GRAMMATICALIZATION AND PROSODY: THE CASE OF ENGLISH SORT/KIND/TYPE OF CONSTRUCTIONS

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This article studies the relationship between prosody and desemanticization in grammaticalization processes by means of a well-described phenomenon, the grammaticalization of 'type' nouns (type, kind, sort) in present-day English. To this end, 1,155 tokens of the three nouns, retrieved from the ICE-GB corpus, were semantically classified and prosodically analyzed. Our main result is that different synchronically coexisting prosodic patterns correspond to different degrees of grammaticalization. This result provides evidence that desemanticization and erosion proceed hand in hand. Their parallel development is attributed to the demands of iconicity rather than to frequency effects.*

Keywords: language change, grammaticalization, prosody, prominence, type nouns, spoken English, frequency, iconicity

1. INTRODUCTION. This article investigates the relation between grammaticalization and prosody by means of a case study: the grammaticalization of so-called 'type' nouns in English (sort, kind, type; SKT) in the construction N1 (sort, kind, type) of N2; see the examples in 1.

(1) The sort kind type (SKT) construction in English (Tabor 1993:453)
   a. They found some sort of cactus on the rim.
   b. What kind of knife do you need?
   c. How common is this type of illness?

Although it is frequently stated that grammaticalization processes are accompanied by phonological changes—mostly phonological reduction (attrition, erosion) or loss—the relation between grammaticalization and prosody is understudied. The SKT construction investigated here lends itself to an empirical study because it represents a well-documented case of grammaticalization both diachronically (e.g. Tabor 1993, Denison 2002, 2005, Traugott 2008, Davidson 2009) and synchronically (e.g. Aijmer 1984, Gries & David 2007, Keizer 2007, Fetzer 2009, 2010, Margerie 2010). In addition, the construction is sufficiently frequent in present-day English conversation to allow a detailed prosodic analysis of spoken data (see §3). We begin by introducing relevant background information on grammaticalization in general and the relation between grammaticalization and prosody in particular (this section) before moving on to the study of SKT constructions in English (from §2).

1.1. Grammaticalization: on the relation between desemanticization and phonological reduction. Grammaticalization is the change whereby lexical items and constructions acquire grammatical functions (Hopper & Traugott 2003:1). It is commonly conceived of as involving (at least) four main interrelated mechanisms (e.g. Bybee et al. 1994:5, Heine & Kuteva 2002:2, Heine 2003:578f.): (i) desemanticization (or semantic bleaching/reduction, i.e. loss in lexical content), (ii) extension (or context generalization), (iii) decategorialization, and (iv) erosion (or phonetic reduc-

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tion, i.e. loss in phonetic substance). Special attention is given to the loss of semantic and phonetic properties. For example, Meillet (1921 [1912]:139, cited in Hopper & Traugott 2003:24) discusses ‘weakening (“affaiblissement”) of phonological form and of concrete meaning’; see also Givón 1975, Heine & Kuteva 2002. This process can be illustrated by the development of the English future going + to + infinitive: the lexical verb go loses its lexical meaning (‘motion’), assuming a more abstract meaning (‘future time’), and may be phonetically reduced to gonna.

Although desemanticization and erosion seem to be interrelated, it is not yet well understood exactly how these two processes unfold over time. One question is whether semantic and phonological reduction occur one after another, or whether they occur simultaneously. According to one prominent view (‘form follows function’), semantic/functional changes precede formal changes (see e.g. Givon 1991:123, Haspelmath 1999:1062, Francis & Yuasa 2008:47f., Traugott 2008:33). As Heine and Kuteva (2002:3) put it, ‘new grammatical meanings arise, and it usually takes quite some time before any corresponding morphological, syntactic, and/or phonetic changes can be observed’ (emphasis added). In this scenario, desemanticization is the first step in a grammaticalization process, which results from the use of forms with concrete meaning in new contexts, in which they are reinterpreted with more abstract meaning. Having acquired these new meanings, the forms lose properties characteristic of the older uses and hence undergo decategorialization. Due to their more abstract meaning they are more widely applicable (see also Bybee et al. 1994) and so become more frequent and more predictable in a certain context, which in turn leads to their losing phonetic substance, since more frequent words tend to be shorter.

An alternative view is expressed by the ‘parallel reduction hypothesis’, which assumes ‘the dynamic coevolution of meaning and form’ (Bybee et al. 1994:20). According to this view there is a phonetic continuum, which is parallel to the continuum for semantic reduction. Bybee, Pagliuca, and Perkins (1991) and Bybee, Perkins, and Pagliuca (1994) study the semantic and formal changes in the grammaticalization of tense, aspect, and modality and conclude that ‘form and meaning covary in grammaticization’ (Bybee et al. 1994:21).

The relation between semantic and phonological reduction may be attributed to two important factors: iconicity and/or frequency. According to one view, which we term the ICONICITY HYPOTHESIS, loss of semantic content is directly mirrored in formal reduction. Alternatively, as expressed above, phonological reduction may not be a direct consequence of semantic reduction, but may instead be attributable to the higher token frequency of a grammaticalizing item (Bybee 2001:11, 2003:604). Grammaticalizing items undergo phonetic reduction as they increase in frequency, since phonetic change progresses more quickly with frequent items (we refer to this as the FREQUENCY HYPOTHESIS). Boye and Harder (2012:30) take a synthesizing approach to this issue. Although the robust effects of frequency cannot be denied, they propose that ‘the low discourse prominence of grammatical expressions may iconically motivate their low phonological prominence’.

These two hypotheses allow predictions about the temporal relation between desemanticization and phonetic reduction in the following way: if the iconicity hypothesis is true, then semantic and phonological changes should proceed in parallel. If, however, phonological reduction presupposes a prior increase in the frequency of an item, then

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However, it is also pointed out that phonological reduction continues to take place throughout the life of a grammatical item (Bybee et al. 1994:5). In this sense, the two processes may also be dissociated.
phonological changes should lag behind semantic change. Whether erosion is taken to proceed in parallel to desemanticization or to lag behind partly depends on how erosion is defined. However, a detailed discussion of this question is lacking in the literature. Lehmann (2002:112ff.) defines erosion (‘attrition’, in his terminology) as potentially involving different stages: subtraction of phonological features, loss of segments and shortening of the sign, or complete loss of the sign (zero). In general, the phonological changes mentioned in the literature are typically segmental and involve reduction or loss of individual segments or syllables and the overall shortening of the grammaticalizing item (as in gonna < going to).

1.2. Grammaticalization and prosody. While the importance of segmental changes in grammaticalization has long been recognized, the role of prosodic changes has not yet been systematically addressed. Heine and Kuteva (2002:9) acknowledge that during erosion the grammaticalizing element loses its ability to receive distinct stress. Bybee and colleagues (1991:37–38) offer an operationalization of erosion that includes suprasegmental reduction—that is, whether a grammaticalized item is stressed, unstressed, or may be either stressed or unstressed. Since lexical items are usually stressed and grammatical morphemes are not, those authors consider the lack of stress to indicate a higher degree of grammaticalization. For example, the past-tense suffix -ed, which is always unstressed, is more grammaticalized than the future auxiliary will, which is normally unstressed but can be stressed for emphasis.²

Although these studies take prosodic parameters such as the presence or absence of stress into account, they also have the following shortcomings. First, the presence or absence of stress has typically been coded on the basis of abstract phonological knowledge, while systematic phonetic analysis is normally lacking. Second, stress is typically coded as present or absent (though cf. Bybee et al. 1991, Bybee et al. 1994), but no distinction is made, for instance, between primary and secondary stress or nuclear and nonnuclear prominence. Moreover, no distinction is normally made between lexical stress and sentence-level prominence. These shortcomings need to be addressed in a theory of grammaticalization that is informed by prosodic theory. The present study contributes to this goal. We systematically study the prosodic realization of the English SKT construction, which undergoes a grammaticalization process from a lexical to a more abstract discourse meaning, as it can be observed in the simultaneous, layered presence of relevant interpretations of the construction.

In our analysis of SKT constructions (§3), we concentrate on prosodic prominence. Following Wichmann (2011), we consider the loss of prosodic prominence (stress) to be the most relevant suprasegmental process, which may lead to further segmental changes. Wichmann argues that the segmental changes ‘are secondary consequences of underlying suprasegmental (prosodic) changes, and that the prosodic changes are primary’ (2011:331). Importantly, this view is also in line with the phonetic literature on sound change. As explained, for example, by Beckman, de Jong, Jun, and Lee (1992), reduction or lack of prominence increases gestural overlap, which in turn may lead the listener to reinterpret the coarticulation as an intentional feature of the relevant segmental sequence. In our context, prominence on the SKT noun may be lost due to desemanticization; thus the vowel in sort or kind is unstressed and becomes shortened. This leads to greater gestural overlap with neighboring segments, which in turn will be rein-

² Of course, suprasegmental reduction correlates with other parameters such as fusion with the verb and shortness/segmental reduction of the sign.
terpreted as intentional and will thus be reproduced, and further lead to the reduction and loss of segments.

Theories of intonational meaning (e.g. Pierrehumbert & Hirschberg 1990) assume a direct correlation between prosodic prominence (presence and exact location of pitch accent) and semantic weight. As Wichmann points out, such a ‘theory is consistent with the fact that closed-class grammatical words such as pronouns, prepositions, conjunctions, and so forth are rarely given prosodic prominence, while open-class words carrying propositional meaning have much greater potential to be accented’ (2011:334). According to Wichmann it follows from this relation between meaning and prosody ‘that if a word or expression has begun to lose some of its propositional meaning and to acquire a grammatical—or possibly discoursal—function, it is more likely to be deaccented’, or if accented, prominence could be achieved by a pitch accent that is typical of less salient information, that is, a low accent (L*, in the lowest part of the speaker’s pitch range) rather than a peak accent (H*, a high F0 target). Obviously, this change is not directly observable for grammaticalization processes due to the lack of spoken data of the past. As Wichmann (2011:334) points out, however, in cases of synchronic layering, where older lexical and more recent grammatical forms coexist, the degree of prosodic prominence may contribute to the disambiguation of possible interpretations of certain expressions in conversation, and, it has been argued, to the different degrees of grammaticalization. Specifically for English, this has been demonstrated for a variety of expressions, which may serve as pragmatic markers (see e.g. Wichmann et al. 2010 for of course, Dehé & Wichmann 2010a,b for expressions such as I think/I believe, Hirschberg & Litman 1993 for now). What all of these studies have in common is the observation that prosodic prominence goes along with propositional meaning and semantic transparency, while deaccentuation goes along with semantic bleaching and with discoursal, interactional, and interpersonal purposes, which means the elements under discussion are more frequently unstressed when used as a discourse marker as opposed to lexical use.

While Wichmann and colleagues (2010) and Hirschberg and Litman (1993) discuss lexical versus discourse marker use, Dehé and Wichmann (2010a,b) make a threefold distinction, which implies a cline of grammaticalization. The present study continues this idea but, building on previous results, focuses more explicitly on the relation between the presence and location of prosodic prominence on the one hand and the degrees of grammaticalization—synchronously layered functions—on the other. The present study is furthermore based on a much larger data set than most previous studies.

1.3. AIMS OF THE STUDY. We seek to clarify the relation between degrees of grammaticalization and prosody. In particular, we investigate how different degrees of grammaticalization relate to specific changes in prominence. Our contribution is thus both empirical and theoretical. In particular, our study offers a fine-grained prosodic analysis of different synchronic stages that correspond to different degrees of grammaticalization of the SKT construction. This analysis of the microprocesses of grammaticalization is deemed necessary to further our understanding of the properties of grammaticalization and the interrelatedness of the processes of which it consists, in particular, loss of semantic and phonological substance.

The article is structured as follows: we first provide the background concerning the constructions with sort, kind, type and their degrees of grammaticalization (§2). Based on the background established in §§1 and 2, the hypotheses of the study are formulated in §2.7. In §3 we present our corpus study and results, and the results and their theoretical implications are discussed in §4. Section 5 serves as a conclusion.
2. Constructions with sort, kind, type and their grammaticalization.

