ENGLISH VERB INFLECTION

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1. Introductory

1.1. The inflection of verbs in present-day colloquial English has been described in many works—most clearly and exhaustively, perhaps, by Sweet, Palmer, Curme, Fries, Jespersen, and Hockett. In view of the number and fullness of these descriptions, no new treatment can hope to add any facts hitherto overlooked: at most, a new treatment may be able to arrange the known facts more systematically than has been done before, or in a way that will be more useful to other linguists.

In all previous works, the inflection of English verbs is described in terms of the processes by which various inflected forms are derived from underlying bases. Thus, the preterit waited is said to be derived from wait by the addition of a suffix, took from take by vowel change, built from build by consonant change, sold from sell by vowel change and suffixation together, went from go by suppletion, put from put by zero change, and so on. Statements of this kind, referring to processes of derivation, are useful for showing the relation of any inflected form to its base; but they have at least one serious shortcoming: they cannot be readily used for the description of specific forms, viewed as words in their own right.

1.2. To describe the structure of a language as a whole, the linguist must be able to describe also the structure of any single sentence or part of a sentence that occurs in the language. He does this in terms of constructions—essentially, in terms of morphemes and their order. Any sentence, phrase, or complex word can be described as consisting of such-and-such morphemes in such-and-such

The dialect here studied is a somewhat generalized northeastern variety of standard American English. For the methodological groundwork of this paper see Zellig S. Harris, Morpheme alternants in linguistic analysis, LANG. 18.109-80 (1942); Rulon S. Wells, Immediate constituents, LANG. 23.81-117 (1947); and C. F. Voegelin, A problem in morpheme alternants and their distribution, LANG. 23.245-54 (1947). Compare also Charles F. Hockett, Problems of morphemic analysis, LANG. 23.321-43 (1947). Though my views in general agree with Hockett's, it will be observed that his treatment of certain problems of English inflection (especially in §24 of his paper) differs markedly from the one here proposed.

I have profited from discussions with R. S. Wells, W. F. Twaddell, and Martin Joos.


2 Wells, LANG. 23.93-8.
an order; each morpheme has a meaning, and so also has the order in which they occur (the ‘constructional meaning’).

For the purposes of this paper we adopt Bloomfield’s definition of a morpheme, which has been accepted by nearly all descriptive linguists. A morpheme, according to Bloomfield, is ‘a linguistic form which bears no partial phonetic-semantic resemblance to any other form’; a linguistic form is ‘any combination of phonemes . . . which has a meaning’.  

To illustrate: the preterit form waited—considered simply as a word, without the morphemes of stress and pitch that would accompany it in a real utterance—can be described as follows. It consists of two morphemes, /weyt/ and /ed/, occurring in that order. The meaning of the first morpheme is a particular action that we need not specifically define here; that of the second is ‘past time’ or the like. The constructional meaning of the order in which the two morphemes occur is approximately ‘perform a certain action at a certain time’.

How shall we describe, now, the preterit form took? Its relation to the uninflected form take is irrelevant, because we are concerned here simply with the structure of this one word, not with its derivation. Either took is one morpheme, or it is two morphemes; the possibility of its being more than two may be neglected as improbable. If it is one morpheme, it is either the same morpheme as take, or a different morpheme: as a morpheme, it cannot be partly the same and partly different. If it is the same morpheme as take, its meaning must be the same also; but of course we know that took and take are not synonymous. If took is a single morpheme different from take, then there can be no morphological connection between them—just as there is none between took and talk; but since the semantic and syntactic relation of took to take is exactly the same as that of waited to wait, we do not like to give up the possibility of connecting them in a morphological system. Finally, if took consists of two morphemes, what are they? Perhaps they are (1) /teyk/ and (2) vowel change; but if a morpheme is ultimately a combination of phonemes, then it is clear that vowel change, a process, is not a morpheme. Perhaps, instead, the two mor-

5 The phonemic transcriptions in this paper necessarily reflect my own speech, except that a few distinctions not commonly made in other dialects of English have been disregarded. On the transcription of vowels and diphthongs see George L. Trager and Bernard Bloch, The syllabic phonemes of English, Lang. 17.223-46 (1941), and cf. Lang. 19.189 fn. 15 (1943). The following stressed syllabics occur in the dialect here transcribed: /i/ in pit, /e/ in pet, /a/ in pat, /a/ in pot, /s/ in cut, /o/ in coffin, /u/ in put, /ə/ in just (adverb); /y/ in beat, /ey/ in bait, /ay/ in bite, /oy/ in boil, /uy/ in ruin (monosyllabic); /aw/ in bout, /ow/ in boat, /uw/ in boot; /ih/ in theater, /eh/ in yeah, /ah/ in mad, /ah/ in calm, /oh/ in law, /ah/ in er (hesitation form); /ir/ in here, /er/ in there, /ər/ in part, /or/ in port, /ur/ in sure, /ər/ in curt; /ihr/ in beer, /e/hr/ in bare, /ər/h in bar, /ər/h in bore, /ihr/ in boor, /ər/h in burr. Pitch will not be marked in this paper: stress will be marked only in transcriptions of whole utterances. A space between words has no phonetic or phonemic significance.

Needless to say, the treatment of verb inflection offered here does not depend on the system of transcription. The cited forms could be written just as well according to any other system, so long as it recognized the existing phonemic distinctions in American English.
phemes in took are (1) /t...k/ and (2) /u/; but then what about take? Does take then consist of the two morphemes /t...k/ and /ey/? If so, it differs in a fundamental respect from a verb like wait, which consists of only a single morpheme; and we must classify English verbal bases into two morphological groups according to the number of their morphemes. Or perhaps take is only one morpheme, and the two morphemes in took are (1) /teyk/ and (2) /− ey + u/; but again the second of these entities fits no definition of a morpheme that linguists are commonly agreed upon.

The difficulty is even greater with an 'unchanged' preterit like put (He put it there yesterday). How can we phrase a description of this word that will be different from a description of put, the corresponding base form?

1.3. The treatment of inflection to be given here is intended to make possible a clear and unambiguous description of all verb forms. By analyzing every inflected form as a combination of morphemes in a particular order, and by avoiding all reference to the process by which the form is derived, we shall be able to systematize the facts of English verb inflection in a way that will be not only more useful to the descriptive linguist than the treatments hitherto published, but also more uniform and in the long run simpler.

2. Categories and Assumptions

2.1. A verbal base, in English, is used without any suffix in several different functions: as an infinitive (I can't wait; I don't want to wait), as an imperative (Wait a minute), as a finite present with a subject in the 1st or 2d person singular or in the plural (I wait here every day; If you wait for him; They wait in line for it), and in some other ways. In other functions, the verbal base appears with a following inflectional suffix: as a finite present with a subject in the 3d singular (He waits here every day), as a finite preterit (I waited for him), as a participle (I've waited long enough), and as a gerund (I'm still waiting; perhaps also Waiting is tiresome).

