

6: Exempla

This last chapter is almost an addendum. It essentially contains no theory, but rather studies done within the theory outlined in this monograph. These studies are further characterized by the fact that they could not have been done without the underpinnings that the framework provides, and should thus serve as harbingers. The first section is purely exemplary, consisting of two cases in which distributional evidence is used to resolve a morphological quandary. Some theory does creep into the second half of the chapter; it comprises an analysis of the English suffix *-able*, making essential reference to the notions of allomorphy and truncation, but its more ulterior concern is the nature of the boundaries + and #.

6.1. Distributional Arguments

One point on which the theory of this work differs from most contemporary concepts of morphology is the claim that morphology is word-based: new words are formed from already existing ones, rather than being mere concatenations of morphemes. Now one of the more curious properties of this word-based theory is the way in which distribution can be used to test hypotheses set forth within it. Distributional evidence can be used because of the role which the lexicon plays within the theory: if one word is formed from another, then it will generally be the case that both words will be in the lexicon; the base at least will always appear there, though the derivative need not (cf. chapter 3). Therefore, if we hypothesize that a class of words X is derived from another class of words Y , then for every x_i in X there should be listed a corresponding y_i in Y , but not vice versa (unless the rule is fully productive, in which case X will not be listed anyway). There may be incidental gaps, due to the vagaries of history, but Y should by and large include X .

We will give a simple example of how this distributional test works. Consider the class of English nouns of the form $X\#ness$ (*redness, callousness, receptiveness...*). It is generally assumed that this class is derived from the class of adjectives, and there are various grounds for the assumption. For one, X is always an adjective. Second, there is the stress pattern of $X\#ness$, which demands that we posit a boundary (in this case a word boundary) before the phonological sequence [nes]. Third, there is the semantic coherence of the class of nominals, all of which carry meanings containing those of the adjectives. All of these facts are most plausibly accounted for by deriving the nouns from the adjectives they contain. We will look at the distributional evidence and see whether it is in accord with this rather strongly supported

hypothesis. Consulting a dictionary, for this is the closest we can come to the lexicon of a speaker's language, we discover that for every English noun x_i #*ness* there exists a corresponding adjective x_i . Note that the opposite is not true; we do not find for every adjective listed in our lexicon a corresponding noun of the form X #*ness*. Distribution thus accords with other criteria in this simple case.

But not all cases are so simple. Most WFRs are easily discernible because, like the rule of #*ness*, they are associated with some tangible phonetic object; there is generally a specific morpheme which is uniquely associated with a given rule. Sometimes, though, there is no such morpheme; nothing is so obviously present in one set of words and missing in another.

Consider the class of noun/verb pairs of the form X ment, discussed at some length in SPE and later works.

(1)	X ment _V	X ment _N
	ornament	ornament
	implement	implement
	complement	complement
	tenement	tenement
	fragment	fragment
	segment	segment
	augment	augment
	sediment	sediment
	regiment	regiment
	compliment	compliment
	experiment	experiment
	ferment	ferment
	torment	torment

The two classes are obviously related: there is a clear and consistent semantic relation between the pairs. But there is no morpheme which we can isolate and use to show that one class is derived from the other. There are, however, systematic phonological differences between the two classes. In the disyllables (such as *ferment* and *segment*) the verb always has final stress, while the noun has initial stress, with the [e] of [ment] being reduced to [ə].¹ In words which are trisyllabic or longer, the main stress is always on the antepenult vowel, both in the noun and in the verb, but in the noun the [e] of [ment] is reduced, as it is in the disyllabic nouns, while in the verb it is not. In order to account for these phonological differences in a principled manner, Chomsky and Halle derive the nouns from the corresponding verbs. The nouns then receive their proper stress on the application of a second cycle, which is now motivated by the morphological analysis. Chomsky and Halle note, however, that "... in the case of the forms with *-ment*... The derivation of nouns from such verbs is marginally productive, as is often the case in derivational systems of this sort" (SPE, 107, fn.). The opposite phonological derivation is impossible: there is no way to derive the stress of the verbs from that

¹ There are variant pronunciations of *augment*_V and *segment*_V which are not easily accounted for in any theory of morphology.

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of the nouns. Since the advent of this phonologically motivated morphological analysis, however, Kean (1974) has proposed a very general constraint on the application of phonological rules, the principle of strict cyclicity, which directly prohibits the phonological derivation proposed in SPE. Furthermore, there has been much criticism of other sorts directed against the SPE solution (Ross (1972, 1973); Oehrle (1971)). Ross also mentions that in most cases the noun “feels” basic, though he is unable to provide tangible support for his intuition. In any case, both Ross (1972) and Halle (1973c) avoid attempting to relate the two classes phonologically in their revised analyses and simply derive them in separate ways. The phonology, then, can give us no clue to a morphological solution.

