

# Noun phrase structure and movement

## A cross-linguistic comparison of *such/sådan/solch* and *so/så/so*\*

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We investigate the etymologically related words *so* and *such* (English); *så* and *sådan* (Danish); and *so* and *solch* (German). Similarities and differences that have to be accounted for cross-linguistically are

- i. position (pre- or post- indefinite article),
- ii. agreement morphology (in Danish and German), and
- iii. semantics (whether an AdjP or a DP/NP is modified).

English and Danish *so/så* may only modify an AdjP, while German *so* may also modify the DP/NP. English *such* may only modify the DP/NP (Bolinger 1972, Wood 2002) and may only precede the indefinite article. Danish and German allow inflected *sådan/solch* to follow the article. We discuss two possible syntactic derivations, predicate raising (e.g. Corver 1998, Bennis, Corver & den Dikken 1998) and XP movement from an attributive adjective position within the nominal (e.g. Matushansky 2002). The analysis links up with the morphological agreement facts of predicate and of attributive adjectives in Danish and German (Vikner 2001).

### 1. Introduction

The focus in this paper is on two etymologically related words, cognates of which are used to express degree in three Germanic languages: *so* and *such* in English, *så* and *sådan* in Danish, and *so* and *solch* in German. The syntax and semantics of degree

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expressions have been of interest to linguists for at least forty years, as seen in e.g. Bolinger (1972) and Bresnan (1973). Abney (1987: 301–321) suggested not only that noun phrases occur inside determiner phrases but also that adjective phrases occur inside degree phrases. English expressions involving *so*, *too*, *as*, *how*, *this*, *that* plus an adjective are particularly relevant for Abney's suggestions, as these expressions may occur on the left periphery of nominals, preceding the indefinite article:

- (1) a. ...which are *so big* a part of the present system  
 b. ...<sup>??</sup>which are a *so big* part of the present system (COCA)

The fact that these degree expressions may precede the indefinite article has led to further research into the fine-grained structure of DPs. Degree phrases such as *so big* are either taken as evidence for functional structure above DP (e.g. Kennedy & Merchant 2000: 125), if the indefinite article is assumed to be  $D^{\circ}$ , or for functional structure below DP (e.g. Matushansky 2002, Wood 2002), if the indefinite article is assumed to be the head of a phrase that occurs inside DP, e.g. Num(ber)P or Card(inality)P.

Similarly, within both functional and generative frameworks, the analysis of the word *such* has long been discussed, as also *such* has a degree reading, intensifying in Bolinger's (1972: 60) terms. As soon as there is a gradable element in the context, either an adjective as in (2), or a gradable noun as in (3), *such* may have the meaning a reaction as violent as this reaction or a person as foolish as this person.

- (2) I did not expect *such* a violent reaction.  
 (3) I did not expect to meet *such* a fool.

In the terms of Quirk et al. (1985: 257), *such* is a predeterminer, albeit a special predeterminer which, in English, may only precede the indefinite article, (4) and not the definite article, (5).

- (4) a. ... which are *a major part* of the present system  
 b. ... which are *such a major part* of the present system  
 (5) a. ... which are *the major part* of the present system  
 b. ... which are *such the major part* of the present system

The syntax and semantics of *such* are complicated by the fact that it also has what we will refer to as a kind reading, a reading that Bolinger (1972: 60) terms identifying. In (6), *such a machine* means a machine of this kind because there is no possibility of construing *machine* as a gradable noun:


- (6) I have never seen *such* a machine before.

Whereas English *such* may have both kind and degree readings, and sometimes be ambiguous between the two, English *so* (inside a nominal expression) is only a degree adverb, as in (1a) above.


Although Wood (2002) focussed on explaining the syntax of *such* in terms of kind and degree, the starting point in this paper is on what is modified, the DP/NP, or the

adjective phrase. In (6), the only possibility is for *such* to have a kind reading, but (2) and (3) are both ambiguous between kind and degree. In Sections 3 and 4 the focus is on the link between word order, morphology, and the possible derivations. We will return to kind, degree and modification in Section 6 when we discuss language change.

With respect to the syntax, two possible derivations of pre-article *such* and *so* in English, (1a) and (4b), have been suggested in the recent literature.<sup>1</sup> In one derivation there is movement from the prototypical Germanic adjective position preceding the noun to a position preceding the indefinite article, as in (7):

(7) [such/so bad]<sub>j</sub> a t<sub>j</sub> hotel  

 A horizontal line with an upward-pointing arrowhead on the left end, connecting the 'a' and 't<sub>j</sub>' in the phrase [such/so bad]<sub>j</sub> a t<sub>j</sub> hotel.

The other suggestion is that *such* and *so* expressions originate as predicates in a small clause that has a DP subject as in (8):

(8) [such/so bad]<sub>k</sub> a hotel [ec t<sub>k</sub>]  

 A horizontal line with an upward-pointing arrowhead on the left end, connecting the 'a' and 't<sub>k</sub>' in the phrase [such/so bad]<sub>k</sub> a hotel [ec t<sub>k</sub>].

