PRIVATIVE VOICE AND ENGLISH IRREGULAR VERBS

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Mester and Itô (1989) and Cho (1990) have argued for a version of contrastive underspecification theory that involves privative features. They claim that voice specification is universally restricted to a single value [voice]. Myers (1987) proposes an analysis of certain irregular past forms in English which usually involves the spreading of [-voice]. This paper considers Myers' analysis in light of the claim that [voice] is privative. It is argued that there is an alternative analysis which is consistent with the claim that [voice] is privative and which is superior to Myers' analysis because it does not require that there are two level 1 past tense suffixes, -t and -d.

1. Introduction

Mester and Itô (1989) and Cho (1990) have argued for a version of contrastive underspecification theory that involves privative features. They claim that voice specification is universally restricted to a single value: only the feature [voice] may be present. If [voice] is privative, then voicelessness can play no role in phonology, and phonological rules cannot insert, spread, or delete [-voice]. Myers (1987) proposes an analysis of certain irregular past forms in English which crucially involves spreading of [-voice]. If Mester and Itô and Cho are correct in their assumptions that [voice] is privative, then Myers' analysis cannot be maintained. This paper considers Myers' analysis in light of the claim that [voice] is privative. It is argued that there is an alternative analysis which is consistent with the claim that [voice] is privative and which is superior to Myers' analysis and it does not require that there are two level 1 past tense suffixes, -t and -d.

2. Myers' Account

Myers argues for a Closed Syllable Shortening rule (henceforth CSS), given in (1), which shortens a vowel whenever it appears in a closed syllable:

(1) V ———> Ø / V ——————— C_σ] (level 1)[1]

This rule accounts for alternations in pairs like *deep/depth* in the following way:
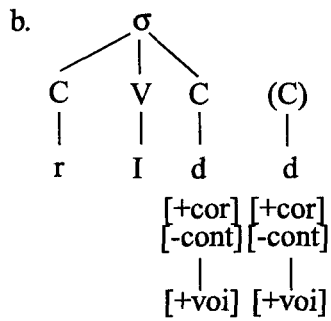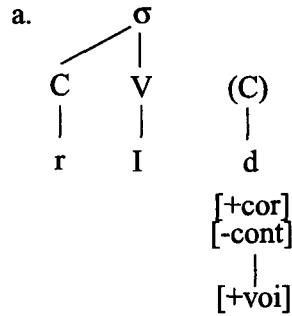
(2)   a.   b.

       c.   d.
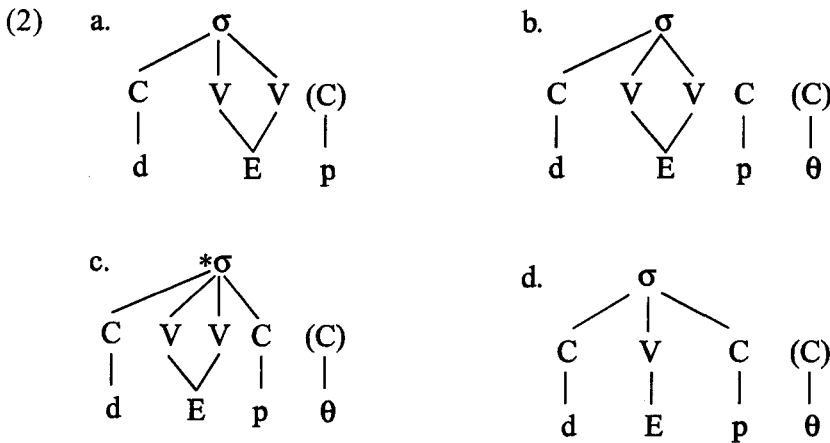
In (2a) the final /p/, being extrametrical (Hayes 1982), does not condition vowel shortening. When the suffix is added, however, the /p/ loses its extrametricality and it is available for syllabification. CSS has the effect of converting a CVVC (2c) into a CVC syllable (2d). Myers maintains that CSS also accounts for past tense forms such as *bit, bled, bred* even though they appear with a single consonant on the surface. He suggests that at the relevant stage of the derivation the shortened vowel in these forms is actually followed by two consonants. Consider the data in (3):

