

Constraints on verbal -s/zero marking: New insights from Norwich

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Abstract

Here we investigate present tense verbal -s/zero variability in a dialect of Eastern England in which -s marking can *only* appear in third-person singular contexts. Our objective is to explore constraints on -s/zero marking, and to consider the grammatical function of -s in such a variety. In order to investigate this, we reanalyzed verbal -s/zero marking in 63 sociolinguistic interviews found in Peter Trudgill's (1974) corpus from Norwich. The results show not only a significant role for subject animacy (animate subjects mark -s less than inanimates) and lexical (punctual verbs mark -s less than duratives) and structural aspect (punctual and habitual events mark less -s than durative ones), but also an interaction between animacy and aspect. To account for the findings, we draw upon the notion of differential subject marking (e.g., Aissen, 2003), which considers the role of the canonicity of arguments in accounting for morphological marking.

Keywords: Norwich English; differential subject marking; verbal -s/zero marking; animacy; lexical aspect; structural aspect

Introduction

Speakers of the English dialect spoken in East Anglia (henceforth EAE) in Eastern England show a grammatical feature that we label “verbal zero” (Rupp & Britain, 2019; Trudgill, 1974:55–63). Verbal zero concerns the variable marking of -s on verbs *only* in the context of third-person singular subjects, a marking which is required in Standard English. Some examples from our data are listed in (1–3) below:

- (1) there isn't a bus what *come* anywhere near here
- (2) their mum *like* them to talk a little bit different
- (3) as soon as I say anything he always *imitate* me, you know

Note that -s marking in *verbal zero* varieties like EAE differs from the much better known phenomenon of -s marking in what we call *verbal -s* varieties



(see Rupp & Britain, 2019:27) that are spoken in much of the British Isles (except the South-East of England), as well as many parts of the US and Canada. In such varieties, and unlike in verbal zero varieties EAE (Trudgill, 1996), -s is variably used with third-person plural subjects, and often beyond. This is not grammatical in Standard English either. Consider (4–6):

- (4) the fishers of Oregon generally *comes* to Cape Juda (Clarke, 2015:84; Newfoundland, Canada)
- (5) we *goes* shopping on Saturdays (Cheshire, 1982b:153; Reading England)
- (6) I *prays* for the people (Poplack & Tagliamonte, 1989:49; Samaná, Dominican Republic)

Studies of verbal -s varieties have identified a wide range of grammatical factors that can play a role in the use of -s marking, most notably the Northern Subject Rule (NSR; Murray, 1873:211–212), whereby verbs with adjacent third-person plural pronominal subjects are *not* marked by -s, while those with plural noun phrases (NPs) and with nonadjacent third-person plural pronominal subjects are marked.

Research on -s marking in verbal zero varieties has frequently tested for the same range of grammatical factors. A common finding across these verbal zero dialects has been the *reverse* of the NSR; thus, a favoring of -s marking with third-person singular *pronouns* as opposed to NPs (see Kingston, 2000; Potter, 2018; Spurling, 2004, all investigating the English of Suffolk in East Anglia). In Rupp and Britain (2019) we termed this reversal the *East Anglian Subject Rule*. While noteworthy, the finding is perhaps not unexpected given that the scope of -s marking across person and number is quite different for the two types, as we saw above. In order to deepen our understanding of the factors that constrain -s/zero marking in verbal zero varieties, it is important to consider as wide a range of potential linguistic constraints as possible. We address the following research questions:

- (a) How is -s marking grammatically conditioned in verbal zero varieties?
- (b) In the light of our findings, what is the function of -s marking in verbal zero varieties?

Verbal zero varieties of English

The origins of verbal zero in third-person singular present-tense contexts in East Anglia is argued by Trudgill (1998) to date back to especially high levels of language contact in this region in the late 16th century. At that time, in Southern England, the local third-person present-tense suffix -th was competing with Northern -(e)s, and, as Wright (2001) demonstrated, zero marking was present to a certain extent too. Consequently, by the second half of the century, three variants were circulating in the South of England: -th, -s, and zero. From 1560 onward, large numbers of Dutch and French-speaking Protestant refugees—many skilled weavers—fled to England, and predominantly to Norwich—a city with an important textile industry at that time—as a result of Spanish persecution in the Low Countries. Trudgill (1998) argued that, given the large numbers of refugees (around 35% of the population of Norwich), and given

that they arrived at precisely the same time as the competition between *-s*, *-th*, and zero marked forms of the present tense, zero succeeded as a result of the second language acquisition of the refugees in a context where there was no dominant indigenous variant in the target variety. The zero form was, after all, typologically simpler. This simpler form, used, Trudgill argued, as part of the L2 lingua franca among the refugees, as well as variably by locals, eventually “won” in multilingual Norwich, and then spread to the rest of (largely rural) East Anglia through normal innovation diffusion. And there it has remained ever since.

Third-person present-tense zero has therefore long been associated, in the British context, with EAE. Using their 2016 smartphone-based *English Dialects App*, Britain, Blaxter, and Leemann (2020, 2021) plotted the contemporary geographical distribution of third-person zero in the area (see Figure 1). Its use today is concentrated in Norfolk (except in the far west) and northern and eastern Suffolk.

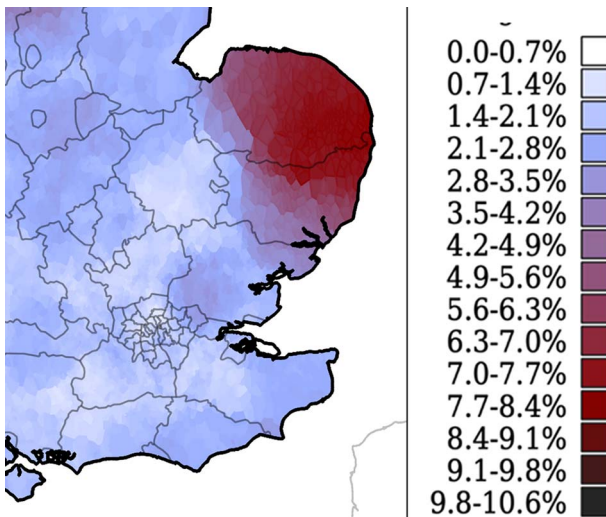


Figure 1. The contemporary use of third-person present-tense zero in the *English Dialects App* (Britain et al., 2020:22).

