

The general case: basic form versus default form
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1. *The issue.* In formal linguistics there are (at least) two different ways to conceptualize the relationship between the general case and a special or exceptional case, which I shall refer to as the General as Basic view (BASI, /bési/, for short) and the General as Default view (DEFO, /difo/, for short).¹

1.1. *The BASI conceptualization.* Here one case is taken to be basic, deep, or underlying; its rule applies 'first', and another rule alters the basic forms for another case. The BASI view has dominated all aspects of generative grammar - syntax, morphology, and phonology.

In syntax, for instance, it lies behind many familiar treatments of word order, government and agreement, the expression of grammatical relations, and of course gap-filler constructions. Basic constituent orders are established and then altered to permit constructions with other orders; basic case assignments are made and then adjusted in certain contexts; basic constellations of grammatical relations are subject to 'relation-changing' rules; and basic phrase structure configurations are disturbed by 'unbounded movement' rules.

In morphology, the BASI view has provided the paradigm for describing allomorphy that is (at least arguably) not reducible to a series of phonological mappings. Such allomorphy is in some cases determined word-internally, as in a Hungarian rule (cited by Dressler 1985:61f) /s/ → /l/ affecting the 2nd singular present affix /s/ after stems ending in fricative sibilants, or in a Dutch word formation rule -eur → -rice posited by Booij (1981) in the derivation of words like *ambassad-ric* 'female ambassador' (cf. *ambassad-eur* 'ambassador' and *ambassade* 'embassy'). It can also be determined by factors external to the word, as in a Sanskrit rule -as → -o affecting a particular inflectional affix before words beginning with a voiced consonant, or in a German rule mentioned by Radford (1977) which shifts *als* 'than' to *dem* before an instance of *als* 'as' (and in other rules that avoid sequences of phonologically similar items by replacing one of them by a totally different item, the Spanish 'spurious *se*' rule discussed by Perlmutter (1971:20-5) being a familiar example).

In phonology, as in syntax, the generative approach posits a set of underlying or basic representations that are altered by the application of rules. Orthodox generative phonology does not systematically distinguish variation in phonological form that is morphophonemic from variation that is allophonic (as structuralist frameworks do) or nonautomatic variation from automatic (as the framework of Natural Phonology does), but in adopting a BASI view of such variation it continues an older tradition, in which 'basic allomorphs' and/or 'basic allophones' play a central role. On this view, the fact that the English verb *leave* has /liv/ as its general allomorph is described by taking /livi/ to be its underlying phonological representation, so that this is the form that remains when no rule changes it, in particular when neither the (morphologically triggered) laxing of its vowel nor the (phonologically triggered but lexically restricted) voicing of its final consonant is applicable, as they both are in the past

tense form *left*. And the fact that the phoneme /t/ has an unaspirated voiceless alveolar stop as its general allophone is described by taking [t] to be the basic representative of the phoneme, so that this is the allophone that remains when no rule (not aspiration, or flapping, or glottalization, or any other) changes it, as in *stop*.

1.2. *The DEFO conceptualization*. Here one case is viewed as the otherwise, or elsewhere, contingency; its rule applies 'second', and it is overridden by the rule for another case. Overrides will follow from the most general sort of (meta)principle, (1), but they might also be predicted by more specialized assumptions, such as (2), or they might be stipulated for particular pairs of rules, as in the following comments by Anderson (1983:15) on his analysis of Georgian: '...the /-t/ and /-s/ rules constitute "competing" suffixation processes and thus belong to the same disjunctive block. When both are motivated by the structure of the form...only /-t/ appears - indicating that the /-t/ rule precedes the /-s/ rule within their common block, just as the /g-/ prefix rule takes precedence over the /v-/ rule within theirs.'

- (1) Panini's Principle: The more specific rule overrides the more general.
- (2) Lexical Blocking: Properties specified in the lexicon override those provided by morphological rules.

The DEFO viewpoint has often been expressed in linguistic descriptions, but for the most part this expression has been informal, largely a matter of references, within ordinary-language accounts of linguistic phenomena, to what happens 'elsewhere' or 'otherwise' or to what is the 'usual', 'typical', or 'normal' situation. Examples abound in the literature on syntax, morphology, and phonology.

