An illustrative taxonomy for some patterns for initially stressed two-syllable words which can be used in word attack instruction is presented and discussed in this paper. It is designed to be a part of an integrated communication skills program produced by Southwest Regional Laboratory (SWRL). Examples of word patterns whose primary dimension of classification is word ending are listed. The terminal design requirement was to sequence letter-sound rules used in phonics-based word attack instruction so as to optimize the rate at which items from the speech lexicon become decodable and hence potentially items of the sight lexicon. Thus, since a majority of the two-syllable words of English are initially stressed, variations of this pattern are suggested for introduction systematically and early in reading instruction. (MKM)
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SOME PATTERNS FOR INITIALLY-STRESSED TWO-SYLLABLE WORDS

Joseph F. Follettie

ABSTRACT

An illustrative taxonomy—whose function is to guide the
generation of an instructional lexicon underlying the design of
integrated Communication Skills and allied instruction—is presented,
exemplarized, and preliminarily evaluated.
SOME PATTERNS FOR INITIALLY-STRESSED TWO-SYLLABLE WORDS

Word attack instruction seeks to transfer items from a speech lexicon to a sight lexicon. The course of word attack instruction depends in part on characteristics of the speech lexicon, which has two major components: a) items imputed to the child on entry into word attack instruction and b) items introduced over time to serve the unfolding requirements of instruction in all of the primary areas. If one's orientation to the second component is laissez-faire and descriptive, then the developing speech lexicon should serve the needs of word attack instructional objectives less well than if the component is in part engineered to serve those needs. Optimization of word attack instructional design necessitates that certain items be introduced into the speech lexicon somewhat earlier than under prevailing current practice. That is not to say that the second component of the speech lexicon should be designed in isolation from anticipated treatments of the technical terminology of unfolding primary instruction. That requirement should be carefully attended to. Rather, the view asserts that word attack instruction, for its own purposes, is as legitimate a consumer of new speech lexicon items as is mathematics or music.

New items are introduced into the speech lexicon in word comprehension instruction, a significant component of programs in all of the primary instructional areas. One facet of word comprehension skill is semantic-operational. The child is to understand the lexical meaning of base forms or of base components of morphologically-complex words. The other is morphological or syntactic. The child is to understand the structural meaning of affixes (particularly suffixes) and other components having such meaning.

Some common word endings—e.g., the Cle element of table, sable, rattle, tattle—are without structural significance in contemporary English. Such an ending tends to signal that the word belongs to a subset of the form classes of English—noun or verb in the case of Cle—but little else. While other word endings—e.g., the Cal ending in legal, regal, final, tonal—better establish form class, even here exceptions can be found—e.g., the noun sense of total. A requirement to design word attack instruction often will be served by presence in the speech lexicon of a set of words sharing a given word ending, whatever the grammatical status of that ending—yes, no, mixed. However, the word comprehension instruction that places such items into the speech lexicon sometimes will take a different form when the shared ending has grammatical status than when it does not. Instruction relating to certain word endings having grammatical significance might well be analogous to phonics-based word attack instruction. That is, the former seeks to promote an efficient or optimal rate of speech lexicon expansion by providing the child with a basis for generalizing word comprehension skill, whereas the latter seeks to promote an efficient or optimal rate of sight lexicon expansion by providing the child with a basis for generalizing word attack skill.
The foregoing comments suggest that production of the second, or developing, component of the speech lexicon is an engineering job that must serve several somewhat-related masters. All of these masters are not yet clearly in view. However, word attack and prerequisite word comprehension instructional requirements alone suggest that an early step in forming the second component of the speech lexicon will involve inventorying contents of word patterns whose primary dimension of classification is word ending.

This paper will deal illustratively with a portion of the word pattern domain germane to word attack instruction. An illustrative approach to the underlying taxonomic problem will be sketched. Certain of the word patterns identified will be extensively exemplarized.