As suggested above, it formerly had a wider geographical currency across Eastern England. Ellis (1889:222, 224, 249, 261–277, 280–288) found it across the whole of East Anglia—that is, Norfolk, Suffolk, Cambridgeshire, and Essex, for where, he claimed, “of constructions, the only striking usage is putting the plural verb to the singular subject as: he *do* ... my head *swim* ..., usual in all the E[astern] Div[ision]. But I have no example of the reverse, of putting the singular verb to the plural subject as we *does*” (1889:222). Kökeritz (1932) found it in East Suffolk and Viereck (1975:Map 38), reporting on Lowman’s 1937–1938 survey of Southern England, found zero forms for the verb *do* in Norfolk, Suffolk, Cambridgeshire, and North-East Hertfordshire, and for the verb *rinse* in Norfolk, Suffolk, and East Cambridgeshire (Viereck, 1975:Map 60).

Figure 2 from the *Survey of English Dialects* (Orton, Halliday, & Barry, 1962–1971) shows the proportional distribution of zero, the black parts of the circles. Zero forms

are also found in other traditional dialect surveys of East Anglia (see Vasko, [2009] for Cambridgeshire, and Peitsara [1996:295] for Suffolk).

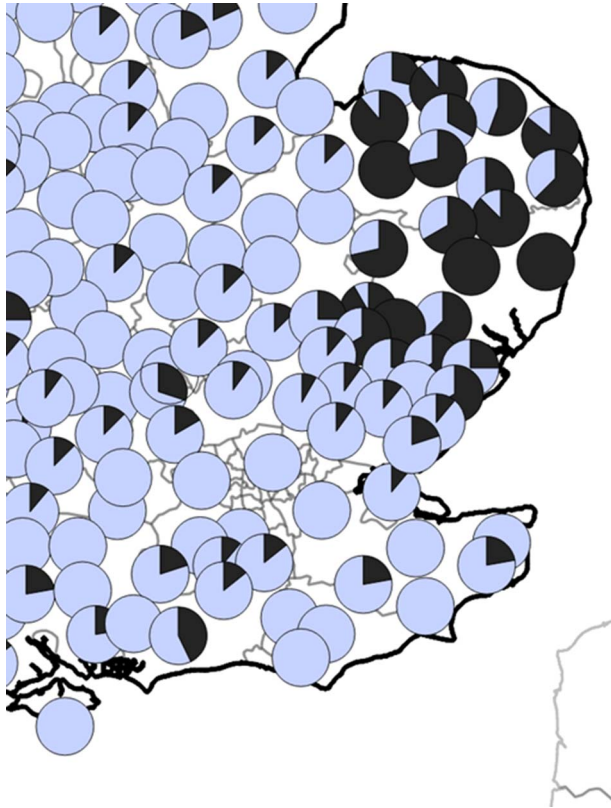


Figure 2. The use of third-person present-tense zero in the *Survey of English Dialects* (Orton et al., 1962–1971; see also Britain et al., 2021:333).

Verbal zero was the first linguistic variable analyzed in England in the sociolinguistic era in Trudgill's analysis of the English of Norwich (1974:Chapter 5). There his goals were largely social, to demonstrate the relationship between linguistic variation, linguistic change, social background, and style, following Labov (2006 [1966]). He demonstrated the very intimate correlation of class and style with verbal zero: the higher the social class and the more formal the style, the less verbal zero was found. Since then, a few East Anglian studies have examined verbal zero using variationist techniques to the south of Norwich, in Suffolk (see Table 1). All found verbal zero in sharp decline.

In setting out to examine linguistic constraints on verbal zero in EAE, we are faced with two empirical questions: firstly, do the same linguistic constraints apply to verbal zero dialects (where -s, if it occurs, only occurs with third-person singular subjects) as to verbal -s dialects (where -s can occur with any subject form)? Are other constraints important in accounting for patterns of verbal zero? Secondly, as we have seen

Table 1. The attrition of third-person singular zero in contemporary East Anglian English

Location	Study	Old speakers(60–70)	Young speakers(18–28)
Glemsford	Kingston (2000:48)	64%	7%
Ipswich	Spurling (2004:33)	79%	24%
Ipswich	Potter (2018:158)	26%	6%
Woodbridge	Potter (2018:158)	19%	2%
Wickham Market	Potter (2018:158)	36%	6%

in Table 1, all of the recent studies of verbal zero found that young speakers barely use the traditional zero form at all. In such end-stage change, should we expect the constraints to be the same as during a healthier period in the life of verbal zero (cf. Cukor-Avila, 1997:303–305)? We need, therefore, a sociolinguistically inspired corpus of conversation from a community where zero forms are more evident. Consequently, we analyzed Peter Trudgill's (1974) data from Norwich, since his corpus (henceforth TNC), collected in the late 1960s, gives us a view on this variable 30–50 years earlier than the contemporary studies of East Anglia.

Data and methods

The TNC comprises 63 sociolinguistic interviews, with speakers ranging in age from 11 to 89, born between 1879 and 1957. We had the original reel-to-reel recordings professionally digitized into .wav format. Typical of the time, the recordings comprised a range of tasks to elicit different styles—a reading passage, two word lists, and a list of minimal pairs, as well as a self-evaluation experiment and a linguistic insecurity experiment. We transcribed into *ELAN* (ELAN, 2023) only those parts that comprised free conversation—between 6 and 26 minutes per interview (average 15 minutes). These conversation segments represent a merger of what Trudgill labelled “formal speech”—the default style of the interview—and “casual speech”—the style of storytelling and other moments of reduced formality. Ultimately, the corpus comprised just over 100,000 words. From the recordings and from information kindly provided by Peter Trudgill, we were able to log each speaker's age, sex, social class, and location within the city. We extracted from the transcripts all tokens of unambiguously present-tense verbs with third-person singular subjects, except the verb *to be*.

Analytical decisions and exclusions

This left us still with a diverse range of different kinds of third-person present-tense verb, including weak and strong verbs, lexical *have* and *do*, but also auxiliary *have* and *do*. We decided to exclude auxiliaries since research has consistently shown that they behave differently with respect to -s marking (e.g., Godfrey & Tagliamonte, 1999:98). A number of other forms were excluded from the analysis of lexical verbs. These included contexts of neutralization where the word following the verb began with [s z ʃ], and contexts where the present tense status of the verb could not through context be disambiguated from either past tense forms with -t/d deletion or from nonstandard past

tense forms, especially *give* and *come* (where the simple past forms are also *give* and *come* in East Anglia). We also excluded examples within quotations, as in (7).