(3)   a. rid, bid, cost, knit, thrust, bet, slit, cut ...
       b. bled, bred, fed, hid, led, lit, met, read ...
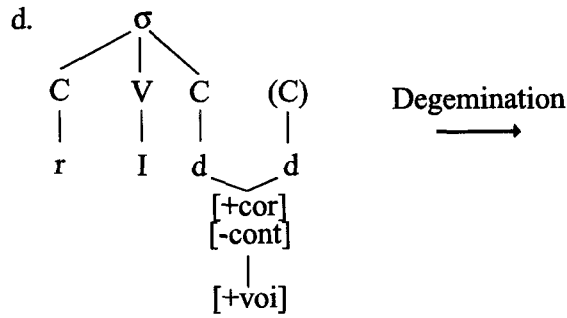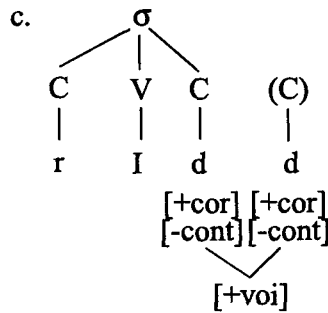   c. bent, lent, sent, spent ...

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[1] Myers (1987a) suggests that Closed Syllable Shortening (CSS) is (?) or actually results (??) from the enforcement by universal convention of a language particular syllable template that forbids CVVC syllables in roots. In Myers (1991) he suggests that CSS is a persistent rule.

According to Myers, there are two level 1 past tense suffixes, -t and -d. Hence, the verbs which undergo suffixation at level 1 must be marked so they receive the appropiate suffix.[2] Verbs in (3a) have a past form identical to the uninflected form. A verb like *rid* will be marked to take a -d suffix whereas a verb like *slit* will be marked to take a -t suffix. Derivations are given in (4) and (5):

(4) RID/RID

a.
$$\sigma$$
C V (C)
| | |
r I   d
[+cor]
[-cont]
|
[+voi]

b.
$$\sigma$$
C V C (C)
| | | |
r I d   d
[+cor] [+cor]
[-cont] [-cont]
| |
[+voi] [+voi]

Voicing
⟶

c.
$$\sigma$$
C V C (C)
| | | |
r I d   d
[+cor] [+cor]
[-cont] [-cont]
⤸
[+voi]

d.
$$\sigma$$
C V C (C)
| | | |
r I d   d
[+cor]
[-cont]
|
[+voi]

Degemination
⟶

e.
$$\sigma$$
C V (C)
| | |
r I   d
[+cor]
[-cont]
|
[+voi]

---
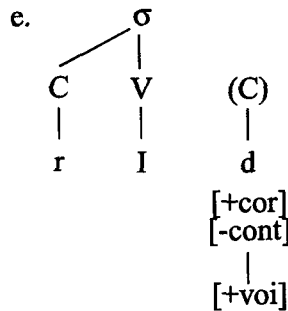
[2] Actually, if one assumes that -d is the past suffix for level 1, then only those verbs that take -t must be marked, or vice versa if -t is the past suffix for level 1.

(5) CUT/CUT

a.
```
            σ
          ╱ |
        C   V      (C)
        |   |       |
        c   U       t
                  [+cor]
                  [-cont]
                    |
                  [-voi]
```

b.
```
           σ
         ╱ | ╲
       C   V   C    (C)
       |   |   |     |
       c   U   t     t
             [+cor][+cor]
             [-cont][-cont]
               |      |
             [-voi] [-voi]
```

Voicing ⟶

c.
```
           σ
         ╱ | ╲
       C   V   C    (C)
       |   |   |     |
       c   U   t     t
             [+cor][+cor]
             [-cont][-cont]
                ╲    ╱
                [-voi]
```
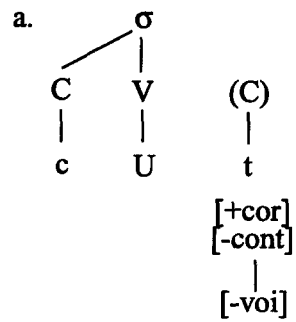
d.
```
           σ
         ╱ | ╲
       C   V   C    (C)
       |   |   |     |
       c   U   t     t
               [+cor]
               [-cont]
                 |
               [-voi]
```