2.1. Overview. English has a number of constructions of the form NP1 of NP2, which have been discussed as instances of grammaticalization (see Traugott 2008 for an overview). These constructions grammaticalize from compositional binominal constructions to holistic degree modifiers or quantifiers. For example, binominal syntags containing size nouns like bunch, heap, load, and pile grammaticalize from an original use of the size noun as head of the first NP (as in e.g. [head: bunches] [modifier: of feathers]) to a use in which the size noun + of has modifier status of N2, which in turn has head status (e.g. [modifier: a bunch of] [head: lies]). In this case the modifier can be replaced by monomorphemic quantifiers such as many, much, several, and others (Francis & Yuasa 2008:55, Brems 2010:93; see also Brems 2003). A similar development has also been demonstrated for the family of ‘type’ nouns, that is, type, kind, sort (Denison 2002, 2005, 2011, Traugott 2008, Davidse 2009).

In present-day English, the nouns sort, kind, and type express the general meaning ‘group or class of people, things etc. that have similar qualities or features’ (Longman Dictionary of Contemporary English online3); they occur in a number of constructions that are related to the abstract schema in 2, where D is a determiner, N a noun, and SKT is N1.

(2) SKT construction: (D1) N1 of (D2) (N2)

2.2. The binominal construction. In the binominal construction (Keizer’s (2007: 152–84) ‘referential’ construction), N1 (sort, kind, type) is a full noun, which is both the semantic and syntactic head of an NP. In other words, N1 has lexical content (‘class’ meaning) and can serve as a referential index for the NP, which means it can act as an antecedent of a pronoun or anaphor (Francis & Yuasa 2008:51). N1 is postmodified by a PP (of-phrase) containing the N2. The examples in 3 illustrate the binominal construction, and 4 represents its syntactic structure (using 3b as an example).

(3) Binominal construction: examples
a. Red wine goes well with this sort of dish.
b. This kind of plant grows only in the tropical regions.
c. How common is this type of illness?
(4) Binominal construction: syntax (Keizer 2007:162)

[NP [Det this] [N’s [N kind] [PP of [N plant]]]]

The NP as a whole refers to a specific subclass (a sort/kind/type of entity) of a superordinate class of entities designated by N2 (Brems & Davidse 2010:181). For example, in 3b the binominal construction refers to a particular subclass (N1) of (the superordinate class of) plants (N2), namely those growing only in the tropical regions.

N2 is not usually preceded by a determiner even if it is a singular count noun (see 3); it seems to have lost its referential function that is typical of prototypical nouns and that is signaled by the use of determiners (Keizer 2007:159). N1 may be preceded by defi-

3 http://www.ldoceonline.com/
nite or indefinite determiners, and it occurs with nearly all types of pre- or postdeterminers (Keizer 2007:157–59). Similarly, N1 can be preceded by an adjectival modifier. Premodification of N2, by contrast, is rare, but N2 may be postmodified; see 5.

(5) Binominal construction: postmodification
And the way we found that out was by cross-sectioning uhm the type of plants that were growing in each of the woods (ICE-GB:s1a-036 #227)

N1 and N2 can both occur in the singular or plural (Keizer 2007:160), but typically they agree in number (e.g. the sortSG of materialSG, five typesPL of animalsPL; De Smedt et al. 2007:227). In the empirical study reported on below, plural forms of the SKT nouns were not included in the analysis. Since N1 plural forms (sorts, kinds, types) occur only in binominal constructions, they do not grammaticalize, and thus they cannot be compared with qualifying and adverbial constructions, nor can they therefore tell us anything about the relation between grammaticalization and prosody.4

According to the *Oxford English Dictionary* (*OED*), the binominal construction is attested for kind as early as 1470, for sort from 1529, and for type only from 1854. Some early examples are given in 6.

(6) Binominal construction: examples (*OED*)

a. A newe kynde of sicknes came sodenly into this Isle. (1548)
b. I knowe that sorte of men ryght well. (1560)
c. On a planet more magnificient than ours, may ther not be a type of reason of which the intellect of Newton is the lowest degree? (1854)

The available evidence suggests that the binominal construction represents the first step in the grammaticalization process of SKT nouns (see also Denison 2002, 2005). At this stage the syntactic structure of the NP—[D1 [N1 [of D2 N2]]]—is established, in which the SKT nouns have a ‘class’ meaning and function as heads (N1), followed by a PP-modifier.

2.3. The qualifying construction. In the qualifying construction N1 no longer functions as the head of a syntactic NP but combines with of to form a sequence (sort of, kind of) qualifying N2, which is the head of the complex NP. This construction is only attested with sort and kind—that is, type does not occur in this use (Denison 2002:2, De Smedt et al. 2007:227, Keizer 2007:165). As pointed out above, N1 in qualifying sort of and kind of is restricted to singular use. N2, which determines the overall reference, occurs more frequently in the singular but may also appear in the plural (Keizer 2007:169). The qualifying construction is exemplified in 7, and its syntactic structure is given in 8, using 7b as an example.

(7) Qualifying construction: examples

a. Grandfather has always been a sort of satisfaction to mother. (Kruisinga 1932:395)
b. When thanks is not forthcoming, we feel a kind of emptiness. (cf. Denison 2005)

(8) Qualifying construction: syntax (adapted from Keizer 2007:169)

[\[NP [det a] [N [qual kind-of] [N emptiness]]]]

In this construction the nouns sort and kind do not have any referential potential; that is, they do not refer to a subtype of a superordinate class (Keizer 2007:162, Brems & Davidse 2010:181). Instead, the strings sort of and kind of function as downtoners or hedges (Quirk et al. 1985, Biber et al. 1999, Keizer 2007, Fetzer 2009, 2010), which in-

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4 This also excludes the so-called quantifier construction (Brems & Davidse 2010:189) from the present analysis, where N1 is invariably used in the plural (e.g. all sorts of colors).
dicate that the entity denoted by N2 can only be an approximate or imprecise description for the entity the speaker has in mind; this use of sort of/kind of can be paraphrased by ‘something like’, ‘more or less’, ‘almost’, and so forth. For example, in 7b the subjects do not experience a feeling of (a particular subclass of) emptiness. Rather, their feeling is best described in terms of the concept denoted by emptiness (N2), which is the closest approximation or resembles the prototype of the concept in certain ways.

It is plausible to assume that the qualifying construction developed from the binominal construction through semantic bleaching and syntactic reanalysis (Keizer 2007:182), that is, mechanisms typical of grammaticalization processes.5 The qualifying construction emerges around 1600 for kind and one century later, around 1700, for sort (Brems & Davids 2010:191f., 201); see 9.

(9) Qualifying construction: examples (OED)
   a. I have the wit to think my Master is a kind of a knave. (1616)
   b. His legs were cased in a sort of gaiters. (1819)

The SKT noun loses its lexical ‘class’ meaning and its referential potential, while N2 becomes more important from a semantic point of view. A possible scenario is described by Keizer (2007:182):

In cases where the original head (N1) has a low information value focus may have started to shift to N2. Especially with nouns of subjective or metaphorical content, the preferred type of referent of the SKT-construction may have shifted from a normal member of the class of N2 to a possible member, then to an arguable member, a peripheral member or a near-member. Subsequently this implicature becomes grammaticalized, syntactic reanalysis takes place, and the qualifying construction is born.

Syntactic reanalysis leads to rebracketing of the original underlying structure with N1 as head (see 4) to the structure given in 8, with N1 of as a premodifier and N2 as head.

2.4. The adverbial construction. In the adverbial construction, the strings sort of and kind of do not modify a noun; instead, they modify an adjective (10a), verb (10b), adverb (10c), or preposition (10d) and their respective phrases, or a whole clause (10e) (Denison 2002, 2005, Gries & David 2007:5, Keizer 2007:163). In addition, they may show independent use; see 10f, where sort of surfaces at the end of the clause. The syntactic structure of the adverbial construction is given in 11; 11b uses 10d as an example. Unlike binominal and qualifying SKT, adverbial sort of and kind of are not preceded by determiners or premodifiers.

(10) Adverbial construction: examples
   a. You’re being kind of melodramatic, aren’t you? (A/AP) (Denison 2005)
   b. I kind of admire what he’s doing. (V/VP) (Denison 2005)
   c. But not really sort of actively (Adv/AdvP) (ICE-GB: s1a-071 #173)
   d. but uh sort of in my late teens and twenties I suppose every Saturday one of my pleasures was to go to the local bookshop … (P/PP) (ICE-GB: s1a-013 #107)
   e. Do you know if sort of if there are other Master’s courses that are maybe just a year and stuff on that uh sort of are related to them (clause) (ICE-GB: s1a-035 #131)
   f. Just seems a little strange sort of (independent use) (ICE-GB: s1a-071 #290)

(11) Adverbial construction: syntax
   a. [XP [AAdv sort/of] [XP X YP]]
   b. [PP [Adv sort/of] [PP in [XP my late teens]]]
Adverbial sort of and kind of have been analyzed as discourse markers with a hedging function, which ‘are used in speech to make the reference of an entity vague and less well defined rather than clear and specific’ (Aijmer 1984:118). When sort of and kind of pre-modify a phrasal constituent, they function as compromisers indicating that the notion expressed by the adjective, verb, adverb, or preposition applies to some degree, but not fully (Margerie 2010:318ff.). For instance, in 10a the speaker conveys the meaning that the hearer is not being completely but rather melodramatic. As modifiers of a clause or in independent use, sort of and kind of, in addition to conveying the notion of approximation, fulfill various discourse functions such as self-repair, hedging strong opinions, establishing common ground between interlocutors, politeness, and so forth (see Aijmer 2002:191–206 for a detailed discussion). In other words, as discourse markers, sort of and kind of convey subjective and intersubjective meaning. In this use sort of and kind of frequently cooccur with other expressions of vagueness as well as with self-corrections and hesitation devices (Fetzer 2010:54). In §4 below we argue that adverbial SKT can also function as focus markers, a use that has not been reported previously.

The adverbial construction is first attested as late as the beginning of the nineteenth century; see 12.

(12) Adverbial construction: examples (OED)

a. I kind of love you, Sal—I vow. (1804)

b. He was sort of proud of them. (1858)

With Denison (2002:12) we assume that the adverbial construction developed from the qualifying construction. The hedging/approximator function of the qualifying construction is preserved, but the syntactic categories modified by sort of and kind of include categories other than NPs. This can be seen as an analogical extension leading to host-class expansion. In their use before adjectives/adverbs, verbs, or prepositions, sort of and kind of assume the function of adverbials or degree modifiers.

Although the qualifying and adverbial constructions share the hedging function, there are three arguments in favor of keeping them distinct. First, the two constructions differ with respect to their formal properties; compare the structures in 8 and 11. Second, in accordance with their respective structures, the two constructions have different scope properties. While qualifying SKT have scope only over N(P), the adverbial construction has scope over phrases other than NP (i.e. AP, VP, AdvP, PP); see 10a–d. Finally, adverbial but not qualifying sort of and kind of can have scope over a whole clause. In this use they develop discourse functions that cannot be served by the qualifying construction (e.g. regulation of discourse, hesitation markers) and mainly serve pragmatic and procedural functions (Brinton 1996).

2.5. Other constructions. In addition to the binominal, qualifying, and adverbial constructions, a number of other constructions may be recognized, four of which we mention here. Two constructions have been argued to arise from the binominal construction. First, in the postdeterminer (or complex determiner) construction, sort of/ kind of forms a complex determiner together with the primary determiner (especially these, those, all). Usually the determiner agrees in number with N2 (e.g. [determiner: thesePL, sort of] [head: booksPL]; Davids 2009:281). According to Keizer (2007), SKT in the postdeterminer construction differ from the binominal construction in that SKT do not function as fully lexical nouns, and they differ from the qualifying construction in that the sequence SKT of does not function as modifier either. According to Denison (2002:9, 11f.), the postdeterminer construction arises from a reanalysis of the binominal construction, during which sort or kind is demoted from head status and the string sort
of kind of attaches enclitically to the preceding determiner, thus forming a complex
determiner (see also Davidse 2009:281).

The second construction distinguished from the binominal construction by Brems and
Davidse (2010:182) is the descriptive modifier construction. N1 is syntactically pre-
modified, but semantically the attributive modifier applies to N2 only (Brems & Davidse
2010:182) or has scope over the entire N1-of-N2 sequence (N′) (Keizer 2007:158). For
example, in (13) the modifier walnut pastry describes a subtype of cakes.

(13) Descriptive modifier construction
So if you feel like uh uhm trying a bit of walnut pastry kind of cake and
putting things on it judiciously

SKT nouns are also used in lexicalized expressions with vague reference such as
(and that) sort of thing, (and that) kind of thing, (and that) sort of stuff, and (all) this
sort of thing/nonsense, and others (Brems & Davidse 2010:190; see Aijmer 2002:211ff.
for details). We refer to this construction as SKT of thing. Another lexicalized chunk is
sort of like and kind of like (henceforth SKT of like). Since the adverbial construction
shares the hedging (especially the metalinguistic) function with the marker of reported
speech like, the two can be combined (Margerie 2010:327f.).