(7) when people say “do,” you know “*he do*,” and things like that, that annoys me

Constraints on variability

We coded each token to examine both social and linguistic constraints on variability between -s and zero marking. The social constraints considered were social class, age, and gender. For these, we used the classifications for age and gender used by Trudgill, and, given that he had already explicitly examined social class in detail in the 1974 study (Trudgill, 1974:Chapter 5), we simplified social class here to working class (a combination of his Lower, Middle, and Upper Working Class speakers) and middle class (his Lower Middle and Middle Middle speakers). All studies of East Anglia, perhaps unsurprisingly, have found more zero marking among working class speakers (Potter, 2018:159; Trudgill, 1974:62–63). We divided age into four divisions, bearing in mind the distribution of ages within the preexisting corpus: Young: 11–24 years, born between 1945 and 1957 (whose language socialization, then, began after the end of WWII); Lower Mid: 25–43 years, born between 1925 and 1943 (in the interwar period); Upper Mid, 48–61 years, born between 1907 and 1920 (in the years running up to and including WWI); and Old: +66 years, born before 1902. Recent studies from the area (e.g., Kingston, 2000:48; Potter, 2018:154; Spurling, 2004:33) have found verbal zero to be undergoing attrition, but the youngest speaker in the Trudgill corpus would have been in Potter’s oldest group by 2018, so examining age here provides us with a sense of when the trend toward avoiding verbal zero may have begun.

In deciding which linguistic constraints to consider, we began by taking into account many of the constraints that have been considered in studies of verbal -s. We begin with these, before turning to other constraints that we believed were worthy of consideration here.

The NP-PRO constraint. This considers the extent to which rates of marking are influenced by whether the subject of the verb is a noun phrase (NP) or a pronoun (PRO). Many studies have found that -s is more common after NPs than after pronouns—the so-called NSR (Rupp & Britain, 2019:39–47; see also Bailey, Maynor, & Cukor-Avila, 1989:289; Cheshire & Ouhalla, 1997; Godfrey & Tagliamonte, 1999:109; Hazen, 2000:133), while others find no effect (Clarke, 1997:236–237; Poplack & Tagliamonte, 1989:66). In investigations of verbal zero in East Anglia, researchers have thus far consistently found the opposite effect, more -s after pronouns, the East Anglian Subject Rule (Kingston, 2000:48; Potter, 2018:152; Rupp & Britain, 2019:135). It is worth remembering at this point that verbal -s varieties often include the effect of NP versus PRO in third-person *plural* contexts, whereas in East Anglia it can *only* apply in third-person *singular* contexts.

East Anglian English is well known to use *that* instead of *it* as a dummy pronoun, as in (8) (Trudgill, 2004:146–147). This dummy “it/that” is non-referential (see Seppänen, 2010:451) and we therefore decided to treat it separately from referential third-person pronouns. Accordingly, we coded for three categories here: Dummy “it/that” as in (8), PRO as in (9), and NP as in (10).

- (8) *that make a difference really you know when you don't go and you don't know what to do*
- (9) *that's the only thing what she disagree with*
- (10) *my husband go there a lot*

Subject-verb adjacency. This examines the effect on marking of whether the subject is adjacent to the verb or not. Very often this is considered in combination with NP or PRO subject status, since in many varieties of English with verbal -s, marking is less likely where a pronoun is adjacent to the verb and more likely if the subject is an NP or a nonadjacent pronoun.

We distinguished at first between subjects adjacent to the verb, as in (11), not adjacent, because, for example, of an intervening adverb, as in (12), and not adjacent because the subject is syntactically distant, for example where the subject is in the matrix clause but the verb in a relative clause, as in (13). We merged the latter two when our analysis showed no difference between them.

- (11) *he work at the chocolate factory too*
- (12) *the ball hardly ever get near the end*
- (13) *I'll say the first thing what come into my head, you know*

Subject heaviness. Some studies of verbal -s have found that heavier subjects are more likely to occur with -s than “lighter” subjects (e.g., Hazen, 2000:135; Poplack & Tagliamonte 1989:66; see also Rupp & Britain, 2019:Chapter 2). Here we considered heavy NPs (i.e., conjoined NPs, NPs with prepositional phrases or relative clauses), shown in (14), in contrast with light NPs, such as proper names and pronouns.

- (14) *a fat one with long hair always use a hat*

Structural aspect. Many scholars investigating verbal -s varieties have found that -s is more often used in habitual contexts, as opposed to durative or punctual ones (e.g., Clarke, 1997:242; Comeau, 2011:36; Godfrey & Tagliamonte, 1999:106; Montgomery & Fuller, 1996:221; Poplack & Tagliamonte, 1989:68; Van Herk & Walker, 2005:124; Walker, 2001:23). Mitchell (2019:153), however, found no effect of grammatical aspect on contemporary African American Vernacular English (AAVE). Studies of children's use of -s/zero marking show the opposite result—that is, -s to be *less* likely in habitual contexts than non-habitual (e.g., Oetting, Berry, Gregory, Riviere, & McDonald, 2019).

We distinguished here between *habitual*, referring to an event that repeatedly takes place, as in (15), *durative*, when referring “to an event or process that extends in time or a state that exists continuously,” shown in (16), and *punctual*, when referring “to an event (hypothetical or otherwise) understood to have occurred once,” as in (17) (Godfrey & Tagliamonte, 1999:105). Some tokens, such as (18), along with *have* and *do* as lexical verbs, were excluded from the analysis of structural aspect, because the verb does not have concrete semantic content.

- (15) *Mr. Higgs take you for cricket practice on a Thursday*
- (16) *where the City Hall now stand*
- (17) *his case come up next Tuesday*
- (18) *as it happens, they go to a Catholic school*

Definiteness. Some studies have found that -s is more common with definite rather than indefinite subjects, especially when considering just pronouns (Kingston, 2000; Poplack & Tagliamonte, 1989:67). We therefore contrasted definite subjects—including personal pronouns, proper nouns, and NPs preceded by definite determiners such as definite articles, possessive adjectives, numerals, etc.—shown in (19)–(20)—with indefinites, including indefinite pronouns and NPs preceded by the indefinite article and with no determiner, such as (21).

- (19) *he sing* it in one of his songs
- (20) that's something like the poems *my boy write*
- (21) once *a person gets* in it, you know

Verb strength. Poplack and Tagliamonte (1989:69) found that weak verbs promote -s, arguing that this is the context in which it is most crucial to distinguish present-tense verbs from past-tense verbs with deleted -t/d. Godfrey and Tagliamonte (1999:102), meanwhile, found that lexical *do* and *have* are much less likely to have -s than other verbs. Our analysis, therefore, contrasts lexical *have* (22), strong (23), and weak (24) verbs, as shown below.

- (22) It *has* the same things as any other big town
- (23) I don't know who she *take* after
- (24) he *wish* he'd have kept on in the police

Clause type. Clarke (1997:245) found that -s was more likely in embedded clauses than in main matrix clauses in Newfoundland English, as did Kingston (2000:50) for East Anglian English. We distinguish, therefore, between matrix (25) and embedded (26) clauses in our coding.