Degemination ⟶

e.
```
            σ
          ╱ |
        C   V      (C)
        |   |       |
        c   U       t
                  [+cor]
                  [-cont]
                    |
                  [-voi]
```
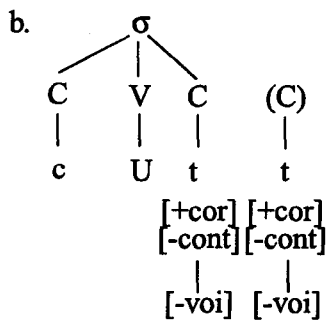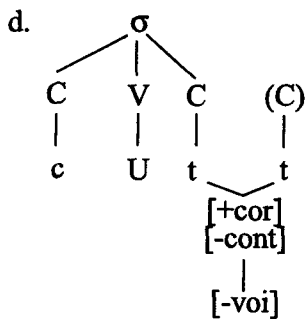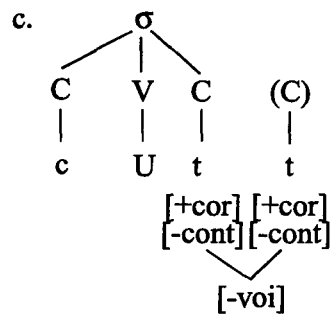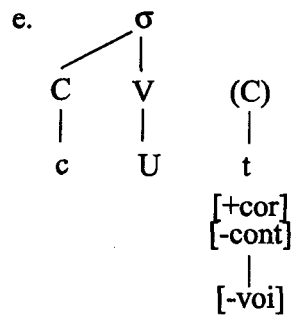
Verbs in (3b) will be marked to take *-d* as the past tense suffix. They will undergo CSS before Degemination, as it is shown in (6):

(6) FEED/FED

a.
```
        σ
       /|\
      C V V (C)
      |  V  |
      f  E  d
         [+cor]
         [-cont]
           |
         [+voi]
```

b.
```
        σ
       /|\
      C V V C      (C)
      |  V  |       |
      f  E  d       d
         [+cor] [+cor]
         [-cont][-cont]
           |      |
         [+voi] [+voi]
```

CSS →

c.
```
        σ
       /|\
      C V  C     (C)
      |  |  |      |
      f  E  d      d
         [+cor] [+cor]
         [-cont][-cont]
           |      |
         [+voi] [+voi]
```
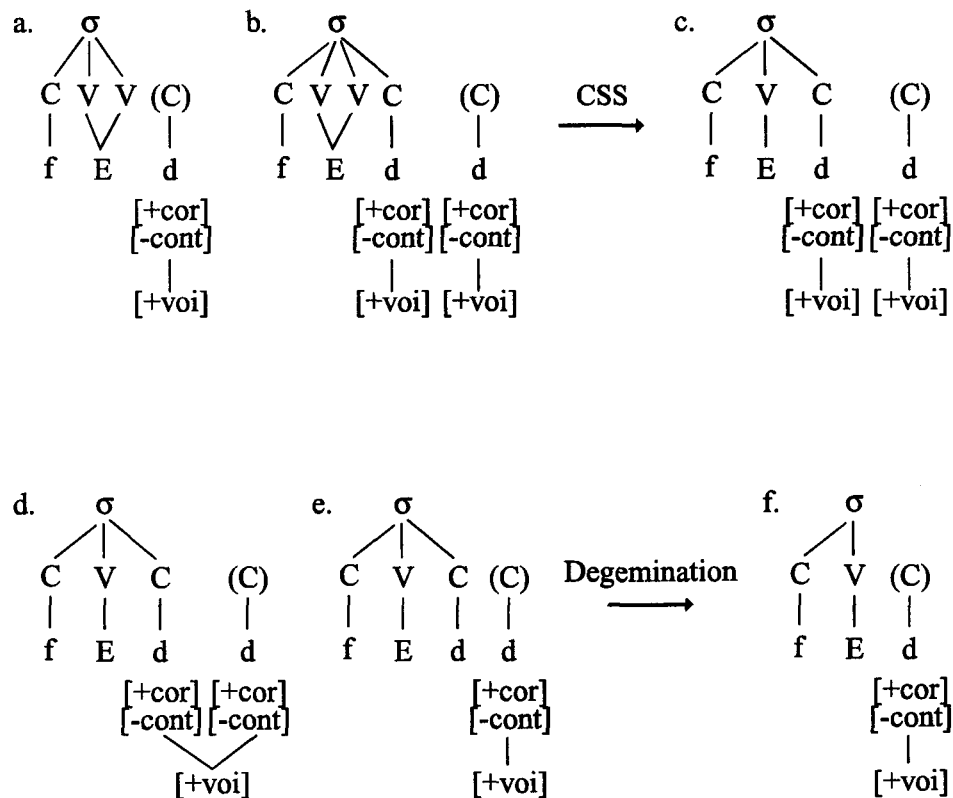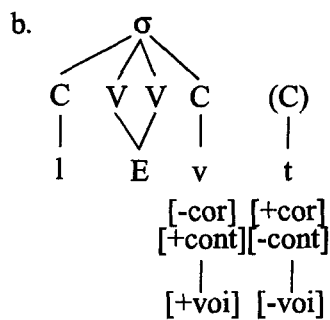
d.
```
        σ
       /|\
      C V  C    (C)
      |  |  |     |
      f  E  d     d
         [+cor] [+cor]
         [-cont][-cont]
            \    /
           [+voi]
```

e.
```
        σ
       /|\
      C V  C (C)
      |  |  |  |
      f  E  d  d
            [+cor]
            [-cont]
              |
            [+voi]
```