We shall speak of 3d singular, preterit, participle, and gerund as the four inflectional categories of English verbs; and we shall speak of every verb form that is used in one of these four functions as an inflected form.6

2.2. To prepare the ground for further discussion, we shall briefly examine a number of typical verb forms. Comparing the 3d-singular forms passes, waits, and lives /pəhs-es, weyt-s, liv-z/, we note that the inflectional suffix

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7 We shall pay no attention in this paper to derivational suffixes (like the -er in waiter, the -ful in wakeful, or the -th in growth), except for a brief mention in §4.5. On the difference between inflection and derivation see Bloch and Trager, Outline of linguistic analysis 54-5 = §4.3 (Baltimore, 1942).
8 The verb be has inflected forms not included among these four categories. Since this verb presents a special and vexing problem, we shall postpone all reference to it until §5. Inflected verb forms used only with a subject in the 2d person singular (archaic forms like waitest, preterit waitedst, and Quaker forms like [thee] waits) are not regarded in this paper as part of present-day standard American English.
9 Hyphens in the phonemic transcription throughout this paper indicate morphological boundaries, not phonemic junctures.
appears in three different phonemic shapes /ez, s, z/, whose choice depends on the last phoneme in the base. If we now add the 3d-singular form need (He need not go) and interpret this like the others as consisting of a base plus an inflectional suffix, we find that the suffix has yet another phonemic shape, namely zero, and that the occurrence of this shape cannot be predicted from the last phoneme in the base but only from the base itself; i.e. the choice of zero instead of /z/ depends on the fact that the base here is need and not some other base, such as lead.

Again, the preterit forms waited, passed, and lived /weyt-ed, pæhs-t, liv-d/ reveal three phonemic shapes of the preterit suffix. In general, the choice among them depends on the last phoneme in the base; but a form like dwell /dwel-t/ instead of the expected /dwel-d/ shows that the alternation among the three shapes is not wholly determined by this criterion. The preterit form put (He put it there yesterday) contains an additional shape of the same suffix, namely zero again.

Not only the inflectional suffixes but bases also may have more than one phonemic shape. If we compare the preterit forms cried and fled /kray-d, fle-d/ with the corresponding uninflccted forms, we find that the base cry /kray/ remains unchanged before the suffix /d/, whereas the base flee /fly/ appears before this suffix in the special shape /fle/. In just the same way, the base take /tey-k/ appears before the same suffix in the special shape /tuk/ — the only difference being that after this particular base the preterit suffix has the phonemic shape zero, as it has also after the base put.

2.3. We are now ready to state the special assumptions that underlie our treatment of English verb inflection. (1) Every verb form functioning as a 3d-singular finite present, as a finite preterit, as a participle, or as a gerund consists of a base and an inflectional suffix. (2) Different phonemic shapes of a given base appearing before different suffixes, and different phonemic shapes of a given suffix appearing after different bases, are morpheme alternants of the same morpheme.10 (3) One of the alternants of a given morpheme may be zero; but no morpheme has zero as its only alternant. (4) Different morphemes may have one or more alternants (including zero) in common. (5) Phonemically different forms that occur in the same environment, and are not in completely free variation with each other, are morphemically different.

3. Inflectional Suffixes

3.1. We list here the four morphemes that appear as inflectional suffixes after verbal bases, together with their morpheme alternants. Alternants whose choice depends on the last preceding phoneme (automatic alternants) are connected by a curve (\(\sim\)); alternants whose choice depends not on a phonemic feature but on the base itself (non-automatic alternants) are separated by a semicolon. The four suffix morphemes are designated by italic numerals:

**Suffix I** (3d singular): /ez/ after sibilant \(\sim\) /s/ after voiceless non-sibilant \(\sim\)/z/ elsewhere; /0/ (zero).

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10 On morpheme alternants and morpheme units see Harris, Lang. 18.170-3; and cf. Hockett, Lang. 23.341-2.
Suffix 2 (preterit): /ed/ after apical stop ~ /d/ after voiced sound other than apical stop; /t/; /0/.
Suffix 3 (participle): /ed/ after apical stop ~ /d/ after voiced sound other than apical stop; /t/; /n/ after syllabic\(^{11}\) ~ /ən/ elsewhere; /0/.
Suffix 4 (gerund): /iŋ/.

3.2. Certain alternants of different suffix morphemes are associated, in the sense that if a given base is followed by one of them, it will be followed also by the other; thus the /t/ alternant of suffix 2 occurs only after bases that are followed also by the /t/ alternant of suffix 3, and conversely. On the other hand, certain alternants of different suffix morphemes are mutually exclusive, in the sense that they never appear after the same base; thus no base that is followed by the zero alternant of suffix 1 is followed also by the zero alternant of suffix 2 or 3.

Among verbs inflected for all four of the categories we have listed, we find that the alternants of the four suffix morphemes appear in seven different combinations. (Automatic alternants are not differentiated in this count.) These combinations provide a basis for grouping such verbs into seven inflectional classes (A to G). To these we must add two more (H and I) to accommodate verbs that are not inflected for all four of the categories. Some verbs have no participle or gerund; other verbs lack not only these forms but a preterit also.

The following list shows the nine inflectional classes of English verbs, based on the combinations of suffix alternants that accompany their bases. To simplify the listing, the automatic alternants /ez ~ s ~ z/ are represented by /z/, the alternants /ed ~ d/ by /d/, and the alternants /n ~ ən/ by /n/. One example is given for each class.

<table>
<thead>
<tr>
<th>Class</th>
<th>Suffix 1</th>
<th>Suffix 2</th>
<th>Suffix 3</th>
<th>Suffix 4</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>z</td>
<td>d</td>
<td>d</td>
<td>iŋ</td>
<td>live</td>
</tr>
<tr>
<td>B</td>
<td>z</td>
<td>t</td>
<td>t</td>
<td>iŋ</td>
<td>pass</td>
</tr>
<tr>
<td>C</td>
<td>z</td>
<td>0</td>
<td>n</td>
<td>iŋ</td>
<td>fall</td>
</tr>
<tr>
<td>D</td>
<td>z</td>
<td>0</td>
<td>0</td>
<td>iŋ</td>
<td>put</td>
</tr>
<tr>
<td>E</td>
<td>z</td>
<td>d</td>
<td>n</td>
<td>iŋ</td>
<td>show</td>
</tr>
<tr>
<td>F</td>
<td>z</td>
<td>0</td>
<td>d</td>
<td>iŋ</td>
<td>dive</td>
</tr>
<tr>
<td>G</td>
<td>0</td>
<td>d</td>
<td>d</td>
<td>iŋ</td>
<td>need</td>
</tr>
<tr>
<td>H</td>
<td>0</td>
<td>d</td>
<td></td>
<td></td>
<td>can</td>
</tr>
<tr>
<td>I</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>must</td>
</tr>
</tbody>
</table>

3.3. In traditional terminology, verbs in classes A and B are weak verbs; those in classes C and D are strong verbs; those in classes E, F, and G are mixed or anomalous verbs; and those in classes H and I are auxiliaries.

Auxiliaries are not only defective in their morphology, but syntactically peculiar as well. The uninflected form (can, shall, must, may, etc.) is used as a finite present with a subject in the 1st or 2d person singular or in the plural (cf. §2.1), but not as an infinitive or as an imperative.

\(^{11}\) A syllabic is a vowel alone or a vowel plus /y, w, h, r, hr/; cf. in. 5.
4. **Verbal Bases**

4.1. Turning now from the suffix morphemes to the base morphemes, we observe that some verbs (*wait, live, beat, show*, etc.) have a base with only one phonemic shape—in other words, with only one morpheme alternant. Other verbs (*flee, take, fall, bite*, etc.) have a base with two different morpheme alternants: one that appears when the base is used alone and before certain of the inflectional suffixes, another that appears before certain other suffixes. And some verbs (*sing, fly, drive, do*, etc.) have a base with three different morpheme alternants.

This divergence among the base morphemes allows us to divide them into seven **base groups** according to the number of their morpheme alternants and the particular suffix morphemes before which the alternants occur. When a given base has two alternants or more, they are designated as ‘first alternant’, ‘second alternant’, and so on: the first alternant being the one that appears when the base is used alone, and the others being numbered arbitrarily.