- (25) he usually put the chocolate and the sugar on the sugared almonds
- (26) but one thing *that stands out in my mind* is pulling down the buildings

Complement type. Cheshire (1982a:39–42; see also Cheshire & Ouhalla, 1997), discussing Reading in southern England, found that when a non-third-person singular present-tense verb is followed by a tensed clausal complement, it is almost never marked with -s. We therefore coded clausal complement type as either finite (27), non-finite (28), or none, where the verb could have had a clausal complement but did not (29). We excluded many tokens here because they could not take a clausal complement, exemplified in (30).

- (27) he always say *he wish* he could come back to Norwich
- (28) he seem *to prefer* the London clubs
- (29) and now he agrees
- (30) he sing in a band and that

Frequency. In order to check for any potential effect of frequency, we divided our tokens into verbs that were, in our corpus as a whole, at five different frequency levels

in third-person singular contexts: least frequent (i.e., 1 token of the verb in the entire corpus; e.g., *haunt*), less frequent (2–4 tokens; e.g., *correct*), average (5–10 tokens; e.g., *work*), more frequent (11–24 tokens; e.g., *go*), most frequent (25 or more tokens; e.g., *say*).

Preceding and following phonological environment. A number of studies have considered phonetic/phonological factors constraining -s use. Poplack and Tagliamonte (1989:64) found that stems in Samaná English ending in vowels were more likely to trigger -s than those ending in consonants, as did Godfrey and Tagliamonte in contemporary Devon English (1999:106), but only in third-person singular and second-person contexts. As far as following phonological environment is concerned, in third-person singular contexts, Poplack and Tagliamonte (1989: 64) found more -s when vowels followed. Similar findings are reported in Godfrey and Tagliamonte (1999:106). However, Clarke (1997:242) and Kingston (2000:50) did not find phonological environment to be significant.

To examine preceding phonological environment, we compared stems that were vowel-final (31) with those that were consonant-final (32). We excluded tokens of lexical *have* here, because the stem alters depending on the variant: *have* versus *has*.

- (31) that's the only thing what she *disagree* with
- (32) my dad *bring* me in the car in the mornings

To examine following phonological environment we compared verbs that were followed by a vowel (33) with those followed by a consonant (34) and those which, for a range of reasons (they were tone-group final, turn final, followed by pauses, etc.), did not have a following vowel or consonant, shown in (35).

- (33) we take the bus and that *take us* right outside, you see
- (34) the 97 *leaves mine* at five to.
- (35) that's what that word mean

Morphemic syllabicity. This constraint considered whether, in order to add, or potentially add, morphological -s, the nature of the coda of the final syllable of the stem required the morpheme to be located in a distinct following syllable. This is the case when the stem ends in /s z tʃ dʒ ʃ ʒ/. Poplack and Tagliamonte (1989:64) found that -s was more likely if the resulting morpheme needs its own syllable than if it does not. Clarke (1997:244) found the opposite. We considered this factor, contrasting forms where the -s morpheme would form part of the same syllable as the final syllable of the stem, as in (36), or not, as in (37).

- (36) he always *take* the mickey out of me
- (37) that *amuse* me a little bit about wanting to go after OB again

Voicing of the morpheme. This constraint considers whether the morpheme is or would have been, if realized, -[s] or -[z], depending on the voicing of the coda of the preceding stem. Poplack and Tagliamonte (1989:64) found that -s is more likely to

be present in Samaná English if it would be realized as voiced rather than as voiceless, partly a correlate of the fact that preceding vowels (all voiced) also triggered more -s. We contrasted what were or would have been (if they had been realized) voiced realizations of -s, as in (38), with voiceless ones, as in (39).

- (38) my wife *prefers* to shop in St Benedict's
 (39) she *get* ever so raw about that

We also took into consideration a few other constraints that are less commonly considered in the literature on -s, described below.

Animacy. Rupp and Britain (2019:88–96) put forward an argument to motivate the use of -s based on iconicity (Haiman, 1980), providing evidence that, in contexts of -s/zero variability, the strategic use of -s means that “some additional meaning is being attached. Very bluntly, -s signals that more work is being done” (2019:95), whether it be signaling that subjects are discourse-heavy, discourse-new, separated from the verb, signaling that events are recurrent in the case of habituality, distinguishing between different narrative events in the past, or marking particular local identities. In light of this, we decided to consider animacy as a potential constraint. Canonically, subjects tend to be animate, while objects are more likely to be inanimate (e.g., animate subjects do things to inanimate objects). McLaughlin (2014:97) argued that “depending on the theoretical framework, inanimate subjects are viewed as non-default, non-canonical, marked, unexpected, containing more information, etc., no framework views inanimate subjects as the norm in non-specialized contexts.” We were intrigued by the possibility, given that inanimate subjects are, relatively speaking, marked, that their presence might lead to greater amounts of -s marking to “call attention to” the non-canonical nature of the inanimate in this position. We included it, therefore, in our coding, distinguishing animate (40) from inanimate (41) (we did not have animal but nonhuman subjects in our corpus).

- (40) my daughter always *laugh* about that
 (41) the ball hardly ever *get* near the end

McLaughlin (2014) considered animacy in some depth, looking not just at third-person present-tense verb marking and copula deletion in AAVE, but also auxiliary contraction in Mainstream American English, with the aim of demonstrating “that animacy has farther-reaching effects than previously thought, and is a crucial factor in morphosyntactic variation in multiple varieties of English, in multiple variables” (2014:1). She reported that animate subjects were less likely to have -s than inanimate subjects (2014:81).

Lexical aspect. We also decided to consider lexical aspect in our analysis, following Comeau (2011), Mitchell (2019), and Walker (2001) who all found duratives triggering more -s than punctuals. Structural aspect considers how temporality is syntactically constructed through, for example, verbal morphology, but also through other context-providing elements of the clause, whereas lexical aspect considers inherent

semantic properties of the verb. Structural aspect can therefore readily differ even with the same verb. The examples below show habitual (42), punctual (43), and durative (44) aspect.

- (42) Kim goes to the gym regularly.
- (43) Kim goes tomorrow morning at 9 am.
- (44) Kim goes slowly to the shop, listening to music.