What does our distributional criterion tell us about this puzzling case? If the nouns are derived from the verbs, then we should expect to find many unpaired verbs of the form *Xment*. We find only two: *foment* and *dement*.² This is an admittedly small gap. Turning to the nouns, we find that Walker (1936) lists approximately 500 of the form *Xment* for which there exists no verb of the same shape. Of these, the large majority are of the form $X_V \#ment$ (*employment*, *dismemberment*) discussed in 4.2.1.2 and transparently derived from verbs. We may therefore exclude these nouns from our distributional computation. Apart from these, however, there still remain some 75 nouns of the form *Xment* which do not have corresponding verbs (for example, *element*, *figment*, *sediment*, *monument*, *garment*). Furthermore, all of these have exactly the same stress pattern as the nouns in (1). Distribution dictates that we account for the semantic correspondence exhibited by the pairs in (1) by a rule deriving the verbs from the nouns. We can even be nihilistic, and claim that neither set is derived from the other: the verb/noun correspondences that we do find are accidental. Whatever we choose to do, the one analysis which the distributional evidence clearly contradicts is the one in question, that of SPE, which derives the nouns from the verbs. If it were true, we would be claiming, contrary to the facts of history, that all of the unpaired nouns are derived from verbs which have somehow disappeared.

The phonological consequence of the morphological analysis is that there is no way to derive the stress of one member of the pairs in (1) from that of the other; the two classes must be independent from a phonological point of view. This consequence, however, is exactly that of strict cyclicity.³ It is also foreseen by the stress rules of both Ross and Halle.

It is quite apparent that the morphological analysis of SPE was often grounded in phonological convenience. Here it was simpler to derive the stress of the noun from that of the verb, and hence the morphology was made to allow for that particular phonological solution. Dissatisfied with the morphological analysis, but not able to deal with it, previous investigators could take issue with only the phonological derivation, a sometimes alarmingly complex task.

² There are also pairs of words of the form *Xment* which do not differ at all in stress: *lament*_{V,N}, *cement*_{V,N}, *comment*_{V,N}. The stress and phonology of these words are discussed in detail in Oehrle (1971).

³ The morphological structure of the verbs is $[[X]_N]_V$. Their stress pattern is one which is characteristically verbal (cf. Ross (1972, 1973)). It seems most plausible to assume that this pattern is arrived at by in some way ignoring the inner nominal brackets. This is not what is predicted by the strict cycle, which, admittedly was not formulated in the light of examples of this form, but rather from cases of the more usual $[[X]Y]$ or $[X[Y]]$ structure.

Distributional argumentation provides a simple and straightforward way of dealing directly with the morphological analysis. There is also a more general moral to be drawn: not to put the cart before the horse. We will now turn to a more complex case.

We will attempt to establish the derivation of the class of English adjectives of the form *Xistic* (*imperialistic, egotistic, hedonistic*), which seems transparently to be derived from the class of nouns of the form *Xist* (*imperialist, egotist, hedonist*). According to our test, if $Xist_N$ is indeed the source of $Xistic_A$, then we should find a word $x_{i}ist_N$ for almost every $x_{i}istic_A$. Walker lists 145 words of the form $Xistic_A$, for the following 28 of which he does not list a corresponding form $Xist_N$:

(2)	a.	b.	
	characteristic	solecistic	shamanistic
	logistic	sufistic	eudemonistic
	mediumistic	sylogistic	synchronistic
	phlogistic	neologistic	anachronistic
	harmonistic	catabolistic	hylozoistic
	patristic	formulistic	hetaeristic
	heuristic	euphemistic	poristic
	eristic	animistic	euphuistic
	ballistic	totemistic	humoralistic
		melanistic	

There are too many exceptions to our proposed derivation for it to be above suspicion. However, a separate fact does emerge from this list, which is that a large number of words of the form *Xistic* for which there does not exist a corresponding word *Xist* do have a corresponding word *Xism*. Testing this new possible source of $Xistic_A$, by our same method, we discover, of the total 145 words of the form $Xistic_A$, 26 which do not have a corresponding form $Xism_N$, namely those in (2a) and those in (3):

(3)	haggadistic	casuistic
	talmudistic	oculistic
	elohistic	stylistic
	eulogistic	eucharistic
	yahwistic	diaristic
	annualistic	folkloristic
	novelistic	juristic
	artistic	linguistic
	coloristic	