**Base group 1.** Single alternant. (Example: *wait.*)

**Base group 2.** Second alternant before suffix 2. (Example: *take.*)

**Base group 3.** Second alternant before suffixes 2 and 3. (Example: *break.*)

**Base group 4.** Second alternant before suffixes 1, 2, and 3. (Example: *say.*)

**Base group 5.** Second alternant before suffix 2; third alternant before suffix 3. (Example: *sing.*)

**Base group 6.** Second alternant before suffix 2; third alternant before suffixes 1 and 3. (Only example: *do.*)

**Base group 7.** Second alternant before suffixes 2 and 3; third alternant before suffix 1; fourth alternant before suffix 4. (For the only example see §6.1 s.v. *have.*)

4.2. In citing a verbal base (in the lexicon or elsewhere) we must give all its morpheme alternants, listed in the order determined by the tabulation in §4.1. If we do this, it is obvious that the complete inflection of the verb can then be defined simply by noting the inflectional class and the base group to which it belongs. The following illustrations will make this clear:

<table>
<thead>
<tr>
<th>Verb</th>
<th>Base Form(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>wait</em> (A1)</td>
<td>/weyt/</td>
</tr>
<tr>
<td><em>take</em> (C2)</td>
<td>/teyk; tuk/</td>
</tr>
<tr>
<td><em>build</em> (B3)</td>
<td>/bild; bil/</td>
</tr>
<tr>
<td><em>put</em> (D1)</td>
<td>/put/</td>
</tr>
<tr>
<td><em>beat</em> (C1)</td>
<td>/biyt/</td>
</tr>
<tr>
<td><em>sing</em> (D5)</td>
<td>/sijn; seŋ; saŋ/</td>
</tr>
</tbody>
</table>

11 Strictly considered, every verbal base has at least two alternants differing in stress see Wells, **Lang.** 23 108-14 = §§66-78. Thus, *wait* has the following alternants: (1) /weyt/, without inherent stress, when the base is accompanied in an utterance by the emphatic stress morpheme */\textit{a} /|eɪnt)/, e.g. *Wait a minute /weɪt a \textit{m}nɪt/;* (2) /w\textit{eyt}/, with ‘reduced-loud’ stress, when the base is not accompanied by the emphatic stress morpheme, e.g. *Let’s \textit{w}ait \texttt{here} /lɛt s \textit{w}eɪt \texttt{h}ɪr/;* (3) /w\textit{eyt}/, with ‘medial’ stress, again when the base is not accompanied by the emphatic stress morpheme, e.g. *Let’s \textit{\texttt{n}ot w}ait \texttt{here} /lɛt s \texttt{\textit{n}at \textit{w}eɪt \texttt{h}ɪr/.* (The first of these alternants would appear also if the base were pronounced without any phonemic stress; but this would scarcely happen with a word like *wait.*) In our discussion, we shall disregard all stress differences among morpheme alternants.
The indication A1 after *wait* means that the suffix morphemes appear after this base in the alternants /s, ed, ed, iŋ/, and that the base appears before all these suffixes in the single form /weyt/; the complete inflection of this verb is accordingly /weyt-s, weyt-ed, weyt-iŋ/. The indication B3 after *build* means that the suffix morphemes appear in the alternants /z, t, t, iŋ/, and that the base has two alternants of its own: one, /bild/, appearing before the suffixes /z/ and /iŋ/, the other, /bil/, appearing before /t/ and /t/. The indication C1 after *beat* means that the suffix morphemes appear as /s, 0, ən, ɨŋ/, and that the base is uniformly /biyt/ before all the suffixes. In the same way, the indications C2, D1, and D5 a ter *take, put, and sing* respectively, mean that the complete inflection of these verbs is /teyk-s, tuk-0, teyk-ən, teyk-ɨŋ; put-s, put-0, put-ɨŋ; ʃın-ən, ʃəŋ-0, ʃəŋ-ɨŋ/.

The twofold classification of a verb according to its inflection class and its base group (indicated by a double symbol such as A1, B3, C2) we shall call its conjugation type.

4.3. The overwhelming majority of English verbs belong to one of two conjugation types: to B1 if the base ends in a voiceless consonant except /t/, otherwise to A1. Such verbs are regular; all others are irregular.

A considerable number of verbs belong to both a regular and an irregular conjugation type. Thus, *burn* belongs to both A1 and B1 (with inflected forms /bəhərn-z, -d, -d, -iŋ/ and /bəhərn-z, -t, -t, -iŋ/ respectively); *fit* belongs to both A1 and D1 (with inflected forms /fit-s, -ed, -ed, -iŋ/ and /fit-s, -0, -0, -iŋ/ respectively); *heave* belongs to both A1 and D3 (with inflected forms /hiyv-z, -d, -d, -iŋ/ and /hiyv-z, howv-0, howv-0, hiyv-ɨŋ/ respectively). There are also verbs that belong to two or more different irregular conjugation types. Thus, *spit* belongs to D1 and D3 (with inflected forms /spit-s, -0, -0, -ɨŋ/ and /spit-s, spət-0, spət-0, spit-ɨŋ/ respectively); *tread* belongs to C3 and D3 (with inflected forms /tred-z, trad-0, trad-ən, tred-ɨŋ/ and /tred-z, trad-0, trad-0, tred-ɨŋ/ respectively); and *shrink* belongs to four different types—C3, C5, D3, and D5 (with inflected forms /ʃrɪŋk-s, ʃrəŋk-0, ʃrəŋk-ɨŋ/, /ʃrɪŋk-s, ʃrəŋk-0, ʃrəŋk-0, ʃrəŋk-0, ʃrəŋk-0, šrəŋk-ɨŋ/ respectively).

Some verbs exhibit a difference in meaning according to their conjugation type; thus, *shine* is transitive in A1 (*I shined my shoes*) but intransitive in D3 (*The sun shone*). Other verbs have the same or approximately the same denotation, but slightly different stylistic and social connotations: the participle *shown* (E1) is for many speakers more elegant than the participle *showed* (A1). Still other verbs are apparently identical in both meaning and connotation regardless of their conjugation type, so that the different inflected forms (e.g. *burned* and *burnt*) occur interchangeably in all situations—i.e. in completely free variation. According to our assumptions (§2.3), if a verb that belongs to a given conjugation type differs in meaning or connotation, however slightly, from a verb with a phonemically identical base that belongs to another type, the verbs are different morphemes: the *shine* whose preterit is *shined* is a different verb from the *shine* whose preterit is *shone*; and by the same argument the *show*
whose participle is *shown* is a different verb from the *show* whose participle is *showed*.\(^{13}\)

Since in practice it is often difficult to decide whether a given phonemic shape that belongs to two or more conjugation types is one verbal base or more than one, we shall not attempt the distinction. Hereafter, we shall use an asterisk to identify all bases that either (1) belong to both a regular and an irregular type, or (2) belong to an irregular type and are homonymous (in at least their first morpheme alternant) with a base belonging to a regular type.