According to Binnick (2021:244), lexical aspect “concerns the classification of ... states of affairs or occurrences, in terms of their temporal properties.” Following Comrie (1976), we coded lexical aspect as a binary distinction between *duratives*, on the one hand, and *punctuals*, on the other. Durative verbs include those that describe *states* as in (45), *activities*, such as (46), and *accomplishments*, such as (47). Punctuals, on the other hand, include *achievements*, such as (48), *instantaneous things* that just take a moment, such as (49), and *completed actions of short duration*, such as (50). In order to distinguish between achievements and accomplishments, Rothstein (2004:6) explained that “achievements are near-instantaneous events which are over as soon as they have begun, such as ‘notice’; and accomplishments are processes which have a natural endpoint, such as ‘read the book.’” A number of tokens were excluded from the analysis of lexical aspect, including verbs such as *seem* and *depend*, because, as with structural aspect discussed above, these verbs lack concrete semantic content.

- (45) the wife’s relations, one of those *live* at Ipswich
- (46) he *make* mustard
- (47) well, he *takes* the register
- (48) once he *gets* his qualification
- (49) nothing *springs* to mind, to be honest
- (50) they blow up the mountain what *falls* on top of them

Results

We found 457 tokens in the corpus, with the verbs either being unmarked (zero) or marked with -s. Table 2 presents both the descriptive results as well as a statistical analysis of the different social and linguistic constraints that we considered. Given that, historically, Norwich English did not have -s in the system (Trudgill 1998), we plot the use of -s, the innovation, rather than the use of zero. Low token numbers are a problem for statistical analyses, especially for factor groups with more than two factor levels. Therefore, statistical descriptions here are focussed primarily on relative distributions. The overall use of -s versus zero is 54.7%–45.3%; in other words, -s is slightly more favored in general. For the analyses of the various factor effects discussed below, the additionally presented logodds provide a clearer picture of how certain factor levels favor or disfavor -s. These figures are obtained from simple one-level generalized linear mixed effects regression models, where *speaker* is included as a random effect (*lme4*, version 1.1-35.1; Bates, Mächler, Bolker, & Walker, 2023). As the reference level was set at zero, a minus score in the logodds marks a preference for zero, a positive score a preference for -s.

Table 2. Social and linguistic constraints on the use of third-person present tense -s in the Trudgill Norwich Corpus

Constraint	Use of -s		Log odds of factor	Factor group significance
	N	%		
Social constraints				
Social class (***)				$p < .001$
Working class	162/341	47.5%	-0.71	
Middle class	88/116	75.9%	2.20	
Gender				
Female	125/227	55.1%		n.s.
Male	125/230	54.4%		
Social class + gender (**)				$p = .002$
Female working class	82/164	50.0%	-0.46	
Male working class	80/177	45.2%	-0.86	
Female middle class	43/63	68.3%	2.69	
Male middle class	45/53	84.9%	1.90	
Age				
12–24 (b. 1945–1957)	86/168	51.2%		n.s.
25–44 (b. 1925–1943)	58/75	77.3%		
45–64 (b. 1907–1920)	95/180	52.8%		
65+ (b. before 1902)	11/34	32.3%		
Linguistic constraints				
Animacy (***)				$p < .001$
Animate	127/280	45.3%	-0.56	
Inanimate	123/177	69.5%	0.56	
Subject type and adjacency (**)				
Adjacent NP	33/63	52.4%	-0.07	$p = .002$
Nonadjacent NP	17/39	43.6%	-0.75	
Adjacent PRO	155/283	54.8%	-0.02	
Nonadjacent PRO	18/37	48.7%	-0.35	
Adjacent dummy	17/25	68.0%	0.02	
Nonadjacent dummy	10/10	100%	18.91	
Subject type + animacy (**)				
Animate NP	24/64	37.5%	-0.80	$p = .008$
Animate PRO	103/216	47.7%	-0.43	
Inanimate NP	26/38	68.4%	0.35	
Inanimate PRO	70/104	67.3%	0.49	
Inanimate dummy	27/35	77.1%	0.97	

(Continued)

Table 2. (Continued.)

Constraint	Use of -s		Log odds of factor	Factor group significance
	N	%		
Lexical aspect (**)				$p = .003$
Animate punctual	72/187	38.5%	-0.56	
Animate durative	55/90	61.1%	0.03	
Inanimate punctual	39/62	62.9%	-0.20	
Inanimate durative	55/81	67.9%	1.02	
Verb type (**)				$p = .004$
Strong	119/254	46.9%	-0.33	
Weak	115/186	61.8%	0.13	
Lexical have	16/17	94.1%	2.24	
Structural aspect (*)				$p = .016$
Habitual	44/108	40.7%	0.24	
Punctual	46/103	44.7%	-0.66	
Durative	131/209	62.7%	-0.47	
Structural aspect + animacy (*)				$p = .025$
Animate habitual	35/93	37.6%	-0.47	
Animate punctual	25/71	35.2%	-0.98	
Animate durative	67/113	59.3%	0.05	
Inanimate habitual	9/15	60.0%	-0.27	
Inanimate punctual	21/32	65.6%	0.07	
Inanimate durative	64/96	66.7%	0.72	
Would suffixation require an additional syllable (~)				$p = .051$
-s is/would be in same syllable as stem	242/438	55.2%	-0.02	
-s is/would be in a different syllable from stem	8/19	42.1%	-1.23	
Subject type (~)				$p = .06$
NP	50/102	49.0%	-0.34	
PRO	173/320	54.1%	-0.08	
Dummy	27/35	77.1%	1.01	
Definiteness				n.s.
Definite	237/430	55.1%		
Indefinite	13/27	48.1%		
Position				n.s.
Finite	17/24	70.8%		
Nonfinite	21/39	53.9%		
None	37/76	48.7%		

(Continued)

Table 2. (Continued.)

Constraint	Use of -s		Log odds of factor	Factor group significance
	N	%		
Complement type				n.s.
Finite	17/24	70.8%		
Nonfinite	21/39	53.9%		
None	37/76	48.7%		
Preceding phonological environment				n.s.
Vowel	45/101	44.6%		
Consonant	189/339	55.8%		
Following phonological environment				n.s.
Vowel	81/135	60.0%		
Consonant	150/280	53.6%		
Clause or tone group final	19/42	45.2%		
Does verb stem trigger a voiceless or voiced suffix?				n.s.
Voiceless -[s]	75/142	52.8%		
Voiced -[z]	175/315	55.6%		
Verb frequency count				n.s.
Most frequent	32/41	78.1%		
More frequent	40/83	48.2%		
Average	64/109	58.7%		
Less frequent	74/107	69.2%		
Least frequent	40/117	34.2%		
Total	250/457	54.7%		

Factor group significance symbols: *** $p < .001$, ** $p < .01$, * $p < .05$, ~ = $p < .06$, n.s. = $p > .06$, not significant; the higher the logodds, the more likely -s is favored in the factor.