Taxonomic Considerations

The terminal design requirement is to so sequence letter-sound rules used in phonics-based word attack instruction as to optimize the rate at which items from the speech lexicon (Lexicon A) become decodable and hence potentially items of the sight lexicon (Lexicon B). What words transfer from Lexicon A to Lexicon B is a function of the effectiveness of word attack instruction and of the particular rules covered by that instruction up to any point (see TN-1-71-9). And, of course, a function of what words are contained in Lexicon A, the problem at hand.

In building Lexicon A, we assume that one factor that should receive systematic consideration is item productivity referenced to word ending. This can only be established at a specified point in word attack instruction—that is, in consequence of the prior introduction of certain rules. Ideally, the instructional point selected would be at or near the end of such instruction, that is, at a point where at least all of the more productive rules have been introduced. Manual generation of exemplars requires a less ambitious undertaking. Hence, item productivity referenced to word ending will be predicated on a previously-instructed set of rules on the order of those that would be introduced during an initial 10 units of word attack instruction—or First Year. Only two-syllable words whose second syllable is a common ending will be considered. In view of the foregoing constraints, one might think of the immediate objective as one of defining test item universes consisting of such words. Assuming that suitable word comprehension instruction parallels introduction of the first 10 units of word attack instruction, then testing for word attack skill using two-syllable words whose second syllable is a common ending might become apt soon after such instruction is completed.

A majority of the two-syllable words of English are initially-stressed—that is, of form 'Syl-Syl. The word patterns to be identified constitute a major portion of the 'Syl-Syl component of a taxonomy of word patterns for two-syllable words. Many 'Syl-Syl words have the form 'Syl + C-ending—e.g., canning, basic, brandy. For such
words, a small number of the simpler rules—e.g., those introduced
during the first 10 units of word attack instruction—account for the
'Syl + C component; a few additional rules account for the more
productive endings (which could in some instances be taught as sight
word elements). We begin by assuming that the 'Syl + C-ending form is
the most productive one for patterns of interest. That is, we assume
the form regular in the sense that an alternative pattern—e.g., 'Syl +
ending—yields appreciably fewer items.

Those words will be considered whose first syllable ends with \(\bar{V}\)
(a simple long vowel) or VC (a simple short vowel with consonant) and
whose second syllable begins with C. **Intersyllable patterns** will be
defined on these interior elements of the word. The intersyllable
patterns considered regular at the outset are:

1. \(V + C\); e.g., able, baby, staple.
2. \(VC + C\); e.g., Betty, bladder, scribble.
3. \(VC + C'\); e.g., dandy, trample, splendid.

**Typical first-syllable forms** end in \(V\) or VC. For coding purposes,
first-syllable forms are as follows:

1. \(V\) or VC.
2. \(CV\) or CVC.
3. \(CCV\) or CCVC.
4. \(CCV\) or CCCVC.
5. Other; e.g., CCVCC.

For purposes of exemplarizing items for the different word patterns
of interest, the following rules referencing to the 'Syl + C component
will be used: B10, C10, D10, F10, G12, H10, J10, K10, L10, M10, N10,
P10, R10, S10, T10, V10, W10, Y10, SH10, or TH10 before a vowel; CK10
or any of the above except H10, J10, R10, W10, or Y10 after a vowel;
A15, E15, I15, O15, or U15 (short vowels); and A11, E11, I11, O11, or
U11 (long vowels). (Rule notation is that of Berdiansky, et al., TR15.)

Primary classification will be by word ending. Only some of the
possible word endings will be surveyed. Each 'Syl-Syl word pattern will
be coded to reflect word ending (digits to the left of the decimal),
intersyllable pattern (first digit to the right of the decimal), and
first-syllable form (second digit to the right of the decimal). Word
endings of interest are:
10. y, ie, ey
20. C
21. eck
22. ed
23. el, le
24. em
25. en
26. er
27. es
28. et
29. Other eC.
30. ege
40. ess
41. ness
42. less
50. ion or i n, ive, ure
51. tion, sion
52. Other Cion
53. tive, sive
54. sure, sure
55. Other Cure
60. ish, ly, ful
61. ish
62. ly
63. ful
Word Pattern 10.12 would be exemplarized by baby; 10.22, by cabby; 10.32, by candy; 23.13, by stable, etc. The n.12, n.22, and n.32 word patterns, taken as a group, tend to be moderately to quite productive and to reference well to a First Year emphasis on CV and CVC constructions. These word patterns will be extensively exemplarized below. The n.n1, n.n3, n.n4, and n.n5 word patterns will be treated only perfuntorally.