A number of streams have now converged, however, to make the systematic exploration of the DEFO viewpoint attractive. From outside of linguistics, there is the treatment of conditionals in most programming languages, involving ordered statements of the form $(C_1, A_1), (C_2, A_2), \dots$, which express a series of levels of defaults: if condition C_1 holds, then do action A_1 ; otherwise, if condition C_2 holds, then do action A_2 ; and so on. And (perhaps not unconnected with the first fact) there is the exploration of default logics in artificial intelligence, especially in connection with the *frame* concept (see, for example, Hayes 1980).

Within linguistics itself, the active investigation of principles (1) and (2) - versions of the first in such theoretical proposals as Proper Inclusion Precedence (Koutsoudas et al. 1974) and the Elsewhere Condition (Kiparsky 1973), versions of the second in such approaches to the lexicon as those of Halle (1973) and Jackendoff (1975) - has introduced override/default thinking as a central part of theory construction. What is important here about (1) and (2) is that both treat one statement not merely as preceding another (that might simply be the extension of ordering, as a mechanism for specifying interactions, into new territory), but also as precluding it.

Explicit default statements are provided in phonology by Chomsky and Halle (1968:405-7), in the guise of markedness conventions - the default value for the feature NASAL is MINUS,

and so on - and in syntax throughout the literature on generalized phrase structure grammar (see Gazdar et al. 1985:29-31) - the default value for the feature INVERTED on an S is MINUS, the default situation for a V is not to have the value PASSIVE for the feature VFDRM, and so on. In fact, it is the enormous success of GPSG in its program of replacing the BASI approach characteristic of generative syntax with a thoroughgoing DEFO approach to this component of grammar that served as the proximate inspiration for my reflections in this paper.

1.3. *Choosing between BASI and DEFO.* Suppose X is the general case, with special alternant Y occurring in context C. Then it might seem that there is no substantive difference between saying that X is basic, but is altered to Y by a rule applying in C, and saying that a rule stipulates that Y occurs in C, with X occurring elsewhere. And in fact, if we are considering only one such pair of alternations, there is not much difference. But when we expand our field of vision to take in several such alternations in potential interaction with one another, the two conceptualizations become distinguishable. What is crucial is that a BASI analysis is derivational, while a DEFO analysis is monostratal: rules of the former type map representations into representations and so induce a series of representations, each of which is available as the locus for the statement of other generalizations (that is, as a stratum² at which conditions can be stated or to which rules can apply), while the rules of the latter specify a set of conditions, some of them overridden by others, but all holding for a single stratum of representations.

There are circumstances in which BASI seems clearly to be the right view. In particular, crucial feeding interactions between rules belonging to the same component of grammar will argue for a BASI view of that component. And such interactions are well attested within at least two sets of rules: the set of automatic phonological rules (the processes of Natural Phonology), including both allophonic rules and automatic morphophonemic rules; and the set of morphonological rules (to use the terminology of Dressler 1985), within which I mean to include at least those rules that are phonologically triggered but apply within morphological or syntactic domains (rather than within prosodic domains, as is the case for automatic phonological rules).

Two brief, and familiar, illustrations. First, from the autphonological (automatic phonological) rules of English, consider A₁, which expresses the variation between (a) voiced obstruents as the general case and (b) corresponding voiceless obstruents as the special case in syllable-final position after a voiceless obstruent; and A₂, which expresses the (optional) variation between (a) voiceless stops as the general case and (b) the glottal stop as the special case in syllable-final position. In a BASI analysis, A₁ will feed A₂, so that the word *slopped* is predicted to have [slapʔ] as a pronunciation. But a DEFO analysis predicts counterfeeding here; feeding could be described only at the cost of embedding the conditions for A₂ within the statement of A₁ and consequently duplicating the statement of A₂.

A parallel case can be made for morphonological rules. Consider the rules governing the declension of nouns in Latin, among them M₁, which expresses the alternation between (a) stems ending in /t/ as the general case and (b) stems lacking this /t/ before /s/; and M₂, which expresses the alternation between (a)

short stem vowels as the general case and (b) long stem vowels as the special case before /n+s/.³ In a BASI analysis, M_1 will feed M_2 , so that the nominative singular (with affix -s) for the 'tooth' stem (genitive singular *dent-is*) is predicted to be *de:n-s*. But a DEFO analysis predicts counterfeeding again; feeding could be described only at the cost of embedding the conditions on M_1 within the statement of M_2 and consequently duplicating the statement of M_1 .

So far I have argued that there are two components of grammar in which BASI seems to be the right view. Are there, then, arguments that for other components DEFO is correct instead?

