Is the English possessive *'s* truly a right edge phenomenon?*

Alan Scott, David Denison & Kersti Börjars
The University of Manchester
2ICLCE, Toulouse, 2 July 2007

1. The English possessive

The English possessive marker *'s* – also frequently referred to as the genitive – is commonly described as a CLITIC. In fact, in many textbooks, it is the standard example of a clitic:

> In addition to inflectional affixes, there is another class of bound morphemes called **clitics**, which may be appended to independent words by syntactically motivated rules. Words to which clitics are attached are called **hosts** (or **anchors**). *Mary*, *Tonga*, and *newspaper* are the hosts of the genitive clitic *-s* in [10.58]:
>
> [10.58] a. Mary's car
>   b. The Queen of Tonga's tiara
>   c. The editor of the Manchester Guardian newspaper's car
>
>   (Katamba 1993: 245)

Or:

> The *-s* ending is not a case ending in the sense which applies to languages such as Latin, Russian, and German. It can be more appropriately described as a 'postposed enclitic': *ie*, its function is parallel to that of a preposition, except that it is placed after the noun phrase.
>
>   (Quirk, Greenbaum, Leech & Svartvik 1985: 328)

Though the term 'clitic' is used to describe quite a wide variety of elements, we can generally describe it as some element which does not have the independence of a word (prosodically) but which is still positioned by the same rules as independent words, i.e. by syntactic rules.[1] This is indeed assumed to be the case with the possessive *'s*. With reference to the noun phrase *that man you met yesterday's bicycle*, Carstairs-McCarthy states:

---

[1] Since Zwicky (1977), it is common to distinguish SIMPLE CLITICS, which are genuinely positioned by the same rules as other full words, and SPECIAL CLITICS, which are positioned with respect to syntactic units but whose positioning is different from that of ordinary words in the language.

> What -*'s* attaches to is a whole noun phrase (*that man you met (yesterday)*),
> including whatever modifiers it may contain following the noun at its head
> (*man*, in this instance). So -*'s* belongs in the study of syntax, not morphology.
>
> (Carstairs-McCarthy 2002: 37)

The standard clitic analysis would lead one to expect a purely syntactic approach. Zwicky (1987) shows that this makes the wrong predictions about the interaction between *'s* and the word it attaches to. If the possessive *'s* was positioned by straightforward syntactic rules, the morpho-phonological interaction between this element and the word to which it attaches should only be of the kind that occurs between words, not the kind typical of morphological attachment such as affixing. In particular, the internal structure of the host word and the host phrase should be invisible to the clitic. This is often referred to as the Bracketing Erasure Principle (cf. Kiparsky 1982). The assumption is that a word is formed in the morphology, and once the word is inserted into the syntax, any morphological structure there may be has become invisible.[2] Zwicky (1987: 140-1) provides data which shows that native speaker choices with respect to the realisation of the possessive depend on whether the final element of the host word is part of the root or part of a suffix. Native speaker judgements on the data vary slightly in detail, but it does seem clear that speakers do make a distinction between the *'s* attaching to morphologically simple words on the one hand and to morphologically complex words on the other. By standard assumptions about the relation between morphology and syntax, this can be expressed as the possessive *'s* having some affix-like properties. The term 'phrasal affix' is then used to describe its behaviour (following work by Klavans 1983, 1985).

This terminology has now also been adopted by textbook authors:

> The morpheme *s* used here [e.g. in *the King of England's hat*] is historically a genitive suffix, but it has developed into a clitic that can be attached at the end of the possessor phrase. Hence it is sometimes called a phrasal affix.
>
> (Booij 2005: 166-7)

2. Formal analyses

2.1.   Clitic or phrasal affix

Under a clitic analysis, the possessive *'s* would usually be assumed to have independent syntactic status in the sense that it is found under its own terminal node in a syntactic tree. In

---

[2] Di Sciullo (2005: 92) describes the same property in the following way: 'a morphological phase is subject to a stronger form of the Phase Impenetrability Condition'.

recent analyses it would generally be assigned to the category Determiner because it is assumed to be connected to definiteness in a way similar to determiners (though see Lyons (1989, 1999: ?PAGES) and Koptjevskaja-Tamm (2003) for discussion of non-definite possessive noun phrases). This would give rise to trees such as (1) (see for instance Sag & Wasow 1999: 141): [can cite (Sag, Wasow & Bender 2003) 2nd edn?]

