Modification by similarity – the meaning of the German demonstrative *so*

It is widely agreed that German *so* is, first of all, a demonstrative expression and, like other demonstratives, has a deictic and an anaphoric use. The deictic use, which is in focus in this paper, has to be accompanied by a demonstration gesture. It is said to pick up "aspects of objects" (Ehlich 1987) which are used to modify the denotation of the expressions it is combined with. In the example in (1a) the height of the person the speaker points to is used to characterize Anna's height. In (1b) certain properties of the car the speaker points to are used to characterize Anna's car. Finally, in (1c) the manner of the fish-cutting event the speaker points to is used to characterize Anna's way of doing that. This interpretation of the demonstrative *so* raises two questions: (a) What does the demonstrative actually refer to?, and (b) How is it possible that a demonstrative acts as a modifier?

(1) a. (speaker pointing to a person): So groß ist Anna.   'Anna is that tall.'

　　b. (speaker pointing to a car): So ein Auto hat Anna.   'Anna has a car like this.'

　　c. (speaker pointing to someone dividing a fish):
　　　　So hat Anna den Fisch auch zerlegt.   'Anna cut the fish like that , too.'

One readily available answer to the above questions consists in assuming that the demonstrative refers to properties. That would mean, however, to employ a semantic framework based on property theory (cf., e.g., Chierchia & Turner 1988). This solution is unsatisfactory because it shifts the explanatory burden to the semantic framework. We will instead presuppose a standard semantic ontology, including individuals and events, but no properties as such, which leaves us with the problem of the referent of the demonstrative – if you cannot refer to degrees or properties or manner, what does the speaker refer to in the examples in (1a-c)? This problem must not be confused with Quine's negative view on reference in general, arguing that reference is inherently indeterminate (Quine 1960). Our problem in, e.g., (1b) is not to determine the object the speaker points to – we know in (1b) that it is the car and not, e.g., the rear spoiler, simply because *so* is combined with *Auto* ('car'), but we don't know how the demonstrative retrieves the relevant properties of the car.[1]

　　The standard theory of demonstratives is the direct reference theory, according to which certain singular terms refer directly, without the mediation of a Fregean Sinn (cf. Kaplan 1989). Nunberg (1993) proposed an elaboration of Kaplan's theory addressing the problem of so-called deferred uses, where the object referred to is not identical to the interpretation of the demonstrative.[2] Following Nunberg, the semantics of a demonstrative involves (i) a deictic component picking out a referent, (ii) an interpretation contributed to the proposition, and (iii) a relation between the referent and the interpretation, which need not be identity.

　　This theory offers a straightforward solution to the interpretation problem of the demonstrative *so*: (i) The referent of the demonstrative is the individual or event pointed to, (ii) the interpretation contributed to the proposition is the interpretation of the phrase modified by the demonstrative, and (iii) the relation between the referent and the interpretation is similarity. Thus, different from Nunberg's deferred uses, the relation between referent and interpretation is not arbitrary but instead fixed by the demonstrative expression – the meaning of the demonstrative *so* consists in establishing a similarity relation between the referent pointed to and the interpretation of the modified phrase – for example, in (1b), between the car the speaker points to and Anna's car.

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[1] The selection of relevant properties is constrained by the meaning of the noun but otherwise determined by the context.

[2] Someone may, for example, utter *This guy is usually an Italian.* while pointing at Benedict XVI, meaning that the one who is the pope is usually an Italian, cf. Elbourne (2008) who spelt out Nunberg's account in a formal framework.

For this idea to be productive, we need a notion of similarity which is not a semantic primitive. Assume that adjectives are one-dimensional, while (most) nouns are multi-dimensional. A "generalized measure function" is defined as a function from individuals to points a multi-dimensional space. In the one-dimensional/adjectival case a generalized measure function coincides with the measure function used as the denotation of gradable adjectives in Kennedy (1999), which takes individuals to degrees. In the multi-dimensional / nominal case it comprises multiple components which take individuals to values of the scales corresponding to the relevant dimensions (which may be proportional but also nominal or even binary).

The simplest notion of similarity is feature-identity: Two persons are similar in height iff their height is identical – two cars are similar with respect to color, size, and equipment iff their color, size, and equipment are identical, cf. (2a) and (3a) (where F is a generalized measure function). The meaning of the demonstrative *so* based on the feature-identity notion of similarity is shown in (2b)/(3b). Combining *so* with the adjective *groß* ('tall') yields (2c), which is the property of being equal in height to the referent of the demonstration (refDem). Combining it with the noun *Auto* ('car') (and assuming that the relevant dimensions are color, size, and equipment) yields (3c), which is the property of being a car similar to the referent of the demonstration with respect to the relevant car dimensions.[3]

(2) a. sim(x, y, f) iff f(x) = f(y)

b. $[[so]] = \lambda f \lambda x. [f(x) = f(refDem)]$

c. $[[so\ groß]] = \lambda x. [height(x) = height(refDem)]$

(3) a. sim(x, y, F) iff $f_1(x)=f_1(y)$ & … & $f_n(x)=f_n(y)$ for all components f_i in F

b. $[[so]] = \lambda x. [F^*(x) = F^*(refDem)]$ where F* is a free variable

c. $[[so\ (ein)\ Auto]] = \lambda x.\ car(x)$ & $[COL(x)=COL(refDem)$ & $EQP(x)=EQP(refDem)$ & $SIZE(x)=SIZE(refDem)]$

The feature identity notion of similarity is the reason why Nelson Goodman called similarity "a pretender, an impostor, a quack" (Goodman 1972, p. 437). We will suggest a more elaborate notion of similarity based on closure operations on dimensions (as, for example, convexity in conceptual spaces, cf. Gärdenfors 2000) and a fuzzy notion of truth.

Interpreting the demonstrative *so* as conveying similarity instead of identity accounts for the intuition that it acts as a modifier without postulating reference to "aspects of objects". But this modification is only indirect, induced by the similarity requirement, and thus different in nature from, e.g., the intersection of predicate denotations.

Chierchia, G. & Turner, R. (1988) Semantics and Property Theory. *Linguistics and Philosophy* 11, 261-302.

Ehlich, K. (1986) *so* – Überlegungen zum Verhältnis sprachlicher Formen und sprachlichen Handelns, allgemein und an einem widerspenstigen Beispiel. In I. Rosengren (ed) *Sprache und Pragmatik*, 55, 279-298.

Elbourne, P. (2008) Demonstratives as individual concepts. *Linguistics and Philosophy* (2008) 31:409–466

Gärdenfors, P. (2000) Conceptual Spaces. MIT Press.

Goodman, N. (1972). Seven strictures on similarity. In N. Goodman (ed) *Problems and Projects*. The Bobbs Merrill Company, Indianapolis and New York, 437–447.

Kaplan, D. (1989). Demonstratives. In Almog, P. & Wittstein (eds.) *Themes from Kaplan*, Oxford University Press, 481–563.

Kennedy, C. (1999) Projecting the adjective. Garland Press, New York.

Nunberg, G. (1993) Indexicality and Deixis. *Linguistics and Philosophy* 16: 1-43.

Quine, W.V.O. (1960), *Word and Object*, Cambridge MA: MIT Press.

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[3] Please ignore for the moment the position of the demonstrative, which is unusual for a nominal modifier.