In this paper we compare *so* and *such* to their equivalents in Danish, *så/sådan*, and in German, *so/solch*, in order to decide which of the two derivations above is most plausible. The significance of introducing these languages lies in the two ways in which they differ syntactically and morphologically from English. First, unlike English *so/such*, it is possible to find *så/sådan* and *so/solch* following as well as preceding the indefinite article. Secondly, unlike English, both languages have morphological agreement on adjectives. Danish, however, differs from German in that both predicative and attributive adjectives agree, whereas German adjectives only agree when they are attributive. It is thus possible to tell whether an adjective that has moved comes from an attributive position as predicted in (7) or a predicate position as predicted in (8). We would like to argue, on the basis of adjectival agreement morphology, that post-article expressions are represented by the base order of (7), *a so bad hotel* and pre-article ones are derived from predicate raising as in (8), from *a hotel so bad* to *so bad a hotel*.

Another way in which a comparison between these three languages can be informative is when considering language change and the grammaticalization of degree expressions. Bolinger (1972: 92) suggests a semantic change, from kind to degree, whereas we will show, specifically with reference to German, that the significant change is in syntactic scope, i.e. whether the lexical items under consideration modify the entire nominal or just the adjective phrase.

Before the discussion of the derivation of nominals involving *so/så/so* and those involving *such/sådan/solch* in Sections 3 and 4 below, Section 2 sets out our assumptions about the structure of the DP.

1. Note that we use pre-article *so/such* to refer to *so/such* preceding the indefinite article, as in (1a) and (4b).

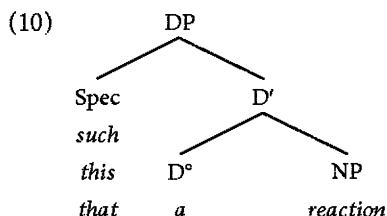
## 2. The structure of nominals

As was mentioned above, we will consider two alternative derivations for pre-article *so/så/so* and *such/sådan/solch* expressions, movement from the prenominal position or movement from the postnominal position, and we will argue for the latter. We assume a structure of the DP in which the definite and indefinite articles occupy different positions as the head of DP and the head of NumP respectively, and we argue that *so* and *such* expressions that precede the indefinite article move to Spec-NumP. More detailed structures may be found in Sections 3 and 4. First, however, we will consider a third option and our reasons for not adopting it.

It has been argued that nominals with fronted degree modifiers and with *such* involve movement to Spec-DP. Alexiadou, Haegeman & Stavrou (2007: 108–9) observe the parallels between *such* and demonstratives, *this* and *that* (below), and suggest that as a first approximation it can be proposed that *such* occupies Spec-DP:

- (9) I did not expect this reaction.  
 I did not expect such a reaction. (Alexiadou et al. 2007: 108, (63a)).

Demonstratives and *such* are supposed to have the same (derived) position as shown in (10) below:



Similarly, Haegeman & Guéron (1999: 419–420) suggest that expressions with fronted degree modifiers are derived as in (7) above, but that the movement is to Spec-DP. However, there are two problems with such an analysis.

The first problem is that expressions like *such* and *so big* can co-occur with another determiner, unlike *this* and *that*. Therefore if *this* and *that* are in Spec-DP, expressions like *such* and *so big* clearly are not:

- (11) \*Any that a proposal ...  
 (12) \*No that a change ...  
 (13) D'Cey feared he would not cut *half so good a figure*.  
 (The Iron wood Tree Tony DiTerlizzi COCA)  
 (14) I can at any rate promise you that I will not be the medium of *any so absurd a requisition*.  
 (Anthony Trollope, *Barchester Towers*, 1857)  
 (15) For the time being at least, *no such a change* in Congressional attitudes would occur.  
 (Wood 2002: 110)

Admittedly, a structure such as (10) can account for (13–15) if an additional higher functional category, QP, is introduced (as pointed out to us by an anonymous reviewer). However, because (10) places *so bad/such* in Spec-DP, this structure cannot possibly accommodate the definite article in (17)–(20):

- (16) *so bad a hotel*  
 (17) *the so bad hotel*  
 (18) An example based on *the so impressive work* of José Roca  
 (www.powerbasic.com/support/forums)  
 (19) Day at leisure to explore *the so impressive city*.  
 (www.aegeantours.com.au/south-america-highlights-tour)  
 (20) A judge may receive compensation and reimbursement of expenses... if the source of *the such* payments does not give.... (COCA)

In Sections 3 and 4 below we will discuss what we take the structures of the preceding examples to be, arguing that pre-article expressions are derived as in (8), rather than as in (7). We will propose that the indefinite article is the head of NumP, as illustrated in (26) below, whereas the definite article is the head of DP.<sup>2</sup>

### 3. So constructions in English, Danish and German

In this section we describe the possible positions of *so*, *så* and *so* with respect to the indefinite article and discuss two possible derivations.

English *so* belongs to a class of degree adverbs that are part of the leftmost functional structure of the AdjP (Bresnan 1973, Corver 1997). The class includes the degree adverbs: *how*, *as*, *too*, *this*, *that*. This also holds for Danish: *så*, *for*, *hvor* and German *so*, *zu*, *wie*.

The tables below set out the logical possibilities in the three languages:

(21)

	pre-article	post-article
modifying the whole DP/NP	a	b
modifying only the AdjP	c	d

2. In other words, we use pre-article *so/such* to refer to *so/such* preceding the indefinite article in Num°, whereas we use post-article *so/such* to refer to *so/such* following the indefinite article in Num°. This again means that when *so/such* follows a definite article (which is in D°), as in (17)–(20), it may either precede or follow Num°.

