

## Orthographic Odds and Ends

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## **Content and Meaning; Iser, Rosenblatt.wpd**

From Trish Goedecke's E587 paper (p. 7): "Iser argues that the true location of a literary work is neither in the text nor in the reader, but in a dynamic in-between. He names the two poles of this position as the *artistic*, referring to the text which is created by the author, and the *esthetic*, which is the text's realization, accomplished by the reader. . . . Rosenblatt similarly contends that a literary work exists somewhere between the text and the reader. She posits that:

'The poem' comes into being in the live circuit set up between the reader and 'the text. . . . Not the words, as uttered sounds or inked marks on a page, constitute the poem, but the structured responses to them. (The Reader, the Text, the Poem, 14)"

I believe that what Trish calls Iser's 'dynamic in-between' and Rosenblatt's 'live circuit' are different ways of conceptualizing what I am calling the edge of chaos between content and meaning, between order and potential chaos.

Rosenblatt (p. 12) talks about 'the magnetism of the ordered symbols of the text' interacting with the 'stuff of memory, thought, and feeling' to form a new order. \*\*\*\*\*

Metaphor as inter-categorical vs. metonymy as intra-categorical. Just another way of setting up the synthesis-analysis distinction.

## **Content vs Meaning Lamarck, Ryle, Kauffman.wpd**

@10-18-95. Lamarck found that "Organisms could best be understood...in terms of their interaction with and adaptation to the environment" (Jordanova 1 [I have lost this reference]). That is also obviously true of a lexical system as well, and that is precisely why the failure to maintain the content-meaning distinction causes problems: By speaking, loosely and generically, of 'meaning' one obscures the important dynamic with the environment. The pragmatic world of user, intention, and reference is part of the environment of the code. To fail to maintain the content-meaning distinction is to confuse the distinction between the lexical system and its environment and thus to ignore the dynamic between system and environment.

Is the pragmatic environment part of the system or part of the environment?

Previously I've spoken as if it's part of the system. Now I am speaking of it as part of the environment. There is a hierarchical perspective at work here: It all depends on the level of description. At one level, that in which the lexical code is the focus, the phenomenological pragmatic realm is the environment. At the next higher level the two merge into a single focus (call it the lexical phenomenological) and the environment is defined by the next horizon out: let's say it is the horizon of bio-chemical and bio-physical interactions that underlie the realm of the phenomenological pragmatic. As one continues to move out to wider horizons, one finally arrives at the cosmic-quantum realm as environment.

10-23-95. Ryle's Category-mistakes and the Content-Meaning Distinction.

Ryle describes a category-mistake as something that "is entirely false, and false not in detail but in principle. It is not merely an assemblage of particular mistakes. It is one big mistake and a mistake of a special kind" (16). He says further that category-mistakes are "made by people who [do] not know how to wield" certain key concepts. "Their puzzles arose from inability to use certain items in the English vocabulary" (17). And later, "The theoretically interesting category-mistakes are those made by people who are perfectly competent to apply concepts, at least in the situation with which they are familiar, but are still liable in their abstract thinking to allocate those concepts to logical types to which they do not belong" (17).

The parallels with the content-meaning distinction are striking. For instance, at one point Ryle says, "Doing long division is a mental process and so is making a joke. But I am saying that the phrase 'there occur physical processes' does not mean the same sort of thing as 'there occur mental processes', and, therefore, that it makes no sense to conjoin or disjoin the two" (22). In parallel couldn't we say something like, "Texts are symbolic structures and products and human meanings are symbolic structures and products. But the phrase 'humans have meanings' does not mean the same sort of thing as 'texts have meanings', and therefore it makes no sense to conjoin or disjoin the two by talking about the meanings of texts and the meanings that humans have or create."

Ryle's first three examples of category-mistakes seem to be category-mistakes based on

metonymic errors: To treat the university as a parallel counterpart to the constituent departments and colleges would appear to be a failure of inclusion — that is, an error of synecdoche, or metonymy: confusing the whole for one of its parts. The same would seem to be true of the parade example in which the overarching division is mistaken as a parallel counterpart to its constituent squadrons and battalions. The third example, dealing with the mistake of looking for the person on the cricket team responsible for team spirit is also a error of metonymic relations: in this case confusing an emergent global attribute with the constituents of the whole out of which emerges and which it characterizes. His fourth example does not seem to me to involve an error in metonymic thinking; it seems rather to involve an error of metaphor — that is, forcing a similarity in such a way that a third thing (the British Constitution) is categorized with two others that are of an entirely different type (Parliament and the Church of England). It is a error of similarity, or perhaps more accurately a failure to recognize a crucial difference. In either case, positively or negatively, it seems to me to be an error of metaphoric thinking.

In this respect his fourth example is the most like the category-mistake involved in the failure to maintain the content-meaning distinction, in which two entirely different types of things get categorized under the overarching rubric “meaning.”

The parallel between Ryle's fourth example and the content-meaning distinction is striking, too, because in each case the two things being collapsed actually have a relationship of mutual effect and determination, or perhaps as Haken would say, mutual enslavement: It would seem that Parliament and the Church of England are, on one hand, affected in their operation and nature by the British Constitution, but the Constitution is itself the residue of past actions by the Parliament and Church (I think). So the relationship here is exactly that existing between content and meaning.

10-29-95. Kauffman argues that Darwinian selection works on the natural “order for free” that he sees operating in all sufficiently complex systems. If we assume that the orthography is such a system, then we have three factors with which to deal: (1) There is the natural “order for free.” (2) There is the role of selection, though in this case it is more Lamarckian than Darwinian. And (3) there is the overarching teleology of the system: Since the orthography is a symbolic system, the product of the human mind and organized to serve human needs, the human will asserts itself in a way that it does not and cannot in natural systems. One result of the operation of the will, I believe, is the conservatism of the written language as compared with the spoken. The selection factor, (2), would work toward change and variation within constraints imposed by the order factor, (1). But the intervention of the human will, (3), tends to inhibit this change, due to the impact of schooling, the models represented by printed texts, and the like. Maybe this is not a third factor, after all. Maybe it is just another part of (2), the Lamarckian aspect of this Lamarckian selection. In Lamarckianism the

passage of information through time is not, as in neo-Darwinism, via the actual transfer of physical, genetic material; it is rather via teaching of the new “generation” by the old a la Dawkins’ meme theory.. Although in the orthographic system the “organisms” are the words and spellings, it is not among them that we find the teachers we are concerned with here. There certainly are lineages of words and spellings across time, but they are not the instructors. The instructors are the users, not the spellings themselves. This is confusing to me. In Darwinism it seems to me that the parent organism is the instructor, and the genetic material is the instruction, and the offspring is the instructed. There are agent-means and voice-addressee metonymies at work there. So what is the parallel in the orthographic system? The instructor is the user; the instruction is the preferred spelling, on whatever basis its preference is defined, including formal schooling and the appeal to authorities such as dictionaries and esteemed texts. So who is the instructed? The new speller? The spelling? Now it’s beginning to get away from me again. In Darwinism the result and the instructed are the same. In orthography the result is the spelling produced by the instructed — that is, the spelling-type, not the spelling-token. That makes me think of genotypes and phenotypes. Right: The spelling-type parallels the genotype, and the spellingtoken parallels the phenotype.

There is a natural trend to variation built into the transaction, because of differences in hearing and seeing, in memory and cognitive ability, in preferences, be they aesthetic, pragmatic, or logical. This trend is also augmented by certain aspects of the system. For instance, the important distinction based on minimal difference of spelling, as in the infamous *effect* vs. *affect* pair, leads to confusion that can only be kept in check by rigorous policing.

The trend to variation is counteracted by the inherent conservatism of the ‘parental’ instructing, which is just another manifestation of the dialectic of code-as-resistor-of-change vs. performance-as-encourager-of-change, conservation vs. innovation.

10-30-95. Kauffman describes the edge of chaos as that area of complexity marked by phase transitions. The image is of water: As water vapor, a gas, it represents chaos; as ice, a solid, it represents frozen order; as a liquid, it represents that midground of complexity, marked off on either end by a phase transition. Similarly with lexical complexity: At the chaos end is raw experience; at the frozen order end is the lexical code; in the middle, like water between vapor and ice, is meaning, or perhaps more accurately, the creation of meaning, the experience of meaningfulness. This, I believe, holds true for both the expression and the content planes of the lexicon. Meaningfulness at the content plane is what we have in mind in the contentmeaning distinction. At the expression plane meaningfulness is perhaps better thought of as *comprehension*, the resolution of the various demands being made by the total experience. In each case, it seems possible that we have a version of Plotkin’s notion that knowledge is a kind of adaptation: The act of making

meaning at the content plane is clearly adaptive, but so, too, is the act of comprehension at the expression plane: In each case there is an adaptation to the contending demands of the experience, or of the phenomenological environment. Thus, out of the acts of meaning-making, at either the content or the expression plane, there comes the adaptation of the user to the situation, together with either a pressure for change or a reinforcement of the existing code.

## Content, Meaning – and the Passionate Coefficient.wpd

The following is a slight revision of a CLAS Lecture given in 1989.

In the summer of 1987 I taught a course in dystopian fiction in which we read, among other things, *A Clockwork Orange*. It had been a long time since I had last taught a literature class, and my spotty reading in reader-response criticism made me want to try some of the more reader-centered ideas. Even this brief experience was something of a jolt to these tired old formalist bones -- a somewhat anachronistic jolt, alas, since I've just recently learned that reader-response criticism is now somewhat passé. In any case, the day we began watching Kubrick's film version of *A Clockwork Orange* some of the students reacted with great passion to the violence there on the screen. Their reactions were not so much out of fastidiousness or even moral outrage. They were not the reactions of people who felt that their strong religious beliefs were under assault. They were simply visceral, reactions of revulsion, pain, even nausea.

A few days later in her informal response paper, one of the students, an older woman, mentioned that she had found the film very painful because during her marriage she had suffered more than one outburst of violent abuse from her husband. She had been beaten -- physically, mentally, spiritually. But it was the physical beating that made the movie images of Alex and his droogs so very painful to her. In the ensuing discussion another student said that she, too, had been made almost physically ill by the film, again because she herself had been brutalized in past years. As she put it, "I have a whole mouthful of caps because of the broken teeth. I was a young punker, and girls with green crewcuts get beaten up a lot."

It wasn't until that evening that it dawned on me what had happened: In a class of eight students, two had experienced brutality and physical violence to a degree that you expected only to read about in the newspaper, not to hear about from your students in a literature class in a small-town regional university. Two out of eight, 25%. I brooded about that, and in the next class meeting I mentioned it. Another student, in a small voice, said, "Make that three out of eight." She intimated that there had been not only physical beating but rape as well. Alex and his droogs were beginning to look less and less like a literary metaphor. So it was three out of

eight, not 25% but 38%.

But then I remembered that there were actually nine students registered for the course, with only eight attending. A few days into the term a young woman had called and said that she was the missing student. She had said that she planned to show up. But it wouldn't be for a few days yet, because, as she put it, "I'm the woman you read about in the local paper the other day -- you know, the one who was beaten and raped in her apartment." I remember worrying after she had hung up, "My god, how can I require *A Clockwork Orange* of some young woman who has just had that kind of experience with a real-life Alex?" Mercifully, she had decided not to go to school that summer after all.

But in any case, it was not three out of eight; it was four out of nine. Not 38% but 44%. And then, at long last, it dawned on me that all of the victims were women, which should not have come as such a shock, since although a mere male, I like to think of myself as a reasonably enlightened male of the 80's, the very late 80's. There had been six women registered for the class, of whom four had been abused and beaten and raped, 67%, two-thirds.

God! I do hope the figure in that class was unusually high, though given the state of our society, I fear that it may not have been. I fear that we teachers are looking out at classrooms in which many of the students, especially the women students, have suffered personal violence, physical and otherwise, that we (or at least I) have real trouble even trying to imagine. And this raises hard questions, including, it seems to me, hard questions for the teacher of literature. Two-thirds of the women registered for that class had suffered violent attacks such that graphic violence in a film or a novel evoked in them a passionate response intense enough to be debilitating.

I tell this story partly because I can't get it out of my mind. But I tell it, too, because it highlights so well some problems I'd like to discuss, problems dealing with literary response and literary meaning and the function of the literature class. But first, one more story -- this one shorter and not so painful: Several years ago I read a short essay by the Israeli logician and philosopher of language Jehoshua Bar-Hillel in which he laid out what was

clearly for him a very important, obvious, and too-often-violated distinction. What is important to us tonight is not so much what Bar-Hillel said, which had to do with the distinction between sentences and utterances. What is important is the tone in which he said it. His was a tone of exasperation, a tone pretty much of "I thought I had straightened out this distinction a long time ago, and you yahoos keep screwing it up." But it was more than exasperation, too. For Bar-Hillel felt that the distinction was extremely important, and that in blurring it, many scholars were vitiating their work, creating false problems and blinding themselves to the truly important ones. And all of the time the distinction was so clear to Bar-Hillel: How **could** so many otherwise intelligent and informed people be so wrong about so obvious a thing? And one begins to hear the shrillness of the self-acknowledged lone voice crying out -- not so much crying out in a wilderness (which at worst would be lonely) but rather crying out alone in a crowd of respected colleagues (which, no matter how healthy one's self-concept may be, must in time lead to a bit of doubt -- and thus shrillness). I mention Bar-Hillel here and his tone because I, too, am concerned about a distinction that seems to me at the same time to be important, obvious, and practically always violated. I think the distinction is important to, among other things, those battered and abused students and to the nature of the literary response and the work we do in our literature classrooms. And I apologize in advance for any shrillness. The distinction is that between **content** and **meaning**. The distinction can be laid out quickly and concisely: **Content** is what words and texts have; **meaning** is what people make of that content. Words and texts don't mean; people do.

The content of a word is what dictionaries try to define. Content prescribes a range of conventionalized and acceptable uses -- that is, an agreed-upon capacity for being used to help people create and convey their meanings. Content gets narrowed down and focused by context when the word is put into a sentence, and it

gets narrowed down even more when that sentence is uttered by a particular person in a particular setting. But whether spoken or written, words and texts always have only content, never meaning.

Meaning occurs in the minds of the writer and the reader. Meaning is a psychological state, arising from the interaction between a human mind and the text -- that is, arising from the human comprehension of the text. Unlike

content, which just **is**, meaning always requires active comprehension.

So texts have content, from which people comprehend meaning -- a straightforward distinction, but one too often violated as we routinely confuse the two. We don't have to look far for examples of the confusion. Here, for instance, is one, from F. R. Palmer's widely-used little book *Semantics*. He is concerned here with the difference between **saying something** and **meaning something**, and like so many linguists in such situations, he quotes Lewis Carroll:

'Then you should say what you mean', the March Hare went on.  
'I do', Alice hastily replied; 'at least I mean what I say -- that's the same thing, you know.' 'Not the same thing a bit', said the Hatter.

About which Palmer comments:

This is a curious use for, if our words have meaning, how can we fail to say what we mean, or, rather, how can the words fail to mean what they mean? The answer is, of course, that we wish to suggest that the words do not mean what they might most obviously be thought to mean, that there is some other meaning besides the "literal" meaning of the words. (4)

Always beware of an academic when he says, "The answer is, **of course**." We would perhaps do better here to listen to the Mad Hatter. For throughout his book Palmer uses the word *meaning* with reckless, but typical, promiscuity, applying it indiscriminately to people and to their words -- to which we might say, with the Hatter, "Not the same thing a bit." Palmer's central question is "How can words fail to mean what they mean?", and it is simply a nonsense question. The answer, of course, is that words don't mean anything at all, ever, never. People have meanings; words have content. The question should be, "How can people use words to mean things the words don't contain?" -- which is not a nonsense question at all and can be answered by keeping our eye clearly on that act of human comprehension that is the concomitant of any act of meaning.

In the literature class we confuse content and meaning when we ask, "But what does this poem **really** mean?" And the answer, of course, must be

that the poem doesn't and can't mean anything at all -- the claims of Brooks and Warren and Wimsatt and Beardsley to the contrary notwithstanding. The meaning is not in the poem. It is somewhere else.

We can better appreciate this confusion by using some of the ideas of Karl Popper, a 20th century philosopher of science and knowledge. Popper describes human reality as consisting of three separate but equally real worlds: World 1 is the physical world -- the outer world of physical objects and the events and processes involving those physical objects. World 1 is the world that Dr. Samuel Johnson attempted to affirm, in his athletic denial of Bishop Berkeley, when he attempted to prove the substantiality of the stone with his now-famous kick.

Popper's World 2 is the psychological world -- the inner world of psychological states and responses. It is the world of feelings, volitions, perceptions -- and meanings (in our sense of *meaning*). World 2 is the world of the human mind, which is somehow related to the human brain, which is itself a World 1 object. World 2 is the world in which Dr. Johnson experienced the personal results of his kick -- the sense of pedal impact and of intellectual satisfaction, perhaps the not inconsiderable pain, depending on the strength of the kick, the substantiality of the stone, and the state of the good doctor's gout.

Popper's World 3 is the world of abstract ideas, the world of cultural values, principles, laws. It is the symbolic world, the product of the human mind, where

reside such things as mathematical laws, logical principles, esthetic standards, and the like. It is, in short, the world of symbolic content. It is the world of human culture, part of which is made up of the literary-philosophical strand that includes the story of Dr. Johnson's kick, taken as a cultural exemplum.

Popper often discusses the interactions and interrelationships among the three worlds. A book, for instance, considered simply as a physical object, exists in World 1. But as a conveyor of content and information -- considered, one could say, as **text** -- it also exists in World 3. In fact, the written text is for Popper the quintessential example of a World 3 object. And, of course, in the act of reading -and comprehension -- the human mind

responds to the World 3 text, thus creating a World 2 psychological state, or interpretation -- or meaning.

Content, then, is of World 3. Meaning is of World 2. And to confuse content and meaning, as just about all, if not all, commentators do, is to confuse two worlds. It is to confuse a world of concrete psychological states with a world of abstract symbolic ideas. It is to confuse a subjective psychological event with a symbolic form that is not so much objective as it is trans-subjective and trans-objective. (*Trans-* seems an appropriate prefix here since World 3 contains such things as the definitions of subjectivity and objectivity.)

If Popper's three worlds can help us better understand the gap between meaning and content, we can better understand the reasons for that gap by using some of the ideas of Michael Polanyi, a chemist and philosopher of knowledge. Polanyi believes that any act of knowing necessarily involves an act of personal knowing, which he calls *tacit knowledge*. In his book *Personal Knowledge* he says that "in every act of knowing there enters a passionate contribution of the person knowing what is being known, and . . . this coefficient is no mere imperfection but a vital component of his knowledge" (viii). Later he says that always "the act of knowing includes an appraisal . . . which shapes all factual knowledge" (17). In his book *The Study of Man* he says that "the tacit personal coefficient of knowledge predominates also in the domain of explicit knowledge and represents therefore at all levels man's ultimate faculty for acquiring and holding knowledge" (25). Without denying the possibility of something like objective knowledge and while rejecting any sort of radical subjectivity, Polanyi still concludes that "We must learn to accept as our ideal a knowledge that is manifestly personal" (27).

For there to be meaning, as opposed to mere and inert textual content, there must always be Polanyi's passionate coefficient, the contribution of the individual to the act of meaning. In *The Study of Man* Polanyi says that "Words can convey information . . . but neither words nor symbols . . . can be said to communicate an understanding of themselves" (21). Content, then, equals the information contained as text; meaning arises in the act of understanding or comprehending that information.

The writer renders his meanings through the contents of his text, from which the reader can then comprehend his own meanings, which may or may not

be acceptably coincident with the writer's intended meanings. Polanyi says that "the sender of the message will always have to rely for the comprehension of his message on the intelligence of the person addressed. Only by virtue of this act of comprehension, of this tacit contribution of his own, can the receiving person be said to acquire knowledge [or, we would say, comprehend meaning] when he is presented with a statement" (*Study of Man*, 21-22). Later Polanyi says that "nothing that is said, written or printed, can ever mean anything in itself: for it is only a person who utters something -- or who listens to it or reads it -- who can mean something by it" (22).

Polanyi defines understanding as "a process of **comprehension**," which he defines as "a grasping of disjointed parts into comprehensive whole" (*Study of Man*, 28). He goes on to say that

when we comprehend a particular set of items as parts of a whole, the focus of our attention is shifted from the hitherto uncomprehended particulars to the understanding of their joint meaning. This shift of attention does not make us lose sight of the particulars, since one can see a whole only by seeing its parts, *but it changes altogether the manner in which we are aware of the particulars. We become aware of them now in terms of the whole on which we have fixed our attention.* I shall call this a *subsidiary awareness* of the particulars, by contrast to a *focal awareness* which would fix attention on the particulars in themselves, and not as parts of a whole. I shall also speak correspondingly of a **subsidiary** knowledge of such items, as distinct from a **focal** knowledge of the same items. (29-30)

This description seems to me to match perfectly what happens when we create holistic meaning from the particulars that are the content of a text. The creation of meaning from content entails this same shift of attention from particular to whole, this same shifting of knowledge from focal to subsidiary as the newly comprehended whole becomes the new focal knowledge.

Meaning, we have said, is of Popper's World 2; content is of World 3. There is an odd mutual dependency between the psychological responses of World 2 and World 3's symbolic forms and values. World 3 is the product of the human mind -in a sense, the residue of past World 2 experiences, rather like the ring around the bathtub. But any World 2 experience is constrained and molded by the normative forms and values inherited through World 3. The

content of World 3 is built up out of the meanings in World 2, but any meaning in World 2 depends on the content of World 3. Without meaning there can be no content; without content, no meaning.

Another odd thing about content and meaning is that a text is always used to mean more than it contains, and it always contains more than anyone can ever use it to mean. In terms of their content, words are always and inevitably polysemous, sentences always and inevitably amphibolous -- which is to say that words and sentences always contain more than one possible interpretation. However, an act of meaning never uses all of those possibilities. In fact, acts of meaning are practically never, if ever, polysemous or amphibolous. So in any meaning there is always content left over.

On the other hand, any act of meaning always involves an immense number of particular details that arise in the context of the specific utterance: specifics of the time and place and by and to and about whom the utterance is made, particular details, for instance, that give substance to pronouns like *this* and *that*, *I* and *you*, and to adverbs like *here*, *there*, *then*, *now*. These particulars are not part of the word or text's content. Any act of meaning also involves Polanyi's passionate coefficient, that personal contribution from the person doing the meaning. And that coefficient by definition is also never part of the word or text's content. So in even the most thorough descriptions of content there must always be potential meaning left unaccounted for.

Texts, then, always contain more than they can be used to mean, and they are always used to mean more than they contain.

This mutual overflowing leads to another oddity in the relationship between content and meaning, something that I think of as a principle of repletion -- that is to say, plentitude, inexhaustible fullness, infinitude. The repletion of nature, its inexhaustible fullness, is a common theme in Romanticism -- there, for instance, in Wordsworth, in Emerson, in Thoreau, in Whitman. But modern physicists talk this way, too. A recent and dramatic statement of the idea appears in a book by the Anglo-American physicist Freeman Dyson. The book's title gives the show away: *Infinite in All Directions*. We are used to thinking that if we look out towards the big end of nature, out through our galaxy into the universe, infinity awaits us. *Star Trek* brought that lesson into our living rooms. But what Dyson is arguing is that infinity is to be found

in **all** directions. If we look towards the small end of nature, in through the atom to its particles and processes, again infinity awaits us. Recently mathematicians have begun to study fractals, those odd shapes that have equal detail at any scale and thus reveal a kind of geometric repletion. The new so-called chaos scientists are finding the same infinity lying in wait in all directions. And closer to home, we should remember that the transformational-generative grammarians never tire of reminding us that with a finite syntax and lexicon we can create a potential infinity of well-formed sentences.

Something like this same infinitude, or repletion, is there in the interaction between content and meaning. Any text is replete with meaning (and I say that non deconstructively). Indeed, this repletion underlies one of the more bothersome problems raised by current reader-based notions of literary meaning: How do we rein in this infinitude of meanings? If the text's content is always more than any individual's meaning, how do we cope with that? And if the individual's meaning is always more than the text's content, how in heaven's name do we cope with **that**? How **do** we rein in this lush repletion? There is just so much of it all! I actually spend considerably less time teaching literature than I do teaching writing and teaching the teaching of writing. But I would say that the situation in a literature class must be much like that in a writing class. Writing teachers are used to seeing their job as one of helping students move from early draft that is weak to later draft that is strong, from earlier disorganization to later structure and control, from vagueness to clarity, from incorrectness to correctness. The writing teacher's job, in short, is to help the student move from private early draft to public final text. That progression from privacy to publicness comes through a process of increasing sociality. The teacher and students must engage in a social act of critical reading and rewriting. And writers, of course, must always move beyond their initial privacy to engage in the sociality of trying to communicate with a reader, even if during the editing stage that reader must be imagined or fictive. Much of editing is taken up with that social enterprise. In these terms, then, the writing process progresses from private through social to public.

That same progression is there, or at least **can** be there, or perhaps **should** be there, as we nurture the literary response in the literature class. Writing and reading, after all, are reciprocal acts. The student's initial response to the literary text is like that early draft -- private. The sociality of the class

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can help the student move from early privacy to what may at times be a full-blown publicness, as in formal presentations and carefully edited papers, but which always must start from and move away from that early privacy into and through an increasing sociality.

With the battered and abused students especially, the initial meanings they create from a text like *A Clockwork Orange* can alienate them. Old experiences can get in the way of new knowledge. Initial meanings can impede the social engagement. When the passionate coefficient becomes debilitatingly passionate, students can be rather like those psychopaths whose language is so distorted by private associations that their connotations and denotations don't work. Such pathological language is non-communicative, non-social, alienating. I believe there are a lot of such alienating meanings among our students -- especially, of course, among those battered and abused students, but also, without doubt, more generally. Such students are left, as the alienated always are, as passive objects rather than active subjects, as patients rather than agents. They are trapped and alienated in and by their own private meanings. And always the solution to alienation must be socialization, bringing with it its freedom and power, its sense of being an active social agent rather than a passive and alienated object.

It must be from that initial private meaning that a richer and more social literary response is created. That initial private meaning is essential, but it is in no way sacrosanct. It is neither inviolable nor above criticism and change. Indeed, the initial private meaning, left unsocialized -- which in our terms means unarticulated, undiscussed, unreflected-upon -- will remain a private and fleeting experience of Popper's psychological World 2. The function of the literature class is to help the student articulate it more thoroughly to our cultural and symbolic World 3.

I am using the verb *articulate* here in a multiple sense: By saying that a meaning has been articulated, I intend to say not just that it has been spoken or written out. I intend to say also that it has thereby been made more clear, more distinct and that its parts have been formed into a more complexly organized and coherent whole -a necessary effect of rendering a thought into language. I intend to say, even further, that these parts have been articulated in the sense of being joined into a flexible unity -- this flexibility being an effect, I believe, of the sociality of the process. All of

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these are currently accepted senses of the word *articulate*, and I intend them all. I even intend to convey something of the now-obsolete sense of *articulate* as a verb designating the making and drawing up of terms of agreement -- which also gets at the sociality of the process. All of these things -- and more -- are involved when a meaning is articulated.

Some approaches to literature give priority to the text -- or, more accurately, to the received canonical interpretation of the content of the text. These approaches validate the text at the expense of the individual's meanings. On the other hand, some approaches give priority to the individual's meanings, affirming those meanings at the expense of the accepted content of the text. Either way lie dragons.

When we fail to validate either the textual content or the individual meanings, we do so at our own great risk. When we fail to validate the individual meanings, we risk at once alienation and fascism -- alienation in the student, fascism in the instructor, including that most insidious brand of fascism that masquerades as enlightened liberalism. But when we fail to validate the textual content, we risk not just anarchy but anti-culturalism, or a-culturalism, as in the worst nightmares of an E. D. Hirsch or Allan Bloom. And, paradoxically, we also risk trivializing the very meanings we are trying to validate and cherish by making them the grist of some mindless and never-ending rap session.

Earlier I mentioned the contrast between alienation and socialization and the passage from privacy through sociality to publicness. These two notions can help us help students articulate their subjective World 2 private responses, articulate them to the symbolic content and forms of World 3, articulate even the passionate and visceral responses of my battered and abused students trying to create meaning and knowledge out of those screen images of Alex and his droogs. Literature classes can help our students (and help us) in that process of articulation and socialization, that process where they and we strengthen and center our meanings, turning our responses into social knowledge.

Popper can be useful here again. Popper was a fallibilist. He believed that the human mind is destined to make mistakes and that it is from these mistakes that we learn and advance. He spoke often of a process he called trial-and-the-elimination-of-error. Popper felt that when the human mind is

faced with a problem, it proposes a solution, an answer. But then this answer becomes the object of critical thought and testing. It undergoes a process of error-elimination. This process leads to a new view and a restatement of the original problem. Old Problem #1 is revised to New Problem #2, to which a new solution is offered. And the process continues. This is Popper's model for reflective, critical thinking. He usually described the process in terms of scientific problems and answers, and in the scientific method the process is highly refined to the setting of hypotheses that can be systematically verified or invalidated. But Popper clearly meant this trial-and-elimination-of-error to apply to all critical human thought -- including that of the arts and humanities. I believe the sociality of the literature classroom should allow Popper's model to work as our students (and we) articulate our meanings, reflect upon them, make them topics of our critical thought and language. The meanings undergo a trial-and-elimination-of-error, though *error* here, as it so often is, is a tricky notion. In scientific thought the process can be said to lead to decreased error and a concomitant increase of reliable knowledge. In the literature class it leads to a richer articulation, to decreased alienation, and to a concomitant increase of shared and enduring meaning.

But *meaning* is no longer quite the right word, for the articulated and socialized meanings of the students have been compared one with another. They have been compared, most likely via the instructor, with at least some of the canonical interpretation of the text. Meaning has begun to be articulated to content. In the process the initial meanings have undergone a sea change. They have been "essayed," in something like Montaigne's original sense of the word *essay*: to put to trial, to test, to attempt to learn by probing one's own experiences. Just as Montaigne's self-revelation in his *Essays* gradually became a more general revelation of the human condition, so, too, in the classroom private meanings gradually become more social and general. Particular moves toward universal. Alienated and alienating private meanings become centered. Where there was originally disjunction among meanings, there is now intersection.

These new socialized meanings can, I believe, be called by the fine old philological term *acceptation*. *Acceptation* is defined in the most recent American dictionary as

"the usual or accepted meaning" -- and in more extended senses as

"favorable regard; approval" and even "belief; acceptance as true or valid."

Private meanings, then -- articulated, tried through something like Popper's fallibilist process, themselves turned into objects of critical thought -- become something different, something for which the word *acceptation* seems a good and proper name.

This acceptation entails an increasingly rich involvement with one's own language and culture. Indeed, the passage of the students' individual meanings into a classwide acceptation parallels, in a sense even duplicates, the culture-wide passage of respected individual meanings into the public canonical interpretation. As we create this acceptation, we experience a sense of increasing strength and power. To create this acceptation gives to the individual students a sense of personal freedom. As alienated patient becomes socialized agent, there is in a real sense an increased and liberated humanity. We are back to the old and hoary notion of a liberal, and liberating, education.

We are also back to what the great German philosopher Ernst Cassirer in his *Philosophy of Symbolic Forms*, called mankind's "essential aim" -- that is, "the articulation of the particular into a universal law and order" (77). For Cassirer the articulation of the particular into the universal was another way of describing the way experience is transformed into knowledge, for he was sensitive to the old philosophical idea that our experience of the world must always be particular but our knowledge of it must always be universal. Cassirer saw this articulation of the particular into the universal as humankind's "one goal of transforming the passive world of mere *impressions*, in which the spirit seems at first imprisoned, into a world that is pure *expression* of the human spirit" (80-81). It is the quest for a manifestly personal knowledge in which disjointed parts are articulated into comprehensive wholes. And, as Cassirer says, it is an escape from a kind of prison of mere impression and experience.

It is all, finally, then, a question of freedom. And that, it seems to me, is the proper

work of literature and of the literature class, as private meaning is articulated into socialized, and occasionally even into public, acceptation. It is our proper work as we nurture the literary response, and I believe that a proper

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understanding of the distinction between content and meaning and of Polanyi's passionate coefficient can help us in our work and help our students, including those battered and abused students, in theirs.

## Metaphor and metonymy a la Freud and Lacan.wpd

The following notes on Lacan on metaphor and metonymy are from *Lacan and Language*. Lacan, a psychoanalyst, argues that the unconscious is structured like a language:

12-13. He picks up on Saussure's and Jakobson's distinction between syntagmatic and paradigmatic relationships of combination and selection. “Now, when these two axes of combination and selection function in terms of the relationship between signifiers, we find either that signifiers may be related to each other by a principle of combination, i.e., in terms of some kind of contiguity with each other (e.g., a relationship of cause/effect, part/whole, sign/thing signified)—in other words, by reason of what the old rhetoric of Quintilian called 'metonymy'; or that they may be related by reason of similarity/dissimilarity, hence by a principle of selection in virtue of the fact that one is substituted for the other—in other words, by 'metaphor' (13). Lacan sees these two principles as being two laws of language that help structure the unconscious.

Lacan sees Freud's condensation and displacement as instances of these two laws at work: “. . . condensation is a form of substitution, grounded in the principle of similarity/dissimilarity, hence to be located linguistically along the axis of selection: in other words, it is basically metaphor. Displacement, however, functions by reason of contiguity, hence is to be located linguistically along the axis of combination: in other words, it is metonymy” (16). Jakobson actually says that condensation is synecdoche, and thus metonymic. Condensation to Freud is a form of distortion in which an idea represents, or condenses, several associative chains; displacement is a form of distortion in which an overly intense idea is replaced by a less intense but related one.

Glossing “Mirror Stage,” p. 5: “Lacan typically balances hysterical and obsessional symptoms . . . and the linguistic techniques he refers to would seem to be metaphor (the hysterical condensation) and metonymy (the obsessional displacement)” (40).

Glossing “The Freudian Thing,” p. 125: “Rather than turn to the ego, we should turn to the ridges . . . of speech, i.e., to **the slopes of the sliding of the signified under the signifier, namely, metaphor and metonymy**” (153, emphasis mine). I really like the image of the almost tectonic sliding of the signified under the signifier; it should be very useful in dealing with lexical change. (The source of *tec* in *tectonic* is the Latin for *carpenter, builder*, another reminder that language is by humans for humans.) Later (163) they quote Lacan: “we 'are forced . . . to accept the notion of an incessant sliding of the signified under the signifier” (“Agency of the Letter in the

Unconscious,” *Ecrits*, p. 154).

Discussing “Agency of the Letter in the Unconscious”:

In discussing the topography of the unconscious, Lacan “transpose[s] Saussure's original formula [Signifier/signified] S/s relationship into algorithms that transcribe this relationship when the signifier refers directly to other signifiers under the guise either of metonymy (word-to-word relationships) or of metaphor (word-for-word substitution)” (167).

“The mode of metonymy . . . functions through the processes of desire. . . . [D]esire, the residue of a lost paradise, seeks its term by 'eternally stretching forth towards the *desire for || something else*' . . . where the 'something else' is related to a previous 'something else' by means of metonymy” (168-69).

“Lemaire (1970 [*Jacques Lacan*]) writes of metaphor and metonymy as 'the two linguistic phenomena responsible for the autonomy of the signifier, or for the supremacy of the signifier over the signified in language. This supremacy of the signifier was defined by language's peculiar aptitude for signifying something other than what it is literally saying' (p. 191). Lacan later elaborates the role of metaphor and metonymy as slopes for the sliding of the signified under the signifier, and thereby accounts for the nature of dream distortion (1977, p. 160/511). These language processes operate unconsciously, thus raising the question about the place of the subject, which he takes up again later” (187).

Discussing “Signification of the Phallus”: “This implies not only the distinction between signifier and signified but the conception 'that the signifier has an active function in determining certain effects' in what is to be signified (i.e., the 'signifiable'). The signifier is determinative to the extent that the signified is accessible only through the signifier, i.e., 'appears as submitting to its mark' (1977, p. 284/688) in such fashion that we are forced 'to accept the notion of an incessant sliding of the signified under the signifier' (1977, p.154/502). Moreover, when 'the signifier' is concatenated into a chain of signifiers, this chain is governed by the laws of language. Thus we must acknowledge 'a new dimension of the human condition in that it is not only man who speaks, but . . . in man and through man *it* speaks (*ça parle*).' The 'it' here is to be understood as the 'structure of language,' that is so woven through man's whole nature as to make it possible for speech 'to resound' in him' (1977, p. 284/688-89).