My positive answer to this question turns mainly on the fact that BASI can be extended easily to give analyses for phenomena covered by DEFO, by stipulating that some rules apply only to basic representations; the result is a certain number of counterfeeding interactions.⁴ However, no simple tinkering will extend DEFO to cover characteristically BASI phenomena, in particular feeding interactions. It follows that DEFO is the more constrained view of rule interaction within a component of grammar and so has a prior claim on our attention. That is, DEFO ought itself to be the default view of how rules work in a component of grammar, with the more powerful BASI view adopted only on the basis of evidence that DEFO is inadequate for that component. I will in fact take the position that BASI is the right view only for morphonology and autphonology, and that all other rule components are to be seen in DEFO terms.

There are also situations in which a DEFO analysis is natural and a BASI analysis is at least strained. Here I have in mind cases where an ultimate default X is overridden by Y in a special context and where this Y is overridden by X again in a still more specific context - for instance, the fact that instances of +N categories (nouns, adjectives, and determiners) in German are generally declinable, but that instances of the subclass of adjectives are usually indeclinable, but that instances of pronominal adjectives are declinable; some Welsh examples are provided in section 3 below. BASI requires that X be mapped into Y and then back into X, a derivation that in many cases seems to be an artifact of the BASI view rather than a genuine claim about particular languages.⁵

2. *On the overall organization of grammar.* It will be obvious from my remarks so far that I am assuming a rather highly articulated theory of grammar. This is not the place to tell the whole tale, and certainly not to justify the way in which its episodes unfold, but a certain amount of detail is necessary if I am to show what roles DEFO and BASI play in the action.

To begin with, I assume that a grammar is organized into at least the six components listed in (3). Of these, the components named in parentheses will not be under consideration here, nor will the semantic component, which in any case does not appear in (3). I will have more to say shortly about the shape component, which is the place where the lexicon interacts with (3). But first I note the derivational character of (3); though I am proposing that the DEFO view is the correct one within all the components in (3) except morphonology and autphonology (where BASI holds sway), I assume that the components as wholes are ordered with respect to one another as in (4) - an assumption that predicts rule interactions of all sorts (feeding, bleeding, counterfeeding,

counterbleeding, and others that have no standard names) between rules in different components.

- (3) SYNTAX - (LIAISON) - SHAPE - MORPHONOLOGY - (READJUSTMENT) -
 AUTPHONOLOGY
- (4) Component Ordering: The application of a rule in one component C in (3) precedes the application of any rule in a component following C in (3).

Next, I observe that an individual component can be subject to interactional principles of its own; Donegan and Stampe (1979), for instance, maintain that interactions within the autphonological component obey the special requirement that all applications of 'fortition' rules precede all applications of 'lenition' rules. Indeed, nothing I have said would exclude the possibility of a component's having a complex organization of its own, involving several subcomponents. This is just what I claim about the shape component.

The gross structure of this component is sketched in (5). Again, I cannot justify, or even explain, the main points of these proposals. A few remarks will have to suffice.

(5) IMPLICATION / REALIZATION / FORMATION
 LEXICON
 SHAPE CONDITIONS

In this picture the lexicon, in the middle, is a complete (and therefore highly redundant) enumeration of the properties of individual lexical items. Among these properties for each item is its i-list, which pairs morphosyntactic features with the phonological features of the corresponding i-form (inflectional form) of the item (for the English verb *rob*, pairing [TNS:PRES, PERS:1, NUM:SG] with the i-form /rab/, [TNS:PRES, PERS:2, NUM:SG] with /rab/, [TNS:PRES, PERS:3, NUM:SG] with /rabz/, etc.).

Three groups of 'morphological rules' express generalizations about the properties of lexical items: (a) an implication rule* (IR) predicts properties of an item from other properties of that item (predicting, for instance, that nouns of a certain gender will belong to a particular declension class); (b) a realization rule⁷ (RR) predicts some of the contents of i-lists; it predicts the phonological features of i-forms from their morphosyntactic features plus the phonological features of the base for the item (predicting, for instance, that the plural of a noun will be formed by suffixing certain phonological material to its base); and (c) a formation rule⁸ (FR) predicts the existence of some items (derivatives) from the existence of others (one or more sources), and also predicts properties of derivatives from properties of sources (predicting, for instance, that corresponding to adjectives of quality the lexicon will contain abstract nouns formed by suffixing certain phonological material to the base of such an adjective).⁹

Within each of these three subcomponents the unmarked DEF0 view can apparently be maintained. In the case of RRs, for example, overrides that follow from Panini's Principle, (1) above, are quite common; see the illustrations from German inflection in Zwicky (1985a).