In the study reported on below (§3), we performed prosodic analyses for all seven
categories, but the focus is on the binominal, qualifying, and adverbial constructions.
Unlike the postdeterminer and descriptive modifier constructions, which are subtypes
of the binominal construction, and unlike the lexicalized chunks, in which the SKT
nouns form a new unit with their collocates like or thing, the binominal, qualifying, and
adverbial constructions represent major shifts in the grammaticalization process.

Before we turn to the empirical study, the next section elaborates on why the develop-
ment of SKT nouns is a grammaticalization process.

2.6. The development of SKT constructions as grammaticalization. In the
previous sections, we identified three major constructions for SKT nouns: binominal,
qualifying, and adverbial, which differ in their syntactic and semantic properties and
functions. Arguments were given for keeping them distinct as categories, and we
showed that they are the outcome of different processes at different times.

The shift from binominal to qualifying and from qualifying to adverbial involves the
following mechanisms (see also Denison 2005), which are typical for grammaticaliza-
tion processes:

(i) Semantic bleaching from membership in a ‘class’ to ‘near-membership in a
class’ and on to approximator/hedge.
(ii) Syntactic reanalysis: NP1 [of NP2] > [N1 of] NP2 > [N1 of] A/Adv/P/…
(compare 4, 8, and 11)
(iii) Coalescence (increase in bondedness) and univerbation: During the first step
from binominal to qualifying, sort of and kind of develop into a unit.
(iv) Decategorization and development toward functional status: The nouns
sort and kind lose their nominal status and of is no longer a preposition gov-
erning an NP; the coalesced unit has developed into a discourse marker—
that is, it belongs to a new category.6

6 Adverbial sort of and kind of are variously labeled as discourse marker or discourse particle (Aijmer
2010), degree modifier (Tabor 1993:453), approximator (Denison 2011), stance adverb (Biber et al. 1999), or
intensifier (Bolinger 1972:22). The uncertainty reflected in the variety of terms serves as additional evidence
that nominal status is lost and category change has occurred.
(v) Phonetic reduction: The step from qualifying to adverbial involves phonetic reduction (sorta/kinda).

(vi) Subjectification (Traugott 1989, 1995): The extension of the adverbial construction toward metalinguistic or interpersonal (e.g. politeness) meaning is an instance of subjectification (see also Denison 2002:14).

These processes result in layering (Hopper 1991:22): despite grammaticalization and the emergence of new items and constructions, the older ‘class’ meaning and the binominal and qualifying constructions are still preserved along with the adverbial construction.

Although these morphosyntactic and semantic changes are typical of grammaticalization, it has been argued that the development of discourse markers should rather be considered ‘pragmaticalization’ (see the discussion in Aijmer 2002:16–19). In particular, the development of discourse markers does not fulfill the parameter of scope decrease, according to which the structural scope of a sign is assumed to decrease with increasing grammaticalization (Lehmann 2002:128). By contrast, discourse markers show an increase in scope, which means the scope of N1 is extended from only over N2 to over other categories; see 10.7 While this is true on syntactic grounds, Wichmann (2011:340) shows that narrow scope remains from the point of view of prosody, since discourse markers are typically realized without prominence and integrated into a prosodic constituent instead of forming one of their own. Thus, the prosody of discourse markers is typically compatible with current assumptions about grammaticalization. In the present study, we thus assume that the shift of SKT nouns from ‘class’ meaning to binominal > qualifying > adverbial constructions is an instance of grammaticalization. Crucially, the mechanisms discussed above (semantic bleaching, syntactic reanalysis, coalescence with subsequent phonological reduction, decategorialization, and subjectification) are largely indistinguishable from those involved in the development of ‘truly’ grammatical items (see also Diewald 2011:457). In addition, discourse markers share with grammatical items the property of indexicality (Diewald 2010, 2011). According to Aijmer (2002:5), this is their most important property, which ‘explains that they are linked to attitudes, evaluation, types of speakers and other dimensions of the communication situation’. In a similar vein, Wichmann and colleagues (2010:107) stress that discourse markers ‘have by definition a discourse function, which entails indexing the utterances to the surrounding discourse, both in terms of structuring the ongoing discourse and in terms of signalling to the addressee how he/she should interpret the speaker’s stance’. The increase of the indexical potential of a sign is an argument for treating the development of discourse markers as part of a grammaticalization process, such as the well-documented shift of propositional > (textual) > expressive or pragmatic meaning (Traugott 1989:31). More recently, Boye and Harder (2012:6f.) propose that grammaticalized items do not carry the main point but have an ancillary communicative purpose and are discursively secondary. This is clearly the case with SKT nouns, which in the qualifying and adverbial constructions are semantically redundant and omissible. We follow this approach and consider their development as an instance of grammaticalization. The following section focuses on the prosody of SKT constructions.

2.7. The prosody of SKT constructions. In English, main sentence stress is rightmost, unless the focus structure of the sentence demands otherwise. The same holds for

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7 Extension to syntactic contexts other than the source construction is also typical for the later stages of the grammaticalization of the size nouns heaps, loads, and bunch. They can be used adverbially with adjectives, verbs, and adverbs, for example, a bunch more (Brems 2010:94).
phrasal syntactic and prosodic constituents. For example, main prominence within all-
new units such as [\[NP Mary’s favorite book], [\[VP losing one’s faith], or [\[S The apple in the basket is green] will be rightmost, that is, associated with book, faith, and green, respec-
tively. Focus attracts main prominence—that is, if the sentence [\[S The apple in the bas
et is green] is used in a context where emphasis is placed on apple (e.g. as compared to other items in the basket), apple receives main prominence. In SKT constructions, N1 and N2 together form one phrase (NP) regardless of their respective NP-internal struc-
ture, and given their syntactic structure and semantic coherence, a prosodic boundary above the level of the prosodic word would not be predicted inside the NP, unless there are complex modifiers (as e.g. in 5). Therefore, typical prosodic patterns in line with En-
lish sentence-level prosody will be as in 14 and 15 (X1 comprises N1 and its determin-
ers and modifiers; X2: correspondingly for N2; X3: another syntactic element in the same
prosodic constituent, e.g. a postmodifier; square brackets: syntactic and/or prosodic con-
stituent; round brackets: optional presence; MP: main, nuclear prominence; 2P: nonnu-
clear prominence). The structures in 14 and 15 show that in a series of prominent
positions in the same constituent, the last one gets main (nuclear) prominence, while ear-
lier positions get nonnuclear prominence. It follows from this that if X1 is prominent, it
will be associated with nonnuclear prominence (see 14a,b and 15b) unless it is focused
(see 15a). If X2 is prominent, it will be associated with nonnuclear prominence (see 14b)
or nuclear prominence (see 14a, 15b), depending on focus and position. Specifically, in
broad-focus contexts, if X2 is nonfinal in its constituent, then main prominence may be
associated with the following constituent, for example, a postmodifier (see 14b). The fac-
tor position does not play a role for X1 because X1 always precedes X2 in the same con-
stituent; thus it can only receive main prominence if focused and if X2 and any
postmodifier are deaccented for reasons of information structure.

(14) SKT constructions, prosody; broad focus
   a. [X1 of X2]
      (2P)       MP
   b. [X1 of X2 X3]
      (2P) (2P) MP

(15) SKT constructions, prosody; narrow focus on X1 (a) and X2 (b)
   a. [X1 of X2 (X3)]
      MP
   b. [X1 of X2 (X3)]
      (2P) MP

Unlike their functions and paths of grammaticalization, the prosody of SKT construc-
tions has not yet been systematically investigated. According to Aijmer (2002), who
makes use of the prosodic annotations of the London-Lund and COLT corpora, two
prosodic patterns are possible with adverbial sort of. It can either be realized with
prosodic prominence, or it can be unaccented and reduced to sorta. Aijmer (2002) also
reports that adverbial sort of is often followed by a pause, which may signal hesitation
or planning difficulties on the part of the speaker.

Keizer (2007), who uses the transcripts of the ICE-GB corpus, considers intonation for
referential (here: binominal), qualifying, and postdeterminer constructions separately. In
binominal constructions that ‘are to some extent focal in the predication’, Keizer (2007:
156) argues, ‘primary stress falls on N1, with secondary stress being given to N2’. She
further argues that this ‘suggests that N1 is to be regarded as a full nominal, determining
overall reference’ (ibid.). We agree that N1 in binominal constructions is a full nominal
and that it determines the overall reference. However, main prominence associated with N1 in an SKT construction that is under focus as a whole does not necessarily serve as evidence for this assumption. If the whole sequence (N1 of N2) is part of the focus, then N2 is predicted to receive main prominence. Main prominence associated with N1 suggests focus on N1, but not the rest of the construction (e.g. *that sort of cheese*, as compared to *cheese* in general). Keizer (2007:157) further argues that if ‘N1 is premodified or preceded by a demonstrative pronoun or quantifier, primary stress may fall on these elements, depending on their degree of focality’ (e.g. *that sort of cheese*). This observation follows from the general observation that in English focus attracts prominence.

For qualifying constructions, Keizer (2007:165) argues that ‘stress will typically fall on N2’ unless ‘the downtoner quality of *sort of/kind of* forms the focus of the predication’, in which case SKT can be given ‘contrastive emphasis’. Keizer (2007:172) further maintains that in the postdeterminer construction, ‘stress may fall on the determiner preceding postdeterminer *sort of/kind of/type of*’, on N2, and, occasionally, on N1’, and if it falls on the first determiner (e.g. *those sort of courses*), it is typically contrastive (e.g. contrasting the *courses* to some other kind of courses). Again, due to the English prosodic system, it goes without saying that elements that have (narrow) focus receive main prominence.

A referee suggests that the intonational differences between binominal constructions on the one hand and qualifying and postdeterminer constructions on the other may be due to their structural (semantic and syntactic) differences as explained by Keizer (2007), such that N1 is the head and referential expression in binominal constructions, which allow main prominence associated with X1, while N2 serves this function in qualifying and postdeterminer constructions, in which N2 may have main prominence. In English prosody, however, main prominence is not necessarily directly related to headedness or referentiality. In an NP such as *the book from the library*, for example, *book* is the head and referential expression, but main prominence will be associated with *library*, unless *book* is contrastively focused.

Notice also that Keizer’s description of the intonation of SKT constructions is not based on a systematic prosodic analysis. This is also obvious from the fact that along with spoken data, she uses examples from the written part of the ICE-GB in her sections on the intonation of SKT constructions (e.g. Keizer 2007:156–57). Based on her observations, however, the following intonation patterns should emerge for SKT constructions, and this will be borne out.

(i) Main prominence associated with X1 (SKT noun or premodifier/determiner) will typically occur in binominal and postdeterminer constructions, but not in qualifying constructions.

(ii) Main prominence associated with X2 (N2 or premodifier/determiner) typically occurs in qualifying constructions.

### 2.8. Prosody and grammaticalization (of SKT constructions): hypotheses.

The iconicity hypothesis expressed within grammaticalization theory (see §1.1) and theories of intonational meaning (see §1.2) lead us to expect that lexical meaning will be associated with more prominence, whereas more grammatical meaning will be related to less prominence. This also implies that different degrees of grammaticalization will involve a steady weakening of prominence. Integrating this theoretical background with previous work on SKT constructions, we put forward the hypotheses given in 16 and 17. Hypothesis 1 involves the relation between degrees of grammaticalization and prosody in general, whereas hypothesis 2 relates more specifically to the SKT construction and operationalizes hypothesis 1 in the context of the present work.
Hypothesis 1: If semantic and phonological changes proceed hand in hand, synchronically different prominence patterns will reflect different degrees of grammaticalization.

Hypothesis 2: If semantic and phonological changes proceed hand in hand (hypothesis 1), the binominal, qualifying, and adverbial SKT constructions, which occupy different stages on the grammaticalization cline, will be related to different prominence patterns.

Notice that the frequency hypothesis, which does not establish a direct link between loss of semantic substance and loss of prominence (see §1.1), does not make the same predictions. If phonological changes lag behind and if they depend on a higher frequency of the grammaticalizing item, weakening of prosodic prominence should only be related to advanced stages of grammaticalization and/or to the most frequent SKT noun. This implies that weakening of prosodic prominence should most strongly affect the adverbial SKT construction; prominence patterns would then not reflect all stages on the grammaticalization cline.

