SHE I, Part B: English Morphology and Syntax, 2

Part A  Morphological Analysis: Allomorphy
Part B  Morphological Analysis: Mor(pho)phonology
Part A  Morphological Analysis: Allomorphy

The smallest meaningful units, as segmented in morphological analysis, do not always appear in the same forms in all constructions: typically, their form is adapted to the different environments in which they can occur.

Nonetheless, we’d like to be able to say that, morphologically speaking, as far as contrasts in morphological systems are concerned, they are the same units, regardless of such overt formal alternations required by the respective environments.

Despite certain universally shared themes, the kinds and extents of such environmental adaptations vary from language to language. Here we’ll focus on English, as usual, selecting typical allomorphic patterns for illustration.
If our focus were to be on Turkish, for example, we’d be centrally concerned with a type of environmental adaptation English doesn’t know at all: Vowel Harmony – as in these two examples, with the vowels of the suffixes for number and case “harmonising” with that of the stem:

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ev-ler-i  adam-lar-i
house-PL-ACCUSATIVE  man-PL-ACC
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Morpholgically speaking, -ler is the same as -lar (PL) and -i is the same as -ı (specific-reference ACC) in Turkish.
Allomorphy and questions about it illustrated by the English PLURAL

English has two terms realising the inflectional category of NUMBER: PLURAL = ‘more than 1 of’, also ‘zero or less’, not to mention ‘0.5’ etc.; SINGULAR = ‘(precisely) 1 of’.

Here’s a comprehensive survey of how to express PLURAL, with a few representative examples.

<table>
<thead>
<tr>
<th>EXONENT:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>These cat-s</td>
<td>sit on the mat /s/</td>
</tr>
<tr>
<td>These dog-s</td>
<td>/z/</td>
</tr>
<tr>
<td>These kangaroo-s</td>
<td>/z/</td>
</tr>
<tr>
<td>These small one-s</td>
<td>/z/</td>
</tr>
<tr>
<td>These fox-es</td>
<td>/iz/</td>
</tr>
</tbody>
</table>
These ox-en /ən/
These mice /ɑː/ → /ɑɪ/
These geese /uː/ → /iː/
These women /ʊ/ → /ɪ/
These men /æ/ → /e/
These brethren /ʌ/ → /e/, /ən/
These sheep Ø
These deer, moose, elk Ø
These swine [=term of abuse for persons] Ø
These policemen Ø
These counsel always disagree Ø
These aircraft land on the mat Ø
These series are non-finite Ø
These Swiss sit on the mat Ø
The (very) poor Ø
Mine sit on the mat Ø
Yours Ø
My aunt’s Ø
Who Ø
You Ø
These /ɪs/ → /ɪz/
Those /æt/ → /əʊz/
We I → we
Our sheep my → our

And there are some further exponents in the case of non-native words, e.g.
antenn-ae, strat-a, indic-es, cact-i, cherub-im, ...
Thus, there is not a single exponent of PLURAL in English, but several of them, exemplifying at least four types of exponents (segmental-additive, segmental stem-modification, suppletion, zero).

Nonetheless, in some deeper sense one would like to see them as really being one and the same. After all, they are the same in the grammatical system of English insofar as they never contrast. (And contrast is what linguistic systems are based on.)

In phonology, phones (segments) which are phonologically similar and which don’t contrast (because they are in complementary distribution) are considered allophones of one phoneme. To be two different phonemes, i.e., to be meaning-distinguishing, you need to be able to contrast.
Analogously, in morphology, different morphs (the actually occurring forms) are considered allomorphs of one morpheme (an abstract entity) on the same systematic grounds:

- **MORPHs are ALLOMORPHs of one MORPHEME** if they contribute the **same meaning** (or meaning difference) to the constructions they are part of and if they are in **complementary distribution** (hence cannot contrast).
What about abstract-noun-forming suffixes -ness and -ity? Are they allomorphs on the grounds of being in complementary distribution?

No: with many nouns (though not with all! e.g. 