## (22) English

	pre-article	post-article
DP/NP	–	–
AdjP	so	%so

- a. \*so a hotel
- b. \*a so hotel
- c. so bad a hotel
- d. ??a SO bad hotel

## (23) Danish

	pre-article	post-article
DP/NP	–	–
AdjP	så	så

- a. \*så et hotel
- b. \*et så hotel
- c. så dårligt et hotel
- d. et så dårligt hotel

## (24) German

	pre-article	post-article
DP/NP	so	–
AdjP	–	so

- a. so ein Hotel
- b. \*ein so Hotel
- c. \*so schlecht ein Hotel
- d. ein so schlechtes Hotel

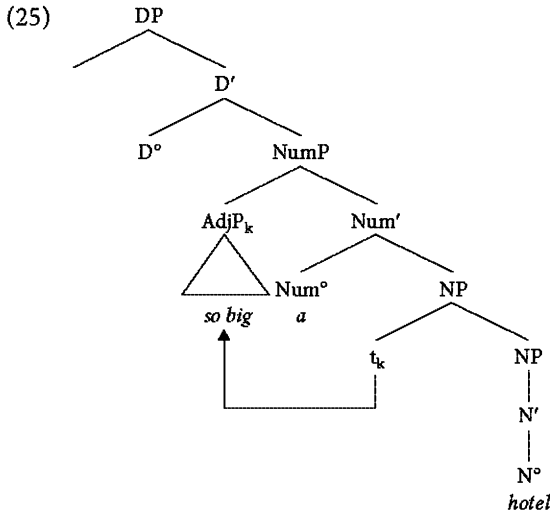
As may be seen, English and Danish are similar, in that *so/så* only modifies an adjective phrase and has to be immediately adjacent to that phrase. The difference between English and Danish is in the possible word orders. In Danish it is grammatical for *så* plus adjective to either precede or follow the indefinite article, whereas, in English, if native speakers accept (22d) at all it is with heavy stress on *so*. German *so* is similar to Danish *så* in that *so* plus adjective may follow the article. An important difference that separates English from Danish and German is the obligatory agreement between the adjective and the (neuter) noun. The significance of this agreement morphology will become apparent in the following section when we discuss *such/sådan/solch*.

The most striking semantic difference that separates German from the other two languages is that pre-article *so* is possible without a following adjective. This means that it is possible for *so* in German to modify the entire DP as well as the AdjP or NP, and hence German *so* can be ambiguous between kind and degree unlike English and Danish *so* and *så* nominals which only have degree readings.

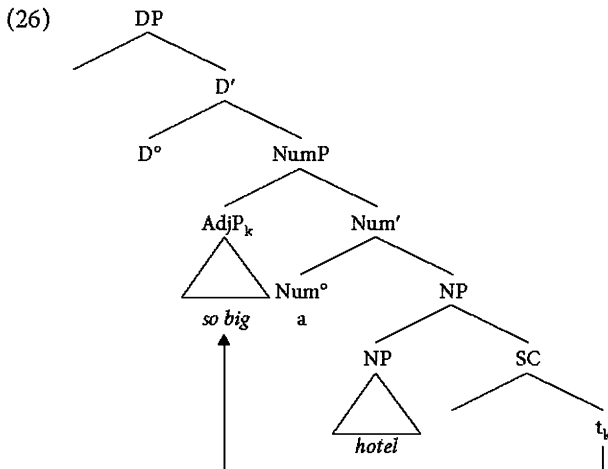
3.1 Deriving pre-article *so*

As has already been mentioned, there are two possible derivations that give the required surface structure. In one possible derivation of pre-article *so*, which we will not be adopting,

the adjective phrase *so bad* would be base-generated in the prototypical adjective position (i.e. following the article and preceding the noun) and then move into Spec-NumP, as was described in (7) above, shown in (25) below (Matushansky 2002; Wood 2002, 2004):



An alternative derivation, which we prefer, would be through predicate raising from the small clause, which has the same position that a relative clause would have, i.e. right-adjoined to the NP as in (8) above and shown in (26) below (e.g. Zamparelli 1995; Bennis, Corver & den Dikken 1998; Corver 1998; Wood 2002: 106):



### 3.2 Support for the predicate raising analysis

There is more evidence to support the derivation in (26) than the one in (25). Firstly, constructions with the surface word order of (26) are possible:

- (27) She told me she never saw *a man so pleased* by a glass of wine. (BNC)  
 (28) It is rare to see *a house so little altered*. (BNC)  
 (29) Maybe he was *a man so obsessed* with hidden things that he simply couldn't see open criminality. (BNC)  
 (30) The imagination had become *a power so terrible* that he could not risk indulging it. (BNC)

These are possibly reduced relative clauses.

The second piece of evidence comes from constructions such as (31) below, from Zamparelli (1995: 132–33), and (32), from COCA. Many dialects of English have an optional *of* in *so* + adjective constructions.