Quite clearly our simple distributional test has failed to give us any clear answer in this case, though it has provided us with a second plausible source for the class of words under

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study. The results of our inconclusive computation are tabulated in (4) and diagrammed in Figure 1:

(4)	Total $Xistic_A$	145
	$Xistic_A, Xist_N, Xism_N$	100
	$Xistic_A, *Xist_N, Xism_N$	19
	$Xistic_A, Xist_N, *Xism_N$	17
	$Xistic_A, *Xist_N, *Xism_N$	9

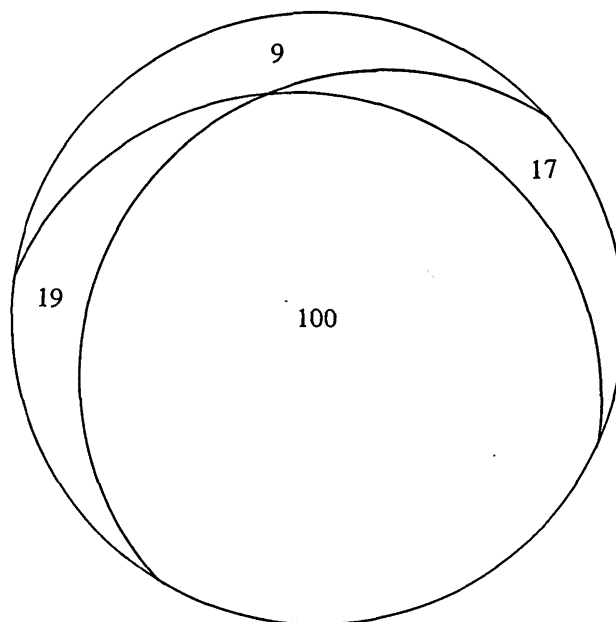


Figure 1

There is a way out of this dilemma. The way is hidden in the unitary base hypothesis of 4.1.1, according to which the base of a given WFR must comprise a unitary, positively specified syntacticosemantic class; there can be no disjunction or negation in the specification of the base. If a given class is hypothesized to be the base of a given WFR, then all members of that class must be possible token bases, and there must be no subclass of the hypothetical base class which cannot serve as a base. What we must therefore do is to look at the two classes which we have posited as possible bases for the class *Xistic* and determine whether they meet this test. It is a distributional test, but a finer one than the first; instead of merely looking for gaps in the base, we are looking for systematic gaps.

First we will look at the class of words of the form *Xist*. This is a large class, and Walker (1936) lists about 700 words in it. Interestingly, only a small subset of these 700 allow corresponding words of the form *Xistic*. Excepting the 17⁴ cases already listed in (3), the following

⁴Of the 17 gaps in Walker, the OED lists *novelism* and *folklorism*.

generalization holds:

For a given word x_iist , there cannot exist a corresponding word x_iistic unless there also exists a corresponding word x_ism .

This generalization is exemplified in (5):

(5)	archaeologist	*archaeologism	*archaeologic
	meteorologist	*meteorologism	*meteorologic
	alchemist	*alchemism	*alchemistic
	botanist	*botanism	*botanistic
	dentist	*dentism	*dentistic
	symphonist	*symphonism	*symphonistic
	economist	*economism	*economistic
	deuteronomist	*deuteronomism	*deuteronomistic
	opinionist	*opinionism	*opinionistic
	extortionist	*extortionism	*extortionistic
	violinist	*violism	*violistic
	cellist	*cellism	*cellistic
	copyist	*copyism	*copyistic
	lobbyist	*lobbyism	*lobbyistic
	essayist	*essayism	*essayistic
	reservist	*reservism	*reservistic
	archivist	*archivism	*archivistic
	parachutist	*parachutism	*parachutistic
	balloonist	*balloonism	*balloonistic
	canoeist	*canoeism	*canoeistic
	latinist	*latinism	*latinistic
	lichenist	*lichenism	*lichenistic

Nothing of the sort holds for $Xism$. Whether or not one can form a word x_iistic_A for a given word x_ism is completely independent of x_iist (though, of course, not all members of $Xism$ have corresponding $Xistic$ forms). It would seem, then, that $Xism$ is the base of $Xistic$, as far as distributional evidence can tell us.

