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Prosodic structure and expletive infixation

John J McCarthy

PROSODIC STRUCTURE AND EXPLETIVE INFIXATION

JOHN J. MCCARTHY

University of Texas, Austin

An analysis of English Expletive Infixation (as in *fan-fuckin-tastic*) in terms of a metrical theory of prosody is presented. It is shown that the major environment for Expletive Infixation—immediately before a stressed syllable—follows from independently motivated characteristics of this theory. Further support for this metrical theory is adduced from infixation in words with dactylic stress alternation and with internal stress-neutral junctures, and from the subordination of stress in forms after infixation.*

INTRODUCTION

1. Recent work on autosegmental and metrical phonology has demonstrated that we need a richer conception of the units of phonological representation than is provided by standard generative theory. Whereas the standard theory stipulates no level of phonological structure superordinate to the segment, many authors (e.g. Liberman & Prince 1977, Kiparsky 1979, McCarthy 1979a,b, Selkirk 1980, Prince 1980, Hayes 1980) have claimed that considerations of prosody demand recognition of familiar suprasegmental units like the syllable, and less familiar ones like the foot. Evidence that has been brought to bear in support of this enrichment of phonological theory includes stress assignment, syllabification phenomena, and prosodically-conditioned segmental alternations.

I will present below a new source of evidence for the representation of prosodic structure: the phenomenon of Expletive Infixation in English. This process, although little more than a curiosity as a morphological rule, is of considerable phonological interest. I will show that details in the application of the Expletive Infixation rule support a very rich conception of the formal apparatus of prosody. The analysis will chiefly provide independent motivation for proposals made in the references above; but it will also offer some new insights, particularly in the realm of foot structure.

EXPLETIVE INFIXATION

2. Siegel 1974 and Aronoff 1976 discuss a rule of English derivational morphology called Expletive Infixation,[1] which accounts for the completely productive and general phenomenon in

(1) Mononga-fuckin-hela
    Ala-fuckin-bama
    fan-fuckin-tastic (M)

[1] Other discussions of Expletive Infixation include McCawley 1978 and McMillan 1980. The latter is a particularly valuable source of spontaneous forms cited here, which I have indicated by (M) in the examples.

Other expletives that occur in this construction are *goddamn,* rarely *damn*—and, in British and Australian dialects, *bloody.*[2]

This rule has aroused some interest for two reasons. First, it is the only productive infixation rule in English, although in many less familiar languages several infixation processes are central to the morphology. Second, like many rules of reduplication and infixation, it is a morphological process that refers crucially to a derived phonological environment in its structural description. Rule 2, Aronoff's restatement of Siegel's original, must have access to information about stress:

(2) Expletive Infixation (Segmental version)

$$[X \overset{3}{V} Q \overset{1}{V} Y]$$
$$1\ 2\ 3\ 4\ 5\ \rightarrow 1\ 2\ 3\ \text{EXPLETIVE}\ 4\ 5$$

Condition: Q does not contain $\overset{3}{V}$.

By this rule, the infix must immediately precede the primary stress and must be preceded somewhere in the word by a tertiary stress. Rule 2 seems to account for the data in 1; and it will, of course, also correctly rule out infixations where the infix is immediately followed by an unstressed syllable:

(3) *fanta-fuckin-stic
    *ca-fuckin-terwaul
    *coe-fuckin-lacanth

For a number of reasons, however, it appears that 2 does not adequately represent the Expletive Infixation process. First, it is clear that the infix does not lodge to the immediate left of the primary stressed VOWEL, as 2 demands, but rather to the left of the stressed SYLLABLE. Witness these data:

(4) a. fan-fuckin-tastic   *fant-fuckin-astic
                            *fa-fuckin-ntastic
    b. Du-fuckin-brovnik   *Dubr-fuckin-ovnik   ?Dub-fuckin-rovnik
    c. in-fuckin-stantiate *inst-fuckin-antiate ?ins-fuckin-tantiate
                            *i-fuckin-nstantiate

The well-formed specimens in the first column have the infix preceding the maximal syllable-initial cluster, in conformity with the usual observations about English syllable structure. The truly impossible examples in the second column point in the same direction. The marginal examples in the third column apparently reflect a certain amount of uncertainty in the syllabification of par-

[2] Occasionally other expletives may be found, as in the well-known *abso-bloomin-lutely* and some of the examples cited later. Of course, there is no real necessity, other than a purely pragmatic one, for the infix to be an expletive at all, or even that it be a word. *Abso-posi-lutely* is an interesting case of a non-word infix.

ticular cluster types. In some cases, such uncertainty can probably be attributed to the morpheme-boundary effects noted by McCawley.[3]

A second problem with the formulation in 2 concerns the requirement of an immediately following PRIMARY stress. Rather, it appears that any degree of stress will do. Both spontaneous (5) and constructed (6) examples illustrate this:

(5)   amalga-bloody-mated (M)
        emanci-motherfuckin-pator (M)
        every-bloody-body (M)
        handi-bloody-cap (M)
        hypo-bloody-crite (M)
        kinder-goddamn-garten (M)
        Lauder-damn-dale (M)

(6) a. Popocatepetl → Popo-fuckin-catepetl, Popocate-fuckin-petl

   b.   anticipatory → anticipa-fuckin-tory, an-fuckin-ticipatory

   c.   necromancy → necro-fuckin-mancy

Those forms in 6 with the infix placed before a primary-stressed syllable are only slightly better than those which have it before a non-primary-stressed one. Yet, contrary to the formulation of Expletive Infixation in 2, both types are much better than infixations with a following unstressed syllable, as in 3. The slight preference for a following primary stress will be discussed in §4.3, below.