- (31) *so tall (of) a man* (that he had to lean on the basket)  
 (32) I was *so cold of a person* at one time in my life; closed off all my own feelings. (COCA)

This *of* is not a case-assigning preposition, nor a possessive *of* or a partitive *of*. It is similar to the meaningless element, Dutch *van*, argued by Bennis, Corver & den Dikken (1998: 86) to be a functional head parallel to the clausal copula as in the Dutch examples below:

- (33) *De grootste beer is die kerel*  
 the biggest bear is that guy  
 (34) *een beer van een kerel*  
 a bear of a guy

Similar constructions are possible in English and Danish:

- (35) The island is a jewel.  
 (36) a jewel of an island  
 (37) *Statsministeren i tegneserien var en lille nar.*  
 Prime-minister-the in cartoon-the was a little fool  
 (38) *en lille nar af en statsminister*  
 a little fool of a prime-minister (KorpusDK)

A third piece of evidence is that in English, adjectives that are usually only predicative (e.g. *alike, awake, ashamed, upset, afloat, alike, alone*) appear to be better in these constructions than when they occur in the canonical attributive position. Comparing the b and c examples in (39) and (40) below it may be seen that the c examples are grammatical.

- (39) a. The shoplifter is ashamed.  
 b. \*the ashamed shoplifter  
 c. the so ashamed shoplifter  
 d. So ashamed a shoplifter I have never seen.  
 (40) a. The twins are alike.  
 b. \*the alike twins  
 c. the so alike twins



If the c examples are derived through predicate raising it would explain why they are grammatical, whereas the b examples are not.

A fourth piece of evidence is provided by Lenerz & Lohnstein (2004: 83), who point out that although (41b) is ungrammatical, native speakers nevertheless have clear intuitions of what the form should be, not only uninflected (as predicate adjectives are in German, see e.g. Vikner 2001) but also in the predicate form, *hoch*. Therefore, although both are ungrammatical, (41b) is better than (41a).

- (41) a. \**so* \**hoh-*      *ein Haus*  
           *so* high.ATTR a house  
       b. \**so hoch*      *ein Haus*  
           *so* high.PRED a house

We argued above that the predicate raising analysis is the preferred analysis for expressions involving pre-article *so*, *så* and *so*. In the following section, we go on to compare in detail the possible positions of *such*, *sådan* and *solch* with respect to the indefinite article and whether the DP/NP or the AdjP is modified in each of the three languages. We then argue that also for pre-article *such*, *sådan* and *solch* expressions, the predicate raising analysis is preferred over fronting from attributive position.

#### 4. *Such* constructions in English, Danish and German

Also for *such/sådan/solch* there are four possible combinations of word order and modification. *Such* obligatorily precedes the article in present-day English (although, as pointed out in Wood (2004: 315), in earlier English and in some dialects post-article *such* is found). However, in both Danish and German, both pre- and post-article orders are found:

(42)

	pre-article	post-article
modifying the whole DP/NP	a	b
modifying only the AdjP	c	d

(43) **English**

	pre-article	post-article	
DP/NP	<b>such</b>	–	a. such a hotel
AdjP	–	–	b. *a such hotel c. *such bad a hotel d. *a such bad hotel

## (44) Danish

	pre-article	post-article
DP/NP	<u>sådan(t)</u>	<u>sådant</u>
AdjP	–	–

- sådan(t) et hotel*
- et sådant hotel*
- \**sådan(t) dårligt et hotel*
- \**et sådan(t) dårligt hotel*

## (45) German

	pre-article	post-article
DP/NP	<u>solch</u>	<u>solches</u>
AdjP	–	<u>solch</u>

- solch ein Hotel*
- ein solches Hotel*
- \**solch(es) schlecht(es) ein Hotel*
- ein solch schlechtes Hotel*

As may be seen in (43) above, English is the most restrictive as far as word order goes, because *such* must precede the article, (43a). As in German and Danish, pre-article *such* in English modifies the entire DP; it cannot just modify an adjective. Danish allows both a pre-article *sådan*, which modifies the DP, (44a), and a post-article *sådan*, (44b), which modifies the NP. Post-article *sådan* is always inflected, whereas pre-article *sådan* may or may not be inflected. German is the least restrictive. Like English and Danish, it has a pre-article *solch*, which modifies the DP, (45a), but in addition, it has two different forms of post-article *solch*. Inflected post-article *solch* modifies the NP, (45b), whereas uninflected post-article *solch* modifies an AdjP, (45d).

4.1 German post-article *solch*

Before we focus on the derivation of pre-article *such* constructions, a few more words about German post-article *solch*. For (45d), there might seem to be two possibilities, as *solch* could also have been inflected in this position (i.e. following an article and preceding an adjective). However, when *solch* is inflected in this position, it modifies the NP, and so this would really be a subcase of (45b). Therefore (45d), *solch* in the post-article position modifying an AdjP, only exists in one version, uninflected, which, we suggest, is an adverb, not an adjective (see Section 5 below). In other words, when post-article *solch* modifies the NP, it inflects like an adjective:

- (46) ... *was ein solcher Künstler für eine Gage bekommt*  
 whata such artist for a fee receives

However, when post-article *solch* modifies an adjective, it is never inflected:

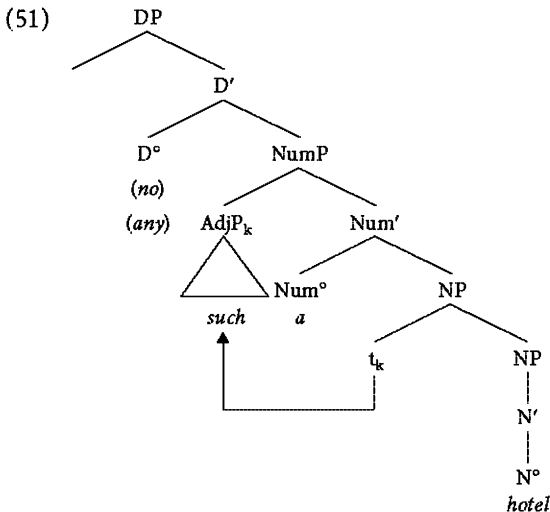
- (47) ... mit *einem solch großen Aufwand*  
 with a.DAT such big.DAT effort (Fabricius-Hansen et al. 2005: 330)
- (48) *Selten hat ein solch dickes Buch meine*  
 Seldom has a.NOM such thick.nom book my  
*Aufmerksamkeit mehr gefesselt als dieses.*  
 attention more captured than this. (Fabricius-Hansen et al. 2005: 332)

This difference is parallel to the difference between attributive adjectives (inflected) and adverbs (uninflected) in German:

- (49) *Ein unglaubliches Buch*  
 An incredible.NEUT book
- (50) *Ein unglaublich\_gutes Buch*  
 An incredibly good book

#### 4.2 Deriving pre-article *such*

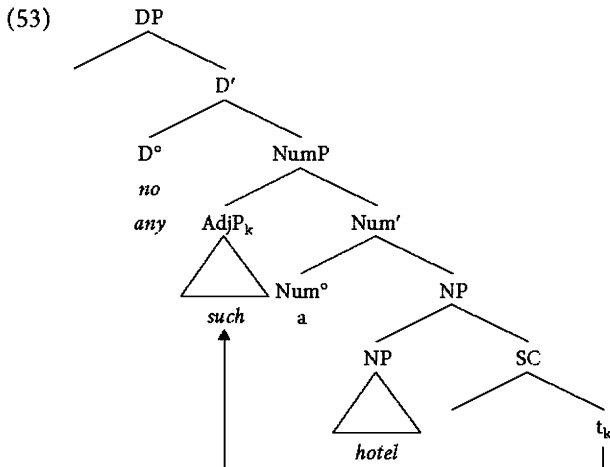
One possible derivation of pre-article *such* is for it to be base-generated in the prototypical adjective position (i.e. following the article and preceding the noun) and then to be moved to a position preceding the indefinite article. One implementation based on Ritter (1992) was suggested by Wood (2002) (see also Matushansky 2002: 48). Here, *such* moves from the prototypical attributive adjective position, which is left-adjoined to the NP.<sup>3</sup>



3. We are abstracting away from the internal structure of the adjective phrase (e.g. Bresnan 1973, Corver 1997, Wood 2002).

Another possible derivation is predicate raising, as in Wood (2002: 112), who takes the idea from Zamparelli (1995) and from Bennis, Corver & den Dikken's (1998) derivation of *wat voor* constructions. The main idea is that *such* originates as a predicate in a verbless clause (a so-called small clause).<sup>4</sup> This small clause has the same position that a relative clause would have, i.e. right-adjoined to the NP.

- (52) [<sub>Small Clause</sub> [<sub>SC-subject</sub> *teachers*] [<sub>SC-predicate</sub> *such as these*]]  
is what every student fears.



#### 4.3 German pre-article *solch*

Deriving German pre-article *solch* from a predicate as illustrated in (53) would account for why it is never inflected (similar to German *manch ein* “many a” and *welch ein* “what (a)”) given that predicate adjectives are never inflected in German, as opposed to Danish, cf. e.g. Vikner (2001):<sup>5</sup>

4. We have to admit that although we derive pre-article *such* from a predicate, it would appear that *such* is only possible as a predicate in small clauses and not in finite clauses:

- (i) *teachers such as these* (are what every student fears).  
(ii) \**No teachers are such as these.*

5. As pointed out by Harry Perridon (p.c.), German may leave pre-article *all* uninflected. This is not possible in Danish, where inflection on *alle* is obligatory.

- |         |  |        |
|---------|--|--------|
| (i) a.  | <i>mit all diesen Büchern</i>                              | GERMAN |
| b.      | * <i>med al disse bøger</i><br>with all_ these books       | DANISH |
| (ii) a. | <i>... mit allen diesen Büchern</i>                        | GERMAN |
| b.      | <i>med alle disse bøger</i><br>... with all.PL these books | DANISH |

- (54) *Dann wird es klar, wie klug und peinlich genau solch ein Künstler wie Wagner war.*  
Then it becomes clear how intelligent and pedantically exact such an artist as Wagner was. (Fabricius-Hansen et al. 2005: 331).
- (55) a. *Wo findet man solch ein Hotel?* German  
b. \**Wo findet man solches ein Hotel?*  
where finds one such a hotel?
- (56) a. *Ein Bus ist grün\_, die anderen sind gelb\_.* German  
b. *En bus er grøn\_, de Andre er gule.* Danish  
one bus.MASC.COM is green, the others.PL are yellow.
- (57) a. *Ein Haus ist grün\_, die anderen sind gelb\_.* German  
b. *Et hus er grønt, de andre er gule.* Danish  
one house.NEUT is green, the others are yellow.