Considering social constraints on variability first, we found, as expected, that the social class of the speaker was very important in determining variability between -s/zero marking; it was the strongest constraint of any in the analysis, social or linguistic ($p < 0.001$, see Table 2). Middle class speakers used considerably more -s (75.9%, logodds: 2.20) than working class speakers (47.5%, logodds: -0.71). Gender was not significant alone, but it was when combined with social class ($p = 0.002$). Our results showed that working class men (45.2% -s, logodds: -0.86) were the least likely to use -s, and middle class men the most (84.9% -s, logodds: 1.90). Age was not significant. The results for age revealed a tendency among the over 25s for an apparent time shift toward -s, which, as we know from analyses of later datasets, is indeed the ultimate trajectory of community change (e.g., Potter, 2018). Nevertheless, the 24 years and under group, born after the end of World War II, most of whom in the Trudgill corpus were young

teenagers, had lower levels of -s (51.2%) than the 25- to 43-year-old group (77.3%), born between 1925 and 1943, in the sample. Token numbers in the 25–44 and 65+ groups are, however, low.

One of the two main goals in this analysis was to investigate *linguistic* constraints on verbal zero and to do so in a variety that still showed healthy levels of the traditional zero variant. As in many studies of this morphological feature in verbal -s varieties, structural aspect was found to be significant ($p = .016$), but not in the direction often reported. Duratives had most -s (62.7%, logodds: 0.24), rather than habituais (40.7%, logodds: -0.47). Verb type showed more -s with weak verbs (61.8%, logodds: 0.13) than strong ones (46.9%) ($p = 0.004$, logodds: -0.33), suggesting that the stem alone of strong verbs reveals whether the form is present or past, so -s is less critical in marking tense. Lexical *have* meanwhile had very high levels of -s (94.1%, logodds: 2.24) in comparison to other verbs. The analysis also showed the importance of distinguishing dummy “it/that” from referential pronouns ($p = 0.06$): dummies were much more likely to use -s (77.1%, logodds: 1.01) as compared to non-dummy pronouns (54.1%, logodds: -0.08). A good number of these were in fixed expressions, such as *it (all) depends* and *as it happens*, which have a very strong tendency to use -s (even though zero is possible). Following our analysis of the subject type and adjacency effect, we found the East Anglian Subject Rule in operation: -s is more frequent after adjacent pronouns than elsewhere (except with the dummies, which again behaved very differently).

The statistical analysis supported our decision to consider both animacy ($p < 0.001$) and lexical aspect ($p = 0.002$). Inanimate subjects very strongly favored -s (69.5% [logodds: 0.56] versus 45.3% [logodds: -0.56] for animates), as did verbs with durative lexical aspect (64.3% [logodds: 0.36] versus 44.6% [logodds: -0.51] for verbs with punctual lexical aspect). Animacy proved to be significant *in combination with a number of other constraints*. The significant animacy and subject type combination ($p = 0.008$) showed that animate NPs are least likely to have -s and inanimate dummies and PROs the most likely.¹ In combination with structural aspect, -s was least likely with animate punctuals (35.2%, logodds: -0.98) and animate habituais (37.6%, logodds: -0.47) and most likely with inanimate duratives (66.7%, logodds: 0.72). Finally, in combination with lexical aspect, animate punctuals (38.5%, logodds: -0.56) attracted least -s while inanimate duratives had most -s (67.9%, logodds: 1.02). The combinations of animacy and lexical aspect, and animacy and structural aspect were both significant ($p = 0.003$ and $p = 0.025$, respectively).

A number of the constraints we considered, often found to be significant in the analysis of verbal -s varieties, were not significant in the simple, one level generalized linear mixed effects model: the phonological factors, subject definiteness, syntactic position, frequency, or type of complement clause. Given the nature of this legacy dataset—collected to elicit different styles of speech within a sociolinguistic interview—the numbers of tokens within the conversational style sections of the Norwich interviews is quite small ($n = 457$). We need therefore to be cautious about the accuracy of this kind of model. Following Tagliamonte and Baayen (2012), therefore, we compared the output of the model above with a random forest analysis of the dataset (*randomForest* version 4.7-1.1; Breiman & Cutler 2022), particularly suited toward investigations of

variables with relatively few tokens. The same constraints were used as in the model described above, and the results can be seen in Figure 3.

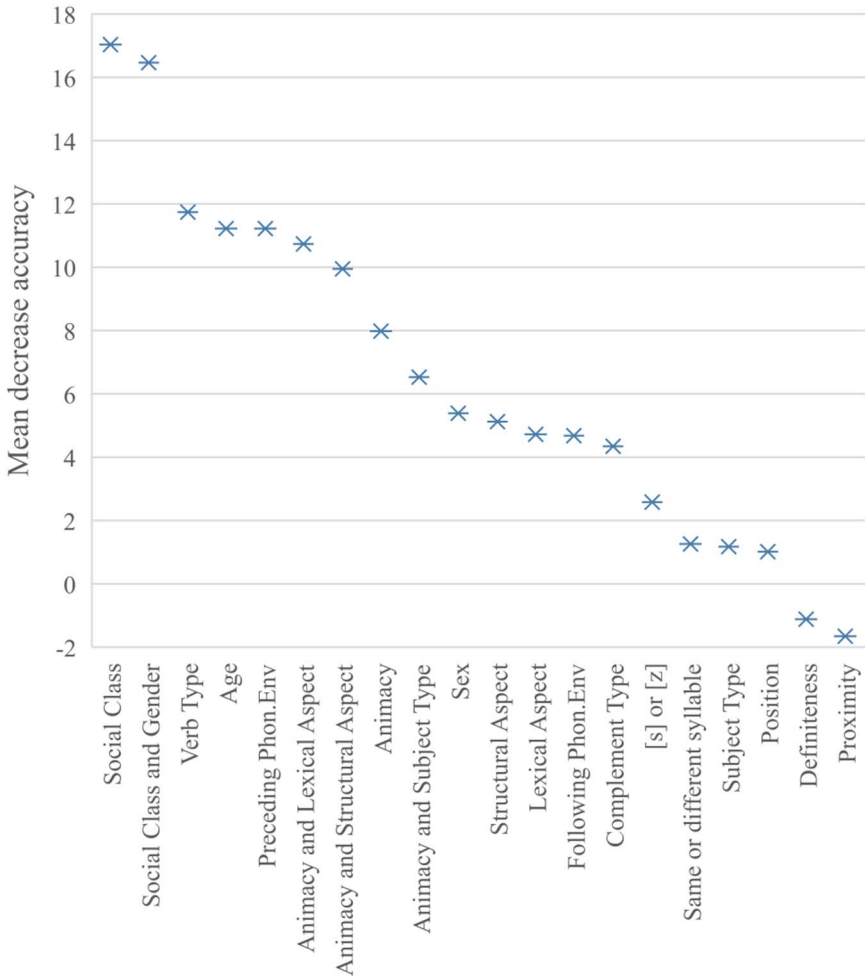


Figure 3. Random forest analysis of constraints on the use of third-person present tense -s in the Trudgill Norwich Corpus.