(1)
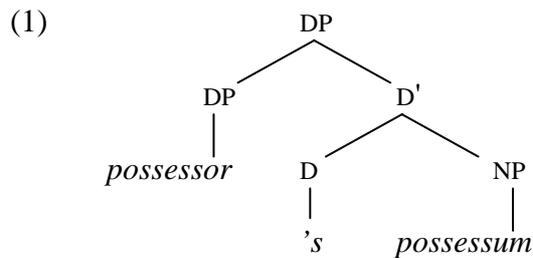
Since *'s* is prosodically deficient, it will always attach leftwards and hence end up on the right edge of the possessor DP.[3]

Using the formalism of Generalised Phrase Structure Grammar, Zwicky (1987) and later Lapointe (1990) and Miller (1992) provide analyses of the English possessive *'s* as a phrasal affix which aim to capture these apparently conflicting properties of being positioned syntactically but attaching morphologically. This is not the place to discuss the detail of these analyses, but they assume an EDGE feature which can have the feature values FIRST or LAST. This feature distributes from the mother node to the leftmost or the rightmost daughter, unlike most features, which distribute from mother to head daughter.

It should be clear at this point that the clitic and the phrasal affix analyses of possessive *'s* differ only in the view taken of the morphophonological interaction between the *'s* and the host word. They do not differ with respect to the placement of the *'s* within the phrase, which is unambiguously assumed to be at the right edge.

> It is well-known that the English possessive marker *'s* appears on the last lexical item of the possessive NP
>
> (Miller 1992: 341)

The distribution of the exponence of the feature POSS is governed by the linear precedence rule

---

[3] An alternative is to assume a zero determiner in D, which can co-occur with a possessor phrase in the specifier position (see for instance Adger 2003: 256-8). In such analyses, attention is rarely paid to the details of how the possessive *'s* gets positioned.

(2)   X < last

i.e. all elements precede the exponence of the LAST feature.

What these analyses have in common is that they take it as quite unproblematic to assume that possessive *'s* occurs on the right edge of the possessor noun phrase.[4]

2.2.   Predictions for possessive *'s*

The two types of analyses then make the same predictions with respect to the positioning of the possessive *'s*: it occurs on the right edge of the possessor noun phrase. It is well known that there are a number of constraints disfavouring possession being expressed by a possessive *'s* – as opposed to the *of*-construction – for instance inanimacy or low topicality of the possessor (see for instance Rosenbach 2002, 2003). If the clitic or right edge phrasal affix analyses are straightforwardly correct, then whenever the semantic and information structural constraints are met, we ought to get the *'s* possessive. The absence or presence of postmodification, the length of any postmodification or the category of the final word should not matter. This is captured in the first of the clitic criteria posited by Zwicky & Pullum:

> A.   Clitics can exhibit a low degree of selection with respect to their hosts [footnote omitted], while affixes exhibit a high degree of selection with respect to their stems. (1983: 503),

In this paper we will explore the extent to which right-edge positioning accurately captures the properties of the possessive *'s* in English.

3. *What descriptive grammars say*

Theoretical accounts predict that *'s* can be freely added (only) at the right edge of an NP. Descriptive accounts recognise that things are not quite so neat. Here in summary is how three major grammars describe the situation. All of them treat as a special case those *'s* phrases which are not specifiers or determinatives but modifiers, as in *women's universities* or *old people's home*. The type is called the DESCRIPTIVE GENITIVE (Quirk, Greenbaum, Leech & Svartvik 1985: 327-8), CLASSIFYING GENITIVE (1999: 294-5) or ATTRIBUTIVE

---

[4] Carstairs proposes an interesting alternative. He argues for the clitic status of the possessive *'s*, but accounts for the data described in Zwicky (1987) by assuming that the *s* which appears in examples like *the cats' tails* is not some sort of merger of the plural affix and the clitic possessive, but instead 'a purely inflexional (i.e. affixal) realisation of the combination of morphosyntactic properties Plural and Genitive' (1987: 159).

GENITIVE (Payne & Huddleston 2002: 469-70) and plays no part in the phenomena we are discussing.