A third problem with rule 2 centers on the requirement that a tertiary stress precede the infix. Here again it appears that the basic observation behind this requirement is incorrect, or at least grossly overstated. For one thing, the stipulation of a preceding tertiary stress is trivially falsified by forms like *necro-fuckin-mancy* in 6, where the preceding stress is primary. But more significantly, numerous spontaneous (7) and constructed (8) examples show that no stressed syllable need precede the locus of infixation:

(7)   to-bloody-gether
        im-fuckin-portant
        (air) con-bloody-ditioner
        ad-bloody-vance (M)
        Su-fuckin-matra (M)
        Bho-bloody-wani (M)
        de-fuckin-generate (M)
        e-bloody-nough (M)
        e-goddamned-vaporate (M)
        per-bloody-haps (M)
        (self) de-fuckin-fence (M)
        your-bloody-self (M)

[3] Briefly, McCawley's data, derived from a written questionnaire, suggest that the preservation of intact morphemes occasionally takes precedence over the exigencies of syllabification: thus

(8) a. Kentucky → Ken-fuckin-tucky
       ⁰   ¹

b. Nebraska → Ne-fuckin-braska
       ⁰   ¹

c. Hawaii → Ha-fuckin-waii
       ⁰   ¹

For all speakers, forms like those in 7–8 (although amply attested, and clearly superior to those in 3) are marginally worse than similar forms where the preceding syllable does bear some degree of stress. In §4.1, we shall see that there is a fairly deep reason for this regularity; and it will be related to other facts that rule 2 is unable to handle. For now, we shall simply assume that the examples in 7–8 are well-formed.

In sum, it appears that many elements of rule 2 do not conform with the facts. A revision of this rule to account for these new data would look something like this:

(9) Expletive Infixation (Syllabic version)
    [X Q   V   Y]
       [+stress]
    1 2   3   4 → 1 EXPLETIVE 2 3 4
    Condition: Q does not contain syllable boundary.

Here we require only that the vowel following the infix bear some degree of stress (i.e. that it be unreduced), and that the infix fall to the left of the syllable-initial consonant cluster. This will, then, successfully account for the data of 4–8, above.

Although 9 represents a substantial improvement over the earlier version of Expletive Infixation, it has difficulties of its own. In fact, it is empirically inadequate, though the demonstration of this inadequacy requires such additional apparatus that I will delay consideration of it until §4, below. In a larger sense, 9 is flawed on theoretical grounds. Despite its succinct characterization of the observations, it merely stipulates—but does not explain—the relationship among stress, syllabification, and the infixed expletive that is encoded into this rule by the artifices of [+stress] and the Q-variable.

A PROSODIC ACCOUNT

3. Let us now turn to the characterization of Expletive Infixation in terms of a theory of metrical phonology. We can assume a model of stress with the following characteristics: (a) Syllables are grouped hierarchically into binary-branching labeled categories called FEET. (b) Feet, which exhaustively partition

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some speakers seem to prefer *refer-fuckin-(r)ee* with undistorted stem *refer*, although prosodically identical *kangaroo* shows no such variation. I presume that what is happening in these cases is a suspension of the strictly prosodic conditions on infixation, to maintain the transparency of morphological units. True junctural effects on Expletive Infixation do arise, however, as shown in §4.2, below.

McMillan notes one apparent counter-example to the prohibition of syllable-internal infixed expletives, the token [mar-fʌkin-č]. Although attested, it is nevertheless clearly ungrammatical.

the syllables of a word, are gathered into a similar word-level metrical structure. (c) Each pair of sister nodes in this tree receive complementary 's(trong)' and 'w(eak)' labels of relative prominence.

A very rough taxonomy of the possible foot structures in English is given in Figure 1 (cf. McCarthy 1979a, Selkirk 1980, 1981); we will have occasion later to modify this considerably, as well as to deal with putative stray syllables.
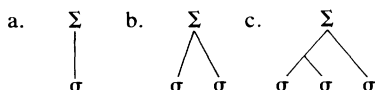

FIGURE 1.

In each tree of Fig. 1, the leftmost (or unique) syllable (σ) of a foot (Σ) is the most prominent, corresponding on the surface to a syllable bearing some degree of stress. All other syllables—those in weak positions of feet—will be unstressed and consequently reduced.