3. Corpus study.

3.1. Data retrieval and sorting. In order to test the predictions about the prosodic realization of SKT constructions, and in order to make safer assumptions about the stages of grammaticalization and layering as reflected in prosody, we analyzed SKT constructions retrieved from a spoken corpus with respect to construction and prosody. The data were taken from the spoken part of the British Component of the International Corpus of English (ICE-GB; Releases 1 and 2, ICE-CUP versions 3.0 and 3.1; see Nelson et al. 2002 and the ICE-GB website8). The spoken part of this corpus contains 637,682 words from various text categories, ranging from casual, informal speech such as direct casual conversations and private telephone calls, to more formal speech, including public dialogues and discussions, unscripted and scripted monologues, and broadcast news, all recorded in the 1990s.9 The spoken part of the ICE-GB contains accompanying sound files, which were used for prosodic analysis. The corpus is fully parsed syntactically, but not prosodically, except that pauses (i.e. silent intervals of all kinds) are indicated in the corpus transcriptions.10

We manually searched the spoken part of the ICE-GB for the three sequences kind of, type of, and sort of. The search yielded 1,048 instances of sort of, 392 instances of kind of, and forty instances of type of, adding up to 1,480 tokens overall. All 1,480 items re-

8 http://www.ucl.ac.uk/english-usage/projects/ice-gb/

9 The ICE-GB corpus and accompanying materials (Nelson et al. 2002) provide detailed information on the source of the corpus data. In the spoken part of the corpus, files whose names begin with s1a are from the private domain, comprising 205,627 words of speech material from private direct conversations (s1a-001 to s1a-090) and private telephone conversations (s1a-091 to s1a-100). They thus represent more casual, informal speech. Files whose names begin with s1b, s2a, or s2b are from the public domain, representing more formal speech, 432,055 words overall. These parts of the corpus consist of dialogues (s1b: classroom lessons, broadcast discussions, interviews, parliamentary debates, legal cross-examinations, and business transactions), unscripted monologues (s2a: spontaneous commentaries, unscripted speeches, demonstrations, and legal presentations), scripted monologues (s2b-021 to s2b-050: broadcast talks and nonbroadcast speeches), and a category 'mixed' from broadcast news (s2b-001 to s2b-020).

10 In the corpus materials, silent intervals are indicated by one or more commas between angled brackets (<,>, <>, etc.), the number of commas indicates the perceived (but not measured) duration of the silence. For the purpose of the present study, these indicators are irrelevant, and for all corpus items given in the current article, they have been removed from the transcriptions. Moreover, corpus examples in this article typically appear without punctuation because punctuation is not included in the original corpus transcriptions.
retrieved from the corpus were classified according to the syntactic and semantic criteria outlined in §§2.2–2.4 above; in particular, each token was assigned to one of the following constructions: binominal, qualifying, adverbial, postdeterminer, descriptive modifier, *SKT of like* (e.g. *kind of like*), and *SKT of thing* (e.g. *sort of thing*). This was done using as much context taken from the corpus as needed for the classification. Examples of corpus items and their classifications are given in 18, 19, and 20 for *type of*, *kind of*, and *sort of*, respectively.

### (18) Corpus examples of *type of*: binominal (a), postdeterminer (b), descriptive modifier (c), *type of thing* (d)

<table>
<thead>
<tr>
<th>Example</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Here the Government attacks British Rail for failing to survive the cold. BR says it’s the wrong <em>type of</em> snow.</td>
<td>(ICE-GB: s2b-002 #008-009)</td>
</tr>
<tr>
<td>b. Sometimes in <em>these type of</em> races he’s got a withering kick but I don’t know whether he’s going to get up and move up with these boys.</td>
<td>(ICE-GB: s2a-007 #096)</td>
</tr>
<tr>
<td>c. What about putting legs on it and making it more into an enclosed table <em>type of</em> arrangement</td>
<td>(ICE-GB: s1b-073 #257)</td>
</tr>
<tr>
<td>d. So I mean she came in as sort of while you were around <em>type of thing</em> or</td>
<td>(ICE-GB: s1a-081 #145)</td>
</tr>
</tbody>
</table>

### (19) Corpus examples of *kind of*: binominal (a), qualifying (b), adverbial (c), postdeterminer (d), descriptive modifier (e), *kind of like* (f), *kind of thing* (g)

<table>
<thead>
<tr>
<th>Example</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. And lastly for falsetto the the cords are very stretched and thin to produce this <em>kind of</em> voice quality</td>
<td>(ICE-GB: s2a-056 #077)</td>
</tr>
<tr>
<td>b. It’s certainly my long term hope that I will have some <em>kind of</em> companion who would with with you know with a reasonable mutual exchange and support and all the rest of it</td>
<td>(ICE-GB: s1a-067 #257)</td>
</tr>
<tr>
<td>c. I’ve invited quite a lot but I’ve <em>kind of</em> lost count</td>
<td>(ICE-GB: s1a-081 #269)</td>
</tr>
<tr>
<td>d. And then we can also use the same feedback to help them to produce those <em>kind of</em> pitch changes in their speech</td>
<td>(ICE-GB: s2a-056 #109)</td>
</tr>
<tr>
<td>e. A very uh handy scene of course to fit into a smallish uhm <em>kind of</em> vault that you can’t get uh an overall uh round patterned subject into</td>
<td>(ICE-GB: s2a-060 #058)</td>
</tr>
<tr>
<td>f. And uh you just <em>kind of like</em> get a a few hints at what actually working in the profession’s like</td>
<td>(ICE-GB: s1a-034 #017)</td>
</tr>
<tr>
<td>g. I think he’s also not used to travelling and backpacking all that <em>kind of thing</em></td>
<td>(ICE-GB: s1a-018 #292)</td>
</tr>
</tbody>
</table>

### (20) Corpus examples of *sort of*: binominal (a), qualifying (b), adverbial (c), postdeterminer (d), descriptive modifier (e), *sort of like* (f), *sort of thing* (g)

<table>
<thead>
<tr>
<th>Example</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I didn’t expect to get that <em>sort of</em> reaction</td>
<td>(ICE-GB: s1a-010 #251)</td>
</tr>
<tr>
<td>b. It’s right it’s on a <em>sort of</em> hill and you’ve got lovely views looking out to the South Downs</td>
<td>(ICE-GB: s1a-036 #158)</td>
</tr>
<tr>
<td>c. No I mean we had split up and then she <em>sort of</em> came in couple of months later</td>
<td>(ICE-GB: s1a-081 #147)</td>
</tr>
<tr>
<td>d. The way that I would approach th those <em>sort of</em> things would be just to do them as an interest as a hobby</td>
<td>(ICE-GB: s1a-033 #099)</td>
</tr>
<tr>
<td>e. But I what I am intrigued by obviously in terms of the language of of of literature uh uh teaching is that in my current A level <em>sort of</em> lang and lit class uhmm I’ve got</td>
<td>(ICE-GB: s1a-056 #002)</td>
</tr>
</tbody>
</table>

---

11 Notice that for *type of*, there were no qualifying, adverbial, or *type-of-like* constructions. Of the forty tokens, thirty-seven were binominal. This is in line with the literature; see §2 above.
f. She gave me sort of like a dinner you know when I was baby-sitting with sort of like half a ton of potatoes and half a ton more of potatoes

(ICE-GB: s1a-039 #071)

g. There used to be places where they sold secondhand building materials and all that sort of thing

(ICE-GB: s1a-007 #121)

Based on the containing utterances and their contexts, seventy-two tokens were excluded from the analysis because they could not be assigned to one of the seven constructions despite context information. In a next step, the sound files were retrieved from the ICE-GB and the corpus items and their corresponding sound files entered a manual sorting procedure. During this procedure, items were excluded from the data set if they met one or more of the following criteria: (i) the sound file of an item was unavailable; (ii) the quality of the sound file was not good enough for auditory and/or instrumental analysis;12 (iii) type/kind/sort of was not identifiable in the corpus utterance.13 All other items were prosodically analyzed in the way described in §3.2. The prosodic pattern of twelve items remained unclear after careful auditory and instrumental analysis, and these items were also discarded. The data set remaining after all sorting and classification processes comprised 1,155 analyzable tokens (thirty-one type of, 333 kind of, 791 sort of). The distribution of these tokens across constructions is given in Table 1.

<table>
<thead>
<tr>
<th>CONSTRUCTION</th>
<th>binominal</th>
<th>qualifying</th>
<th>adverbial</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKT-TOTAL</td>
<td>N %</td>
<td>N %</td>
<td>N %</td>
</tr>
<tr>
<td>type</td>
<td>28 90.32</td>
<td>0 0.00</td>
<td>0 0.00</td>
</tr>
<tr>
<td>kind</td>
<td>175 52.55</td>
<td>82 24.62</td>
<td>51 15.32</td>
</tr>
<tr>
<td>sort</td>
<td>188 23.77</td>
<td>214 27.05</td>
<td>296 37.42</td>
</tr>
<tr>
<td>TOTAL</td>
<td>391 33.85</td>
<td>296 25.63</td>
<td>347 30.04</td>
</tr>
</tbody>
</table>

Table 1. Distribution of SKT nouns across functions. Notice that the total numbers and percentages in the bottom row relate to the whole data set (N = 1,155) and that therefore the percentages within columns, which are calculated within noun types, do not add up.

As Table 1 shows, the three functions of binominal, qualifying, and adverbial SKT, together making up 90% of the data, are considerably more frequent than the remaining four types. The table also shows that type of typically functions as a binominal construction (see n. 11).

3.2. Prosodic analysis. All 1,155 items included in Table 1 were entered into the prosodic analysis.14 They were analyzed auditorily and, if the quality of the sound file

12 Bad recording quality included various factors, among them the following: incompleteness of the sound file, in particular if parts of the SKT construction or relevant elements in its immediate vicinity were missing due to the editing of the file as retrieved from the corpus (i.e. items were trimmed at locations relevant in the present context); extremely quiet recordings; overlapping speech, laughter, music, or noise in the target area, which made a conclusive analysis of the target impossible; and unclear words in the critical region.

13 For instance, in the example given in (i), the alleged occurrence of sort of was phonetically reduced to [s], and it was thus not clear whether [s] was an instance of reduced sort of or the beginning of the following word suspicious. This item was discarded.

(i) so they’re rather uh sort of suspicious

(ICE-GB: s2a-047 #129)

14 The prosodic analysis was done by the first author of this article, and several items were also checked by another experienced expert in English prosody and intonation. The classification into SKT constructions described in §3.1 was carried out independently by the second author of this article, based on the corpus items and their linguistic contexts as retrieved from the corpus, but without listening to the sound files, that is, without taking prosody into account. This procedure was deemed necessary in order to avoid circularity.
allowed, instrumentally. In the auditory analysis, the locations of pitch accents were identified, and the overall prosodic structure of the utterance was described. For the purpose of the instrumental analysis, the sound files retrieved from the corpus were edited into individual files containing the target SKT construction and as much preceding and following material as necessary to determine the prosodic structure. The instrumental analysis was done in Praat (Boersma 2001, Boersma & Weenink 2012) on the basis of careful inspection of oscillogram, spectrogram, and F0 contour, as well as perception. The items were annotated on three tiers (see Fig. 1 below): a tonal tier for intonational analysis to reveal prominence as well as prosodic phrasing (top tier in Fig. 1), a segmental tier, and a text tier (bottom tier).

The tonal analysis was done in the autosegmental-metrical framework following the ToBI (Tone and Break Indices) conventions for English (Silverman et al. 1992, Beckman & Elam 1993, Beckman et al. 2005). The ToBI system has five pitch accent types: H* (!H*), L*, L*+H (L*+!H), L+H* (L+!H*), and H+!H*; * indicates tonal association with the prominent syllable; the exclamation mark ‘!’ is the diacritic for tones downstepped relative to a preceding H tone. Edge tones are of two types: phrase accents (T-) are edge tones of intermediate phrases (ip), while boundary tones (T%) terminate intonational phrases (IP). English has two boundary tones: high (H%) and low (L%). H% serves to indicate continuation as well as the end of yes/no questions, while L%, if in sentence-final position, typically terminates declaratives and wh-questions (for details, see among others Pierrehumbert & Hirschberg 1990, Hirschberg 2004, Beckman et al. 2005, Nolan 2006). By definition, both the ip and the IP have at least one pitch accent. Following current assumptions about the prosodic hierarchy (see e.g. Truckenbrodt 2007, Selkirk 2011, Frota 2012 for recent overviews), each IP is made up of at least one ip. However, the tonal structure of an ip/IP may consist of more than one pitch accent. Unless the focus structure of the utterance demands otherwise, the last pitch accent is the most prominent one in English (see §2.7). Remember that for the items under investigation here, it follows that if both N1 and N2 bear prominence, and if the accent associated with N2 is the last one in its ip/IP, it will be the nuclear (most prominent) one, and the one on N1 will be prenuclear. In other words, nuclear prominence associated with N1 is expected only if (i) it is specifically focused, or if (ii) an IP-boundary separates N2 from N1, which is not the case for SKT constructions.