Some of the examples in (5) take us beyond distribution to corroboratory evidence of a different sort. Note that the word *archaeologist* is transparently derived from *archeology*; most words of the form $Xologist$ have parallel derivations. The suffix $+ic(al)$ ⁵ attaches productively to $Xology$ (*biological*, *meteorological*, *archeological*). Along the same lines we have *botanist*/*botany*/*botanical*, *alchemist*/*alchemy*/*alchemical*. In fact, looking at the wider behavior of the suffix, we find that it attaches to nouns which denote inherently definite things: names of disciplines (*philosophy*/*philosophical*, *geography*/*geographical*), names of “concrete” objects

⁵ The relationship between $+ic$ and $+ical$ is discussed with insight in Prince (1972).

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(*oxygen/oxygenic*), names of people (*Napoleon/Napoleonic*), and names of languages.⁶ There are some exceptions to this pattern, but they are not systematic. It is clear that nouns of the form *Xism* fall into this general class, but those of the form *Xist* do not. Now, one might claim that the base of the suffix *+ic(al)* departs from the unitary base hypothesis just in the instance of nouns of the form *Xist*, but to do so is surely perverse, for if the base in this case is *Xism*, uniformity is restored.

One obstacle remains in the way. The suffixation of *+ic* to *Xism* yields *Xismic* and not the desired *Xistic* (except in the case of *embolismic*). We need the following rule:

(6) $m \rightarrow t/s \text{ ____ } +ic$

This rule might also be at work in alternations such as *phantasm/fantastic*, *iconoclasm/iconoclastic*, *heteroplasm/heteroplastic*, *sarcasm/sarcastic*.⁷ The rule also leads to an important point. The main reason for first choosing *Xist_N* as the most plausible base of *Xistic_A* is phonological transparency: in order to derive the latter from the former, all we do is add [ic]. What I have tried to show is that using surface concatenation (even underlying phonological concatenation) as the primary tool in doing morphology is misconceived. Word formation is a much more abstract matter than one might at first be led to believe.

To summarize this section: I have shown how a theory of word-based word formation permits us to use distributional facts of various sorts in confirming or disconfirming hypotheses within that theory. Conclusions from distribution have been supported from other quarters.

6.2. *-able*

Prima facie, this section is a study of the English suffix which is represented orthographically as *-able* or *-ible*. We will have a reasonably detailed account of its phonological properties and some observations on its semantics and syntax. A second and perhaps higher purpose of the section is to support a particular conception of the nature of morphological boundaries.

Within the theory of this work, and within the theory of SPE, boundaries are structural entities, inserted between elements by rules. Like all purely structural entities, they have no phonological substance in themselves, nor meanings in the conventional sense, but rather reveal their existence in the way in which they affect phonological and semantic processes, and, through the mediation of process, substances. The phonological reflection of a boundary is a constraint on the operation of phonological rules. The reflection of boundaries in semantic and syntactic structures is more elusive, due perhaps to the dimness of our insight in these areas. This contrast in clarity seems somehow to have led to the peculiar belief that boundaries are phonological entities. This way of thinking is revealed even in SPE, where boundaries are

⁶Note that of the items in (2a) and (3) which seem to be exceptions to the proposed rule, *elohistic* and *yahwistic* are not exceptions to the general case, since by definition there is only one *elohist* and one *yahwist*. Similarly, *linguistics*, *patristics*, *heuristics*, and *stylistics* are the most plausible source of their corresponding *Xistic* forms. A little rooting in the dictionary reveals that *characteristic*, *eristic*, and *heuristic* are borrowed or adapted directly from Greek.

⁷It may also be that the suffix is *+tic(al)*. Evidence for this may be found in forms like *charisma/charismatic*, *drama/dramatic*.

analyzed, in a clearly artificial manner, into phonological features. This tendency has been aggravated in recent work, to the point where the possibility is entertained that some boundaries may be [+consonantal]. Within the framework of this monograph, such a suggestion is as sensible as claiming that NP brackets are [–continuant].

Boundaries differ in the manner in which they constrain the application of phonological rules. This difference can be seen as one of degree or strength (cf. Stanley (1973)). # is a strong boundary, and a string containing it is not subject to a phonological rule unless this rule explicitly mentions # in the proper position. + is a weak boundary; its presence can be indicated in a rule, but its absence cannot, with the result that though it can trigger rules it cannot block them. I will try to demonstrate that this difference in strength is not merely reflected in the way in which boundaries constrain phonological operations, but that it holds for syntactic and semantic operations as well. In particular, I will show that there are two suffixes, +*abl* and #*abl*, that they have the same meaning and syntactic properties, but that the consistency with which these properties appear is greater for words of the form *X#abl* than it is for words of the form *X+abl*.