#### 4.4 Danish pre-article *sådan*

The derivation of Danish pre-article *sådan* from a predicate as illustrated in (53) is at first glance less obvious than the parallel derivation for German pre-article *solch*.

Given that (57b) indicates that Danish predicative adjectives always agree, predicative *sådan* does not appear to behave as a prototypical adjective, because adding the agreement morpheme *-t* in the neuter is only a rarely used option, not obligatory. This is in sharp contrast with Danish attributive adjectives, where adding the agreement *-t* in the neuter is very much the preferred option. It is therefore not surprising that pre-article *sådan*, derived, we argue, from a predicate, may add *-t* in the neuter, but most often it does not, (44a). This is completely in line with it being derived from a predicate since, if pre-article *sådan* were derived from an attributive, it would be expected to always add the agreement *-t* in the neuter.

This analysis receives further support from the following corpus data. First, consider the following figures for pre-article *sådan* in Danish (KorpusDK, November 2009):

- (58)
- |                                       |      |                         |
|---------------------------------------|------|-------------------------|
| a. <i>sådan<sub>t</sub> et + NOUN</i> | 52   | (such.NTR a.NTR + NOUN) |
| b. <i>sådan_ et + NOUN</i>            | 1460 | (such.COM a.NTR + NOUN) |

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Although the possibility of leaving *all* uninflected in German is reminiscent of pre-article *solch*, it is not clear to us whether (1a) could or should be derived from a predicative structure, given that *all* is not a very likely candidate for a predicate.

(59)

- a. *sådan*t *et* + ADJ + NOUN 

9
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 (such.NTR a.NTR + ADJ + NOUN)
- b. *sådan*\_ *et* + ADJ + NOUN 

227
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 (such.COM a.NTR + ADJ + NOUN)

Pre-article *sådan* always modifies a DP, and regardless of whether this DP contains an AdjP, (59), or not, (58), adding the agreement *-t* to *sådan* in the neuter is possible, but clearly not preferred (the b-figures are very much bigger than the a-figures).

Compare these figures to the following figures from a search in *Infomedia*, a newspaper database, of Danish *sådan* as a predicate (these strings are not sufficiently frequent to show up in KorpusDK):<sup>6</sup>

(60)

- a. *det*er *sådan*t *at* .. 

3
---

 (it.NTR is such.NTR that ...)
- b. *det*er *sådan*\_ *at* .. 

1462
------

 (it.NTR is such.COM that ...)

This shows that predicative *sådan* may add the agreement *-t*, but like pre-article *sådan*, the non-inflected form, (60b), is very much more frequent than the inflected one, (60a).

There is thus a sharp contrast with the figures for post-article *sådan*, (KorpusDK, November 2009):

(61)

- a. *et* sådant + NOUN 

1639
------

 (a.NTR such.NTR + NOUN)
- b. *et* sådan\_ + NOUN 

116
-----

 (a.NTR such.COM + NOUN)

(62)

- a. *et* sådant + ADJ + NOUN 

102
-----

 (a.NTR such.NTR + ADJ + NOUN)
- b. *et* sådan\_ + ADJ + NOUN 

7
---

 (a.NTR such.COM + ADJ + NOUN)

These figures show that adding the agreement *-t* to post-article *sådan* in the neuter is not only possible, but clearly also preferred (the b-figures are very much smaller than the a-figures).

In sum, the figures cited here support our analysis that pre-article *sådan* is derived from a small clause predicate (both only add the agreement *-t* in the neuter in a small minority of the total cases) and not from post-article *sådan* (which adds the agreement *-t* in the neuter in a large majority of the total cases).

6. The search was carried out in July 2010. The results were checked for mistakes and repetitions. For (60b), the figures have been estimated based on the first 100 returns. Note that a Google search (July 2010) returned 6,030 cases for (60a) (compared to the 488,000 cases returned by (60b)). This is support for the 3 occurrences in (60a) representing a real option.

Having established our arguments for deriving the pre-article expressions in Section 3 and 4 above we now summarize, and compare the morphology of the pre-article expressions with post-article expressions in Section 5 below.

### 5. Summary of the derivations

Shown below is a summary of the possible word order and agreement morphology in the three languages:

(63)

	pre-article	post-article
modifying the whole DP/NP	a	b
modifying only the AdjP	c	d