“What is at stake here, we know, is not 'language as a social phenomenon' but language in the sense of the laws that govern that other scene' (for Freud, the 'unconscious'), operating as they do in the 'double play of combination and substitution' on which metonymy and metaphor (those 'two aspects that generate the

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signified') are based (1977, p. 285/689). As such, these laws play a 'determining' role in the 'institution of the subject; . . . . Let it suffice here to observe that when Lacan says that '*It* speaks in the Other,' we take him to mean that the laws of language function in such fashion that it is these that are evoked when two subjects engage in speech, these that permit the signifying process, 'by means of a logic anterior to any awakening of the signified (1977, p. 285/689) to emerge in the first place.'"

In 1960 in an address to a colloquium of philosophers titled "The Subversion of the Subject and the Dialectic of Desire in the Freudian Unconscious" (In *Ecrits*, chapter 9) Lacan presents a mathematization of the laws of language and the unconscious using set theory, irrational numbers, quasi-topological graphs, etc.

## Metaphor and metonymy and their frustrations.wpd

From an email to John Nagely:

I think I know what you mean by “hitting the wall”: I've been working on metaphor/metonymy off and on for nearly thirty years now, and it seems like one damned wall after another. Sometimes I feel that m/m is a real, basic, and important distinction, a great simplifying principle or unity in the understanding of language and mind, but I can't quite understand how it works. Sometimes I feel that m/m is self-evident, obvious, maybe even tautological and utterly sterile, though I still can't understand it. Sometimes I feel that it is simply a mirage, a bit of academic swamp gas, which anyhow I can't understand, so why bother. But most of the time I think it is important.

So far as a mind dump is concerned, I guess the following pretty well sums up where I am now. I have reached a point where I view, or at least try to view, such things in evolutionary terms. If m/m is in fact a basic distinction in the way the mind and thus language operate, it is so because of structures in the brain that have evolved over the thousands of millennia of hominid evolution. That's why I am so interested in Plotkin's three heuristics (discussed briefly in the mss. on orthography as an evolving complex system): The first heuristic is based on the excruciatingly slow transfer of information through genetic inheritance. The emergence of his faster second heuristic, individual intelligence, is due to pressures produced by the need to process more information more quickly than the first heuristic (genetic transmission) can accommodate. A major source of this new richness of information is the emergence of mobility: To be able to move around means being faced with all kinds of new and rapidly changing spatial-temporal information, including a whole new universe of causal relationships, synecdoches, unities—on and on. This, I believe, lies at the heart of the radicality of m/m: Those individuals with the genetic endowment that makes them better at dealing with this new information have a definite survival advantage. They live to pass on their genes to more offspring than do individuals that do not have this same genetically endowed range of abilities. For instance, the cave man who recognizes that the tail sticking out from behind the rock is actually part of a saber-toothed tiger (that is, he who can handle synecdoche) lives to screw another day. These abilities to handle spatial-temporal relationships, causal relationships, synecdoches, unifying strands of similarity, and the rest are the basis for what we're calling m/m. It's all there hard-wired into the genes because of the slow selection of evolution working across thousands of millennia. So that's how it got there. There is nothing mystical or a priori or dualistic or anything like that going on. It is a simple case of the principle of increasing returns: A little bit of a selection advantage is leveraged in time (great long hunks of time) into a richer and richer genetic endowment for such things. And also, with the emergence of Plotkin's third heuristic (communal intelligence, or culture, or, roughly, the ability to store and transmit information outside the individual, as in books, for instance) makes possible a greatly accelerated kind of evolution based on the much speedier Lamarckian passing on of acquired and learned characteristics that comes quickly to outstrip the much slower neoDarwinian evolution based on the storage and transmission of information in the physical stuff of the genes.

So that is how it got there and why it is basic to the way we think and organize reality — and thus make language. So how does it work? Consider again the tail-of-the-tiger-behind-the-rock: Synecdoche is obviously at work, but for the synecdoche

“tail-equals-tiger” to provide any selection advantage, it must be combined with some metaphoric thinking as well, using “metaphoric” here to mean simply “based on similarity.” In short, our canny cave man must also recognize that this tiger is probably much the same as the one who ate his first ex-wife and is thus to be avoided. Cases like this used to bother me because they seemed to imply that I couldn't really tell when a given situation was an instance of metaphor and when it was metonymy. Actually now I think that in many (most? all?) cases the two must work together, m & m. Perhaps it is that combination that produces what we mean by the word “symbol”? No, probably not, because our cave man can't afford to sit around and reflect symbolically on that tail sticking out from behind that rock: He must choose immediately between flight or fight. He must, in short, treat it as a sign, even a signal, a signal for action. There is nothing terribly reflective about it. Maybe the most we can say is that any good, healthy human sign or symbol must contain elements of both metaphor and metonymy. There is a certain sense in which everything is synecdoche, since we never sense all of anything, just parts and selected attributes. But there is also a certain sense in which everything is metaphor, since we can't identify a thing as a definite thing without holding onto to certain strands of similarity with instances of that same thing that were encountered earlier.

## Metaphor and metonymy via Jakobson, Frazer, Lacan.wpd

Developing the ideas on m&m laid out by Jakobson and further developed by Lacan: Metaphor is based on the principle of similarity and thus of selection, for the similarity allows the two items to be categorized together so that one may be selected in place of the other. Key terms in the metaphoric mode then are *similarity, selection, interchangeability, paradigmatics*. Metonymy is based on the principle of contiguity and thus of combination, for the perception of contiguity allows the two items to be combined in various ways. So key terms in the metonymic mode are *contiguity, combination, non-interchangeability, syntagmatics*. In my mind, metaphor tends toward synthesis and unification as it, in effect, short circuits categories, while metonymy tends toward analysis and articulation as it works within a category to highlight possible components and intrarelations.

In lexical evolution the main metonymic strategy appears to be synecdoche, while the main metaphoric strategy appears to be assimilation. It is important to remember that assimilation and dissimilation are actually two poles of the same process, since both are based upon the principle of similarity and are measured on a scale of similarity. Perhaps we can think of this larger process as *similation*, with two polarities: *ad* and *dis*, “to” and “away.”

Roman Jakobson and Morris Halle, *Fundamentals of Language* (Mouton, 1956), pp. 76ff:

“The development of a discourse may take place along two different semantic lines: one topic may lead to another either through their similarity or through their contiguity. The metaphoric way would be the most appropriate term for the first case and the metonymic way for the second, since they find their most condensed expression in metaphor and metonymy respectively. . . .

. . . . .

“The dichotomy here discussed appears to be of primal significance and consequence for all verbal behavior and for human behavior in general.

. . . . .

“A competition between both devices, metonymic and metaphoric, is manifest in any symbolic process, either intrapersonal or social. Thus in an inquiry into the structure of dreams, the decisive question is whether the symbols and the temporal sequences used are based on contiguity (Freud’s metonymic ‘displacement’ and synecdochic ‘condensation’) or on similarity (Freud’s [metaphoric] ‘identification and symbolism’.”

James Frazer, *The New Golden Bough* (Phillips, 1959), p. 7:

“Analysis shows that magic rests everywhere on two fundamental principles: first that *like produces like*, effect resembling cause; second, that *things which once have been in contact continue ever afterwards to act on each other*. The former principle may be called the Law of

Similarity; the latter, that of Contact or Contagion. From the one the magician infers that he can produce any effect he desires merely by imitating it in advance; from the other, that whatever he does to a material object will automatically affect the person with whom it was once in contact. Practices based on the Law of Similarity may be termed Homeopathic Magic; those based on the Law of Contact or Contagion, Contagious Magic.”

John Muller and Wm. Richardson, *Lacan and Language* (International Univ. P., 1994):

12: Lacan speaks of Jakobson and Halle’s “two fundamental axes of language,” metonymy and metaphor, which he sets up as axes of combination and selection: “Along the axis of combination, linguistic units are related to one another insofar as they are copresent with each other. Thus the words that form this sentence, even though stretched out in a linear sequence that suspends their full meaning to the end, are related to each other by a type of copresence, i.e., they are connected to each other by a certain temporal contiguity. Saussure speaks of such a relation as unifying terms *in praesentia*, and calls it ‘syntagmatic’ (1916, p. 123). The second axis along which linguistic units related to each other, however, is an axis of selection. This means that they do not relate to each other by reason of a copresence but rather by some kind of mutually complementary nonpresence, i.e., mutual exclusion, whether this is because one word is chosen over another as being more appropriate (e.e., we speak of Lacan as a ‘psychoanalyst’ rather than simply as a ‘physician’) or because one word implies the rejection of its antonym (e.g., by calling him a ‘structuralist’, we imply that he is not an ‘existentialist’). Saussure speaks of such a relation as unifying terms *in absentia*, and calls it ‘associative’ (1916, p. 123). Thus to select one unit is to exclude the other, but at the same time the excluded other is still available to be substituted for the first if circumstances warrant. The axis of selection, then, is also an axis of possible substitution.

“These two principles of combination and selection permeate the entire structure of language. . . . [13] Now, when these two axes of combination and selection function in terms of the relationship between signifiers, we find either that signifiers may be related to each other by a principle of combination, i.e., in terms of some kind of contiguity with each other (e.g., a relationship of cause/effect, part/whole, sign/thing signified) — in other words, by reason of what the old rhetoric of Quintilian called ‘metonymy’; or that they may be related by reason of similarity/dissimilarity, hence by a principle of selection in virtue of the fact that one is substituted for the other — in other words, by ‘metaphor’.”

17: “If Lacan says that the unconscious is structured ‘like a language’ . . . then the sense is that its processes follow the axes of combination and selection as all language does.”

**Metonymy & metaphor\_LeviStrauss, Aristotle, associationism.wpd**

James A. Boon. *From Symbolism to Structuralism: Lévi-Strauss in a Literary Tradition*. Oxford: Basil Blackwell, 1972.

(74) “But for Lévi-Strauss the metaphoric function and the metonymic are presupposed in any ‘text’ of systematic thought, whether conscious or unconscious; and both functions are crucial in determining through analysis the structure of anything that has resulted from systematic thought. Metaphor is a means toward association, a means of connecting ‘things,’ whether objects-to-objects, relations-to-relations, levels-to-levels, domains-to-domains, objects-to-domains, people-to-birds, people-to-people, etc. The justification for the connection is the *similarity* that is sensed to exist between the things. Metonymy is a means of connecting things by the notion of their juxtaposition, whether temporal or spatial. For example, a table is spatially related to chair by metonymy, a ‘Gesundheit!’ temporally to a sneeze; synecdochic metonymies can be spatial or temporal. In other words if I say ‘knife’ and your respond ‘fork’, you have effected a metonymic association; however, if your response is ‘sword’, the association is metaphoric. The critical conclusion is that metonymy and metaphor are principles which underlie any lexical substitution set in language; but they are also the [75] logical prerequisites for the formation of any system out of any elements. Thus, it is not quite true, as has been maintained, that ‘Lévi-Strauss, like all good rationalists, starts with a *tabula rasa*’ (Goddard:410). The *tabula* is indeed devoid of *things*, but at least two *principles* are present, although not to be accounted for.”

[75] “Yet, the priority of metaphor (association by a sensed likeness) and metonymy (association of unlikes by juxtaposition) can equally well be demonstrated in any example of a simplest system, i.e. in a binary opposition.” Analyses *we/they* opposition: *We* and *they* are sets formed metaphorically via sensed likenesses; the two sets *we* and *they* are associated metonymically by juxtaposition; both *we* and *they* as separated sets are related metonymically (part-to-whole) to the totality *we/they*. Etc.

[76] “Thus, metonymy and metapor are given in any system and of any structure analytically derived from its variants. They are essential to a system’s being and to its further formations or elaborations.”

[76] “It must be stressed that what we are talking about here is absolutely crucial in Lévi-Strauss’ work. It is the socio-logic—originated by Durkheim, concretely articulated by Mauss, expanded through linguistics—that serves as the core of Lévi-Strauss’ every concern. He observes that logically there can be no communicative-systems without the two ‘functions’ we are calling metaphoric and metonymic . . . .” [77] “. . . the systems cannot ignore these basic principles of their own composition. Man is Social Man. Social Man is classifying or communicating Man, who fundamentally must needs elaborate categorical

distinctions and equivalences amongst the features selected from his experience.” [77] “Are not the metonymic and metaphoric functions the very processes by which *rule* is imposed, by which the ‘natural order’ is disrupted and re-arranged into something new, something unnatural, something cultural? Yes. Culture itself, as opposed to natural order, is function of these two functions. For culture or ‘society’ subsumes sensed identity or solidarity (metaphoric function) with *others*, together with a notion of differentiation but necessary interrelatableness (metonymic function)—both of which are contained in the essential cultural fact, namely *reciprocity* as manifested in positive exchange.” From *Conversations with Claude Lévi-Strauss*. ed. G. Charbonnier. Trans. John and Doreen Weightman. London: Jonathan Cape, 1969.

[151] “If by [152] nature you understand all the manifestations of the world in which we live, there is no doubt about culture itself being a part of nature. When we contrast nature and culture, we are taking the term nature in a more restricted sense to refer to those features in man which are transmitted through biological heredity. From this point of view, nature and culture are opposites, since culture derives not from biological heredity but from external tradition—that is from education.”

[152] “From a methodological point of view, language is not a phenomenon of nature.”

[154] On the origin of language: “If and when we solve the problem of the origin of language, we shall understand how culture can appear within nature and how the transition from one category to the other was able to occur. But the problem is not an anthropological one; it is concerned with the fundamental difference between man’s intellectual processes and those of the animals, with the structure of the human brain, and the emergence of a specifically human function, the use of symbols.”

[155] “All we know is that all the peoples of the world, all mankind in its most ancient

and humble manifestations, has been endowed with articulate speech, that the emergence of language coincides exactly with the emergence of culture and that, for this very reason, the solution cannot be provided by anthropologists. We start off with language as a given element.”

23rd. Aristotle on m&m:

*On Memory and Reminiscence* (451<sup>b</sup> [15]): “Whenever, therefore, we are recollecting, we are experiencing certain of the antecedent movements until finally we experience the one after which customarily comes that which we seek. This explains why we hung up the series [of *ἐείΠόαέο*], having started in thought

either from a present intuition or some other, and from **something either similar, or contrary, to [20] what we seek, or else from that which is contiguous with it.**" [my emphasis]

Paste for *Lexmeme*: The metaphor-metonymy distinction goes back in Western thought at least to Aristotle, who, according to Boring, "laid down the basic principles of memory—similarity, contrast, and contiguity—which have not yet ceased to dominate theoretical thinking about learning. For instance, in *On Memory and Reminiscence* (451<sup>b</sup> [15]) Aristotle says that "Whenever, therefore, we are recollecting, we are experiencing certain of the antecedent movements until finally we experience the one after which customarily comes that which we seek. This explains why we hung up the series [of ἐπίποσόν], having started in thought either from a present intuition or some other, and from **something either similar, or contrary, to [20] what we seek, or else from that which is contiguous with it.**" [my emphasis]

The distinction was also a recurrent theme in British associationism during the 18th and 19th centuries. For instance, in the 18th century David Hume said in his *Inquiry Concerning Human Understanding*:

19. Though it be too obvious to escape observation, that different ideas are connected together; I do not find that any philosopher has attempted to enumerate or class all the principles of association; a subject, however, that seems worthy of curiosity. To me, there appear to be only three principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause or Effect.

41. We have already observed that nature has established connexions among particular ideas, and that no sooner one idea occurs to our thoughts than it introduces its correlative, and carries our attention towards it, by a gentle and

insensible movement. These principles of connexion or association we have reduced to three, namely, Resemblance, Contiguity and Causation; which are the only bonds that unite our thoughts together, and beget that regular train of reflection or discourse, which, in a greater or less degree, takes place among all mankind.

"Later, however, he virtually reduced cause and effect to contiguity, so perhaps there were but two left" (Boring, *The History of Experimental Psychology*, 191). In John Stuart Mill's treatment of the laws of association similarity and contiguity were constants, though he included at various times other factors, such as frequency, intensity, and inseparability. For instance, in 1843 in his *System of*

*Logic, Ratiocinative and Inductive* he proposed three associative laws: similarity, contiguity, and intensity. Later, in 1865 in his *Examination of Sir William Hamilton's Philosophy*, he proposed four: similarity, contiguity, frequency, and inseparability. The Scottish associationist Alexander Bain held to the basic two principles of association: similarity and contiguity (Boring, 238).

William James is far from being a British associationist. But his *Principles of Psychology* contains a long chapter on association (chapter 14), which in turn contains longish sections titled "The Law of Contiguity" and "Association by Similarity." In spite of his very real reservations and the differences between his view and those of the British associationists, he ends his chapter with the clear assertion that associationism, including its tendency to view association by contiguity and similarity as two fundamental principles, remains a useful and informative point of view.

30th. The redivision of words over time is an important type of metonymic (syntagmatic) change. For instance, the Latin adjectival suffix *-bilis* often acquired through redivision the final stem vowel, becoming *-abilis*, *-ibilis*, etc. Such redivided forms led to co-sets and at times to new elements. This process is similar to the redivision involved in the change from, say "an ewt" to "a newt" and, the other way around, "a norange" to "an orange." It is also related somehow to the common synecdochic formations like *amphetamine*. Here old elements are divided and parts are recombined to form new complex

## Metonymy metaphor and the number system.wpd

10-17-95. I've been thinking of the number system, especially the number line, as a very important manifestation of metonymic relationships and thought. The process probably starts with a simple one-to-one matching system: That for you, this for me, that for you, this for me. Or with a tally system, like that, for instance, suggested by Marshak in his work with paleolithic tally bones and stones. Neither the matching nor the tally system entail a number system, but they would seem naturally to lead to one. So gradually a set of numbers develops: five fingers, and then five more fingers, for a total of ten, and then perhaps two more, one for each foot, for a total of twelve, which (among other things) would help explain the mystery surrounding thirteen: It's the first one beyond the known twelve. In any case, in time this set of cardinals evolves into an extended, and finally infinite, number line.

There is something very metonymic about all of this. Certainly the ordinals deal with metonymic relationships: This one comes first, this other comes next, or second, this final one comes third. That sort of thing is clearly a version of metonymy as, among other things, the relating of items in time and space. So it is maybe not too big a jump to suggest that the whole numbering and quantification business is all metonymic, both the ordinals and the cardinals.

But calculations would seem to involve something like metaphor, as well. For instance, to say that  $3+4=7$  or that  $3 \times 4=12$  is to assert an equivalence that feels much like a metaphor: All the world = a stage. But maybe not: The metaphor is based on the notion of similarity, and similarity is not the motivation of a mathematical equation. Equations seem to be motivated more by a process of synthesis ("3 combined with 4 is 7") or analysis, or factoring out ("7 can be factored, or analyzed, into 3 and 4"). There is something almost synecdochic about this: synecdoche viewed from the parts to the whole (synthesis) and from the whole to the parts (analysis, factoring).

## Ricoeur re content and meaning.wpd

From and on Paul Ricoeur's *Interpretation Theory*:

1-2. The ancient problem of discourse has been complicated by the modern development of structuralism with its emphasis on language viewed as an abstract structure, or code. The success of modern structuralism has eclipsed and marginalized the question of discourse; language as abstract code has displaced language in use as the main point of interest.

2-3. Saussure's distinction between *langue* and *parole*. "*Langue* is the code—or the set of codes—on the basis of which a particular speaker produces *parole* as a particular message" (3). *Parole*, message, and discourse at this point seem to be synonyms in Ricoeur's mind.

3. "A message is individual, its code is collective. . . . The message and the code do not belong to time in the same way. A message is a temporal event in the succession of events which constitute the diachronic dimension of time, while the code is in times as a set of contemporaneous elements, e.e., as a synchronic system. A message is intentional; it is meant by someone. The code is anonymous and not intended. In this sense it is unconscious . . . ." It seems odd to me that Ricoeur sets up these distinctions and yet collapses them, in effect, in using the word *meaning* to talk about what is going on at both levels, that of code and that of message. Popper's three worlds work usefully here, I think. The code that he describes is clearly of W3, while discourse is in W1 and W2.

3. "More than anything else, a message is arbitrary and contingent, while a code is systematic and compulsory for a given speaking community. " Thus, he says, code lends itself to scientific investigation, "particularly in a sense of the word science which emphasizes the quasi-algebraic level of the combinatory capacities implied by such finite sets of discrete entities as phonological, lexical, and syntactical systems. Even if *parole* can be scientifically described, it falls under many sciences including acoustics, physiology, sociology, and the history of semantic changes, whereas *langue* is the object of a single science, the description of the *synchronic systems* of language."

3. He speaks of the way modern structuralists "bracket" "the message for the sake of the code, the event for the sake of the system, the intention for the sake of the structure, and the arbitrariness of the act for the systematicity of combinations within synchronic systems."

4. Mentions the extension of the structuralist approach beyond Saussurean linguistics: "Originally the model concerned units smaller than the sentence, the signs of the lexical systems and the discrete units of the phonological systems from which the significant units of lexical systems are compounded. A decisive extension occurred, however, with the application of the structural model to linguistic entities larger than the sentence and

also to non-linguistic entities similar to the texts of linguistic communication.” Mentions Propp’s work with folktales and Lévi-Strauss’ work with myths. Also mentions the extension to semiotics and the general theory of signs.

5-6. Lists four postulates that define and characterize modern structuralism:

“First, a synchronic approach must precede any diachronic approach because systems are more intelligible than changes” (5) This leads to bias against historical approaches, especially the historicism that dominated 19th century linguistics.

“Second, the paradigmatic case for a structural approach is that of a finite set of discrete entities.” because of “the combinatory capacity and the quasi-algebraic possibilities pertaining to such sets” (5)

“Third, in such a system no entity belonging to the structure of the system has a meaning of its own; the meaning of a word, for example, results from its opposition to the other lexical units of the same system. As Saussure said, in a system of signs there are only differences, but no substantial existence” (5).

“Fourth, in such finite systems, all the relations are immanent to the system. In this sense semiotic systems are ‘closed’, i.e., without relations to external, non-semiotic real//ity” (5-6) Thus Saussure does not define a sign as something that signifies or points at something outside the language. Instead he defines it in terms of the combination of a **signifier** and a **signified**. Because of this combination within the sign, structural analysis is of two kinds: phonological (focusing on the signifier) and semantic (focusing on the signified).

6. “This last postulate (the closedness of the linguistic system) alone suffices to characterize structuralism as a global mode of thought, beyond all the technicalities of its methodology. Language no longer appears as a mediation between minds and things. It constitutes a world of its own, within which each item only refers to other items of the same system, thanks to the interplay of oppositions and differences constitutive of the system. In a word, language is no longer treated as a ‘form of life’, as Wittgenstein would call it, but as a self-sufficient system of inner relationships” (6).

6-8. ‘Semantics versus Semiotics: The Sentence’

Introduces his notion of language as being based on “two irreducible entities, signs and sentences” (6). This contrast does not equal that between *langue* and *parole* nor that between code and message. *Parole*, or discourse, cannot be reduced down to “the combinatory possibilities opened up by the oppositions between discrete entities” (7). The sentence has a special, synthetic quality that emerges from the combination of subject and predicate and is more than and different from the simple sum of those two

parts. This emergent property leads Ricoeur to distinguish between “semiotics and semantics as the two sciences which correspond to the two kinds of units characteristic of language, the sign and the sentence” (7).

7. “The object of semiotics—the sign—is merely virtual. Only the sentence is actual as the very event of speaking. . . . The sentence is not a larger or more complex word, it is a new entity. . . . A sentence is a whole irreducible to the sum of its parts. It is made up of words, but it is not a derivative function of its words. A sentence is made up of signs, but is not itself a sign” (7).

There is no smooth progression for phoneme to morpheme to sentence and beyond. Each layer in the hierarchy requires its own method of description. Ricoeur uses Benveniste’s notion that “language relies on the possibility of two kinds of operations, integration into larger wholes, and dissociation into constitutive parts. The sense proceeds from the first operation, the form from the second” (7). This sounds like the metaphor-metonymy distinction at work again: Metaphor would be basic within the realm of sense, while metonymy is basic in the realm of form. But this doesn’t seem immediately to fit: At least, it does not fit into the way I treat change at the expression and content planes in “Lexmeme.” Ricoeur goes on to say that “The distinction between two kinds of linguistics—semiotics and semantics—reflects this network of relations. Semiotics, the science of signs, is formal to the extent that it relies on the dissociation of language into constitutive parts. Semantics, the science of the sentence, is immediately concerned with the concept of sense (which at this stage can be taken as synonymous with meaning . . .), to the extent that semantics is fundamentally defined by the integrative procedures of language” (8).

His use of *virtual* suggests that it would be synonymous with “residing in W3.” Here is the *OED2*’s definition of *virtual*: “That is so in essence or effect, although not formally or actually; admitting of being called by the name so far as the effect or result is concerned.” Its definition of the more recent computer use is as follows: “Not physically existing as such but made by software to appear to do so from the point of view of the program or the user.”

When Ricoeur says that the sign is virtual while the sentence is actual, he appears to be using the word *sentence* to refer to the sentence-as-token—that is, event. But the sentence also has an existence as a type. It is the sentence-as-type that endures and that can be quoted, translated, paraphrased, and such. To my way of thinking the sentence-type has content while the sentencetoken has meaning. So I appear to be dealing with something like event-meaning?? Yes, that’s right.

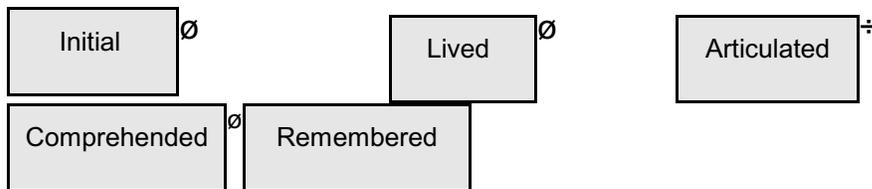
The sentence-type parallels the genotype, and the sentence-token parallels the phenotype. It’s tricky: “The *phenotype* of an organism is its appearance: its morphology, physiology, and ways of life. The *genotype* is the genetic information it has inherited. . . . [T]he phenotype results from complex networks of interactions between genes, and between genes and the environment. The phenotype changes continuously throughout the life of an organism, from the moment of fertilization to its death; however, the genotype remains

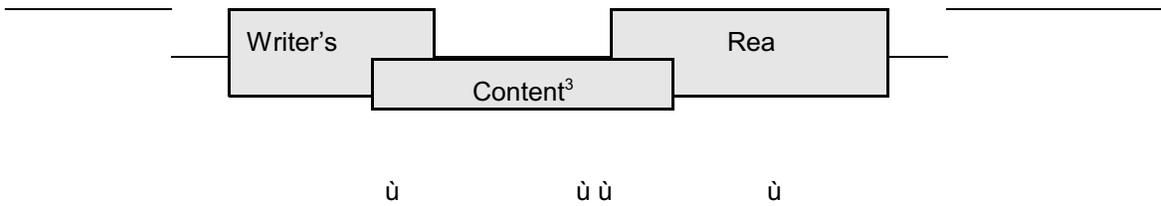
constant except for the relatively rare occurrence of genetic mutations” (Ayala and Valentine 50). “The technical word *phenotype* is used for the bodily manifestation of a gene, the effect that a gene, in comparison with its alleles, has on the body, via development” (Dawkins 235). I get the impression that biologists use the term *phenotype* to refer to what would seem to me to be three quite different things: (1) the individual organism itself, (2) the type to which the individual belongs, especially among types that have the same genotype, and (3) the total of the features and attributes that identify the individual as a member of a type. So we seem to have three different kinds of referent: (1) things and (2) groups of things and (3) groups of attributes of things. I don’t think this will work, beyond being an interesting and somewhat fuzzy parallel. Biologists seem to use *phenotype* to refer to a given attribute as it is linked with a genetic allele (which is part of its genotype). The parallel is that the genotype sets certain boundary conditions on the phenotype just as the content sets boundary conditions on the meaning and the spelling-type on the spelling-token. But the distinction between genotype and phenotype does not appear to be a simple type-token distinction.

Ricoeur’s distinction in what follows equals, I believe, my meaning-content distinction: “But the semantics of the word demonstrates very clearly that words have *actual* meanings only in a // sentence and that lexical entities—words in a dictionary—have only potential meanings and for the sake of their potential uses in sentences” (137-38).

• \* \* \* \*

The following attempts to illustrate an act of written meaning: Initial experience, affected to some degree by one’s lived meanings, leads to a new lived meaning, which is then written out to become articulated meaning. The addressee, or reader, then constructs a comprehended meaning, which is both affected by and affects his remembered experience. The transition from lived to articulated meaning is mediated by the speaker’s, or writer’s, content<sup>2</sup>; that from articulated to comprehended meaning by the addressee’s, or reader’s, content<sup>2</sup>.





Notes: Remembered experience is always part or (and can even be all) of a new initial experience.

Should there be a parallel to lived meaning between comprehended meaning and remembered experience? The illustration omits the writers remembered experience. Perhaps the model, when focused on the writer, is circular, with a double arrow between remembered and initial experience.

## Searle on metaphoric and literal meaning.wpd

John Searle. "Metaphor," *Expression and Meaning: Studies in the Theory of Speech Acts*. Cambridge, U.K.: Cambridge UP, 1979, pp. 76-116.

"It is essential to emphasize at the very beginning that the problem of metaphor concerns the relations between word and sentence meaning [= content], on the one hand, and speaker's meaning or utterance meaning, on the other. . . . [S]entences and words have only the meanings [content] that they have. Strictly speaking, whenever we talk about the metaphorical meaning of a word, expression, or sentence, we are talking about what a speaker might utter it to mean, in a way that departs from what the word, expression, or sentence actually means [conventionally contains]" (77). He distinguishes between "speaker's utterance meaning" and "word, or sentence, meaning" and goes on to say that "Metaphorical meaning is always speaker's utterance meaning" (77). [So far this all seems consistent with the content-meaning distinction. It's simply a matter of using a terminology that does justice to the ontological and epistemological differences between the two.]

"In order that the speaker can communicate using metaphorical utterances, ironical utterances, and indirect speech acts, there must be some principles according to (77-78) which he is able to mean more than, or something different from, what he says—principles known to the hearer, who, using this knowledge, can understand what the speaker means. . . . Because the knowledge that enables people to use and understand metaphorical utterances goes beyond their knowledge of the literal meanings of words and sentences, the principles we seek are not included, or at least not entirely included, within a theory of semantic competence as traditionally conceived." [This is his shared, pre-intentional Background again, I suspect.]

Summarizing literal utterance: "[T]here are three features we shall need to keep in mind in our account of metaphorical utterance. First, in literal utterance the speaker means what he says; that is, literal sentence meaning and speaker's utterance meaning are the same; second, in general the literal meaning of a sentence only determines a set of truth conditions relative to a set of background assumptions which are not part of the semantic content of the sentence; and third, the notion of similarity plays an essential role in any account of literal predication" (81).

"[S]trictly speaking, in metaphor there is never a change of meaning; diachronically speaking, metaphors do indeed initiate semantic changes, but to the extent that there has been a genuine change in meaning, so that a word or expression no longer means what it previously did, to precisely that extent the locution is no longer

metaphorical" (86). "The metaphorical utterance does indeed mean something different from the meaning of the words and sentences, but that is not because there has been any change in the meanings of the lexical elements, but because the speaker means something different by them; speaker meaning does not coincide with sentence or word meaning" (87).

"Thus it is sometimes said that the notion of similarity plays a crucial role in the analysis of a metaphor, or that metaphorical utterances are dependent on the context for their interpretation. But, as we say earlier, both of these features are true of literal utterances as well" (93).

Summarizing his account of metaphorical predication: "Given that a speaker and a hearer have shared linguistic and factual knowledge sufficient to enable them to communicate literal utterances, the following strategies and principles are individually necessary and collectively sufficient to enable speaker and hearer to form and comprehend utterances of the form 'S is P', where the speaker means metaphorically that S is R (where  $P \neq R$ ).

"First, there must be some shared strategies on the basis of which the hearer can recognize that the utterance is not intended literally. The most common, but not the only strategy, is based on the fact that the utterance is obviously defective if taken literally.

"Second, there must be some shared principles that associate the P term (whether the meaning, the truth conditions, or the denotation if there is any) with a set of possible values of R. The heart of the problem of metaphor is to state these principles. . . .

"Third, there must be some shared strategies that enable the speaker and the hearer, given their knowledge of the S term (whether the meaning of the expression, or the nature of the referent, or both), to restrict the range of possible values of R to the actual value of R. The basic principle of this step is that only those possible values of R which determine possible properties of S can be actual values of R" (112).

His discussion in the following essay, "Literal Meaning" (117-36), is quite consistent with the foregoing: "[T]he notion of the literal meaning of a sentence only has application relative to a set of contextual or background assumptions . . ." (117). "Sentence meaning, type or token, needs to be distinguished from the speaker's utterance meaning, and the

sentence-utterance distinction is not the same as the type-token distinction" (120). "[W]hat I have said about literal meaning also applies to intentional states in general. . . . (130-31) And it is really not surprising that there should be this parallelism

between literal meaning and intentional states, since the notion of the literal meaning of a sentence is in a sense the notion of conventional and hence fungible intentionality: it is what enables the sentence to represent out there in public, so to speak; whereas my beliefs, desires, and expectations just represent their conditions of satisfaction *tout court*, regardless of whether they get any help from having public forms of expression. The general point is that representation, whether linguistic or otherwise, in general goes on against a background of assumptions which are not and in most cases could not also be completely represented as part of or as presuppositions of the representation, for the two reasons we have already stated; the assumptions are indefinite in number and any attempt to represent them will tend to bring in other assumptions" (131). He keeps stressing the dependence of literal meaning on context.

## Center and periphery in language.wpd

I think the following from the introduction to the 1<sup>st</sup> edition of the *OED* sets up nicely the centerperiphery distinction. Later in the introduction it talks rather informally about change across time and how words that might seem to be dead are only dormant and exist as possibilities in the lexicon:

From the *OED*, l:x:

“The Vocabulary of a widely-diffused and highly-cultivated living language is not a fixed quantity circumscribed by definite limits. That vast aggregate of words and phrases which constitutes the Vocabulary of English-speaking men presents, to the mind that endeavours to grasp it as a definite whole, the aspect of one of those nebulous masses familiar to the astronomer, in which a clear and unmistakable nucleus shades off on all sides, through zones of decreasing brightness, to a dim marginal film that seems to end nowhere, but loses itself imperceptibly in the surrounding darkness. In its constitution it may be compared to one of those natural groups of the zoologist or botanist, wherein typical species forming the characteristic nucleus of the order, are linked on every side to other species, in which the typical character is less and less distinctly apparent, till it fades away in an outer fringe of aberrant forms, which merge imperceptibly in various surrounding orders, and whose own position is ambiguous and uncertain. For the convenience of classification, the naturalist may draw the line, which bounds a class or order, outside or inside of a particular form; but Nature has drawn it nowhere. So the English Vocabulary contains a nucleus or central mass of many thousand words whose ‘Anglicity’ is unquestioned; some of them only literary, some of them only colloquial, the great majority at once literary and colloquial,—they are the *Common Words* of the language. But they are linked on every side with other words which are less and less entitled to this appellation, and which pertain ever more and more distinctly to the domain of local dialect, of the slang and cant of ‘sets’ and classes, of the peculiar technicalities of trades and processes, of the scientific terminology common to all civilized nations, of the actual languages of other lands and peoples. And there is absolutely no defining line in any direction: the circle of the English language has a well-defined centre but no discernible circumference.”

It is interesting that the editors turn to the natural sciences of astronomy and biology for their model. Recasting the above into the center-periphery distinction of the Prague school, what are the criteria for centrality? Vachek speaks of the ability to enter into paradigmatic relationships with other words in the language and of making optimal use of the resources of the language. (I think). For more on the Prague School’s centerperiphery distinction, see František Daneš, “The Relation of Centre and Periphery as a Language Universal” and Josef Vachek, “On the Integration of the Peripheral Elements into the System of Language,”

both in *Travaux Linguistiques de Prague, 2* (Alabama UP, 1966).

But there must be more criteria of centrality: abiding by the tactics of the language, including the sound-to-spelling relationships would be one. Lending themselves to explication into elements shared with other words (Vachek's paradigmatic relationships) and that are for the most part one syllable long would be another. Which sounds much like Saussure's notion of relative motivation being determined by the ease with which the word can be analyzed syntagmatically.