4.4. A number of bases have morpheme alternants whose appearance is controlled not by an inflectional suffix but by some other following element. Chief among such elements is the unstressed morpheme \(n't\)—/nt/ after a syllabic, /\(\text{-ant}\)/ elsewhere—that occurs after eleven of the uninflected bases and after some of the corresponding inflected forms.\(^{14}\) The following verb forms appear before this morpheme unchanged:\(^{15}\)

\[
\begin{align*}
\text{can}, & \text{ pret. } /\text{kud}/ : /\text{kud-ant}/. & \text{may}, & \text{ pret. } /\text{mey}/ : /\text{mey-nt}/. \\
\text{dare}, & \text{ pret. } /\text{dehr}/ : /\text{dehr-nt}/. & \text{might}, & \text{ pret. } /\text{mayt}/ : /\text{mayt-ant}/. \\
\text{do}, & 3d \text{ sg. } /\text{daz}/, \text{ pret. } /\text{did}/ : /\text{daz-ant}/, \text{ did-ant}/. & \text{ought}, & \text{ pret. } /\text{oht}/ : /\text{oht-ant}/. \\
\text{have}, & \text{ uninflected } /\text{haev}/, 3d \text{ sg. } /\text{hæz}/, \text{ pret. } /\text{hæd}/ : /\text{hæv-ant}, \text{ hæz-ant}, \text{ hæd-ant}/. & \text{need}, & \text{ pret. } /\text{niyd}/ : /\text{niyd-ant}/. \\
\end{align*}
\]

Certain other bases (and homonymous 3d-singular forms including the zero alternant of suffix \(I\)) appear before the morpheme \(n't\) in an alternant that occurs nowhere else:

\[
\begin{align*}
\text{can}, & \text{ } /\text{kæn}/ : /\text{kæh-nt}/. \\
\text{do}, & \text{ uninflected } /\text{duw}/ : /\text{dow-nt}/. \\
\text{must}, & \text{ } /\text{mast}/ : /\text{mas-ant}/. \\
\text{shall}, & \text{ } /\text{šæl}/ : /\text{šæh-nt}/. \\
\text{will}, & \text{ } /\text{wil}/ : /\text{wow-nt}/. \\
\end{align*}
\]

4.5. There are also bases that appear in a special alternant shape before certain

\(^{13}\) The argument: Phonemically different forms that occur in the same environment, and are not in completely free variation with each other, are morphemically different (§2.3). In the two participles *shown* /\(\text{sow-n}/\) and *showed* /\(\text{sow-d}/\), the phonemically different elements /\(\text{n}/\) and /\(\text{d}/\) both follow the base /\(\text{sow}/\). They are not in free variation, since the two forms have different connotations of elegance and hence are not interchangeable. Therefore, either /\(\text{n}/\) and /\(\text{d}/\) are different morphemes, or the environment in which they occur is after all not the same for both. Since we wish to identify /\(\text{n}/\) and /\(\text{d}/\) as alternants of the same morpheme (suffix \(3\)), we assume that the /\(\text{sow}/\) that precedes /\(\text{n}/\) is morphemically different from the /\(\text{sow}/\) that precedes /\(\text{d}/\). In other words, we choose to set up two different but homonymous morphemes /\(\text{sow}/\), and to refer to them—rather than to the suffix alternants—the stylistic or connotative difference between the inflected forms *shown* and *showed*.

\(^{14}\) The form \(n't\) is best regarded as a separate morpheme, not as an alternant of the full form *not*. The two forms contrast, at least stylistically and in their connotations, in such phrases as *I cannot go* : *I can't go*.

\(^{15}\) Any form in this list not otherwise identified is both the uninflected form of the verb and the homonymous 3d-singular form with zero suffix.
derivational suffixes. Thus, the base of the verb see has the alternants /siy/ and /soh/ before the inflectional morphemes, but the alternant /say/ before /t/ in the derivative noun sight /say-t/; the base of the verb sing has the alternants /siŋ/, /sæŋ/, and /sæŋ/ before the inflectional morphemes, but the alternant /soʊ/ before a zero derivational suffix in the noun song.18

Finally, some bases have special sandhi alternants when followed in the same phrase by a word with an initial consonant, especially one that is homorganic or identical with the last consonant of the base in its fuller form. This is especially true of bases ending with /t/ or /d/ after another consonant. Thus, the verb form last, normally /læbst/, may appear as /læhs/ in the phrase How long will it last today? or the like; the verb forms find and found, normally /fænd/ and /fənd/, may lack the final /d/ in the phrases Did you find time to do it? and I found two dollars. The use of such sandhi alternants is optional: the same person will speak sometimes the shorter form, sometimes the longer in the same context. In the remainder of this paper we shall ignore them entirely.

5. THE VERB be

5.1. The base of the verb be has a greater number of morpheme alternants than any other. As the first alternant—the one that appears when the base is used without any inflectional suffix—we may set up the shape /biy/; but this has a more limited use than the first alternant of other verbs except the auxiliaries (§2.1, §3.3). It occurs freely as an infinitive (I can't be there; I don't want to be there) and as an imperative (Be quiet); but as a finite present it occurs only after if, and only in rather formal style (If I be not mistaken; If you be; If they be still there). In the latter use, /biy/ occurs also with a 3d-singular subject (If it be not presumptuous), thus differing again from other verbal bases. Moreover, /biy/ is unique in its optative and concessive uses (God be praised; The public be damned; Be it never so humble; Be that as it may).17

5.2. The inflected forms of the verb be in the four usual inflectional categories are as follows: 3d singular is (base alternant /i/, suffix alternant /z/); preterit was and were (base alternants /waz/ and /wər/ in complementary distribution,18 suffix alternant zero); participle been (base alternant /bi/;19 suffix alternant /n/); gerund being (base alternant /biy/, suffix alternant /iŋ/).

But there are still other inflected forms of be that belong to none of these four categories. This constitutes the most striking idiosyncrasy of the verb: that its inflection distinguishes categories not recognized by the morphology of any other verb. We find, first, the forms am and are /əm, ahr/. These might be

18 It goes without saying that historical considerations play no part in a structural description. The actual historical relation between sing and song is irrelevant here; all that is relevant is their morphological relation in the structure of present-day English.

17 The optative use of be is paralleled by other verbs in a few formulas: God have mercy; God forbid; Perish the thought. The concessive use of other verbs than be is limited to such archaic locations as Try they never so hard.

19 The alternant /waz/ occurs only with a subject in the 1st or 3rd person singular; the alternant /wər/ occurs with all other subjects.

Or /biy/ in British English, identical with the alternant that appears in the uninflected form.
regarded as uninflected forms, in complementary distribution with the alternant /biy/; for the three words together have the same distribution as the uninflected form of such a verb as wait. The objection to this view is that the alternant /biy/ occurs, as already mentioned, in clauses with if (§5.1), contrasting in this position with /æm/ and /ahr/ (If I be not mistaken : If I am not mistaken; If you be he : If you are he). If the contrast is valid, we must set up a new inflectional category for am and are, perhaps to be called general present (i.e. non-3d-singular present). But in that case am and are include an inflectional suffix; and this cannot be zero, since we have assumed (§2.3) that no morpheme has zero as its only alternant. Any solution of the problem is inescapably ad hoc; we propose to regard the alternants of the base here as /æ/ and /ah/ in complementary distribution, and to posit a suffix morpheme with two alternants /m/ and /r/, the choice between them being regulated by the shape of the base alternant: /m/ after /æ/, /r/ after /ah/.

Complementary distribution and identity of meaning have allowed us to treat the two preterit forms was and were as both containing the zero alternant of suffix 2. But there is another form were which is not preterit and which contrasts with was: the form that appears in conditional clauses after if with a subject in the 1st or 3d person singular (If I were rude, I'd apologize; If he were here, he'd see it; contrast If I was rude, I apologize; If he was here, he saw it). This were must be an inflected form different from the preterit were; its category we may call (with Hockett) the unreal. Again we analyze the form ad hoc: base alternant /wahr/, suffix morpheme /r/.