If we can show that # is stronger than + with respect to phonological, syntactic, and semantic operations, then clearly boundaries cannot be merely phonological entities. Nor can they be entities of the same nature as morphemes or words. The essential property of words and morphemes is their arbitrariness; they are mediations between sound and meaning, but there can be no connection between the structure of their sound and the structure of their meaning. Boundaries have neither sound nor meaning. They affect the two in parallel manners and are therefore not elements of linguistic substance, but rather elements of linguistic structure.

6.2.1. Phonological Arguments

6.2.1.1. *Stress*.⁸ In terms of stress, it is possible to isolate three suffixes. The most common is +*abl*, a monosyllable with a + boundary. When not followed by any further suffix, this is a final syllable with a [–long] vowel. The Primary Stress Rule (cf. Halle (1973c)) will ignore it and place stress on the penult, unless the penult is weak, in which case stress falls on the antepenult. So the word *corrigible* has a weak penult and the stress falls on the antepenult, while *refrangible* has a strong penult, which is stressed.

This analysis is contradicted in a small number of cases which show alternate stress patterns:

(7)	a.	b.
	inéxplicable	inexplicable
	hóspitable	hospítable
	éxplicable	explicable
	déspicable	desplicable
	fórmidable	formidable

The stress pattern of the items in column (7a) is in accord with our hypothesis. That of the items in column (7b) is not. Stress falls on the penult, even though it is weak. The only way in

⁸ The greater part of the analysis of the stress types is due to Alan Prince.

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which the stress in column (7b) can be regularly derived is to analyze the affix as disyllabic. This disyllabic analysis is necessary only in these few cases, where both stress patterns are found.⁹

There is also a large number of contradictory cases of a different sort. In these the stress falls on the antepenult even though the penult is strong. Examples are *gouvernable* and *bállastable*. This fact is in direct violation of the weak cluster principle of English stress, and there is no way to alter the phonological shape of the suffix in such a way as to allow the stress to cross the strong penult. Note, however, that the stress of the words in question is exactly that of the corresponding verbs: *govern* and *ballast*. If, therefore, we place a # boundary before the suffix, we will be able to generate the correct stress patterns in *gouvernable* and *bállastable*. Similarly, and even more strikingly, words like *disciplineable*, with initial stress, four syllables back, can be accounted for only by positing a # boundary before the suffix.

Stress facts alone thus force us to posit three suffixes. It is reasonable to believe that the disyllabic + boundary suffix is a variant of *+abl*, for the only instances in which the former occurs are those in which it varies more or less freely with the latter. No further reduction is possible and we find ourselves with two affixes: *+abl* and *#abl*.

There are minimal pairs of words, one of which contains *+abl* and the other *#abl*.

(8)	a.	b.
	cómparable	compáritable
	réparable	repaíritable
	réfutable	refúritable
	préférable	preféritable
	dísputable	dispúritable

The words in column (8a) must be of the form *X+abl* and those in column (8b) of the form *X#abl*. There are semantic differences between the words in the two columns, which we will return to below.¹⁰

6.2.1.2. *Allomorphy*. The analysis accounts very nicely for the cases which involve allomorphy. We have already seen (in 5.3.2) that marked latinate roots show the same allomorphs before *-able* as they do before *ion*, *-ive*, *-ory*, and *-or*. Curiously, however, before *-able* the allomorphy rules are optional:

(9)	circumscribe	circumscriptible	circumscribable
	extend	extensible	extendable
	defend	defensible	defendable
	perceive	perceptible	perceivable
	divide	divisible	dividable
	deride	derisible	deridable

⁹Not with equal frequency. Kenyon and Knott (1953) list only *fórmidable*, but *déspicable* and *déspicable*, *hóspitable* and *hospitable*, *éxplicable* and *explicable*, *inéxplicable* and *inexplicable* (with a note that the latter is gaining ground here).

¹⁰We cannot account for the stress of column (8b) by claiming that the affix here is disyllabic, for then we would expect the stressed vowel to be lax by Trisyllabic Shortening (the rule which operates on the stressed vowel of *divinity*), which it is not.

This is highly unusual; in all other instances allomorphy rules are obligatory and exceptionless. Furthermore, we do not have here a case of one or even several rules being optional before a suffix, rather the entire class of allomorphy rules seems to be optional before *-able* and only before *-able*. This is very strange, and to handle it by exception features, though feasible, would be very costly and unenlightening. The point is not that certain rules are optional, but rather that a class of rules is optional, and exception features cannot handle the notion "class of rules".

If, however, we posit two suffixes *+abl* and *#abl*, then the facts of (9) fall out immediately. The first, a *+* boundary suffix, can trigger allomorphy rules, while the second, a *#* boundary suffix, cannot. The seeming optionality of otherwise obligatory allomorphy rules is thus actually a matter of boundaries.