It remains now to characterize the loci of Expletive Infixation in terms of this model of metrical structure. In fact, the basic generalization is quite simple: an infix may lodge only at the edge of a foot. This rule is formalized as follows:

(10) Expletive Infixation (Metrical version)

X [Y]$_\Sigma$

1   2   → 1 EXPLETIVE 2

Consider, for example, the metrical structures associated with the forms in Figure 2.
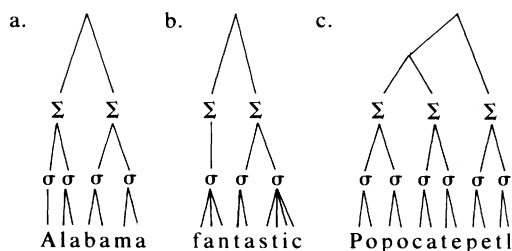
FIGURE 2.

For simplicity, I have suppressed much irrelevant detail in Fig. 2, including the s/w labels of all nodes and the internal structure of the syllable nodes. It is apparent that, in a word like *fan-fuckin-tastic*, the infix can fall only at the border of the two feet; similarly with *Ala-fuckin-bama*. Since *Popocatepetl* properly contains three feet, it should allow two infixation sites, one at each internal left Σ-boundary. This claim is borne out by the well-formedness of *Popo-fuckin-catepetl* and *Popocate-fuckin-petl*. Furthermore, words consisting of only a single foot, in particular monosyllables and trochaic words (e.g. *Texas*), will have no allowable infixation sites, since they lack internal foot-boundaries.

This account of Expletive Infixation in terms of prosodic structure has one immediate advantage over the syllabic formulation in 9. Rule 9 must make two

independent stipulations—that the infix precede a stressed vowel, and that it precede a maximal syllable-initial string. But since feet are definitionally composed of syllables, it follows that the requirement that an infix fall at the left boundary of a foot must entail that it fall at the left boundary of a syllable. Therefore, in that it provides for a single formal expression of two related observations, the metrical analysis is clearly superior.

But a far more important feature characterizes this prosodic model. Let us first digress briefly to a consideration of the problems attendant on ACQUIRING a process like Expletive Infixation. (Further discussion of this issue may be found in McCarthy 1981.) For sociological reasons, many speakers of English are not exposed to primary data with infixed expletives until adolescence. Even then, the data are quite degenerate, consisting in most cases of just a few types like *fan-fuckin-tastic*. Despite this, grammaticality judgments are quite sharp, with a remarkable degree of reproducibility—a point also made by McMillan. It is difficult to reconcile these two facts if we imagine Expletive Infixation to be just another morphological rule, presenting some constellation of arbitrary phonological conditions to the language learner.

In fact, it appears that the phonological conditions on Expletive Infixation, when considered from a metrical standpoint, are not arbitrary: the expletive MUST fall where it does. Consider for a moment the import of rule 9, which requires that the expletive be infixed at the left boundary of a foot. Under the metrical analysis of English stress described above, because of the exhaustive partitioning of the syllables of a word into feet, a well-formed surface representation cannot contain a syllable which is not dominated by a foot.[4] This property of the metrical system permits a somewhat different statement of the generalization expressed in 9: an expletive can be inserted in any position not internal to a foot. Obviously, then, an infix may appear at the left boundary of a foot—or, for that matter, at a word boundary, which also happens to be the left or right boundary of a foot.

It is not accidental that such a condition governs this infixation process. The infixes are themselves words, or portions of words, and so are composed of syllables and feet—structures with which they, like their host words, are provided by rules that apply before Expletive Infixation. It follows, then, that insertion of an expletive at any point other than a foot-boundary will result in overlapping metrical structures. Compare the representations of the ungrammatical examples in Figures 3a–b with the grammatical one in Figure 3c (overleaf): forms with improper bracketing of the prosodic domains Σ (Fig. 3a) or σ (Fig. 3b)—represented by lines crossing—are ill-formed under all current theories of prosodic structure.[5]

In sum, if we merely exclude representations with overlapping prosodic domains (a natural restriction to place on these representations), we capture

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[4] The metrical analysis of forms with initial unstressed syllables, like *Monongahela*, will be dealt with below in §4.1.

[5] Theories allowing ambisyllabicity (e.g. Kahn 1976) are, of course, exceptions to this. For some arguments against ambisyllabicity, see Kiparsky 1979, Selkirk MS.

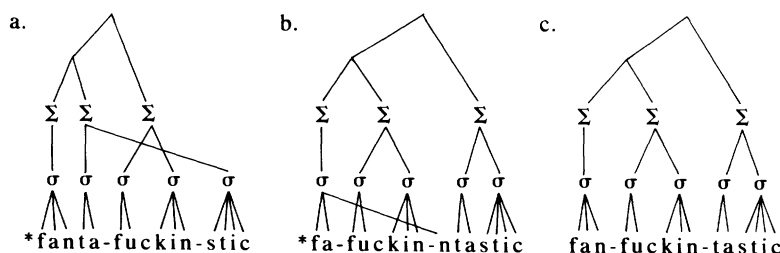a. *fanta-fuckin-stic   b. *fa-fuckin-ntastic   c. fan-fuckin-tastic

FIGURE 3.

all the effect of the elaborate phonological conditions on Expletive Infixation.
Moreover, given a theory of metrical representation like that outlined here—
including a prohibition against improper bracketing—it follows that no pho-
nological conditions on Expletive Infixation need be stated at all. Infixation
may apply freely, subject to universal conditions of prosodic well-formedness.