All three subcomponents are also subject to the principle of Lexical Blocking in (2), according to which properties given for individual lexical items override those specified by IRs, RRs, or FRs. For instance, listing irregular inflectional forms (like the past tense forms *brought*, *did*, and *went*) in the lexicon blocks the forms predicted by RRs.

As I note in (6), RRs are overridden as well by the remaining type of rule in (5), namely shape conditions (SCs). An SC specifies aspects of the phonological shape of *i*-forms, but 'postlexically' - by reference to triggers at least some of which lie outside the syntactic word. Many rules traditionally classified as external sandhi rules are SCs: the Sanskrit rule requiring *-o* in place of the default *-as* (sec. 1.1 above), and the English rule for *an* in place of the default indefinite article *a*, for instance. So are most of the conditions that have been treated under the heading of 'surface structure constraints' or 'surface filters': the Spanish condition (again from Perlmutter 1971) requiring that clitics fit the template *se II I III*, for instance. So are rules substituting one *i*-form for another in a partly syntactic context: for example, the Spanish spurious *se* rule already mentioned (substituting the reflexive clitic for the first of two third-person clitics), not to mention a Spanish rule replacing a feminine singular definite article by the masculine and a similar French rule replacing a possessive pronoun in the feminine singular by one in the masculine (see Zwicky 1985b).¹⁰

(6) Shape Blocking: Features specified by SCs override features provided by other statements in the shape component (in particular by RRs).

The scheme in (4) is undoubtedly complex. It is also quite different in character from the scheme in (3), where the components of grammar are related to one another in much the same way that rules are related to one another on the BASI view. In (4) the subcomponents come in three groups, related to one another in much the same way that rules are related to one another on the DEFO view, with SCs overriding stipulations in the lexicon, and those in turn overriding features provided by morphological rules, including RRs.

The two component schemes, the BASI-style (3) and the DEFO-style (4), intersect in the shape component. Together they make a number of predictions about rule interactions; they predict, for instance, that the phonological operations associated with RRs and FRs¹¹ come at the beginning of an ordered chain of 'phonological' rule-types, as in (7), and that since SCs precede morphological rules, as in (8), they can feed them.

(7) 'Phonological' Rule Ordering: All phonological operations in RRs and FRs precede all morphological rules, which in turn precede all autphonological rules.

(8) Shape Ordering: All SCs precede all morphological rules.

3. *Defaults in Welsh mutations.* I now explore the SC subcomponent, illustrating the utility of the DEFO view within this subcomponent and exploiting the ordering assumptions in (3) and (4) - which have syntax preceding SCs - and (8) - which has SCs preceding morphological rules. My vehicle for this

exploration will be a small portion of the system of Welsh consonant mutations.

These mutations involve, to begin with, some type of 'phonological' rules; the facts to be described are alternations in the phonological shape of i-forms (cath '(a) cat' in some circumstances, gath in others, aghath in a third set, and chath in yet another, with a parallel series involving cathod 'cats', gathod, and so on). The alternations are transparently not automatic, nor is their primary and productive function as concomitants of RRs or FRs, so that in the framework I have been developing they are either SCs or morphonological rules. I shall in fact be claiming that in a sense they are both.

When we ask about the principles that pick out the words subject to mutation, it is quite clear that in general they refer to syntactic phrases belonging to various categories, not to individual words, much less i-forms. It is bare NP adverbials that manifest the 'soft' mutation, not just bare N adverbials: 'every day' is pob dydd when it functions as subject or object, but bob dydd, with a mutated initial quantifier, when it functions as an adverbial. In similar fashion, a vocative NP shows the soft mutation, as does a direct object NP in certain circumstances, a subject NP in other circumstances, an NP object of most common prepositions, a feminine singular AP, and a feminine singular N_{oe} in construction with the definite article.

Finally, it is also clear (even from this brief listing of contexts for mutated forms) that many instances of mutation are 'untriggered', which is to say that their triggers are syntactic rather than lexical; no morpheme, word, or i-form is available to trigger the soft mutation for bare NP adverbials, for example.