(64) English

	pre-article	post-article	pre-article	post-article
DP/NP	such	–	–	–
AdjP			so	so

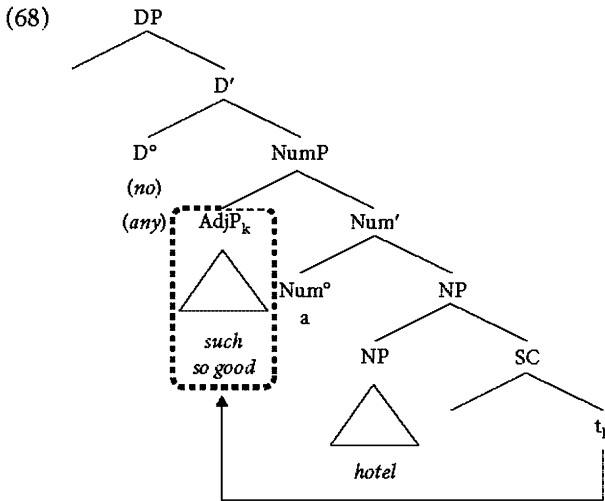
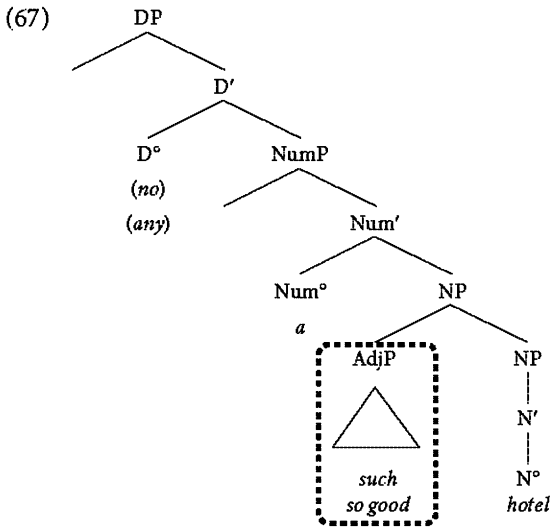
(65) Danish

	pre-article	post-article	pre-article	post-article
DP/NP	sådan(t)	sådan <u>t</u>	–	–
AdjP	–	–	så	%så

(66) German

	pre-article	post-article	pre-article	post-article
DP/NP	solch	solches	so	
AdjP		solch		so

Although it might be expected that pre-article expressions are somehow derived from the post-article ones, we suggest that this is not the case. In the post-article versions the *so*, *så*, *so* and *such*, *sådan*, *solch* expressions are generated as attributes as in (67) and in the pre-article ones they are generated as predicates as in (68).



As (67) shows, (63b,d) (i.e. post-article *so/such*) are base-generated in situ, and inflected as are all attributive adjectives in most Germanic languages. (67) does not give rise to (63a,c), presumably because such a movement would be a left branch constraint violation.

As (68) shows, we instead derive (63a,c) (i.e. pre-article *so/such*) by a movement out of a postnominal predicate position, which is why pre-article *so/such* are inflected only in languages where predicative adjectives are inflected (in Germanic, these are only the VO-languages). Thus, the reason why German pre-article *solch/so*-phrases (i.e., 63a,c) are never inflected is that they are derived from a predicate. The reason why the post-article *solch* that modifies an AdjP (i.e., 63d) is not inflected is that it is an adverb, not an adjective. In Danish, there is no post-article *sådan* that modifies an



adjective (i.e., 63d). Danish pre-article *sådan* (i.e., 63a,c) is peculiar in that it may, but most often doesn't, show agreement with the NP. This is completely in line with it being derived from a predicate, because also with predicative *sådan*, agreement is only a rarely used option, not a must (cf. 58–60 above). The structure in (68) is fully compatible with complicated examples such as (69), where *such* follows *any* but precedes *a*, as *any* is in D° and *a* is in Num°:

(69) on the basis of *any such a proposal* or application form

Having discussed the structure and derivation of *so/such* in the three languages we now examine, mainly with reference to German, changes that have occurred and are occurring with *so*, with *such*, and in the interaction between *so* and *such*.

## 6. Language change

As was mentioned in Section 1, Bolinger (1972: 92) noted, that for English, the direction of change is from kind to degree. This is borne out by, for example, considering the semantics of English *this* and *that*, where the earliest attested examples with a degree reading are from the 17th century, whereas *this* and *that* have a much longer history as demonstrative determiners. However, as will be shown below, the significant factor is syntactic, whether or not an element can modify the DP/NP (as with German *so*) and whether or not it can modify an adjective phrase. The kind and degree readings then fall out from whether the modified nouns and adjectives are gradable, as seen below.

### 6.1 German *so* and grammaticalization

As was noted above, German is the only one of the three languages in which *so* may precede the indefinite article without an adjective, i.e. *so ein Hotel* in (24a). It is also the only one of the languages in which *so* may have a kind reading as well as a degree reading. As long as the noun is not gradable, (70a), or the noun plus adjective is not gradable, (70b), the kind reading is the only one available.

- (70) a. *Mit so einem Ergebnis hat niemand von uns gerechnet*  
 with so a result has no one of us counted  
 (*Die Zeit*, 08.03.2010, [www.zeit.de](http://www.zeit.de))
- b. *Jetzt steht so ein medizinisches Großgerät zur*  
 now stands such a medical large-instrument for the  
*Untersuchung von Patienten in fast jeder größeren Klinik.*  
 examination of patients in almost every larger clinic  
 (*Die Zeit*, 02.05.2002, [www.zeit.de](http://www.zeit.de))

However, as soon as there is a gradable noun, (71a), or a gradable adjective, (71b), in the DP/NP, it is possible for the reading to be ambiguous between kind and degree.

