The inflectional/derivational distinction

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1 Introduction

The traditional distinction between inflectional and derivational morphology is a useful one, but it is quite complex and difficult to apply to actual forms. With this, as with other linguistic distinctions, there is a tendency to assume that we have an absolute binary distinction, a dichotomy, a hard-and-fast line, with everything on one side purely inflectional and everything on the other side purely derivational. I do not believe the facts fit such a model.

I would claim that the distinction is better viewed as gradual or scalar along several parameters. In other words, rather than the dichotomy presented in 1.a, the scale of 1.b is a more accurate representation, with its possibility of a morpheme falling in between the two poles on the scale, of one morpheme being more inflectional or more derivational than another, without it being possible to unequivocally call some morphemes either inflectional or derivational. This notion of a scale or cline has affinities to Pike's wave model, which in 1.c. is applied to this distinction.

Such scalar distinctions are expected in what has been called the "prototype" model of categorization, which many
cognitive psychologists believe more accurately represents normal human categorization than does the simple dichotomous model. Typically there will be several parameters along which contrasting categories will differ; as a limiting case there may be only one: typically the distinctions along these parameters are scalar; again as a limiting case they may be binary or dichotomous. In 1.d is diagrammed a schema for such categorization: 1.e shows a cube-shaped model that can be employed when only three parameters are involved. We will use such diagrams in the following discussion, for I will be concentrating on three dimensions or parameters of the inflectional/derivational distinction.

2 Prototypical inflection and derivation

As a prototypical inflectional morpheme, let us take the third person singular present-tense marker -s in English, and as an example of a derivational morpheme the adjectivizing suffix -some. Both of them can occur, for instance, with the stem quarrel. I think everyone will agree that quarrels is an inflectional variant of quarrel—no one would seriously consider listing it in a dictionary, for instance. But everyone would list quarrelsome. What are the differences between them? I will sum them up under three heads: productivity, predictability, and meaning change.

2.1 Productivity

One big difference between -s and -some is this: -s can be, and in practice is, attached to virtually any English verb. Consider the following synonyms for quarrel: fight, argue, disagree, brangle, wrangle, bicker, squabble. -s can be attached to any of them, and the result is clearly English: fights, argues, disagrees, brangles, wrangles, bickers, squabbles. In contrast, -some sounds various degrees of bad, from odd to execrable, with all but quarrel:
fightsome, arguesome, disagreesome, branglesome, wranglesome, bickersome, squabblesome, and (Aaahh!) quarrelsome.

Depending on your linguistic theory this difference can be represented in varying ways. I like to express it as follows: -s has associated with it a schematic VERB-s structure, firmly entrenched, through constant usage, in English speakers' linguistic inventory, and constantly used to sanction novel, as well as established, structures. Individual instances of this structure, such as quarrels, may well also be established, but even if they weren't they could and would readily be computed anew. This is diagrammed in 2.a: The established structure VERB-s sanctions both other established structures and novel (non-established) structures of the same type. (Degree of establishment or entrenchment is represented by continuity and thickness of the box enclosing the representation of a form; the sanctioning or schematic relationship is indicated by the arrow.)

In contrast, while -some may be claimed to have a VERB-some structure associated with it, that structure is probably not firmly entrenched, and it clearly is not commonly used to sanction novel structures. Quarrelsome, fearsome, frolicsome, loathesome, and a few other (I've thought of six) specific structures, whose commonality it represents, are reasonably claimed to be a good deal more firmly entrenched than it is. This situation is diagrammed in 2.b.

Productivity tends to correlate inversely with awareness that any particular productive usage is in fact novel. Once a new verb that has never been used in third person singular (perhaps opsonify or vilipend) is established, the novelty of a formation opsonifies or vilipends will pass unnoticed. In contrast, a formation
opsonifysome or vilipendsome (or arguesome, etc.) would command immediate attention.