5.3. Our analysis results in the following array of forms for the verb be: uninflected /biy/; 3d singular /-iz/; preterit /waz-0/ and /wahr-0/ in complementary distribution; participle /bi-n/; gerund /biy-ingen/; general present /æ-m/ and /ah-r/ in complementary distribution; unreal /wahr-r/. The base morpheme has eight alternants: /biy, i, waz, wahr, bi, æ, ah, wahr/; and the six inflectional morphemes appear in the following alternants: /iz, /2/o, /3/n, /4/ringen, /5/m/ and /r/ in complementary distribution, /6/r/. This multiplicity of forms calls for an addition both to our list of inflectional classes (§3.2) and to our list of base groups (§4.1). Accordingly, we set up (again ad hoc) class J and base group 8 to accommodate the verb be. The former has been defined already in the list of suffix alternants just given; the latter is defined as follows:

Base group 8. Second alternant before suffix 1; third and fourth alternants before suffix 2; fifth alternant before suffix 3; sixth and seventh alternants before suffix 5; eighth alternant before suffix 6.

5.4. Three of the inflected forms of be (but not the uninflected form) appear unchanged before the morpheme n't (§4.4.) These are 3d singular /iz/, preterit

20 Since be has more inflected forms than any other verb, we might have begun our discussion with it instead of saving it for the end. In that case we should have said that all other verbs (except the auxiliaries) have the same inflectional categories as be, but that only be formally distinguishes the general present from the uninflected form or the unreal from the preterit. This is essentially what Hockett did in his rigorously systematic treatment of English verbs (op.cit. in fn. 2). The treatment here adopted seems preferable because it results in a simpler statement.
/\waz/ and /\wahr/, general present /ah\r/ but not /\ae m/ : /\iz-\ant, \waz-\ant, wahr-nt, ahr-nt/. In the substandard form ain’t /ey-nt/, the /ey/ is a ninth alterant of the base, here followed by the zero alternants of suffixes 1 and 5.

6. List of Irregular Bases

6.1. The following list shows the bases of irregular verbs as they might appear in the lexicon. The list is thought to be complete, including all irregular verbs current in standard colloquial English, together with a few that are no longer used in conversation but are still occasionally spoken in a formal or literary style. Completely obsolete forms and all clearly substandard forms are omitted.

Verbs are alphabetized according to the conventional spelling of their uninflected forms. Each entry includes a symbol denoting the conjugation type of the verb, and a phonemic transcription of the base alternants that appear before the inflectional suffixes. If there is also a special alterant of the base appearing before the morpheme n’t (§4.4), this is added after the symbol N; but alternants that appear only before derivational suffixes (like the /say/ in sight) and all sandhi alternants (§4.5) are omitted. Verbs that belong also to a regular conjugation type (A1) are marked with an asterisk. Verbs that belong to more than one irregular conjugation type are entered separately for each type: beat, bite, cleave, get, have, hide, spit, spring, stink, stride, tread, and wake are entered twice each; bid and shrink are entered four times each.

Compound verbs containing an irregular verb as the second member (e.g. broadcast) and derivative verbs formed with a prefix from an irregular verb (e.g. be-come) are not entered. Where a given base does not occur without a prefix (e.g. be-gin), the full form of the verb is given, but the prefix is disregarded in alphabetizing and in citing the base alternants.

Comments on individual verbs are included where they seem necessary.\footnote{One verb not listed in this section requires a word of comment. Beware is used as an infinitive and as an imperative (I told him to beware; Beware of the dog); inflected forms (bewares, bewared, bewaring) are either not used at all in present-day English or at best extremely rare. We may tentatively assign beware to conjugation type A1 as a regular verb whose inflected forms happen to be not in use.}

be (J8) /biy, i, \waz, wahr, bi, \ae, ah, wab/.

The only member of class J and of base group 8. In some British and Canadian dialects the alterant /bi/ is lacking.

bear (C3) /behr, bohr/.

beat (C1) /biy/t/.

beat (D1) /biyt/.

bend (B3) /bend, ben/.

bet (D1) /bet/.

better (I1) /betar/.

The only dissyllabic base. Used as a verb in colloquial speech without any form of had: I better; You better go (like I must; You must go). When had or ’d is present (I’d better; You’d better go), the word is not a verb but an adverb like rather.

bid (C1) /bid/.

Also outbid, underbid, overbid; not forbid.

bid (C2) /bid, behd/.

Also forbid; not outbid, etc.

bid (D1) /bid/.

See bid (C1).

bid (D2) /bid, behd/.

See bid (C2).

*bide (D3) /bayd, bowd/.

bind (D3) /baynd, bawnd/.

bite (C3) /bayt, bit/.

blow (C2) /blow, bluw/.

break (C3) /breyk, browk/.

breed (D3) /briyd, bred/.

bring (B3) /bri, broh/.

build (B3) /bild, bil/.
*burn (B1) /ba:rn/.
burst (D1) /ba:rst/.
buy (B3) /ba:, boh/.
can (H2) /kæn, ku/; N /kæh/. Not homonymous with can /kæn/ ‘tin’.
cast (D1) /kæst/.
catch (B3) /kæt, koh/.
choose (C3) /cuwz, cowz/.
*cleave ‘split’ (B3) /kli:v, klev/.
*cleave ‘split, adhere’ (C3) /kli:v, klawv/.
cling (D3) /kliŋ, klaŋ/.

come (D2) /kæm, keym/.
cost (D1) /ko:st/.
crow (F2) /kraw, kruw/.
creep (B3) /kri:yp, krep/.
cut (D1) /kut/.
dare (G1) /dɛr/.
deal (B3) /di:yl, del/.
dig (D3) /dɪɡ, dɪg/.
*dive (F2) /dɛiv, dʌv/.
do (E6) /dɪJuː, diː, daː/; N /dəʊ/. The only member of base group 6.
draw (C2) /drəʊ, drʌw/.
dream (B3) /dri:m, drem/.
In the pronunciation [drempt], the [p] is predictable and hence not phonemically distinctive.
drink (D5) /d्रɪŋk, dɾɛŋk, dɾaŋk/.
drive (C5) /d्रɪv, dɾuːv, drɪv/.
dwell (B1) /dɛl/.
et (C2) /ɛt/.
In standard British English the base alternants are /ɪt, ɛt/.
fall (C2) /fɔl, fel/.
feed (D3) /fɛd, fed/.
feel (B3) /fiːl, fel/.
fight (D3) /faɪt, foʊt/.
find (D3) /faɪnd, fɔːnd/.
*fit (D1) /fɪt/.
*fee (A3) /fiː, fle/.
*ting (D3) /fiŋ, flæŋ/.
There is a jocular preterit /fɛŋ/, one of a number of non-standard ‘strong’ preterits occasionally heard in facetious utterance.
fly (C5) /flai, flɔʊ, fləʊ/.
freeze (C3) /fri:z, frowz/.
get (C3) /get, gæt/. Also beget, forget.
get (D3) /get, gæt/. But not beget, forget.
begin (D5) /gɛn, gen, gæn/.
*gird (B3) /gɔːrd, gor/. In dialects that do not distinguish /ɔr/ and /ɔt/, this verb has the base alternants /gɔrd, gor/.
give (C2) /gɪv, gɛv/.
go (C5) /gɔw, went, goh/. The classical instance of ‘suppletive’ inflection. In went, the /t/ could also be regarded as an alternant of suffix 2; but this interpretation would require the creation of a new inflectional class for this verb alone, with suffix alternants /z, t, n, in/. By regarding went as consisting of a base alternant /wɛnt/ and the zero alternant of suffix 2, we escape this necessity.—The phonemic dissimilarity between /gow/ and /went/ is no bar to grouping them together as alternants of the same morpheme; for we have not assumed (in §2.3) that morpheme alternants must resemble each other phonemically.
grind (D3) /ɡraind, ɡrawnd/.
grow (C2) /ɡrəʊ, ɡruː/.
*hang (D3) /hæŋ, hʌŋ/.
{
have ‘possess, etc.’ (A4) /hɛv, hæv/.
have ‘be obliged’ (G7) /hæf, hæ, hæs, hɛv/. The only member of base group 7.
In colloquial speech, this verb has the following forms: uninflected /hæf/ (I have to leave), 3d singular /hæs-0/ (He has to leave), preterit /hæ-d/ (I had to leave), participle /hæ-d/ (I’ve had to leave), gerund /hæv-ɪŋ/ (I’m having to leave tomorrow). The form /hæs/ is analyzed as including the zero alternant of suffix 1; another possible analysis would be into the base alternant /hæ/ and the suffix alternant /z/; but this would be the only case of /z/ after a voiced sound, and would make it impossible to regard the alternation of /эз ~ s ~ z/ as automatic.
hearing (A3) /hɛərɪŋ, bærɪŋ/.
*heave (D3) /hæv, hɔːv/.
*hew (E1) /hjuː/.
hide (C3) /haid, hid/.
hide (D3) /həd, hid/.
hit (D1) /hɪt/.
hold (D3) /hɔːld, hɛld/.
hurt (D1) /hɜːt/.
keep (B3) /kɛip, kɛp/.
*kneel (B3) /niːl, nel/.
*knit (D1) /nɪt/.
know (C2) /nɔː, nʌw/. In some dialects the second alternant is /njuː/ or /nəʊ/.
lead (D3) /lɛd, lɛd/.
*lean (B3) /liːn, len/.
*leap (B3) /lɛp, lep/.
*learn (B1) /lərn/.
leave (B3) /liːv, lef/.
lend (B3) /lɛnd, len/.
let (D1) /let/.