The Prague School linguists did quite a bit of work on the center/periphery distinction.

**Chronotypes, Notes and Drafts.wpd**

Campbell, §457, n.1: "... double consonants were simplified at the ends of syllables, and hence Orm's use of the doubled consonant symbol as a diacritic to show the preceding vowel to be short became possible."

Forms: ME (dat. sing.) botte, (pl.) botten, ME bottes, ME–15 battes; ME–15 batte, 15–17 batt, ME– bat.(

bat	11	12	13	ME	15	EMnE	MnE	Notes		
			●	14	●	16	17	18	19	Singular
botte				●						
botten			●	●	●					Plural
bottes			●	●	●					Plural
battes			●	●	●					Plural
batte			●	●	●					Singular
batt					●	●	●			Singular
bat			●	●	●	●	●	●	●	Singular
	11	12	13	14	15	16	17	18	19	

OE

á. ME cabache, ME caboch, ME caboche, 15 cabbysse, 15 cabish, 16 cabbach, 16 cabbish, 16 cabech, 17 cabush (N. Amer.), 18– cabbitch (Irish English (north.) and Sc.); Eng. regional 18– cabbish (north.), 18–

cabbitch (Cheshire); also Irish English (Wexford) 17–18 gubbach, 18 gaubbach, 18 gubbauch.

â. IME caboge, IME–17 cabage, 15 cabedge, 15–16 cabige, 15–17 cabidge, 15– cabbage, 16 cabadge, 16 cabbadge, 16 cabbidge, 16 cabbige, 16 cabedg, 18 ~~kabbige (regional)~~, 18 ~~kebbidge (regional)~~, 18 ~~kebbige (regional)~~, 19– cubbidge (Sc.).

	OE		ME		EMnE		MnE		Note
--	----	--	----	--	------	--	-----	--	------

	11	12	13	14	15	16	17	18	19	
cabache			□	●	●					
caboch			●	●	●					
caboch			●	●	●					
cabbysse					●					
cabish					●					
cabbach						●				
cabbish						●				
cabech						●				
cabush							●			N. American
cabbitch								●	●	Ir. And Scot.
cabbish								●	●	Northern
cabbitch								●	●	Cheshire
gubbach							●	●		Irish English (Wexford)
gaubbach								●		
gubbauch								●		
caboge				●	●					

cabage				•	•	•	•			
cabedge					•					
cabige					•	•				
cabidge					•	•	•			
<b>cabbage</b>					•	•	•	•	•	
cabadge						•				
<b>cabbadge</b>						•				
<b>cabbidge</b>						•				
<b>cabbige</b>						•				
cabedg						•				
<b>kabbige</b>								•	•	Regional
<b>kebbidge</b>								•	•	Regional
<b>kebbige</b>								•	•	
<b>cubbidge</b>	11	12	13	14	15	16	17	18	• 19	Scot.

The spellings in the top half of the table have a voiceless final consonant, either [sh] or [ch]; those in the bottom half have a voiced [j]. Ekwall says “In unstressed syllables [tsh] has often become [dʒ], as in *cabbage* . . . .” (p. 77).

In the earlier instances there is probably variation between iambic and trochaic stress patterns.

In 13-15c 7% <bb>, after 15-16c 78% <bb>

žžžžžžžžžžžž

	<b>13</b>	<b>ME</b>	<b>15</b>	<b>EMnE</b>	<b>MnE</b>	
	X	<b>14</b>		<b>16</b>	<b>17</b>	<b>18</b>
dete		X				<b>19</b>

dette	X	X	X	X			
dett		X	X	X			
det		X	X	X			
deytt(e)		X	X	X			
debte			X	X	X		
debt					X	X	X

The first four forms lead to *det* a purely phonetic prototype. The last two forms are due to the respelling to show the Latin source, with a continuing indecision about the by now probably silent final <e>. Dobson (2:para. 310) says the loss of schwa spelled with a final <e> “was completed , in educated London English, comparatively early in the fifteenth century.”

*Deytt(e)* something of an outlier. The *OED* gives no citation for it, but it must be a dialect form, perhaps from the north?

DRIED p.t. of dry	11	12	13	ME	15	EMnE	MnE		Notes
	●	●		14		16	17	18	
drygde									
drigde	●	●							
dride			●	●	●				
dreide			●	●	●				
dreyede			●	●	●				
druyde			●	●	●				
dryed(e)			●	●	●				
dried			●	●	●	●	●	●	●
	11	12	13	14	15	16	17	18	19

OE

The infinitive is *drygan* "to dry."

CRIER	11	12	13	ME	15	EMnE	MnE		Notes
			●	14	●	16	17	18	
crior				●					Anglo-Norman

criour			●	●	●					Anglo-Norman
cryour			●	●	●					Quote from Trevisa, 14 c., Cornish
criare			●	●	●					
criere			●	●	●					
cryare			●	●	●					
cryar			●	●	●	●				
crier			●	●	●	●	●	●	●	
cryer			●	●	●	●	●	●	●	Several quotes, many from court cryer
criar					●					
	11	12	13	14	15	16	17	18	19	

OE

The agent suffix *-er]*, common in Old English, comes to dominate its *-ar]* variant and the Norman and French *-or]*, *-our]*.

The two spellings <cry> and <cri> were equally common in Middle English. There probably was a terminal/medial distinction working here. Typically in the French etymons the final <i> was quite common. So the history is final <i> develops to final <y> and medial <i> > changing <y> to <i> to keep that final/medial distinction.

OE–ME fisc, ME Orm. fissk, ME fis(s(e, fix, (ME fizes), south. viss, vyss, ME fich, ME–15 fych(e, ME fissh(e, (ME fishsh, fischsch), ME–15 fyszsch(e, -ssh(e, (15 fyszsh), ME–15 fysh(e, ME–15 fishe, ME– fish

fish	11	12	13	ME	15	EMnE		MnE		Notes
	●	●	●	14	●	16	17	18	19	
fisc				●						
fissk			●							Ormulum <ssk> in Judissken
fis(s(e			●	●	●					
fix			●	●	●					
fizes			●	●	●					
viss			●	●	●					South
vyss			●	●	●					South
fich			●	●	●					
fych(e			●	●	●					
fissh(e			●	●	●					
fishsh			●	●	●					
fischsch			●	●	●					
fyszsch(e			●	●	●					
fyssh(e			●	●	●					
fyszsh					●					
fysh(e			●	●	●					
fishe			●	●	●					

fish			●	●	●	●	●	●	●	
	11	12	13	14	15	16	17	18	19	

## OE

The <y, i> spellings suggest an early and consistent short <i> pronunciation. The initial <v> spellings are restricted to southern dialects, consistent with the the southern tendency to voice [f] to [v] (Mossé, p. 39). Otherwise the <f> is persistent.

The complications are with the final consonant sound and its spelling. In Orm's spelling <k> spells [k], so the <ssk> in his *Judissken* and in *fissk* is probably spelling [shk]. Mossé (p.41) also points out that <x>, normally spelling [ks], sometimes metathesized to [sk], which is likely in the ME spelling *fix*. Dobson (2:947) points out that in some dialects [s] and [sh] were often homophonic, which could underlie such spellings as *fis*, *fiss*, *fisse*, *viss*, and *vyss*. The <ch>, <ss>, <ssh>, <shsh>, <schsch> and <szsh> spellings raise a number of questions. Some could equal doublet equivalents to mark the short vowel, working towards the emergence of the CVC# string. There could be a French influence motivating the <ch> spelling and a German influence motivating the <sch>.

Notice that the standard spelling <fish> is optimally simple and ruly.

Not surprisingly the history of spellings of *dish* is quite similar to that of *fish*, and many of the same observations for *fish* can apply to *dish* as well.

OE disc, (ME dischs, diss), ME disch, dische, ME ( dise, dych, di sch), dissch, dissche, ME dyssh, dysshe, ME-15 disshe, dishe, ME-15 dyssche, dysch, dysche, 15 diszshe, ME- dish

dish	11	12	13	ME	15	EMnE	MnE	Notes
	●	●		14		16	17	
disc							18	19
dischs			●	●	●			

diss			●	●	●					
disch			●	●	●					
dische			●	●	●					
dise			●	●	●					
dych			●	●	●					



disch			●	●	●					
dissch			●	●	●					
dissche			●	●	●					
dyssh			●	●	●					
dysshē			●	●	●					
disshe			●	●	●					
dishe			●	●	●					
dysche			●	●	●					
dysch			●	●	●					
dysche			●	●	●					
diszshe					●					
dish			●	●	●	●	●	●	●	
	11	12	13	14	15	16	17	18	19	

Forms: á. OE *wyscan*, *wiscan*, ME *wusshe*, *wysche*, (16 Sc.) *wische*, ME-15 *wisshe*, ME-15 *wys(s)he*, (ME *wusse*, *wisse*, ME *wussche*, *whusshe*, *wiche*, *wesche*, *wesse*, ME *wusche*, *wiesshe*, *wosshe*, *weesshe*, 15 *wys(c)h*, *wishe*, *whysshe*, *wyszhe*), 15- *wish*. â. Sc. (and north.) ME-15 *wisse*, *wis*, ME-18 *wiss*, 15 *wys(s)*, *whiss*, 15-16 *viss*, 16 *wosse*, 18 *wuss*. pa. tense OE *wyscte*, *wiscte*, ME *wyst*, *weste*, 15 (18) *wisht*; ME *wissede*, etc., ME-15 *wished*, ME-15 Sc. *wissit*, etc., 15- *wished*. pa. pple. ME *iwist*, 15 *wysht*, 15-17 *wisht*; ME-15 *wished*, etc., 15- *wished*.

wish	11	12	13	ME	15	EMnE	MnE	Notes	
	●	●		14		16	17	18	19
wyscan									
wiscan	●	●							
wusshe			●	●	●				
wysche			●	●	●				
wische						●			Scots.
wisshe			●	●	●				
wys(s)he			●	●	●				



wusse			●	●	●				
wisse			●	●	●				
wussche			●	●	●				
whusshe			●	●	●				
wiche			●	●	●				
wesche			●	●	●				
wesse			●	●	●				
wusche			●	●	●				
wiesshe			●	●	●				
wosshe			●	●	●				
weesshe			●	●	●				
wys(c)h					●				
wishe					●				
whysshe					●				
wyszhe					●				

wish			●	●	●	●	●	●	●	North and Scots.
wisse					●					
wis			●	●	●					“
wiss			●	●	●	●	●	●		“
wys(s)					●					“
whiss					●					“
viss					●	●				“
wosse						●				“
wuss								●		“
	11	12	13	14	15	16	17	18	19	

A lot of final <e>'s, silent and otherwise.

	11	12	13	ME	15	EMnE	MnE	¥	
hâli¥dæi¥	X			14		16	17	18	19

OE

hâli-dæi¥	X									¥
halidei			X							
halidai(e)				X	X					
haliday(e)				X	X					
halyday				X	X	X				
haleday					X					
hallidai					X	X				
halli-day					X	X				
holidai				X						
holiday				X	X	X	X	X	X	
holyday					X	X	X	X	X	
holie daie						X				

hollie daie						X				
holydaie						X				
holy daie						X				
holy daye						X				
holliday(e)						X	X			
hollyday						X	X			
holly-daie						X	X			
holy-day						X	X			
holy day						X	X			
holedaye							X			
holidaie							X			

	11	12	13	ME	15	EMnE	MnE	Notes		
papol	•	•		14		16	17	18	19	In compounds
popel	•	•								In compounds
popul	•	•								In compounds
pippel			•	•						
pyppel			•	•						
paple			•	•	•					
pepble			•	•	•					
peple			•	•	•					
pepulle			•	•	•					
pupel			•	•	•					
pibple					•					



poppell					•					
pypple					•					
pipple					•	•				English regional
popple						•	•	•		Chiefly southwest & Welsh English

pipple										•	Worcs.
pe <b>bb</b> ul			•	•	•						
pebil			•	•	•						
pebul			•	•	•						
pebyl			•	•	•						
pi <b>bb</b> il			•	•	•						
pi <b>bb</b> ul			•	•	•						
po <b>bb</b> el			•	•	•						
po <b>bb</b> le			•	•	•						
pu <b>bb</b> il			•	•	•						
pubel			•	•	•						
puble			•	•	•						
pyble			•	•	•						
pi <b>bb</b> le			•	•	•	•	•				
py <b>bb</b> le					•						
peable					•	•					
peeble					•	•					
people					•	•					
peble					•	•	•				
pible					•	•	•				
pe <b>bb</b> le					•	•	•	•	•		
peable							•	•			English regional
pi <b>bb</b> le								•			Oxon.
peeble						•	•				Scot. pre-17
peebel							•				
po <b>bb</b> le									•		Welsh English
	11	12	13	14	15	16	17	18	19		

Vowels – both sounds and spellings – are much more prone to variation than are consonants.

The <bb> after short vowels in VCC strings dominated from early on, and by the 15<sup>th</sup> century had become the subtype VCC/e.

It appears that early on the final syllable evolved to syllabic [l], with the spelling converging to <le>, definitely standard by the 16<sup>th</sup> century.

*Pebble* descends from OE *papolstân* “pebble stone” with the first element perhaps from Latin *papula* “pustule, pimple.”

ME rabbyt, ME–15 rabbette, ME–15 rabette, ME–16 rabet, ME–16 rabett, 15 rabbatte, 15–17 rabbet, 15–17 rabit, 15– rabbit, 16 rabbett, 16 rabytt, 16–17 rabbitt, 19– ribbit (U.S. (Virginia)); Eng. regional 18 rabbert (Devon), 18– rabbut (south.), 18– rappit (Cheshire); Sc. pre-17 rabat, pre-17 rabatt, pre-17 rabbat, pre-17 rabet, pre-17 rabbett, pre-17 rabbitt, pre-17 rabit, pre-17 rabitt, pre-17 rebat, pre-17 rebbet, pre-17 17 rabet, pre-17 17– rabbit; also Irish English (north.) 19– rebbit.

	11	12	13	ME	15	EMnE	MnE	Notes	
				14		16	17	18	19
rabbyt			•		•				
rabbette			•	•	•				
rabette			•	•	•				
rabet			•	•	•	•			
rabett					•				
rabbatte					•	•	•		
rabbet					•	•	•		
rabit					•	•	•		
rabbit					•	•	•	•	•

rabbett						•				
rabytt						•				
rabbitt						•	•			
ribbit									•	US, Virginia

## OE

rabbert								•		Englis, regional, Devon
rabbut								•	•	South
rappit								•	•	Cheshire
rabat						•				Scot., pre-17 ??
rabatt						•				Pre-17 ??
rabbat						•				Pre-17
rabbet						•				Pre-17
rabbett						•				Pre-17
rabbitt						•				Pre-17
rebat						•				Pre-17
rebbet						•				Pre-17
rabet						•	•			Pre-17
rebbit									•	Irish English (north)
	11	12	13	14	15	16	17	18	19	

30 &lt;bb&gt;; 20 &lt;b&gt;

The A-N or French (*rabotte?*) source had a single <b>.

In earlier English *rabbit* referred to the young rabbit, adults being referred to with *cony*. The Anglo-Norman word for "rabbit" was *conie*, *conil*, *conin*. The forms with <et> may reflect this, since *-et* is a common diminutive suffix. Since *-et* tends to keep its [.] coloring, as the stress weakened in the second syllable, its spelling may have changed to <a> and <i> to reflect that reduced vowel sound.

The history of spellings here is consistent with the stress-frontshifting via the

French Lemon Rule and the increasing salience of VCC and the distinction between open and closed syllables.

rich	11	12	13	ME	15	EMnE	MnE	Notes		
	●	●		14		16	17	18	19	Early West Saxon
riecce										
rice	●	●								Hall & Merrick give several sources
riicnæ	●	●								Early accusative singular masculine, runic

OE

riccera	●	●								Genitive plural
riccra	●	●								"
ryce	●	●								Rare
rice	●	●	●							
rijche			●	●	●					
ruche			●	●	●					
ryche			●	●	●					
reche			●	●	●					
rech			●	●	●	●				
rych			●	●	●	●				
ryche			●	●	●	●				
riche			●	●	●	●	●			Archaic in 17 <sup>th</sup> century
rich			●	●	●	●	●	●	●	
ricche				●	●					
rutche					●					
rytche					●					
ritch					●	●				
ritche					●	●				

rytch					●	●				
reech								●		Irish English
rach						●	●			Scots.
rache						●	●			Scots.?
ratch						●	●			“
reche						●	●			“
reich						●	●			“
riche						●	●			“
richt						●	●			“
ritch						●	●			“
ritche						●	●			“
rych						●	●			“
ryche						●	●			“
reke			●	●	●					Chiefly north and north midlands
rik			●	●	●					“
rike			●	●	●					“
ryke			●	●	●					“
ric				●	●					“ In compounds
ryc				●	●					“ In compounds
raik						●	●			Scots
rik						●	●			“
ryck						●	●			“
ryik						●	●			“
ryk						●	●			“
rike						●	●		●	“
ryke						●	●		●	“

	11	12	13	14	15	16	17	18	19	
--	----	----	----	----	----	----	----	----	----	--

Initial <r> is persistent throughout. Old English <c> and <cc> above would be [ch] – that is, [t•]. I don't know what to say about the OE runic spelling, though it is probably also [ch].

The <ch> spelling appears in Middle English. The <tch> spelling does not appear until the 15<sup>th</sup> century, during the transition from Middle to Early Modern English. During the 15<sup>th</sup>, 16<sup>th</sup>, and 17<sup>th</sup> centuries, the two spellings <ch> and <tch> compete about evenly. But by the 18<sup>th</sup> century the <ch> spelling has become the standard, and <tch> occurs no more.

Pretty clearly the chiefly northern and Scots spellings in the bottom half of the table indicate a [k] pronunciation, not [ch].

The standardization to <ch> appears to be part of the emergence and increasing attraction of the CVC# pattern.

ditch	11	12	13	ME	15	EMnE	nE	MnE	nE	Notes
	●	●	●	14	●	16	17	18	19	H&M give several sources
dīc				●						
dich(e)			●	●	●	●				
dych(e)			●	●	●					
dicche			●	●	●					
ditche			●	●	●	●				
deche					●					
dytch					●					
ditch					●	●	●	●	●	
	11	12	13	14	15	16	17	18	19	

OE

The Old and Middle English *dīc* would have [ch] (Campbell, §433, p. 176). In early Middle English [ch] was most commonly <ch>. The *OED*'s first citation of the doublet equivalent <tch> is actually quite late, 1553. According to Jespersen (*Modern English Grammar*, 1: §2.744), "Instead of writing *chch* after a short vowel it was common enough in ME to write *cch*; but after the time of Caxton *tch* became the usual spelling at the end of native as well as of some F[rench] words: *fetch* (Caxton: *feche, fecche, fetche*) . . . ."

From roughly the 15<sup>th</sup> century the final <e> would have fallen silent and gradually in most cases would have been dropped in the spelling.

witch	OE		13	ME	15	EMnE		MnE		Notes
	11	12	●	14	●	16	17	18	19	
wicce	●	●		●						
wycce	●	●	●	●	●					
wicche			●	●	●					
wichche			●	●	●					
wychche			●	●	●					
wycche			●	●	●					
wiche			●	●	●					
wyche			●	●	●					
wech			●	●	●					
wich			●	●	●					
wytche			●	●	●					
wych			●	●	●					
witche			●	●	●	●				
weche			●	●	●					
wecch			●	●	●					
wesch			●	●	●					Scots.
wisch			●	●	●					Scots.?
which(e			●	●	●					
whitche			●	●	●					
wheche			●	●	●					
wytch			●	●	●					
vytche			●	●	●					Scots.
vych			●	●	●					“
weyche			●	●	●					“
witch					●	●	●	●	●	

	11	12	13	14	15	16	17	18	19	
--	----	----	----	----	----	----	----	----	----	--

The OE <cc>, <cch>, and <chch> spellings all indicate a double [ch].

In ME there are four spellings, three of which reflect the OE [chch] – <cch, chch, tch> – which by the 15<sup>th</sup> century have standardized to one, <tch>.

á. OE swelc, suelc, suælc, swælc, suoelc. Also ME swelk, suelk  
 â. OE swilc, OE–ME suilc, ME swilch, suilch.

ã. OE–ME swylc, ( swylic), OE, ME swulc, ME swulc(c)h, masc. acc. sing. swulne  
 2.á. ME suweche, ME sweche, (ME swheche, Kent. zuech, ME schwe(s)che)

â. ME, 18 Gloucs. dial. swich, ME suich, suyich, ME swiche, swych(e, (ME, swic, swyhc, svich, siwiche, suwiche, schuuych, ME Kent. zuich, zuyich, ME swyhche, sqwyche).

ã. ME swuch, ME swucch, swuc, shwuch, ME swoch.

3.á. ME sulch, swlc(h, solch. An early northern example of absorption of the w is given by soelce adv. in ~~Rituale Eccl. Dunelm. 19, 69.~~

â. ME selk(e, ~~ME sulk(e, ME silk(e~~ 4.á. ME seche, 18 dial. and vulgar sech, setch

â. ME– (now dial.) sich; also ME sych(e, ME–15 siche, 17– sitch, s.w. and Ireland zitch, zich  
 ME schyich, 15 schiche, shyche, scheich, shytt.

ã. ME– such; also ME suchch, ME–15 soch, ME–15 soche, ME–16 suche, (ME socch, ME sooche, suuche, swche, ME sucche, ME–16 souche, 15 souch, sutche, soyche, s.w. dial. zutche, 15–16 sutch) ME shuc, scuch, ME shoch, ME schwsche, 15 scwch, 15–16 shuch(e, 18 dial. shut.

such	11	12	13	ME	15	EMnE	MnE	Notes		
				14		16	17	18	19	
swelc										
suelc										
suælc										
swælc										

suoelc											
swelk											
suelk											
swilc											
suilc											
swilch											
suilch											
swylc											
swylic											
swulc											
swulc(c)h											
swulne											Masculine accusative singular
suweche											
sweche											
swheche											

**OE**

zuech											Kent
schwe(s)che											Gloucstershire dialect
swich											
suich											
suych											
swiche											
swych(e)											
swic											
swyhc											
svich											
siwiche											
suwiche											
schuuych											

zuich											Kent
zuych											Kent
swyhche											
sqwyche											
swuch											
swucch											
swuc											
shwuch											
swoch											
sulch											
swlc(h)											
solch											
selk(e)											
sulk(e)											
silk(e)											
seche											
sech											Dialectal and vulgar
setch											“
sich											Now dialectal
sych(e)											
siche											
sitch											
zitch											Southwest and Ireland
zich											“
schych											
schiche											
shyche											
scheich											
shytt											
<b>such</b>											

succh										
soch										
soche										
suche										
sooch										
sooche										
suuche										
swche										
sucche										
souche										
souch										
sutche										
soyche										
zutche										Southwest dialect
sutch										
shuc										
scuch										
shoch										
schwsche										
scwch										
shuch(e)										
shut										Dialectal
	11	12	13	14	15	16	17	18	19	

In OE *swelc*, *swilc*, *swylc*, *swylic*, the <lc> and <lic> are from the suffix *-lic*. *Such* etymologically goes back to something like *swa* “so” + *-lic* “like.” In ME both the [w] and the [l] were lost, and in time the spelling changed to reflect that loss. See Ekwall (1914, 1980), §134, “Loss of [w]”; for the loss of [l] see Ekwall, §127, “Loss of [l].”

In OE the final <c> would have been [ch]. *Such* appears in ME and persists thereafter. The <tch> spelling does not appear until the 15<sup>th</sup> century, in *sutch(e)*, and remains quite rare.

	OE		13	ME	15	EMnE		MnE	
	11	12		14		16	17	18	19
sceadwe	X								
sceaduwe	X								
sceadewe		X							
scadewe		X	X						
shadewe		X	X	X	X				
scheadewe			X						
scaudu			X						
sadue			X						
schadw(e)			X	X					
schadew(e)			X	X	X				
schadow			X	X	X	X	X		
schadu(e)				X					
shaldw				X					
shadw				X					
shadu				X					
shodow				X					
sadwe				X					
szadewe				X					
schedow				X					
schedaw				X					
shadue				X	X				
shadwe				X	X				
schadowe				X	X	X			
schaudow				X		X			
shaddowe				X	X	X	X		
shadowe				X	X	X	X		
schadou				X			X		
schado					X				
shadew					X				
shedow					X				
shaddow					X	X	X		
shadoe						X			
shadoo						X			

shadou							X			
shoddowe							X			
schaudou							X			
schaddou							X			
shaddow							X	X		
shaddou								X		
shadoue									X	
<b>shadow</b>						X	X	X	X	X

shaddowe										
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Initial Consonant	OE		13	ME	15	E	M	18	19	Values and <b>Attractors</b> Initial <ŷe> = [y] <ŷ> <ge>
	11	12		14		16	nE	17		
ŷ (x7)	●									_____
i (x2)	●	●								Initial <i>=[y]
f (x16)		●	●	●	●	●	●			Initial <f>=[y]
y (x13)		●	●	●	●	●	●	●	●	<u>Initial &lt;y&gt; = [y]</u>
u (x1)						●	●			Initial <u>=[yû]
ew (x1)						●				Initial <ew>=[yû]=

oy
ow
oo
oi
ou
w
ui
eo
eu
ew
uh

Probably the <ŷ> and <ge> initial spellings represented the primitive Germanic [y] from the very beginning in Old English. The spelling with the rune yogh probably didn't last much beyond the Norman Conquest and was replaced with f, a form of the Old English <g>, which persisted until the 17<sup>th</sup> century.

There are three short-lived outliers: <i>, <u>, <ew> – all of which make phonetic sense.

Vowel	11	12	13	ME	15	16	17	18	19	#	Values and <b>Attractors</b>
	●		●	14		●				7	
(e)o											
u	●				●	●	●	●	●	4	
o		●	●	●	●					6	

The first vowel is symbolized <(e)o> out of uncertainty whether to treat the <e> as  
**MnE**

**EMnE**      **MnE**

part of the consonant spelling or, more likely, as part of the vowel spelling, which would conflate it with <eo>.

Similarly, in *feol* and *feoll* the <e> may be treated as part of the spelling of initial consonant due to the descent of <f> from <ƿ>. Doing so adds <eo> above to <o>.

In *yewl* the <ew> is clearly spelling [û], but in *ewle* it appears to be spelling [yû].

There's a tendency for people to spell words the way they have seen them spelled, especially in writings that they respect for one reason or another.

The digraph spellings <oy, ow, oi, ui, eo, eu, ew> suggest various kinds of diphthongization.

### **Final <e> Deletion:**

ME takeyng, ME-16 takeing, ME-16 takeinge; Sc. pre-17 takein, pre-17 takeing, pre-17 tokyng ME- take ME-16 tak

taking	OE		13	ME	15	EMn	18	19	Notes
				•		•	E		
takeying	11	12		14		16	17		
				•					
takeing			•	•	•	•			
takeinge			•	•	•	•			
taking				•	•	•	•	•	•
takein						•			Scots
takeing						•			“
tokyng						•			“
take			•	•	•	•	•	•	•
tak			•	•	•	•			
	11	12	13	14	15	16	17	18	19

## MnE

No recorded <e> deletion in 13<sup>th</sup> through 16<sup>th</sup> centuries. In the quotations, *taking* with <e> deletion first occurs in the 14<sup>th</sup> century and continues thereafter. The infinitive *take* does not occur before 13<sup>th</sup> century, though the form *tak* also occurs between 13<sup>th</sup> and 16<sup>th</sup> centuries. So it's not always clear up through the 16<sup>th</sup> century

whether we are looking at a <taking> spelling that reflects <take> with final <e> deletion or <tak> via simple addition.

*OED* lists over 60 different spellings of *take* and some of its inflections. It lists even more for the similar *making*.

*Make* and *mak* both first occur in the 13<sup>th</sup> century.

IOE–eME macung, eME makunge, ME makeng, ME makenge, ME makeyng, ME makiinde, ME makkyng, ME making, ME–15 makeinge, ME–15 makyng, ME–15 makyng, ME–16 makeing, ME–16 makeinge, ME– making, 15 mackyng, 15 maken, 15 makeyng, 15 makung (transmission error), 15 makyne, 16 mackinge, 16 mackynge; Sc. pre-17 macken, pre-17 mackeyn, pre-17 macking, pre-17 mackyn, pre-17 macyn, pre-17 maickinge, pre-17 maikeng, pre-17 maiking, pre-17 makeing, pre-17 makene, pre-17 makkin, pre-17 makking, pre-17 makkyne, pre-17 makyn, pre-17 makynd, pre-17 makyne, pre-17 makyng, pre-17 17– making, 18– maken, 18– makin, 18– makin'.

making	11	12	13	ME	15	EMnE		MnE		Notes
	●	●	●	14		16	17	18	19	
macung				●						
makunge			●	●						
makeng			●	●	●					
makenge			●	●	●					
makeyng			●	●	●					
makiinde			●	●	●					
makkyng			●	●	●					
making			●	●	●					
makeinge			●	●	●					
makyng			●	●	●					
makyng			●	●	●					
makeing			●	●	●	●				
makeinge			●	●	●	●				
making			●	●	●	●	●	●	●	
mackyng					●					
maken					●					
makenyng					●					
makyne					●					
mackinge						●				
mackynge						●				

macken						●				
mackeyn						●				
macking						●				
mackyn						●				
macyn						●				
maickinge						●				
maikeng						●				
maiking						●				
makeing						●				
makene						●				
makkin						●				
makking						●				
makkyne						●				
makyn						●				
makynd						●				
makyne						●				
makyng						●				
making						●	●	●	●	
maken								●		
makin								●	●	
makin'								●	●	
mak			●	●	●	●				Northern English region
make			●	●	●	●	●	●	●	
	11	12	13	14	15	16	17	18	19	

Spellings with <mack> and <makk> suggest a short vowel, but the most common spellings, with <mak>, suggest a long vowel, though the northern *mak* could suggest a short one.

ME chengyng, ME–15 chaungeyng, 15 changeinge, 15 changeyng, 15

chaungeinge, 15 chaungeyng, 15–16 changeing, 15–16 chaungeing; also  
Sc. pre-17 chengeing

changing	11	12	13	ME	15	EMnE	MnE	Notes	
			●	14	●	16	17	18	19
chengyng				●					
chaungeyng			●	●	●				
changeinge					●				

■

changeyng					●					
chaungeinge					●					
chaungeyng					●	●				
changeing					●	●				
<b>changing</b>			●	●	●	●	●	●	●	
chaungeing					●	●				
chengeing						●				Scots.
	11	12	13	14	15	16	17	18	19	

In OE the notion of change was carried by words like *onwendan*, *edwenden*, *behwifan*. The word *change* was a 13<sup>th</sup> century adoption from Anglo-Norman *changir*, *chaunger*, *chaungier*; Anglo-Norman and Middle French *changier*, *changer*. Over time the following correspondences became increasingly strong attractors: (i) [ch]=<ch>, (ii) [ânj]=<ange>, and (iii) the present participle suffix = <ing>.

á. ME *cumyng*, ME–15 *cumyng*, ME–16 *cominge*, ME–16 *comyng*, ME–16 *comyng*, ME–16 *comyng*, ME–16 *cuming*, ME– coming, 15 *comeyng*, 15 *comeyng*, 15–16 *comeinge*, 15–17 *comeing*; Sc. pre-17 *comeing*, pre-17 *comeng*, pre-17 *cominge*, pre-17 *comyng*, pre-17 *cowmin*, pre-17 *cowmyn*, pre-17 *cumeng*, pre-17 *cumin*, pre-17 *cuming*, pre-17 *cuminge*, pre-17 *cumyn*, pre-17 *cumyne*, pre-17 *cumyng*, pre-17 *cumyng*, pre-17 *cwmin*, pre-17 *cwmine*, pre-17 *cwming*, pre-17 17– coming.

â. ME–15 *cummyng*, ME–15 *cummyng*, ME–16 *comminge*, ME–16 *commyng*, ME–16 *commyng*, ME–16 *cuming*, ME–17 *comming*, 15 *cuminge*, 16 *commeing*; Sc. pre-17 *comming*, pre-17 *comminge*, pre-17 *commyng*, pre-17 *commyng*, pre-17 *cuming*, pre-17 *cuminge*, pre-17 *cummyn*, pre-17 *cummyne*,



cwmine						●					“
cwming						●					“
cummyng			●	●	●						
cummynge			●	●	●						
comminge			●	●	●	●					
commyng			●	●	●	●					
commynge			●	●	●	●					
cumming			●	●	●	●					
comming			●	●	●	●					
cumminge					●						
commeing						●					
comming						●					Scots.
comminge						●					Scots?
commyng						●					“
commynge						●					“
cumming						●					“
cumminge						●					“
cummyn						●					“
cummyne						●					“
cummyng						●					“
cummynge						●					“
	11	12	13	14	15	16	17	18	19		

Spellings with <u> reflect Old English *cuman* “come.” Spellings with <o> reflect the Norman scribes’ replacement of <u> with <o> to avoid strings of minims.

Do <m> vs. <mm> spellings indicate indecision about long or short vowel? It appears that final <e> deletion became fairly early and widely in spellings with single <m>.

1542 N. Udall tr. Erasmus Apophthegmes ii. f. 205v Ale●ander hauyng passed ouer Hellespontus [L. transmisso Hellesponto], went to see Troie.

1584 H. Llwyd & D. Powel Hist. Cambria 61 Abloic king of Ireland landed in Môn, and hauing burnt Holyhed, spoiled the countrie of Lhynn.

- 1585 T. Washington tr. N. de Nicolay Navigations Turkie i. ●. f. 12b The Cape Matafuz, from whence (having sojourned there a night) we departed in the morning. 1614 W. Raleigh Hist. World i. v. vi. §2. 716 lustine, having recovered forces, lighted on Tiberius.
- 1681 Rector's Bk. Clayworth (1910) 52 Barley found dry in 3 Fields, having lain so, ever since sowing time.
- 1726 G. Leoni tr. L. B. Alberti Archit. II. 2/2 The having satisfied necessity is a very small matter.
- 1741 S. Richardson Pamela III. ●●●iii. 329 Having been thus tempted, thus try'd, by the Man she hated not,..Let her reform her Libertine.
- 1808 C. Stower Printer's Gram. 411 Having collated a gathering, he lays it on his left.
- 1854 J. Murdock tr. J. L. von Mosheim Hist. Comm. State of Christianity II. ●●iii.
- 117 The case of two deacons and an acolythist, who, having lapsed, again returned to the church.
- 1921 A. Lyons Heart to Heart 34 You will avoid the guilt of having allowed and abetted him to do the wrong thing.
- 1973 P. Arnold & C. Davis Hamlyn Bk. World Soccer 124/1 Argentina deliberately fielded a team made up of reserves, Italy having poached three of their star players. 2006 Family Circle Nov. 45/3 I don't care what other people think. Having said that, I won't be celebrating getting eye bags!

pre-17 leuuinge (present participle), =leaving

ME libbeing, ME lybbeing, 15–16 liveing, 16 lyveing; eOE libgende (Kentish), OE libende (rare), OE hlifigende (Northumbrian), OE lifgende, OE lifigende, OE lybbende, OE lyfgende, OE lyfigende, OE lyfynde (rare), OE–eME libbende, OE–eME lifiende, IOE leofigende, IOE liuiende, IOE lyuiende, eME leofand (in copy of OE charter), eME lifi ende, eME liui ende, eME libinde, eME liuihinde, eME luuiende (probably transmission error), ME leueande, ME leueynge, ME lieueand, ME liuiand (south-east midl.), ME liuiing, ME lyueande, IME luyunge (transmission error), 16 liveing.

living	11	12	13	ME	15	EMnE	MnE	Notes	
			x	14	x	16	17	18	19
libbeing				x					
lybbeing			x	x	x				
liveing					x	x			
lyveing						x			
libgende	x								Kentish
libende	x	x							Rare
hlifigende	x	x							Northumbrian
lifgende	x	x							
lifigende	x	x							
lybbende	x	x							
lyfgende	x	x							
lyfigende	x	x							
lyfynde	x	x							Rare
libbende	x	x	x						

lifiende	x	x	x							
leofigende		x								
liuiende		x								
lyuiende		X								
leofand			X							
lifi ende			X							
livi ende			X							
libinde			X							
liuihinde			X							
leueande			X	X	X					
leueynge			X	X	X					
liueand			X	X	X					
liuiand			X	X	X					Southeast Midlands
liuiing			X	X	X					
lyueande			X	X	X					
liveing						X				
	11	12	13	14	15	16	17	18	19	

## OE

1 libban, 2–4 li-, lybben, 3 *Orm.* libbenn.  $\beta$ . 1 lifian, lifigean, lyfan, -ian, leofian, -igean, *Northumb.* lifiga, 2–4 lifen, livien, 3 *Orm.* lifenn, 2–4, 6 liven; 3 leofen, leofven, (lioven, luvien), 4–5 lif(f(e), (4 lijf, lyfve, luf(e), 4–6 lyve(n, lyvie, -yn, *Sc.* leif(f(e), leyff, lyf(f(e), 5 lyf(e), (4–5 liwe, -i, -y, lywe); 2, 4–5 lef(en, 4–5 leven, -yn, (4 levin, loven), 5 lewyn, 5–6 leve, 6–7 *Sc.* leaf, leiv(e, 4– live.