In sum, (proto)typically inflectional morphological structures tend to be productive, smoothly sanctioning many structures, both established and novel; while (proto)typically derivational structures tend to be unproductive, sanctioning few established structures and fewer novel structures, and provoking a strongly conscious reaction when they do sanction novel forms.

2.2 Predictability

A related, but different, difference is predictability of function or semantic effect. -s has the same semantic effect every time it is used: it is used with a verb, that is a structure designating a process of some kind, and it specifies that the subject of that process is neither the speaker nor the hearer, but some other single entity adequately identified to both. (We will ignore here its present tense specification.) It is rigidly limited in how it functions, which permits it almost unlimited application: hearers of any novel form using it will automatically understand what is meant. (There is a parable here.)

-some, on the other hand, functions rather differently in different words. In quarrelsome it attaches to a verb, and describes some entity involved in the process designated by that verb as possessing qualities tending to the occurrence of the process. That entity may be a person or some aspect of a person (e.g. his attitude or tone of voice), but that person will, if the quarreling occurs, be involved in it: quarrelsome does not mean "provoking quarreling in others". The dishes seem to have qualities tending towards my children quarrelling when they have to do them, but I would not call the dishes quarrelsone. In fearsome, -some again attaches to a verb, and again it describes an entity as possessing qualities tending towards the occurrence of the process, but this time towards its occurrence in others. The fearsome thing does not fear, rather it causes others to fear. If fearsome were really parallel to quarrelsome, it would mean the same as fearful, but it doesn't. Other cases are even more different. Wearisome is much like fearsome except that -some here attaches to an adjective. In fulsome, -some again attaches to an adjective, but now describes a process (such as praise) as being characterized by that adjective to an excessive degree. Toothsome has -some attaching to a noun, producing an adjective describing some other thing as having qualities tending to make one want to indulge with respect to it in a process crucially involving the thing designated by the noun stem. In handsome it attaches to—what? another noun?—and characterizes a thing as (quite unpredictably)
pleasant and impressive to look at. There are almost as many functions for -some as there are words in which it occurs. This naturally affects productivity: any time a new structure using -some is encountered, the hearer must guess (he cannot know for certain) what is intended. Its flexibility severely limits its usefulness.

In sum, inflectional morphology tends to have predictable functions and semantic effects; derivational morphology tends to be act unpredictably.

2.3 Meaning change

-s and -some differ also in the extent to which they change the semantics of the stem to which they are attached. Virtually all morphology changes meaning to some extent—otherwise we would not bother to use it. But there is a difference between minor adjustments to the meaning and major overhauls of it.

-s provides a minor adjustment, a slight nudge, to the meaning of quarrel, or of any other verb it attaches to. It simply provides a bit of information already half expected but not yet specified. Quarrel specifies a process in which one person engages in a certain type of combative activity with one or more others: quarrels differs from that only in that the identity of the protagonist is limited so as to exclude speaker, hearer, and plural entities. -some, on the other hand, performs a major overhaul. Instead of the process designated by quarrel, quarrelsome designates a quality, which may but also may not result in the occurrence of that process. -s fits neatly into the scheme provided by quarrel; -some, in contrast, grabs quarrel and stuffs it into its own scheme. The inflectional morpheme is gentle, making small semantic changes; the derivational morpheme is rough, making drastic changes.

2.4 Summary

I am claiming, then, that, prototypically, inflectional morphology is productive where derivational morphology is non-productive; inflectional morphology is predictable where derivational morphology is not predictable, and that inflectional morphology makes only minor adjustments to the semantic structures it affects, whereas derivational morphology makes drastic changes to them. We can diagram these three differences on a cube like that in 1.e. The vertical dimension we will use to represent the parameter of productivity, the left-right horizontal dimension to represent predictability, and the front-back dimension to represent the gentle vs. drastic semantic change induced in the stem by the morphology.
3 Intermediate cases

If, as I want to claim, these parameters are scalar rather than dichotomous, and if, in fact, all three are relevant, it ought to be possible to find intermediate cases, morphemes that would have to be located elsewhere than at the lower left corner of the cube like -s or the upper back corner like -some. They are not difficult to find.