*light (D3) /lait, hit/.
lose (B3) /luw, losh/.
make (A3) /miyek, mey/.
may (I1) /mei/.

mean (B3) /miyn, men/.
might (I1) /mayt/.

must (I1) /must/.

*need (G1) /niyd/.
ought (I1) /oht/.

*pen (B1) /pen/.
*plead (D3) /plyd, pled/.

*prove (E1) /pruwv/.
put (D1) /put/.

*quit (D1) /kwit/.
read (D3) /riyd, red/.
*bereave (B3) /riyv, ref/.
rend (B3) /rend, ren/.
*rid (D1) /rid/.

ride (C5) /rayd, rowd, rid/.

*ring (D5) /riŋ, ræŋ, ræŋ/. Regular in the meaning ‘encircle’.
rise (C5) /rayz, rowz, riz/.
run (D2) /raŋ, rehə/.

forsake (C2) /seyk, suk/.
say (A4) /sej, se/.
see (C2) /siy, soh/.
*beseech (B3) /siye, soh/.

seek (B3) /siyk, soh/. Note that this base has the same second alternant as the two preceding, though the first alternants are different.

sell (A3) /sel, sowl/.
send (B3) /send, sen/.
set (D1) /set/.

*sew (E1) /sow/.
shrink (C3) /šrɪŋk, šrɒŋk/. 
shrink (C5) /šrɪŋk, šrɜŋk, šrɒŋk/.
shrink (D3) /šrɪŋk, šrɒŋk/.
shrink (D5) /šrɪŋk, šrɜŋk, šrɒŋk/.

*strike (C5) /šraɪv, šrowv, šriv/.

shut (D1) /ʃut/.
sing (D5) /ʃiŋ, sɛŋ, səŋ/.
sink (D5) /ʃiŋk, sɛŋk, səŋk/.

sit (D3) /sit, set/.

slay (C2) /sley, sluw/.
sleep (B3) /slɪyp, slep/.
slide (D3) /slʌyd, slɪd/.
sing (D3) /slɪŋ, slʌŋ/.
slink (D3) /slɪŋk, slʌŋk/.

*slit (D1) /slɪt/.

*smell (B1) /smel/.
smile (C5) /smɔɪt, smɔwt, smɪt/.
*sow (E1) /sow/. Same as *sow.
speak (C3) /spɪyk, spowk/.
*speed (D3) /spɪyd, sped/.
*spell (B1) /spel/.
spend (B3) /spend, spen/.

*spill (B1) /spɪl/.
spin (D3) /spɪn, spæn/.
spit (D1) /spɪt/.
spit (D3) /spɪt, spæt/.
split (D1) /spɪlt/.

*spoil (B1) /spɔɪl/.

spread (D1) /spred/.

spring (D3) /spriŋ, spɹŋ/. 

spring (D5) /spɹŋ, spɹŋ, spɹŋ/. 

stand (A3) /stænd, stu/.

*stave (D3) /stɛɪv, stɔwv/.

steal (C3) /stɪyl, stowl/.

stick (D3) /stɪk, st֥k/. 

sting (D3) /stɪŋ, st֥ŋ/.

stink (D3) /stɪŋk, st֥ŋk/. 

stink (D5) /stɪŋk, st֥ŋk, st֥ŋk/. 

*strive (E1) /struː/. 

strike (C5) /stræɪd, strɔwd, strɪd/. 

strike (D3) /stræɪd, strɔwd/. 

strike (D3) /stræɪk, str֥k/. 

string (D3) /strɪŋ, str֥ŋ/. 

*strive (C5) /stræɪv, strɔwv, strɪv/. 

swear (C3) /swɵhr, swɔhr/. 

*sew (D1) /sɛt/: 

sweep (B3) /swiːp, swɛp/. 

*swell (C3) /swel, swɔwl/. 

swim (D5) /swɪm, swɛm, swəm/. 

take (C2) /teɪk, tʊk/.

teach (B3) /tɪək, tʊh/. 

tear (C3) /tɛhr, tohr/. 

tell (A3) /tel, tɔwl/. 

think (B3) /thɪŋk, thʊh/.
*thrive (C5) /θrayv, θrowv, θriv/.
throw (C2) /θrow, θruw/.
thrust (D1) /θrast/.
tread (C3) /tred, trad/.
tread (D3) /tred, trad/.
used (I1) /yuws/. Though spelled with -d, this acts in colloquial speech like a finite present, not a preterit; the past-time meaning in this verb can be regarded as inherent in the base itself.

*wake (C3) /weyk, wokw/.
*wake (D3) /weyk, wokw/.
wear (C3) /wehr, wohr/.
weave (C3) /wiyv, wowwv/.
*wed (D1) /wed/.
weep (B3) /wiyp, wep/.
*wet (D1) /wet/.
*will (H2) /wil, wu/; N /wow/. On would

as the preterit of will, cf. shall. Regular in the meaning ‘express volition’ or the like.

win (D3) /win, wan/.
wind (D3) /waynd, wawnd/.
*wreak (B3) /riyk, roh/. Wrought seems to be semantically closer to wreak than to work; and the relation wreak : wrought has a parallel in seek : sought, whereas work : wrought would be unique. Except in very formal discourse and in a few clichés, this verb is now obsolete. The adjective wrought (in wrought iron and the like) is of course not a form of the verb.

wring (D3) /riq, raq/.
write (C5) /rayt, rowt, rit/. The participle writ (D5) is obsolete.

6.2. The foregoing list contains 200 entries, representing 182 orthographically different words. The number of verbs in each inflectional class, base group, and conjugation type, is shown in the table below. The letters across the top denote inflectional classes; the numerals from 1 to 8 at the left denote base groups.

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Totals 9 39 48 82 7 2 3 3 6 1 200

6.3. We now show in full the membership of each of the twenty conjugation types to which irregular verbs belong. The ten inflectional classes (A to J) are again defined by the suffix alternants that appear after the verbal base; within each class, the bases that belong to it are grouped according to their conjugation types. Since the morpheme alternants of the bases have already been given (§6.1), bases are cited here only in the conventional spelling of the uninflected form.