First Syllable = CV or CVC

Where an n.n2 pattern is skipped below, either it was not possible to find even one exemplar for it or the exceptions seemed to be more abundant than members of the pattern. Some exceptions to pattern are noted at the end of the section. A few items were repressed as probably not needed for purposes of word attack instruction and other primary instruction. Many items would be deleted when the form of an integrated Comprehension Skills instructional program design comes into clearer focus. Other items were missed due to unreliability of manual generation of exemplars, which is tedious. Some items may have been set aside on a too-narrowly idiolectic basis. Others may have been included that, for the same reason, should not. However, all factors considered, the listings that follow, even though not definitive, at least should indicate something about item extensiveness for each of the word patterns. (Only a few exemplars are shown for the ing ending, which is by far the most productive ending.)

Pattern Exemplars

10.12 baby lady Sadie Daly Jamie Mamie Janey
   Katie Casey matey Davy navy wavy Riley
   wily tiny viny Doby Moby Cody bogie
   dogie Foley holy homey Romy pony Tony
   dopey ropy Ruby Judy duly Julie ruly
   fumy puny

10.22 cabby gabby shabby tabby caddy daddy paddy
daffy taffy baggy Jaggy shaggy dally rally
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Certain other rules must be introduced before such items as the following can be added: bangle, dangle, jangle, mangle, tangle, rankle, cancel, channel, Bengal, pencil, single, jingle, tingle, shingle, tinkle, symbol. Perhaps such words as the following do not classify as 23.32: jostle, bustle, hustle, muscle, rustle.
tamer  shamer  caner  saner  caper  gaper  paper
taper  vapor  shaper  baser  caser  cater  dater
gator  hater  later  mater  pater  rater  favor
Laver  raver  savor  waver  shaver  femur  lemur
Jeter  meter  Peter  fever  Tiber  hiker  liker
piker  Riker  rider  wider  lifer  tiger  filler
miler  tiler  viler  rimer  timer  diner  finer
Kiner  liner  miner  shiner  piper  riper  wiper
biter  miter  diver  jiver  sober  joker  poker
Boder  coder  Cofer  molar  polar  solar  Gomer
Homer  boner  loner  toner  doper  hoper  roper
motor  noter  rotor  toter  voter  Dover  rover
cuber  Huber  Lug er  ruler  rumor  tumor  lunar
tuner  duper  super  cuter  muter  tutor
26.22  buffer  beggar  bigger  banner  batter  Hiller  hammer
hotter  jabber  jigger  jitter  ladder  logger  latter
better  bitter  butter  killer  fitter  letter  Miller
manner  mutter  pillar  pepper  patter  putter  matter
collar  kipper  copper  kisser  litter  robber  rubber
suffer  simmer  summer  sinner  supper  sitter  cutter
differ  duffer  dagger  rudder  Sutter  shudder  shimmer
shopper  shutter  teller  tiller  tatter  dollar  dimmer
dinner  dapper  shatter  dipper  fodder  filler  fatter
26.32  banter  camber  camper  captor  copter  damper  doctor
dander  factor  fendor  filter  folder  gander  hamper
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27.12  
shamus*  
basis
Davis  
Mavis  
Bemis
penis
fetus