6.2.1.3. *Truncation*. As might be expected, the truncating morpheme *+At* (cf. 5.2.1 and 5.2.2) truncates before *-able*.

(10)	tolerate	tolerable
	negotiate	negotiable
	vindicate	vindicable
	demonstrate	demonstrable
	exculpate	exculpable

It is clear from the stress of words such as *demonstrable* that we are dealing here with *+abl*, not *#abl*, for if the suffix were *#abl* we would expect no stress shift between *demonstrate* and *demonstrable*, whereas if the suffix is *+abl* we expect exactly the stress pattern that we find: stress on the penult if it is strong, otherwise stress on the antepenult. Any identity in stress between the verb *Xate* and its derivative *Xable* is accidental.

Truncation of *+At* is usually obligatory. It is blocked only when there is reason for not analyzing *At* as a morpheme. So, as we noted in 5.2.2, *At* does not truncate in the word *inflatant* because to posit that *At* is a morpheme in the word *inflate* entails that the root of the word be *fl*, which is not possible, since all roots must contain a vowel. The following are similar cases:

(11)	debate	debatable	*debable
	abate	abatable	*abable
	dilate	dilatable	*dilable
	state	statable	*stable (in this sense)
	relate	relatable	*relable
	inflate	inflatable	*inflable
	translate	translatable	*translable

Truncation of *+At* is therefore either obligatory or blocked, but never optional. However, there are many cases where *+At* truncates optionally before *-able*:

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(12)	cultivate	cultivable	cultivable
	educate	educable	educatable
	irrigate	irrigable	irrigatable
	navigate	navigable	navigatable
	regulate	regulable	regulatable
	frustrate	frustrable	frustratable
	filtrate	filtrable	filtratable
	demonstrate	demonstrable	demonstratable
	operate	operable	operatable
	narrate	narrable	narratable
	implicate	implicable	implicatable
	separate	separable	separatable
	allocate	allocable	allocatable
	investigate	investigable	investigatable
	anticipate	anticipable	anticipatable

This optionality can be accounted for in exactly the same way as the seeming optionality of allomorphy before *-able*, by positing the existence of the two suffixes *+abl* and *#abl*.

6.2.1.4. *Summary.* The phonological behavior of the suffix has been investigated, and we have found three types of evidence which strongly support the positing of two affixes, *+abl* and *#abl*. If phonology does not operate in a vacuum, then the two distinct suffixes should be differentiable on other linguistic planes as well. We will now show that they are.

6.2.2. *Correlates*

6.2.2.1. *Morphological Correlates.*¹¹ (a) *The Stem.* For any word containing an isolatable affix, the part of the word which consists of the whole word minus the affix in question is termed the *stem*. In words of the form *Xable*, if *X* is not an independently occurring word, then the suffix is of the form *X+abl* and not of the form *X#abl*. This is true of words which are not related to any verb, such as *possible*, *refrangible*, *vulnerable*, and *horrible*. It is also true of words which are related to a verb only through a rule of allomorphy (*divide/divisible*, *extend/extensible*) or truncation (*communicate/communicable*, *delineate/delineable*). This agrees with the theory of Siegel (1974), according to which if the stem of a word is not an independently occurring word, then the affix is always a + boundary affix.

(b) *Negative Prefixes.* The two most common negative prefixes in English are *in+* and *un#*. *in+* attaches to adjectives of the form *X+abl* and *un#* attaches to adjectives of the form *X#abl*.¹²

¹¹ Morphology is a subpart of syntax in the broad sense of that term.

¹² There are a few examples of *in+ X#abl*: *inconceivable*, *indescribable*. Cases of *un# X+abl* are easier to find. The reason for the imbalance in the numbers of exceptions is the difference in the productivity of *in+* and *un#*. These two prefixes, though not as strikingly minimal a pair as *+abl* and *#abl*, can be subjected to a similar comparison, as can their French counterparts: *in+* and *in#* (cf. Zimmer (1964, 50-51)).

(13) <i>Type</i>	<i>in+</i>	<i>un#</i>
Nonlexical stem (+abl)	impossible	*unpossible
	impalpable	*unpalpable
At+	irregulable	*unregulable
	inviolable	*unviolable
At#	*irregulatable	unregulatable
	*inviolatable	unviolatable
Allomorphic root +abl	imperceptible	*unperceptible
	indivisible	*undivisible
Allomorphic root #abl	*imperceivable	unperceivable
	*individable	undividable
Stress differentiated +abl	irreparable	*unreparable
	irrevocable	*unrevocable
Stress differentiated #abl	*irreparable	unrepairable
	*irrevokable	unrevokable

The facts of (13) correlate perfectly with our analysis, and they serve to clear up a possible ambiguity in it. One might view +abl as a decayed #abl. On this view, which is put forth in SPE, #abl is the basic affix, and it sometimes decays to +abl. We would then have a rule such as (14) as a readjustment rule.