Reassuringly, those factors that were modelled as being significant in shaping variation in the one level *glmer* also show relatively high mean decrease accuracy scores—in other words, the random forest analysis also shows that these factors account for a significant amount of the variability in the dataset. Two factors that were flagged as important in the random forest analysis that were not significant in the mixed effects model above were age (see discussion above) and following phonological environment. Our descriptive statistics showed that -s marking is more common before a vowel than a consonant, a confirmation of findings elsewhere by Poplack and Tagliamonte (1989:64) and Godfrey and Tagliamonte (1999:106). Both statistical analyses flag the

importance of the interaction of animacy and aspect in explaining variability in -s/zero, a finding which, as far as we are aware, has not been found (or sought) in other investigations of this variable. It is this specific finding that we explore in more detail in the discussion, therefore.

Discussion

Norwich speakers variably use the -s morpheme, but only in third-person singular contexts. Since speakers of Standard English use -s as the present-tense third-person singular agreement marker, a null assumption could be that -s has the same function as an agreement marker among the Norwich speakers. This would be in line with other examples of gradual morphosyntactic convergence toward Standard English (such as the decline in the use of relative pronoun *what* [Britain, 2020]). However, our analysis has highlighted a range of linguistic factors that constrain -s/zero marking, demonstrating that more is going on with the deployment of -s than mere agreement. We have noted, for example, the strong preference for -s after dummy pronoun subjects (77% -s), and further evidence of the importance across English of subject type—as in other East Anglian Englishes, -s is preferred after pronouns (overall 56.3% [PRO + dummy PRO] -s versus 49% after NPs): the East Anglian Subject Rule. In addition, however, animacy and lexical aspect turn out to be significant conditioning factors. Norwich speakers favor -s with inanimate subjects (69.5% versus 45.3% animate) and favor zero with animate subjects both of verbs with punctual lexical aspect (only 38.5% -s) and of events with habitual (only 37.6% -s) and punctual (only 35.2% -s) structural aspect. But why should animacy and aspect play a role in -s/zero marking?

We begin with animacy. One grammatical phenomenon in which animacy is well-known to be a key factor is “differential argument marking” (DAM). We first sketch the theory of DAM before we consider if it might be responsible for the favoring of -s marking with inanimate subjects. Under DAM, a language does not mark all subjects and/or objects in the same way. This gives rise to split-subject (DSM) and split-object (DOM) languages.² Zooming in on subjects (but the same applies to objects), Ritter and Rosen (2005:28) noted that “some subjects receive nominative Case, while others do not; or some subjects trigger agreement, while others do not; or some subjects are in a designated position, while others are not.”

Why does DAM happen? It is thought that arguments are marked differently depending on the extent to which they are *of a prototypical type* (that is, their canonicity). If an argument is noncanonical, it gets “flagged” by special marking. In his analysis of the marking of subjects and objects in Chinook and Dyrbal, Silverstein (1976) found that it is those subjects and objects that are unusual from the point of view of animacy that are specially marked: with ergative and accusative case, respectively. He therefore proposed an “animacy hierarchy” distinguishing referents that are high to low in animacy. The animacy scale is exemplified below and should be seen as a continuum (Comrie, 1989:128).

Atypical *objects* are NPs high on the animacy scale. The scale applies to subjects as a mirror-image. Subjects are more likely to be animate and so atypical *subjects* have a low degree of animacy: “exactly what is marked for objects is unmarked for subjects,

Animacy hierarchy³

<-high in animacy

low in animacy->

First/second person pronouns > other human noun phrases > animal noun phrases > inanimate noun phrases

and vice versa” (Aissen, 2003:438). The general trend, therefore, is that animate objects and inanimate subjects get marked in preference to objects and subjects at the other end of the hierarchy. Following Comrie (1989:128),

the most natural kind of transitive construction is one where the A[gent/Subject] is high in animacy, and the P[atient/Object] is lower in animacy and definiteness; and any deviation from this pattern leads to a more marked construction. ... [T]he construction which is more marked in terms of the direction of information flow should also be more marked formally, i.e., we would expect languages to have some special device to indicate that the A is low in animacy or that the P is high in animacy.

For illustration, an example of DAM is provided in (51). Haspelmath (2008:2), among others, reported that in Spanish, the preposition *a* is used before the object of the verb when the referent is human, but not when it is an animal or inanimate.

- (51) *El director busca el carro/el perro/a su hijo.*
 ‘The director is looking for the car/the dog/his son.’

Let’s take a look at some other characteristics of DAM to frame the context in which its application to Norwich -s/zero marking can be assessed:

- (a) DAM is found across a wide range of languages in the world (e.g., Bossong, 1985:VIII, Comrie, 1989:132ff; Dixon, 1994:Chapter 4).
- (b) In addition to being structured according to animacy, DAM may be determined by other dimensions. The second, main dimension is “definiteness,” with a definiteness scale ranging from pronoun > proper name > definite NP > indefinite specific NP > nonspecific NP (Aissen, 2003:437). Some languages only implement the parameter of definiteness in DAM (e.g., Catalan), some only that of animacy (e.g., Yiddish) and some show a combined effect of the two parameters (e.g., Romanian) (Aissen, 2003:449ff). In addition, it has been reported that “aspect” may also be a factor. Recall that we did not find a significant definiteness effect for Norwich -s; we will turn to the results for aspect below.
- (c) DOM and DSM are related and parallel phenomena but exist independently (Aissen, 2003:473). Languages may have one but not the other. DOM is more common than DSM. Aissen has argued that languages may show fewer distinctive marking systems for subjects because subjects—more frequently than objects—enter into subject-verb agreement relationships where they are “already” flagged through an agreement morpheme on the verb. This would make DSM redundant. Recall, however, that in the specific case of Norwich, speakers come from a situation in which -s was not previously used for subject-verb agreement.

- (d) The most common form of DAM is marking on the NP, but marking on the verb (e.g., agreement) or differential syntactic positioning can occur, too (Comrie, 1989:129).
- (e) Finally, DAM may be operationalized with two different morphemes, but Aissen (2003:446) cited Bossong (1985:125) that “[o]verwhelmingly, DOM is implemented by overtly marking the marked class of objects, and leaving the unmarked ones with no morphological mark.” Zero marking can involve the complete *absence* of a morpheme, in which case the canonical argument is not specified for a feature that would be carried by a noncanonical argument. Zero marking can also be a *silent* morpheme that is not overtly spelled out. In that case, the canonical and the noncanonical argument have the same feature specification.