Dicus  
Midas
minus
pinus
sinus
Titus
focus

hocus  
locus
pocus
bogus
bonus
lotus
mucus

Judas  
Rufus
humus

27.22  
callus
Dallas
hammus
Dennis
Dulles
Gillis
Hollis
Pettis
tennis

27.32  
cactus
canvas
fungus
mantis
pelvis

28.22  
ballet
bonnet
gullet
mallet
pellet
russet
billet

faggot
maggot
pallet
rabbit
summit
tappet
basset

Moffet
buffet*

28.32  
bandit
basket
gasket
magnet
tablet
goblet
casket

hamlet
velvet
gambit
pulpit

30.22  
cabbage
baggage
message
pillage
village
college
cottage

pottage
luggage
rummage
dunnage

30.32  
bandage
bondage
vantage
vintage
tentage
mintage
dumpage

vestige
hostage

41.32  
badness
fatness
madness
sadness
redness
wetness
bigness
dimness
fitness
sickness
thickness
hotness
witness

42.32  
backless
capless
hatless
hemless
legless
hitless
winless
jobless
topless
luckless
sunless

51.12  
nation
lotion
motion
notion
potion


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Near-Pattern Exemplars

CK10 is analogous to a geminate consonant. That is, when /k/ occurs following a short vowel, the spelling is ck (rather than cc or kk). However, whereas dictionaries follow the practice of splitting a geminate consonant for purposes of syllabifying words in which it occurs in the boundary region, the practice when CK10 is involved is to place all of ck in the earlier syllable. If we ignore this convention, which seems arbitrary, then many additional words would classify as n.22. For example:

10.22 tacky  wacky  picky  Ricky  Dickie  lackey  Jackie
23.22 shackle  tackle  cackle  jackel  hackle  tickle  fickle
      nickel  sickle  buckle  Hickle  Bickel
25.22 beckon  reckon  sicken  thicken
26.22 backer  sacker  Becker  Decker  ticker  thicker  locker
      rocker  shocker  pucker  sucker  Tucker
27.22 ruckus
28.22 Hackett  jacket  racket  packet  Becket  picket  ticket
      wicket  thicket  docket  locket  pocket  rocket  socket
      bucket  Puckett

In general, when the last phoneme of the first syllable is expressed as a pair of consonant graphemes—e.g., sh, th, ck—dictionary syllabification preserves the graphemic expression intact as the terminal element of the first syllable. Unlike ck, no case can be made that sh and th operate analogously to a geminate consonant after a short vowel. However, words whose first syllable ends in sh or th classify as near to pattern even though the doubling consonant element of n.2n is not present. Some n.22-like examples are:

fishy, fathom, gather, lather, Mather, rather, hither, bother,
masher, gusher, bishop

Exceptions to Pattern

There probably are exceptions to most of the word patterns exemplarized above. A few of the n.1n patterns are not shown because the spellings envisioned by the pattern tend preponderantly to have the
vowel be short. Some exceptions noted in the course of generating pattern exemplars are the following:

10.22  body*  copy*  pity* 2
22.22  rabid*  valid*  vapid*  rapid*  salad*  solid*  vivid*
23.22  camel*  pedal*  petal*  rebel*  metal*  sisal*  medal*
24.22  madam*  denim*  venom*
25.22  cabin*  wagon*  talon*  Latin*  satin*  Helen*  melon*
       lemon*  linen*  robin*
26.22  valor*  Weber*  lever* 3
27.22  Janus*  Manus*
28.22  bigot*  habit*  Janet*  limit*  vomit*
30.22  damage*  manage*  homage*
51.22  ration*
61.22  radish*  famish*  banish*  vanish*  relish*  finish*  polish*
       punish*

Other Word Patterns

Filled word patterns of n.nl, n.n3, n.n4, and n.n5 form are listed below. One exemplar is provided for detected filled word patterns of n.nl, n.n3, and n.n4 form.

First Syllable = V or VC

Few if any of the n.nl word patterns are very productive.

2 These exceptions also could be referenced to 10.12: All exceptions shown could be referenced to n.ln as legitimately as to n.2n.