3.1.   Quirk et al. (1985)

Quirk et al. devote most space to the choice between possessive *'s* and the *of*-genitive (1985: 318-31, 1275-82). Apart from the so-called descriptive genitive they treat all possessive *'s* as having the FUNCTION of determinative and the FORM of a 'postposed enclitic' which is 'placed after the noun phrase' (1985: 328):

> This view is inescapable if we take into account the so-called group genitive (or 'embedded genitive'), in which the genitive ending is added to a postmodifier:
>
>> the teacher of music's room ['the room of the teacher of music']
>
> Obviously the 'possessor' in this example is the teacher, not the music; but the *'s* cannot be added to the head, as one would expect if *'s* could only be a noun inflection. Instead it is regularly added to a prepositional postmodification which is part of a name or a compound noun phrase: [examples omitted]

The last sentence implies in practice that the *'s* always attaches to a noun – a restriction which would be striking. That extract came from an early chapter on 'Nouns and determiners'. In a later chapter on 'The noun phrase' they return to the group genitive as a case of multiple premodification (1985: 1344-5), where they state

> The group genitive is not normally acceptable when the postmodification is a clause, though in colloquial use one sometimes hears examples like:
>
>> *Old man what-do-you-call-him's* house has just been sold.
>> ?Have you seen *that man standing at the corner's* hat?
>> ?Someone has stolen *a man I know's* car.
>
> The group genitive is tolerable even with prepositional phrases provided it encourages no unwanted interpretation.

The only explanation offered for the failure to use a group genitive is therefore that it may sometimes be misconstrued as if it weren't a group genitive at all but an ordinary genitive. Their example of this is (3), which they say would be avoided, whereas (4) 'might pass muster' (1985: 1345):

(3)   *the man with the cat's ears [in sense 'the ears of the man with the cat']
(4)   the man in the car's ears

In other words, what matters is avoidance of ambiguity – and such potential ambiguity can only occur when the NP ends in a noun (which is not the head noun); it cannot explain the absence of group genitives where the possessor NP ends in an adverb, verb or other part of speech. Other than this there is just the vague comment cited above about the general unacceptability of the group genitive after clausal postmodification, especially in writing. No explanation is offered.

3.2.   Biber et al. (1999)

The *Longman Grammar* bases most of its analyses and organisation on Quirk (1985) – not always with identical terminology, however – and adds an element of systematic corpus analysis by genre and variety. It calls the genitive a 'case inflection for nouns' (1999: 292), observes that '[m]ost nouns rarely occur in the genitive' (1999: 293), and that '[*s*]-genitives are outnumbered by *of*-phrases in all registers' (1999: 301). There is a fair bit of information on that choice. As for the group genitive, here as elsewhere '[t]he genitive suffix is attached to the last word of a genitive phrase'. There is no information on constraints in usage or on frequency, apart from the following comments (1999: 298):

> The group genitive is chiefly used with more or less fixed collocations. When there is post-modification, the more common alternative is to resort to an *of*-phrase rather than an *s*-genitive [cross-reference omitted].

3.3.   Payne & Huddleston (2002)

The *Cambridge Grammar* has a more subtle take on the matter. They distinguish between HEAD GENITIVES, with inflection on the head noun, and PHRASAL GENITIVES (Payne & Huddleston 2002: 479-81) – the latter corresponding to what is called elsewhere the group genitive. This follows from their decision to analyse personal pronouns as a subtype of noun, with possessive determiner use treated as the genitive case of the pronoun (2002: 327, 470-72). Given that analysis, the pronoun *I*, for example, has as its normal genitive forms *my* and *mine* (dependent and independent, respectively). The crucial data are the following pairs of examples (2002: 479, their [65])

(5)   a. *my* facial expression   b. *the man opposite me's* facial expression
(6)   a. *my friend's* father   b. *a friend of mine's* father

If both a. and b. patterns involved the same construction – namely, a possessive marker simply being added to the last word in the phrase – there would be no explanation for the

form *me's* rather than *my* in (5)b, and similarly for *mine's* rather than *my* in (6)b. Rather, it is argued, the genitive marking is conditioned by the type of genitive: HEAD in the a. examples vs. PHRASAL in the b. Payne & Huddleston go on to claim that genitive marking is inflectional, not clitic. Two arguments are given. The first, only applicable to head genitives, is the fact that genitive *my, our*, etc. cannot be divided into two syntactic words. The second argument, which is said to work with both kinds of genitive, is the sensitivity of the genitive to the morphological form of the word it attaches to. This relates to the criteria posited by Zwicky & Pullum (1983) already discussed. Like Quirk et al., Payne & Huddleston state as a descriptive fact that the phrasal (= group) genitive 'is normally restricted to post-head dependents with the form of a PP, including *else*' (2002: 479).[5] There is no theoretical explanation.