Having set out some of the basic tenets of DAM theory, we now return to the Norwich data: Norwich speakers favor -s with inanimate subjects (69.5% versus 45.3% for animate). We would like to suggest the following scenario, along the lines of DSM. In Norwich, -s is variably used for subject-verb agreement and speakers deploy -s to mark atypical, inanimate subjects, as in (52). In contrast, more ordinary animate subjects continue to be used more often with a zero-marked verb, as in (53). Recall that inanimate subjects show -s marking 24% more often than animate subjects (see Table 2).

(52) *and the grammar* always annoys me

(53) *my dad bring* me in the car in the mornings

We assume that zero is morphologically zero subject-verb agreement specification, not the absence thereof.⁴ There is independent evidence to suggest this: Norwich speakers use zero-marked verbs with nominative subjects (A. Radford, personal communication, March 29, 2022). It would be interesting to investigate whether in more contemporary data from East Anglia, speakers still deploy -s according to DSM or have fully regularized the use of -s to both animate and inanimate subjects alike. We are currently investigating this in a contemporary corpus of EAE.

What about our results for the effect of lexical and structural aspect? We found that -s was used considerably more often to mark verbs with durative lexical aspect (64.3% versus 44.6% for punctual verbs) and events with durative structural aspect (62.7% versus less than 45% for both habitual and punctual events; see Table 2). Recall that consideration of the interaction of animacy with aspect revealed that it was primarily animate NPs that were responsible for this effect, showing the least -s with punctual verbs and with habitual and punctual events. What we appear to see here is the other side of the DSM coin, that of canonical subjects being zero marked. Below, we explore this possibility within the syntactic framework of Ritter and Rosen (2005).

Although discussed less frequently in the literature, Ritter and Rosen (2005) identified aspect as another parameter in both DOM and DSM. They pointed out that in some languages (e.g., Mandarin, Finnish) DOM is not only conditioned by inherent properties of the object such as definiteness but also by properties of the verb. For example, objects can occur in different syntactic positions depending on the boundedness (telicity) of the event described by the verb. They postulate that in these languages,

event delimitation is grammaticized and encoded in the syntax by means of an aspectual phrase (AspP). In the case of telic events, in formal syntax terms, the object raises to the specifier position of this higher-situated AspP in order to delimit the event. In the case of non-telic events, on the other hand, the object need not serve to delimit an event and so it does not move to Spec,Asp.

We now turn to DSM and aspect. Ritter and Rosen (2005:28ff) reported that, across languages, two types of DSM can be observed: (1) subject splits based on animacy (as we have already seen) and (2) subject splits based on thematic role; specifically, whether the subject is agentive or not. Agents are arguments, or event participants, that “typically initiate, cause, or control the event” (Ritter & Rosen, 2005:30). Crediting Dowty (1991), Ritter and Rosen (2005:28) argued that the two subject splits may be separate phenomena but can operate in tandem: this is because “prototypical agents are highly animate” whereas NPs that are low on the animacy scale are not. They suggest, further, that it is the grammaticization of *event initiation* or *agentivity* that may lead to a differential syntax of animate/agentive subject on the one hand and other subjects on the other (see Ritter & Rosen, 2005:28–30 for details of their argument).

We now return to the Norwich data and the finding that animate NPs disfavor -s and favor zero with lexically punctual verbs (54) as well as habitual (55) and punctual (56) structural aspect.

(54) *Mr. Herbert take* you for cricket practice

(55) *my daughter* always *laugh* about that

(56) *another boy say* 1937

We adopt Ritter and Rosen’s idea (2005:28) that “animacy restrictions are a way of encoding agentivity in the agreement system.” To their proposal we would like to add the dimension of verb/event type: volitional involvement is also a typical characteristic of punctual verbs and habitual and punctual events—note, for example, that there are languages in which the subject of an “active” predicate cannot be inanimate (Ritter & Rosen, 2005:32). We follow Ritter and Rosen’s view that animate NPs raise to Spec,TP and assume that in Norwich the differential marking is morphosyntactic: T(ense) is not spelled out as -s when the NP is canonically agentive in relation to the verb/event type.

In conclusion, we propose that -s as used by the speakers in Trudgill’s (1974) corpus is a third-person singular present tense morpheme, deployed differentially according to the animacy of the subject and the aspect of both verb and event. We hope here to have made empirical as well as theoretical contributions to research on language variation and change, grammatical theory, and linguistic typology. Empirically, we have provided detailed documentation of -s/zero marking in the verbal zero variety of Norwich. We have also demonstrated the analytical importance for language variation and change of considering the interaction and canonical distribution of internal linguistic constraints on variability. Theoretically, we have provided evidence that animacy is a productive parameter in English, a language that is not well-known for extensive animacy effects in grammar (McLaughlin, 2014). Hundt and Szmrecsanyi (2012:241), who discussed animacy effects in genitives, datives, relativizers, and progressives across varieties of English varieties, stated that “animacy matters” and we would concur with this. We have added to the inventory of animacy effects in English

by demonstrating that it conditions the differential marking of subject-verb agreement among Norwich speakers: overt with -s and covert with zero. And we have attempted to explain the (interactive) effects of animacy and aspect by drawing on differential subject marking, a structural pattern that the literature suggests is very common across the world's languages but has rarely been considered for English (but see Levey, Klein, & Abou Taha, 2020 on the marking of indefinite referents via *this* or the indefinite article). Our discovery of DSM in the English verbal marking system demonstrates once again the fruitfulness of approaches that combine grammatical theory with empirical investigations of language variation and change.

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Competing interests. The authors declare none.

Notes

1. We also ran a regression wherein subject type combined with animacy was examined along a simple binary NP-PRO division, with dummies treated as PRO. This combination was also significant at $p < 0.01$.
2. The term “differential argument marking” has been extended from “differential object marking” to include subjects. The latter, original and more restricted term has been ascribed to Bossong (1985).
3. In this hierarchy we subsumed *he* and *she* together with other human noun phrases and *it* with inanimate noun phrases. We had no animate nonhuman subjects in our corpus.
4. This is therefore compatible with the apparent relation between subject-verb agreement and animate subjects that has been observed. According to Comrie (1989:191ff), it is a “common, motivated pattern” that “agreement agrees with noun phrases higher in animacy, and fails to agree with those lower in animacy.” We assume that in Norwich English, animate subjects agree no less with the verb than inanimate subjects, only through a different kind of morpheme.

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