3 A second level of irregularity is illustrated by cover, hover, lover. Here the vowel is both short and not what one would expect, being short u, rather than short o.
In productivity, these word patterns—of form n.n3—rank next to those of form n.n2, although it is doubtful that any of these patterns rivals the most productive of the n.n2 patterns.
There are not so many filled word patterns of form n.n4; most are of quite limited productivity. Some of the n.n4 patterns are:

- scraper
- straddle
- Stratton

There is a scattering of other types of word patterns than those considered above. Some employ VCe in the first syllable—e.g., hateful, gamely. The following items exemplarize some other patterns—thankful, sampler, crispness, strictness. A few of these patterns might turn out quite productive.

Effects of Adding Rules

Augmentation of the rule base will be accompanied by augmentation of many of the word pattern item universes sketched above. When R10 or RR10 occur at the end of the first syllable, the preceding vowel undergoes a characteristic shift whose value depends on whether R10 or RR10 follows. If the required additional vowel rules are added to the base, then certain additional items become legitimate to the item universe. This is illustrated for 23.22, 23.32, and 81.22 word patterns, where the 81 domain is extended to include row.
Optimizing the letter-sound rule sequence used in word attack instruction entails ordering rules so that each rule added to the base optimizes the slope value of a frequency function of the number of rules introduced. A significant component of the rule located at any point in the optimal sequence is its "single productivity" (see TN-1-71-9). The rule A22 characterizes the first-syllable vowel of such words as barrel and borrow; the rule A21, that of such words as garble and gargle.

Were the task simply to choose whether A21 or A22 should be the next rule added to the base described earlier, then a first step would be to calculate single productivity values for these two rules in the position of interest in an overall rule sequence. A question remaining is whether these productivity values should reference to all word patterns reflected in Lexicon A or just to some portion of these patterns. Considering that the most crucial period of word attack instruction probably finds the typical child of an age characteristic of first through the middle of second grade, a case might be made for referencing productivity computations to 'Syl-Syl constructions or even more-narrowly to n.n2 word patterns.

To get some feel for the relative single productivities of the two illustrative rules as a function of word domain, we enumerate the items that each adds to n.n2 and n.n3, given the rule base described earlier.

The taxonomy in its present form is not entirely consonant with the requirement to evaluate A21 and A22. The spelling patterns characteristic of the n.1n and n.2n forms signal A22; those characteristic of the n.3n forms signal A21. Thus, A22 does not undergo a shift in value as one moves from n.2n to n.1n. Setting aside the fact that the taxonomy does not reflect well the case where the consonant at the syllable boundary is R10 or RR10, we enumerate items for A21 and A22 according to the view that n.1n and n.2n spelling patterns characterize A22 and n.3n patterns A21.
n.n2 Universe for A22

10. Cary  Gary  Mary  nary  nary  vary  vary  Barry
carry  Harry  Larry  marry  parry  tarry

20. carol  carom  harem  Karen  Sharon  barer  darer
rarer  sharer  Karas  Paris  tariff  Garrick  barrel
carrel  Darrell  Farrell  Harrell  Jarrell  barren  Harris
Barrett  carrot  garret  Jarrett  parrot  larrup

60. garish  parish

70. baring  caring  daring  faring  paring  sharing

80. barrow  Darrow  farrow  harrow  marrow  narrow

n.n2 Universe for A21

10. Barbie  barky  barley  Barney  Darby  Darley  Farley
Garby  Garvey  hardy  Harley  harpy  Harvey  lardy
Marty  marshy  parley  party  tardy  Sharkey  sharpie

20. carted  parted  garble  marble  gargle  carnal  carpal
carpel  tarsal  Shartle  marvel  Harlem  Barnum  Farbin
Darden  garden  harden  pardon  Vardon  Gargan  jargon
Carlin  Harlan  marlin  Carmen  tarpon  sharpen  Carson
Larson  parson  Barton  carton  Martin  tartan  Garvin
Marvin  Darwin  barber  Farber  harbor  barker  darker
marker  Parker  harder  larder  Marler  farmer  garner
Harper  sharper  barter  Carter  garter  parter  tartar
Carver  harlot  varlet