Consider -er, for example. It, like -s, is very productive, and can be applied to almost every verb in the language. Quarreler, arguer, and disagree-er are not established words in my dialect of English, but I find them perfectly understandable; fighter, and to a lesser extent squabblér feel like they are already entrenched. Also, -er's function is largely predictable: at least when it is being used productively it virtually always changes the designation of a form from that of a process to that of a thing, the subject of that process. However, that is not a gentle change, but a rather brusque one—nouns in -er are in fact what we call derived nouns, just as adjectives in -some are derived adjectives, whereas verbs in -s are not derived verbs, but inflected.

However, the degree of -er’s productivity is less than that of -s. -er is productive in that it may be applied to virtually any verb in English: however in practice it is not applied to so many as -s is. -s is applied so constantly to form so many novel forms that we are hardly aware when we are hearing or even producing a new one. With -er, in contrast, we do not so constantly hear and produce novel forms, and thus we are more aware of a new one when we do hear it.

Furthermore, note that -er is not entirely predictable, in several ways: (1) There are many firmly established
constructions in which the nature of the thing designated by
the VERB-er structure is specified further. E.g. a
computer is no longer just any thing/person that computes; a
rocker is not just any thing/person that rocks, nor a fender
just any thing that fends. These forms have become
semantically specialized in reasonable, but unpredictable
ways. (No one fifty years ago could have predicted that a
calculator could not be called a computer; if -s were to
behave similarly we would have forms such as as walks
meaning "(a woman) walks", or runs meaning "(a horse) runs".) In many cases this extra semantic material becomes
so prominent that it takes over, displacing the process
designated by the verb stem to the point where it figures
only very marginally or figuratively if at all in the
characterization of the resultant structure. Calling
someone a stinker does not usually imply that he literally
stinks, nor does a hooker literally hook. The clinker may
clink, but that is surely not a very central facet of its
meaning. (2) Sometimes -er combines with a verb but
designates a thing other than the subject of the process
designated by the verb. In drawer and (all day) sucker
and perhaps trailer and locker it is the object; in drainer
and diner (referring to a railroad car) and perhaps again locker
it is the location; in sweater, loafers, and pedal-pushers
it is clothing worn which tends to permit one to engage in
the activity; in dinner and supper it is the occasion; in
ouster, prayer, and reminder it is the action of the verb
itself, nominalized; in bender (as in "go on a bender") it is
not clear what it is. (3) -er often combines with stems
that are not simple verbs or are not verbal at all: e.g. in
back-scraper, pancake-turner, pencil-sharpener, and
can-opener it attaches to a verb with an incorporated
object, even though the verb may not independently occur
with such an object (•back-scratch, •pancake-turn); in
do-good-er it attaches to a more normal-looking verb +
direct-object phrase; in hum-dinger it applies to an
apparently complex stem that may or may not be verbal; in
grounder, beaker, saucer, 3-wheeler, header, facer, porker,
(ocean) liner, SIL-er, heather, teenager, westerner, bummer,
downer, insider, up-and-out-er it applies to non-verbal
stems. In all these cases its function or semantic effect
is different and is not predictable (though it is reasonable
to some extent). (Note that -er's use with such stems is
not unproductive, even though it is not as freely productive
as the VERB-er Subject usage described above.)