This result, of course, has direct bearing on the learnability question raised
earlier. If no phonological conditions on Expletive Infixation need be stipu-
lated, it follows that no difficulties will be attendant on learning this rule, even
from extremely impoverished primary data. The language learner need only
discover that certain words may appear inside other words, and—along with
the quite reasonable assumption that this quasi-morphological insertion applies
to phonological surface representations (a proposition that is defended in §4.3,
below)—all other characteristics of the phenomenon are automatic.

FURTHER CONSEQUENCES OF PROSODIC STRUCTURE

4.1. TERNARY FEET. Although the account above shows that this prosodic
conception of Expletive Infixation is more explanatory than a purely segmental
or syllabic one, other data demonstrate that it is empirically superior as well.
We begin with an interesting set of apparent counter-examples to all analyses
of Expletive Infixation developed thus far:[6]

(11) a. Tàtamagóuchee →
         Tata-fuckin-magouchee (or Tatama-fuckin-gouchee)

     b. Wìnnipesáukee →
         Winni-fuckin-pesaukee (or Winnipe-fuckin-saukee)

     c. Kàlamazóo →
         Kala-fuckin-mazoo (or Kalama-fuckin-zoo)

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[6] These facts were first called to my attention by Alan Prince.

A colleague has suggested a rather different formulation of the infixation rule that will purportedly
account for the data in 11, as well as all other grammatical forms. The proposal is that the two
sections of the host word sundered by the infix must each constitute a prosodically permissible
word. Thus, for *Tatamagouchee*, an infix after the second syllable would leave the units *Tata* and
magouchee, both of which are prosodically acceptable as free forms in English (cf. *gamma* and
Chicago, with identical stress patterns). But an infix after the first syllable would create a unit

For most speakers, the non-parenthesized examples are nearly as good as those in parentheses. The generalization that emerges from the forms in 11 is that the infixed expletive may fall between two unstressed syllables. This is clearly inconsistent with the segmental (2), syllabic (9), or prosodic (10) formulations of Expletive Infixation, all of which have the effect of allowing infixes only in the position to the immediate left of a stressed syllable.

However, a plausible account of this phenomenon is possible in terms of some characteristics of the metrical model of English prosodic structure. A representation of the metrical tree associated with *Tatamagouchee,* to be modified later, appears in Figure 4.
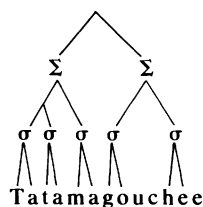
FIGURE 4.

The infix may, of course, lodge at the boundary of the two feet Σ, yielding *Tatama-fuckin-gouchee.* It may also appear as in 11a, with the expletive falling between sister non-terminal and terminal nodes of the first foot. It may not, however, occur in any other position, either within a syllable or between sister terminal nodes of any foot. In brief, the common characteristic of the forms in 11 is that they have an infix lying to the immediate left of the rightmost syllable in a ternary (dactylic) foot.

At least one other phonological process that refers crucially to the foot must also distinguish between terminal and non-terminal nodes of Σ. The rule which flaps and voices post-sonorant *t* is demonstrably limited to the case when *t* and the preceding sonorant are contained in the same foot (cf. Kiparsky). But such a statement of the process is not sufficient, as shown by these data:

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tamagouchee with two unstressed initial syllables, and an infix before the last syllable would produce *chee* with a single unstressed syllable—neither of which is a possible free form.

It is difficult to see how this observation would be implemented formally; moreover, it appears to be incorrect. First, it fails to account for the evident acceptability of infixes after initial unstressed syllables, as in 7–8, since the units preceding the infix are not prosodically possible words. Second, it will not generate all the results that are contingent on the failure of the infixed expletive to rupture syllables. For example, it would predict three different infixation sites in *monstrosity*— *mon-fuckin-strosity,* **mons-fuckin-trosity,* and **monst-fuckin-rosity*—all of which are expected, since the portions of the host word do not violate the syllabic or accentual canons of English. Finally, this hypothesis runs into apparently insuperable difficulties with forms like *Lauderdale* or *coelacanth.* The sequences *derdale* and *lacanth* constitute possible words (cf. *police, belay*), as do the stressed initial syllables; so we would expect **Lau-fuckin-derdale* and **coe-fuckin-lacanth.* Similarly, this hypothesis would predict the infixation **Ticon-fuckin-deroga* because *de-roga* is a possible word, prosodically equivalent to *Chicago.* Since these results are ill-formed, and since the prosodic theory presented here deals successfully with these data, I conclude that the prosodic theory is superior.