OE lufung, ME lofyng, ME loouyng, ME looving, ME louengge, ME louiinge, ME lovyng, ME lovyngge, ME luffenge, ME lufing, ME lufinge, ME–15 louyngge, 15–16 louing, 16– loving; *Sc.* pre-17 louing, pre-17 lovinge, pre-17 lovyngge, pre-17 luffing, pre-17 luffyng, pre-17 lufing, pre-17 lufinge, pre-17 luiffing, pre-17 17– loving, 18 looin (rare)

IME redyng (Norfolk, present participle) =riding

Sc. pre-17 rising, pre-17 ryseing, pre-17 ryse

c1440 Promptorium Parvulorum 494/1 Tylynge, of howsys, tegulacio.

1591 R. Percyvall Bibliotheca Hispanica Dict. at Albañería Tiling, Tilers art, Masons craft.

1624 J. Smith Gen. Hist. Virginia vi. 209 Free-stone for building, Slate for tiling.

1726 G. Leoni tr. L. B. Alberti Archit. I. 57/1 Another..convenient way of Tiling.

In the English orthographic system there are tactical rules that describe the expected and conventional concatenations of sounds and spellings in the language. They reflect the way things have come to be done, have evolved, over the centuries. An example of a quite localized tactical rule is the statement that when spelling [k] in word-final position, so far as the choice between the spellings <k> and <ck> is concerned, [k] is spelled <k> if it is immediately preceded by a long vowel sound, a vowel digraph, or a consonant letter, but it is spelled <ck> if it is preceded by a short vowel unigraph. Thus *woke, weak, work, walk, wink* but *rack, reck, rick, rock, and ruck*. And thus, too, we recognize adoptions like *kayak, lek, bolshevik, wok, and mukluk* as relatively unassimilated alien forms, peripheral to the English spelling system. This emerging tactical choice between word-final <k> and <ck> is apparent in the history of native words as it becomes an attractor:

Spelling	11	12	13	ME	15	EMnE	MnE		
				14		16	17	18	19
crocca	•								

■,

Spelling	11	12	13	ME	15	EMnE	MnE		
				14		16	17	18	19
krocke			•						
crocke			•	•	•	•	•		
crokk(e)				•					

crok					•	•			
<b>crock</b>						•	•	•	•



ff<sup>5/8</sup> ⊕ 1/3 C<sub>R</sub> ∈ 1 V<sub>T</sub> L<sub>F</sub> L<sub>F</sub> H<sub>T</sub> 5/8 0000 ∈ - ⊙ L<sub>F</sub> 7/8 C<sub>R</sub> 1/8 C<sub>R</sub> 11/8 C<sub>U</sub> ∈ 0000 V<sub>T</sub> L<sub>F</sub> N<sub>L</sub> C<sub>R</sub> 1/3 N<sub>L</sub> 5/8 L<sub>F</sub> 1 N<sup>5/8</sup>  
 0001 L<sub>F</sub> 5/8 C<sub>R</sub> L<sub>F</sub> ∈ - N<sub>L</sub> <sup>5/8</sup> 5/8 ⊕ 10/00 V<sub>T</sub> N<sub>L</sub> ∈ 1 - 1/3 C<sub>R</sub> R<sub>S</sub> 1/8 1 N<sup>5/8</sup> H<sub>T</sub> 5/8 N<sub>L</sub> ∈ N<sub>L</sub> ∈ 1 - 3/4 - C<sub>R</sub> 11/8 1/8 1/3  
 i<sup>5/8</sup> ∫ 3/8 ∈ C<sub>R</sub> 5/8 1/8 N<sub>L</sub> 000 R<sub>S</sub> 7/8 C<sub>R</sub> 1 N<sup>5/8</sup> ■ 0/00 3/8 > - ⊙ 000 ∈ L<sub>F</sub> ⊙ L<sub>F</sub> H<sub>T</sub> 5/8 0000 ∈ - ⊙ 1/3 - 3/8  
 1/8 C<sub>R</sub> 1 C<sub>U</sub> 5/8 i<sup>5/8</sup> ∫ 5/8 N<sup>5/8</sup> H<sub>T</sub> 000 1 R<sub>S</sub> '1/8 1/8' 1/3 - 3/8 'C<sub>U</sub> C<sub>U</sub>' N<sub>L</sub> 1 C<sub>R</sub> 5/8 H<sub>T</sub> C<sub>R</sub> 5/8 L<sub>F</sub> 5/8 - N<sub>L</sub> N<sub>L</sub> <sup>5/8</sup>  
 ⊙ 1/3 C<sub>R</sub> 3/8 F<sub>C</sub> U<sub>E</sub> L<sub>F</sub> 1 V<sub>T</sub> - 3/8 1/3 7/8 N<sub>L</sub> 5/8 C<sub>R</sub> 1/3 L<sub>F</sub> ⊙ 1 C<sub>R</sub> N<sub>L</sub> ⊕ 1 W<sup>5/8</sup> 000 V<sub>T</sub> - ∈ ⊙ C<sub>R</sub> 1/3 H<sub>T</sub> ⊙ P<sub>t</sub> ff<sup>5/8</sup>  
 C<sub>R</sub> 5/8 000 1/3 N<sub>L</sub> ∈ ⊕ 5/8 000 R<sub>S</sub> 000 1/3 N<sub>L</sub> 5/8 1/3 - 3/8 L<sub>F</sub> ⊙ 1 C<sub>R</sub> N<sub>L</sub> ¥ 000 ∈ ⊕ 5/8 3/8 1/8 C<sub>R</sub> 1 C<sub>U</sub> C<sub>R</sub> V<sub>T</sub> - L<sub>F</sub>  
 1/8 1 V<sub>T</sub> - N<sub>L</sub> 5/8 C<sub>R</sub> N<sub>L</sub> 1 N<sub>L</sub> <sup>5/8</sup> 5/8 N<sup>5/8</sup> C<sub>R</sub> ⊙ ∈ - ⊙ N<sub>L</sub> 1/3 1/8 N<sub>L</sub> ∈ 1/8 1/3 000 H<sub>T</sub> 1/3 N<sub>L</sub> N<sub>L</sub> 5/8 C<sub>R</sub> - 7/8 1 C<sub>R</sub> N<sub>L</sub> <sup>5/8</sup>  
 V<sub>T</sub> L<sub>F</sub> 5/8 17/8 'C<sub>U</sub> P<sub>t</sub> - C<sub>R</sub> 11/8 C<sub>U</sub> 5/8 L<sub>F</sub> H<sub>T</sub> 1/3 - L<sub>F</sub> 7/8 ∈ ⊕ 5/8 1/8 5/8 - N<sub>L</sub> V<sub>T</sub> C<sub>R</sub> ∈ 5/8 L<sub>F</sub> 1/3 - 3/8  
 L<sub>F</sub> 1/3 N<sub>L</sub> ∈ L<sub>F</sub> 7/8 ∈ 5/8 L<sub>F</sub> N<sub>L</sub> <sup>5/8</sup> N<sub>L</sub> 1/3 1/8 N<sub>L</sub> ∈ 1/8 L<sub>F</sub> 7/8 1 C<sub>R</sub> 'C<sub>U</sub>' 1/3 - 3/8 '1/8 C<sub>U</sub> ' 3/8 V<sub>T</sub> C<sub>R</sub> ∈ - ⊙ 1/3 - 3/8  
 1/3 7/8 N<sub>L</sub> 5/8 C<sub>R</sub> N<sub>L</sub> <sup>5/8</sup> N<sub>L</sub> ∈ N<sup>5/8</sup> N<sub>L</sub> ⊙ 1/3 N<sub>L</sub> 7/8 ∈ - 1/3 000 '5/8' W<sup>1/3</sup> L<sub>F</sub> - 1 - 3/8 ∈ 1/3 1/8 C<sub>R</sub> ∈ N<sub>L</sub> ∈ 1/8 1/3 000  
 1/3 - 3/8 L<sub>F</sub> N<sub>L</sub> ∈ 000 000 H<sub>T</sub> C<sub>R</sub> 1 - 1 V<sub>T</sub> - 1/8 5/8 3/8 P<sub>t</sub> ‡ N<sub>L</sub> 1 ⊕ 5/8 C<sub>R</sub> 000 1/3 H<sub>T</sub> L<sub>F</sub> W<sup>5/8</sup> ∈ N<sub>L</sub> ⊙ N<sub>L</sub> <sup>5/8</sup>  
 N<sup>5/8</sup> 1/3 5/8 C<sub>R</sub> - 1/8 C<sub>R</sub> 11/8 C<sub>U</sub> L<sub>F</sub> 1 N<sub>L</sub> ⊙ 1/3 N<sub>L</sub> N<sub>L</sub> <sup>5/8</sup> N<sub>L</sub> W<sup>1</sup> 17/8 N<sub>L</sub> <sup>5/8</sup> N<sup>5/8</sup> 5/8 N<sup>5/8</sup> N<sub>L</sub> 5/8 - 3/8 7/8 C<sub>R</sub> 1 N<sup>5/8</sup> N<sub>L</sub> <sup>5/8</sup>  
 ⊙ 1/4 1/8 5/8 - N<sub>L</sub> V<sub>T</sub> C<sub>R</sub> R<sub>S</sub> N<sub>L</sub> 1 N<sub>L</sub> <sup>5/8</sup> ⊙ N<sub>L</sub> ⊙ P<sub>t</sub>

- V<sub>T</sub> N<sub>L</sub> W<sup>1</sup> C<sub>R</sub> 3/8 ¥ 7/8 ∈ - 1/3 000 F<sub>C</sub> U<sub>E</sub> ∈ L<sub>F</sub> L<sub>F</sub> H<sub>T</sub> 5/8 000 000 5/8 3/8 'C<sub>U</sub>' W<sup>5/8</sup> - ∈ N<sub>L</sub> 7/8 10/00 000 1 W<sup>1</sup> L<sub>F</sub>  
 1/3 000 1 - ⊙ ⊕ 1 W<sup>5/8</sup> 000 L<sub>F</sub> 1 V<sub>T</sub> - 3/8 1/3 ⊕ 1 W<sup>5/8</sup> 000 3/8 ∈ ⊙ C<sub>R</sub> 1/3 H<sub>T</sub> ⊙ 1 C<sub>R</sub> 1/3 1/8 1 - L<sub>F</sub> 1 - 1/3 - N<sub>L</sub>  
 000 5/8 N<sub>L</sub> N<sub>L</sub> 5/8 C<sub>R</sub> P<sub>t</sub> ⊙ 1 C<sub>R</sub> ∈ - L<sub>F</sub> N<sub>L</sub> 1/3 - 1/8 5/8 1/3 N<sub>L</sub> <sup>5/8</sup> ■ > 000 ∈ L<sub>F</sub> N<sub>L</sub> L<sub>F</sub> 1/2 1/2 3/8 ∈ 7/8 7/8 5/8 C<sub>R</sub> 5/8 - N<sub>L</sub>  
 L<sub>F</sub> H<sub>T</sub> 5/8 000 000 ∈ - ⊙ L<sub>F</sub> 17/8 3/8 1/3 C<sub>R</sub> C<sub>U</sub> 1/3 L<sub>F</sub> N<sub>L</sub> C<sub>R</sub> 5/8 N<sub>L</sub> 1/8 ⊙ ∈ - ⊙ 7/8 C<sub>R</sub> 1 N<sup>5/8</sup> N<sub>L</sub> <sup>5/8</sup> ⊙  
 1/8 5/8 - N<sub>L</sub> V<sub>T</sub> C<sub>R</sub> R<sub>S</sub> N<sub>L</sub> 1 N<sub>L</sub> <sup>5/8</sup> H<sub>T</sub> C<sub>R</sub> 5/8 L<sub>F</sub> 5/8 - N<sub>L</sub> 3/4

Spelling	OE		13	ME	15	EMnE		MnE	
	11	12		14		16	17	18	19
deorc	•	•							
dearc			•						
derc			•						

dorc			•						
dorck			•						
darc			•						
darck			•						
deork			•						
durc			•						
derk			•	•	•	•			
deorke				•					
durke				•					
derke				•	•	•			
dirk(e)				•	•	•			
dyrk				•	•	•			

Spelling	OE		13	ME	15	EMnE		MnE	
	11	12		14		16	17	18	19
darke				□	•	•	•		
derck					•				
dyrke					•				
dork					•				
darck						•			
dearcke						•			
<b>dark</b>						•	•	•	•

$\circlearrowleft R$   $N_L^{05/8}$   $N^{01}L^N$   $H_T^{1/3}R^N$   $N_L^{05/8}$   $\circlearrowleft R^{5/8}1/3N_L$   $\oplus 1/3R^E5/8N_L$   $Rs$   $\in L^F$   $3/8V^{5/8}$   $N_L^1$   $\oplus 1/3R^E1/3N_L$   $\in 1-$   $\in -$   $N_L^{05/8}$   
 $N^{05/8}3/8\in 1/3\%00$   $\oplus 1W^{5/8}\%00$   $L^F1V^T-3/8P_t$   $\ddagger \circlearrowleft R^E-\circlearrowleft N_L^{01/3}N_L$   $7/8^1R^N$   $N_L^{05/8}$   $N_L\in N^{05/8}$   $2/35/8\in -\circlearrowleft N_L^{05/8}$   $1/21/2$   
 $L^FH^{5/8}\%00\%00\in -\circlearrowleft R^F$   $R^{5/8}3/8V^T1/85/8$   $3/81W^N$   $N_L^1$   $N_L^{05/8}$   $7/8^1\%00\%001W^E-\circlearrowleft 1/81/3-1-\in 1/8$   $7/8^1R^N$   $\circlearrowleft L^F$   $W^E N_L^0$   $\square ffl \square$   
 $R^F5/8H^T R^F5/8L^F5/8-N_L\in -\circlearrowleft N_L^{05/8}$   $\oplus 1W^{5/8}\%003/4$

$\circlearrowleft P_t$   
 $3/8ffl R^1/8$   
 $1/2P_t$   
 $3/8ffl R^1/8\%u$

1/4P<sub>t</sub>  
 3/8ffl<sub>R</sub>1/8%  
 5/8 C<sub>P</sub>  
 3/8ffl<sub>R</sub>5/8  
 2P<sub>t</sub>  
 3/8ffl<sub>R</sub>%

Canonic Form	OE	13	ME	15	EMhE		MnE	
	11	12	14	16	17	18	19	
dVrc	•	•	•					
dVrck			•		•	•		
dVrcke						•		
dVrke				•	•	•	•	
dVrk			•	•	•	•	•	•

ff<sup>5/8</sup> ⊕<sup>5/8</sup> R<sub>R</sub>S 5/8<sup>1/3</sup> R<sub>00</sub>Rs 3/8ffl<sub>R</sub>1/8 7/8<sup>1</sup> R<sub>N</sub><sup>0</sup> R<sub>5/8</sub><sup>7/8</sup>00<sup>5/8</sup>1/8<sup>N</sup>L<sub>F</sub> N<sub>L</sub><sup>05/8</sup> -1<sub>R</sub>N<sup>01/3</sup>00 '1/8' L<sub>F</sub>H<sub>T</sub>5/8<sup>00</sup>00€-<sup>0</sup> 17/8  
 F<sub>0</sub>€ €- ■<sup>0003/8</sup> >-<sup>000</sup>€L<sub>F</sub>0<sub>P</sub>t "L<sub>F</sub> €- 1<sub>N</sub>L<sup>05/8</sup>R<sub>W</sub>1<sub>R</sub>3/8L<sub>F</sub>€ N<sub>L</sub><sup>05/8</sup> '1/8%' L<sub>F</sub>H<sub>T</sub>5/8<sup>00</sup>00€-<sup>0</sup> 3/8<sup>15/8</sup>L<sub>F</sub> -1<sub>N</sub>  
 1/3<sup>H</sup>T<sub>H</sub>5/8<sup>1/3</sup>R<sub>V</sub>T-N<sub>L</sub>€<sup>00</sup> 1/3<sup>7/8</sup>N<sub>L</sub>5/8<sub>R</sub> N<sub>L</sub><sup>05/8</sup> -1<sub>F</sub>V<sub>T</sub>5/8L<sub>F</sub>N<sub>L</sub>P<sub>t</sub> -1/3-1-€1/8L<sub>F</sub> -V<sub>T</sub>N<sup>02/3</sup>5/8<sub>R</sub> 0<sub>€</sub> 1/2<sub>€</sub> 1/3-3/8 1/4 □  
 '3/8ffl<sub>R</sub>1/8'€ '3/8ffl<sub>R</sub>1/8%'€ '3/8ffl<sub>R</sub>1/8%'5/8' □ 1/3<sup>0000</sup> R<sub>V</sub>T- 1/8<sup>1</sup>V<sub>T</sub>-N<sub>L</sub>5/8<sub>R</sub> N<sub>L</sub><sup>1</sup> N<sub>L</sub><sup>05/8</sup> 5/8N<sup>05/8</sup>R<sub>05/8</sub>-N<sub>L</sub> -1/3<sub>N</sub>€ ⊕<sup>5/8</sup>  
 1/3<sub>N</sub>N<sub>L</sub>R<sub>1/3</sub>1/3<sub>N</sub>L<sub>1</sub>R<sub>€</sub> €- W<sup>0</sup>€1/8<sup>0</sup> W<sup>1</sup>R<sub>3/8</sub>¥7/8€-1/3<sup>00</sup> F<sub>R</sub>0<sub>€</sub> €- N<sub>L</sub><sup>05/8</sup> -1/3<sub>N</sub>€ ⊕<sup>5/8</sup> L<sub>F</sub>N<sub>L</sub>R<sub>1/3</sub>-3/8 L<sub>F</sub>  
 L<sub>F</sub>H<sub>T</sub>5/8<sup>00</sup>00<sup>5/8</sup>3/8 'R<sub>0</sub>%'P<sub>t</sub> o<sub>V</sub>TN<sup>02/3</sup>5/8<sub>R</sub>L<sub>F</sub> 1/4 1/3-3/8 C 1/8<sup>1</sup>V<sub>T</sub>-N<sub>L</sub>5/8<sub>R</sub> N<sub>L</sub><sup>05/8</sup> 5/8<sup>1/8</sup>1-1<sup>N</sup>0<sub>Rs</sub> 3/8<sup>5/8</sup>N<sup>01/3</sup>-3/8<sub>€</sub>  
 2/3<sup>5/8</sup>1/8<sup>1/3</sup>V<sub>T</sub>L<sub>F</sub>5/8 17/8 N<sub>L</sub><sup>05/8</sup> L<sub>F</sub>V<sub>T</sub>H<sub>T</sub>5/8<sub>R</sub>7/8<sup>00</sup>V<sub>T</sub>1<sub>V</sub>L<sub>F</sub> 7/8€-1/3<sup>00</sup> '5/8'P<sub>t</sub> ‡<sup>0</sup>-1<sub>R</sub>€-<sup>0</sup> 7/8<sup>1</sup>R<sub>N</sub><sup>05/8</sup> N<sub>L</sub>€N<sup>05/8</sup> 2/3<sup>5/8</sup>€-<sup>0</sup>  
 N<sub>L</sub><sup>05/8</sup> N<sub>L</sub><sup>1/3</sup>-<sup>00</sup>0<sup>5/8</sup> 17/8 ⊕<sup>1</sup>W<sup>5/8</sup>0<sup>00</sup> L<sub>F</sub>H<sub>T</sub>5/8<sup>00</sup>00€-<sup>0</sup>L<sub>F</sub>€ 3/8<sup>1/3</sup>R<sub>0</sub>% 5/8N<sup>05/8</sup>R<sub>05/8</sub>L<sub>F</sub> 1/3L<sub>F</sub> N<sub>L</sub><sup>05/8</sup> H<sub>T</sub>R<sub>5/8</sub>7/8<sup>5/8</sup>R<sub>5/8</sub>3/8<sub>€</sub>  
 1/3-3/8 7/8€-1/3<sup>00</sup>00<sub>Rs</sub> 1/8<sup>1</sup>R<sub>R</sub>5/8<sup>1/8</sup>N<sub>L</sub>€ L<sub>F</sub>H<sub>T</sub>5/8<sup>00</sup>00€-<sup>0</sup>P<sub>t</sub>

1/3<sub>R</sub>W€- 1- N<sub>L</sub><sup>05/8</sup> 5/8 ⊕<sup>10</sup>00<sub>V</sub>T<sub>N</sub>€1- 17/8 000<sup>1/3</sup>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>P<sub>t</sub>W<sub>H</sub>T<sub>3/8</sub>  
 1/3<sub>R</sub>W€- 1- N<sub>L</sub><sup>05/8</sup> 5/8 ⊕<sup>10</sup>00<sub>V</sub>T<sub>N</sub>€1- 17/8 000<sup>1/3</sup>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>€ 7/8<sub>R</sub>1<sup>N</sup>0 ff<sup>05/8</sup> <5/8L<sub>F</sub>1/8<sup>5/8</sup>-N<sub>L</sub> 17/8 ●1/3-€ -<sup>0</sup>1/3<sub>H</sub>T<sub>N</sub>5/8<sub>R</sub>  
 1/4<sub>€</sub> □R<sub>1/3</sub>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>□3/4 □ff<sup>05/8</sup> 7/8<sup>1</sup>R<sub>N</sub><sup>01/3</sup>N<sub>L</sub>€1- 17/8 3/8€7/8<sup>7/8</sup>5/8<sub>R</sub>5/8-N<sub>L</sub> 000<sup>1/3</sup>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>L<sub>F</sub> 1/3-3/8 17/8  
 3/8€L<sub>F</sub>N<sub>L</sub>€-1/8<sub>N</sub>L<sub>F</sub>H<sub>T</sub>5/8<sup>1/8</sup>€5/8L<sub>F</sub>€ 1/3-3/8 N<sub>L</sub><sup>05/8</sup> H<sub>T</sub>R<sub>117/8</sub>L<sub>F</sub> N<sub>L</sub><sup>01/3</sup>N<sub>L</sub> 2/3<sup>1</sup>N<sub>L</sub> ⊕<sup>1/3</sup> ⊕<sup>5/8</sup> 2/3<sup>5/8</sup>€- 3/8<sup>5/8</sup> ⊕<sup>5/8</sup>00<sup>1</sup>H<sub>T</sub>5/8<sup>3/8</sup>  
 N<sub>L</sub>€R<sub>1</sub>V<sub>T</sub>⊕<sup>1/3</sup> ⊕<sup>R</sup>1/3<sup>3/8</sup>V<sub>T</sub>1/3<sup>00</sup> H<sub>T</sub>R<sub>11</sub>5/8<sup>5/8</sup>L<sub>F</sub>L<sub>F</sub>€ 1/3<sub>R</sub>5/8 1/8<sub>V</sub>T<sub>R</sub>€1<sub>V</sub>L<sub>F</sub>00<sub>Rs</sub> H<sub>T</sub>1/3<sub>R</sub>1/3<sup>00</sup>00<sup>5/8</sup>00<sub>P</sub>t « -V<sub>T</sub>N<sub>L</sub> W<sup>5/8</sup> 1/8<sup>1/3</sup>-  
 N<sub>L</sub>R<sub>1/3</sub>1/8<sup>5/8</sup> N<sub>L</sub><sup>05/8</sup> 7/8<sup>1</sup>R<sub>N</sub><sup>01/3</sup>N<sub>L</sub>€1- 17/8 N<sup>01/3</sup>-R<sub>S</sub> W<sup>1</sup>R<sub>3/8</sub>L<sub>F</sub> 7/8<sub>V</sub>T<sub>R</sub>N<sub>L</sub><sup>05/8</sup>R<sub>2/3</sub>1/3<sup>1/8</sup>% N<sub>L</sub><sup>01/3</sup>- N<sub>L</sub><sup>01/3</sup>N<sub>L</sub> 17/8  
 L<sub>F</sub>H<sub>T</sub>5/8<sup>1/8</sup>€5/8L<sub>F</sub>€ 7/8<sup>1</sup>R<sub>W</sub>5/8 1/8<sup>1/3</sup>- H<sub>T</sub>5/8<sub>R</sub>1/8<sup>5/8</sup>€ ⊕<sup>5/8</sup> ⊕<sup>1</sup>W<sub>N</sub><sup>05/8</sup>Rs 1/3<sup>1/8</sup>N<sub>L</sub>V<sub>T</sub>1/3<sup>00</sup>00<sub>Rs</sub> 1/3<sub>R</sub>1<sub>L</sub>F<sub>5/8</sub> 7/8<sub>R</sub>1<sup>N</sup>0 N<sub>L</sub><sup>05/8</sup>  
 €N<sup>0</sup>€N<sub>L</sub>1/3<sub>N</sub>€1- 17/8 ⊕<sup>1/3</sup>R<sub>€</sub>1<sub>V</sub>L<sub>F</sub> L<sub>F</sub>1<sub>V</sub>T-3/8L<sub>F</sub>P<sub>t</sub> fi<sup>5/8</sup> 7/8€-3/8 €- 3/8€L<sub>F</sub>N<sub>L</sub>€-1/8<sub>N</sub>L<sub>00</sub>1/3-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>L<sub>F</sub> L<sub>F</sub>N<sub>L</sub>R<sub>€</sub>%€-<sup>0</sup>  
 ⊕<sup>1</sup>N<sup>01/3</sup>00<sup>1</sup>⊕<sup>05/8</sup>L<sub>F</sub> 3/8<sub>V</sub>T<sub>5/8</sub> N<sub>L</sub> 1/8<sup>1</sup>N<sup>0</sup>N<sup>0</sup>V<sub>T</sub>-€N<sub>L</sub>Rs 17/8 3/8<sup>5/8</sup>L<sub>F</sub>1/8<sup>5/8</sup>-N<sub>L</sub>€ 1/3-3/8 1/3-1/3<sup>00</sup>1<sup>0</sup>⊕<sup>05/8</sup>L<sub>F</sub> 3/8<sub>V</sub>T<sub>5/8</sub> N<sub>L</sub> 1/3  
 L<sub>F</sub>€N<sup>0</sup>€00<sup>1/3</sup>R<sub>H</sub>T<sub>R</sub>11<sup>5/8</sup>8<sup>5/8</sup>L<sub>F</sub>L<sub>F</sub> 17/8 7/8<sup>1</sup>R<sub>N</sub><sup>01/3</sup>N<sub>L</sub>€1-P<sub>t</sub> ff<sup>05/8</sup> N<sup>01/3</sup>-<sup>0</sup>5/8<sub>R</sub> €- W<sup>0</sup>€1/8<sup>0</sup> 1/8<sup>5/8</sup>R<sub>N</sub>1/3€-  
 000<sup>5/8</sup>N<sub>L</sub>5/8<sub>R</sub>L<sub>F</sub> 1<sub>R</sub> L<sub>F</sub>1<sub>V</sub>T-3/8L<sub>F</sub> 1/8<sup>01/3</sup>-<sup>05/8</sup> W<sup>05/8</sup>- 1<sub>N</sub>L<sup>05/8</sup>R<sub>L</sub>F 1/8<sup>01/3</sup>-<sup>05/8</sup> €L<sub>F</sub> ⊕<sup>5/8</sup>R<sub>Rs</sub> 000€%5/8  
 1/8<sup>1</sup>R<sub>R</sub>5/8<sup>00</sup>1/3<sub>N</sub>L<sub>5/8</sub>3/8 ⊕<sup>R</sup>1<sub>W</sub>N<sub>L</sub>⊕<sub>P</sub>t fi<sup>5/8</sup> ⊕<sup>1/3</sup> ⊕<sup>5/8</sup> €- 2/3<sup>1</sup>N<sub>L</sub> ⊕<sup>1/8</sup>1/3<sub>L</sub>F<sub>5/8</sub>L<sub>F</sub> N<sub>L</sub><sup>05/8</sup> R<sub>5/8</sub>¥3/8<sub>V</sub>T<sub>H</sub>T<sub>00</sub>€1/8<sup>1/3</sup>N<sub>L</sub>€1- 17/8  
 H<sub>T</sub>1/3<sub>R</sub>N<sub>L</sub>L<sub>F</sub>€ N<sub>L</sub><sup>05/8</sup> 5/8<sup>7/8</sup>7/8<sup>5/8</sup>1/8<sup>N</sup>L<sub>F</sub> 17/8 000<sup>1</sup>-<sup>0</sup>¥1/8<sup>1</sup>-N<sub>L</sub>€-V<sub>T</sub>5/8<sup>3/8</sup> V<sub>T</sub>L<sub>F</sub>5/8€ 1/3-3/8 L<sub>F</sub>1 7/8<sup>1</sup>R<sub>N</sub><sup>0</sup>P<sub>t</sub> ff<sup>05/8</sup> 7/8<sub>R</sub>5/8<sub>F</sub>V<sub>T</sub>5/8-N<sub>L</sub>  
 H<sub>T</sub>R<sub>5/8</sub>L<sub>F</sub>5/8-1/8<sup>5/8</sup> 17/8 R<sub>V</sub>T<sub>3/8</sub>€N<sup>05/8</sup>-N<sub>L</sub>L<sub>F</sub>€ 2/3<sup>1</sup>N<sub>L</sub> ⊕<sup>€</sup>- 000<sup>1/3</sup>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>L<sub>F</sub> 1/3-3/8 €- L<sub>F</sub>H<sub>T</sub>5/8<sup>1/8</sup>€5/8L<sub>F</sub>€ L<sub>F</sub>  
 L<sub>F</sub>N<sub>L</sub>€000<sup>00</sup> N<sup>01</sup>R<sub>5/8</sub> R<sub>5/8</sub>N<sup>01/3</sup>R<sub>0</sub>%1/3<sup>2/3</sup>00<sup>5/8</sup>P<sub>t</sub> ff<sup>05/8</sup> 000<sup>5/8</sup>N<sub>L</sub>5/8<sub>R</sub> N<sup>0</sup>€- N<sub>L</sub><sup>05/8</sup> W<sup>1</sup>R<sub>3/8</sub> 1/3<sub>N</sub>€ N<sup>05/8</sup>1/3-L<sub>F</sub> □<sub>3</sub> L<sub>F</sub>  
 N<sub>L</sub><sup>01/3</sup>N<sub>L</sub> €- N<sub>L</sub><sup>05/8</sup> 5/8<sub>H</sub>T<sub>R</sub>5/8<sub>L</sub>F<sub>L</sub>€1- ‡ 1/3<sub>N</sub>€ 1/3 L<sub>F</sub>V<sub>T</sub>H<sub>T</sub>5/8<sub>R</sub>7/8<sup>00</sup>V<sub>T</sub>1<sub>V</sub>L<sub>F</sub> 1/3-3/8 V<sub>T</sub>L<sub>F</sub>5/8<sup>00</sup>5/8<sub>L</sub>F<sub>L</sub>€ R<sub>V</sub>T<sub>3/8</sub>€N<sup>05/8</sup>-N<sub>L</sub>  
 ⊕<sup>1/3</sup>L<sub>F</sub> 2/3<sup>5/8</sup>€- R<sub>5/8</sub>N<sub>L</sub>1/3€-5/8<sup>3/8</sup>P<sub>t</sub> ‡- N<sub>L</sub><sup>05/8</sup> L<sub>F</sub>H<sub>T</sub>5/8<sup>00</sup>00€-<sup>0</sup> 1/3<sup>00</sup>L<sub>F</sub> 17/8 W<sup>1</sup>R<sub>3/8</sub>L<sub>F</sub>€ 000<sup>5/8</sup>N<sub>L</sub>5/8<sub>R</sub>L<sub>F</sub> 17/8<sub>N</sub>5/8-  
 R<sub>5/8</sub>N<sup>01/3</sup>€- 1/3L<sub>F</sub> N<sub>L</sub><sup>05/8</sup> R<sub>V</sub>T<sub>3/8</sub>€N<sup>05/8</sup>-N<sub>L</sub>L<sub>F</sub> 17/8 1/3-1/8€5/8-N<sub>L</sub> 7/8<sup>1</sup>R<sub>N</sub><sup>0</sup>L<sub>F</sub> 17/8 H<sub>T</sub>R<sub>1</sub>-V<sub>T</sub>-1/8€1/3<sub>N</sub>€1-P<sub>t</sub>  
 R<sub>1/3</sub>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>L<sub>F</sub>€ 000€%5/8 1<sub>R</sub>⊕<sup>1/3</sup>-€1/8 2/3<sup>5/8</sup>€-<sup>0</sup>L<sub>F</sub>€ 1/8<sup>1/3</sup>- 2/3<sup>5/8</sup> 1/8<sup>00</sup>1/3<sub>L</sub>F<sub>5/8</sub>3/8 €- ⊕<sup>R</sup>1<sub>V</sub>T<sub>H</sub>T<sub>F</sub> V<sub>T</sub>-3/8<sup>5/8</sup>R<sub>€</sub>  
 ⊕<sup>R</sup>1<sub>V</sub>T<sub>H</sub>T<sub>F</sub> 1/3-3/8 N<sub>L</sub><sup>05/8</sup>Rs 1/8<sup>1/3</sup>- 2/3<sup>5/8</sup> 1/8<sup>00</sup>1/3<sub>L</sub>F<sub>5/8</sub>3/8 5/8€N<sub>L</sub><sup>05/8</sup>R<sub>-1/3</sub>N<sub>L</sub>V<sub>T</sub>R<sub>1/3</sub>00<sup>00</sup>Rs 1/3<sup>1/8</sup>1/8<sup>1</sup>R<sub>3/8</sub>€-<sup>0</sup> N<sub>L</sub><sup>1</sup>  
 3/8<sup>5/8</sup>L<sub>F</sub>1/8<sup>5/8</sup>-N<sub>L</sub>€ 1<sub>R</sub> 1/3<sub>R</sub>N<sub>L</sub>€7/8€1/8€1/3<sup>00</sup>00<sub>Rs</sub> 2/3<sub>Rs</sub> 1<sub>N</sub>L<sup>05/8</sup>R<sub>1/8</sub>⊕<sup>1/3</sup>R<sub>1/3</sub>1/8<sup>N</sup>5/8<sub>R</sub>L<sub>F</sub>P<sub>t</sub> <1<sup>N</sup>€-1/3-N<sub>L</sub> 000<sup>1/3</sup>-<sup>0</sup>V<sub>T</sub>1/3<sup>05/8</sup>L<sub>F</sub>  
 1/3-3/8 3/8€1/3<sup>00</sup>5/8<sup>1/8</sup>N<sub>L</sub>L<sub>F</sub> L<sub>F</sub>H<sub>T</sub>R<sub>5/8</sub>1/3<sup>3/8</sup> W<sup>€</sup>3/8<sup>5/8</sup>00<sub>Rs</sub>€ 1/3-3/8 000<sup>5/8</sup>1/3<sup>3/8</sup> N<sub>L</sub><sup>1</sup> N<sub>L</sub><sup>05/8</sup> ⊕<sup>R</sup>1/3<sup>3/8</sup>V<sub>T</sub>1/3<sup>00</sup> 5/8<sub>H</sub>N<sub>L</sub>€-1/8<sub>N</sub>€1-

