d}^*)(x)$   
[[*so* groß]] =  $\lambda x. \mathbf{tall}(x) \geq \mathbf{d}_C$

### 4. Interrogative antecedents

Anaphoric *so* may relate to embedded interrogative clauses:

- (17) a. Marie weiß, [wie Anna nach Prag gefahren ist]<sub>1</sub>. Sie wird auch **so**<sub>1</sub> fahren. manner  
'Marie knows how Anna drove to Prag. She will also drive that way.'  
b. (Hans wonders whether he could ask Anna to sleep in the back bunk ...) degree  
Hans weiß, [wie groß Anna ist]<sub>1</sub>. Seine Tochter Marie ist auch **so**<sub>1</sub> groß.  
'Hans knows how tall Anna is. His daughter Marie is, too'.  
c. Hans weiß, was für ein Auto Anna hat. Seine Frau hat auch **so** eins. nom. attribute  
'Hans knows what kind of car Anna has. His wife has such a car, too.'

[Note that, while *manner so* and *degree so* relate to a *wie* ('how') interrogative, nominal attribute *so* requires a *was-für-ein* ('what kind of') interrogative.]

Interrogatives embedded under factive and resolutive verbs denote questions coerced to facts. Coercion presupposes that the question is resolved, i.e. that there is a true answer (Ginzburg 1995), cf. (18a). Resolving arguments are anaphorically accessible, cf. (18b).

- (18) a. Lisa weiß, wer kommt. ==> the question who comes is resolved  
b. Lisa weiß, wer kommt. Sie wird **ihn** vom Bahnhof abholen.

→ If we regard the *wie* phrases in equative comparison constructions as elliptical embedded interrogative clauses, the expression *so* can be seen as a demonstrative cataphorically referring to a property / degree provided by the interrogative. Thus (1c) could be analyzed analogous to (17b):

- (17b) Hans weiß, [wie groß Anna ist]<sub>1</sub>. Marie ist auch **so**<sub>1</sub> groß.      backward  
'Hans knows how tall Anna is. Marie is like this, too'.  
(1c) Marie ist **so**<sub>1</sub> groß [wie Anna (groß ist)]<sub>1</sub>      forward  
'Marie is as tall as Anna'

Can the *wie* phrases in equative comparison constructions be regarded as elliptical embedded interrogatives?

Pro: The *wie* phrases systematically allow for a non-elliptic form

Contra: In (17b) the *wie* interrogative is a complement of the verb *wissen* ('know'), which is essential for the presupposition that the question is resolved.  
In (1c), however, there is no embedding verb.

→ What is the syntactic status of the *wie* phrase in equative comparison and how does it relate to the anaphor?

## 5. *Wie* phrases

*Wie* phrases are usually called appositions, which is misleading because they may be restrictive or non-restrictive.

Lawrenz (1993):

- combine, e.g., with indefinite NPs, VPs, APs
- either agree in case with their base phrase or occur in the nominativ
- are (restrictive or non-restrictive) modifiers

- (19) a. Eine Frau wie Anna kann das Problem lösen.  
'A woman like Anne will be able to solve the problem.'
- b. Marie hat eine Frisur wie Anna.  
'Marie has the same haircut as Anna.'
- c. Maria hat das Problem gelöst wie Anna.  
'Marie solved the problem like Anne did.'
- d. Marie ist frech wie Bolle.  
'Marie is bold like Bolle' (Bolle is the German prototype of a bold person)

*Wie* phrases are sensitive to the background of the modified argument:

- (19a) ==> Anna is something (a woman)  
(19b) ==> Anna has something (a haircut)  
(19c) ==> Anna did something (solve the problem)

*Wie* phrases express a property  $S^*$  by naming an instance (without naming the property itself)  
— "classification by similarity"

In a phrase "*X wie i*"

- X represents a property Q
- i is an instance which is [did / has etc.] Q
- there is an implicit property  $S^*$  such that  $S^*(i)$ , where the type of  $S^*$  is determined by the type of Q, and by the way the instance i is involved in Q (*is / did / has ...*)
- the property Q is modified by the property  $S^*$  (where the modification operation varies according to the type of Q)

- (20) a. eine Frau wie Anna (eine ist)  
'a woman like Anna'

$$[[\text{wie Anna (eine ist)}]] = \lambda Q \lambda x. Q(\text{anna}) \wedge S^*(\text{anna}) \wedge Q(x) \wedge S^*(x)$$

$$[[\text{eine Frau wie Anna}]] = \lambda x. \text{woman}(\text{anna}) \wedge S^*(\text{anna}) \wedge \text{woman}(x) \wedge S^*(x)$$