(12)   repetitive
        a. repe[tʰ]i[tʰ]ive
        b. repe[D]i[tʰ]ive
        c. repe[D]i[D]ive

The forms here are listed in order of increasing speech rate (or relatively less careful style), varying as to where flapping occurs in the dactylic foot *petitive*. The one possibility that does not occur is a form with post-tonic aspirate and post-post-tonic flap: **repe*[tʰ]*i*[D]*ive*. This paradigm appears to hold quite generally for dactylic feet in English; compare also the *t*'s in *identity* or hypothetical *Wititesaukee*. Although I know of no relevant data, it is likely that other low-level foot-internal processes, e.g. shortening of consonants other than *t* and raising of the diphthong /ay/, will also show a predilection for the immediately post-tonic syllable of a dactylic foot.

A ready interpretation of these facts can be found in the metrical structure of the foot: flapping may occur at the juncture of non-terminal and terminal nodes of a foot only if it applies also at the juncture of terminal nodes. Stated in a more intuitively appealing way, this means that flapping at the juncture between syllables that form a constituent in foot structure is a prerequisite to flapping between syllables which (although dominated by the same foot) do not form a constituent. Thus flapping, as a symptom of close intersyllabic contact (cf. McCarthy 1976, Kiparsky 1979), presupposes that the two most-deeply embedded syllables of a dactylic foot have a more intimate connection with each other than either has with the third syllable.[7]

The same sort of behavior can be seen with the Expletive Infixation data in 11. Again speaking intuitively, we can say that the infixed expletive may fall only at the point of weaker intersyllabic contact within the dactylic foot—i.e. before the third syllable, which has a non-terminal node as its sister. It appears that there is a sort of continuum of judgments on this phenomenon, since infixation even at this position within a dactylic foot is marginally inferior to infixation at foot-boundary.

We can now turn to a more precise explication of these observations. As a formal framework, I adopt the model of Selkirk 1980; this appears in the context-free grammar of 13. We can assume that these rules apply to forms at the beginning of the derivation, and that the output is then subject to subsequent modification by other rules. Note, however, that nothing here is crucial except recognizing a distinction between two different categories of feet:

(13) a. $\Sigma \rightarrow \sigma \, (\sigma)$
     b. $\Sigma' \rightarrow \Sigma \, \sigma$

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[7] This relation between flapping, foot structure, and speech rate presupposes a fairly natural model in which faster rates or more casual styles permit processes to apply across bigger structural boundaries. This notion is a familiar one in treatments of sandhi phenomena.

A few English words, usually with the *tive* suffix, appear to have surface quadrisyllabic feet: *nomina*[D]*ive*. In such a word with two *t*'s, e.g. *dubitative*, the same structural regularities hold as in 16: *dubi*[tʰ]*a*[tʰ]*ive*, *dubi*[D]*a*[tʰ]*ive*, *dubi*[D]*a*[D]*ive*, but **dubi*[tʰ]*a*[D]*ive*.

A discussion of some of these same facts, in terms of a very different framework, can be found in Stampe 1973.

This grammar distinguishes two categories of feet: one (Σ) contains only one or two syllables, and is therefore monosyllabic or trochaic; the other (Σ') contains a foot of the first type plus a following syllable, and so is dactylic. Selkirk assumes that the assignment of feet generated by 13a is maximal, with the result that only strings of exactly three syllables will be dominated by Σ'. Without the w/s labeling of nodes, then, the structures associated with *Tatamagouchee* and *repetitive* will appear as in Figure 5.
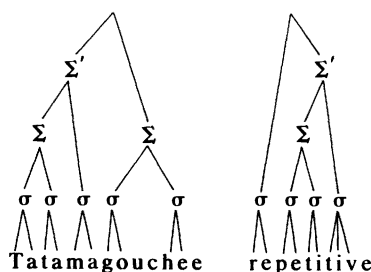

FIGURE 5.

It is evident how this model can explain the special status of the final syllable in a dactylic foot with respect to Expletive Infixation and flapping. The category Σ is the ordinary domain of flapping (except in extremely careful speech), and it is the anti-domain of Expletive Infixation. This latter result presumably follows from the fact that any expletive word like *fuckin* is a Σ; and infixation would result in overlapping metrical structures, as I argued at the conclusion of §3. Flapping may, however, be extended in somewhat more rapid speech to the higher foot domain Σ'; and conversely, Expletive Infixation may be extended down to that domain—both perhaps subject to some variation between dialects. The subtlety of some of the judgments makes it difficult to be more exact about this aspect of the mechanism.

A similar account can be given for word-initial unstressed syllables. As is clear from the data in 7–8, such forms as *Kentucky* or *Nebraska* tolerate an infix after the first syllable; but the output appears to be somewhat worse than similar forms with a stressed initial syllable like *can-fuckin-tankerous* or *o-fuckin-mega*. This observation suggests that initial unstressed syllables may be incorporated as less-deeply embedded members of the following foot. As in *Tata-fuckin-magouchee,* this would account for the relatively good *Ken-fuckin-tucky* vs. the execrable **Kentu(c)-fuckin-ky*.