4. A first look at the data

Having looked at a sample of theoretical and descriptive analyses, we turn now to the English language itself: what *really* happens. In our project we have started with the spoken portion of the BNC to pilot our techniques, especially as the group genitive and recent historical changes in the distribution of possessive *'s* have often been claimed to be characteristic of speech and/or colloquial language. Some of the data presented here were collected during the construction of search routines designed to identify the possessive NPs in various corpora of English and Swedish and put them into a database with appropriate mark-up.[6] Until all the data have been post-edited in the database, the figures given are approximate and provisional.

4.1.   Ordinary genitives

Most of the examples given below appear in the spoken component of the BNC (approx. 10 million tokens), which thinks it contains 11,228 tokens of possessive *'s*.[7] As Biber et al. had indicated (section 3.2 above), possessive *'s* is not all that frequent: 11.2 instances per 10,000 words. (The spoken part of ICE-GB gives a figure of 24.0 per 10,000 words.) In most of these cases, *'s* is attached to the head noun of the possessor phrase:

---

[5] Why *else* should be classed as a PP is not clear; there is brief distributional justification at (Huddleston & Pullum 2002: 615 n. 5).

[6] See http://www.llc.manchester.ac.uk/research/projects/possessives/ [accessed 20.6.07].

[7] This is the number of elements tagged as <w POS> (possessive *'s* or just the apostrophe, *'*) in the spoken component of the BNC; accordingly, this figure includes a number of mistagged instances of contracted *is* and *has*. However, a number of possessive *'s* tokens are mistagged as contracted *is* and *has*: these have not been counted here. The figure therefore only gives a rough indication of how many possessives appear in the spoken BNC. See http://www.comp.lancs.ac.uk/ucrel/bnc2/bnc2postag_manual.htm [accessed 20.6.07] regarding the decision not to correct mistagged elements in the BNC. In all the BNC examples listed here, the orthography is that used in the corpus. See http://www.natcorp.ox.ac.uk/docs/userManual/design.xml [accessed 20.6.07].

(7)   John's little Metro (BNC: F8M 391)
(8)   the Chairman's name and address and telephone number (BNC: D95 167)
(9)   the evening's business (BNC: D91 322)

4.2.   Group genitives

If possessive *'s* really is a right-edge phenomenon, then group genitives – in which the possessive marker *'s* is attached at the right edge of a possessor NP onto an element which is not the head – should be as acceptable as the cases in which *'s* is attached to the head noun: a clitic *'s* would be as much at home attached to the right edge of a phrase as it would be to the head noun. The group genitive is said to be particularly associated with spoken and colloquial language (for instance Carstairs 1987, Rosenbach 2005: 632); however, only five cases appear in the spoken BNC (i.e. some 0.04% of all possessive *'s* constructions):

(10)   the prime minister of the time's favourite WDA head (BNC: K6E 254)
(11)   the lady of the house's dress (BNC: KRJ 123[124])
(12)   the leader of the council's shirt (BNC: JT7 095)
(13)   the then president of America's daughter (BNC: K62 006)
(14)   China as a whole's economic development (BNC: JJN 426)

In the spoken part of ICE-GB there are no real group-genitives at all, only NPs of the form *everyone/someone/somebody/anybody else's*.

4.3.   Post-modification

Could the near-absence of group genitives simply follow from a low frequency of POSTMODIFICATION in NPs? That would be a simple if mundane explanation. Perhaps noun phrases generally – be they possessor noun phrases or not – rarely contain postmodification. In order to test this we have looked in the spoken portion of ICE-GB, a smaller corpus (under 640k words) but one that is both parsed and tagged with high reliability and accuracy. What is the ratio of head-final NPs to postmodified NPs with possessive and non-possessive NPs? The figures for ICE-GB all/spoken are as follows:

NP(genv): 2388/1067

NP – GENM: 3348/1532 [and NP(-genv) – GENM: 974/473 figures don't quite add up]

NP –immed NPPO: 65408/32469

NP –ancestor NPPO: 96504/46297

NP – NPPO – GENM: 25/14 (all *X else's* location, compound N, *Master's*)