Example 21 and Figure 1 illustrate the prosodic annotation procedure and analysis. The top tier in Fig. 1 is the tonal tier. The utterance is made up of one IP, which is terminated by L-L%. Within the target sequence, both the adjective (A1: wrong) modifying N1 (type) and the N2 (snow) are prominent and realized with L+H* pitch accents, that is, rises to a high peak on the accented syllable (see 21b/Fig. 1). Given its domain-final position but also its linguistic context (see 21a), the nuclear accent is associated with N2. On the segmental tier, the position of the release of the closure of onset /t/ in N1 has been annotated (cr), as well as the beginning (V) and end (eV) of the vowel and the beginning of the vowel (V) of the following preposition. There is no phonetic reduction in the target sequence.

(21) **Type of; A1 and N2 prominent**

a. Here the Government attacks British Rail for failing to survive the cold. BR says it’s the wrong type of snow.  

b. BR says it’s the wrong type of snow.

Based on the auditory and instrumental analyses, we coded all items for prosodic prominence. Four prosodic patterns were identified. They are given in 22–25; ToBI-
annotated attested corpus examples are provided in 26–29. In 22–25, T* indicates a pitch accent (i.e. a nuclear or nonnuclear prominence); T* appears just under the element it would be associated with in actual speech. For example, in 22a, T* aligned with N1 refers to a pitch accent associated with N1 of X1, for example, with kind in the sequence that kind of story; in 22b, T* aligned with D1 would be associated with that in that kind of story; and so forth. In 25, pitch accents are associated with material preceding and/or following the target sequence, while the target sequence has no prominence. In prosodic pattern 1 [X1 only] (see 22, 26), only the first part of the construction (X1) is prominent. Prominence within X1 may be associated with N1 (see 22a), D1 (see 22b), or both (see 22c). In prosodic pattern 2 [X2 only] (see 23, 27), only the second part of the construction (X2) is prominent. Prominence may be associated with either N2, D2, or both. In prosodic pattern 3 [X1 and X2], both X1 and X2 are prominent. Regarding the exact accent locations, various options are possible (see 24 and 28 for examples). In prosodic pattern 4 [unstressed], the target sequence remains unstressed throughout, which means no prominence is associated with either X1 or X2 (see 25, 29).

(22) Prosodic pattern 1 [X1 only]: Prominence associated with first part (X1)
   a. (D1) N1 of (D2) N2
   T*
   b. D1 N1 of (D2) N2
   T*
   c. D1 N1 of (D2) N2
   T* T*

(23) Prosodic pattern 2 [X2 only]: Prominence associated with second part (X2)
   a. (D1) N1 of (D2) N2
   T*
   b. (D1) N1 of D2 N2
   T*
   c. (D1) N1 of D2 N2
   T* T*

(24) Prosodic pattern 3 [X1 and X2]: Prominence associated with both parts
   a. (D1) N1 of (D2) N2
   T*
   b. D1 N1 of (D2) N2
   T* T*
(25) Prosodic pattern 4 [unstressed]: Sequence unstressed
a. … (D1) N1 of (D2) N2 …
   T* (T*)

b. … (D1) N1 of (D2) N2 …
   (T*) T*

Table 2 illustrates the four prosodic patterns using the same example throughout (that kind of story), adapted for all patterns; small caps indicate prominence throughout. The last column in Table 2 contains cross-references to the attested corpus examples in 26 through 29.

<table>
<thead>
<tr>
<th>Prosodic Pattern</th>
<th>Explanation</th>
<th>Example: that kind of story</th>
<th>EX #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 [X1 only]</td>
<td>only first part of &lt;X1 of X2&gt; prominent</td>
<td>THAT kind of story; a certain type of story</td>
<td>26a</td>
</tr>
<tr>
<td></td>
<td>D1/A1 prominent</td>
<td>that kind of story</td>
<td>26b</td>
</tr>
<tr>
<td></td>
<td>N1 prominent</td>
<td>that particular kind of story</td>
<td>26c</td>
</tr>
<tr>
<td>2 [X2 only]</td>
<td>only second part of &lt;X1 of X2&gt; prominent</td>
<td>that kind of LONG story</td>
<td>27a</td>
</tr>
<tr>
<td></td>
<td>D2 or A2 prominent</td>
<td>that kind of story</td>
<td>27b</td>
</tr>
<tr>
<td></td>
<td>N2 prominent</td>
<td>that kind of horrible story</td>
<td>27c</td>
</tr>
<tr>
<td>3 [X1 and X2]</td>
<td>first and second part of &lt;X1 of X2&gt; prominent</td>
<td>that kind of story; that kind of story</td>
<td>28</td>
</tr>
<tr>
<td>4 [unstressed]</td>
<td>whole sequence &lt;X1 of X2&gt; unstressed</td>
<td>the kind of story</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 2. Prosodic coding; small caps indicate prosodic prominence.

(26) Attested corpus examples representing prosodic pattern 1 [X1 only]

a. binominal, D1 that prominent
   ‘but I mean that that sort of journalism feature journalism interests me but not sort of hard core politics uh current events journalism really’
   (ICE-GB: s1a-066 #165)
   a’. but I mean that that sort of journalism feature journalism interests me
   L+H* L- !H* L- !H* me
   L- L%

b. binominal, N1 sort prominent
   ‘The the point the Tories seem to be making is that anything is better than going to the sort of university that most graduates go to and if you can’t go to Oxford and Cambridge the best thing to do is not to go anywhere’
   (ICE-GB: s1b-029 #172)
   b’. The the point the Tories seem to be making
   L+H* L+!H* L+!H* L- L-%
   is that anything is better
   L+H* L+!H* L-L%
   than going to the sort of university
   L+H* L-H%
   that most graduates go to
   H* L-L%

c. binominal, A1 different and N1 sort prominent
   So it’s a different sort of thing uhm from anything we’ve seen except possibly the Townsend Recruiting Sergeant
   (ICE-GB: s2a-057 #086)
   c’. So it’s a different sort of thing
   L+H* L+!H* L-L%
(27) Attested corpus examples representing prosodic pattern 2 [X2 only]

a. qualifying, A2 *flowery* prominent
   
   "she was wearing sort of flowery things It was really pretty"
   
   (ICE-GB: s1a-018 #092-093)

   a′. she was wearing sort of flowery things
   
   L+H* L-L%

b. adverbial, A2 *ill* prominent
   
   "But he he was sort of ill and came to the doctor’s in in Li England"
   
   (ICE-GB: s1a-014 #196)

   b′. But he was sort of ill and …
   
   H* L+H* L-

c. qualifying, A2 *lovely* and N2 *objects* prominent
   
   "Uh and they’re sort of lovely objects in their own way"
   
   (ICE-GB: s1a-013 #022)

   c′. and they’re sort of lovely objects in their own way
   
   L+H* L+!H* L+!H* L-L%

(28) Attested corpus examples representing prosodic pattern 3 [X1 and X2]

a. binominal, D1 *what* and N2 *dance training* prominent
   
   "What sort of dance training did you have"
   
   (ICE-GB: s1a-004 #070)

   a′. So what sort of dance training did you have
   
   H* L+!H* L+!H* L-L%

b. postdeterminer, D1 *those* and N2 *updates* prominent
   
   "And those sort of updates I don’t mind at all"
   
   (ICE-GB: s1b-023 #135)

   b′. And those sort of updates
   
   L+H* L+!H* L-H%

(29) Attested corpus examples representing prosodic pattern 4 [unstressed]

a. adverbial, target sequence without prominence
   
   "No this is that the the media stuff is one that’s sort of looking to how to make videos and recording things and might be of interest"
   
   (ICE-GB: s1a-033 #150)

   a′. the media stuff is one that’s sort of looking to how to make …
   
   H* H*

b. adverbial, target sequence without prominence
   
   "And he’s been there thousands of times before so he he just sort of said the there’s a chart that’s your room"
   
   (ICE-GB: s1a-036 #150-151)

   b′. he just sort of said the there’s a chart
   
   H* L% L+!H* L-H%

Selected examples are plotted in Figures 2 and 3 for illustration. Figure 2 plots example 26a, illustrating prosodic pattern 1 [X1 only]. Within the target sequence that sort of *journalism*, the demonstrative determiner *that* preceding N1 sort is prominent to denote the particular kind of journalism the speaker has in mind. Following the target sequence, the kind of journalism is specified (feature journalism, realized with a nuclear accent on feature). Within the target construction, N2 *journalism* is without prominence and is realized with a pitch contour that is falling from the high peak associated with that.

Figure 3 illustrates prosodic pattern 2 [X2 only], plotting example 27b. The adjective *ill* (X2) is associated with main prominence, that is, the nuclear pitch accent, in its intermediate phrase (ip; the end of the ip is marked by the low phrase accent L-). The pitch accent is L+!H*, a high peak target immediately preceded by a rise from a valley reached at the end of the transition from the preceding pitch accent H* associated with he. Sort of is part of the transition between the two prominent syllables and does not
bear any prominence of its own. It is phonetically reduced such that the segments following the vowel [ɔ] in *sort* can hardly be identified.

An example of prosodic pattern 3 [X1 and X2] has already been given in 21/ Fig. 1 above. Nonnuclear prominence is associated with X1, specifically the adjective *wrong* modifying N1 *type*, which in turn has no prominence; nuclear prominence is associated with N2 (*snow*).

Prominence, as manifested in the presence and location of pitch accents, was the only prosodic parameter systematically coded here for the following reasons. First, according to the literature (see §1.2), a change in prominence patterns is the most relevant suprasegmental process in grammaticalization. Second, due to the nature of the corpus data, which naturally varies a lot in terms of recording quality, loudness, and background noise, it was impossible to carry out a thorough segmental analysis for all items. However, there is a relation between prominence and phonetic reduction such that prominent units will not lend themselves easily to segmental loss, while unstressed units will be more prone to phonetic reduction. For example, if N1 is prominent, that is, associated with a pitch accent, it is less likely to be reduced. If it is unstressed, as in prosodic patterns 2 [X2 only] and 4 [unstressed], it is more likely to be reduced. From an observational point of view,
we generally found more reduction with adverbial SKT constructions than with binominal and qualifying ones, a distribution that reflects their overall different prosodic behavior, given that [unstressed] is most frequent with adverbial constructions and prominence associated with X1 is most frequent with binominals (see §3.3 below). We also observe more phonetic reduction with sort of than with type of and kind of, even within functions, which we assume is due to (i) the relative frequency of sort as compared to kind and type, and (ii) the fact that it frequently occurs in the adverbial construction (see §3.3 below). These observations are compatible with Wichmann’s (2011) assumption that prosodic changes (i.e. shift and loss of prominence) precede segmental changes (i.e. reduction or loss of segments), because reduced SKT nouns in the adverbial construction are typically without prominence, and unreduced SKT nouns in binominal constructions are typically prominent. It is also worth mentioning that reduced forms are variable and rarely occur as sorta/kinda, which can be an orthographical representation at best. Observed patterns include vowel reduction in the noun and in the preposition of to [ə] or loss of the vowel, unreleased plosive in the coda of N1, voicing or loss of the final fricative on of, and combinations thereof. What has been spelled as sorta is typically realized as [səɾə] and is only one possible form of reduction of the sequence. Similarly, for kind of, whose reduced form is sometimes spelled as kinda (e.g. Traugott 2008), forms of reductions include monophthongization of the kind vowel, loss or no release of the final plosive, reduction of the of vowel to [ə], voicing or loss of the final fricative on of, and combinations thereof.

3.3. Analysis and results: results of the descriptive analysis. Based on the 1,155 SKT tokens (thirty-one type of, 333 kind of, 791 sort of) prosodically analyzed after the manual sorting process, Tables 3 and 4 summarize the results of the prosodic analysis, plotted by construction and prosodic pattern. Table 3 focuses on the three main functions (binominal, qualifying, adverbial; N = 1,034, 89.52% of tokens), while Table 4 provides the results for the remaining four functions (N = 121, 10.48%).