Thus we can diagram the position of -er on our cube as
in 3.a: it is productive like, though not as much as, -s,
but it makes a drastic change, like -some, and though it is
more predictable than -some, it is less predictable than
-s.
The suffix -ee, which we often think of as opposite to -er (on the basis of such pairs as employer/employee or payer/payee), provides another example of an intermediate case. I would judge that -ee is a good bit closer to the derivational terminus than is -er. In the first place, -ee is not nearly as productive. There are few verbs to which one cannot affix -er, but many to which it is difficult if not impossible to affix -ee. -ee prototypically designates the human direct object of a verb, which naturally reduces its range to transitive verbs which can take a human direct object. (That is why e.g. plowee is malformed: we do not plow humans.) However, even for verbs that take human objects, -ee is not freely productive. hearee sounds next to impossible, as do appreciate-ee, fightee, love-ee, killee, remindee, rememberee, tease-ee and any number of other forms. Yet -ee is not totally unproductive: new forms do turn up. While writing this paper, I found, in Time and Reader's Digest, the forms tippee and falee, both new to me. Most of us have even made -ee forms up ourselves on occasion; we tend to be very aware when we are doing so, however. The list of forms with -ee is clearly not as small and closed as the list of forms with -some.

With regard to predictability, -ee is perhaps less predictable than -er, and not much more predictable than -some. Its semantic effect is normally to change a process (verb) to designate a (non-subject) human involved in that process, typically the direct or indirect object. Even in this usage it often has extra semantic baggage with it; for instance a referee is certainly not just anyone referred to, but rather the person referred to in a very specialized sort of situation, and similarly a committee is not just anyone to whom something is committed. Moreover, it has other usages. In amputee it designates not the direct or indirect object, but the person whose body-part was the direct object amputated. More often it is used (especially in business-ese or militar-ese) to designate the subject of an intransitive verb (often a verb which might be construed as a verb of suffering). Attendee, standee, escapee, and Relational Grammar's ascendeer are examples that come to mind. (That last example designates a non-human entity,
which is another unpredictable twist. And in one case, consultee, the subject of a transitive verb rather than its object is designated, the person who consults someone else rather than the person consulted (who is called, just as illogically, the consultant). Addressee can be quite plausibly analyzed as involving the noun address rather than the verb; at least for me the prototypical meaning of addressee is "person whose name is in the address part of the envelope" (or perhaps "person to whom the letter is addressed") rather than "person addressed". Similarly conferee is probably to be derived from the noun conference rather than the verb confer.

The brusqueness of the semantic shift produced by -ee is comparable to that produced by -er; shifting from a process (typically) to designate a person involved fairly centrally in that process.

Thus we could diagram the place of -ee on our cube as in 3.b below.

As a further example, consider the plural suffix -en as in oxen, children, brethren. It is quite predictable in its functioning, being suffixed to a noun stem and changing the designation from a single thing (the meaning of the noun stem) to a group of such things. This change is not very drastic, and in fact if linguists were asked for a class of typical inflectional morphemes, many would suggest plurals, which can be defined as those morphemes which accomplish exactly this semantic change. In these two aspects, then, -en is clearly like an inflectional morpheme. However, it is not at all productive, applying only to one relatively infrequent stem (ox) and in one archaistic form (brethren), in one frequent form which is irregular in other respects as well (children), and perhaps (though this is a bit farfetched), in two other very common irregular forms (men and women) and their derivatives. Thus by the third parameter -en is clearly like derivational morphemes. -en's position can be diagrammed as in 3.c.
As a final example, consider the suffix -ish. It is quite productive: it typically suffixes to adjectives, and can be readily suffixed to the vast majority of the adjectives in English. (Adjectives that designate qualities not readily construable as matters of degree resist the suffixation to some degree: pregnantish sounds odd to me, but not impossible.) As usual, some -ish constructions are well-established in their own right (reddish, smallish), others are more marginal (blackish, tightish, large-ish), others feel virtually novel (chartreuse-ish). Not only is -ish productive, like a prototypical inflectional morpheme, but it accomplishes only a small shift in the meaning: it takes an adjective and adjusts it so it designates the same quality as before, but in attenuated form; reddish means "red, but not strongly red."