I cannot see any satisfactory way to analyze these facts without dividing the burden of description between a set of principles (highly sensitive to syntactic structure) distributing abstract features for mutation and a set accounting for the phonological effects of these features on individual words. Principles in the first set are SCs; those in the second are morphonological rules. At least some of the SCs are sensitive to case features distributed by syntactic rules, in particular to the difference between the NOM[inative] case of subjects, the GEN[itive] case of pronominal modifiers like the 2 sg dy 'your' in dy gath 'your cat' and postnominal modifiers like cath in pen cath 'a cat's head', and the ACC[usative] case of (among other things) direct objects of finite verbs, as in Gwelodd y dyn gath 'The man saw a cat'. I will then be using the assumptions of the previous section which order syntax before SCs and these before morphonological rules.¹²

The syntactic side of these matters itself involves defaults. I will assume that government rules mark certain NPs as NOM and certain ones as GEN (among the latter being the direct objects of infinitive verbs, or 'verbal nouns'); the ACC marking is the default. The result is that not only do direct objects of finite verbs receive the feature ACC, but so do the objects of (most) prepositions, bare NP adverbials, and vocative NPs.

On the SC side of these matters we are concerned with the distribution of the feature values -MUT[ation] and +MUT; for +MUT phrases, the distribution of the features SOFT, SPIRANT, and NASAL (only the first of these under illustration here); and for SOFT phrases, the distribution of the rule features MRI (voicing of

initial consonant), MR2 (spirantization of initial consonant), MR3 (shift of initial consonant to /v/), and MR4 (deletion of initial consonant).

I now summarize the main lines of the SC part of the analysis, without justifying or illustrating these formulations of the rules:

- (A1) The ultimate default setting of MUT for individual words is -MUT.
- (A2) But the setting of MUT in certain circumstances, in particular for initial words of N-type constituents (NP, Nom, N), is +MUT, overriding (A1).
- (A3) But the setting of MUT in still more specific circumstances, in particular for initial words of an NP with the case feature NOM when that NP follows a V, and for initial words of any NP with the case feature GEN, is -MUT, overriding (A2).
- (B1) For +MUT words, the default mutation feature is SOFT.
- (B2) But in certain circumstances (following particular prepositions and possessive pronouns) the mutation feature is SPIRANT or NASAL.
- (C1) For words with the feature SOFT, the default rule features are MR1 affecting voiceless consonants, MR2 affecting /d/, MR3 affecting labials (/b m/), and MR4 affecting /g/.
- (C2) But in certain circumstances other rule features are stipulated; in particular, the definite article *yr* and the predicative particle *yn* block the application of MR1 to liquids, and various negative particles require that voiceless stops be affected by MR2 rather than MR1.

A few comments on the principles in (A3). Making subjects (more exactly, NPs with the case feature NOM) immune to mutation only when they follow a (trigger) V predicts that subjects in other positions are mutated, which is correct; see the discussion of 'separated subjects' in Zwicky (1984). Making all GEN NPs immune to mutation predicts, correctly, that the (GEN) objects of infinitive verbs are unaffected, and also that the possessive pronoun *dy* is never mutated, even though it begins with a mutable consonant - its SOFT version would be *ddy* - and can occur in contexts where NP-initial mutation would be expected by (A2), for instance in the object of the preposition *i* 'to': *i gath* 'to a cat', but *i dy gath* 'to your cat' and not **i ddy gath*.

The system of Welsh mutations is undoubtedly complex, but if we look at these phenomena in a highly modular framework and take the DEFD view of the way rules apply within (at least) the subcomponent of shape conditions, then it is possible to discern that (despite considerable lexical idiosyncrasy) it is in fact a system, governed by general principles.

Notes

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teaching at the Beijing Language Institute, where most of the theoretical ideas in this paper were developed.