<table>
<thead>
<tr>
<th>Prosodic Pattern</th>
<th>SKT-Noun</th>
<th>Construction</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>1 [X1 only]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>9</td>
<td>32.14</td>
<td>0</td>
</tr>
<tr>
<td>kind</td>
<td>41</td>
<td>23.43</td>
<td>0</td>
</tr>
<tr>
<td>sort</td>
<td>60</td>
<td>31.91</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>28.13</td>
<td>1</td>
</tr>
<tr>
<td>2 [X2 only]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>3</td>
<td>10.71</td>
<td>0</td>
</tr>
<tr>
<td>kind</td>
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<td>75</td>
</tr>
<tr>
<td>sort</td>
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<td>20.21</td>
<td>187</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>18.41</td>
<td>262</td>
</tr>
<tr>
<td>3 [X1 and X2]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>16</td>
<td>57.14</td>
<td>0</td>
</tr>
<tr>
<td>kind</td>
<td>94</td>
<td>53.71</td>
<td>7</td>
</tr>
<tr>
<td>sort</td>
<td>83</td>
<td>44.15</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>49.36</td>
<td>17</td>
</tr>
<tr>
<td>4 [unstressed]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>kind</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>4.09</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>391</td>
<td>33.85</td>
<td>296</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>347</td>
</tr>
</tbody>
</table>

Table 3. Cross-tabulation of SKT according to prosodic pattern and construction (binominal, qualifying, adverbial). Percentages relate to the appropriate category, not always to the whole data set; columns therefore do not add up to 100%. (For example, prosodic pattern 1, total, binominal: N = 110, 28.13%, relates to N = 391 binominals 100%. Prosodic pattern 1, sort: N = 60, 31.91%, relates to N = 188 binominal sort.) Overall percentages in the bottom row relate to the whole data set (N = 1,155), that is, tokens included in Table 3 (N = 1,034) and Table 4 (N = 121).
The following conclusions can be drawn from these distributions. First, of the three SKT nouns, *sort of* is the most frequent in our dataset (\(N = 791, 68.48\%)\), followed by *kind of* (\(N = 333, 28.83\%\)) and *type of* (\(N = 31, 2.68\%\)).

Second, looking at the distribution of SKT nouns across constructions, binominals (\(N = 391, 33.85\%\)) and adverbials (\(N = 347, 30.04\%\)) are most frequent, followed by qualifying (\(N = 296, 25.63\%\)). More specifically for the three nouns, we observe that *type of* is generally binominal (90.32\%; only three out of forty tokens originally retrieved from the corpus (= three out of thirty-one prosodically analyzed) were not binomial; see 18b–d). Binominal is also the most frequent function of *kind of* (\(N = 175, 52.55\%\)), followed by qualifying (\(N = 82, 24.62\%\)) and adverbial (\(N = 51, 15.32\%\)). *Sort of* functions most frequently as adverbial (\(N = 296, 37.42\%\)), followed by qualifying (\(N = 214, 27.05\%\)) and binomial (\(N = 188, 23.77\%\)). Thus *sort* has grammaticalized further than the other two nouns. The four functions postdeterminer, descriptive modifier, *SKT of like*, and *SKT of thing* make up only 10.48\% (\(N = 121\)) of the data set (type of: \(N = 3, 9.68\%\); kind of: \(N = 25, 7.51\%\); sort of: \(N = 93, 11.76\%\)).

Third, regarding prosodic patterns, the most frequent pattern is pattern 2 [X2 only] (\(N = 561, 48.57\%\)), followed by pattern 3 [X1 and X2] (\(N = 246, 21.3\%\)), which in turn is followed by pattern 4 [unstressed] (\(N = 207, 17.92\%\)) and pattern 1 [X1 only] (\(N = 141, 12.21\%\)). It is also worth mentioning that pattern 1 [X1 only] is most frequent with the binominal function. Of 141 items produced with this prosodic pattern, 110 (78.01%) were binominal; another fourteen (9.93\%) were *SKT of thing* (see immediately below), and eleven (7.8\%) were postdeterminer (\(N = 7\)) or descriptive modifier (\(N = 4\)). This confirms that binominals, postdeterminers, and descriptive modifiers are closely related. Prosodic pattern 4 [unstressed] is most frequent with the adverbial construction. Of 207 items produced in this way, 130 (62.8\%) were adverbial; thirty-nine items (18.84\%) in this prosodic category were *SKT of like* (\(N = 23\)) or *SKT of thing* (\(N = 16\)).

Fourth, looking more closely at the relation between prosodic pattern and construction, the following patterns emerge. Across SKT nouns, binominals are most often real-
ized with prosodic pattern 3 [X1 and X2] (N = 193 of 391 tokens, 49.36%; see examples 21/Fig. 1 and 28a above), followed by pattern 1 [X1 only] (N = 110, 28.13%; see examples in 26 above) and pattern 2 [X2 only] (N = 72, 18.41%). Only sixteen binominals (4.09%) were unstressed. This distribution can be observed for all three SKT nouns.

For the qualifying construction, we find that a great majority (N = 262 of 296 tokens, 88.51%) are realized with prosodic pattern 2 [X2 only] (see examples 27a and c), followed by patterns 3 [X1 and X2] (N = 17, 5.74%), 4 [unstressed] (N = 16, 5.41%), and 1 [X1 only] (N = 1, 0.34%) in this order. This distribution can be observed for kind and sort (remember: no qualifying type of in the data set).

For the adverbial construction, we observe that most tokens are realized with prosodic pattern 2 [X2 only] (N = 202 of 347 tokens, 58.21%; see example 27b/Fig. 3), similar to qualifying SKT, albeit to a lesser extent. Unlike for the qualifying construction, the second most frequent pattern for adverbials is pattern 4 [unstressed] (N = 130, 37.46%; see examples in 29), followed by patterns 3 [X1 and X2] (N = 10, 2.88%) and 1 [X1 only] (N = 5, 1.44%). This distribution can be observed for kind and sort (remember: no adverbial type of in the data set).

These results regarding the relation between prosodic pattern and construction are also plotted in Figure 4 for the constructions binominal, qualifying, and adverbial (compare Table 3). Within each function, results are first plotted for all nouns (type, kind, sort) taken together, followed by the results for each noun, separately.

![Figure 4. Relation between prosodic pattern and function (binominal, qualifying, adverbial).](image-url)
main unstressed. All twenty-three SKT of like constructions occur without prominence (pattern 4 [unstressed]). With SKT of thing constructions we basically observe two prosodic patterns: either they are without prominence (pattern 4 [unstressed]; \( N = 16, 51.61\% \)), or prominence is associated with X1 (pattern 1 [X1 only]; \( N = 14, 45.16\% \)). One SKT of thing has prominence associated with both X1 and thing (pattern 3 [X1 and X2]; 3.23%). The findings for SKT of thing are directly related to the fact that they may or may not occur with a determiner (typically demonstrative). If present, the determiner (typically that) is prominent. Compare the corpus examples in 30a (no determiner, sequence unstressed) and 30b (prominence associated with determiner that).

(30) Attested corpus examples: SKT of thing
   a. no determiner, sequence unstressed
      She said oh well you know if it doesn’t work out it doesn’t work out sort
      of thing
      (ICE-GB: s1a-071 #233)
   b. prominence associated with determiner that (pattern 1 [X1 only])
      I know that with authors there’s uh something called the Society of Au-
      thor which is more for writing and publishing articles and publishing and
      that sort of thing
      (ICE-GB: s1a-033 #094)

Results of the regression analysis. Following the descriptive analysis, we ana-
yzed the data statistically in order to test the relation between degree of grammati-
ization (or: construction type) of an item (outcome variable) and prosodic prominence
(predictor variable), and to see whether our findings may be generalized beyond our
data set, and whether degree of grammaticalization may be predicted from prominence.
We performed two types of regression analyses in R (R Core Team 2014): a logistic regres-
sion for kind and an ordinal regression for the sort data, both compatible with an
ordered outcome variable (Field et al. 2012:246). In these types of regression, we cal-
culated probabilities (expressed by the odds ratios) that an outcome will (or will not)
occurred given the present of the predictor variable.

Of the 1,155 SKT items analyzed prosodically, only binomial, qualifying, and ad-
verbial items entered the regression analysis (\( N = 1,034 ; \) twenty-eight type of, 308 kind
of, 698 sort of; see Table 3). Tokens belonging to the classes postdeterminer, descriptive
modifier, SKT of like, and SKT of thing (\( N = 121 ; \) see Table 4) were discarded from the
analysis because they are not included in the grammaticalization cline for SKT nouns.
Moreover, it would be impossible to include them in the regression model because there
are too few data points in several cells. The data that entered the statistical analysis are
given in Tables 5 through 7 as cross-tabulations of prosodic pattern and construction for
each SKT noun separately. In these tables, prosodic patterns are ordered beginning with
pattern 3 [X1 and X2], which was chosen as the baseline in the analysis. Since the
binomial construction is not grammaticalized, it was used as the baseline in the regres-
sion model, that is, as a standard of comparison against which the probabilities of
occurrence of the other (grammaticalized) constructions are assessed. For the predictor
variable (prominence pattern), the pattern most typically associated with the binomial
construction (pattern 3 [X1 and X2]) was defined as the baseline.

<table>
<thead>
<tr>
<th>CONSTRUCTION</th>
<th>PROMINENCE PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 [X1 and X2]</td>
<td>1 [X1 only]</td>
</tr>
<tr>
<td>BINOMINAL</td>
<td>16</td>
</tr>
<tr>
<td>QUALIFYING</td>
<td>0</td>
</tr>
<tr>
<td>ADVERBIAL</td>
<td>0</td>
</tr>
<tr>
<td>2 [X2 only]</td>
<td>0</td>
</tr>
<tr>
<td>4 [unstressed]</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 5. Cross-tabulation of prosodic patterns and function for type.
Based on these distributions, the noun type had to be discarded from the statistical analysis for the following reasons. First, the noun type does not occur in constructions other than the binominal; thus there is no variation in the data concerning the outcome variable, which means that the prediction based on the predictor variable would always be the same. Second, due to the presence of empty cells (zeros), it is not possible to perform a multinomial logistic or ordinal regression. Empty cells can also be observed for kind in Table 6. In the qualifying construction, kind does not occur with patterns 1 [X1 only] or 4 [unstressed]. Therefore, the data for the qualifying construction were removed from the data set of kind, and a logistic regression was performed on the other two constructions (binominal and adverbial). Finally, since the dependent variable is ordered and since there are no zeros in the cells, an ordinal regression could be performed on the data for sort. Remember that the aim is to predict degrees of grammaticalization and that the three corresponding constructions can be ordered on the cline binominal > qualifying > adverbial of increasing grammaticalization.15

We begin by reporting the results for sort (see Table 8). First, we see that two prosodic patterns, 2 [X2 only] and 4 [unstressed], have positive odds ratios, indicating a positive effect. Accordingly, if prominence changes from pattern 3 [X1 and X2] (the baseline) to 2 [X2 only] or 4 [unstressed], the odds of getting a qualifying or adverbial as opposed to a binominal construction rise. The odds ratio of pattern 2 [X2 only] tells us that as prominence changes from 3 [X1 and X2] to 2 [X2 only], the odds of getting a qualifying or adverbial construction rises by a factor of 39.19518. This is highly significant (p < 0.001). The probability of getting a qualifying or adverbial in the [unstressed] condition rises by a factor of 255.9207; this is also highly significant (p < 0.001). But if prominence changes from pattern 3 [X1 and X2] to 1 [X1 only], the odds of getting a qualifying or adverbial as opposed to a binominal decrease by the factor 0.37068. However, this predictor is not significant (p = 0.0917). This is not surprising, since prominence pattern 1 [X1 only] is very strongly associated with the binominal construction for all three nouns (see Tables 5 to 7). Finally, we assess the effect size of the model (Nagelkerke’s R^2 = 0.541). We see that the overall fit of the model is very high: 54% of the variance observed in the constructions (binominal vs. qualifying and adverbial) is explained by prominence.