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happi-ness, *happ-ity; clever-ness, *clever-ity; great-ness, *great-ity) both can occur: 
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e.g. stupid-ity, stupid-ness; odd-ity, odd-ness; dens-ity, dense-ness; rar-ity, rare-ness; scarce-ness; pervers-ity, perverse-ness; feroc-ity, ferocious-ness; ...
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➤ free (?) variation
Most examples of allomorphy below are instances of **affix** allomorphy; but of course **stem** morphemes can, and do, also have form variation – in English especially in the Romance part of its vocabulary, for example [more on this to follow]:

*receive* [siv] ~ *recep(t)* [sɛp(t)] (as in *reception*),
*autumn* ['ɔtəm] ~ *autumn* [ɔ'tʌm] (as in *autumnal*),
*suspend* [səs'pend] ~ *suspens* [səs'pens] (as in *suspension*),
*south* [sauθ] ~ *south* [sauð] (as in *southern*),
*sane* [seɪn] ~ *san* [sæn] (as in *safety*),
*knife* [nɑɪf] ~ *knife* [nɑɪv] (as in *knives* [nɑɪvz]), etc.
For discussion.

1. Are /-z/ and /-ən/ (plus change of stem vowel /æ/ → /e/) allomorphs of PLURAL in this sense? Well, for the noun brother two plurals are possible, brother-/z/ and brethr-/ən/. That is, the distribution is not wholly complementary, because with this particular noun the two exponents do not mutually exclude one another. Arguably, however, there are two different nouns in English, brother₁ ‘male sibling’ and brother₂ ‘fellow member of a religious society, such as the Quakers’, differing not only in meaning but also in their plural exponents.
2. Are \textit{-iz, -z, -s/} and \textit{/Ø/} (=zero) allomorphs of \textsc{plural} in this sense?

Well, quite a lot of nouns denoting certain animals can have a regular \textit{-iz, -z, -s/} or a zero plural, e.g. \textit{lion, elephant, partridge}. Again, I would argue that there is a semantic difference insofar as these animals can be categorized as regular wild animals (with regular plural, \textit{-iz, -z, -s/}) or as \textsc{game} animals (where the plural is zero).

Thus, in neither case would there be a contrast specifically due to the different plural exponents; the contrasts would be ones of the nouns themselves, or of the semantic categories they can be used to express.
Two major issues in allomorphy:

• the kinds of **conditions** on allomorphy
• the kinds of allomorphic **alternations** themselves

First, the possible kinds of **CONDITIONS** for the choice of allomorphs are the following, illustrated from the **PLURAL** in English:

• **phonological**

  in the case of /s ~ z ~ ɨz/: 
  Is the segment immediately preceding the **PLURAL** exponent a sibilant (with the relevant feature being **STRIDENT**, picking out /s, z, ʃ, ʒ/, and not, e.g., /θ, ð, f, v/)? If yes, then /ɨz/. If not, is it voiced? If yes, then /z/. If not, then /s/.
• **morphological**

  in cases such as /nɐɪf ~ nɐɪv/ <knife> or /hau̯s ~ hau̯z/ <house> the allomorphy of the stem is conditioned by the morphological category PLURAL;

  it’s not phonological conditioning, because with following /s ~ z ~ ɪz/ which is not an exponent of PLURAL, but of GENITIVE or represents the copula *is* (short form), the stem-final segments remain voiceless (*knife’s* [nɐɪʃ], *house’s* [hau̯sɪz]).

• **semantic**

  in the case of */Ø/:

  cf. *the deer/grouse/partridge/pheasant are over there*

  that is: when an animal is categorized as GAME, the PLURAL exponent is */Ø/* (especially in the register of game hunting, also of photo safaris)

Read http://en.wikipedia.org/wiki/Hunting_and_shooting_in_the_United_Kingdom
• lexical

in the cases of /ən ~ aʊ → aɪ ~ uː → iː ~ æ → e ~ u → i ~ Ø ~ I → we/: “lexical” conditioning means you have to know the particular lexical item which selects that particular allomorph – which is the worst possible case from the point of view of a learner: with all the other kinds of conditioning (phonological, morphological, semantic) the conditions play a role in the grammar independently, while in the case of lexical conditioning no independently needed property of items in construction with allomorphs can be drawn on.