- b. eine Frisur wie Anna (eine hat)  
'a haircut like Anna's'

$$[[\text{wie Anna (eine hat)}]] = \lambda Q \lambda x. \exists y. Q(y) \wedge \text{has}(\text{anna}, y) \wedge S^*(y) \wedge Q(x) \wedge S^*(x)$$

$$[[\text{eine Frisur wie Anna}]] = \lambda x. \exists y. \text{haircut}(y) \wedge \text{has}(\text{anna}, y) \wedge S^*(y) \wedge \text{haircut}(x) \wedge S^*(x)$$

- c. das Problem gelöst wie Anna (es getan hat)  
'solve the problem like Anna did'

$$[[\text{wie Anna (es getan hat)}]] = \lambda Q \lambda e. \exists e'. Q(e') \wedge \text{agent}(\text{anna}, e') \wedge S^*(e') \wedge Q(e) \wedge S^*(e)$$

$$[[\text{das Problem gelöst wie Anna}]] = \lambda e. \exists e'. \text{solve-problem}(e') \wedge \text{agent}(\text{anna}, e') \wedge S^*(e') \wedge \text{solve-problem}(e) \wedge S^*(e)$$

- d. frech wie Bolle (es ist)  
'bold like Bolle'

$$[[\text{wie Bolle}]] = \lambda G \lambda x. G(s^*)(\text{bolle}) \wedge G(s^*)(x)$$

$$[[\text{frech wie Bolle}]] = \lambda x. \text{bold}(\text{bolle}) \geq s^* \wedge \text{bold}(x) \geq s^*$$

To do: Find a generalization along the lines of  
 $\lambda Q \lambda x. \exists y. Q(y) \wedge \text{REL}(\text{marie}, y) \wedge S^*(y) \wedge Q(x) \wedge S^*(x)$

## 6. The role of *so* in German equative comparison

### 6.1 *So* as a correlative

*Wie* phrases can be combined with *so* without affecting the meaning of the sentence:

- (21) a. (So) eine Frau wie Anna kann das Problem lösen.  
'A woman like Anne will be able to solve the problem.'
- b. Marie hat (so) eine Frisur wie Anna.  
'Marie has the same haircut as Anna.'
- c. Maria hat das Problem (so) gelöst wie Anna.  
'Marie solved the problem like Anne did.'
- d. Marie ist (so) frech wie Bolle.  
'Marie is as bold as Bolle.'

→ *So* is a "Korrelat" (correlative) related to the *wie* phrase.

"Korrelate" are anaphoric (cataphoric) expressions which relate to a subsequent complement or adjunct. They may be optional (22a,b) or obligatory (22c,d) (cf. Zifonun 1997)

- (22) a. Hans weiß (**es**), dass Marie heute abend kommt. optional  
 'Hans knows (it) that Marie will come this evening.'  
 b. Hans wartet (**darauf**), dass Marie heute abend kommt. optional  
 'Hans waits for (it) Marie coming this evening.'  
 c. Hans denkt **daran**, was er morgen tun muss. obligatory  
 'Hans thinks about what he will have to tomorrow.'  
 d. Hans hat **es** aufgegeben, auf Marie zu warten. obligatory  
 'Hans gave it up to wait for Marie.'

## 6.2 First puzzle

If the *wie* phrase modifies a nominal attribute or an event type, *so* is optional, cf. (21a-c) and (23a,b).

Modifying the adjective in (21d) it is also optional. In (23c), however, it is obligatory. Why?

- (23) a. Marie hat (**so**) ein Auto **wie** Anna (=1a) optional  
 'Marie has the same a car as Anna.'  
 b. Marie ist (**so**) nach Prag gefahren **wie** Anna. (=1b) optional  
 'Marie went to Prague like Anna.'  
 c. Marie ist **so** groß **wie** Anna. (=1c) obligatory  
 'Marie is as tall as Anna.'

Compare (24a/c) and (24b/d):

- (24) a. Sie ist frech wie Bolle. ==> She is bold beyond the standard degree  
 'She is bold like Bolle.'  
 b. ?? Sie ist frech wie Marie. ==> She is bold beyond the standard degree  
 'She is bold like Marie.'  
 c. Er ist stark wie ein Bär. ==> He is strong beyond the standard degree  
 'He is strong like a bear.'  
 d. ?? Er ist stark wie mein Bruder. ==> He is strong beyond the standard degree  
 'He is strong like my brother.'

- in (a/c) the *wie* phrase presents a prototypical instances (Bolle is the German prototype of a bold person; a bear is the German prototype of being strong);
- in (b/d) the instance presented in the *wie* phrase is no prototypical instance of boldness / strength;
- all of (a-d) include the unmodified positive form of a gradable adjective and thus imply that the adjectival property holds to a degree exceeding the standard of comparison;
- this implication is consistent, if the *wie* phrase presents a prototypical instance; with non-prototypical instances, however, there is a conflict (Is she bold beyond standard or to the degree Marie is? / Is he strong beyond standard or strong to the degree my brother is?)