- (71) a. *Es ist so eine Verschwendung.*  
 it is such a waste (Die Zeit, 16.07.1998, www.zeit.de)
- b. **So ein breites Repertoire** finde ich nicht in jeder Epoche.  
 so a wide selection find I not in every period  
 (Die Zeit, 02.02.2010, www.zeit.de)

It appears that a change has taken place in German in which *so* has added to its functions. The grammaticalization of German *so* to a cliticized determiner is evident from the observation that (72b) is even possible in the plural, so that as *ein* becomes more grammaticalized, it loses its singular feature (Hole & Klump 2000, Lernerz & Lohnstein 2004).

- (72) a. *So'n Buch würde ich nie lesen*  
 so-a.SG book would I never read
- b. *So'ne Bücher würde ich nie lesen*  
 So-a.PL books would I never read

Although in (22) above we have indicated that pre-article *so*, as in (22a), is ungrammatical in English, it may be acceptable in colloquial PDE as seen in (73) and (74). Although both examples involve a gradable adjective, the position of *so* makes a kind reading possible.<sup>7</sup>

- (73) I am delighted that there has been *so a good response* to the park and ride scheme in its first week. (<http://www.carmarthenshire.gov.uk/English/news>)
- (74) And that's why Hulu has been *so a huge success*.  
 ([http://blog.brandexperiencelab.org/experience\\_manifesto/2009/01/](http://blog.brandexperiencelab.org/experience_manifesto/2009/01/))

Something similar with pre-article *so* may be seen in Middle English:

- (75) *Ther roose so a grete torment in the see.*  
 there arose such a great torment in the sea  
 (OED: 1471 Caxton *The Recuyell Of The Historyes Of Troy*)

The change that appears to be happening with German *so* (and marginally in colloquial English) is from a degree adverb to a cliticized determiner, resulting in a kind reading as well as degree. This is not the direction of change predicted by Bolinger but it is completely in line with recent theories of grammaticalization within the generative framework in which grammaticalized elements move up the tree, i.e. widen their scope (van Gelderen 2004: 29). In addition, if further investigation of the Middle English data reveals that earlier stages of the language permitted modification of the entire DP, we could be looking at a cyclic change (cf. van Gelderen 2009).

7. It must be admitted that these examples are from the internet and perhaps not the most solid of data.

6.2 German *solch* and grammaticalization

In addition to the changes affecting German *so*, German *solch* is also changing. According to Zifonun et al. (1997: 1936), *solch* is changing from a determiner to an adjective. In German, the morphology gives an indication of the word class, and the fact that *solch* can be followed by a weak adjective indicates that it is a determiner, whereas the fact that it can also be followed by a strong adjective indicates that it may be an adjective:

- (76) a. *für solche neuen Wege*  
 for such.STR new.WK approaches  
 b. *für solche neue Wege*  
 for such.STR new.STR approaches (Fabricius-Hansen et al. 2005: 330)

A second change affecting German *solch* involves pre-article *solch*. Recall that pre-article *solch* modifies the entire DP and is not inflected as in (54), repeated below:

- (77) *Dann wird es klar, wie klug und peinlich genau solch*  
 Then it becomes clear how intelligent and pedantically exact such  
*ein Künstler wie Wagner war.*  
 an artist as Wagner was. (Fabricius-Hansen et al. 2005: 331).

This use of *solch* is archaic, and is being replaced in more colloquial registers by *so* and *so'n*, cf. (72a) and (72b) above. However, this is not the only place where *solch* is being replaced by *so*. In examples such as (45d), post-article *solch* in *ein solch schlechtes Hotel*, i.e. the adverbial use of *solch* is giving way to (24d), *ein so schlechtes Hotel*, the degree adverb *so*, i.e., here also *solch* is being replaced by *so*.<sup>8</sup>

A widely accepted fact regarding language change is that change starts in colloquial registers and more formal registers are the most resistant to change. In German it is apparent that both the pre-article adjective *solch* and the post-article adverb *solch* are used in more formal registers and *so* is used in colloquial registers, indicating the replacement of *solch* by *so*. A similar observation is made regarding English *such*. Both Bolinger (1972: 62) and Altenberg (1994: 238–9) point out that English *such* with a kind reading is more archaic than *such* with a degree reading.

The above discussion reveals that changes involving these two words are interdependent and Bolinger's observation that kind readings tend to change to degree readings is only a small part of the story. Further investigations into grammaticalization

8. It should be noted that German uses *so* and not *such* in predicates, whereas Danish has *such*:
- (i) a. *Es ist so, dass ...* German  
 b. *\*Det er så at* Danish  
 it is so that ...  
 (ii) a. *\*Es ist solch, dass ...* German  
 b. *Det is sådan at* Danish  
 it is such that ...

and the interaction between these two words are likely to be informative in the investigation of possible directions and processes in language change.

## 7. Conclusion

We have aimed to clarify the possible readings of these two etymologically related words in three languages and found that English *such* respects a more restricted word order than its Danish and German counterparts. Although it might be expected that of the two derivations, there might be a difference between the derivation of kind and degree readings (as suggested by Wood 2002), we have shown that the morphological evidence gives support for pre-article word orders being predicates. We have seen that German *solch* modifying a DP is archaic (and formal in English), which lends support to Bolinger's suggestion that the direction of change is from the modification of DP/NP to the modification of AdjP (in his terms: from kind to degree). The interaction between the *such* forms and the *so* forms in the three languages is complex and much work remains to be done.

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