17/8 1<sub>N</sub> 0<sub>5/8</sub> C<sub>R</sub> N<sub>L</sub> 1-0<sub>V</sub> 5/8 L<sub>F</sub> P<sub>t</sub> “ 0<sub>0</sub> 1/3-0<sub>V</sub> 1/3 0<sub>5/8</sub> 0<sub>0</sub> € 0<sub>5/8</sub> 1/3 L<sub>F</sub> H<sub>T</sub> 5/8 1/8 € 5/8 L<sub>F</sub> 0<sub>5/8</sub> 1-1/8 5/8 5/8 N<sub>L</sub> € -1/8 N<sub>L</sub> €  
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 H<sub>T</sub> 1 W<sub>1</sub> 5/8 C<sub>R</sub> L<sub>F</sub> 17/8 N<sub>L</sub> 0<sub>5/8</sub> N<sub>L</sub> 0<sub>5/8</sub> N<sub>L</sub> 0<sub>5/8</sub> C<sub>R</sub> R<sub>S</sub> L<sub>F</sub> € -0<sub>0</sub> 0<sub>5/8</sub> W<sub>1</sub> C<sub>R</sub> 3/8 L<sub>F</sub> 0<sub>0</sub> € 0<sub>5/8</sub> W<sub>1</sub> 0<sub>10</sub> 0<sub>0</sub> 5/8 0<sub>0</sub> 1/3-0<sub>V</sub> 1/3 0<sub>5/8</sub> L<sub>F</sub> L<sub>F</sub>  
 0<sub>C</sub> R 1/3 3/8 V<sub>T</sub> 1/3 0<sub>0</sub> 0<sub>0</sub> R<sub>S</sub> 2/3 5/8 1/8 1<sub>N</sub> 0<sub>5/8</sub> 5/8 N<sub>L</sub> € -1/8 L<sub>P</sub> t “L<sub>F</sub> ● 1/3 N<sub>L</sub> ● V<sub>T</sub> 0<sub>0</sub> 0<sub>0</sub> 5/8 C<sub>R</sub> «i/4i 0<sub>1/3</sub> L<sub>F</sub> W<sub>1</sub> 5/8 0<sub>0</sub> 0<sub>0</sub>  
 C<sub>R</sub> 5/8 N<sub>L</sub> 1/3 C<sub>R</sub> 0<sub>5/8</sub> 5/8 3/8 3/4 ¥ 0 “ L<sub>F</sub> N<sub>L</sub> C<sub>R</sub> V<sub>T</sub> 0<sub>0</sub> 0<sub>0</sub> 5/8 7/8 1<sub>C</sub> R 0<sub>0</sub> € 7/8 5/8 € L<sub>F</sub> 1/8 1-L<sub>F</sub> N<sub>L</sub> 1/3-N<sub>L</sub> 0<sub>0</sub> R<sub>S</sub> 0<sub>1</sub> € -0<sub>1</sub> 1-1/3 N<sub>L</sub> 0<sub>5/8</sub>  
 W<sub>1</sub> C<sub>R</sub> 3/8 L<sub>F</sub> 1/3-3/8 0<sub>C</sub> R 1/3 N<sub>L</sub> N<sub>L</sub> 1/3 N<sub>L</sub> € 1/8 1/3 0<sub>0</sub> 7/8 1<sub>C</sub> R N<sub>L</sub> L<sub>F</sub> € - 5/8 1/3 1/8 0<sub>0</sub> 1/3-0<sub>V</sub> 1/3 0<sub>5/8</sub> P<sub>t</sub> ff 0<sub>5/8</sub> 2/3 5/8 N<sub>L</sub> N<sub>L</sub> 5/8 C<sub>R</sub> L<sub>F</sub> N<sub>L</sub> 0<sub>5/8</sub>  
 L<sub>F</sub> 0<sub>1</sub> C<sub>R</sub> N<sub>L</sub> 5/8 C<sub>R</sub> L<sub>F</sub> N<sub>L</sub> 0<sub>5/8</sub> 5/8 1/3 L<sub>F</sub> € 5/8 C<sub>R</sub> 7/8 1<sub>C</sub> R N<sub>L</sub> L<sub>F</sub> 1/3 C<sub>R</sub> 5/8 1/8 1-L<sub>F</sub> N<sub>L</sub> 1/3-N<sub>L</sub> 0<sub>0</sub> R<sub>S</sub> 0<sub>1/3</sub> € -€ -0<sub>1</sub> N<sub>L</sub> 0<sub>5/8</sub> V<sub>T</sub> H<sub>T</sub> 5/8 C<sub>R</sub> 0<sub>1/3</sub>-3/8 L<sub>F</sub>  
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 N<sub>L</sub> 0<sub>1</sub> C<sub>R</sub> 5/8 € N<sub>L</sub> 0<sub>1</sub> H<sub>T</sub> 1 C<sub>R</sub> N<sub>L</sub> 1/3-N<sub>L</sub> 1/8 1/3 V<sub>T</sub> L<sub>F</sub> 5/8 L<sub>F</sub> 17/8 N<sub>L</sub> 0<sub>5/8</sub> L<sub>F</sub> V<sub>T</sub> C<sub>R</sub> 0<sub>5/8</sub> 1/3 0<sub>0</sub> 17/8 1/8 5/8 C<sub>R</sub> N<sub>L</sub> 1/3 € - W<sub>1</sub> C<sub>R</sub> 3/8 L<sub>F</sub> L<sub>F</sub> N<sub>L</sub> 0<sub>5/8</sub> C<sub>R</sub> 5/8  
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 L<sub>F</sub> N<sub>L</sub> C<sub>R</sub> 1-0<sub>0</sub> 1 0<sub>5/8</sub> 7/8 1<sub>C</sub> R L<sub>F</sub> 0<sub>0</sub> € 0<sub>0</sub> N<sub>L</sub> 1/8 0<sub>1</sub> 3-0<sub>5/8</sub> L<sub>F</sub> € - 1/3 0<sub>0</sub> 0<sub>0</sub> N<sub>L</sub> € -0<sub>1</sub> L<sub>F</sub> P<sub>t</sub> ff 0<sub>5/8</sub> L<sub>F</sub> V<sub>T</sub> C<sub>R</sub> 0<sub>5/8</sub> 1/3 0<sub>0</sub> 1<sub>C</sub>  
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 5/8 N<sub>L</sub> € L<sub>F</sub> N<sub>L</sub> 5/8-1/8 5/8 € L<sub>F</sub> -1/3 N<sub>L</sub> V<sub>T</sub> C<sub>R</sub> 1/3 0<sub>0</sub> L<sub>F</sub> 5/8 0<sub>0</sub> 5/8 1/8 N<sub>L</sub> € -P<sub>t</sub> ]  
 ; N<sub>L</sub> 1/3 N<sub>L</sub> 0<sub>1</sub> H<sub>T</sub> 0<sub>0</sub> 5/8 L<sub>F</sub> 17/8 0<sub>C</sub> R 5/8-1/8 0<sub>1</sub> R<sub>S</sub> 5/8 N<sub>L</sub> 0<sub>1</sub> - 0<sub>V</sub> T 0<sub>0</sub> 5/8 1/3 N<sub>L</sub> fi 1<sub>C</sub> R 0<sub>5/8</sub> P<sub>t</sub> W<sub>1</sub> H<sub>T</sub> 3/8

French Spelling	French Stress with back loading	English Stress with front loading	English Spelling
agate	agett 17 aggott 17	agget 16-17 nagget 17 aggat 18 aggot 18	agate 17
crédit	credyt(e) 16 credytte 16 credite 16-17 creditt(e) 16-17	creadyte 16 credit 17	credit 16
damage	damadge 17	dommage 14-17 dammage 15-18 dampnage 16	damage 14
flacon	flacon(e) 16 flaccoun 16 flackoun (Sc) 16 flagone 16	flaggon 15-19 flacon(e) 16 flackoun (Sc) 16	flagon 16
abit, habit	abite 13-16 abyte 13-16 habite 14-17 habyte 15-16 habitt 16 habette 16-17	abbyte 15 abbytte 15 abbit 16 abbet(te) 16 habbet 16 habbett(e) 16	habit 15
limon	lemonde 6 limone 16 lemond 17	lemmon 16-17 limmon 16-17	lemon 17

limite	lymytt 15 lymit(t)e 15-17 limitt 16	lymmit 16 lymmet 16 limmit 17	limit 16
médaille	medaill(e) 16-17 medagle 17 medall 17 medull 17 medaile 17	meddal(l) 17	medal 17
<b>French Spelling</b>	<b>French Stress with back loading</b>	<b>English Stress with front loading</b>	<b>English Spelling</b>
manace, menace	mananse 14 manaunce 14 manaunse 14 manaunze 14 manaas(s)e 14-15 manasce 14-15 manashe 14-15 manasse 14-17 manasshe 15-16 manysshe 15-16 manesche 16 minisse 16 menasse 16-17 mynasse 16-17 minasse 16-17	meanashe 14-15 mannasse 14-15 mannese 16	menace 15
metal, metail	matalle 14 metail(l)e 14 metell 14-15 metall(e) 14-15 metelle 15 mettaill 15	mettel 16 mettle 16-19 mattell 17	metal 13
mignon	mynyone 16-17 minione 17	mynnyon 16 minnion 17	minion 16
modelle	modill 16 modell 16-18 modull 17 modelle 17-18	modell 16 moddel 16-17	model 16

pijon, pyjoun	pejoun 15 pegeon 15 pygeon 15-16 pigion 16 pygion 16	pidgion 16 pydgion 17 pidgeon 17-19	pigeon 15
pignon	pynnion 16 pynion 16-17 pynion 16-17 pineon 16-17 pinoun 16-17 pyneon 16-17	pynnyon 16 pinnyan 16 pinneon 16-17 pinnoun 16-17 pinnion 16-17	pinion 16
<b>French Spelling</b>	<b>French Stress with back loading</b>	<b>English Stress with front loading</b>	<b>English Spelling</b>
pitet, pitez, pité, pitié	petey 14 pitee 14-15 pytye 14-16 pytee 15 pytie 15 pytye 15-16 pitye 15-16 petie 15-17	pitte 14-15 pytte 14-16 pittie 15-17 pittye 15-17 pyttye 16 pitty 16-17	pity 16
profit, prufit, purfit, porfit, pourfit, proufit, prouffit	profi ¥t 14 profy ¥t 14 prophite 14 prophete 14-15 profite 14-16 profette 15 profect 15-16 profett 15-16 profitte 15-16 profyte 15-16 profette 15-16 profecte 16 profeit 16 profict 6 proflight 16 profyght 16 profyggt 16 proffect 16 profecte 16 profict 16 proffitt 17	prouffit 15 prouffite 15 prouffyt 15 proffet 15-16 proffect 16 proffuyt 16 proffute 16 proffyte 16 proffeit 16 proffect 16 proffitt 17	profit 14

ribaut, ribaud, ribault, ribaluld	rebaude 14-15 rybawde 14-15 rybaude 14-16 ribawde 15 ribold 15 rebold 15 rebawde 15-16 rybald 15-16 ribaulde 15-16 rybaulde 15-16	rybbaud 16 ribbaulde 16 ribbald 18	ribald 14, 16
espinache, espinage		spynnage16 spinnage 17-19	spinach 16
<b>French Spelling</b>	<b>French Stress with back loading</b>	<b>English Stress with front loading</b>	<b>English Spelling</b>
tenant	tenaunt(e) 14-16 ten(e)awnte 15 ten(e)awunt 15	tennaunte 15-16 tennant 16-7 tennent(e) 16-17 tennent 17	tenant 14
visage		fyssege 15 vissage 16 vissage (Sc) 16	visage 14
visite	visitte 14 vysitte 14 visytt 15 vysett 15 visitt 15-17 visett 16	vissite 15 vissett 15	visit 15

**Global vs local rules; evolutionary recycling; syntax.wpd**

Holland on complex adaptive systems: “Complex adaptive systems are quite different from most systems that have been studied scientifically. They exhibit coherence under change, via conditional action and anticipation, and they do so // without central direction. At the same time it would appear that *cas* have lever points, wherein small amounts of input produce large, directed changes” (John Holland, *Hidden Order*, Addison-Wesley, 1995, pp. 38-39).

Holland speaks of something called a *default hierarchy*, which is an ordered set of rules of (in general) increasing specificity. Applying his description (which is of rules of behavior for frogs) to orthosys, we get something like the following, which is an ordered hierarchy of rules governing the spelling-agent’s spelling of the sound [b]. It starts with three mutually contradicting rules:

R1. Spell the sound [b] <b>. (The most general, “default” rule) R2. Spell the sound [b] <bb>. R3. Spell the sound [b] <pb>.

The hierarchy is applied as follows:

Given the sound [b]		
R1 being correct	R1 being incorrect	
9	9	
[b] = <b>	R2 being correct	R2 being incorrect

[b] = <bb>	R3 being correct
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99

[b] = <pb>
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9

R2 and R3 can preempt the more general R1 because, as Holland says, they “use more information about the situation” than does the default R1 and “other things being equal, an agent should prefer rules that use more information about a situation” (57). This is one way of explaining the way in which more local rules

preempt more global ones. Using more information about the situation is parallel to the way in which post-alphabetic spellings compact more information into the text.

The flow of information is the key here, the energy source.

In his discussion of flows Holland points out two of their characteristics: The first is the multiplier effect by which a modest input of (in this case) information is multiplied as it flows node to node in the system. This multiplier effect, especially when combined with the nonlinearity of such systems, underlies the sensitivity of complex systems to minor changes, which makes long-range prediction so chancy. The second is the tendency for such systems to recycle resources, in this case information (23-27).

The use of silent final 'e's that derive from reduced Old English inflectional endings is a good instance of the language operating like nature so far as evolution is concerned: a resourceful miser, recycling materials, making things with older functions serve some new use. It is a kind of jerry-building, but it leads to a marvelous edifice, both in nature and in language. It also says something about the principle of economy, making due with as little as possible: When you add a suffix that starts with a vowel, you no longer need the final <e> to fill out the VCV pattern (could I say "the final <e> expectation" here?). So out the final <e> goes.

In *Uniquely Human* Philip Lieberman says the following: "The complex syntax of human language . . . overcomes the limits of memory and allows us to keep track of complex relationships between words within the frame of a sentence, . . . enhancing the speed of communication" (3). And later: "Syntax also increases the speed of vocal communication by allowing us to 'encode' several thoughts into the time frame that otherwise would transmit one simple thought" (82). This is to me quite convincing. And it also sounds very much like the notion that a post-alphabetic, morphophonemic spelling system like ours packs more information into a shorter span of letters. So moving beyond the alphabetic principle is another stage in the evolution toward a richer, more efficient system. (Philip Lieberman, *Uniquely Human: The Evolution of Speech, Thought, and Selfless Behavior*, Harvard UP, 1991.) (This begins to remind me of Plotkin's three heuristics and their increasing speed and efficiency at problem-solving and information processing.

## Kauffman\_evolution, new niches, attractors, lexical evolution.wpd

Stuart Kauffman says the following: “New technologies enter (like the car), drive others extinct (like the horse, buggy, and saddlery), and yet create the niches that invite still further new technologies (paved roads, motels, and traffic lights):

“The ever-transforming economy begins to sound like the ever-transforming biosphere, with trilobites dominating for a long, long run on Main Street Earth, replaced by other arthropods, then others again. If the patterns of the Cambrian explosion, filling in the higher taxa from the top down, bespeak the same patterns in early stages of a technological trajectory, when many strong variants of an innovation are tried until a few dominant designs are chosen and the others go extinct, might it also be the case that the panorama of species evolution and coevolution, ever transforming has its mirror in technological coevolution as well? Maybe principles deeper than DNA and gearboxes underlie biological and technological coevolution, principles about the kinds of complex [281-82] things that can be assembled by a search process, and principles about the autocatalytic creation of niches that invite the innovations, which in turn create yet further niches. It would not be exceedingly strange were such general principles to exist. Organismic evolution and coevolution and technological evolution and coevolution are rather similar processes of niche creation and combinatorial optimization. While the nuts-and-bolts mechanisms underlying biological and technological evolution are obviously different, the tasks and resultant macroscopic features may be deeply similar” [*At Home in the Universe*, 281-82].

It seems to me that what he says here is even more pertinent to lexical evolution, since human language is both biological and technological — biological in that it involves certain evolutionary changes in the structure of the human brain, articulatory system, and, probably, perceptual system; technological in that it involves exogenetic, memetic processes, structures, and artifacts. Words are the first things that *homo* learned to mass produce.

Niches seem to me to be much like attractors. Perhaps they are the same thing, or perhaps each simply entails the other: If you have a niche, you have an attractor; if you have an attractor, you have a niche. Or perhaps they are two different things but bound together in circular causality.

I’m thinking about the niche-attractors represented by preferred and privileged spellings that eventually become the accepted correct spelling: What are the

principles that underlie them? If we think of the system as being operated on by various, often contending forces, we might usefully invoke the Gestaltists’ notion of

a maximum simplicity, the simplicity of perfect articulation. Actually a better starting point might be their Law of Prägnanz, which states that “psychological organization will always be as ‘good’ as the prevailing conditions allow. In this definition the term ‘good’ is undefined. It embraces such properties as regularity, symmetry, simplicity, and others . . . [Koffka, *Principle of Gestalt Psychology*, 110]. He later mentions stability [138], self-sustainingness [151], “unity, uniformity, good continuation, simple shape, and closure” [171], fitness and beauty [175]. Then what I want to say might be something like this: These qualities function as order parameters, setting maximum-minimum limits, controlling the operation of metaphoric and metonymic modifications and innovations.

At least some of these qualities seem to be attached to different of the demands — the conservative, semiotic demands of expression, of content, of history, of systematicity, and the innovative semantic demands, the pragmatic, the referential, the technological. Closure, for instance, seems to be attached to the pragmatic demands: In lexical performance closure must be something like success: If the attempted form gets the desired pragmatic result, if it works, then it is a success, and the lexical event achieves closure. On the other hand, something like simplicity would appear to cut across all of the demands.

## Lakoff's Radial Categories, changing content, polysemy, cognation.wpd

We can treat the clusters of senses involved in the polysemy of an orthographic word like *genius* as *radial categories*. In his *Women, Fire, and Dangerous Things* George Lakoff describes the radial category as a type that is very common in human languages. He defines a radial category, like that for *mother*<sup>1</sup>, as consisting of a central, more or less prototypical, central case, in the *mother*<sup>1</sup>-category “a mother who is and always has been female, and who gave birth to the child, supplied her half of the child’s genes, nurtured the child, is married to the father, is one generation older than the child, and is the child’s legal guardian” (83). Clustered around this central case, and converging on it, are a number of conventionalized variations of the central case: stepmother, adoptive mother, birth mother, natural mother, foster mother, biological mother, surrogate mother, unwed mother, and genetic mother (83).

Beyond the relatively tight structure of polysemous senses of a single orthographic word like *mother*<sup>1</sup>, we can use the notion of radial structure to understand more distant relationships. Staying with the *mother*<sup>1</sup> example, we can, for instance, understand sometimes distant radial relationships involving compounds like *motherboard*, *mother church*, *mother earth*, *motherland*, *mother-of-pearl*, *mother ship*, *mother superior*, *mother tongue*, and *motherwort*. We can even understand yet more distant relationships involving historically related words that carry variations in both content and expression such as *matrix*, *matron*, *matrimony*, *metropolis*, *material*, *matter*, *Demeter*. Lakoff’s notion of radial structure is a very versatile strategy for understanding oftentimes very complex and subtle lexical relationships.

Lakoff argues that radial categories are psychologically real, meaning that we use them in the ongoing processes of cognition, of organizing in our minds the reality around us, of making meanings. A radial category is quite different from the classical category, or set, in that it is not defined by some feature or cluster of features shared by all members of the category. A radial category has no single defining feature or cluster of features shared by all members. Lakoff says that radial categories

involve many models organized around a center, with links to the center. The links are characterized by other cognitive models in the conceptual system or by a similarity relation. The noncentral models are not predictable from the central model, but they are *motivated* by the central models and other models that characterize the links to the center. (153-54, his emphasis) Viewed as a radial category, the cluster of polysemous senses of an orthographic word or element contains a historical center which may or may not be represented by a current

sense. Around this center are the increasingly peripheral senses, linked to the center by metaphoric strands of similarity or by various metonymic relationships. As you work away from the center toward the periphery, the metaphoric and metonymic links with the center can grow quite attenuated. As the pressures of change brought on by the dynamic between content and meaning cause a word to add (and lose) senses or definitions over the centuries, the boundaries defined by the content of the word are stretched and distorted. In extreme cases the stretching causes a splitting of the content, the new senses being so remote from the earlier ones, the relationships connecting them so attenuated (or sometimes even mistaken) and often forgotten that the effect can be construed as the lexical equivalent of biological speciation: A new lexical species emerges in the form of a new cluster of senses around an expression that is probably identical, or at least similar, to the earlier one, and we have a new orthographic entity. A possible example of this speciation would be *mother*<sup>2</sup>, “a bacterial scum on the surface of fermenting liquids,” which, etymologically, may be an extended sense of *mother*<sup>1</sup> or may be an entirely different word, adapted from Dutch and assimilated in expression to *mother*<sup>1</sup>.

The following exemplify speciations that took place over several hundred years before the words in question entered English: Words that derive from the assumed Proto-Indo-European root \*gen(c), “to give birth, produce,” evolved through Latin with initial [g] spelled <g> as in *genius* (in Latin the <g> in *genius* would have been a voiced velar stop – thus hard, not soft as it is today), but they evolved through Germanic with initial [k] spelled <k> due to the regular Germanic devoicing of initial stops as described in Grimm’s Law. This divergence at the plane of expression with concomitant divergence in content led in modern English not just to two different species, but to two different clusters of related species (perhaps thought of as lexical genera), the two clusters being marked by considerable overlapping of semiotic content and similarity of expression. The Germanic cluster contains such English words as *kin*, *king*, *kind*<sup>1</sup> (“generous”), *kindred*, *kind*<sup>2</sup> (“type”), *kindergarten*. The Latin cluster contains such words as *genus*, *general*, *gender*, *genial*, *generous*.

However, even in less dramatic instances, where speciation does not occur, as the boundaries defined by the content shift and distort, the center of the cluster of senses contained by a word can also shift so that from a phenomenological point of view, a new central sense displaces the original one. *Genius* is again a good example: In its original Latin use and almost certainly in its earliest uses in English, the central sense of *genius*, as we have seen, was “tutelary spirit.” However, by the late 20th century, in dictionaries like the *Random House Unabridged Dictionary* (RHUD) and *American Heritage Dictionary* (AHD) in which the most common or currently central senses are listed first in the series of definitions, the *genius* cluster has a new central sense, something like “a person with unusual intellectual or creative talent and skill.” The earlier central sense, “tutelary spirit,” has moved to

*the periphery of the cluster and to have generalized to senses such as “the guardian spirit of a place,” “jinn; any spirit or demon.” This fact of lexical phenomenology urges a distinction between diachronic and synchronic descriptions: From the diachronic, or historical, point of view, the center of a cluster does not change: It is there like a steadfast anchor in time. However, from the synchronic point of view, in which the phenomenological perspective must be taken into account, the perceived center of a cluster does change, as in the genius cluster. A new center is established phenomeno-logically, and the historical center is displaced towards the periphery of the cluster.*

*In the evolution of genius the historical center of the content cluster moved, from the phenomenological point of view, more to the periphery. In some cases, as the cluster boundaries shift, the original center can completely disappear from the cluster viewed synchronically: The Latin and earliest English senses of generous, a word related to genius, were “of noble birth,” a sense that does not appear in RHUD and is marked archaic in both Webster’s Third New International Dictionary (W3) and Webster’s New International Dictionary: 2<sup>nd</sup> Edition (W2), though W3 and W2 do include the closely related sense “characterized by a noble or forbearing spirit,” a sense that suggests the person-quality metonymy that probably led to the current central sense “unselfish; magnanimous”: A person of noble birth was expected to have a noble and unselfish spirit – noblesse oblige.*

*However, as has been said, our concern here is not just with the definition of words, but also with the definition of word-elements. Consider genius again, which explicates to geni+us,1, an extended bound base plus suffix. How, exactly, do we define the bound base *geni-* in the word *genius*, taken in its sense of a person with remarkable intellectual or creative skills? We can start with the definition of the word and work backwards: In Latin the suffix *-us,1* originally marked masculine singular nouns in the 2nd declension and neuter nouns in the 3rd. Through analogy and imitation its uses in Latin spread beyond that basic inflectional use. And in English the suffix *-us,1* is a near fossil, used simply to terminate Latinate singular nouns. Thus, we can treat it as covering the nominal component of the definition of *genius*, “a person with.” That would leave “remarkable intellectual or creative skills” as the content of the base *geni+*.*

We can analyze it further, positing a more central sense of “intellectual, creative skills or talent” off of which there branches a more specific sense that is related to the more central sense by a metonymic intensity, or more-or-less, relationship, represented in the definition of the base by the word *remarkable*. Then, taking the diachronic view and assuming that the core sense of the cluster goes back to the Latin sense of “tutelary spirit,” we have two sequential extensions, the first based on a metonymic agent-to-result relationship, the second to the metonymic scalar

relationship of intensity:

In “The American Scholar” Ralph Waldo Emerson says,

To the young mind every thing is individual, stands by itself. By and by, it finds how to join two things and see in them one nature; then three, then three thousands; and so, tyrannized over by its own unifying instinct, it goes on tying things together, diminishing anomalies, discovering roots running under ground whereby contrary and remote things cohere and flower out from one stem.

And in “The Poet” he says that “language is the archives of history” and that “Language is fossil poetry”. One pedagogical function of explication is a work of retrieval in which some of the lost sense of history and deep rootedness is brought to light. It is the retrieval of Thomas’ deeply seated and hidden meanings and of Darwin’s “striking homologies due to community of descent, and analogies due to a similar process of formation.”

Evolutionists speak of atavistic mutation, in which characteristics from an earlier evolutionary stage show up in an individual due to some mutation that triggers a long recessive gene. There is a certain strain of persistent atavism in explication, at least in the sense that it is constantly reminding us of earlier elements, foregrounding them, moving them into focal awareness, after decades or centuries of their lying in the background and lost in the overriding semantic power of the entire word.

Much of our lexical history is lost in a culture such as ours, where history is often treated rather condescendingly and must constantly give way to more urgently felt current issues. Also, the relentless monolingualism of our culture adds to a tendency to treat one’s language and one’s words in isolation from other languages and lexicons. Phenomenologically, the result is something like a blur, with little larger context, diachronic or synchronic. So far as the disjunction between the synchronic and diachronic clusters of content are concerned in explication, I propose to focus on the diachronic view, engaging in that work of retrieval of past senses and connections, while staying aware of the different clustering that one would see if one were to look synchronically.

John Austin said that words trail “clouds of etymology,” and that a word “never – well, hardly ever – shakes of its etymology and its formation” (“A Plea for Excuses” in *Philosophical Papers*, 2<sup>nd</sup> ed., 201). Those strands of dead or dying senses from earlier forms can mightily complicate explication: They can make it difficult to decide when a given historical sense is alive enough to warrant explicating out the

element within the larger word or simply leaving it unexplicated as part of a subelemental pattern, like all of those <wh>'s in English interrogatives (*why, where, when, what, who, which*), or those initial <h>'s and <th>'s in the related adverbs (*here, hither, hence; there, thither, thence, then*) (AES 62).

Consider, for instance, the following series of derivations: From Latin *p̄cnis* "tail" was derived the diminutive *p̄cniculus* "little tail, brush" and the subsequent double diminutive *p̄cnicillus* "little brush, pencil," from which come the English *penicillin* and *pencil*. How then should *penicillin* be explicated: pen+ic,+ill,+in,, penic+ill,+in,, penicill+in,, pen+icill,+in,, pen+icillin,? Remembering the pedagogic motives of explication, the question becomes one of what it is we want taught and learned. Surely we want to foreground the radical sense "tail" in the base *pen*, which would be somewhat obscured with the expanded forms *penici+* and *penicill+*. And the expanded suffix *-icillin* would blur the two diminutives together with the chemical compound marker *-in*. The best choice would appear to be either pen+ic,+ill,+in, or pen+icill,+in,, both of which preserve the constancy of the base and the chemical suffix. But what about *pencil*? If it is explicated to pen+cil,, we still have the base *pen* (or, in the Lexis database, *pen07*) and the diminutive suffix *-cil,,* which can be treated as a contraction of the Latin *-icill*, – which would in turn argue for the explication of *penicillin* to pen+icill,+in,. (The very rare *penicil*, not in the Lexis database, would require the diminutive suffix *-icil,,* slightly less of a contraction of *-icill*, than is *-cil,.*) These explications of *penicillin* and *pencil* (and their seventeen derivatives in Lexis) preserve the unifying strands represented by the *tail*-metaphor in the base, the diminutive sense represented in the internal suffixes, and the chemical compound marking sense with the final suffix.

### **Arbitrariness, Predictability, and Motivation.**

One of the points Lakoff makes about radial categories is particularly crucial: The extensions, and the relationships upon which they are based and which provide the radial structure, are not predictable. They are motivated, but not predictably so. That is, the earlier senses plus the nature of the pragmatic and referential worlds in which the language is being used plus the cognitive models that inform the various available metaphoric and metonymic relationships can be said to motivate the extensions of sense, but they do not allow us to predict them. The extensions are determined by principles that are not natural but rather cultural, or conventional, products of the human will. Lakoff says that this lack of predictability is due to the fact that "the variations are conventionalized and have to be learned" (84) – that is, their evolution is Lamarckian. And I would add that this unpredictability is characteristic of complex systems at the edge of chaos, in this case at the line at which content and meaning, semiotics and semantics, engage one another. As Lakoff says, the most we can expect in this situation is not to predict the structure of

the radial clusters but simply to make sense of them – which, as he points out, is no trivial accomplishment. We might think of it as retro- rather than pre- diction.

Lakoff's distinction between predictability and motivation echoes Saussure's earlier distinction between the arbitrariness and the relative motivation of the linguistic sign.

## Latin words with the sense "4" & their descendants.wpd

The Latin words with the sense "4" are as follows:

Word	Sense	English Descendants
quattuor	4	<b>quattuordecillion</b>
quartus	4 <sup>th</sup>	quart, <b>quarter</b>
quaterni	4 by 4, 4 each, (distributive)	<b>quaternary, quaternity</b>
quater	4 times (adv.)	<b>quater-, quatercentenary, quaterphenyl, quaters</b>
quadruplex	quadruple, times 4, (multiplicative)	<b>quadr-, quadrangle, quadrant</b>
quadruplus	quadruple (proportional)	<b>quadruple</b>
quadrâgintâ, quadrâgçni	40	<b>quadragenarian, quadragenary</b>
quadrâgçsimus	40 <sup>th</sup>	<b>quadragesimal</b>
quadringenti	400	<b>quadringenarious, (obs., rare)</b>

The orthographic template is 'qua' plus dental stop with or without an adjacent 'r': *quart*, *quadr+*, *quat+*, *quatt+*. There is also from French *quatre* "4" as in *quatrain*, *quatreble*, *quatrefoil*, *quatrible*, *quatroom*; and from Italian *quattr+* "4" as in *quattrocentro*. There are also the closely similar expansions: *quattuor+* and *quater-*. To this list is added *quad*<sup>1, 2, 3</sup>, back-formations from *quadrangle*, *quadrat*, *quadruplet*. And because of the morphology of Latin number words, there are a number of vestigial suffixes, which involve some typical redivision:

Etymologically the Latin *quaterni* “4 each, a set of 4” is *quater+nus*]. The suffix *-nus* forms Latin distributive number words. But in the xp of English words such as *quaternary*, *quaternate*, *quaternion*, *quaternity*, there is a redivision: quat+ern]+ary], quat+ern]+ate], quat+ern]+ion], quat+ern]+ity]. In these xp's *-ern* is defined as a vestige that forms Latin number words with the sense “4 each.”

Similarly, the Latin distributives *quadrâgçni* “40 each, 40 at a time” is etymologically *quadra+ginta]+eni]* in which *-ginta* “times 10” forms cardinals from 30 through 90, and *-eni* is an expansion of *-nus*, forming distributive number words. Clearly, 'geni' already involves a contraction and redivision. It produces *quadragenarian*, *quadragenarious*, *quadragenary*. The nondistributive cardinal *quadrâgintâ* “40” produces the rare *quadrâgintireme* “a vessel with 40 oars” and *quadrâgintesimal* “having 40 parts, 40 fold.” These English words xp as follows: quadr+agen]+ary/]+ian], quadr+agen]+ary/]+ious], quadr+agen]+ary], quadr+agint+i+reme], quadr+agint]+esim]+al]. These xp's contain the redivided vestigial number word suffixes *-agen* and *-agint*, each with the sense “times 10,” and *-esim*, which forms Latin ordinals from 20 through 1,000.

With the foregoing xp's, the template given above holds well, assuming the vestigial suffixes *-ern*, *-agen*, *-agint*, *-esim*.

## Margulis, symbiosis, symbiogenesis, compounding.wpd

From Lynn Margulis, *Symbiotic Planet: A New Look at Evolution* (NY: Basic Books, 1998):

“Symbiosis is a kind, but not the notorious kind, of Lamarckianism. . . . In simple Lamarckianism, organisms inherit traits induced in their parents by environmental conditions, whereas through symbiogenesis, organisms acquire not traits but entire other organisms, and of course, their entire sets of genes! . . . Symbiogenesis is evolutionary change by the inheritance of acquired gene sets.”

“The tendency of 'independent' life is to bind together and reemerge in a new wholeness at a higher, larger level of organization” (11).

“In short, I believe that most evolutionary novelty arose and still arises directly from symbiosis . . .” (33).

Her description is of a process of merging in which there is a movement from free to bound, leading to new and larger and more complex forms. Notice parallel with the way in which contents merge to form new meanings and often lose their individual identities within the new whole.

“Symbiogenesis . . . refers to the formation of new organs and organisms through symbiotic mergers. . . . [I]t is a fundamental fact of evolution. All organisms large enough for us to see are composed of once-independent microbes, teamed up to become larger wholes. As they merged, many lost what we in retrospect recognize as their former individuality” (38).

“The merged being becomes something inside the participating partner. As the fusion is complete, it is difficult to determine the relative genetic contributions of the partners” (46). [This is very much like subelemental patterning and the problem of assigning a place for the fossil shreds from, say, Latin inflectional stems.]

“In reality the tree of life often grows in on itself. Species come together, fuse, and make new beings, who start again. Biologists call the coming together of branches—whether blood vessels, roots, or fungal threads—anastomosis. . . . The tree of life is a twisted, tangled, pulsing entity with roots and branches meeting underground and in midair to form eccentric new fruits and hybrids” (52).

After Prigogine: “A *dissipative structure* is any system that maintains its function through assimilating useful energy and dissipating useless energy, usually heat.

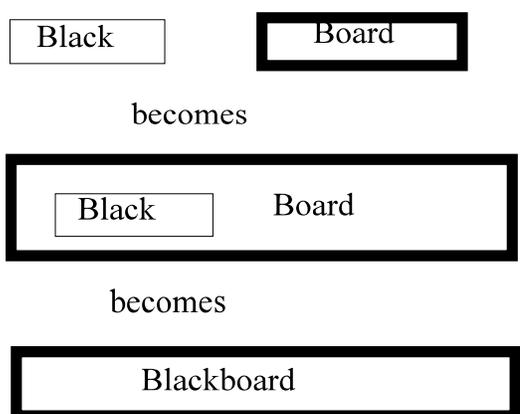
Reactions of dissipative structures share certain traits with life and the chemical systems that evolved into life. But all chemical systems, dissipatively structured or not, only continue to operate and make more ordered matter for a short time. Then they fall apart” (78).

“...[L]if is intrinsically a memory-storing system . . .” (79).

“No life-form exists outside a self-maintaining, self-reproducing cell. The most stripped-down minimal form of life on Earth is still extraordinarily complex . . .” (82).

“...[A]n ecosystem is a volume of Earth surface where organisms recycle energy and matter at a faster rate inside the system than between it and other systems” (106). [I'm struck by the parallel with language: A language is a volume of the noosphere where humans recycle information at a faster rate inside the language than between it and other languages.]

Some notes triggered by symbiosis and language: In symbiosis the simple (spatialtemporal) metonymy of juxtaposition becomes the more complex metonymy of inclusion, making possible the part-whole relationship, or synecdoche. In symbiosis the concatenation of separates | separateness | diversity becomes unity. A more complex individual emerges, and the individual identity of its components blurs. An example from word-formation.



The juxtaposition of *Black* and *Board* in the first stage of simple juxtaposition

becomes the second stage of symbiotic inclusion: the symbiont *Black* is now inside of, included within, and thus a part of, the head word, *Board*. The result of this inclusion is the new, more complex, word *Blackboard*. By the time we reach the third stage, *Blackboard*, notice that the original semantic identity of both *black* and *board* have been blurred: Not all blackboards are black, and not all are, strictly speaking, boards.

*Blackboard* illustrates the process nicely for compounding with no change in expression. Notice that in *Christmas*, with the respelling of *mass* to *mas* and the change in pronunciation of [krîst] to [kris], the identities of the components is lost even more.