(14) #abl → +abl (optional, obligatory with nonlexical stems)

However, a rule such as this entails that the choice of negative prefix be made after a form has undergone a readjustment rule, i.e. in the midst of a phonological derivation.

It is also possible to think of +abl and #abl as different affixes. If we have two separate affixes, #abl and +abl, then we do not need rule (14). The fact that the choice of suffixes is sometimes optional and sometimes obligatory will be a fact about the affixes and not encoded into a rule, and the choice of suffix can be made prior to the phonology. This latter analysis seems preferable, and will receive further support from semantic facts.

6.2.2.2. *Syntactic Correlates*. Most words of the form *Xable* are adjectives. A very few are nouns (*tangibles*, *vegetables*, *sparables*), though all can be reified with *the*:

(15) He has just explained the inexplicable.

The *base* of any complex word is the word from which it is derived. The base is not identical to the stem. For example, the base of the word *regulable* is the word *regulate*, while its stem is *regul*, which is not a word.

Not all words of the form *X+abl* have a base. Words like *possible*, *probable*, and *refrangible* do not. When a word of the form *X+abl* has a base, the base is a transitive verb. The one exception I know of is *reputable*, from *repute*, a noun.

All words of the form *X#abl* have a base, which is a transitive verb.¹³

¹³ Sometimes it is a noun: *customable*, *saleable*. We have already argued (in 4.1.1) that a different suffix is at work in these cases.

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Ross (1974) has done extensive work on the relationship between subcategorization and lexical category. One of his discoveries is that productively derived deverbal entities are much stricter in the range of subcategorizations they enjoy than are simple verbs. Looking at verbal prefixes such as *mis#*, *re#*, and *de#*, he found that they attach to verbs with NP objects and not to verbs with particles or prepositional phrases. So, for example, we find *reinspect* but **re-look at*, *misreport his income* but **misreport that he had left*.

Now, looking at the subcategorization possibilities of the two classes *X+abl* and *X#abl*, we find that *X+abl* allows a prepositional phrase more frequently than *X#abl*. Where *X+abl* has no lexical base, prepositional phrases are common:

- (16) I am amenable to a change in plans.
It's visible to the naked eye.
He's eligible for reappointment.
That's compatible with our findings.

Where we get both x_i+abl and $x_i\#abl$, and the base is a verb that allows a prepositional phrase, then the former, but not the latter, sometimes allows the prepositional phrase:

- (17) divisible by three
?dividable by three
divisible into three parts
?dividable into three parts

In general, then, the subcategorization of *X#abl* is closer to the type isolated by Ross as characteristic of productively derived items.

6.2.2.3. *Semantic Correlates*. In the ideal world, the meaning of a morphologically complex word will be a compositional function of the meaning of its parts. The basic compositional meaning which has been proposed for words of the form *Xable* is 'liable to be *Yed*' or 'capable of being *Yed*' (where *Y* is the base of the word in question). This meaning presupposes the general case, where *Y* is a verb. Of course, when a word has no discernible base, as is the case with many words of the form *X+abl*, there is no way in which we can see whether the meaning of the whole is a function of the meaning of the parts, since the parts have no independently established meaning. This general fact has already been discussed at length in chapters 2 and 4. Therefore, the meaning of many words of the form *X+abl* will not so much diverge from compositionality as not involve compositionality. These words apart, however, when we have two words of the form *Xable* with the same base y_i , the word of the form *Y#abl* will always be closer to compositionality than the word of the form *X+abl*. We will exemplify this phenomenon with several pairs:

cómparable (X+abl) vs. compárable (Y#abl)

The meaning of *compárable* is 'capable of being compared', as in (18):

- (18) The two models are simply not compárable.

One meaning of *cómparable* is that of *compárable* in (18), as can be seen by substitution:

- (19) The two models are simply not *cómparable*.

However, *cómparable* also has another meaning, exemplified in (20), which is the same as one meaning of *equivalent*.

- (20) This is the *cómparable* model in our line.