Note: policeman, policemen are only orthographically distinct, not phonologically: /pəˈliːsmən/;
the PLURAL allomorph is /Ø/, showing that zero is not only semantically conditioned, in the case of game animals, but also lexically conditioned, in cases such as sheep (not game!), policeman, aircraft, you, mine etc.
Homework problem:
Clearly, not all zero plurals can be accounted for as being semantically conditioned: many zero-plural forms do not refer to game. Can you find other generalisations about zero plurals, or does every single form with a zero plural really need to be lexically specified?

Lexical conditioning gives rise to what is known as INFLECTION CLASSES (more than one set of inflections for one and the same word class), a complication fortunately not encountered in all languages. Modern English is not so strongly affected either: very little for nouns, but verbs have more – “strong” and “weak” verbs and a few further lexical verb classes.
Homework

Sort out the regular ("weak") PAST TENSE allomorphs in English (in the same way we’ve done this for PLURAL above) and identify the conditions under which they are selected.

The regular suffixal PAST seems analogous insofar as there are three suffix variants, with or without a vowel ([ɪd] vs. [d], [t]), with a voiced or voiceless final consonant ([ɪd], [d] vs. [t]), distributed along what may seem the same lines as [ɪz], [z], and [s] for PLURAL (or also 3SG.PRES.IND).

The problem consists in [t] having a partly wider, but partly also a narrower, distribution than one would expect on the analogy of [s], and in also being tied up with vocalic and consonantal stem alternations.
Consider, for example, these weak verbs:

(i) \textit{spell} – \textit{spelt} (also \textit{spelled}), \textit{dwell} – \textit{dwelt} (also \textit{dwellled}),
\textit{burn} – \textit{burnt}, \textit{learn} – \textit{learnt} (also \textit{learned}), \textit{smell} – \textit{smelt} (also \textit{smelled}), \textit{spill} – \textit{spilt} (also \textit{spilled}), \textit{spoil} – \textit{spoilt} (also \textit{spoiled})

(ii.a) \textit{mean} – \textit{meant}, \textit{dream} – \textit{dreamt} (also \textit{dreamed}),
\textit{deal} – \textit{dealt}, \textit{feel} – \textit{felt}, \textit{kneel} – \textit{knelt}


(iii) \textit{cleave} – \textit{cleft}, \textit{leave} – \textit{left}

(iv) \textit{flee} – \textit{fled}

(v.a) \textit{meet} – \textit{met}, \textit{bite} – \textit{bit}, \textit{shoot} – \textit{shot}, \textit{light} – \textit{lit} (also \textit{lighted})

(v.b) \textit{hide} – \textit{hid}, \textit{feed} – \textit{fed}, \textit{lead} – \textit{led}, \textit{speed} – \textit{sped}
(\textit{also} \textit{speeded}), \textit{slide} – \textit{slid}
(vi.a) put – put (*putted), set – set, rent – rent, beat –
beat, burst – burst, cast – cast, cost – cost, cut – cut, hurt –
hurt, shut – shut, slit – slit, split – split, thrust – thrust, bet –
bet (also betted), knit – knit (also knitted)

(vi.b) bid – bid (also bade), spread – spread

(vii) bend – bent (*bended), send – sent, lend – lent, spend – spent,
build – built, gild – gilt (also gilded)

(viii) go – went (wend-t, cf. he wended his way)
There is a further issue in allomorphy, which I’ll only mention here, postponing discussion to another occasion: Can allomorphy be conditioned at a morphological distance or only locally?