An asterisk, as before, marks bases that belong also to a regular conjugation type; a plus sign marks bases that belong to more than one irregular type.

**Class A.** Suffix alternants: 1 /z/, 2 /d/, 3 /d/, 4 /iŋ/.
Type A4: have+, say.

**Class B.** Suffix alternants: 1 /z/, 2 /t/, 3 /t/, 4 /iŋ/.


Class C. Suffix alternants: 1 /z/, 2 /0/, 3 /n/, 4 /ŋ/. 

Type C1: beat+, bid+.

Type C2: bid+, blow, draw, eat, fall, give, grow, know, forsake, see, shake, stay, take, throw.


Class D. Suffix alternants: 1 /z/, 2 /0/, 3 /0/, 4 /ŋ/.


Type D2: bid+, come, run.


Type D5: drink, begin, *ring, shrink+, sing, sink, spring+, stink+, swim. Except for swim, bases end with /ŋ/ or /ŋk/; without exception, they end with a nasal or a nasal + /k/.

Class E. Suffix alternants: 1 /z/, 2 /d/, 3 /n/, 4 /ŋ/.

Type E1: *hew, *prove, *saw, *show, *sow, *strew. All bases belong also to A1. Sew and sow differ only in meaning (and spelling), but perhaps not more widely than different senses of certain verbs listed only once.

Type E6: do.

Class F. Suffix alternants: 1 /z/, 2 /0/, 3 /d/, 4 /ŋ/.

Type F2: *crow, *dive. Both bases belong also to A1.


Type G1: *dare, *need. Both bases belong also to A1.

Type G7: have+ ‘be obliged’.

Class H. Suffix alternants: 1 /0/, 2 /d/.

Type H2: can, shall, *will.

Class I. Suffix alternant: 1 /0/.

Type I1: better, may, might, must, ought, used.

Class J. Suffix alternants: 1 /z/, 2 /0/, 3 /n/, 4 /ŋ/, 5 /m, r/, 6 /r/.

Type J8: be.
7. Morphophonemics

7.1. Morphophonemics is the study of the alternation between corresponding phonemes in alternant shapes of the same morpheme. When the morpheme alternants of a language, or of some form-class in a language, have been listed in full, a statement of the morphophonemics will serve as a convenient index to the listing. Since the base alternants of English irregular verbs have been listed in §6.1, the present section is an index to that one.

We shall group together here all bases that exhibit the same phonemic difference among their alternants, regardless of the inflectional classes to which they belong. There is no necessary connection between any morphophonemic set and any inflectional class. Some of the sets to be listed include verbs of several different classes; for instance, the alternation /iy/ ~ /e/ is found in bases of class A, class B, and class D. Other sets include verbs of only one class, but not all the verbs that belong there; for instance, the alternation /ay/ ~ /aw/ is found only in bases of class D, but by no means in all the bases of that class. No set is coextensive in its membership with any class.

In listing the alternations between phonemes, we shall regard every syllabic as a unit, whether it consists of a vowel alone or of a vowel and a following semi-vowel /y, w, h, r, hr/. Thus, we shall express the difference between eat /iyt/ and ate /eyt/ as /iy/ ~ /ey/, not simply as /i/ ~ /e/, and the difference between bind /baynd/ and bound /bawnd/ as /ay/ ~ /aw/, not simply as /y/ ~ /w/.

Verbs of base group 1, whose bases have only a single alternant, naturally do not appear in the listing.

7.2. There are ten types of morphophonemic alternation between base alternants of English irregular verbs. The first four types are found in bases with two alternants, the next three in bases with three alternants, and the rest in bases with more than three alternants. The types may be characterized as follows:

Type I. Alternation between two different syllabics (V₁ ~ V₂).

Type II. Alternation between a syllabic with one or two following non-syllabics and a different syllabic without a following non-syllabic (V₁C or V₁CC ~ V₂).

Type III. Alternation between a syllabic with a following non-syllabic and a different syllabic with a different following non-syllabic (V₁C₁ ~ V₂C₂).

Type IV. Alternation between the presence and the absence of a non-syllabic (C ~ 0).

Type V. Alternation among three different syllabics (V₁ ~ V₂ ~ V₃).

Type VI. Alternation between a syllabic with a following non-syllabic and two different syllabics without a following non-syllabic (V₁C ~ V₂ ~ V₃).

Type VII. Suppletion: alternation among three phonemic shapes that have no phoneme in common.

Type VIII. Alternation among four different syllabics (V₁ ~ V₂ ~ V₃ ~ V₄).

The following symbols are used to characterize the several types of alternation: V = syllabic (not merely vowel), C = non-syllabic consonant, 0 = zero (i.e. absence of a phoneme), V₁ and V₂ = different syllabics. The symbol ~ everywhere means 'in alternation with'.
Type IX. Alternation among three different non-syllabics and the absence of a non-syllabic ($C_1 \sim 0 \sim C_2 \sim C_3$).

Type X. Suppletion: alternation among eight phonemic shapes that have no phoneme in common.

**Type I**

- /ay/ ~ /i/ bite, hide, light, slide.
- /iy/ ~ /e/ bleed, breed, creep, deal, dream, feed, feel, flee, keep, kneel, lead, lean, leap, mean, meet, plead.
- /ey/ ~ /e/ say.
- /ow/ ~ /e/ hold.
- /oh/ ~ /e/ fall.
- /i/ ~ /ə/ sit, spit.
- /e/ ~ /ə/ get, tread.
- /uw/ ~ /a/ shoe, shoot.
- /i/ ~ /ʌ/ cling, dig, fling, shrink, sling, slink, spin, spring, stick, sting, stink, string, win, wring.
- /ə/ ~ /ʌ/ hang.
- /ay/ ~ /ʌ/ strike.
- /ey/ ~ /u/ forsake, shake, take.
- /i/ ~ /e/ give.
- /ʌ/ ~ /ə/ come.

**Type II**

- /iyk/ ~ /oh/ seek, wreak.
- /iyc/ ~ /oh/ beseech, teach.
- /sec/ ~ /oh/ catch.
- /s/ ~ /oh/ bring.
- /iŋk/ ~ /oh/ think.
- /s/ ~ /uh/ stand.
- /ahrd/ ~ /or/ gird.

**Type III**

- /iyv/ ~ /ef/ cleave, leave, bereave.
- /uwz/ ~ /ohs/ lose.

**Type IV**

- /d/ ~ 0 bend, build, lend, rend, send, spend.
- /t/ ~ 0 must.
- /k/ ~ 0 make.
- /v/ ~ 0 have ‘possess’.

**Type V**

- /i/ ~ /ə/ ~ /ʌ/ drink, begin, ring, shrink, sing, sink, spring, stink, swim.
- /ay/ ~ /ow/ ~ /i/ drive, ride, rise, shrive, smile, stride, strive, thrive, write.
- /ay/ ~ /uw/ ~ /ow/ fly.
8.1. We have not quite finished. In the sentence I have seen it /'ay hæv sín it/, the verb have /hæv/ is accompanied by the emphatic stress morpheme /'/ (cf. fn. 12). In the sentence I've seen it /'ay v sín it/, where the stress morpheme accompanies the participle seen, the verb have appears as /v/. This difference between the two phonemic shapes of the finite verb might be attributed to the different locations of the stress—a view that would add to the number of morpheme alternants of have and some other bases, but would not essentially complicate the system. Unfortunately, this obvious and convenient explanation will not work. The alternant /hæv/ occurs also without the stress morpheme /'/, as in I have seen it /'ay hæv sín it/,

23 which contrasts at least in style and connotation with I've seen it /'ay v sín it/. Phonemically different forms that occur in the same environment, and are not in completely free variation with each other, are morphemically different (§2.3); therefore /hæv/ and /v/, so far as they differ in their social connotations, are not merely alternants of the same morpheme, but different morphemes.