When the bases being compounded are bound, the loss of identity is even more marked: *sacrifice* is *sacr+i+fice*, roughly “sacred or holy making or doing.” Today the most common uses of *sacrifice* are far from “holy doing.”

In the formation of complex words the effects are some what different: The word *keeper* is *keep+er*]. We can describe this as the bound suffix *-er* becoming the symbiont included within the free space defined by *keep*. It gains free life from its host *keep*, rather like a benign virus.

This symbiotic inclusion is the basis for the motivation described and often retrieved by explication. It also explains subelemental patterning, which actually would make a good lead in to the topic.

Free forms refer to objects | referents and actions treated as objects. Bound forms refer to qualities of objects or actions.

In the emergence of symbolization the merging of an established semiotic load with an agreed-upon expression causes the semiotic load to seem to be inside the expression, to be its content. In signal behavior the expression signals the presence of the referent—the simple metonymy of juxtaposition. In symbolic behavior the expression contains a semiotic content that need not imply the presence of the referent—the more complex metonymy of inclusion, or synecdoche.

### **Mayr on variation, selection, genotype, phenotype.wpd**

In his essay “Basic Concepts of Evolutionary Biology,” Ernst Mayr (*EDL*, 10-11) discusses two important dualities underlying modern evolution theory (in *Evolution and the Diversity of Life*, Belknap, 1976). The first is between variation and

selection, which he recasts as an opposition between chance (variation) and anti-chance (natural selection). This seems to me very like the contrast between performance and code. Performance involves a strong element of chance, involving, as it does, the contingencies of the pragmatic situation. Code, on the other hand, to the extent that it represents the agreed-upon rules of the game, is the locus of nonchance. According to Mayr, “It is precisely this combination of chance and antichance that gives evolution both its great flexibility and its goal-directedness (10).

The second basic duality is between the genotype (“the totality of the genetic endowment that an individual received from his parents at conception”) and the phenotype (“the totality of the characteristics [the appearance] of an individual resulting from the interaction of the genotype [genetic program] with the environment during ontogeny”). Mayr lays out the thing that characterizes Darwinian evolution: “the genetic material (DNA) does not participate itself in the development of the embryo but functions only as a blueprint. The instructions of the DNA are translated (with the help of RNA) into polypeptides and proteins, and it is only these which participate directly in the development of the embryo. The genetic material itself, the DNA, remains unchanged during this entire process” (10). The one-way street that Mayr describes differs from the two-way street at work in the performance-code, meaning-content distinctions. This difference between one-way and two-way streets is the basic difference between Darwinian (genetic) evolution and the so-called Lamarckian (memetic) evolution.

Mayr suggests that the separation underlying the one-way street “has the result that much of the potential of the genotype of a given individual is not translated into the phenotype at all and thus is not exposed to selection. This is shown by the great number of recessive genes in diploid organisms and by the suppressor genes in epistatic systems. Such potentials can be mobilized in later generations through recombination” (11). His discussion of unused potential in the genotype reminds me of the repletion of content: words always contain more than they are used to mean. All have a potential that can be mobilized in later instantiations. But this suggests that the potential is not a result of the one-way street, since it exists, too, in the Lamarckian evolution of language, which has a two-way street.

The two-way street explains, at least in part, the greater speed of the Lamarckian model. Experience can directly map its effects into the memetic material, or at least that sample of the memetic material of, say, a word that is used in a meaning-making instantiation. This mapping leads to faster and more persistent code-changing (positive feedback), which speeds up the entire process of change. Because of the two-way street, there is a great chance for change to get out of hand, for codes to change at a rate that would render them useless. But the rate of

change would tend to be attenuated by the need (i) not to contradict referential reality and (ii) to make oneself understood and to understand in the pragmatic reality. And, of course, one way to enhance the likelihood of satisfying these needs is the establishment of authority, in the form of teachers, printed models, guardians of correctness, dictionaries, and the like.

Whenever a word is instantiated, some of the content is left out of the meaning realized in the instantiation. This is somewhat like the unused genes, which remain unaffected by the variation produced in the instantiation. The synecdochic process is at work in both the biological and the semiotic systems.

Re: whether the concept of orthographic evolution is just an analogy, a metaphor. I would like to argue that there is more than analogy at work here. I think it is homology, which would suggest that biological and orthographic evolution, being homologues, bear the same relationship to some earlier or more fundamental process — call it “good adaptive design.” This is essentially the point that Gould makes in his essay on the evolution from many small species to fewer larger ones (“small” and “large” in terms of population not physical size).

## On speciation & extinction.wpd

It occurs to me that elements that appear to be semiotically empty (ex: the proposed suffix *-eon*) are like silent letters: Their nullity is a result of evolutionary change, something like fossil organs in creatures or perhaps like extinction in biological evolution. But we do have the parallel problems of what to do with these two different kinds of nullity: silent letters (and invisible sounds, as in *eighth*) at the plane of expression vs. empty elements (and semiotically non-empty non-elements, as in sub-elemental patterning—ex: the 'wh' in *where*, *whence*, *when*, *why*) at the plane of content.

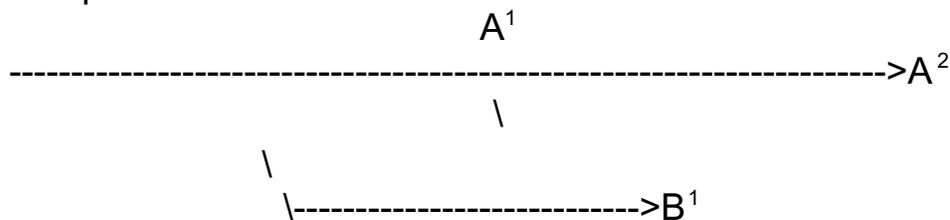
There really are two lines of development here (in the development of *-eon*): the first leads to new elements and is like biological speciation; the second eliminates elements, creating the materials for new elements in an endless pattern of recycling (like extinction? like readaptation?). Along each of these two lines of evolution there are two phases: at the expressive plane and at the content plane. The two phases do not necessarily keep pace one with the other. They are not completely parallel. Thus we can get partial speciation and partial extinction. That is we can get semiotically empty proto-elements, and we can get expressively undifferentiated parcels of semiotic content. Examples of the first would be the proposed suffix *-eon*, a semiotically empty speciation. Examples of the second would be any number of other Latin and Greek suffixes and prefixes and bound bases whose semiotic and grammatical content has been blurred and in some cases completely lost, all examples of semiotically empty (or at least nearly empty) expressive forms.

The following is from George Gaylord Simpson's *The Meaning of Evolution*: "There are thus really three different cases. A line of descent may give off a distinctive branch but itself continue without much change; extinction of the parent stock has not occurred in any sense of the word. Or, second, it may change as a whole into a new type, or several; there has been an extinction of a particular type of organization but not absolute extinction of a line of descent. Third, it may cease to exist, its last representatives dying without issue; this is extinction absolute and unqualified, better labeled as termination" (198).

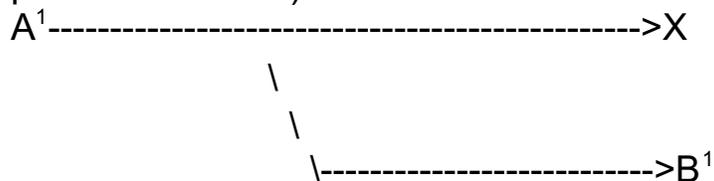
In my terms: To have partial extinction you must have a nullification of either expression or content. To have full extinction you must have a nullification of both expression and content. To have partial speciation you must have (innovation/affirmation/differentiation) of either expression or content. To have full speciation you must have (innovation/affirmation/differentiation) of both expression

and content. Putting this together with Simpson's scheme, you get the following:

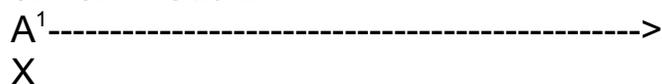
1: Speciation



2: Speciation with extinction (= pseudoextinction):



3: Termination:



We can assume that in all three instances  $A^1$  is a replete element—that is, it has content and a consistent expression. But  $A^2$  and the two  $B^1$ 's can be in one of three conditions so far as repletion is concerned, either full or incomplete in one of two different ways:

Expression	Content
%	%
%	&
&	%

A minus in both expression and content would equal extinction, as in the X's in 2 and 3.

Besides the differences in possible degrees of repletion, the two B<sup>1</sup>'s can display various levels of change from their A<sup>1</sup>'s, from partial to full change:

Expression	Content
Change	Change
No Change	Change
Change	No Change

The two B<sup>1</sup>'s have just these three possibilities because they must display some change, but A<sup>2</sup> has four possibilities:

Expression	Content
Change	Change
No Change	Change
Change	No Change
No Change	No Change

Changes in content can involve addition of sense (polysemy) or loss of sense (which we might call *miosemy* “less meaning”). The addition of sense will be due to metonymic or metaphoric expansions. The loss of sense may be due to extralinguistic reasons—for instance, the referent becomes unimportant or nonexistent within the culture. But it can also be due to selection within the system: Some other element becomes preferred for carrying the given sense and thus the

target element loses its function and ultimately disappears.

Changes in expression can involve insertion, deletion, or change of expressive units—sounds in the spoken word, letters in the written. Most (all?) of these processes are based on metaphoric or metonymic relationships.

There is a kind of semantic drift at work, much like genetic drift in biology. Typically, a term begins to attract connotations that push it one or the other, either into melioration or into pejoration, into increased specificity or increased generality.

Simpson again (205): “The general, true cause of extinction seems to be a change in the life situation, the organism-environment integration, requiring in the organisms concerned an adaptive change which they are unable to make.” He mentions “some positive force maintaining evolutionary stasis”: “That force is natural selection, which can produce directional, adaptive change but even more commonly impedes change from an already adaptive condition by opposing extreme variants from the mean. In this aspect natural selection is called stabilizing, normalizing, or centripetal” (195).

“Obviously, evolutionary breakthroughs that lead to the establishment of entirely new classes do *not* arise from the more highly specialized members of the previous class. Only a more generalized form can undergo so drastic a change of structure, while specialization easily can become a trap that prevents a species from adapting to rapid change in its environment and thus leads to extinction” (Bowler, *Evolution: The History of an Idea*, p. 181).

Ayala and Valentine: “It is not adaptation that is probabilistic, it is environmental change. Nevertheless, this does give the process of extinction a strong probabilistic aspect” (323).

## Orthographic evolution, high vs popular culture, chreodes.wpd

October, 1996. Assume a high culture and a popular culture. The high culture would include such things as philosophical principles, religious tenets, aesthetic and literary theory, scientific analysis, sociopolitical theory, and the like. The popular culture would include those things that actually occupy the popular mind as people go around doing their business and tending their affairs. Much of it would be unarticulated, not based overtly on theory or principle. In many (all?) realms there could be movement from the popular to high and vice versa: In music, for instance, popular music becomes part of high culture when it is analyzed and commented upon, when it is, in phenomenological terms, thematized as part of the high cultural pool of thought. On the other hand, themes and motifs from classical music do become incorporated in popular culture, sometimes even whole works, like Pachelbel's *Canon*, sometimes large parts of works like *Tonight We Love* from Chopin (?) or *Stranger in Paradise* from Borodin.

If orthography is part of high culture, then one could argue that spelling is part of popular culture. There is an interesting interaction between the two. Each tends to drive and mold the other—high culture, deductively; low culture, inductively. Types of lexical change can be divided on the basis of whether they come from the popular or the high realm: Spelling pronunciations and phonetic respellings would seem to be from the popular; etymological and system-driven respellings would seem to be from the high. (An example of a system-driven respelling would be the rationalization of the use silent final e or the anti-phonetic device of spelling longer words as if each syllable was fully stressed and its vowel was not reduced, which leads to recurrent orthographic elements that are pronounced differently in different stress settings.)

This popular-high distinction, working with the fundamental distinction between metaphor and metonymy, might provide a useful patterning and sorting of various kinds of change and inertia in the system.

29th. I'm still trying to visualize how the chreode notion works with something like the attractor effect of preferred spells in the evolution of standardized spellings in English. Sheldrake discusses Waddington's notion of the chreode as his attempt to account for development through time: "He called this new concept the *chreode* (from the Greek *chrç*, "it is necessary," and *hodos*, "route or path" and illustrated it with by means of a simple three-dimensional 'epigenetic landscape' [on page 51 of Sheldrake's *A New Science of Life*]." It is essentially the idea that, like a marble rolling off the top of a hill cut with ridges and valleys, a process may initially have considerable freedom to fall any one of several ways [rather like the idea of great variation and diversity a la Gould but also like the idea of certain processes being

very sensitive to initial conditions, since it takes so little difference to start the ball in whatever way it does start. But the channels down the hillside grow deeper, canalizing the route of the ball more and more. It takes more perturbation to push the ball from one channel, or chreode, to another. In his extended discussion there is also the notion that channels can merge, one chreode more or less absorbing another, the way channels on a water-eroded hillside do split and merge down the hill. This merging is important when there are competing chreodes, as in the various spellings of the vowel sound in a word like *din*. Sheer repetition simply wears the chreode deeper. But it is more than sheer repetition, for various perturbations can cause the ball, as it were, to jump from one channel to another, even jumping out of a deeper into a shallower channel, as, I guess, with certain respellings that 'take', like the respelling of ME *dette* to *debt*, because of the prestige value the Latin source, *debitum*, carried. On an individual level this is what happens when a speller replaces an earlier, unaccepted spelling for another: On the individual level the unacceptable spelling might be occupying the dominant, or deeper, chreode, but on the larger social level, the accepted or standard spelling, the 'correct' spelling, enjoys the depth, and this is enough to bring the errant speller and his aberrant canalization into line. [This is all beginning to sound rather circular to me. But push on . . .] The deepening of a channel is the growing strength of an attractor, of an increasingly privileged spelling coming to attract other spellings to it. The attractors emerge. Attraction is an emergent property, as is discussed in "Orthography as an Evolving Complex System".

## Searle on consciousness, intention, evolution.wpd

John Searle. *Mind, Language and Society: Philosophy in the Real World*. New York: Basic Books, 1998.

Conscious states are **inner, qualitative, and subjective**. *Inner* means “inside my body, inside my brain.” (41) “Conscious states are *qualitative* in the sense that for each conscious state there is a certain way that it feels, there is a certain qualitative character of it” (42). “[C]onscious states are *subjective* in the sense that they are always experienced by a human or animal subject. Conscious states, therefore, have what we might call a 'first-person ontology'” (42). “Only as experienced by some agent—that is, by a 'subject'—does a pain exist” (42). [Meanings, as I am trying to use the term, are also inner, qualitative, and subjective.]

Epistemic subjectivity and objectivity vs. ontological subjectivity and objectivity: A statement that is epistemically objective can be proved without reference to personal feelings or desires (Ex: 'Rembrandt was born in 1609.'). An epistemically subjective statement depends upon feelings and personal judgements (Ex: 'Rembrandt was a better painter than Rubens.'). Ontological objectivity and subjectivity deal not with statements but with the mode of existence of the referents. Ontologically objective items (like mountains and oceans) exist independently of observation, feelings, attitudes. Ontologically subjective items (like pains and itches) depend upon a conscious experiencer (44-45).

“Consciousness is an inner, subjective, first-person, qualitative phenomenon. Any account of consciousness that leaves out these features is not an account of consciousness but of something else” (50).

“The point to remember is that consciousness is a biological phenomenon like any other. It is true that it has (51-52) special features, most notably the feature of subjectivity, as we have seen, but that does not prevent consciousness from being a higher-level feature of the brain in the same way that digestion is a higher-level feature of the stomach, or liquidity a higher-level feature of the system of molecules that constitute our blood.”

Summarizing:

“1. Consciousness consists of inner, qualitative, subjective states and processes. It has therefore a first-person ontology.

“2. Because it has a first-person ontology, consciousness cannot be reduced to third-person phenomena in the way that is typical of other natural phenomena such as heat, liquidity, or solidity.

“3. Consciousness is, above all, a biological phenomenon. Conscious

processes are biological processes.

“4. Conscious processes are caused by lower-level neuronal processes in the brain.

“5. Consciousness consists of higher-level processes realized in the structure of the brain.

“6. There is, as far as we know, no reason in principle why we could not build an artificial brain that also causes and realizes consciousness” (53).

This way of thinking about things Searle calls *biological naturalism*.

Structural features of consciousness:

“1. The most important feature of consciousness . . . is *ontological subjectivity*. All conscious states only exist as experienced by an agent. . . .

“2. A second feature is absolutely crucial to understanding consciousness: consciousness comes to us in a *unified form*.” He goes on to distinguish between what he calls vertical and horizontal unity, which pretty much equal synchronic vs. diachronic, the latter of which requires memory.

“3. The feature of consciousness that is most essential for our survival in the world is that consciousness gives us access to the world other than our own conscious states. The two modes in which it does this are the cognitive mode, where we represent how things are, and the volitive or conative mode, in which we represent how we want them to be, or how we are trying to make them become. . . .

“4. An important feature of consciousness, it seems to me, is that all of our conscious states come to us in one *mood* or another. . . .

“5. The fifth feature of conscious state is that in their non-pathological forms they are always *structured*. . . . [The Gestalt psychologists showed] that the brain will structure even very degenerate stimulus input into a coherent figure. . . .”

“6. The sixth feature of consciousness is that it comes in varying degrees of *attention*. In any conscious experience, we need to distinguish the center from the periphery of our attention within the field of consciousness . . . .

“7. A seventh feature of conscious states . . . is that conscious states typically come with a *sense of their own situatedness*. I call this feature the *boundary conditions* of consciousness. . . .

“8. The next feature of our conscious experiences is that they come to us in varying degrees of *familiarity*. We experience things on a continuum, on a spectrum, that goes from the most familiar to the most strange. . . .

“9. It is characteristic of our conscious experiences that they typically refer beyond themselves. We never just have an isolated experience, but it always spins out to further experiences beyond. Each thought we have reminds us of other thoughts. . . .

“10. Conscious states are always *pleasurable or unpleasurable* to some degree” (73-80).

“My conclusion then is that the field metaphor is a better one for describing the structure of consciousness than the 'putting together of bits' metaphor, which has worked so well in other areas of scientific and philosophical analysis” (83).

“[T]he primary evolutionary role of the mind is to relate us in certain ways to the environment, and especially to other people. My subjective states relate me to the rest of the world, and the general name of that relationship is 'intentionality.' These subjective states include beliefs and desires, intentions and perceptions, as well as loves and hates, fears and hopes. 'Intentionality', to repeat, is the general term for all the various forms by which the mind can be directed at, or be about, or of, objects and states of affairs in the world” (85).

[A]n unconscious mental state has to be *consciously thinkable* if it is to be a mental state at all as opposed to being a nonconscious brain process” (88).

A sentence like “I am very hungry right now” “attributes intrinsic intentionality to me,” but a sentence like the French sentence in “In French, 'J'ai grand faim en ce moment' means I am very hungry right now” has not intrinsic, but derived, intentionality, derived from “agents who have intrinsic intentionality. All linguistic meaning is derived intentionality” (93). [Here I would say, instead, that all linguistic content is derived intentionality; the French sentence in question has only content and not meaning because it has no reference and therefore remains in the realm of the merely semiotic rather than becoming a truly semantic event.]

“Intrinsic intentionality is observer-independent—I have my state of hunger regardless of what any observer thinks. Derived intentionality is observer-dependent—it is only in relation to observers, users, and so on, that, for example, a sentence of French has the meaning it has” (94).

“Consciousness and intentionality, though features of the mind, are observer-independent in the sense that if I am conscious or have an intentional state such as thirst, those features do not depend for their existence on what anyone outside me thinks” (94).

“It is a remarkable feature of the mind that it relates us by way of intentionality to the real world” (100).

“It is essential to the functioning of intentionality, and indeed essential to our

survival in the world, that the representing capacity of the mind and the causal relations to the world should mesh in some systematic way. The form in which they do is *intentional causation*.” Ex: The intentional state of desiring to drink water causes me to drink water. (105)

“Intentional causation is absolutely crucial in understanding the explanation of human behavior and thus in understanding the differences between the natural sciences and the social sciences.” Explanations via intentional causation “are not deterministic in form “ (106). “Typically when I reason from my desires and beliefs as to what I should do, there is a *gap* between the causes of my decision in the form of beliefs and desires and the actual decision, and there is another gap between the decision and the performance of the action. The reason for these gaps is that the intentionalistic causes of behavior are not sufficient to determine the behavior” (107). [These gaps are somewhat like that between content and meaning.]

Behind any intentional state there must be “a set of capacities and presuppositions that enable me to cope with the world. It is this set of capacities, abilities, tendencies, habits, dispositions, taken-for-granted presuppositions, and 'know-how' generally that I have been calling the 'Background,' and the general thesis of the Background that I have been presupposing throughout this book is that all of our intentional states, all of our particular beliefs, hopes, fears, and so on, only function in the way they do—that is, they only determine their conditions of satisfaction—against a Background of know-how that enables me to cope with the world.”

“[I]ntentionality does not function as a separate mental capacity. Intentional states function the way they do only given a presupposed set of Background capacities that are not just more intentional states. The Background is, in an important sense, preintentional” (109).

### **Searle on intentionality.wpd**

John Searle. “Meaning,” in *Intentionality: An Essay on the Philosophy of Mind*, pp. 160-79. NY: Cambridge UP, 1983. “From an evolutionary point of view, just as there is an order of priority in the development of other biological processes, so there is an order of priority in the development of Intentional phenomena. In this development, language and meaning, at least in the sense in which humans have language and meaning, comes very late. Many species other than humans have sensory perceptions and intentional action, and several species, certainly the primates, have beliefs, desires, and intentions, but very few species, perhaps only humans, have the peculiar but also biologically based form of Intentionality we

associate with language and meaning” (160).

“A natural consequence of the biological approach advocated in this book is to regard meaning, in the sense in which speakers mean something by their utterances, as a special development of more primitive forms of Intentionality” (160). “Meaning is one kind of Intentionality” (161).

“When a speaker makes an utterance he produces some physical event; to put the question crudely: What does his intention add to that physical event that makes that physical event a case of the speaker's meaning something by it? How, so to speak, do we get from the physics to the semantics?” (161) [My answer would be this: via the bridge provided by semiotic content.]

Distinguishes between intending to represent and intending to communicate. We must intend to represent in order to communicate, but we do need to intend to communicate in order to represent. This is like the distinction between the function of language and the use of language, a la Langer and that communication theory guy.

## Smith and Szathmáry on biological and linguistic evolution.wpd

John Maynard Smith and Eörs Szathmáry. *The Origins of Life: From the birth of life to the origin of language*. Oxford and NY: Oxford UP, 1999. “Before there can be heredity there must be reproduction, and before that there must be growth. The essence of growth is autocatalysis” (6).

“Continuing evolution requires a system of unlimited heredity, in which an indefinitely large number of structures are each capable of replication” (8). They then define modular heredity as that like heredity based on DNA, which involves many modules or base pairs, a change in any module producing a change in the offspring. Then they go on to say this: “We believe it to be true that all systems of unlimited heredity will turn out to be modular. The statement is true not only of the genetic system based on DNA but also of the only other natural system of unlimited heredity known to us, human language. This is a system in which a small number of unit sounds . . . can be strung together in different orders to express an indefinitely large unnumber of different meanings. Changing a single letter changes the meaning of the whole” (9).

“Information theorists use the phrase 'information is data plus meaning'” (11).

“The theory of evolution by natural selection does not predict that organisms will get more complex. It predicts only that they will get better at surviving and reproducing in the current environment, or at least that they will not get worse. . . . Yet some lineages have become more complex. . . . G. J. Chaitin has suggested that we can measure the complexity of a structure by the length of the shortest list of instructions that will generate it . . .” (15).

Concerning the increasing complexity of some evolving systems: “[T]his increase has depended on a small number of major changes in the way in which information is stored, transmitted, and translated. These changes we refer to as major transitions” (16).

“One reason for discussing events as different as the origin of the genetic code, of sex, and of language in a single book is that we think that there are similarities between the different transitions, so that understanding one of them may shed light on the others. One feature in particular crops up repeatedly. Entities that were capable of independent replication before the transition could afterwards replicate only as part of a larger whole” (19).

“There are two other features of transitions that need emphasizing. The first is that evolution by natural selection lacks foresight. A transition may have opened up new possibilities for further evolution, but that is not why it happened. . . . This pattern, of a change occurring for one reason but having profound effects for other reasons, is often repeated” (25).

“The important point is that duplication, whether of single genes or whole genomes, does not in itself produce significant novelty. It merely provides additional DNA that is not

needed, and so can be programmed to perform new functions. It does not cause increased complexity, but it does provide the raw material for such an increase to occur later” (27) [This reminds me of the distinction between copying and instantiation in orthosys: Duplication : copying = programing : instantiation.]

“The Israeli biologist, Eva Jablonka, has pointed out that the analogy between an animal body and human society is deeper than just the presence of differentiated parts. Human society also depends on a dual inheritance system, based on DNA and on language” (29). . *The Origins of Life: From the birth of life to the origin of language*. Oxford and NY: Oxford UP, 1999. “Before there can be heredity there must be reproduction, and before that there must be growth. The essence of growth is autocatalysis” (6).

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## Things lost and gained as old forms change to new.wpd

In *The Writing Systems of the World* Florian Coulmas discusses the evolution of the phrase “God be with you” into the word *goodbye*, as the actual content of the phrase was lost, supplanted by a rhetorical phatic function: “Nowadays, few people remember that *goodbye* was originally a wish referring to the benevolence of a superior being. Similarly, in many cases of the development of written symbols out of pictorial signs, the pictures became linearized, stylized and conventionally associated with a particular meaning whereby the iconic meaning was supplanted. Thus we can observe a gradual transition from icon to symbol” (23).

This fading of earlier qualities, be they semantic or iconic (and I would assume there are other types of qualities that also fade), seems to me to continue as new words are formed. For instance, especially in the technical and scientific registers bits and pieces of older words are recombined, the bits acting as synecdoches for their earlier semiotic senses. Consider the following: *amphetamine* << a(alpha)+me(thyl)+ph(enyl)+et(hyl)+amine.

But surely very few, if any, users of the language register the initial *a* as carrying the sense “alpha” or the *me*, *ph*, and *et* as carrying “methyl,” “phenyl,” and “ethyl,” respectively. In an odd way this reminds me of Coulmas’ discussion of the use of rebus techniques to extend the range of written forms in prealphabetic writing systems like cuneiform and hieroglyphic. But it’s not the same: I guess the sense of similarity is due to the fact that often just the first sound or two from the cuneiform or hieroglyph is used to build up the sound of the new word. Beyond that the two processes are quite different: Sound is not the driving force in modern technical words. It is rather a kind of analytical or even historical (etymological) motivation: The new name carries with it the names of constituents of the new substance or entity. It is most definitely metonymic. It seems related to the tendency to spell the elements of, say, Latinate words so as to show the Latin sources, in spite of changes in pronunciation and sense – as with ME *dette* being respelled to *debt* to show its Latin source *debitum*. But it is again different, too, in that the process results not just in a new and different word but also in new and different elements, formed by clipping back to form a new productive stem of one or more recognizable elements. Thus, I xp *amphetamine* as amphet+am1+ine]2, positing the new base *amphet*.

## Thoughts on the Emergence of Orthographic Codes.wpd

I've been thinking about the emergence and evolution of codes, especially orthographic codes. I'm interested in a historical narrative as a model. But it has to be a model with very limited powers of prediction and of explanation. Models of physical systems can be very powerful and reliable -- that is, they can have great explanatory and predictive power. But physical systems (at least middle-sized ones) are quite deterministic. Cultural systems are less deterministic, less predictable. Part of the reason for this is that they are more open to the reorganizing effects of positive feedback. This positive feedback is one of the signs of human freedom at work. And so a cultural system (for instance, a naturally developing orthographic system) is less amenable to models that explain and predict. But not completely so. Consider prediction: We can make something like approximate predictions, or statistical ones. We can say, for instance, that since our model posits such and such a rule to account for such and such a spelling, we can predict that that rule will grow stronger over the years, minimizing misfits and optimizing instances. In short, we can say that negative feedback will prevail. But this is at best a fuzzy prediction, both in terms of time and of extent. We could be relatively safe in saying that we expect the number of misfits to decrease. We would be less safe in saying that we expect a specific subset of the misfits to decrease. And we would be quite unsafe in predicting when the changes would occur.

This positive and negative feedback thing gets me to thinking about the equivocation in the word *performance*. When we correct someone's spelling, it is an instance of self-regulation through negative feedback. We say that the performance has been changed to bring it into compliance with the code. But if the correction "takes," what really happens is that more than the performance has been changed: The person's individual version of the code has also been changed, thus (probably) changing future performances. So that distinction between the general code and the individual code is an important one. The individual code must exist as a mental state within the individual person. But where does the general code exist? It has to be an abstraction, abstracted from the individual codes. But it is an odd relationship because the general code depends on the individual code, and the individual code depends on the general code. This is true in the historical development of each. What I am calling the general code is part of Popper's World 3; the individual code is part of World 2.

Let's consider two very early English scribes, each one just learning English spelling. Pretend that they are the very first two Irish monks to write down Old English. They have a Latin alphabet which is mapped into certain Latin sounds. They hear the same sounds in English and thus use the same letters that they use in Latin. I would imagine that when they spell Latin words adopted into English, they

spell them the way they are spelled in Latin, minus the Latin inflections. At this point both their individual codes consist of little more than more-or-less agreed-upon sound-to-spelling correspondences and a spelled lexicon of Latin words. They write more and more. And they read more and more of one another's texts. That sharing causes their spellings to become more and more alike. They learn from one another. They agree upon certain conventions, and it is those agreed-upon conventions that form the beginnings of the general code.

Gradually that general code assumes greater and greater authority. At first the individual codes were prime, but in time they are displaced by the authoritative general code. And by that time you have Written Standard.

Question: Out of the contending different individual codes as represented by the performances of the written texts, a single authoritative general code emerges. What causes certain spellings in certain performances (and individual codes) to gain dominance? Here we are into positive feedback and the indeterminacy issue. My guess would be that there are both intrinsic and extrinsic reasons for the choices that are made. Intrinsic reasons would be those reasons that grow out of the interaction between the mind of the speller and the spelling system. They would have to do with systematicity, economy, analogy, assimilation, dissimilation, and the like. Extrinsic reasons would be those reasons that grow out of the interaction between the mind of the speller and the socio-political system. They would have to do with such things as social power and prestige. And I would guess that there is a flat chance factor operating here as well.

Back to the prediction question: We can use our model to predict but only along certain general lines. Of course, when you think of it, that is about all that many so-called sciences can do, too: Sociology, for instance, economics, psychology, certain areas in biology -- and of course quantum physics. If we assume that the function of history is to tell plausible stories, then I would guess that the ability of the story to predict is one of several measures of its plausibility.

Another such measure would be the story's capacity to provide convincing and useful explanations. I imagine that one way of determining how convincing an explanation is would be to determine how much it leads to greater understanding. I'm using the explanation-understanding distinction here more or less the way it is used by the hermeneuticists. And I think we measure the growth of understanding by the quite soft and subjective sense of "Yeh, that fits." Something like that sense of understanding you can get when you first see the point (or at least one of the points) of a heretofore baffling poem. So we get back finally to that sense of plausibility and fit. And this is like Putnam's observation that we cannot really use a system to formalize the basis for evaluating that system. A version of Godel's proof.

It also sounds like Polanyi's notion of tacit knowledge. It is that highly personalized level at which we just simply "know," or "understand."

## Wilson's Consilience and the emergence of attractors.wpd

In *Consilience* E. O. Wilson restates the four desiderata of a scientific theory as follows: (1) parsimony, (2) generality, (3) consilience, (4) predictiveness. If we apply these to the theory of the emergence of attractors for English sound-to-spelling correspondences (ssc), the thinking could go something like the following: (1) That ssc is preferred which is simplest, which would imply that unnecessary levels of complexity are due either to (a) tactical, environmental special cases. For instance, [t] = <t> in *cat* but <tt> in *catty* because of twinning, or they are due to fossils of earlier pronunciations which arise because of the mismatch between the speed of phonological change and that of orthographic change. For instance, [a] = <a> in *cat*, but <au> in *laugh* or <ai> in *plaid*. No, I'm talking here about the actual ssc's selected for when what I want to talk about is the theory of the attractor model itself:

(1) Parsimony: The attractors tend to attract the simplest ssc's. (2) Generality: The wider the extension, the more convincing the model, so we would expect a decrease over time in the number of ssc's. [This sounds increasingly tautological, but onward.] (3) Consilience: The notion of attractors is from chaos-complexity theory. The notion of few-but-larger types of ssc is from Gould's version of biological evolution theory. (4) Predictiveness: We should be able to predict the rise of more regular variants (and common misspellings). We should also be able to predict that by and large new variants will tend to be more regular than the older spellings they compete with and often displace. Remember Wilson's awareness of the severe constraints on predictiveness in natural evolution. We might expect even more constraints in cultural evolution, since human will enters in so much there.

[There are still problems with this description: It jumps from one organizational level to another. At the highest level is the attractor model. Next down is the ensemble of attractors. At the lowest level are the ssc's themselves. Try putting it in a matrix:



M  
o  
d  
e  
l  
A  
t  
t  
r  
a  
c  
t  
o  
r  
s  
S  
S  
C  
,  
s  
a  
s  
c  
o  
n  
c  
i  
s  
e  
a  
s  
a  
s  
f  
e  
w  
a  
s  
p  
o  
s  
s  
i  
b  
l  
e  
a  
s

<b>Parsimony</b>			
<b>Generality</b>			
<b>Consilience</b>			

P r e c e d e n s s	M o d e l A t t r a c t o r s C o n s i s t e n c y			
	s e n s i b i l i t y			

There is actually a fourth, lower, level of organization: the sounds and their spellings (that is, the [s]'s and the <s>'s.) Again (1) as few as possible, (2) as extended as possible, (3) as consistent as possible with human perception and cognition, and (4) as persistent as possible in the face of variation and innovation.

Where do selection rules enter into this scheme of organization? They must affect the organization of the attractors themselves. For instance;

- [k]=<c> before <a, o, u>
- [k]=<k> before <e, i, y>
- [k]=<ck> in final position after short vowels
- .....

Perhaps the attractor produces a two-step sort:

(i) [k] = <c, k, ck, q(u)> (ii)

[k] = <c> ....

[k] = <k>..... .....

The spelling of [k] is a toughy, but I think that the scheme is correct and the notion that selection rules are structured into the attractors themselves. I also like the notion that the attractor is actually an ensemble of smaller attractors that select among ssc's.

Perhaps there is a 3-step sort:

1. The whole set of [k] spellings distinct from spellings that cannot spell [k]: <c, cc, k, ck, kk, q(u), ch, cch, cq(u), lk, kh, x>

2. A major-minor split:

2a. Major spellings: <c, k, ck> 2b. Minor

spellings: <ch, q(u), ...> 3. The specific

ssc's with tactical rules:

3ai. [k] = <c> ...

3aai. [k] = <k> ...

.....

Some truly minor spellings may not ever become part of the attractor: [k]=<sc> in *viscount*, for instance, or <gk> in *gingko*, [ginkô]. Words with such spellings simply become unanalyzed, memorized separate items. This would surely be true of spellings that occur in only one word.

[The Viscount of Tucson would be an interesting title: In it [k] = <sc> and [s] = <cs>.]

## **Explication; processes vs procedures.wpd**

It looks to me as if the major processes are going to prove to be simplification (aphesis, etc.), expansion (intrusion, tactical additions such as doubling consonants to show shortness), and rearrangement (metathesis, etc.). This is just deletion, insertion, replacement all over again. Procedures replicate processes. Or rather processes reflect procedures. These three are all essentially metonymic.

It occurs to me that xp is a lot like reverse engineering: Taking something apart to see how it is put together and functions— in a sense how it got to be what it is. Also the minimum-maximum simplicity distinction works here: An etymological analysis is a minimum simplicity. A syllabication is another. An analysis into obvious and well-known elements would be another, somewhat like the morphological analyses of transformational grammar. Xp attempts to articulate all of the contending demands as thoroughly and well as possible.