For example, *lion*, ending in a voiced non-sibilant, requires the PLURAL allomorph */-z/* (or */Ø/* if categorized as game). Now, what about *lion-ness*? What determines the choice of the plural allomorph here: the distant stem *lion* or the neighbouring suffix */ness/*? The latter, hence *lion-ness-/*/ɪz//*.

Could English, or other languages, also have allomorphy whose conditioning (especially if non-phonological) works differently, namely at a distance? Yes, in principle, but conditioning at a distance is found very rarely, probably not at all in English.
Second (or third), allomorphic ALTERNATIONS: they can be either of a **phonological** or a **non-phonological** kind.

Phonological alternations are ones which the phonology of a language can be held responsible for, and not the morphology alone. That sounds trivial, but there’s a lot of discussion of the area known as MOR(PHO)PHONOLOGY, which suggests it’s potentially non-trivial.

The English **PLURAL** will again serve for illustration. However, we could equally illustrate the same points with

- the 3rd PERSON SINGULAR INDICATIVE PRESENT of verbs (e.g., *kisses, comes, sits,*),
- the GENITIVE of nouns and other possible hosts of genitive marking (e.g., *fox’s, dog’s, cat’s; the man over there’s hat,*),
- the atonic short forms of *his* and *is* and possibly also of *has,* that is of
• the possessive pronoun of 3rd PERSON SINGULAR MASCULINE,
• the 3rd PERSON SINGULAR INDICATIVE PRESENT of the copula verb BE (the fox’s over there, the dog’s here, the cat’s on the mat),
• the 3rd PERSON SINGULAR INDICATIVE PRESENT of the auxiliary HAVE (the dog’s eaten it).

Homework (optional):

Investigate the allomorphy of further -s exponents, namely those of (i) the adverbializing suffix -s (e.g., unaware-s, eastward-s, whence) and (ii) of the hypocoristic suffix -s on shortened personal names (e.g., Bailey > Bails).
The three phonologically conditioned allomorphs of PLURAL, /s ~ z ~ ɾz/, are phonologically very similar to each other — so similar that you’d like to hold English phonology responsible for the alternation. The final consonants involved only differ in voicing, and the only other difference is the presence or absence of an unstressed syllabic vowel: voicing or devoicing assimilations and unstressed vowel epenthesis or deletion between certain consonants is something phonological rules are known to be able to do. The alternation between any member of this set and any other PLURAL allomorph, /ən/, /Ø/ etc., can hardly be blamed on English phonology, however: changing a sibilant into a nasal or zero, or vice versa, would be extraordinary things to do for phonological rules. (Actually, deleting a sibilant/STRIDENT in a particular environment, namely after an identical sibilant/STRIDENT in an unstressed syllable, would be doable for phonology – and arguably is done in English: try to pluralize Greek names such as Socrates. The two Socrateses?? Same for species etc.)
Now, if an alternation between allomorphs is phonological, you miss out on the phonological similarity if you simply list the actual forms of the allomorphs, with their conditioning environments, as follows:

1. -iz / STRIDENT __
2. -z / voiced __
3. -s / voiceless __

**Anything** can be listed, however dissimilar. If English PLURAL had these allomorphs, they could be listed just as well:

1. -fju: / STRIDENT __
2. -ðəm / voiced __
3. -lɔtɔt / voiceless __

In a mere listing, the entries on the list are essentially unrelated; nothing inherently unites them; all they share is that they are on the same list.
However, notice that a list is ordered sequentially: one entry comes after another. In the listing of /-iz/, /-z/, /-s/ above this sequence matters, insofar as it helps us to identify the respective environments of the three allomorphs economically. To really specify the three environments accurately, one extra factor would have to be added to two of the allomorphs:

- /-iz/ STRIDENT __
- /-z/ non-STRIDENT voiced __
- /-s/ non-STRIDENT voiceless __

That is, /-z/ is not used after every voiced segment, nor /-z/ after every voiceless one: sibilants (STRIDENT), regardless of voiced or voiceless, select /-iz/.
The sequence of the listing above, with the most specific environment (after sibilant/STRIDENT) named first, automatically takes care of this, without requiring two extra mentions of the complementary environment (after non-sibilant/–STRIDENT), on the understanding that an “elsewhere” or an “otherwise” is added after each statement of an allomorph selection:

1. -iz / STRIDENT __
   otherwise
2. -z / voiced __
3. -s / voiceless __
Homework:

Try out different orders of these allomorph selection statements. How do they compare to the one given above in terms of economy of environmental specifications? Now, to account for the phonological similarity of allomorphs insightfully the most natural solution is to relate them to each other by phonological rules.
As usual, in the case at hand, various solutions are possible which equally account for the facts. Often, alternative solutions do not account for the relevant facts with equal economy or with equal elegance; or there are further facts which are automatically also accounted for by one of the solutions, though not by the others. This is what linguistic analysis is about: finding the truth about the mental lexicons and grammars of the speakers of a language.

I’ll first give one solution here, and you are invited to find and evaluate alternatives before you read on.
To account for the three phonologically similar allomorphs of **PLURAL**, I assume there is, in terms of the morphological system, a single form – an abstract phonological form, whose realization requires the application of certain phonological rules. I assume this abstract form is like one of the surface realizations, namely the syllabic one, */-iz/*. This requires two phonological rules, one deleting the vowel of the suffix except after a sibilant/STRIDENT (phono rule 1), the other (phono rule 2) assimilating the sibilant, assumed to be underlingly voiced, to a voiceless segment preceding it.

Thus:

<table>
<thead>
<tr>
<th>Basic forms</th>
<th>/ ʃɔks-iz</th>
<th>dɔg-iz</th>
<th>kæt-iz</th>
<th>edʒ-iz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phono rule 1</td>
<td>—</td>
<td>dɔgz</td>
<td>kætz</td>
<td>—</td>
</tr>
<tr>
<td>Phono rule 2</td>
<td>—</td>
<td>—</td>
<td>kæts</td>
<td>—</td>
</tr>
<tr>
<td>Actual forms</td>
<td>[ ʃɔksɪz</td>
<td>dɔgz</td>
<td>kæts</td>
<td>edʒ-iz ]</td>
</tr>
</tbody>
</table>
In order to be able to come up with workable alternative solutions and to evaluate them, consider these questions:

- Are the two phonological rules given sequentially ordered? What would be the actual forms if the two rules were to apply in a different order?
- Could one also assume /-z/ oder /-s/, rather than /-iz/, as the abstract forms? What phonological rules would you need to derive the actual forms from such basic forms? How would these rules have to be ordered?
- What are considerations that might favour one solution over others?
If we assume the underlying form is voiceless /s/, there is an obvious problem with *foxes*:

<table>
<thead>
<tr>
<th>basic forms</th>
<th>/ fɔks-s dɔg-s kæt-s edʒ-s /</th>
</tr>
</thead>
<tbody>
<tr>
<td>assimilation</td>
<td>— dɔgz — edʒz</td>
</tr>
<tr>
<td>vowel insertion</td>
<td>fɔksɪs — — edʒɪz</td>
</tr>
<tr>
<td>actual forms</td>
<td>[ fɔksɪs dɔgz kæts edʒɪz ]</td>
</tr>
</tbody>
</table>

By assuming a further assimilation rule, one which would make consonants voiced when they follow a vowel (vowels after all are voiced), one could rescue /fɔksɪs/, which would then end up as [fɔksɪz].

However, that would be rather ad hoc (=not motivated independently), since English phonology otherwise doesn’t do such a thing: after vowels, stressed and unstressed, sibilants and other consonants can be voiced as well as voiceless (*bus* [bʌs], *analysis* [əˈnæ.ɪ.ɑ.ˈsɪs], etc. etc.).
There is a tendency for consonants to be voiced intervocally (especially when the postconsonantal vowel is stressed, cf. Verner’s Law), but here we don’t have a following vowel.