15 It would also be possible to predict prominence patterns from degrees of grammaticalization. However, we chose degrees of grammaticalization as the dependent variable because prosodic pattern is given in the spoken data in the sense that it is audible and measurable, whereas degree of grammaticalization is more abstract and has to be inferred. This choice does not mean that prosodic changes take place prior to other changes, nor does it imply a causal relationship between prosodic prominence and degree of grammaticalization. Claims about causality are not possible on the basis of corpus data but would require experimental data.
The odds ratios for kind are similar (see Table 9), but here we can only make predictions about the occurrence of the adverbial construction as opposed to the binominal construction—remember that the qualifying construction had to be removed from the analysis due to zero occurrences. We find similar patterns as for sort. The odds of getting an adverbial as opposed to a binominal construction when prominence changes from pattern 3 [X1 and X2] to 2 [X2 only] rise by a factor of 21.83. The odds of getting an adverbial construction in the [unstressed] condition rise by a factor of 16.71. Both values are highly significant ($p < 0.001$). Similar to sort, the odds of getting an adverbial when the prosodic pattern changes to 1 [X1 only] decrease by a factor of 0.92 (but this value is not significant; $p = 0.9196$). Overall, the effect size of the model is very high as shown by the high $R^2$ values, which means prominence can account for about 40% of the variance observed in the construction type (binominal vs. adverbial) for kind (Nagelkerke’s $R^2 = 0.404$). In the case of the ordinal regression we can report additional model statistics. Both C (0.822) and Somers’s $D_{xy}$ (0.645), which assess the overall explanatory power of the model, are also very high, confirming that the model explains the data very well. In sum, prominence pattern is a very good predictor for the degree of grammaticalization.

| EST    | VIF | ODDS RATIO | SE   | z-VALUE | Pr(>|z|) | SIG  |
|--------|-----|------------|------|---------|----------|------|
| y> qualifying | −1.6723 | 0.18782 | 0.281 | −5.95   | <0.0001 | *** |
| y> adverbial   | −3.9108 | N/A | 0.02003 | 0.3145 | −12.43 | <0.0001 | *** |
| prom X1only    | −0.9924 | N/A | 0.37068 | 0.5884 | −1.69  | 0.0917 |
| prom X2only    | 3.6686  | 2.445 | 39.19518 | 0.3165 | 11.59  | <0.0001 | *** |
| prom unstressed| 5.5449  | 2.445 | 255.92070 | 0.387 | 14.33 | <0.0001 | *** |

<table>
<thead>
<tr>
<th>MODEL STATISTICS</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases in model</td>
<td>697</td>
</tr>
<tr>
<td>Null deviance on 1,394 DF</td>
<td>1,505</td>
</tr>
<tr>
<td>Residual deviance on 1,389 DF</td>
<td>1,050</td>
</tr>
<tr>
<td>$R^2$ (Nagelkerke)</td>
<td>0.541</td>
</tr>
<tr>
<td>Prediction accuracy</td>
<td>64.71%</td>
</tr>
<tr>
<td>Model likelihood ratio test</td>
<td>$\chi^2(3) = 454.79$</td>
</tr>
</tbody>
</table>

Table 8. Results of the ordinal regression for the data set of noun sort. ***: $p < 0.001$.

| EST    | VIF | ODDS RATIO | CI(2.5%) | CI(97.5%) | SE   | z-VALUE | Pr(>|z|) | SIG  |
|--------|-----|------------|----------|-----------|------|---------|----------|------|
| (intercept) | −2.93 | 0.05 | 0.02 | 0.13 | 0.46 | −6.39 | 0 | *** |
| prom X1only   | −0.09 | 1.3 | 0.2 | 0.92 | 0.37 | −0.1 | −0.91957 |
| prom X2only   | 3.08 | 1.78 | 21.83 | 7.88 | 60.52 | 0.52 | 7.93 | 0 | *** |
| prom unstressed | 2.82 | 1.6 | 16.71 | 4.51 | 61.93 | 0.67 | 4.21 | 0 | 0.00003 | *** |

<table>
<thead>
<tr>
<th>MODEL STATISTICS</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases in model</td>
<td>226</td>
</tr>
<tr>
<td>Null deviance on 225 DF</td>
<td>241.36</td>
</tr>
<tr>
<td>Residual deviance on 222 DF</td>
<td>171.79</td>
</tr>
<tr>
<td>$R^2$ (Nagelkerke)</td>
<td>0.404</td>
</tr>
<tr>
<td>$R^2$ (Hosmer and Lemeshow)</td>
<td>0.265</td>
</tr>
<tr>
<td>$R^2$ (Cox and Snell)</td>
<td>0.288</td>
</tr>
<tr>
<td>C</td>
<td>0.822</td>
</tr>
<tr>
<td>Somers’s $D_{xy}$</td>
<td>0.645</td>
</tr>
<tr>
<td>AIC</td>
<td>179.79</td>
</tr>
<tr>
<td>Model likelihood ratio test</td>
<td>$\chi^2(3) = 69.57$</td>
</tr>
</tbody>
</table>

Table 9. Results of the ordinal regression for the data set of noun kind. ***: $p < 0.001$.

16 These measures may assume values between zero and one. A value of zero means that the model cannot explain the data, whereas a value of one means that the model explains the data perfectly. The values observed here show that the model explains the data very well.
4. Discussion. In this section we first compare our findings with previous assumptions made in the literature about the prosodic realization of SKT constructions. We then discuss the results of the corpus study in light of the hypotheses formulated in 16 and 17 in §2.8 above, making a substantial contribution to the theory of grammaticalization and the relation between grammaticalization and prosody.

4.1. The results in light of previous work on SKT constructions and the present hypotheses. Our findings confirm Keizer’s (2007) observations such that prosodic patterns with main stress associated with X1 are typical of binominal constructions. In the present study, these are prosodic patterns 1 \([X1\ only]\) and 3 \([X1\ and X2]\). We also observe that if both X1 and X2 are prominent, main prominence is often associated with X2 and secondary (prenuclear) prominence with X1 (e.g. 21/Fig. 1 and 28), due to X2 being rightmost in the phrase, while nuclear prominence associated with X1 signals narrow focus. This goes against Keizer (2007:156), who assumes that in binominal constructions, ‘primary stress falls on N1, with secondary stress being given to N2’. Our findings support Keizer’s assumption that in qualifying constructions, main prominence is typically associated with N2. In our study, this is pattern 2 \([X2\ only]\). Keizer’s assumption about postdeterminer constructions—that stress may fall on a determiner preceding N1, or on N1, or on N2—is also confirmed. In this respect, our results, albeit based on comparatively few cases, suggest that patterns 1 \([X1\ only]\), 2 \([X2\ only]\), and 3 \([X1\ and X2]\) are almost equally distributed within postdeterminer constructions. This part of the results fits in with Keizer’s (2007:169) idea that postdeterminer constructions share semantic properties with both binominal and qualifying constructions. While in binominals X1 is frequently prominent (either alone or both X1 and X2) and in qualifying constructions N2 is typically prominent, postdeterminer constructions show both patterns equally.

Furthermore, remember from §2.7 that according to Aijmer (2002), two prosodic patterns are possible with adverbial sort of. She maintains that adverbial sort of can either be realized with prosodic prominence, or be unaccented and reduced to sorta. Our results do confirm this general observation to some degree. Specifically, sort of X2 can be realized with prosodic prominence or be unstressed, but the prominence pattern found with sort is not typical of the noun specifically, but related to the construction, which means whether sort is used as binominal, qualifying, or adverbial. The function also determines where main prominence is located in the target sequence. Specifically, sort will often have nuclear or nonnuclear prominence in the binominal construction (prosodic patterns 3 \([X1\ and X2]\) and 1 \([X1\ only]\), but it is typically without prominence in the qualifying and adverbial constructions (prosodic patterns 2 \([X2\ only]\) and 4 \([unstressed]\)). Moreover, phonetic reduction is variable (see end of §3.2)—that is, the orthographical form sorta must be understood as short for a variety of phonetic manifestations.

Our hypothesis 2, which relates specifically to SKT constructions (see 17), predicts that the binominal, qualifying, and adverbial SKT constructions, which occupy different stages on the grammaticalization cline, will be related to different prominence patterns. This is exactly what we found. As shown in §3.3, each construction is associated with one prototypical prosodic pattern. This was reported not only for the central constructions of this study (binominal, qualifying, adverbial), but also for the less frequent ones (postdeterminer, descriptive modifier, and the lexicalized constructions). Moreover, as grammaticalization progresses, we observe a steady weakening of prominence in the corresponding prosodic patterns. Prosodic pattern 3 \([X1\ and X2]\) is most frequent with the binominal construction; that is, most prominence is associated with the least grammaticalized construction. At the other end of the grammaticalization cline, the ad-
verbial construction is most frequently associated with patterns 2 [X2 only] and 4 [unstressed]; pattern 4 [unstressed] is overall most frequent with the adverbial construction. Both patterns 2 [X2 only] and 4 [unstressed] involve a loss of prominence compared to pattern 3, in which both X1 and X2 are prominent. The qualifying construction—taking an intermediate position on the grammaticalization cline—has in common with the adverbial construction the fact that prosodic pattern 2 [X2 only] is the most frequent one.

On the one hand, this similarity between the two is not surprising, given that both have developed to a stage where N1 is no longer the referential head of the SKT construction (see §§2.3 and 2.4). On the other hand, the difference between the two constructions—that is, the fact that the adverbial construction has grammaticalized further—is reflected in the fact that it occurs [unstressed] to a considerable extent, unlike both the qualifying and the binominal construction. Keizer (2007:163) argues that qualifying constructions that function as mitigating expressions can be compared to the adverbial use of SKT, the difference being that in the adverbial use X2 is of a category other than N. Our prosodic results can be interpreted as being in line with this assumption. The prosody reflects structural and functional similarities such that prosodic pattern 2 [X2 only] is the most frequent pattern for both qualifying and adverbial constructions. This can easily be accounted for if both have similar functions, at least in a certain percentage of the data. However, differences between the two constructions are also reflected in prosody, as detailed above, most notably pattern 4 [unstressed] being very frequent with the adverbial but not the qualifying construction. Given these results, we propose that the different prosodic patterns not only cooccur synchronically, but can also be meaningfully conceived of as major shifts on a prominence cline from more to less prominent. This continuum is parallel to the grammaticalization cline of SKT constructions. The two clines are inversely related such that prominence decreases with increasing grammaticalization (see 31 and 32).

(31) Grammaticalization cline of SKT constructions (from less to more grammaticalized)
  binominal > qualifying > adverbial

(32) Prominence cline of SKT constructions (from more to less prominent)
  X1 prominent ([X1 only] or [X1 and X2]) > X2 prominent > unstressed

If prominence patterns are conceived of as being arranged on a cline, the correspondences between constructions and prominence patterns are consistent with theories of intonational meaning which hold that semantic content correlates with prosodic prominence (cf. §1.2). The lexical (‘class’) meaning of N1 in the binominal construction is reflected in its prosodic prominence. In turn, the qualifying construction shows a shift in prominence from N1 to N2, which follows from the desemanticization of N1 and the demotion of N1 from head status. Thus, loss of semantic weight is accompanied by loss of prosodic prominence. Note that loss of prominence involves the grammaticalizing element only, that is, N1. It does not involve the whole NP, which still bears a pitch accent on N2. Finally, either the adverbial construction shows a pattern similar to that of the qualifying construction (prominence on X2 only) or the whole expression is without prominence ([unstressed]). The unstressed pattern fits the prediction following from the grammaticalization cline: as discussed in §2.4, in the adverbial construction, sort of and kind of are unverbated strings with a basic hedging function. In addition to this function, which is also fulfilled by the qualifying construction, adverbial sort of and kind of develop further discourse functions—that is, they are used as metalinguistic markers,
politeness markers, hesitation devices, and so forth. Elements fulfilling such pragmatic functions are usually unstressed (Dehé & Wichmann 2010a, Wichmann et al. 2010).

Further evidence that prominence pattern is related to semantic weight and degree of grammaticalization comes from the result that the three SKT nouns type, kind, and sort do not behave differently with respect to prominence. For all three nouns there is a dominance of X1 prominence in the binominal construction. For both kind and sort, X2 dominance is clearly related to the qualifying construction. Finally, X2 dominance is also characteristic for the adverbial construction for both nouns, kind (70.59%) and sort (56.08%). Additionally, the rise of the unstressed pattern as the second most prevailing pattern in the adverbial as opposed to the qualifying construction is also characteristic for both nouns (kind: 15.69%, sort: 41.22%). If prominence pattern were an idiosyncratic property of each noun, we would not expect such uniform behavior.