The parallel carries over to the data on flapping. Most recent studies of English flapping (Kahn 1976, Kiparsky 1979, Selkirk MS) have not considered this phenomenon; however, in my Eastern Massachusetts dialect, the position between an initial unstressed and a following stressed syllable is eligible for flapping, showing a mirror-image of the pattern in 12:

(14)   potato
    a.   po[t^h]a[t^h]o
    b.   po[t^h]a[D]o
    c.   po[D]a[D]o
    d.   *po[D]a[t^h]o

But when the preceding syllable is also stressed, this same relative ease of flapping is not observed before a stressed syllable. Thus flapped *t*'s in *photonic* or *boutique* seem to be nearly impossible, whereas 14c merely reflects a somewhat casual style.[8]

The details of the metrical structure associated with forms with initial unstressed syllables have, up to now, been only partly established. Selkirk 1980 has argued convincingly that initial syllables are destressed by a Defooting rule, corresponding roughly to the segmental and metrical destressing rules of Halle 1973 and of Liberman & Prince. Under her analysis, the initial syllable is first assigned to a monosyllabic foot by the regular iteration of rules of foot assignment; then this foot structure is erased under certain conditions. For lack of evidence, Selkirk leaves the disposition of the now anacrustic syllable undetermined; it may be allowed to stay unfooted, or it may be adjoined to the following foot.

The data on Expletive Infixation and flapping given above suggest that the correct analysis of these forms is that in which the derived structure has an unstressed–stressed–unstressed (amphibrach) foot, and in which that foot is a Σ'. So the representations of *potato* before and after Defooting will appear approximately as in Figure 6.

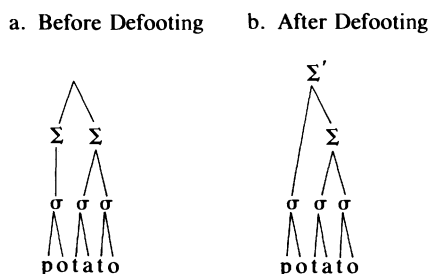**a. Before Defooting**   **b. After Defooting**

FIGURE 6.

We can formulate Defooting as in Figure 7, indicating that it creates a Σ' in the derived representation.
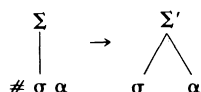
FIGURE 7. Defooting rule.

This rule applies under other conditions on the weight of σ that are of no interest here (see Selkirk 1980 for details). It is clear that this formulation of Defooting will have the desired result with words like *potato*: the favored site

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[8] There seem to be some additional factors, possibly involving register, that preclude flapping after initial unstressed syllables. For example, although I flap freely in *Prudential* and *producer*, I find it odd in *pedantic*, *patina*, or *cotillion*.

for flapping, and the disfavored one for infixation, will be internal to Σ, whereas the opposite effect will be felt in the Σ' domain.

Moreover, this statement of Defooting will also create a Σ' foot for disyllabic words with initial unstressed syllables, like *police*. Although it is difficult to show any consequences of this move for flapping, since such words provide at most one intervocalic *t*, the Expletive Infixation facts do seem to bear it out. Thus, *po-fuckin-lice* does seem worse than *pon-fuckin-toon*, but is none-theless better than any Σ-internal infixation. Similar results hold for forms like *America*, in which the Σ' derived by Defooting itself contains a Σ' as its right daughter. Again, the infixation *A-fuckin-merica* certainly falls within the ap-propriate range of acceptability.[9]

4.2. JUNCTURAL EFFECTS. Another class of apparent problems which exists for a segmental or syllabic account of Expletive Infixation is also readily trac-table under a prosodic conception of the rule. The forms in 15, the first of which is spontaneous, violate rule 2 by allowing an infix before an unstressed syllable:

> (15) un-fuckin-believable (M)
>   un-fuckin-derivable
>   un-fuckin-collectable
>   un-fuckin-dissuaded

This apparent suspension of one of the prosodic conditions cannot simply be attributed to the presence of a juncture of some type after the prefix *un*, although such effects are not unknown (cf. McCawley). The prefix *in* does not permit the same freedom. So, forms like **in-fuckin-dependent*, **i(r)-fuckin-responsible*, and **i(m)-bloody-material* seem ill-formed, a judgment that is sup-ported by the existence of spontaneous examples formed from the same bases in which the infix does not fall at the prefix juncture: *inde-goddamn/bloody-pendent* (M), *irre-fuckin-sponsible* (M), and the curious *imma-bloody-material* (M).[10]

The mere presence or absence of a juncture will not account for the different behavior of *un* and *in*; but it is fairly clear that a juncture DISTINCTION will. In terms of the received boundary theory (Chomsky & Halle 1968, Siegel 1974, Allen 1978), *un* is followed by the stress-neutral juncture indicated by a single word boundary #, while *in* is followed by the stress-determining juncture

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[9] There is an interesting alternative to the analysis in §4.1 in which forms like *Tatamagouchee*, rather than having initial dactylic feet, have final amphibrach feet, so that the metrical parsing is [Tata]$_Σ$[ma[gouchee]$_Σ$]$_{Σ'}$. It is conceivable that a rule creating this amphibrach foot can be collapsed with Defooting (Fig. 7), though it is difficult to find evidence to motivate this move.