30. garbage  yardage  carnage

40. farness  harness  carless
50. Martian

60. barkish darkish sharkish lardish tarnish varnish harpish
    sharpish

70. barking marking parking darling farming harming darning
    harping carting darting parting carving

80. Barlow Harlow

n.n3 Universe for A22

10. Clary scary glary

20. blarer flarer glarer scarer snarer sparer starer
    claret

70. blaring flaring glaring scaring snaring sparing staring

80. sparrow

n.n3 Universe for A21

10. sparky Starkey snarly blarney smarty

20. scarlet starlet snarler smarter smarted sparkle sparker
    sparser Spartan started startle starter starker

40. scarless sparless starless

60. smartish starkish

70. sparking smarting snarling starting

Summary of Universe Counts

The n.n2 and n.n3 universe counts for each rule are compared in Table 1. While the Table 1 data are not entirely consonant with the view that single productivities can be established using only a portion of the word patterns that are available, these data at least suggest that such a view may prove tenable. That is, the data lead one to entertain the view that the 'Syl-Syl n.n2 forms can be used to establish such productivity values in that the relative position established in this way might reflect the relative position for different rules when all possible forms characterizing all poly-syllabic constructions are considered.
Table 1
The n.n2 & n.n3 Universe Counts for Rules A21 & A22

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Concluding Remarks

Even the most systematic attempts yet made to exploit a phonics basis for teaching children to read have been essentially one-dimensional with regard to skills to be considered. A speech lexicon in the sense of Lexicon A is approximated on the basis of effects of current instructional practices; the instructional design problem thereafter has been viewed as referencing just to a generalized word attack skill, with neither prelude nor prologue and so without any implication of servo effects. Prior efforts to design word attack instruction have, in consequence, failed to penetrate the potentially fertile field of an integrated primary instruction that seeks to optimize instructional cross-fertilization of related skills.

There is no compelling reason why we should predicate word attack instruction on a speech lexicon that is consonant with current instructional practices. Portions of such a lexicon can be engineered by the instructional designer to serve the needs of contemplated instruction that seeks to optimize the integration of related skills.

The first attempt to apply the illustrative taxonomy—made in the previous section—reveals it to require modification or even reformulation. A definitive taxonomy should permit comparison of any set of rules at any point in the word attack instructional sequence. Thus, it should have greater generality than the illustrative taxonomy. At a more detailed—but not too detailed—level, it should permit definitive evaluation of the contention that a portion of its word patterns could be used to
approximate rule productivity values that would be obtained if all items of the speech lexicon were used.

The taxonomy also should serve word comprehension, word attack, and related instructional requirements for sets of drill words. Not all of the items generated under the different classifications of the taxonomy would need be placed in speech and sight lexicons. Many would be deleted during the course of designing integrated instruction. However, some items that in the past would not have been placed in a speech lexicon of the Lexicon A type now would. Some of these items would enter Lexicon A because word attack instruction or evaluation required them; such words probably would define a word comprehension instructional requirement not currently in evidence in the schools. Other words placed in Lexicon A would address word-building requirements; contemplated instruction might take the form of the morphological component of an Anglo Saxon-Latin course for children at the primary level. Perhaps still other words would be placed in the lexicon to serve spelling requirements.

It appears reasonable to continue to delineate the entry component of Lexicon A as this has been done in the past. The portion of the lexicon that references to unfolding primary instruction that falls outside the Communication Skills domain probably can be approximated well in consequence of reviewing selected existing instructional treatments. The remainder of the lexicon should be conditional on instructional requirements in the Communication Skills domain—a domain that is certainly broader than that of its most important component, word attack. As one moves through an integrated instructional design operation, Lexicon A can be expected to grow until a time is reached where the design is sufficiently definitive to reveal the definitive Lexicon A requirement. Taxonomies of the sort considered above have the sober task of standing in for the definitive design until it makes its appearance.