Degemination →

f.
```
        σ
       /|
      C V  (C)
      |  |   |
      f  E   d
            [+cor]
            [-cont]
              |
            [+voi]
```

Verbs in (3c) are marked to take -*t* because that is the only way of triggering regressive voice assimilation of the type Myers is assuming:
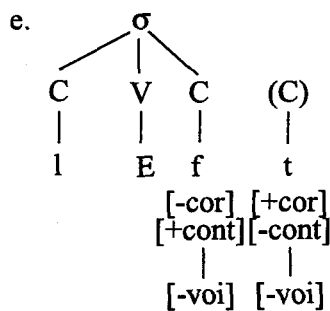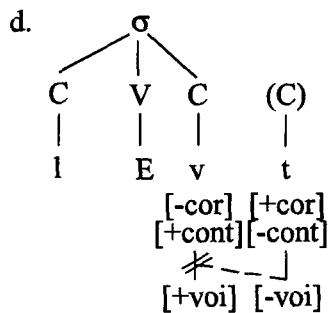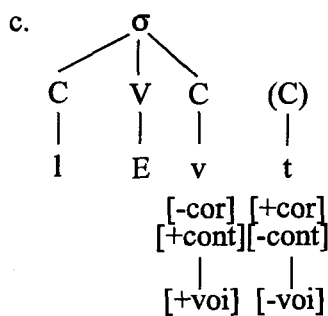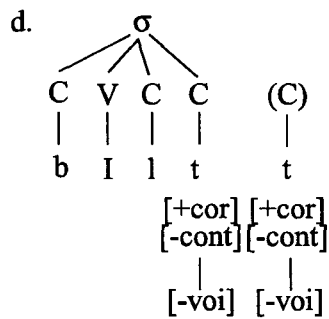
(7) LEAVE/LEFT

a.
```
              σ
           /  /\
         C   V  V   (C)
         |    \/      |
         l    E       v
                    [-cor]
                    [+cont]
                      |
                    [+voi]
```

b.
```
              σ
          / /\ \
        C  V V  C   (C)
        |   \/  |    |
        l   E   v    t
          [-cor] [+cor]
          [+cont][-cont]
            |      |
          [+voi] [-voi]
```

CSS
⟶

c.
```
              σ
           / | \
         C   V  C   (C)
         |   |  |    |
         l   E  v    t
          [-cor] [+cor]
          [+cont][-cont]
            |      |
          [+voi] [-voi]
```

d.
```
              σ
           / | \
         C   V  C   (C)
         |   |  |    |
         l   E  v    t
          [-cor] [+cor]
          [+cont][-cont]
            ╪ ─ ─ ┘
          [+voi] [-voi]
```

e.
```
              σ
           / | \
         C   V  C   (C)
         |   |  |    |
         l   E  f    t
          [-cor] [+cor]
          [+cont][-cont]
            |      |
          [-voi] [-voi]
```

(8) BUILD/BUILT

a.

```
        σ
      / | \
    C  V  C  (C)
    |  |  |   |
    b  I  l   d
            [+cor]
            [-cont]
              |
            [+voi]
```

b.

```
          σ
       / / \
     C V C  C   (C)
     | | |  |    |
     b I l  d    t
          [+cor] [+cor]
          [-cont][-cont]
            |      |
          [+voi] [-voi]
```

c.

```
          σ
       / / \
     C V C  C   (C)
     | | |  |    |
     b I l  d    t
          [+cor] [+cor]
          [-cont][-cont]
           ⟋---⌐
          [+voi] [-voi]
```

d.

```
         σ
      / / \
    C V C  C   (C)
    | | |  |    |
    b I l  t    t
         [+cor] [+cor]
         [-cont][-cont]
           |      |
         [-voi] [-voi]
```