NP: 314886/182606

NP –immed NPHD: 229403/140005

FNPPO (floating NP postmodifier): 1296/

	head-final	post-modified	total
non-possessor NPs	134,777	46,297	181,074
possessor NPs with *'s*	1,518	14	1,532
total	136,295	46,311	182,606

Table 1: Post-modification in ICE-GB

The rarity of group genitive cannot then be ascribed to a more general shortage of noun phrases with postmodification. Given that the possessive *'s* construction (as opposed to the *of*-construction) is favoured for possessors with high topicality, it could be argued that one would expect them to have less modification overall. However, given the sheer difference between the two ratios, we assume that this cannot be the explanation.

4.4.   Avoidance strategies

Instead, we conclude that when the head is not the rightmost element in a possessor, speakers avoid using the possessive *'s* construction and adopt what we will refer to as avoidance strategies, the most obvious of these being the *of*-construction, which is then used even when other factors would militate against the choice.

Another avoidance strategy, not mentioned in the literature, clearly demonstrates speakers' preference for marking possession on the head noun itself: the *'s* is attached to the head noun and the remainder of the possessor phrase is placed after the possessum; we may call this the SPLIT GENITIVE.[8] Five such examples appear in the spoken BNC, (15)–(19) (i.e. they occur as often as the supposedly colloquial group genitives):

(15)   the gentleman's name with the tape recorder (BNC: FM7 8); compare *the gentleman with the tape recorder's name*

(16)   the manager's secretary of the Co-op (BNC: FYH 383); compare *the manager of the Co-op's secretary*

(17)   somebody's desk who was actually supposed to carry out the work (BNC: H48 740); compare *somebody who was actually supposed to carry out the work's desk*

(18)   a twinkle in somebody's eye with no money at all to spend on physical work (BNC: H48 827); compare *a twinkle in somebody with no money at all to spend on physical work's eye*

---

[8] For related avoidance strategies in Swedish, see Börjars (2003).

(19)   my neighbour's husband down the stair (BNC: K6L 404) [Scottish English]; compare
        my neighbour down the stair's husband

The split genitive was grammatical in Old English but is completely ignored in the standard grammars of PDE. We have come across further examples since starting the project:

(20)   the President's mother of America (*When The Levees Broke – Act III*, BBC4
        19.12.06); compare *the President of America's mother* (and see also (13) above)
(21)   the woman's bedroom who I lived with (*The 60s: The Beatles Decade*, UK TV
        History 20.1.07); compare *the woman who I lived with's bedroom*

Now we find (15)–(21) strange, but even if native speakers judge them to be somewhat outlandish (though on what grounds could they be called ungrammatical?), the very fact that the utterances have been produced is significant. Intuitively the data can be explained as follows. A speaker has started with the possessor rather than the possessum and thus has committed themself to a possessive *'s* construction rather than an *of*-possessive. However, they find they are dealing with a possessor that is a complex, non-head-final NP. What the theoretical analyses all predict in this situation is a group genitive. If the descriptive grammars have anything to say, they predict the same thing too. What the speaker actually produces, as often as not, is a split genitive, with the *'s* attached to the head noun and not at the right edge.

We will be investigating further the conditioning factors at work in group genitives, split genitives and the no doubt much more common alternative of *of*-constructions. We have not yet processed the comparable *of*-genitives in BNC. Meanwhile, in order to give some context for the small amounts of data in the spoken part of the BNC, we have done some counting in ICE-GB , which is more reliably tagged than BNC and parsed as well.

5. Next steps for the project

We hope to be able to account for the actual behaviour of possessive *'s*, probably in terms of competing constraints belonging to various domains of linguistics: morphological, syntactic, semantic and pragmatic. We will add to the already copious literature on the choice between *'s* and the *of*-genitive – again probably in constraint terms. We have embarked on a parallel study of the possessive in Swedish, and we will also bring in the rather more limited distribution of *–s* in Dutch. Having studied a number of contemporary Germanic languages, we will then turn to the diachronic path – including elements of grammaticalisation – by which the simple Germanic nominal case inflection developed into the various modern distributions we see today.

References

Primary sources

BNC
ICE-GB

Secondary sources

Adger, David. 2003. *Core syntax: A minimalist approach* (Core Linguistics). Oxford: Oxford University Press.