# Fess1 Nuclear Paradigm, Simplicities, Articulation.wpd

String 1	Strings 2-3	Strings 4-10	Strings 11-15	Strings 16-21	Words

fess1	confess	<p>confess</p> <p>confesses</p> <p>confessing</p> <p>confessable</p> <p>confessed</p> <p>    confessed</p> <p>confessed</p> <p>    confessedly</p> <p>confessor</p> <p>    confessor</p>	
fess1	confess	<p>confessor</p> <p>    confessors</p> <p>confession</p> <p>confession</p> <p>confession</p> <p>confessions</p> <p>confession    confessional</p> <p>confessional</p> <p>confession    confessional</p> <p>confessionals</p>	
fess1	confess	<p>profess</p> <p>    profess</p> <p>profess</p> <p>    professes</p> <p>profess</p> <p>    professing</p> <p>professed</p> <p>    professed</p> <p>professed</p> <p>    professedly</p> <p>profession</p> <p>    profession</p>	
fess1	confess	<p>profession</p> <p>    professions</p> <p>profession</p> <p>professional</p> <p>profession    professional</p> <p>professionals</p> <p>profession</p> <p>professionalism</p> <p>profession    professional</p> <p>professionally</p>	

fess1	confess				
fess1	confess				
fess1	confess				
fess1	confess				
fess1	confess				
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fess1	profess				
fess1	profess				
fess1	profess				
fess1	profess				
fess1	profess				
fess1	profess				
fess1	profess	profession	professional	professionalize	professionalize
fess1	profess	profession	professional	professionalize	professionalized
fess1	profess	profession	professional	professionalize	professionalizes
fess1	profess	profession	professional	professionalize	professionalizing

fess1	profess	profession	professional	professionalize	professionalization
fess1	profess	profession	professional	nonprofessional	nonprofessional
fess1	profess	profession	professional	nonprofessional	nonprofessionals
fess1	profess	profession	professional	nonprofessional	nonprofessionally
fess1	profess	profession	professional	paraprofessional	paraprofessional
fess1	profess	profession	professional	paraprofessional	paraprofessionals

String 1	Strings 2-3	Strings 4-10	Strings 11-15	Strings 16-21	Words
fess1	profess	profession	professional		preprofessional
fess1	profess	profession	professional	semiprofessional	semiprofessional
fess1	profess	profession	professional	semiprofessional	semiprofessionally
fess1	profess	profession	professional	subprofessional	subprofessional
fess1	profess	profession	professional	subprofessional	subprofessionals
fess1	profess	profession	professional	unprofessional	unprofessional
fess1	profess	profession	professional	unprofessional	unprofessionalism
fess1	profess	profession	professional	unprofessional	unprofessionally
fess1	profess	professor	professorial		professor
			professorial		
fess1	profess	professor	professoriat		professors
			professoriat		
fess1	profess	professor	professoriate		professorship
			professoriate		
fess1	profess	professor			professorial
fess1	profess	professor			professorially

fess1	profess	professor			professoriat
fess1	profess	professor			professoriat
fess1	profess	professor			professoriate
fess1	profess	professor			professoriates
1	2	3	4	5	6

Getting back to the Gestaltists' notion of minimum and maximum simplicities:

According to Kurt Koffka, "Roughly speaking, a minimum simplicity will be the simplicity of uniformity, a maximum simplicity that of perfect articulation" (*Principles of Gestalt Psychology* NY: Harcourt, 1935, p. 171). Maximum simplicities lead to Gestalts that are stable and useful; Gestalts based on minimum simplicities are neither.

If, as Koffka says, a minimum simplicity is a simplicity of uniformity, then column 1 above is a minimum simplicity – perfectly uniform. Column 2 is only slightly less uniform: two factors, *confess* and *profess*, held together by the persistent *fess1*. Column 3, with its six vertical breaks and seven different stems moves further away from uniformity, but the fragmentation is articulated by the recurrent *fess1*, *confess*, and *profess*. That process of increasing articulation, and thus movement towards Koffka's maximum simplicity, continues in columns 4 and 5, until finally in column 6, Words, there is a full articulation, a maximum simplicity, a good Gestalt.

Beyond all of this, just consider a complex word such as *professionalization* [pro1+fess1+ion]1+al]1+iz/e]+ation]: In addition to its well-articulated position in the *fess1* nuclear paradigm, it is articulated to at least five extended paradigms: Words with [pro1, words with ion]1, words with al]1, words with ize], words with ation] – plus other smaller compound paradigms: Words with +ion]1+al]1, words with +ion]+al]1+ize], etc. These extended paradigms make for very dense interconnections among English words, interconnections that help make that "small world" effect, such that, as cited in "On Explication," in a lexicon of 30,000 English words, any two words are separated by no more than three degrees of separation.

The significance of the two empty sections above remains elusive – maybe even illusive, without significance at all. They are determined solely by the number of elements in a word. They mark the righthand edge of the increasing horizontal articulation and thus could be done away with simply by staggering column 6 so that it fits tight against the nearest lefthand column that contained a stem, retaining the structural principle that the stem or word in each cell can be derived immediately from the stem to its adjacent left – except, of course, for words in column 6, which can derive from or equal the stem to their adjacent left.

The way I've laid things out above implies that prefixes take priority over suffixes:

column 2 contains *confess*, not, say, *fession*. That appears to be due to a principle of productivity – plus a principle of neatness of analysis (or some such) – Notice that there are, for instance, 28 words in the list that contain the string fess1+ion]1, which is more than those with [con+fess1, but to start column2 with the stem *fession*, leads to all sorts of untidiness as you continue trying to sort things out. Maybe it's just that there is a relentless left-to-right development involved here.

I'm beginning to think that I understand a lot better what *articulation* means here and am working out a way to talk about it. The analogy with the jigsaw puzzle seems increasingly to hold: In both the nuclear paradigm and the jigsaw puzzle the pieces fit. But unlike the jigsaw puzzle, the pieces – or stems and elements – in the nuclear paradigm also fit into several extended paradigms.

## Gestalt and Relations.wpd

June 7, 2009. I've been thinking lately about Gestalt psychology. It had such an impact on me early on, fueling my original and lasting unenthusiasm for behaviorism, that I felt it must have something to offer to the question of how best to make my work useful to reading specialists. Their early work dealt pretty much with fairly simple observations in perception, especially vision. But later in his *The Task of Gestalt Psychology* Wolfgang Köhler says this in his chapter "What Is Thinking?": "There is one psychological fact that plays a central rôle in productive thinking. This fact is a subject's awareness of *relations*" (142). Later: "Generally speaking, particular relations emerge only when our attention has the right direction for their appearance" (143). And still later:

. . . [W]hen we apprehend a relation, we have insight into its dependence upon the nature of the related data.

The next step we have to take is this: we have to recognize that probably all problems with which we may be confronted, and also the solutions of such problems, are matters of relations. So long as problems *are* problems, the materials in question exhibit *some* relations; but these special relations are such that a difficulty arises. However, we may now discover other relations in the material which make the difficulty disappear. In some instances, we are at first unable to see any relations in the material which are relevant to our task. When this happens, we have to inspect the given situation until, eventually, it does exhibit relations from which a solution can be derived. Consequently, not only does our understanding of the problem depend upon our awareness of certain relations; we can also not solve the problem without discovering certain new relations. .

. . [A]lmost always, we have to deal not with one relation but, rather, with whole sets of them, and thus with relations among relations (143-44).

The lesson here, I think, is that the good reader needs to be able to see relationships within the text. How to teach this skill? Surely knowing content is one part of it – and a well-developed sense of syntax is another. I believe the methods I advocate encourage and support the quest for relationships in the text.

The notion that one of the things a literature teacher can do is to stall for

time, to keep the students engaged with the text long enough for them to begin to see more in the words and sentences. That is essentially a question of finding relationships. In Köhler's terms, the teacher guides the students' attention, giving it the right direction so the relations will appear. The teacher helps the student to discover the hidden relationships that make the difficulty of the text disappear.

Explication surely can help the students find relations, as can etymologies. So can sets like {ceive, cept} as in *deceive* and *deception*.

Köhler also mentions that in order to discover useful relations, we sometimes have to add some new element to the problem. He demonstrates this with a geometric puzzle that looks to be nearly impossible of solution until a single line is added that makes the answer immediately obvious and simple. This adding-to the problem seems to me to be rather like Ricoeur's bringing-to the text. Explication can make possible a certain kind of bringing-to the text. Consider, for instance, the reader who encounters the word *uroporphyrinogen*: A reader familiar with the biochemical register would likely recognize *ur+o* as indicating urine, *porphyr+* as indicating a reddish or purplish color, and *+inogen* as a complex, *+in+o+gen*, indicating a substance that produces or leads to some condition. Putting these elements and particles together, one gets a root definition like "a substance that produces a reddish or purplish discoloration in the urine," which is considerably less technical than the dictionary definition but still enough of a foothold to allow the reader to continue on with some degree of understanding of the context in which the word is encountered.

## Lakoff's Radial Categories & Explication.wpd

We can treat the clusters of senses involved in the polysemy of an orthographic word like *genius* as *radial categories*. In his *Women, Fire, and Dangerous Things* George Lakoff describes the radial category as a type that is very common in human languages. He defines a radial category, like that for *mother*<sup>1</sup>, as consisting of a central, more or less prototypical, central case, in the *mother*<sup>1</sup>-category "a mother who is and always has been female, and who gave birth to the child, supplied her half of the child's genes, nurtured the child, is married to the father, is one generation older than the child, and is the child's legal guardian" (83). Clustered around this central case, and converging on it, are a number of conventionalized variations of the central case: stepmother, adoptive mother, birth mother, natural mother, foster mother, biological mother, surrogate mother, unwed mother, and genetic mother (83).

Beyond the relatively tight structure of polysemous senses of a single orthographic word like *mother*<sup>1</sup>, we can use the notion of radial structure to understand more distant relationships. Staying with the *mother*<sup>1</sup> example, we can, for instance, understand sometimes distant radial relationships involving compounds like *motherboard*, *mother church*, *mother earth*, *motherland*, *mother-of-pearl*, *mother ship*, *mother superior*, *mother tongue*, and *motherwort*. We can even understand yet more distant relationships involving historically related words that carry variations in both content and expression such as *matrix*, *matron*, *matrimony*, *metropolis*, *material*, *matter*, *Demeter*. Lakoff's notion of radial structure is a very versatile strategy for understanding oftentimes very complex and subtle lexical relationships.

Lakoff argues that radial categories are psychologically real, meaning that we use them in the ongoing processes of cognition, of organizing in our minds the reality around us, of making meanings. A radial category is quite different from the classical category, or set, in that it is not defined by some feature or cluster of features shared by all members of the category. A radial category has no single defining feature or cluster of features shared by all members. Lakoff says that radial categories

involve many models organized around a center, with links to the center. The links are characterized by other cognitive models in the conceptual system or by a similarity relation. The noncentral models are not predictable from the central model, but they are *motivated* by the central models and other models that characterize the links to the

center. (153-54, his emphasis)

Viewed as a radial category, the cluster of polysemous senses of an orthographic word or element contains a historical center which may or may not be represented by a current sense. Around this center are the increasingly peripheral senses, linked to the center by metaphoric strands of similarity or by various metonymic relationships. As you work away from the center toward the periphery, the metaphoric and metonymic links with the center can grow quite attenuated.

As the pressures of change brought on by the dynamic between content and meaning cause a word to add (and lose) senses or definitions over the centuries, the boundaries defined by the content of the word are stretched and distorted. In extreme cases the stretching causes a splitting of the content, the new senses being so remote from the earlier ones, the relationships connecting them so attenuated (or sometimes even mistaken) and often forgotten that the effect can be construed as the lexical equivalent of biological speciation: A new lexical species emerges in the form of a new cluster of senses around an expression that is probably identical, or at least similar, to the earlier one, and we have a new orthographic entity. A possible example of this speciation would be *mother*<sup>2</sup>, “a bacterial scum on the surface of fermenting liquids,” which, etymologically, may be an extended sense of *mother*<sup>1</sup> or may be an entirely different word, adapted from Dutch and assimilated in expression to *mother*<sup>1</sup>.

The following exemplify speciations that took place over several hundred years before the words in question entered English: Words that derive from the assumed Proto-Indo-European root *\*gen(c)*, “to give birth, produce,” evolved through Latin with initial [g] spelled <g> as in *genius* (in Latin the <g> in *genius* would have been a voiced velar stop – thus hard, not soft as it is today), but they evolved through Germanic with initial [k] spelled <k> due to the regular Germanic devoicing of initial stops as described in Grimm’s Law. This divergence at the plane of expression with concomitant divergence in content led in modern English not just to two different species, but to two different clusters of related species (perhaps thought of as lexical genera), the two clusters being marked by considerable overlapping of semiotic content and similarity of expression.

*The Germanic cluster contains such English words as kin, king, kind*<sup>1</sup> (“generous”), *kindred, kind*<sup>2</sup> (“type”), *kindergarten*. *The Latin*

*cluster contains such words as genus, general, gender, genial, generous.*

*However, even in less dramatic instances, where speciation does not occur, as the boundaries defined by the content shift and distort, the center of the cluster of senses contained by a word can also shift so that from a phenomenological point of view, a new central sense displaces the original one. Genius is again a good example: In its original Latin use and almost certainly in its earliest uses in English, the central sense of genius, as we have seen, was “tutelary spirit.” However, by the late 20th century, in dictionaries like the Random House Unabridged Dictionary (RHUD) and American Heritage Dictionary (AHD) in which the most common or currently central senses are listed first in the series of definitions, the genius cluster has a new central sense, something like “a person with unusual intellectual or creative talent and skill.” The earlier central sense, “tutelary spirit,” has moved to the periphery of the cluster and to have generalized to senses such as “the guardian spirit of a place,” “jinn; any spirit or demon.”*

*This fact of lexical phenomenology urges a distinction between diachronic and synchronic descriptions: From the diachronic, or historical, point of view, the center of a cluster does not change: It is there like a steadfast anchor in time. However, from the synchronic point of view, in which the phenomenological perspective must be taken into account, the perceived center of a cluster does change, as in the genius cluster. A new center is established phenomeno-logically, and the historical center is displaced towards the periphery of the cluster.*

*In the evolution of genius the historical center of the content cluster moved, from the phenomenological point of view, more to the periphery. In some cases, as the cluster boundaries shift, the original center can completely disappear from the cluster viewed synchronically: The Latin and earliest English senses of generous, a word related to genius, were “of noble birth,” a sense that does not appear in RHUD and is marked archaic in both Webster’s Third New International Dictionary (W3) and Webster’s New International Dictionary: 2<sup>nd</sup> Edition (W2), though W3 and W2 do include the closely related sense “characterized by a noble or forbearing spirit,” a sense that suggests the person-quality metonymy that probably led to the current central sense “unselfish; magnanimous”: A person of noble birth was expected to have a noble and unselfish spirit – noblesse oblige.*

However, as has been said, our concern here is not just with the definition of words, but also with the definition of word-elements. Consider *genius* again, which explicates to *geni+us*,<sup>1</sup> an extended bound base plus suffix. How, exactly, do we define the bound base *geni-* in the word *genius*, taken in its sense of a person with remarkable intellectual or creative skills? We can start with the definition of the word and work backwards: In Latin the suffix *-us*,<sup>1</sup> originally marked masculine singular nouns in the 2nd declension and neuter nouns in the 3rd. Through analogy and imitation its uses in Latin spread beyond that basic inflectional use. And in English the suffix *-us*,<sup>1</sup> is a near fossil, used simply to terminate Latinate singular nouns. Thus, we can treat it as covering the nominal component of the definition of *genius*, “one with.” That would leave “remarkable intellectual or creative skills” as the content of the base *geni+*.

We can analyze it further, positing a more central sense of “intellectual, creative skills or talent” off of which there branches a more specific sense that is related to the more central sense by a metonymic intensity, or more-or-less, relationship, represented in the definition of the base by the word *remarkable*. Then, taking the diachronic view and assuming that the core sense of the cluster goes back to the Latin sense of “tutelary spirit,” we have two sequential extensions, the first based on a metonymic agent-to-result relationship, the second to the metonymic scalar relationship of intensity:

In “The American Scholar” Ralph Waldo Emerson says,

To the young mind every thing is individual, stands by itself. By and by, it finds how to join two things and see in them one nature; then three, then three thousands; and so, tyrannized over by its own unifying instinct, it goes on tying things together, diminishing anomalies, discovering roots running under ground whereby contrary and remote things cohere and flower out from one stem.

And in “The Poet” he says that “language is the archives of history” and that “Language is fossil poetry”. One pedagogical function of explication is a work of retrieval in which some of the lost sense of history and deep rootedness is brought to light. It is the retrieval of Thomas’ deeply seated and hidden meanings and of Darwin’s “striking homologies due to community of descent, and analogies due to a similar process of formation.” Evolutionists speak of atavistic mutation, in which characteristics from an earlier evolutionary stage show up in an individual due to some mutation that triggers a long recessive gene. There is a certain strain of persistent atavism in explication, at least in the sense that it is constantly reminding us of earlier elements, foregrounding them,

moving them into focal awareness, after decades or centuries of their lying in the background and lost in the overriding semantic power of the entire word.

Much of our lexical history is lost in a culture such as ours, where history is often treated rather condescendingly and must constantly give way to more urgently felt current issues. Also, the relentless monolingualism of our culture adds to a tendency to treat one's language and one's words in isolation from other languages and lexicons. Phenomenologically, the result is something like a blur, with little larger context, diachronic or synchronic. So far as the disjunction between the synchronic and diachronic clusters of content are concerned in explication, I propose to focus on the diachronic view, engaging in that work of retrieval of past senses and connections, while staying aware of the different clustering that one would see if one were to look synchronically.

John Austin said that words trail "clouds of etymology," and that a word "never – well, hardly ever – shakes of its etymology and its formation" ("A Plea for Excuses" in *Philosophical Papers*, 2<sup>nd</sup> ed., 201). Those strands of dead or dying senses from earlier forms can mightily complicate explication: They can make it difficult to decide when a given historical sense is alive enough to warrant explicating out the element within the larger word or simply leaving it unexplicated as part of a subelemental pattern, like all of those <wh>'s in English interrogatives (*why, where, when, what, who, which*), or those initial <h>'s and <th>'s in the related adverbs (*here, hither, hence; there, thither, thence, then*) (AES 62).

Consider, for instance, the following series of derivations: From Latin *p̄cnis* "tail" was derived the diminutive *p̄cniculus* "little tail, brush" and the subsequent double diminutive *p̄cnicillus* "little brush, pencil," from which come the English *penicillin* and *pencil*. How then should *penicillin* be explicated: pen+ic,+ill,+in,, penic+ill,+in,, penicill+in,, pen+icill,+in,, pen+icillin,? Remembering the pedagogic motives of explication, the question becomes one of what it is we want taught and learned. Surely we want to foreground the radical sense "tail" in the base *pen*, which would be somewhat obscured with the expanded forms *penici+* and *penicill+*. And the expanded suffix *-icillin* would blur the two diminutives together with the chemical compound marker *-in*. The best choice would appear to be either pen+ic,+ill,+in,, or pen+icill,+in,,, both of which preserve the constancy of the base and the chemical suffix. But what about *pencil*? If it is explicated to pen+cil,, we still have the base *pen* (or, in the Lexis database, *pen07*) and the diminutive suffix *-cil,,* which can be treated as a

contraction of the Latin *-icill*, – which would in turn argue for the explication of *penicillin* to pen+icill,+in,. (The very rare *penicil*, not in the Lexis database, would require the diminutive suffix *-icil*,, slightly less of a contraction of *-icill*, than is *-cil*,.) These explications of *penicillin* and *pencil* (and their seventeen derivatives in Lexis) preserve the unifying strands represented by the *tail* metaphor in the base, the diminutive sense represented in the internal suffixes, and the chemical compound marking sense with the final suffix.

**Arbitrariness, Predictability, and Motivation.** One of the points Lakoff makes about radial categories is particularly crucial: The extensions, and the relationships upon which they are based and which provide the radial structure, are not predictable. They are motivated, but not predictably so. That is, the earlier senses plus the nature of the pragmatic and referential worlds in which the language is being used plus the cognitive models that inform the various available metaphoric and metonymic relationships can be said to motivate the extensions of sense, but they do not allow us to predict them. The extensions are determined by principles that are not natural but rather cultural, or conventional, products of the human will. Lakoff says that this lack of predictability is due to the fact that “the variations are conventionalized and have to be learned” (84) – that is, their evolution is Lamarckian. And I would add that this unpredictability is characteristic of complex systems at the edge of chaos, in this case at the line at which content and meaning, semiotics and semantics, engage one another. As Lakoff says, the most we can expect in this situation is not to predict the structure of the radial clusters but simply to make sense of them – which, as he points out, is no trivial accomplishment. We might think of it as retro- rather than pre- diction.

Lakoff’s distinction between predictability and motivation echoes Saussure’s earlier distinction between the arbitrariness and the relative motivation of the linguistic sign.

### **Ralph Emerson\_On his article & syllables; explication and arbitrariness.wpd**

(Much of what follows seems to be from a letter to Emerson, and some seems to be other comments about him and his work.)

Reading Ralph H. Emerson's “English Spelling and Its Relation to Sound” *American Speech*, Vol. 72, No. 3 (Autumn, 1997), pp. 260-288: He speaks a lot of protoforms (ex: literemes and graphophonemes). Remember that *proto-*

carries with it a strong sense of “parent.” But he makes no claims for the psychological reality of these protoforms: They are simply artifacts of the quest for the most economical description. In explication I'm not so much concerned with economy. Okham's razor is at work, but the goal is not economy; it is an increased sense of motivation that can become psychologically real. It is a job of retrieval or salvaging, tied in closely with pedagogy. I think I'm just not so much a Platonist as an Aristototelean, which is somewhat surprising since as an English student at the University of Washington my specialty was the 19<sup>th</sup> Century New England Renaissance, with a special emphasis on Ralph Waldo Emerson's transcendentalism. Indeed, for a long time I thought of myself as one of the very few remaining transcendentalists. But now I'm becoming more of what I guess would be called a pragmatic realist.

Anyhow, rather than *protoform*, I would prefer something like *abstract form*, with the early sense of a pulling away, here pulling away from the concrete utterance.

Agreeing with Emerson's notion that spelling has a certain priority over phonology, and his statement that “the great paradox of alphabetic writing: users set it down believing it to be concrete, but as soon as their backs are turned it melts into abstractness. Alphabetic writing always begins by representing specific sounds and always ends by representing pools of sounds” (282): Why not take the next step into post-alphabetic orthography, granting priority to the element rather than the syllable, thus letting semiotics-semantics into the mix? I believe that all of the good and valuable points made via the concept of the syllable can be made using the concept of the tactical string (VCV, VCC, etc.) and the element (prefix, base, suffix).

I appreciate and admire his explanation of the *four-forty* business on p. 125 of the Walker piece (marginalia). Indeed, I truly admire that essay on Walker's prerhotic o's: My Northwestern dialect is such that I have a terrible time with certain distinctions that speakers of other dialects seem to handle with ease: To my ear and tongue *marry*, *merry*, and *Mary* are pure homophones. The low back vowels in *cot* and *caught* are identical (except under rather artificial recitation circumstances). And prerhotic vowels in general give me fits, as chapter 25 of *American English Spelling* reveals, to what should probably be an embarrassing degree.

His review of Treiman [probably Rebecca Treiman, *Beginning to spell : a study of first-grade children* (Online-Ausg ed.). New York: Oxford University Press, 1992]: I agree with her notion that we need to get youngsters to write, write, write early on. I think the systematic study of spelling shouldn't begin until at least grade three. If nothing else, the youngster needs time to get the letter-to-sound correspondences of the reading task under some control before tackling the sometimes-the-same, but often-confusingly-different sound-to-letter correspondences of the task of spelling. When I work with teachers I suggest that they get the little whippers writing as soon and as much as possible, with

the proviso that they not be afraid to use words whose spelling they're not sure of and, if they want, they can just shout out the word and the teacher will write the correct spelling on the board for them to copy. You'd be surprised how unimpressed elementary textbook publishers are with that rather innocuous-sounding notion: For some reason they want to get reading and spelling going simultaneously (though, quite frankly, systematicity does not seem to be high on their list of desiderata).

Emerson's list of rules for orthographic syllables in "English Spelling":

	Formula	Description	Examples
1	<V>\$ °<<V2>>	Open-long	<i>a, be, hi, no, hu(e), fly</i>
2	<VC>\$ °<<V-C>>	Closed-short	<i>at, bet, hit, not, hut, Flynn</i>
3	<VCe># °<<V2C>>	Closed-long	<i>here, late</i>
4	<i~y>\$ <sup>-stress</sup> °<<-i>>	Open-short (optional in nonmedial syllables)	<i>w-nítw-ate, spaghéttw</i>
5	<VV> °<<V2.V>>	The Vowel Rule (modifiable by [4])	<i>mosa'ic, Le'o, vari'ety</i>
6	<VCCV> °<<V-C.CV>>	The Ax Rule (splits normal consonant clusters and consonant doublets)	<i>ac'tor, al'lergy</i>
	Formula	Description	Examples
7	<V <sup>-stress</sup> CV> °<<V2.CV>>	The Sidestep Rule, modifiable by 4 (a single intervocalic consonant grapheme after an unstressed vowel leaves the vowel letter open by stepping aside to join the next syllable)	<i>va-cátion, e-mít, u-níte</i>
8	<<â>> <<ç>> <<ô>> <<û>>	Common reductions of Sidestep vowels	<i>v/e/cation~v/c/cation /i/mit~/w/mit~/cmit/ /o/mit~/c/mit [j]u/nite~/l]c/nite</i>

9	_# w~i _V i~j _C i~w~c	Various realizations of word final /w/ and /i/	happy, collie, valley histori-an, scalli-on i-magine, paci-fy
10	<V3CV(C)># °<<V2.CV(C)>>	The Penult Rule	legal, motive, famous

I would add #11, Antepenult Rule (Third Vowel Rule):

11	<V2CVC(C)V(CC)> °<<V3C.VC(C)V(CC)>	Antepenult Rule	gen-eral, civ-ilize
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*Re: Orthographic syllables: I'm interested in what Walker has to say about them [John Walker, A Critical Pronouncing Dictionary and Expositor of the English Language, etc. Glasgow: Blackie and Son, 1837]: In "Syllabication" on page 65 he begins by commenting on the difficulty of dividing words into syllables. And then he goes on to say the following: "When a child has made certain advances in reading, but is ignorant of the sound of many of the longer words, it may not be improper to lay down the common general rule to him, that a consonant between two vowels must go to the latter; and that two consonants coming together must be divided. Further than this, it would be absurd to go with a child; for telling him that compounds must be divided into their simples, and that such consonants as may begin a word may begin a syllable, requires a previous knowledge of words, which children cannot be supposed to have; and which, if they have, makes the division of words into syllables unnecessary." I notice two things here that argue against the importance of syllables in spelling programs: First, there is the inherent difficulty: Even a rather cursory examination of the syllabifications offered in modern dictionaries' phonetic respellings of words makes clear that a honest discussion of what is going on in phonological syllables requires prior knowledge of distinctions like long-short vowels, stressed-unstressed vowels, word-medial vs. word-final syllables, etc. On the other hand, the "syllabifications" offered in the division of entry words seems to me to fall somewhere between orthographic syllables and what I would call elements (minimal semiotic written units). The second thing about Walker's statement that interests me is that he talks simply of readers, not spellers. I can see where very young readers could benefit from the two rules that Walker mentions—which, as I read it, includes the Ax and Sidestep Rules (though the Sidestep Rule as Emerson presents it, involving the lack of stress, is more complicated than Walker's rough-and-ready statement on p.65), plus the Penult Rule. (And then contradicted by the Antepenult Rule). I have a gut feeling that even this rather modest claim for young readers doesn't hold for young spellers. Emerson is quite correct about Noah Webster's speller being based relentlessly on orthographic syllables (and his has certainly been the most widely used single such text in America). I can't really document this hunch, but I think there's a catch in even the title of Webster's book: I don't think it is a speller at all in the sense of a text for teaching spelling; I think it is a text for teaching*

reading. In other words, for teaching how to pronounce the spellings on the written page. Webster was certainly teaching literacy, with an emphasis on the reading.

*But this lack of agreement between your and my approaches to English orthography is due, I believe, to a fundamental difference in what each of us is most interested in creating: As you say, you are interested in the most economical description even though some of the most important constructs in your description make no claims of psychological reality. This certainly puts you on the side of the angels, today's angels being so much impressed with the ends and means of modern post-Chomsky linguistic science. Carney and Venezky are excellent examples, I think. Carney calls the approach in *American English Spelling* "philological," which is not quite the compliment in his lexicon that it is in mine. But I don't think my interests are finally philological either: The philologists I most admire (Skeat, Murray, Partridge, Onions, for instance) were essentially etymologists: They wanted to get at the true etymon, the true sources—and they were inclined to use terms like corruption to describe changes that moved a word's form and semiotic content away from its etymonic source. My basic concern in the explication of words is not etymonic purity. It is rather the increase of what Saussure called motivation.*

*Saussure divided the sign into the signifier and the signified — that is, its expression and its content. He says very unequivocally: "The bond between the signifier and the signified is arbitrary. Since I mean by the sign the whole that results from the associating of the signifier with the signified, I can simply say: the linguistic sign is arbitrary" (67, his emphasis). "The whole system of language is based on the irrational principle of the arbitrariness of the sign, which would lead to the worst sort of complication if applied without restriction. But the mind contrives to introduce a principle of order and regularity into certain parts of the mass of signs, and this is the role of relative motivation" (133).*

*It is precisely this function, "the limiting of arbitrariness," that explication addresses in the written lexicon. It is part of the work of retrieval. This is, I now realize, what I was trying to get at in *American English Spelling* with the notion of accessibility. My interests remain finally pedagogic, and my working assumption is that the best way to teach anything to anyone is to help them see more motivation and less arbitrariness in the system of the subject. And that goes in spades for teaching spelling to youngsters. I think that one of the reasons we teach spelling as badly as we do (and have done) is that by-and-large we treat it as an essentially arbitrary proposition. Another way of saying this is that we don't spend enough time teaching youngsters why words are spelled the way they are.*

## **Syntax, arbitrariness, motivation, deep processing.wpd**

*In Uniquely Human Philip Lieberman says the following: “The complex syntax of human language . . . overcomes the limits of memory and allows us to keep track of complex relationships between words within the frame of a sentence, . . . enhancing the speed of communication” (Uniquely Human: The Evolution of Speech, Thought, and Selfless Behavior, Harvard UP, 1991, p3). And later: “Syntax also increases the speed of vocal communication by allowing us to ‘encode’ several thoughts into the time frame that otherwise would transmit one simple thought” (82). Syntax allows us to convey more information in a given unit of speech-time. A post-alphabetic orthography does the same; more, that is, than can be conveyed in a purely phonetic orthography. Not all of the extra information has to do with the immediate communication act. Much has to do with conveying and maintaining the strands and patterns that lead to increased motivation and reduced arbitrariness. This effect, which is almost a kind of housekeeping (almost stewardship) is important in two different ways: First, reduced arbitrariness leads to reduced alienation and sense of powerlessness. Second, the motivating strands and patterns are important to the connotative range of information.*

*This is the point of explication, and it sets the task for the language arts teacher at all levels. The Basic Speller and what it asks the elementary spelling teacher and students to do is (ironically enough) very much like that course in Latin and Greek roots I took at the University of Washington—and hated so much. This job of recovery is the same from the earliest to the most advanced schooling in literacy. It is rather like all the footnotes in an edition of Chaucer, or Shakespeare, or Milton: dedicated to the task of recovering lost information so as to make the text less alien.*

*Reducing arbitrariness and increasing motivation so as to reduce alienation and increase socialization is an important hygienic function.*

*Draft toward a do in the Teacher's Introduction to CBS: Arbitrariness is the enemy here, leading to alienation from one's native (or adopted) language and the increased sense of powerlessness that alienation brings. The cure for such arbitrariness is motivation, a sense of pattern and connection. For example, once you understand, say, seventeen and seven “7” + teen “plus ten,” all the other seven and teen words, like seventy and fourteen, are motivated, no longer arbitrarily off by themselves, unpatterned and unconnected. Less directly the connection between teen and ten establishes another strand of connectedness and motivation. The OED says this about arbitrary: “not based on the nature of things; hence capricious, uncertain, varying . . . despotic, tyrannical.” Despotic and tyrannical fit nicely with the notion of alienation and powerlessness, the loss of the locus of control.*

*Some quotations indicating the importance of work with connectedness and pattern to the creation of lasting, productive memory:*

*The general idea is that the more deeply information is processed mentally, the more powerful the memory. The following are from Stillings, et al Cognitive Science: An Introduction (MIT, 1987): “The level of process is a rather loose notion that has been used to refer to the degree to which a person understands and devotes controlled processes to the meaning of the target information. The theory is that deeper, more meaningful acquisition processing generally leads to better memory performance” (76). Summarizing experiments by Craik and Tulving: “Words that had been subject to deeper processing were better remembered” (77). The “mere intention to remember” has little effect on memory development. “Elaborations are additions to the target information. In response to a single item or proposition in the target information a person may generate any number of related propositions, called elaborations. The elaborations may simply be additions to the target item, but they may also serve to related the target item to other target items or to priviously acquired knowledg” (78). “The memorial advantages of elaboration stem from the fact that elaborations contain a number of propositions with overlapping, or redundant, information. If any part of the elaboration can be retrieved during the memory test, there is a good chance of producing a correct response” (79).*

*Sometimes elaborations will include tags that simply identify the item as part of the target information. Such tags are very useful, but even “If such propositional tags are not retrievable, the subject might still be able to respond correctly by detecting that the target items are members of more of the retrieved propositions. This is an example of a reconstruction process, in which the subject is able to intelligently guess the target information even when it is not retrieved. The redundancy of networks [of relationships and related propositions] makes other types of reconstruction as well” (80).*

*“Bradshaw and Anderson showed that elaborations of a sentence tend to be more effective if they concern the causes or effects of the facts described in the sentence” (80).*

*“The theory of elaboration just sketched predicts that the activation of organized knowledge structures, such as schemas or scripts, during the acquisition of target material should have important effects on memory. The availability of a schema that is relevant to the target information should often make a host of highly interrelated elaborations immediately available. . . . In fact, subjects who studied stories with themes recalled 46% more than subjects who studied general stories”*

*(81). Schema here can be a theory, a pattern, a tactical rule, such as VCV. Script can refer to any narrative description—for instance, a how-to-do-it, or procedural, rule, such a twinning, explained causally in terms of the VCV/VCC schema.*

## **A whole lot on the suffixes spelled *ly*.wpd**

What led to all of this: From computer as of 11-1-96 -  
11-4-96 Words ending <ly> -> 6417 with Mainword at  
128,565 Copied to Ly.dbf.

Coded each record:

'R' = Regular simple addition of adj -> adv -ly. Total: 5554

'N' = Regular simple addition of noun -> adj or adj -> adj -ly or, more rarely, v -> adj  
— that is, -ly<sup>1</sup>. Total: 129

'X' = Nonregular addition of either -ly. Total: 497

'D' = Not a case of either -ly suffix (deleted from study though not file). Total: 235.

Subcoded: 'DI' = stems ending in *le*.

*Angerly* (arch.) is an adv. in -ly apparently added to noun *anger*. From OED: [f. *anger* n. + -ly<sup>2</sup>. This supposes an earlier use of *angerly*, *angerlic* as adj., as in ON. *angrigr* sad, painful.]

*Bodily* is *body+ly*, but it is both adj and adv

Is *chilly* *chill+y* or *chill+ly*, with an *l* deleted to avoid the triplet? The OED says *chill+y*, so *l* coded *chilly D*.

There appears to be variants *cholerically* and *cholericly*.

*Comely* descends from an OE complex *c̄ymlic* (= *c̄yme* “exquisite, fine” + -lic “like.” The earliest sense was very much like the modern *nice*. But as the OED explains it: “The original long vowel of *c̄ymlic* . . . was subsequently shortened by position [before a consonant cluster], and *cymlic* was thus brought into association with the *cym-* forms of *cuman* to *COME*, so as to be made at length *cumli*, *comly*; along with this went the gradual modification of the sense, introducing the notion of ‘becoming’.

Should *connally* be deleted from *Mainword.dbf*?

Variants *cubically*, *cubicly*.

*Drolly* is *droll+ly* with an *l* deleted to avoid the triplet. Also *dully*, *illy*, *shrilly*, *stilly*,  
*Duly* is *due+ly* with an unusual *e*-deletion. Ditto *truly*.