Degemination ⟶

e.

```
        σ
      / | \
    C  V  C  (C)
    |  |  |   |
    b  I  l   t
            [+cor]
            [-cont]
              |
            [-voi]
```
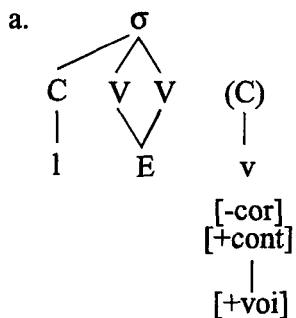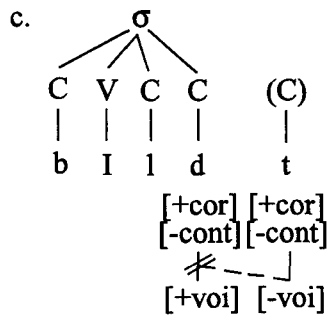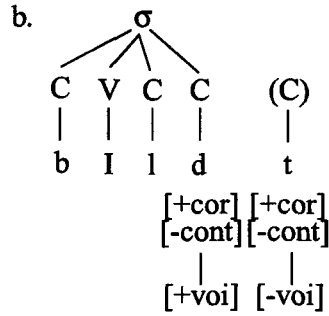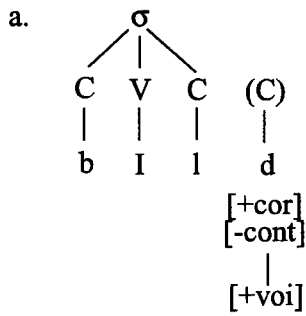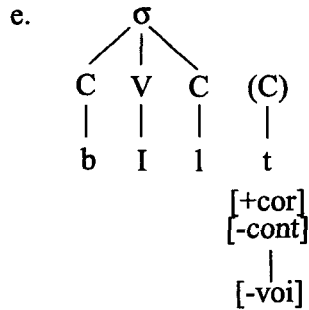
Myers is thus able to account for all the data given in (3) with rules that can be independently motivated. If this analysis is correct, then Cho and Mester and Itô's claim that [voice] is (universally) privative cannot be maintained.

3. Cho's Account

Cho follows Mester and Itô in arguing for voice as a (universally) privative feature. She proposes that two parameters and a universal rule (universal devoicing) are needed to account for voicing assimilation. The parameters are given in (9):

(9)   a. Devoicing as delinking   b. Assimilation as spreading

C   C   C

[voice]   [voice]

She claims that in English there is a distinction between exceptionless voicing agreement in inflectional morphology and postlexical voicing on the one hand, and the voicing effect in level 1 on the other. The data she provides are given in (10):

(10)   a. Voicing Alternations in Inflection
         fans[z]   laps[s]
         Jay's[z]   Dick's[s]
         he's[z]   that's[s]
         tied[d]   kissed[t]
         phoned[d]   talked[t]

     b. Postlexical Voicing Alternations
         Bob's[z] a fool   Pat's[s] a fool

     c. Level 1 Voicing Alternation
         leave-left
         five-fifth-fifty   lose-lost-loss
         live-lives-lively   cloth-clothes-clothing
         dialectal variations: width, breadth, hundredth

To account for the data in (10a/b), Cho assumes that the suffixal consonant has an underlying voice specification which is delinked due to a universal rule. "When a voiced suffix is added to a stem that ends in a voiceless consonant, the sequence (e.g. *that-z*, *lap-z*) creates a violation of the Universal Tautosyllabic Voicing Constraint (UTVC)". Cho's UTVC

is based on observations by Harms (1973) who argues that "once voicing ceases following the nucleus (vowel) of any syllable, voicing can no longer resume in that same syllable". Cho formalizes the UTVC as follows:

(11) a. UTVC:
   Voiced obstruents should be located closer to the syllable
   nucleus than voiceless obstruents

   b. Universal Devoicing:
   Delete [voice] in the following configuration

   C   C

   ⫽   [-son]

   [voice]
   ────────────────▶
   syllable nucleus
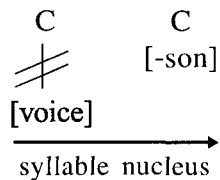
Voicing reversals are not permitted by the UTVC and the [voice] specification in final obstruents clusters has to be delinked when such reversal occurs.

Cho claims that the alternations in (10c) are morphologically governed. She notes that for some words devoicing is obligatory (*fifth*) while other forms exhibit dialectal variation (*width*). "If voicing agreeement were accomplished by a language-specific rule that ensures voicing agreeement in tautosyllabic clusters . . . some forms would remain exceptions to the rule". She notes further that in the word *fifty*, there is no reason why the suffix -*ty* should trigger voicing assimilation since the underlying /v/ is not in the same syllable as the suffix initial *t*, but still undergoes devoicing. Finally, she observes that voiceless obstruents show up in non-assimilatory environments as well, as in *lose-loss* and *live-life*. Whatever the merits of these arguments with respect to *five-fifth* vs *wide-width* [widθ] are, it is not clear that they could be extended to forms such as *leave-left* or *lose-lost*.