Compárable does not have this meaning:

- (21) *This is the *compárable* model in our line.

tolerable (*X+abl*) vs. *tolerable* (*Y#abl*)

One sense of *tolerable* is 'moderately good, fair' as in (22). *Tolerable* does not have this sense, but only that of 'capable of being tolerated'.

- (22) We ate a toler(*at)able lunch.

- (23) How are you feeling today? Toler(*at)able.

appreciable (*X+abl*) vs. *appreciable* (*Y#abl*)

Appreciable has a sense which is roughly synonymous with *substantial*:

- (24) An appreciable majority favored the plan.

Appreciable has no such sense.

perceptible (*X+abl*) vs. *perceptible* (*Y#abl*)

One of the meanings of *perceptible* is parallel to the sense of *appreciable* in (24) and means roughly 'large enough to matter', as in (25):

- (25) There is a perceptible difference in quality.

This meaning shows up best in the negative *imperceptible*, which usually means 'insignificant', as in (26):

- (26) There is a flaw in the grain, but it's imperceptible.

Perceptible does not have this meaning:

- (27) *There is a flaw in the grain, but it's unperceptible.

Rather, something is perceptible if it is capable of being perceived, regardless of its size or significance. A flaw may be perceptible, even if it is not perceptible.

The reader may construct other examples. In doing so, however, note that I do not claim that words of the form *X#abl* never diverge from compositionality; that would be patently false. *advisable*, *excitable*, and *sensible* all have meanings which diverge from compositionality. The point is that when we do have pairs, then the word of the form *X+abl* is always the one to diverge from strict compositionality.

6.2.3. Summary. I have isolated in this section the morphological, syntactic, and semantic correlates of the difference between *+abl* and *#abl*. Morphologically, *#abl* has a base of the category *Verb*, while *+abl* often has no base. Syntactically, *#abl* adheres more closely to an archetypal pattern. Semantically, *#abl* is closer to compositionality. Clearly, in all these three

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matters, the difference between the two affixes is not one of kind, but purely one of degree. In each, there is a sense in which *#abl* is stronger, and this falls in perfectly with the phonological difference between the two. The sound and meaning of the boundaries are not arbitrarily but systematically linked. Boundaries are therefore part of linguistic structure or theory, and have no substance.

References

- Anderson, S. R. (1975) "On the Interaction of Phonological Rules of Various Types," *Journal of Linguistics* 11, 39 - 63.
- Anderson, S. R. and R. P. V. Kiparsky, eds. (1973) *A Festschrift for Morris Halle*, Holt, Rinehart and Winston, New York.
- Bally, C. (1940) "Sur la motivation des signes linguistiques," *Bulletin de la Société de Linguistique de Paris* 41, 75-88.
- Ben-Moshe, M. hadiqduq hane'eman, ms. CF1046, Biblioteca Ebraia, Venezia.
- Bierwisch, M. (1967) "Syntactic Features in Morphology: General Problems of So-Called Pro-nominal Inflection in German," *To Honor Roman Jakobson*, Mouton, The Hague.
- Bierwisch, M. and K. E. Heidolph, eds. (1970) *Progress in Linguistics*, Mouton, The Hague.
- Binnick, R., A. Davison, G. Green, and J. Morgan, eds. (1969) *Papers from the Fifth Regional Meeting of the Chicago Linguistics Society*, Linguistics Department, University of Chicago, Chicago, Illinois.
- Bloch, B. (1947) "English Verb Inflection," *Language* 23, 399-418; reprinted in M. Joos, ed. (1966).
- Bloch, B. and G. Trager (1942) *Outline of Linguistic Analysis*, Special Publications of the LSA, Linguistic Society of America, Baltimore, Maryland.
- Bloomfield, L. (1933) *Language*, Holt, New York.
- Botha, R. P. (1968) *The Function of the Lexicon in Transformational Generative Grammar*, Mouton, The Hague.
- Brame, M. (1972a) "The Segmental Cycle," in M. Brame, ed. (1972b).
- Brame, M., ed. (1972b) *Contributions to Generative Phonology*, University of Texas Press, Austin, Texas.
- Brame, M. (1974) "The Cycle in Phonology: Stress in Palestinian, Maltese, and Spanish," *Linguistic Inquiry* 5, 39-60.
- Brown, A. F. (1958) *The Derivation of English Adjectives Ending in -ful*, unpublished Doctoral dissertation, University of Pennsylvania, Philadelphia, Pennsylvania.
- Browne, E. W. (1974) "On the Topology of Anaphoric Peninsulas," *Linguistic Inquiry* 5, 619-620.
- Carrier, J. (1975) "Reduplication in Tagalog," mimeographed paper, MIT, Cambridge, Massachusetts.