→ *Wie* phrases can be combined with unmodified positive forms only if they present a prototypical instance consistent with the standard of comparison requirement.

## 6.3 Second puzzle

While (25a) is bad, (25b) is fine. Why does the use of *so* – which is just a correlative anaphor – improve the sentence?

- (25) a. ?? Sie ist frech wie Marie. (= 24b)  
 b. Sie ist **so** frech wie Marie.  
 'She is bold like Marie.'

- When combined with *so* the positive form of the adjective need not relate to the standard of comparison. The anaphor *so* may pick up any antecedent degree available in the context.
  - Therefore, in combination with *so* an adjective can be modified by *wie* phrases employing exemplars of any degree (not only those which prototypically exceed the standard degree).
- Due to its anaphoric capacity *so* neutralizes the standard degree requirement of the unmodified positive (still, it may itself pick up a standard degree).

## 6.4 Semantic representation

In German equative comparison constructions

("so + feature of comparison + *wie* + comparison base")

- *so* is an anaphoric modifier (nominal attribute, manner, degree)
- the *wie* phrase is a modifier of the feature of comparison<sup>2</sup> (nominal attribute, manner modifier, degree modifier) expressing a similarity relation
- *so* is a correlative relating to the *wie* phrase

### nominal attributes

- (1) a. Marie hat **so** ein Auto **wie** Anna (eins hat)  
 'Marie has the same a car as Anna.'

[[SO<sub>attributive</sub>]] = λQ λx. Q(x) ∧ P\*(x)

[[wie Anna(eins hat)]]

= λQ λx. ∃y. has(anna, y) ∧ Q(y) ∧ S\*(y) ∧ Q(x) ∧ S\*(x)

[[wie Anna(eins hat)]] ←<sub>unification</sub> [[SO<sub>attributive</sub>]]

[[so ein Auto wie Anna (eins hat)]]

= λx. ∃y. has(anna, y) ∧ car(y) ∧ S\*(y) ∧ car(x) ∧ S\*(x)

### manner modifiers

- (1) b. Marie ist **so** nach Prag gefahren **wie** Anna (es getan hat)  
 'Marie went to Prague like Anna.'

<sup>2</sup> This analysis deviated from the one in Bierwisch (1989) where *wie* phrases combined with adjectives are said to be arguments of the adjective.

[[so<sub>manner</sub>]] =  $\lambda Q \lambda e. Q(e) \wedge \mathbf{P}^*(e)$   
 [[wie Anna (es getan hat)]]  
 =  $\lambda Q \lambda e \exists e'. \text{agent}(anna, e') \wedge Q(e') \wedge \mathbf{S}^*(e') \wedge Q(e) \wedge \mathbf{S}^*(e)$   
 [[wie Anna (es getan hat)]]  $\leftarrow_{\text{unification}}$  [[so<sub>manner</sub>]]  
 [[so nach Prag gefahren wie Anna (es getan hat)]]  
 =  $\lambda e \exists e'. \text{agent}(anna, e') \wedge \text{go-to-Prag}(e') \wedge \mathbf{S}^*(e') \wedge \text{go-to-Prag}(e) \wedge \mathbf{S}^*(e)$

#### degree modifier

- (1) c. Marie ist **so** groß **wie** Anna (es ist)  
 'Marie is as tall as Anna'

[[so<sub>degree</sub>]] =  $\lambda G \lambda x. G(\mathbf{d}^*)(x)$   
 [[wie Anna (es ist)]] =  $\lambda G \lambda x. G(\mathbf{s}^*)(anna) \wedge G(\mathbf{s}^*)(x)$   
 [[wie Anna (es ist)]]  $\leftarrow_{\text{unification}}$  [[so<sub>degree</sub>]]  
 [[so groß wie Anna (es ist)]] =  $\lambda x. \text{tall}(anna) \geq \mathbf{s}^* \wedge \text{tall}(x) \geq \mathbf{s}^*$

## 7. Conclusion

The analysis of German equative comparison suggested above confirms the hypothesis:

*So* in equative comparison is a **demonstrative expression** used cataphorically referring to a property / degree given by the comparison base

Beyond, it turned out that

- In equative comparison involving nominal attributes and manner modifiers *so* is optional.
- In adjectival equative comparison *so* is optional if the *wie* phrase presents a prototypical instance consistent with the standard of comparison requirement.

Otherwise, *so* is obligatory because it has to neutralize the standard of comparison requirement imposed by the positive form (i.e. the contribution of *pos*).

**Caveat:** Is it not always possible to neutralize the standard of comparison requirement.

(Supposition: The possibility of neutralizing the standard of comparison requirement seems to coincide with the possibility of combing with a measure phrase.

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