1. This short paper touches on a huge range of issues in theoretical syntax, morphology, and phonology, and it is impossible for me to cite the relevant literature in full, or even to give credit to everyone whose work has directly influenced mine. My apologies in advance to those whose ideas have been oversimplified by compression or (apparently) ignored entirely. The things that do get cited are the ones at the top of my intellectual stack at the moment.
2. Here I follow Ladusaw (1985) in making a distinction between levels of representation - the components in section 2 below - and strata within a level.
3. Neither alternation is automatic; /ts/ occurs in the language, as do short vowels before /ns/.
4. Just this proposal is made by Donegan and Stampe (1979) to permit counterfeeding interactions in autphonology.
5. This is not to deny that on occasion (as Fullum 1976 observes) there might be motivation for such a 'Duke of York' derivation.
6. A close correspondent to the 'lexical redundancy rule' in some other frameworks.
7. That is, a rule of inflectional morphology.
8. A close correspondent to the 'word formation rule' in some other frameworks. FRs are rules of derivational morphology and compounding.
9. There is considerably more to be said about RRs and FRs. I assume that the phonological aspect of these rules is to be described by reference to a set of allomorphy rules (AMRs). A single morphological rule might involve several AMRs - with, say, suffixation of /ti/ to the base, shift of stress to the final syllable of the base, and vowel changes in that syllable all associated with one rule (*divinity*, *porosity*). And the same AMR might play a role in several rules, of both types - with a certain vowel change, say, associated with a past tense RR (*slept*), a noun-forming FR (*serenity*), and an adjective-forming FR (*Hellenic*).

In addition, some RRs do not describe the realization of morphosyntactic features directly, but instead refer this description to the realization for some other set of features. See the discussion of rules of referral, as opposed to rules of exponence, in Zwicky (1985a,b).

Finally, though FRs usually 'build on' source bases (that is, their AMRs usually operate on bases), they can build instead on a specified i-form of the source, as when English derives adjectives directly from past participles (*(un)cooked*, *bent*, *written*).

10. Such rules are the SC correspondents to the rules of referral mentioned in the previous footnote.
11. These are the AMRs of footnote 9.
12. The sketch for an analysis that follows here is based on the observations of Zwicky (1984). The proposal that +MUT be taken as the default setting at some level is advanced there, and in a more restricted fashion by Willis (1982).

References

- Anderson, Stephen D. 1983. Rules as "morphemes" in a theory of inflection. Mid-America Linguistics Conference, 3-21.
- Booij, Geert E. 1981. Rule ordering, rule application and the organization of grammars. In Wolfgang U. Dressler (ed.), *Phonologica 1980* (Innsbruck: Institut für Sprachwissenschaft), 45-56.
- Chomsky, Noam and Morris Halle. 1968. *The sound pattern of English*. New York: Harper & Row.
- Donegan, Patricia J. and David L. Stampe. 1979. The study of natural phonology. In Daniel A. Dinnsen (ed.), *Current approaches to phonological theory* (Bloomington: Indiana Univ. Press), 126-73.
- Dressler, Wolfgang U. 1985. *Morphology: The dynamics of derivation*. Ann Arbor: Karoma.
- Gazdar, Gerald, Ewan Klein, Geoffrey Pullum, and Ivan Sag. 1985. *Generalized phrase structure grammar*. Oxford: Basil Blackwell.
- Halle, Morris. 1973. Prolegomena to a theory of word formation. *Ling* 4.3-16.
- Hayes, Patrick J. 1980. The logic of frames. In Dieter Metzger (ed.), *Frame conceptions and text understanding* (Berlin: de Gruyter), 46-61.
- Jackendoff, Ray. 1975. Morphological and semantic regularities in the lexicon. *Lg* 51.639-71.
- Kiparsky, Paul. 1973. Elsewhere in phonology. In Paul Kiparsky and Stephen D. Anderson (eds.), *Festschrift for Morris Halle* (New York: Holt, Rinehart and Winston), 93-106.
- Koutsoudas, Andreas, Gerald Sanders, and Craig Noll. 1974. On the application of phonological rules. *Lg* 50.1-28.
- Ladusaw, William A. 1985. *A proposed distinction between levels and strata*. SRC-85-04. Santa Cruz CA: Syntax Research Center, Cowell College, UCSC.
- Perlmutter, David M. 1971. *Deep and surface structure constraints in syntax*. New York: Holt, Rinehart and Winston.
- Pullum, Geoffrey K. 1976. The Duke of York gambit. *JL* 83-102.
- Radford, Andrew. 1977. Counter-filtering rules. *York Papers in Linguistics* 7.7-45.
- Willis, Penny. 1982. *The initial consonant mutations in the Brythonic Celtic languages*. Ph.D. dissertation, CUNY.
- Zwicky, Arnold M. 1984. Welsh soft mutation and the case of object NPs. *CLS* 20.387-402.
- Zwicky, Arnold M. 1985a. How to describe inflection. *BLS* 11.372-86.
- Zwicky, Arnold M. 1985b. Rules of allomorphy and syntax-phonology interactions. *Journal of Linguistics* 21.2.431-6.