4.2. Implications for grammaticalization. The results of our study also lend support to hypothesis 1 (see 16). Specifically, since synchronically different prominence patterns were shown to reflect different degrees of grammaticalization, and prominence pattern turned out to be a good predictor for degree of grammaticalization, we can assume that semantic and phonological changes must proceed in parallel. This entails that phonological processes involved in grammaticalization involve not only the reduction or loss of whole segments or syllables but also weakening at the prosodic level, that is, loss of prominence. Independently of segmental changes that may be observed at each stage, especially at more advanced stages of grammaticalization, desemanticization is accompanied by prosodic changes even at early stages. Consequently, prominence interacts with semantic changes during grammaticalization and is sensitive to them from early on. This results in different prosodic patterns that synchronically can distinguish between the different layered functions of a grammaticalizing item. However, this relation is probabilistic rather than absolute: each degree of grammaticalization has a prototypical prominence pattern associated with it, and we can observe robust clusters of form-meaning relationships. Deviances from this pattern, specifically overlap between the prominence patterns used for each construction, result from overlap in meaning between constructions (such as the hedging function served by both the qualifying and the adverbial construction), or they are attributable to factors other than grammaticalization, such as information structure (see below).

The findings of this study suggest that changes of meaning and form proceed hand in hand and lend support to Bybee and colleagues’ (1994) parallel reduction hypothesis. Rather than lagging behind semantic bleaching, phonological changes in the form of the shift, reduction, and loss of prosodic prominence are attested from the first stage of desemanticization. Prominence weakens even more as the meaning and function of a grammaticalizing item changes further. This result also strongly supports the iconicity hypothesis (cf. §1.1) rather than the pure frequency hypothesis. Since each degree of grammaticalization is related to a dominant and prototypical prominence pattern, there is no lagging behind of prosody with respect to grammaticalization but coevolution. Although we do not want to suggest that this must always be the case, and with the caveat that typologically different languages may not show coevolution of meaning and form (Bisang 2004), the results of the statistical analysis allow us to generalize this hypothesis beyond the present case study.

Our results do not contradict studies suggesting that semantic change precedes other types of change in grammaticalization. For example, Francis and Yuasa (2008:48) show that semantic change proceeds faster than syntactic change (reanalysis). For example,
they show that in the grammaticalization of size nouns like bunch/heap/load of, the head noun (e.g. bunch) first undergoes semantic bleaching from meaning ‘bundle’ to meaning ‘collection of things’ and later ‘large quantity’. Even after reanalysis from head noun to quantifier, the size noun retains key syntactic properties of head nouns (such as the ability to cooccur with determiners, adjectives, and PP complements and receive plural number marking), which suggests that ‘change has progressed more fully in semantics than in syntax’ (Francis & Yuasa 2008:50). SKT nouns behave similarly. For example, while the SKT noun in the qualifying construction has lost its syntactic head status and changed its meaning to qualifier, it nevertheless retains noun-like properties, such as its cooccurrence with determiners, which it shares with the binominal construction. We take these results as evidence for the assumption that formal changes must be separated from one another; for example, syntactic processes must be distinguished from phonological changes.

This idea is further supported by the minor constructions of the SKT nouns. Although the data are scarce for these constructions, each construction seems to be related to its own distinctive prominence pattern (see e.g. Table 4). The postdeterminer construction, which emerged from the binominal construction (cf. Denison 2002), has three almost equally frequent prosodic patterns: patterns 3 [X1 and X2], 1 [X1 only], and 2 [X2 only]. It is thus very similar to the original construction but differs from it in that X2 may also be equally as dominant as X1. The descriptive modifier construction has two dominant patterns: patterns 2 [X2 only] and 3 [X1 and X2]. This is a distribution that is intermediate between binominal and qualifying and still differs from that of the postdeterminer. The more lexicalized constructions differ to a greater extent. The SKT of thing construction, which derives from the binominal construction (Denison 2002:14), occurs either with pattern 1 [X1 only], which it shares with the binominal construction, or with pattern 4 [unstressed], which relates to its new function as a holistic item. By contrast, the SKT of like construction, which has a discourse function and in which the SKT noun combines with another pragmatic marker, is attested only in pattern 4 [unstressed], which is typical for pragmatic markers (see §1.2). Thus, even minor semantic shifts like those from binominal > postdeterminer or binominal > descriptive modifier lead to shifts in prosodic pattern. This suggests that prosody is sensitive to subtle semantic changes, which in turn lends further support to the iconicity hypothesis and the parallel reduction hypothesis. These results are in line with Givón’s (1991) findings that serial verb constructions show different pause probabilities from the main/finite clauses from which they grammaticalized. This leads him to suggest that prosody is iconic, takes place automatically, and is sensitive to cognitive categories (Givón 1991:123).

The alternative hypothesis, the frequency hypothesis, cannot fully explain the present results, although the effects of frequency cannot be dismissed or ruled out completely. According to the frequency hypothesis, the loss of prominence during increasing grammaticalization is attributed to the higher token frequency of pragmatic markers like kind of and sort of, which behave in this respect similarly to prepositions, determiners, conjunctions, and other unstressed function words. It is well known that grammaticalization leads to contextual expansion and the rise of occurrence frequency (Hopper & Traugott 2003, Himmelmann 2004). This is also confirmed by our data. Recall that we found 1,048 tokens of sort of and 392 tokens of kind of in the corpus, as opposed to only forty tokens of type of, which has not developed grammaticalized uses. Sort, which occurs more often in the adverbial construction, the most advanced grammaticalization stage, is also the most frequent SKT noun. Although the reductive effects of frequency and repetition in language cannot be denied (Bybee 2006) and cannot be excluded dur-
ing grammaticalization processes, the fine-grained tuning of all SKT constructions with different degrees of prominence suggests that prosody does not necessarily rely on the rise of frequency.

Although the insights of this study are based on synchronic data, we may draw conclusions about diachronic change due to layering. Based on our results, we assume the cline of prosodic changes given in 33, viz. changes of prominence, which we assume correlates with the grammaticalization cline.

(33) Clines of grammaticalization and prosodic changes

<table>
<thead>
<tr>
<th>STAGE OF GRAMMATICALIZATION</th>
<th>CLINE OF GRAMMATICALIZATION</th>
<th>CLINE OF PROSODIC CHANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>lexical/content item</td>
<td>prominence (presence of pitch accent)</td>
</tr>
<tr>
<td>Stage II</td>
<td>desemanticization</td>
<td>weakening of prominence</td>
</tr>
<tr>
<td>Stage III</td>
<td>grammatical/pragmatic</td>
<td>loss of prominence (absence of pitch accent)</td>
</tr>
<tr>
<td>meaning</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3. SKT nouns as focus markers. Another function that we think SKT nouns develop is that of a focus marker. One cue to this function is the fact that adverbial SKT constructions frequently occur with prosodic pattern 2 [X2 only]. For illustration, consider example 34 (repeated from 27b/Fig. 3 above).

(34) Adverbial sort of, prosodic pattern 2 [X2 only]

a. But he was sort of ill and came to the doctor’s in in Li England
   (ICE-GB: s1a-014 #196)

b. But he was sort of ill and …
   H* L+H* L-

c. Warren Martin got it from our group and he
   You see we had a month’s study tour which is more like a holiday and then we those who were going to stay for three months flew back for one week to be debriefed and went back out again which was really crazy
   A waste of money but I enjoyed it all <unclear-word>
   But he he was sort of ill and came to the doctor’s in in Li England
   And he still was not well when he went back there again which was really odd
   (ICE-GB: s1a-014 #193-197)

In 34, sort of clearly does not function as a hedge or mitigator. The context of the utterance is such that it is a fact that the person talked about was ill and had to visit a doctor. In the corpus context (see 34c), the speaker tells her two interlocutors about a study tour to the Soviet Union. In the preceding context she mentioned that travelers were advised not to drink the water in Leningrad because of a bug risk. The man who was ill was a member of the group who went on the study tour. After a week at home, he did not go ‘back out again’, for which his being ill was the reason. The adjective ill is therefore in focus and prominent and there is no need to soften its meaning.

While to the best of our knowledge this use of adverbial SKT as a focus marker has not been observed before, it is reminiscent of elements such as German so (Wiese 2011) and English like (Underhill 1988, Meehan 1991) used as focus markers. Like adverbial SKT realized with prosodic pattern 2 [X2 only], focus-marking German so and English like have been argued to make no semantic contribution of their own and have no prominence of their own. They occur adjacent to the element that is in focus and that has nuclear prominence. Interestingly, these elements are positionally flexible to some extent; that is, they may precede or follow the focused constituent (e.g. Wiese 2011 for
German so). This is also true for adverbial SKT constructions, which may precede X2 but may also occur in what we referred to as ‘independent use’ above. In example 10f in §2.4 above, for example, repeated here as 35 for convenience, strange is prosodically prominent and in focus and sort of follows. We leave a more thorough investigation of this pattern to future research.

(35) Adverbial sort of

Just seems a little strange sort of

(ICE-GB: s1a-071 #290)

4.4. Other factors affecting prosody. Finally, while we showed that the grammaticalization cline (binominal > qualifying > adverbial) relates to the prominence cline (presence of prominence > reduction/shift > loss of prominence), this relation was claimed to be probabilistic rather than absolute. As can be gleaned from the distribution of the data, each construction may also relate to nonprototypical prominence patterns. Moreover, regression analysis revealed that prominence can explain about 40–50% of the variance observed. Thus, the question is raised of how these deviances from the typical patterns are to be explained. Most importantly, we observe lack of prominence when prominence is expected (e.g. unstressed binominals), and presence of prominence on N1 when lack of prominence is expected (e.g. stress on X1 in the adverbial construction); see Table 3. We do not consider these cases to be arguments against our conclusions with respect to the relation between grammaticalization and prosody. Rather, these cases show that there are factors other than grammaticalization and semantic content that also affect prosodic realization. These factors include position (see §2.7 above), eurhythmy (which may demand prosodic prominence associated with otherwise unstressed elements), and pragmatic factors, including information structure. Consider the example in 36 and Figure 5.

(36) Factor information structure

a. Like there are the kind of people that are interested in other people and there are the kind of people that are uninterested in other people

(b. Like there are the kind of people that are interested in other people

L+H* L+!H* L+H* L-L%

L+H*

L-L%

c. and there are the kind of people that are uninterested in other people

L+H*

L-L%

d. There’s two kinds of people in the world I mean one interesting category is the interested uninterested category

(ICE-GB: s1a-037 #116-117)

Both instances of kind of in 36a are binominal: the kind of (i.e. the subclass of) people the speaker has in mind is specified in the two that-clauses; that is, this is a clear case of ‘class’ meaning. However, N1 kind in the first part of the utterance is prominent with a prenuclear L+H* pitch accent (see 36b/Fig. 5, top panel); N2 people is without prominence, because it is familiar from the immediately preceding discourse (see 36d). In the second part of the utterance (see 36c/Fig. 5, bottom panel), however, both N1 kind and N2 people are without sentence-level prominence due to lexical repetition and thus givenness. Instead, the adjective uninterested is associated with (nuclear) prominence due to the contrast between uninterested and interested in the first part of the utterance. In other words, despite being binominal, no prominence is associated with either N1 or N2 for reasons of information structure.

5. Conclusion. This article investigated the relation between grammaticalization and prosody using the English nouns sort, kind, type (SKT) in the construction N1 (SKT) of N2 as a case study. Semantic and prosodic analyses were done of 1,155 tokens retrieved
from a corpus of spoken English, representing stages of grammaticalization from lexical meaning to pragmatic function. We found that different stages of grammaticalization are related to distinct prosodic patterns. Increasing grammaticalization relates to decreasing prominence: prominence is first shifted and weakened, then lost. This has theoretical implications. First, prosodic prominence is a good predictor of degree of grammaticalization. Second, phonological reduction and semantic substance go hand in hand. Therefore, loss of phonological substance is attributable to iconicity effects—that is, it directly reflects loss of semantic weight—rather than to frequency effects.

REFERENCES


Phrase in English (NP2), 15 16 September 2011. Online: https://www.escholar .manchester.ac.uk/uk ac man scw:172513.


QUIRK, RANDOLPH; SIDNEY GREENBAUM; GEOFFREY LEECH; and JAN SVARTVIK (eds.) 1985. A comprehensive grammar of the English language. New York: Longman.


SILVERMAN, KIM E. A.; MARY E. BECKMAN; JOHN F. PITRELLI; MARI OSTENDORF; COLIN WRIGHTMAN; and PATI J. PRICE. 1992. ToBI: A standard for labeling English prosody. Paper presented at the 2nd International Conference on Spoken Language Processing (ICSLP), Banff, AB.