Cho does not actually indicate what her analysis involves beyond the claim that devoicing is morphologically triggered. Presumably, since Cho claims that (level 1) devoicing is morphologically triggered, she has in mind a rule like (12):

(12)

$$+A \quad \begin{matrix} -son \\ \neq \\ voice \end{matrix} \Bigg] \quad \begin{matrix} Past \\ \\ root \end{matrix}$$

A verb such as *build* would be marked +A to undergo morphological devoicing as in (13):

(13)

$$+A \quad \begin{matrix} /\,b \ I \ l \ d\,/ \longrightarrow \quad /\,b \ I \ l \ t\,/ \\ \neq \\ [voi] \end{matrix}$$

Verbs such as *feed* do not undergo devoicing but do undergo (Myers') shortening. Since the context for (Myers') shortening is not met by these forms, they presumably would be marked +B to undergo a morphologically triggered shortening rule:

(14)   /fi:d/ ⟶ /fed/
        +B

Verbs such as *lose* and *leave* would undergo not only morphological devoicing and laxing, but also add *t*. Items of this type would need a third diacritic, +C for example, to indicate that they add -*t* in the past as well as undergoing devoicing and laxing:

(15)   +A, +B, +C /lu:z/ ⟶ /lɔs+t/
                        $\neq$
                        [voice]
                        /li:v/ ⟶ /lef+t/
                        $\neq$
                        [voice]

A verb such as *mean* would be marked +C to trigger the addition of -*t* and +B to trigger shortening.

The problem with such an analysis is that it is *ad hoc*. Three separate morphological markings must be assumed to avoid an analysis (such as Myers') in which a consonant -*t* is added and is responsible for the devoicing in *build* as well as in *lost*. There are no data showing that devoicing in the past is independent of the addition of a consonant. What

is needed to support Cho's claim is that devoicing occurs in the past where it could not result from the addition of -*t*, for example, a verb like *dɔb* with a past *dɔp*. But such forms do not exist.
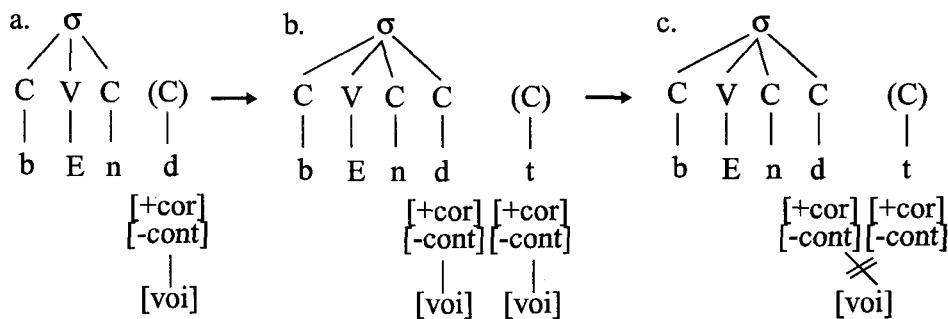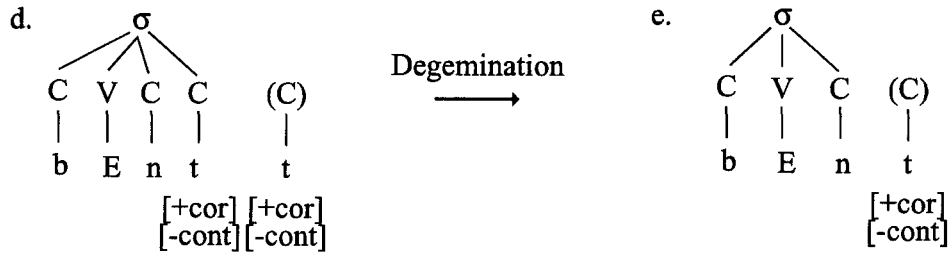

4. A Different Solution

We have argued in the preceding section that the morphological analysis of certain irregular past forms in English is inadequate. Does this mean that we must accept Myers' analysis and reject the claim that voice is privative? As we will argue in this section, the answer to the question is "no". We suggest, rather, that Myers' insights can be incorporated into an analysis in which no [-voice] feature is required. Moreover, this analysis does not require that two level 1 past suffixes, -*t* and -*d* be assumed. Only one, -*t* is necessary. Hence, the morphological marking that Myers assumes to indicate which verbs take -*t* and which -*d* can be dispensed with. We assume Myers' rules of shortening and assume that the level 1 past suffix is -*t* in all cases. We further assume that there is a rule (16) which applies to delink [voice]:

(16)   Delink [voice] from an obstruent preceded by a sonorant conso-
       nant or from a fricative if followed by a coronal stop.