Biber, Douglas, et al. 1999. *Longman grammar of spoken and written English*. Harlow: Pearson.

Booij, Geert. 2005. *The grammar of words*. Oxford: Oxford University Press.

Börjars, Kersti. 2003. Morphological status and (de)grammaticalisation: The Swedish possessive. *Nordic Journal of Linguistics* 26, 133-63.

Carstairs-McCarthy, Andrew. 2002. *An introduction to English morphology*. Edinburgh: Edinburgh University Press.

Carstairs, Andrew 1987. Diachronic evidence and the affix-clitic distinction. In Anna Giacalone Ramat, Onofiro Carruba & Giuliano Bernini (eds.), *Papers from the 7th International Conference on Historical Linguistics*, 151-62. Amsterdam: John Benjamins.

Di Sciullo, Anna Maria. 2005. Affixes at the edge. *Canadian Journal of Linguistics* 50, 83-117.

Huddleston, Rodney & Geoffrey K. Pullum. 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.

Katamba, Francis. 1993. *Morphology*. London: Macmillan.

Kiparsky, Paul. 1982. Lexical morphology and phonology. In I.-S. Yang (ed.), *Linguistics in the morning calm: Selected papers from SICOL-1981*, 3–91. Seoul: Hanshin Publishing.

Klavans, Judith. 1983. The morphology of cliticization. In J. F. Richardson, M. Marks & A. Chukerman (eds.), *CLS parasession on the interplay of phonology, morphology and syntax*, 103–19. Chicago: Chicago Linguistics Society.

Klavans, Judith. 1985. The independence of syntax and phonology in cliticization. *Language* 61, 95-120.

Koptjevskaja-Tamm, Maria. 2003. "A woman of sin", "a man of duty" and "a hell of a mess": Non-determiner genitives in Swedish. In Frans Plank (ed.), *Noun phrase structure in the languages of Europe* (Empirical Approaches to Language Typology 7), 515-58. Berlin and New York: Mouton de Gruyter.

Lapointe, Steven G. 1990. Edge features in GPSG. In Michael Ziolkowski, Manuela Noske & Karen Deaton (eds.), *Papers from the 26th Regional Meeting of the Chicago Linguistic Society*, vol. 1, *The main session*, 221-35. Chicago: Chicago Linguistic Society.

Lyons, Christopher. 1989. Phrase structure, possessives and definiteness. In *York Papers in Linguistics*, pp. 221–9: University of York.

Lyons, Christopher. 1999. *Definiteness* (Cambridge Textbooks in Linguistics). Cambridge: Cambridge University Press.

Miller, Philip H. 1992. Morphological marking misses the head. *West Coast Conference on Formal Linguistics* 11,

Payne, John & Rodney Huddleston. 2002. Nouns and noun phrases. In Rodney Huddleston & Geoffrey K. Pullum (eds.), *The Cambridge grammar of the English language*, 323-523. Cambridge: Cambridge University Press.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A comprehensive grammar of the English language*. London and New York: Longman.

Rosenbach, Anette. 2002. *Genitive variation in English: Conceptual factors in synchronic and diachronic studies* (Topics in English Linguistics 42). Berlin and New York: Mouton de Gruyter.

Rosenbach, Anette. 2003. Aspects of iconicity and economy in the choice between the *s*-genitive and the *of*-genitive in English. In Günter Rohdenburg & Britta Mondorf (eds.), *Determinants of grammatical variation in English* (Topics in English Linguistics 43), 379-411. Berlin and New York: Mouton de Gruyter.

Rosenbach, Anette. 2005. Animacy versus weight as determinants of grammatical variation in English. *Language* 81, 613-44.

Sag, Ivan A. & Thomas Wasow. 1999. *Syntactic theory: A formal introduction*, 1st edn. Stanford: CSLI Publications.

Sag, Ivan A., Thomas Wasow & Emily M Bender. 2003. *Syntactic theory: A formal introduction*, 2nd edn. Stanford: CSLI Publications.

Zwicky, Arnold. 1977. *On clitics*. Bloomington, IN: Bloomington: Indiana University Linguistics Club.

Zwicky, Arnold M. 1987. Suppressing the Zs. *Journal of Linguistics* 23, 133-48.

Zwicky, Arnold M. & Geoffrey K. Pullum. 1983. Cliticization versus inflection: English *n't*. *Language* 59, 502-13.