A similar contrast exists between some of the inflected forms of the verb /hæv/ and those of the verb /v/; 3d singular /hæz/ in He has left : /ə/ in He's left; preterit /hæd/ in He had left : /d/ in He'd left. But no such contrast is possible between different participles or gerunds: the verb /v/ simply lacks these categories. Now the form /hæz/ obviously consists of the base alternant /hæ/ and the suffix alternant /z/; /hæd/ consists of /hæ/ and the suffix alternant /d/. In parallel fashion, the verb forms /z/ in He's left and /d/ in He'd left are analyzed as consisting of a base alternant and the suffixes /z/ and /d/ respectively. The base alternant, accordingly, is zero. In the light of our assump-

23 We have already agreed to disregard the difference between such alternants as /hæv, hâv, hæv/—a difference in stress alone (fn. 12). But even if we discriminate such alternants, the situation will not be affected; for the completely unstressed alternant /hæv/ is common and perfectly natural in the cited context.

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tions (§2.3) and of our treatment of suffix morphemes (§3.1), there is no theoretical objection to such a view: if /0/ can be admitted as a morpheme alternant of /ez ~ s ~ z/ (suffix I), it can equally well be admitted as a morpheme alternant of such a base as /v/.

The verb form /s/ in _Jack's left_ is of course an automatic alternant of the /z/ in _He's left_: the base alternant in both forms is zero, and the choice of the suffix alternant, as already noted (§3.1), depends on the preceding phoneme.

8.2. But _have_ is not yet fully disposed of. We can say not only _I have seen it_ /âý hâv sîyn it/ and _I've seen it_ /âý v sîyn it/, both with the emphatic stress morpheme on _seen_, but also /âý hâv sîyn it/ and /âý əv sîyn it/—with forms of _have_ that are phonetically intermediate between the 'full form' /hâv/ and the 'completely reduced form' /v/. To what morphemes do these intermediate pronunciations belong? Reluctant as we may be to allow the multiplication of elements, we cannot escape the conclusion that the verb forms /hâv/ and /əv/ belong to none of the morphemes mentioned so far. Since they occur in the same environments as /hâv/ and /v/, and differ from them—though perhaps only minutely—in their social flavor, they are morphemically different from both.

In the same way, the inflected forms /hâz/ and /əz/, /hâd/ and /əd/, as in _He has left_ and _He had left_, are to be analyzed as consisting of the base alternants /hâ/ and /ə/ respectively and the suffix alternants already mentioned.

Accordingly, we set up four verbal bases of related meaning but different connotation: one with morpheme alternants /hâv/ and /hâ/; one with morpheme alternants /hâv/ and /hâ/; one with morpheme alternants /əv/ and /ə/; and one with morpheme alternants /v/ and /0/. The first of these belongs to conjugation type A4; the other three, forming their 3d-singular and preterit forms with /z/ and /d/ respectively but lacking a participle and a gerund, belong to none of the types that have been established.

8.3. It is a syntactic peculiarity of the verbs /hâv/, /əv/, and /v/ that they are never, like other verbs, accompanied by the emphatic stress morpheme /'/. For this reason we may call them ATONIC VERBS.

The number of atonic verbs is at least eleven. In addition to the verbs /hâv/, /əv/, and /v/, we find the following:

_Be_, with morpheme alternants /bI/ uninflected, /0/ before suffixes I and 5; /waz/ and /wər/ in complementary distribution before suffix 2; /wə/ before suffix 6. Inflected forms: 3d singular /0-ə/ and /0-s/, preterit /waz-0/ and /wər-0/, general present /0-m/ and /0-r/, unreal /wə-r/; participle and gerund lacking.

_Be_, with morpheme alternants as above except for /ə/ instead of /0/ before suffix 5. Inflected forms: as above except for general present /ə-m/ and /ə-r/.

_Can_, with morpheme alternants /kən/ and /kəʃ/ in complementary distribution uninflected and before suffix 1, /kə/ before suffix 2. Inflected forms: 3d singular /kən-0/ and /kəʃ-0/, preterit /kə-d/; other categories lacking, as in the verb /kən/.

24 _/kəŋ/ before /k/ or /g/ (I can come; I can go), /kən/ elsewhere.
Do, with unique morpheme alternant /də/. Inflected forms: 3d singular /də-z/; other categories lacking.

Shall, with morpheme alternants /əl/ uninflected and before suffix 1, /ə/ before suffix 2. Inflected forms: 3d singular /əl-0/, preterit /ə-d/; other categories lacking, as in the verb /əl/. 25

Will, with morpheme alternants /əl/ uninflected and before suffix 1, /əl/ before suffix 2. Inflected forms: 3d singular /əl-0/, preterit /ə-d/; other categories lacking, as in the verb /əl/.

Will, with morpheme alternants /əl/ uninflected and before suffix 1, /əl/ before suffix 2. Inflected forms: 3d singular /əl-0/, preterit /ə-d/; other categories lacking, as in the verb /əl/.

Will, with morpheme alternants /əl/ uninflected and before suffix 1, /əl/ before suffix 2. Inflected forms: 3d singular /əl-0/, preterit /ə-d/; other categories lacking, as in the verb /əl/.

8.4. The most efficient way of describing these atonic forms is to set them up as a major subclass of English verbs, coordinate with a subclass of tonic verbs that will include all the rest. 26 The inflectional classes and base groups that were established in the first part of this paper apply to tonic verbs only; for atonic verbs we must add a separate classification:

<table>
<thead>
<tr>
<th>Class</th>
<th>Suffix 1</th>
<th>Suffix 2</th>
<th>Suffix 3</th>
<th>Suffix 4</th>
<th>Suffix 5</th>
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<tbody>
<tr>
<td>A'</td>
<td>z</td>
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</tr>
<tr>
<td>B'</td>
<td>0</td>
<td>d</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>z</td>
<td></td>
<td>m; r</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>D'</td>
<td>z</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Base group 1'. Single alternant.

Base group 2'. Second alternant before suffix 2.

Base group 3'. Second alternant before suffixes 1 and 2.

Base group 4'. Second alternant before suffixes 1 and 5; third and fourth alternants before suffix 2; fifth alternant before suffix 6.

Base group 5'. Second alternant before suffix 1; third and fourth alternants before suffix 2; fifth alternant before suffix 5; sixth alternant before suffix 6.

Accordingly, we list our eleven atonic verbs as follows:

be (D'4') /bi, ə, wə, wər, wə/.  have (A'3') /v, ə/.
be (D'5') /bi, ə, wə, wər, wə/.  shall (B'2') /əl, ə/.
can (B'2') /kən kən, kə/.
do (C'1') /də/.
have (A'3') /həv, hə/.  will (B'2') /ə/, ə/.
have (A'3') /əv, ə/.

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25 Some speakers use also a preterit form /st/, as in I should think so /kə /st əŋək səw/. For such dialects we must set up another verb shall, with morpheme alternants /əl/ uninflected and before suffix 1, /əl/ before suffix 2.

26 For pedagogical purposes, this description of atonic verbs—and of tonic verbs too, for that matter—would certainly be over-meticulous and ineffective. To the student learning to speak English, busy at his primary task of memorizing model sentences, it would be unhelpful at best, if not actively confusing. But the intent of this paper is not pedagogical.