Some speakers suppress the rule of Defooting, thus avoiding the creation of a Σ'-foot from two Σ-feet in the input to Expletive Infixation. The result of this suppression is the maintenance of an initial secondary stress in forms like *p[òw]-fuckin-líce* or *K[è]n-fuckin-túcky*. Infixation in this case will then be at the boundary of two feet, as in *fan-fuckin-tastic*.

[10] Similar forms were also noted by McCawley in other cases where morpheme boundaries apparently conflict with prosodically permissible sites of infixed expletives: *thermo-fuckin-mometer*. This ad-hoc reduplication apparently serves the purpose of keeping the infix at foot boundary, while preserving morphemes intact.

indicated by the morpheme boundary +. Although it now appears that bound-
aries are not a satisfactory means of notating these junctures, for convenience
I will retain the familiar terminology here (see Rotenberg 1978, Strauss 1979,
and Selkirk MS for alternatives to the boundary theory). This discussion will
show that a single, independently motivated stipulation is sufficient to account
for the data in 15 as well as a number of other junctural effects.

There is evidence that the two types of juncture have clear prosodic cor-
relates. Kiparsky points out that assimilation of nasal consonants to following
velar articulation is governed directly by foot structure: assimilation is oblig-
atory foot-internally, as in i[ŋ]cubate, but optional and highly dependent on
speech rate and style at the boundaries of feet, as the two possibilities i[n]-
crease and i[ŋ]crease show. A similar distinction holds at the junctures of the
negative particles in and un (see Allen for discussion). When the following
syllable is unstressed, we find that some speakers have obligatory assimilation
with the former and only optional assimilation with the latter: i[ŋ]compatible
vs. u[n]commercial / u[ŋ]commercial.

Similar results hold for other foot-internal phonological processes cited by
Kiparsky. The foot-initial aspiration, rather than the foot-internal flapping and
voicing of t after a sonorant, appears with the #-juncture suffixes de and re:
de-toboggan, re-toboggan, despite the unstressed second syllable.[11] The rais-
ing and shortening of the complex nuclei [ay] and [aw] before voiceless con-
sonants in the same foot (b[ʌy]son, m[ʌy]ghty) is suppressed across #-juncture
in forms like b[ay]centennial, tr[ay]syllabic, which also have stressless second
syllables. Finally, the devoicing of l after s, which also applies foot-internally
(Mars[ɬ]en, Hass[ɬ]er, whist[ɬ]er), likewise fails to apply across this juncture
even before an unstressed syllable (mislegitimize, cis-Levant).

Although we obviously could stipulate, independently for each rule, that its
domain includes one class of juncture and not another, it is generally preferable
to abstract this information from the formulation of the individual processes.
Clearly, the direction in which we should proceed is suggested by the obser-
vation that each of these rules is foot-bounded. If we plausibly restrict the
domain of the formation of feet so that they do not extend across the #-
boundary junctures, we will immediately account for the facts.[12]

It follows, then, that the apparent dependence of Expletive Infixation on a
junctural distinction is really to be attributed to a distinction in prosodic struc-
ture. This limitation on the domain of foot assignment means that forms like
unbelievable and irresponsible, despite their identical surface stress patterns,
have the different associated prosodic structures illustrated in Figure 8.

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[11] Flapping of t or d before (rather than after) a juncture in a phrase like edit#ed#it [ɛDɪDɪDɪt]
is irrelevant to the issue at hand here, since it seems to be completely insensitive to stress in any
speech style, and thus reflects some different process, possibly resyllabification. Accounts of this
phenomenon can be found in Kahn 1976, Kiparsky 1979, and Selkirk MS.

[12] Exactly parallel results can be shown for compounds with apparent #-boundary juncture.
Thus, electro-fuckin-phoresis or schisto-fuckin-somiasis are well-formed, despite the presence of
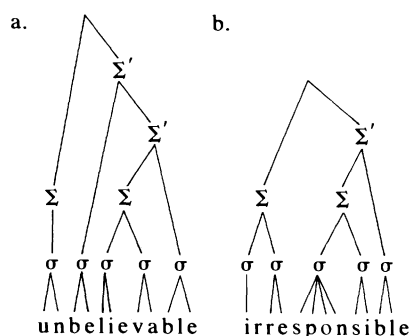infixes in the stressed–unstressed syllable strings tropho and stoso.

FIGURE 8.

A prosodic formulation of Expletive Infixation, then, readily accounts for the facts in 15: the infix may fall between *un* and the following stem because that position is a foot boundary, despite the sequence of stressed and unstressed syllables *unbe*. But it may not fall between the stressed and unstressed syllables *irre*, because that sequence constitutes a single foot Σ.