Assuming Myers' formulation of degemination, the derivation of *built*, *lent*, *sent*, and *spent* will be like the derivation of *bent* given in (17):
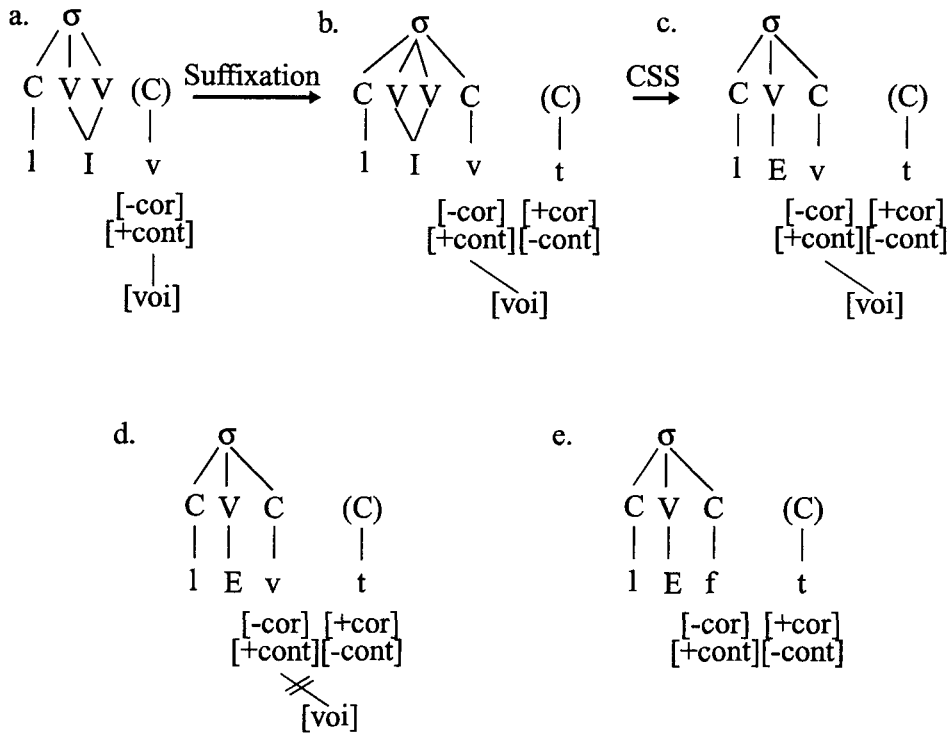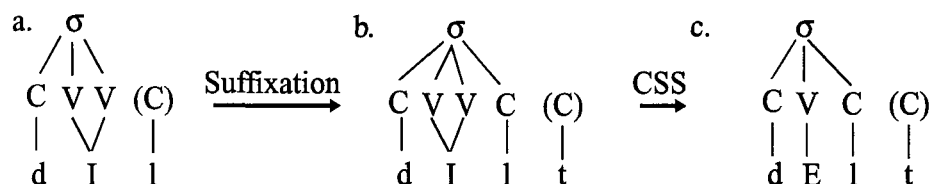
(17) BEND /bend/

d.

```
         σ
       /|\ \
      C V C  C      (C)
      | | |  |       |
      b E n  t       t
           [+cor] [+cor]
           [-cont][-cont]
```

Degemination
⟶

e.

```
         σ
       / |  \
      C  V  C    (C)
      |  |  |     |
      b  E  n     t
              [+cor]
              [-cont]
```

Verbs such as *bereft*, *cleft*, and *lost* will be derived like *left*:

(18) LEAVE /liːv/

a.

```
     σ
    /|\
   C V V  (C)
   | \/    
   1  I    
   [-cor]
   [+cont]
     |
   [voi]
```

Suffixation ⟶

b.

```
       σ
     /|\ \
    C V V  C     (C)
    | \/   |      |
    1  I   v      t
    [-cor] [+cor]
    [+cont][-cont]
            \
           [voi]
```

CSS ⟶

c.

```
       σ
     / |  \
    C  V  C    (C)
    |  |  |     |
    1  E  v     t
    [-cor] [+cor]
    [+cont][-cont]
            \
           [voi]
```

d.

```
       σ
     / |  \
    C  V  C    (C)
    |  |  |     |
    1  E  v     t
    [-cor] [+cor]
    [+cont][-cont]
         ⤫
       [voi]
```

e.

```
       σ
     / |  \
    C  V  C    (C)
    |  |  |     |
    1  E  f     t
    [-cor] [+cor]
    [+cont][-cont]
```

Verbs such as *dreamt* and *meant* will be derived like *dealt*:

(19) DEAL /di:l/

a.
```
      σ
     /|\
    C V V (C)
    |  \/  |
    d  I   l
```
Suffixation →

b.
```
       σ
      /|\
     C V V C (C)
     |  \/  |  |
     d  I   l  t
```
CSS →

c.
```
       σ
      /|\
     C V C (C)
     |  |  |  |
     d  E  l  t
```

Verbs like *bleed-bled, breed-bred, feed-fed, lead-led* can be taken to indicate that the devoicing that occurs in the past forms of *build* and *lose* is, in fact, not a result of the spreading of [-voice] as suggested by Myers, but rather a result of (16). Since (16) is inapplicable in these forms, the delinking of [voice] does not occur and this is precisely correct. Hence, if we assume that [voice] is privative and thus that [-voice] cannot spread, we do not need to assume, as does Myers, that the forms like *bleed* add -*d* rather that -*t* in the past. To derive the correct surface forms we must assume, however, that degemination applies to *dt* clusters as well as *tt* clusters and hence it is not technically a degemination rule. Thus we propose that *bled* is derived as in (20):

(20) BLEED /bli:d/

a.
```
        σ
       /|\
    C C V V (C)
    |  | \/   |
    b  l  I   d
```
Suffixation →

b.
```
         σ
        /|\
     C C V V C (C)
     |  | \/  |  |
     b  l  I  d  t
```
CSS →

c.
```
        σ
       /|\
    C C V C (C)
    |  |  |  |  |
    b  l  E  d  t
```
Revised degemination →

d.
```
        σ
       /|\
    C C V (C)
    |  |  |  |
    b  l  E  d
```
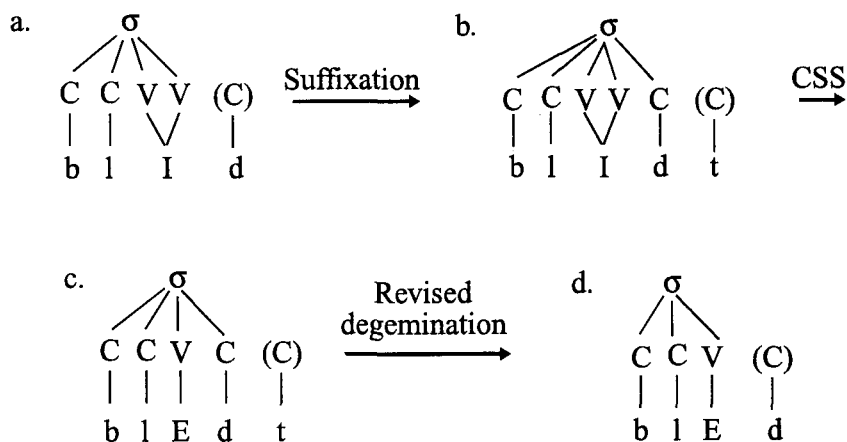
5. Conclusion

We have considered certain irregular past forms in English which have been analyzed as involving the spreading of [-voice]. We have seen, on the one hand, that the analysis proposed by Myers accounts for the data, but requires two level 1 past tense suffixes (-*t*, -*d*) and is inconsistent with the assumption that voice is privative. On the other hand Cho's claim that devoicing is morphologically conditioned is unsupported. The proposal presented in this paper has the advantage that it accounts for the voicing alternations of irregular forms in level 1 without any special markings while maintaining, at the same time, the claim that voice specification is universally restricted to a single value. Moreover, with this proposal we will just need -*t* as the level 1 suffix and -*d* as the regular inflectional suffix.

WORKS CITED

Borowsky, Toni. 1987. "Antigemination in English Phonology". *Linguistic Inquiry* 18: 671-78.

Cho, Young-mee Yu. 1990. "A Typology of Voicing Assimilation". In *Proceedings of the West Coast Conference on Formal Linguistics* 9.

Halle, Morris, and K.P. Mohanam. 1985. "Segmental Phonology of Modern English". *Linguistic Inquiry* 16: 57-116.

Harms, Robert T. 1973. "Some Non-Rules in English". *Indiana University Documents*: Indiana University Linguistics Club.

Hayes, Bruce. 1982. "Extrametricality and English Stress". *Linguistic Inquiry* 13: 227-76.

Kiparsky, Paul. 1985. "Some Consequences of Lexical Phonology". *Phonology* 2: 85-138.

Mester, R. Armin, and Junko Itô. 1989. "Feature Predictability and Underspecification: Palatal Prosody in Japanese Mimetics". *Language* 65: 258-93.

Myers, Scott. 1987. "Vowel Shortening in English". *Natural Language and Linguistic Theory* 5: 485-518.

—————. 1991. "Persistent Rules". *Linguistic Inquiry* 22: 315-44.

Pinker, Steven, and Alan Prince. 1988. "On Language and Connectionism: Analysis of a Parallel Distributed Processing Model of Language Acquisition". *Cognition* 28: 73-193.

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