Applying vowel insertion before voice assimilation doesn’t help; it makes matters worse because now *edges* comes out wrong, too:

| basic forms | / fɔks-s dɔg-s kæt-s edʒ-s / |
| vowel insertion | fɔksɨs — — edʒɨs |
| assimilation | — dɔgz — — |
| actual forms | [ fɔksɨs dɔgz kæts edʒɨs ] |
On the other hand, assuming underlying voiced /z/, things work out fine, as long as the vowel is inserted between sibilants before voice assimilation between neighbouring consonants:

<table>
<thead>
<tr>
<th>basic forms</th>
<th>/ fɔks-z</th>
<th>dɔg-z</th>
<th>kæt-z</th>
<th>edʒ-z /</th>
</tr>
</thead>
<tbody>
<tr>
<td>vowel insertion</td>
<td>fɔksiz</td>
<td>—</td>
<td>—</td>
<td>edʒiz</td>
</tr>
<tr>
<td>assimilation</td>
<td>—</td>
<td>—</td>
<td>kæts</td>
<td>—</td>
</tr>
<tr>
<td>actual forms</td>
<td>[ fɔksiz</td>
<td>dɔgz</td>
<td>kæts</td>
<td>edʒiz   ]</td>
</tr>
</tbody>
</table>

Insertions of unstressed vowels can be motivated independently in English. Cf. cases such as the basic noun table [teɪbl] and the corresponding adjective, tabular [ˈtæ.ə.lər].

There is a particularly good reason in the present case to insert a vowel precisely after a sibilant/STRIDENT: without a vowel in between the stem-final and the suffixal sibilant, two identical segments would end up next to each other in the coda ([fɔksz], with assimilation leading to [fɔkss]); but English does not permit geminates, least of all
in the syllable coda; these geminates would be simplified to singletons, and the overt exponent of PLURAL would be wiped out with all such words ending in a voiceless sibilant ([fɔks]).

Choosing between analyses of /ɪz/ or /z/ as the underlying form of the English “regular” plural isn’t easy, as is attested to by a rich and controversial literature devoted to just this point. The truth about this ostensibly simple matter – What is the basic form of the regular plural suffix in the mental grammar of speakers of English? – hasn’t been established yet beyond controversy.
Part B  Morphological Analysis: Mor(pho)phonology

(= phonology operating under morphological conditions, as opposed to pure phonology)

English shows a rich variety of phonological alternations, mostly of stems, mostly in derivational morphology and mostly in its latinate part.

This is essentially intended as materials to be analysed in the Tutorial, in particular with respect to the phonological features involved in the alternations.
What we’re looking at below is supposed to be different from cases like these:

- time – temp-or-al, flower – flor-al, moon – men-strual,
- rule – regul-ar, lion – leon-ine, peace – pac-ifist,
- satisfy – satisfact-ion (vs. clarify – clarific-ation),
- expel – expuls-ion, deceive – decept-ion,
- consume – consumpt-ion, describe – descript-ion,
- adhere – adhes-ion, Aberdeen – Aberdon-ian,
- approve – approb-ation,

Here the alternations as a whole are specific to individual morphemes (/si:v/, /su:m/, etc.), sometimes in fact approaching prototypical suppletion (=different stems).

Below, by contrast, we list cases where the morphology creates conditions under which phonological rules (sometimes also called “mor(pho)phonological”) apply which are not morpheme-specific. These are allomorphic alternations in a wider sense.
However, the line is not always easy to draw. For instance, in some examples given above the vowel alternations do follow more general phonological patterns.

The following examples are culled from Chomsky & Halle’s *Sound Pattern of English*, with additional exemplification primarily from Marchand’s handbook and Bauer’s textbook of English word formation. The relevant theoretical literature is substantial: further references upon request, or in Phonology II.