4.3. STRESS SUBORDINATION. A final point on which the prosodic theory has an empirical edge involves the relationships of relative stress which hold both in forms subject to Expletive Infixation and in forms resulting from that process. The usual output of infixation has the stress of the infix subordinated to that of the host word:

(16) Kalama-fuckin-zoo

This fact, which holds quite generally for most of the examples discussed, follows immediately from the assumption that the metrical stress tree of the host is minimally restructured to accommodate the stress tree of the infix. The infix foot will be adjoined as a weak sister to either adjacent node, as in Figure 9.[13]
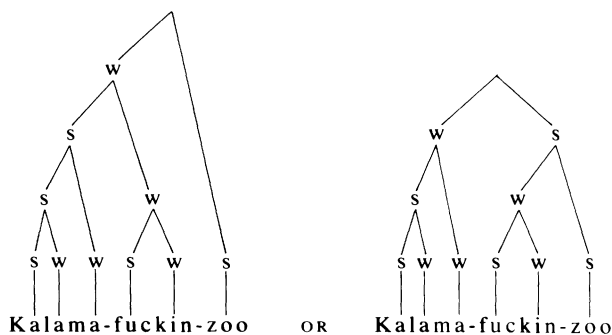

Kalama-fuckin-zoo   OR   Kalama-fuckin-zoo

FIGURE 9.

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[13] This sort of adjunction of a stray unit of metrical structure as a weak sister to an adjacent node parallels Hayes's procedure for adjoining extrametrical syllables or other units.

Clearly, this form demands no re-application, cyclic or otherwise, of the rules of word stress. The adjunction and restructuring are automatic, not the result of a rule applying after infixation. This is a notable advantage of the prosodic analysis over segmental treatments of the same facts (cf. Aronoff).

Similar considerations account readily for apparently difficult judgments on the quality of some infixations. Some speakers find forms like those in 17 to be less than grammatical, and this observation has been incorporated into various earlier discussions of Expletive Infixation (cf. Siegel and Aronoff):

(17) a. $\overset{1}{\text{Chi}}\overset{3}{\text{copee}}$ → ?Chico-fuckin-pee

    b. $\overset{1}{\text{syn}}\overset{3}{\text{copate}}$ → ?synco-fuckin-pate

    c. $\overset{1}{\text{ob}}\overset{3}{\text{ligatory}}$ → ?obliga-fuckin-tory

The generalization here is that word-final non-primary stressed feet are some-what resistant to a preceding infix. These examples are scarcely as ill-formed as the truly wretched forms in 3 with foot-internal infixes, and quite a number of equivalent examples ARE attested (5); nevertheless, we should try to give some account of their less-than-perfect acceptability.

Based on the assumption of minimal restructuring to accommodate the infix as a weak daughter, we expect one of the trees in Figure 10 to be associated with a form like 17a.
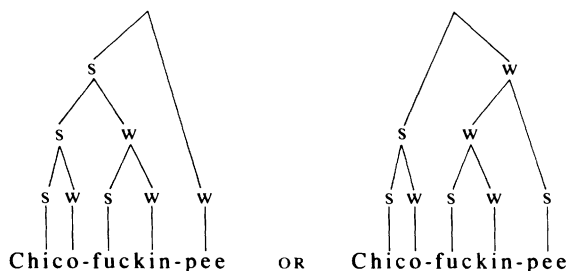

Chico-fuckin-pee   OR   Chico-fuckin-pee

FIGURE 10.

What is curious about the trees in Fig. 10 is not their formal structure, but rather their implications for the stressing. Fig. 10 has the main stress on the initial syllable *Chi*, as it does in the underlying form. The result is a main stress separated by two metrical feet from the end of the word. Since this situation never arises in the normal English vocabulary—as a result of the formulation of the Lexical Category Prominence Rule (cf. Liberman & Prince)—I suggest that speakers analogically resist this unprecedented stress placement. More-over, since the formal apparatus provided for stress does not strictly generate any other possible tree for this form, it is only by a different analogy (to forms like *Kalama-fuckin-zoo*) that speakers are able to give *Chico-fuckin-pee* final stress to bring it into closer conformity with the rest of English. In sum, the somewhat lesser acceptability of infixations like those in 17 is to be explained

without direct reference to purely grammatical considerations of well-formed-ness. This explanation accords well with the vast difference in quality and consistency of judgments between 17 and, say, 3.[14]

CONCLUSION

5. What has emerged here is an extensive reduction in the stipulations pe-culiar to the process of Expletive Infixation in favor of a rich (and, for the most part, independently motivated) formal prosodic apparatus. The result is that there is essentially no rule of Expletive Infixation, at least as we might un-derstand that term, and that all observed properties of this robust phenome-non—as well as some weaker considerations of stress subordination—can be derived from a theory of foot-level metrical structure. This is, of course, a desirable result, since it not only provides a new source of data for testing theories of prosodic phonology, but also explains a puzzling mass of data in a coherent way.

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[14] Thus a form like *Ameri-fuckin-ca, with the infix before the final syllable of a word-final dactylic foot, is anomalous on two counts. First, as in 17, there is a conflict between the second-syllable stress of the derived form and the usual distribution of main stress in English. And second, it involves the relatively poorer Σ'-internal infixation, as in 11.

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