However, -ish also turns up on a large number of noun stems, converting them to adjectives denoting the possession of a quality associated with the noun. This usage is both less productive (though still productive) and semantically more brusque. Furthermore, it often has extra semantic baggage associated with it. For instance, -ish often produces negative terms, even when the noun stem it attaches to carries no such implication: childish, mannish, and womanish are examples; in foolish, brutish, and slavish the negative overtones may come from the stem instead or as well. In my speech at least, although childish is a negative term, girlish can be either negative or neutral, and boyish has positive connotations. This is a symptom of a larger problem, namely that there is variation (and therefore unpredictability) with respect to which quality of the noun is the basis for the adjectivalization. It may be a virtually defining characteristic (foolish) or a rather peripheral one (old-maid-ish). Then too there are cases where -ish attaches to stems that are difficult or impossible to identify: what is brack- in brackish, or squeam- in squeamish? Thus -ish is less predictable in its functioning than, say, -s.
4 Conclusion

Dozens of other examples could have been cited from English, or from any other language that I know anything about. If they are plotted on a cube like those in 1.e, 2.c, or 3.a-d, there will be some tendency to cluster towards the two poles of inflectionality and derivationality, but there will be examples at many intermediate points, with no clear boundary separating the one cluster from the other.

To me, the conclusion is clear: the distinction between inflectional and derivational morphology is not a sharp dichotomy. Prototypical examples from the two categories differ along at least three important parameters, each of which is scalar rather than dichotomous in nature. To the degree that a morpheme or morphological construction is productive, predictable, and mild in the semantic effects it produces, to that extent it is inflectional; to the extent that it is unproductive, unpredictable, and brusque in its semantic effects, to that extent it is derivational; but there is no way to draw a consistent, motivated line such that all examples on one side are clearly and truly inflectional while all those on the other are clearly and truly derivational.

This has the very important implication that any theory that crucially depends on such a sharp distinction is operating on extremely shaky ground. The obvious examples are the many theories that hold that there is a sharp distinction between lexicon and syntax, and want to account for inflection in the syntax and derivation in the lexicon, or productive structures in syntax and non-productive structures in the lexicon, or predictable structures in syntax and non-predictable structures in the lexicon, with no overlap. The burden of proof is on such theories to show how a consistent line can be drawn, motivated by the nature of the distinction itself rather than the convenience of the theoretician. If this cannot be done, the idea of a sharp distinction must be abandoned as artifactual, and a more natural model substituted for it.
Notes

1 This paper is an informal and undocumented exposition of how I have come to view an issue that is, to me, quite important. I do not claim to be the first to perceive these insights into the inflectional/derivational distinction: I do think that they need to be more widely apprehended by linguists.

2 Where there is a plurality of parameters they tend to be naturally related. I.e., a high (or low) reading along one parameter will tend for some independent reason, relating to the nature of our cognitive system or of the experiences we process through it, to correlate with high or low readings along the other parameters. This is what permits the categories to be perceived as unified.

For instance, big, in the physical sense, involves size along the three dimensions of space and, to a lesser extent, the dimension of weight: a prototypically big man exceeds the norms for human size along all four parameters. They are naturally related in that the human body and many other objects to which we apply the term tend in our experience to preserve the same proportions and density at various sizes. Note however that a man might be big (in a less than prototypical sense) even if thin (as long as he was quite tall), or even if short (as long as he was very heavy and fat).

3 This analysis is drawn from Ronald Langacker’s Cognitive Grammar (née Space Grammar), of which Langacker 1982 and Langacker (in press) are perhaps the most accessible works.

4 Such a difference would be interpreted by many linguists as a difference of syntactic function rather than a semantic variation, and therefore as evidence that we must posit two separate homophonous suffixes rather than a single suffix. (This position will be even easier to take with respect to later examples: e.g. to posit a different suffix -er in locker or in footer than in swimmer.)