English historical phonology (s.v. Great Vowel Shift, Trisyllabic Shortening, Open Syllable Lengthening) often gives clues to what’s going on and why. A common historical development is that purely phonological rules acquire morphological conditions.
• vowel laxing (both times equally stressed)


compare – comparative, pair – par-ity, hilarious – hilar-ity

appeal – appell-ative, inhere – inher-ent, appear – appar-ent, obsolete – obsolesc-ence
profound – profund-ity, abound – abund-ant

cone – con-ic, tone – ton-ic, noble – nobil-ity, quote – quot-ation,
verbose – verbos-ity, osmosis – osmot-ic, ferocious – feroc-ity,
atrocious – atroc-ity

(but, with more complex vowel alternations, long – leng-th, broad –
bread-th, strong – streng-th), thief – thef-t, clean – clean-ly, holy –
holi-day

know – knowledge
coal – collier(y)
sign – sign-al
money – mon-etary
• vowel tensing (under stress)


• vowel reductions (with stress reduction)

maintain – maintain-ance
algebra-ic – algebra

• vowel deletions (or insertions?)

theater – theatr-ical, tiger – tigr-ess
particle – particul-ar, table – tabul-ar, able – abil-ity
• velar softening k → s, g → dʒ before non-low, front vowel

electric – electric-ity, music, music-al – music-ian, critic, critic-al –
critic-ize, critic-ism, medic-al, medic-ate – medic-ine, specific –
specific-ity

leg-al – leg-islation, alleg-ation – allege, rigour – rig-id, analog-ous
– analog-y

• spirantisation d, t → s (or ts → s?)

emphat-ic – emphas-is, idiosyncrat-ic – idiosyncras-y, lunat-ic –
lunac-y, advocate – advocation-y, accountant – accountann-c-y (but
difficulty, modesty: cf. loyal-ty, royal-ty),
analyt-ic – analys-is,
elli-ct-ic – ellips-is, metropolit-an – metropolis, galact-ic – galax-y
evade – evas-ive, corrode – corros-ive (also devoiced)
• palatalization $d \rightarrow ʒ$, $t \rightarrow ś$

persuade – persuas-ion, exclude – exclus-ion, invade – invas-ion, comprehend – comprehens-ion

• $d, t \rightarrow dʒ$, $tʃ$

residue – resid-ual, quest – question, right – right-eous, act – act-ual

• $ts \rightarrow tʃ$

substance – substant-ial, finance – financ-ial
• final mn -> m except before vowel

(not if vowel is part of inflectional suffix: *He is autumn-ing in Vermont, He is damning them. Or also if derivational but native: the condemn-er*)

• initial/final kn, gn -> n, km, gm -> m unless stop syllabified as final and nasal as initial

know – ack.nowledge, gnostic – ag.nostic, ig.norant, recog.nize, prog.nosis
resign – resig.nation, sign – sig.nal, Charlemagne – mag.nanimous, mag.nificent, impugn – pug.nacious
paradigm – paradig.matic, phlegm – phleg.matic
similar: skl $\rightarrow$ sl, unless s.kVl

*muscle – mus.cular*

like whistle, thistle, mistle-toe, bristle, jostle, hustle
not just-ly, daft-ly, list-less, ghost-ly, soft-ly
not piston, Liston
listen, list-en, soft-en, oft-en, christ-en, moist-en, fast-en, ghast-ly
(AmE)

fricative + stop + sonorant (syllabic): stop deletes, subject to morphological conditions

- v $\rightarrow$ u

*resolve – resolu-tion, involve – involu-tion*

(salv-ation, starv-ation, innerv-ation)
• final fricatives voiced before PLURAL

knife – knive-s (chief – chief-s), house – hous-es, cloth – clothe-s

• final fricatives voiced before derivational suffixes


• final fricatives voiced when nouns are verbalized

(but knife – knife/*knive)
• vowel laxing, and/or final devoicing, in weak PAST and PARTICIPLE (-t, not -d)


[a more systematic list of relevant examples above, Part A]

• Truncations

-ate: navigate – navig-able, nominate – nomin-ee

-ous: enormous – enorm-ity, glorious – glor-, notorious – notori-ety

(but: pompous – pompous-ity)


-a: America – Americ-an