My position (and that of Cognitive Grammar) is that there is certainly here a difference in the syntactic construction, which (as it must) means a difference in the semantic structure as well. It would be overly simplistic to ignore those differences, but it would be equally simplistic to therefore split the morpheme in two, ignoring the great similarities (semantic, syntactic, and phonological) uniting the two usages. A morpheme is not a monolithic structure, but it is unified and can be treated so for all that.

5 The dictionary does give this as a possible meaning.
Worrisome can work either way in my dialect—a worrisome person is one who tends to worry too much; a worrisome development one that leads someone to worry about it. Cuddlesome means most saliently something like "tending to make one want to cuddle it", but most cuddlesome things are so partly because they tend to cuddle to one.

Actually it might be to the verb weary rather than to the adjective. (In fact, on my view, it is probably correct to include both analyses in the grammar.) Similarly, quarrelsome, burdensome, fearsome, frolicsome and other forms may be derived from either the nominal or the verbal form of the stem, or both. (The same does not hold for forms like cumbersome, tiresome, irksome, and cuddlesome, which do not have the appropriate nominal forms.)

This parameter of extent to which the meaning of the stem is changed might be viewed as in some sense primary over the others; it is the one the inflectional/derivational distinction is named for (inflection is "bending" the meaning of the stem, derivation is "deriving" a new, i.e. a different, stem). It is tied in naturally with the other parameters in a number of complex and subtle ways: e.g. a brusque change, as noted, encourages us to perceive the two forms as being different words/stems. This in turn encourages us to resist leveling tendencies and to permit semantic drifting, which then results in a loss of predictability.

It should be noted that, because of my theoretical bias, I am including the shifting of syntactic category of a form as a kind of meaning change; it is perhaps the prototypical kind of meaning change produced by derivational morphology. On this view, a change in the basic semantic organization of the stem (a shift in profile type, to use Langacker's term) is effected, which has natural consequences on the range of possible syntactic structures the complex stem can be used in.

I do not want to claim that these are the only parameters relevant to the inflectional/derivational distinction. For instance, I have failed to mention the extent (often iconic for degree of semantic change) to which the morphology changes the phonological structure of the stem it attaches to, nor have I mentioned the tendency of agreement markings to be inflectional; I have also not discussed the loss of analyzability that tends to be more characteristic of derivational morphology than of inflectional (e.g. handsome or drawer are much less saliently analyzable than is quarrels). What I am claiming is that at least these three parameters are relevant, and that they are all scalar rather than dichotomous, and that
therefore the overall distinction is both complex and non-dichotomous.

9 It is an oversimplification, of course, to represent the position of an entity as complex as -er by a dot; rather it occupies an area, with different versions of it (corresponding to different usages) being nearer to the inflectional or derivation pole than others, but all being unified as examples of the same morpheme. The dot we use in the diagram can be thought of as the "center of gravity" of the area covered by the morpheme in all its usages.

10 It is certainly not irrelevant that this person is strongly affected by the amputation, and thus is indirect-object-like to some degree. Note also the phonological truncation of the stem from amputate to amput-; something similar is probably going on in the derivation of conferee from conference. I have heard the term designee used: this would be an even more direct parallel.

11 In some cases it can be reasonably claimed that the nouns are first converted to adjectives by the (rather productive) rule involved in cases like cotton shirt or blackboard chalk. For instance, one (or at least I) could say "It's sort of a cottonish material". In other cases (e.g. childish, old-maid-ish) such an analysis seems less likely; particularly this is so where the idea of attenuation of the quality designated is not involved. E.g., in cottonish, as in reddish, -ish means "having the quality of the adjective, but not strongly", whereas in childish or old-maid-ish it means "having a particular quality characteristic of the noun" whether strongly or not. This is why very collocates well with the second group but not the first: very reddish is somewhat odd, almost a contradiction in terms, but very childish is perfectly natural.

Another class of denominal adjectives in -ish which also must be included in a complete accounting is that of adjectives of national or cultural origin or character such as Amish, Danish, English, Polish, Scottish, Spanish, etc. This usage does not seem to be presently productive.

References