*Early* descends from an OE complex *ærlīc* [with long *ash*] (= *aer* “early” + -lic “like.” Cf. *aer* and *ere*. The adj sense developed after the OE form, from the original adv sense. *Easterly* appears to be *easter* “eastern” (perh. comparative of *east*) + -ly. So in form it is an adj -> adv. It has developed adj and n senses, too. The OED is unsure of the formation, and it shows an adj citation about one hundred years before the adv. The BDE derives the adj *easterly* from *easter+ly*<sup>2</sup>. It describes -ly<sup>2</sup> as an adjective-forming suffix added to either nouns or adjectives, though all of its examples involve nouns. BDE derives the adv *easterly* from -ly<sup>1</sup>, the regular adj > adv suffix. Cf. *northeasterly*, *northerly*, *northwesterly*

Variants: *frantically*, *franticly*

*Friendlily*, *holily*, *oilily* contradict the constraint against duplication in English. Also *livelily*, *lonelily*, *melancholily*, *sicklily*, *sillily*, *uglily*,

The *ginger* in *gingerly* apparently echoes the comparative of the adj *gentle*.

The OED shows *gravelly* as *gravel+y*, the second *l* being apparently a fossilized case of British unstressed *twinning*. (Of course, there is the potential conflict with the homographic *gravelly* [*grave+ly*], though the *adj-adv* distinction should effectively disambiguate things. I want to check the possible sense distinction more carefully, but I am inclined towards the nonhistorical explication *gravel+ly*.)

*Haply* (*hap+ly*) *adv.* is an *adv* derived from a noun via *-ly*. This is somewhat unusual. The OED mentions partly as a “solitary example” of an *adv* being derived with *-ly<sup>2</sup>* added to a *n* “with no related adjective” (at *-ly<sup>2</sup>*). It does, however, list *namely* as *name (n)+ly<sup>2</sup>*. Also *purposely*.

*Impolitically*, like *publicly*, does not insert *-al*. Ditto *politically*, contrasting in sense with *politically*. *Midweek* is both *n* and *adj*; *midweekly* is both *adj* and *adv*.

The OED lists *monthly* (*adj, n*) as *month+ly<sup>1</sup>* and *monthly* (*adv*) as *month+ly<sup>2</sup>*. Similarly *weekly*, *nightly* (?).

Only (*one+ly<sup>1</sup>*) has a nonregular final *e* deletion.

*Seemly* (*seem+ly*) *odd: v -> adj*.

*Supplely* (*supple+ly*) doesn't follow the normal pattern for polysyllables like *ably*.

*Thusly* is *thus (adv) + ly<sup>2</sup>*, *adv -> adv*, which accounts for the sense of useless synonymy that many writers and readers feel in *thusly*.

*Ugly* is *ug+ly*, though the base is obscure, a Scandinavian borrowing, perhaps a form of *agg* “strife, hatred.”

*Wholly* is *whole+ly* with an odd *e*-deletion.

*Woolly* is *wool+y* with an odd *l*-insertion.

There were 493 words flagged 'X'. Of these, 376 (76%) involve stems that end with the suffix *-able*, including *stably* and *unstably*, in which it could be argued that the suffix *-able* has merged with the base, *st* to form a new base. Ninety-seven (20%) involve stems that end with the suffix *-ible*. Four (less than 1%) involve stems that end with the suffix *-uble*. Thus, nearly 97% of the words flagged X involve some form of the [*-able, -ible, -uble*] set. The remaining 15 (3%) are the following:

*feebly*  
*trebly*  
*nimbly*  
*humbl*  
*y*  
*nobly*  
*ignobl*  
*y*  
*singly*  
*fickly*  
*triplly*  
*amply*  
*simply*  
*oversimpl*  
*y*  
*quadruply*  
*sextuply*  
*subtly*

The OED states the affixation rule of *as* follows: “When *-ly* is attached to a disyllabic or polysyllabic adj. in *-le*, the word is contracted, as in *ably*, *doubly*, *tingly*, *simply*; contractions of this kind occur already in the 14th c., but examples of the uncontracted forms (e.g. *doublely*) are found as late as the 17th c.” (at *-ly*<sup>2</sup>). By speaking of this as a contraction, the OED suggests that the explication would be, say, *amp/le/ + ly > amply*, with two nonregular deletions. For reasons that I am not yet clear on, I prefer the coset approach, recognizing to coforms [*-ly*, *-y*] with the following selection rule: “When a disyllabic or polysyllabic stem adjective ends in *le* select the *-y* form; otherwise select *-ly*.” The *e*-deletion then becomes regular.

The adjective-forming *-ly* has 129 instances in the 6415 set of *-ly* words (2%). See List 1.

List 1:

<i>angerly</i>	<i>disorderly</i>	<i>lordly</i>	<i>lovely</i>	<i>ruffianly</i>	<i>timely</i>
<i>bankerly</i>	<i>doctorly</i>	<i>loverly</i>	<i>sailorly</i>	<i>saintly</i>	<i>trimonthly</i>
<i>bastardly</i>	<i>earthly</i>	<i>lubberly</i>	<i>saintly</i>	<i>scholarly</i>	<i>triweekly</i>
<i>beastly</i>	<i>elderly</i>	<i>manly</i>	<i>scholarly</i>	<i>schoolmasterly</i>	<i>unearthly</i>
<i>beggarly</i>	<i>fleshy</i>	<i>mannerly</i>	<i>scoundrelly</i>	<i>seemly</i>	<i>unfriendly</i>
<i>bimonthly</i>	<i>fortnightly</i>	<i>matronly</i>	<i>seemly</i>	<i>semimonthly</i>	<i>ungodly</i>
<i>biweekly</i>	<i>friarly</i>	<i>miserly</i>	<i>semimonthly</i>	<i>semiweekly</i>	<i>unlovely</i>
<i>biyearly</i>	<i>friendly</i>	<i>mongrelly</i>	<i>semiweekly</i>	<i>semiyearly</i>	<i>unmanly</i>
<i>blackguardly</i>	<i>gentlemanly</i>	<i>monthly</i>	<i>semiyearly</i>	<i>shapely</i>	<i>unmannerly</i>
<i>bodily</i>	<i>ghostly</i>	<i>motherly</i>	<i>sightly</i>	<i>sisterly</i>	<i>unneighborly</i>
<i>brotherly</i>	<i>ghostly</i>	<i>musicianly</i>	<i>sluggardly</i>	<i>soldierly</i>	<i>unruly</i>
<i>christly</i>	<i>goodly</i>	<i>neighborly</i>	<i>sonly</i>	<i>spinsterly</i>	<i>unsightly</i>
<i>churchly</i>	<i>godly</i>	<i>newsweekl</i>	<i>sportmanly</i>	<i>sprightly</i>	<i>untimely</i>
<i>churchmanly</i>	<i>grandfatherly</i>	<i>y niggardly</i>	<i>stately</i>	<i>statesmanly</i>	<i>unwomanly</i>
<i>citizenly</i>	<i>grandmotherly</i>	<i>only orderly</i>	<i>summerly</i>	<i>superhumanly</i>	<i>unworldly</i>
<i>courtly</i>	<i>grisly</i>	<i>otherworldl</i>	<i>surly</i>	<i>teacherly</i>	<i>weatherly</i>
<i>cousinly</i>	<i>heavenly</i>	<i>y painterly</i>			<i>weekly</i>
<i>cowardly</i>	<i>homely</i>	<i>patricianly</i>			<i>wifely</i>
<i>craftsmanly</i>	<i>hostly</i>	<i>portly</i>			<i>wizardly</i>
<i>creaturely</i>	<i>hourly</i>	<i>priestly</i>			<i>womanly</i>
<i>curmudgeonly</i>	<i>kingly</i>	<i>princely</i>			<i>worldly</i>
<i>daily</i>	<i>knightly</i>	<i>quarterly</i>			<i>writerly</i>
<i>dancerly</i>	<i>laggardly</i>	<i>queenly</i>			<i>yearly</i>
<i>dastardly</i>	<i>landlubberly</i>	<i>rascally</i>			
<i>daughterly</i>	<i>lawyerly</i>				
<i>deathly</i>					

Most of the instances are quite straightforward. Several involve family relationships: *brotherly*, *cousinly*, *daughterly*, *grandfatherly* . . . . Several involve adjectives of timing: *bimonthly*, *daily*, *fortnightly*, *hourly*, *quarterly*, *semiyearly*, *triweekly* . . . .

The less straightforward instances are these: (i) *Angerly*, an archaic adverb, is *anger+ly*, built off of a noun stem. The OED speculates that this unusual form-function implies that earlier *angerly* was used as an adjective and subsequently developed its adverbial force. (ii) *Seemly* is one of only three cases in which *-ly*<sup>2</sup> is added to a verb stem rather than a noun. It is an adaptation from Old Norse, the base of which carries the sense “to be fitting, to become.” (iii) The second case involving a verb stem is *grisly*, from Old English *grislic*, which is most likely an aphetized form of *ongrislic*, from the verb *ongrīsan* “to shudder, fear.” (iv) The third such case is *ghastly*, a 14th century formation from the now-obsolete verb *gast* “to frighten, terrify.” The *gh* spelling is first cited in the 16th century. (iv) Only would explicate today to *one/+ly*, with an anomalous final-*e* deletion. Actually, it descends from Old English *ānlic*, and thus was formed long before there were such things as silent final *e*’s and final-*e* deletion rules. From an explicatory point of view, we are left with the choice between the explication offered above, with its nonhistorical, and anomalous. *e*-deletion, or positing a coset [*one*, *on+*], which allows an explication based on simple addition: *on+ly*. All in all, the

*latter choice seems the better.*

(v) *Surly* is an altered spelling of the earlier *sirly*, (*sir+ly*). The OED's earliest citation for *sirly* is 14th century; for *surly* it is 16th century. (The alteration of *sirly* to *surly* is a mirror image of that of *surloin* to *sirloin*. The *sur-* in *surloin* denotes "above, over." The 'sir' in *sirloin* echoes, apparently, the story that that particular cut of meat had been knighted for its excellence.) (vi) *Homely* poses no formal problems. The odd feel produced by the explication, *home+ly*, is due to the pejoration that *homely* has undergone from its original sense "Of or belonging to the home or household; domestic, 'family' (OED). (vii) *Portly* is formed from *port*, originally "The manner in which one bears oneself, external deportment." In addition to its original sense, "Characterized by stateliness or dignity of bearing, appearance, and manner; stately, dignified, handsome, majestic; imposing" (OED), *portly* quickly developed the sense "Large and bulky in person; stout, corpulent."

*Among the huge group of regular adjective ->adverb instances are those ending in ically.*

*From the OED at -al: In L., secondary adjs. in -alem were formed on other adjs., esp. when these were used substantively, as in æqu-um æqual-em, annu-um annual-em, diurn-um diurnal-em, infern-um infernal-em, vern-um vernal-em. This process has been greatly extended in the mod. langs., esp. in E. where -al (like -ous) is a living formative, freely applied to L. adjs. in -eus, -ius, -uus, -rnus, -is, and other endings, to give them a more distinctively adj. form; thus, aere-al, corpore-al, funere-al, senatori-al, continu-al, individu-al, perpetu-al, etern-al, patern-al, celesti-al, terrestri-al, magnific-al. This is extended to Gr. adjs. in -êüò, -ĩâéäçrò, which also frequently gave substantives (music, tactics, rhomboid), so that, as adj. suffixes, -acal, -ical, -oidal occur earlier in E. than the simple -ac, -ic, -oid; when the two co-exist, as in comic-al, tragic-al, historic-al, that in -ic, etc. means 'of or belonging to' the thing, that in -ical 'relating to, dealing with, indirectly or remotely connected with' the thing, as a historic answer, a historical treatise, a comic paper, a comical idea.*

## Concerning the proposed suffix *eon]* as in *surgeon.wpd*

bandoneon	band+oneon]
bludgeon	ooo
b(o)urgeon	b(o)urg+eon]? < AF <i>burjun</i> , <i>burg(e)on</i> < VL <i>burriône(m)</i> .
chirurgion	chir+urg+eon] < OF. <i>cirurgien</i> < L <i>chirûr(gus)</i> < Gk <i>cheirourgūs</i> “hand-worker”
curmudgeon	ooo Analogous to <i>bludgeon</i> , <i>dudgeon</i> ??
dudgeon	ooo
dungeon	dung+eon]? <i>Dung</i> < VL <i>domniôn</i>
escutcheon	e+scutch+eon]? < ONF <i>escuchon</i> << L. <i>scûtum</i> “shield”
gudgeon	gudg+eon]? < ME <i>gogion</i> < OF <i>go(u)jon</i> < L. <i>gôbiôn</i> “gudgeon”
habergeon	haberg+eon]? < OF <i>hauberjon</i> < <i>hauberc</i> , “hauberk”]<Gmc.
haubergeon	hauberg+eon]?
luncheon	lunch+eon] < <i>nuncheon</i> < ME <i>none(s)chench</i> “noon drink”
melodeon	mel+od/e+eon]
mezereon	mezereon <ML <i>mezereon</i> < Ar. <i>mâzaryûn</i> . Also <i>mezereum</i> .
nickelodeon	nickel+od/e+eon]
pigeon	pigeon? pig+eon]? < ME <i>pejon</i> < MF <i>pijon</i> < LL <i>pipiôn</i>
puncheon	punch+eon] < MF <i>ponçon</i> < L <i>pûnctiôn</i>
scutcheon	scutch+eon]?
smidgeon	ooo
sturgeon	sturgeon? sturg+eon]? < OF <i>esturgeon</i> < Gmc.
surgeon	surg+eon]? < OF <i>cirurgien</i>
trudgeon	Also <i>trudgen</i> , after John Trudgen, British swimmer
truncheon	trunch+eon] < ME <i>tronchon</i> < MF < VL <i>trunciôn-</i> < <i>trunciô</i> . Rel <i>trunk</i> .
wi(d)geon	? < F <i>vigeon</i>

The proposed base in *surgeon* is a contraction of the earlier form that led to the modern *chirurgion*, with the same semiotic content.

I think *-eon]* is an example of an emerging suffix: There are three or four lines of convergence. Formally, the main lines appear to be from nouns with <ion> in Latin and/or <jon> in French. The semiotic contents seem to be “marks nouns”, plus some specifications: several seem to be somewhat pejorative or at least reductive. To get more specific requires looking at variant spellings over the centuries.

For *surgeon*: \_ . 4 *sorgien*, *surgeyn*, 4\_5 *surgyen*, -yne, 4\_6 *surgien*, *surgen*, 5 -ene, 5\_6 -yn, 5\_7 -ian, -ean, 6 -in, (7 *shirgian*). \_ . 5 *surgeoun*, *surion*, -oune, *serion*, *sorg(e)on*, 5\_6 *surgyon*, 5\_7 -ion, 6 -ione, *sowrgeon*, 7 *surgon*, 5\_ *surgeon*. \_ . 5 *surgeand*, 6 -ea(u)nt, -iant, -ynte. \_ . 5 *suregene*, 6 Sc. *sur(r)igian(e)*, -ine, -eane, *surrugin*, -y\_en.

For *chirurgion*: \_ . 3 *cirurgian*, 4 *sir-*, 5 *cerurgien*, 6 *ci-*, *cyrurgyen*, *syrurgyan*. \_ . 6 (*chirurgeon(e)*, *chierurgion*), 6\_7 *chi-*, *chyrurgian*, *chy-*, 6\_8 *chirurgion*, (7 *shirurgion*), 6\_8 *chy-*, 7\_9 *chirurgion*.

3	4	5	6	7	8	9
cirurgian	sorgien					
	surgeyn					
	surgyen(e)	surgyen(e)				
		cerurgien				
	surgien	surgien	surgien			
	surgen	surgen	surgen			
		surgene				
			cirurgyen			
			cyrurgyen			
			syrurgyan			
		surgyn	surgyn			
			chirurgian			
			chyrurgian			
	sirgian					
		surgian	surgian	surgian		
			chirurgian(e)			
		surgean	surgean	surgean		
			surgin			
		surgeoun				
			chierurgion			
			chyrurgion			
			chirurgion	chirurgion	chirurgion	
			shirurgion			
		surgion	surgion	surgion		
			surgione			
			chyrurgeon	chyrurgeon	chyrurgeon	
				<b>chirurgeon</b>	<b>chirurgeon</b>	<b>chirurgeon</b>

			sowrgeon			
				surgon		
		<b>surgeon</b>	<b>surgeon</b>	<b>surgeon</b>	<b>surgeon</b>	<b>surgeon</b>
		surgeand				
			surgea(u)nt			
			surgiant			
			surgynte			
		suregene				

*OED* at *chirurgion*: “The original ending which would normally give mod. chirurgian, was variously perverted in 16th c., and finally settled down in its present form: cf. surgeon”.

*OED* at *surgeon*: “a. AF. surgien (13th c.), also sirogen, sur(r)igien, contracted form of OF. serurgien, chirurgien, mod.F. chirurgien: see *chirurgion*.” At *chirurgion* calls *surgeon* a corruption.

From *OED*: “[In ME., a. OF. chirurgien (= Sp. cirurgiano, Pg. cirurgião):---Romanic type \*cirurgi-an-o f. cirurgía: see *chirurgy*. In later OF. serurgien, contracted surgien, whence Eng. sirurgien, surgien, now corruptly surgeon. The Renaissance brought back to Fr. and Eng. (partly also to It.) the spelling chir-, but never to French the pronunciation with k, which has now established itself in Eng., largely because the word being no longer in popular use, the traditional pronunciation has yielded to a new one, founded immediately upon the Gr. The original ending which would normally give mod. chirurgian, was variously perverted in 16th c., and finally settled down in its present form: cf. surgeon. The result of these successive re-formations and perversions is that the modern ( ) is, strictly, a different word from ME. ( ), though it would be difficult to draw a chronological line between the two.]”

Trying to tell the story, based on the table above: The word is first documented in English in the 13<sup>th</sup> century, spelled much like its Old French immediate source, *chirurgien*. *Cirurgian* would have had an initial soft-C, and the ending would have contained the string V.V, as in the modern *comedian*. The soft-C spelling quickly assimilates to [attracts to?] the more typical English S spelling of [s], which (in the 14<sup>th</sup> century) produces the variation that leads to the modern *surgeon*. In the 15<sup>th</sup> and 16<sup>th</sup> centuries there is immense variation in the spelling of the ending. The table suggests that by the 15<sup>th</sup> century the two variant spellings had pretty much merged, or else the new proto-*surgeon* has all but eliminated the four-syllable original form, shortening it to three and sometimes as few as two syllables. Mulcaster lists only *surgeon* (220). In the 16<sup>th</sup> century classical respelling resurrects the Greek root of the original form, together with a hard-CH pronunciation, [k] and re-expansion to four syllables. Notice that by the 15<sup>th</sup> century the preferred spelling of *surgeon* has appeared and, as usual, gradually eliminates its competitors. The preferred spelling *chirurgion* does not appear until the 17<sup>th</sup> century and has few competitors to eliminate.

Sam Johnson: “It is now generally pronounced, and by many written, *surgeon* (at *chirurgion*, 1755).

Noah Webster: Also at *chirurgion*: “This ill-sounding word is obsolete, and it now appears in the

form *surgeon*, which see" (1828).

Walker (1837) pronounces it [kî.rur.jç.cn].

Today we have the following cluster of obviously related words: *surgical*, *surgery*, *surgically*, *surgeon*, *surgeoncy*—plus a number of compounds such as *cryosurgery*, *electrosurgical*, *microsurgeries*, *neurosurgeon*. The following explications are quite straightforward: *surgical* = *surg+ic]+al]*     *surgery* = *surg+ery]*     *surgically* = *surg+ic]+al]+ly]*.

The initial three explications suggest *surg+* as the common base, with the four common suffixes. They, together with a general principle of parsimony, argue for the following: *surgeon* = *surg +eon]* and *surgeoncy* = *surg+eon]+cy]*, even though *-eon* is not identified as an English suffix in any of the reference books.

The base *surg+* is, among other things, a clear case of metonymic reduction, or synecdoche, traditionally called *haplology*: The original string of two [r] syllables spelled 'irur', as Jespersen points out (*MEG*, 1:7.85), often reduces to a single [r] syllable. He cites the reduction of *chirurgien* to *surgeon* among several other examples. He also points out that "By a kind of dissimilation /s/ stands for /t•/ in *surgeon*" (*MEG*, 1:2.721).

The original [t•] reduces to [s]; the original 'c' spelling is replaced by the more typically English 's' spelling of [s]; the original 'irur' string reduces to 'ur'—all of which leads to the early dominant 'surg' spelling of the emergent base, which now compresses the semiotic content of the original *chirurge*, "hand work." The two dynamic forces at work so far are metonymic reduction and gravitation towards the English [s]='s' attractor.

The spelling of the emergent suffix involved more variation: twenty-one spellings are recorded by the *OED*: *ean*, *eand*, *eane*, *eant*, *eaunt*, *en*, *ene*, *eon*, *eoun*, *eyn*, *ian*, *iant*, *ien*, *in*, *ion*, *ione*, *on*, *yan*, *yen*, *yn*, *ynte*. This variation is probably largely due to the fact that 'ian', the original ending, did not match any existing noun-forming suffix. When 'eon' was hit upon in the 15<sup>th</sup> and 16<sup>th</sup> centuries, it quickly eliminated competitors in the spelling of both *surgeon* and its cognate *chirurgion*. Why this should be so is unclear, but it seems likely that the existence of a number of other nouns with 'eon' endings may have played a role: *pigeon*, *wi(d)geon*, *sturgeon*, *dungeon*—even though the analogies here seem to be purely formal with no shared semiotic content, except for the nounmarking function.

10<sup>th</sup>. *Pigeon*, a. OF. *pijon* (13th c.), *pyjoun* young bird, esp. young dove, dove, mod.F. *pigeon* (whence the mod.Eng. spelling)

3	4	5	6	7	8	9
	pejon	pejon				
		pehoun				
		pegion				
		pegeon				
		pegon				
		pyjon				
		pygeon	pygeon			

			pegyn			
			pegyon			
			pigin			

<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
			pigen			
			pigion			
			pygion			
			pygon			
				pidgion		
				pydgion		
				pigeing		
				pidgeon	pidgeon	pidgeon
		<b>pigeon</b>	<b>pigeon</b>	<b>pigeon</b>	<b>pigeon</b>	<b>pigeon</b>

widgeon, wigeon (\_\_\_\_\_), n. Forms: 6 wegyon, -ion, wygeon, wigion, 6\_7 wigen, widgen, -in, 7 -ine, widg(e)ing, widgion, 6\_ wigeon, 7\_ widgeon. [Of difficult etymology.]

The form suggests a French origin (cf. pigeon), but no appropriate Fr. forms are evidenced as early as the English word or with the required meaning; cf. vigeon a West Indian duck (1667 Du Tertre, Hist. Gén. des Antilles II. 277), of which there is a nasalized form vingeon (1) widgeon in Eastern dial., (2) a duck of Madagascar (1771 Dict. de Trévoux); beside which there are gingeon 'sorte de canard qu'on trouve dans les grandes Antilles' (1832 Raymond Dict. Gén.), and Angevin dial. digeon widgeon. F. vigeon and It. bibbio wild duck have been referred to L. v\_pio kind of crane, but this derivation is very dubious. The various extant forms suggest the possibility of a series of formations with suffix -io(nem) on parallel onomatop\_ic bases, piu-, biu-, viu-, diu-, giu- (cf. whew, whewer).]

gudgeon (\_\_\_\_\_), n.1 Forms: 5 gogen, (-eorn), -yn, gojon(e, gojoun, -une, 6 gogeon, -ion, gougeon, gojen, 6\_7 gudgin, -ion, 7 gougín, ?

goojon, 6\_ gudgeon.

[ME. gojon, gogen, a. F. goujon (14th c. in Littré):---L. gobion-em, gobio, by-form of gobi-us goby. Cf. It. gobione.]

dungeon (\_\_\_\_\_), n. Forms: \_ . 4\_5 dongeoun, -goun, -gon, -gen, -gyn, doun-, dungoun, Sc. dwngeoune, -geown, downgeowne, 4\_6 dongeon, dungion, 5\_6 doungeon, -gen, 6 dongion, -gyon, 4\_ dungeon. \_ . 4\_9 Donjon (4 dunjon, 4\_5 donjoun(e, 9 donjeon).

[a. F. donjon (12th c. in Littré), in OF. also danjon, dangon = Pr. donjon, dompnhon:---late L. domnion-em in same sense, f. domnus (for dominus) lord; thus essentially a doublet of dominion.]

## Final 'le' vs 'el'.wpd

The regularity being discussed is that unstressed [bl] in word-final position is spelled 'le' after non-continuants but 'el' after continuants. The following discussion is based on a tallying of word-types, not word-tokens. The type-token distinction always complicates things with such regularities, since the speller's inductive generalizations are based on their experience with tokens rather than types, and types appear as tokens with widely differing regularity. For that reason later on we will look at a table that presents the 44 [bl] word-types that occur within the range of rankings of word-types that account for roughly 90% of the word-tokens in the *American Heritage Word Frequency Book*.

In a Mainword list of over 70,000 word-types, there were 1514 ending in unstressed [bl] spelled 'le' or 'el'. Of the 1514, 999 end in 'le', while only 138 end in 'el'. So about 9% of the time it is 'el', about 91% it is 'le'. This 10:1 ratio suggests the first part of a generalization: All other things being equal and when in doubt, spell unstressed word-final [bl] 'le'.

The group of positive instances in 'le' is expanded by the huge number of different word-types that contain the suffix-type *-able* or its co-forms *-ible* and *-(u)ble*. Words with these suffixes constitute about 60% of the total list of word-types. The 744 word-types with *-able*, the 163 with *-ible*, and the 6 with *-(u)ble* are actually sub-types so far as the spelling of the terminal element is concerned, the operable type being the suffix *-able*, together with its coelements *-ible* and *-(u)ble*.

In the list below of positive instances ending in 'able' the suffix *-able* is represented by just a few obvious cases — like *bearable* — and by some in which, though there is an old etymological tie going back to Latin, it seems better to treat the 'able' as part of the base rather than as an instance of *able* — as, for instance, in *fable*, *affable*, *ineffable*, and the like.

**Instances.** The following are positive instances of the generalization, with unstressed final [bl] spelled 'le' after noncontinuants:

able	e	dabble
cable	parable	gabble rabble
fable	sable	brabble
affable	table	squabble
ineffable	stable	pebble
gable	babble	
syllable	psychob	
bearabl	abble	

nibble	crumble	pellicle	treadle ladle
scribble	grumble	follicle	cradle addle
dribble	tumble	chronicle	paddle
quibble	stumble	cornicle	straddle
bobble	coble	curricle	astraddle
cobble	noble	ventricle	saddle
gobble	ignoble	utricle	sidesaddle
hobble	ennoble	auricle	waddle
wobble	garble	vesicle	swaddle
bubble	marble	versicle	twaddle
rubble	warble	reticle	meddle
stubble	burble	canticle	peddle diddle
feeble	bauble	conventicle	fiddle middle
enfeeble	double	article	riddle griddle
treble bible	trouble	particle	twiddle coddle
crucible	ruble	antiparticle	mollycoddle
mandible	chasuble	testicle	toddle buddle
dirigible	debacle	cuticle	
possible	treacle	clavicle	
foible amble	macle	uncle	
preamble	manacle	carbuncle	
gamble	cenacle	caruncle	
shamble	binnacle	monocle	
ramble	pinnacle	socle	
bramble	barnacle	tubercle	
scramble	tabernacl	circle	
unscramble	e miracle	semicircle	
tremble	spiracle	encircle	
atremble	oracle	cycle	
resemble	coracle	megacycle	
ensemble	spectacle	kilomegacy	
assemble	pentacle	cle recycle	
reassemble	tentacle	bicycle	
disassembl	receptacle	hemicycle	
e dissemble	conceptac	unicycle	
thimble	le	epicycle	
nimble	obstacle	pericycle	
bumble	cubicle	tricycle	
fumble	icicle	kilocycle	
humble	fascicle	monocycle	
jumble	radicle	heterocycle	
mumble	chicle	motorcycle	
rumble	vehicle	beadle	

cuddle	jiggle	bogle	principle
fuddle	wriggle	gargle	subprinciple
befuddle	wiggle	burgle	disciple
huddle	boggle	gurgle	maniple triple
muddle	boondogg	bugle	multiple
puddle	e goggle	pinochle	ample trample
wheedle	joggle	cackle	sample
needle idle	toggle	hackle	example
bridle sidle	juggle	shackle	counterexamp
candle	smuggle	crackle	le temple
handle	snuggle	tackle	dimple pimple
manhandle	struggle	heckle	simple rumple
panhandle	inveigle	speckle	crumple
bindle	angle	freckle	people
kindle	bangle	fickle	townspeople
rekindle	dangle	pickle	congresspeop
spindle	triangle	prickle	le
brindle	jangle	trickle	
dwindle	mangle	sickle tickle	
swindle	spangle	stickle	
fondle	embrangle	cockle	
bundle	quadrangle	buckle	
trundle	strangle	unbuckle	
boodle	wrangle	chuckle	
caboodle	tangle	knuckle	
doodle	rectangle	suckle	
noodle	entangle	honeysuckl	
canoodle	disentangle	e ankle	
poodle	untangle	rankle	
girdle	wangle	crinkle	
curdle	surcingle	sprinkle	
hurdle	dingle	besprinkle	
caudle	shingle	wrinkle	
dawdle	jingle	tinkle	
	mingle	winkle	
eagle	commingle	periwinkle	
beagle	intermingle	twinkle	
gaggle	cringle	sparkle	
haggle	single		
bedraggle	tingle	maple	
straggle	atingle	staple	
waggle	bungle	steeple	
giggle	jungle ogle	participle	

craftspeople  
apple  
crabapple  
scapple  
dapple  
pineapple  
grapple nipple  
ripple cripple  
tipple stipple  
popple topple  
supple purple  
couple  
uncouple  
thermocouple  
scruple  
quadruple  
octuple  
quintuple

cuittle  
bottle  
bluebottle  
mottle  
throttle  
cuttle  
scuttle  
shuttle  
suttle

subtle beetle  
title subtitle  
entitle cantle  
mantle  
dismantle  
gentle  
disgruntle  
tootle startle  
chortle hurtle  
turtle myrtle  
pestle\* battle  
embattle  
cattle rattle  
brattle prattle  
tattle wattle  
fettle kettle  
teakettle  
mettle nettle  
settle resettlement  
unsettle  
whittle little  
belittle spittle  
brittle  
embrittle tittle

The following are positive instances of the generalization, with unstressed final [bl] spelled 'el' after non-continuants (fricatives, affricates, glides, liquids, and nasals):

cancel	colonel	ravel	pretzel
chancel	charnel	gravel	schnitzel
parcel	kernel	unravel	
	cornel	travel	
duffel	apparel	bevel	
	whimbrel	dishevel	
cudgel	mandrel	level	
angel	scoundrel	revel	
archange	doggerel	snivel	
	mackerel	drivel	
	pickerel	shrivel	
hatchel	cockerel	swivel	
satchel	mongrel	hovel	
	barrel	shovel	
bushel	carrel	novel	
	quarrel	antinove	
	squirrel	l grovel	
bethel	sorrel	carvel	
brothel	wastrel	marvel	
	minstrel		
camel	costrel	jewel	
enamel	laurel	newel	
caramel	saurel	crewel	
pommel		bowel	
pummel	easel	embowe	
cormel	weasel	l dowel	
	diesel	trowel	
panel	chisel	towel	
impanel	damsel	vowel	
sentinel	tinsel		
cracknel	counsel	ax	
cannel	morsel	el	
channel	tassel	pix	
flannel	vessel	el	
fennel	mussel		
kennel	streusel	hazel	
funnel	hostel	schlima	
chunnel	sequel	zel	
tunnel	gavel	bezel	
	navel		

**Counter Examples.** There are 93 counterexamples in the list -- that is, words with unstressed final 'le' after a continuant (59) or with unstressed 'el' after a noncontinuant (34). There are 1438 positive instances of the generalization.

The noncontinuant [f] is a common sources of counterexamples (19):

baffle	piffle	muffl	rifle
raffle	riffle	e	trifle
waffl	coffle	snuffl	stifle
e	scuffl	e	purfle
whiff	e	ruffle	
e	shuffl	truffle	
sniff	e		
e			

[N.B. In the lists in this piece the words are ordered alphabetically, based on their reversed spellings.]

There is only one positive instance with 'fel': *duffel*. So 'f' spelling [f] is one clear case where a continuant is not followed regularly by 'el'.

Another common source of counterexamples is the unvoiced-voiced pair [s] and [z]:

hassle

tousle tussle

forecastleaxle

nestle  
 trestle  
 wrestle  
 thistle  
 whistle  
 mistle  
 cacomistle  
 epistle  
 bristle  
 gristle  
 jostle  
 apostle  
 throstle  
 bustle  
 hustle  
 rustle

bamboozledazzle fozzle  
 bedazzle frazzle embezzle  
 fizzle drizzle frizzle sizzle  
 nozzle schnozzle bumfuzzle  
 guzzle muzzle nuzzle puzzle

*Pestle* has two pronunciations, one with [t] (making it an instance) and one without (making it a counterexample).

Notice that in the 'stle' words like *rustle* the 't' probably once was pronounced, though it is now silent.

There are 29 counterexamples with 'el' after a continuant -- 8 after [b], 5 after [d], 1 after [g], 6 after [k], 4 with [p], 5 with [t]:

babel label	nickel	snork
rebel (n.)	cupronic	el
decibel libel	kel	
bulbel barbel	pumper	
corbel	nickel	
	shekel	
	yokel	

brandel  
 model  
 remodel  
 yodel strudel

bagel

chapel  
 estoppel  
 carpel  
 gospel

betel  
 mantel  
 lintel  
 hostel  
 chattel

The following table summarizes the most common words with unstressed final [bl] spelled either 'le' or 'el'. The "Rank" column reports their ranking according to the *American Heritage Word Frequency Book*, which includes 86,741 word-types, constituting 5,088,721 word-tokens in the text included in their sample. The column labeled Cum % of Tokens at this Rank indicates the, closely approximate, cumulative number of word-tokens accounted for by the time you reach the rank level of the word-type. For example, *people* is the most common word-type in the table, at rank 79. All of the word-types from *people* at rank 79 up to *the* at rank 1 constitute approximately 47% of all of the word-tokens in the *American Heritage Count*. At the other end of the table, *whistle* is the least common of the [bl] words, at the 2,773rd rank. All of the word-types from *whistle* to *the* constitute 85% of the 5,088,721 word-tokens.

One implication of this is that since there are only 44 word-types in this

table, spanning the range of ranks that accounts for 85% of all wordtokens, the other 1470 word-types in our sample of [bl] words account for only 15% of the word-tokens among them. These numbers illustrate nicely, and typically, the great range of frequencies with which different word-types occur as word-tokens in actual printed prose.

The right-hand column indicates whether each type is an instance of or a holdout to the generalization. Instances ending in 'el' are labeled. All holdouts are also labeled, either 'le' or 'el'. Notice that among types in the

table there are only three holdouts, meaning that in this sample the generalization holds about 93% of the time, which is very close to the percentage for the total sample.

Notice, too, that there are relatively few 'el' forms in the table, only five, or 11%: *travel, level, vowel, model, Daniel*. This frequency is again reasonably close to the 9% in the whole [bl] sample.

There are only six *-able, -ible* words: *possible, terrible, impossible; valuable, available, comfortable*. (The plural *vegetables* occurs at the 1,684th rank, but the [bl] is not in word-final position.)

So what does this table illustrate?

<b>Word-Type</b>	<b>Rank</b>	<b>Cum. % of Tokens at this Rank</b>	<b>Instance (+) or Holdout (-) to the Generalization</b>
people	79th	47%	+
example	281	60%	+
table	342	63%	+
possible	525		+
simple	531		+
single	610		+
travel	620		+ 'el'
circle	624		+
middle	705	70%	+
trouble	736		+
cattle	877		+
level	957	75%	+ 'el'
vowel	1300		+ 'el'

double	1325		+
bottle	1442		+
Little	1496		+
apple	1532		+
model	1577		● 'el'
handle	1597		+
angle	1598		+
title	1647		+
battle	1730		+
valuable	1771	80%	+
terrible	1874		+
impossible	1881		+
available	2085		+
gentle	2123		+
triangle	2194		+
couple	2261		+
uncle	2277		+
needle	2314		+
comfortable	2366		+
bicycle	2382		+
Middle	2401		+
castle	2408		● 'le'
purple	2541		+
struggle	2464		+

syllable	2593		+
principle	2994		+
settle	2626		+
saddle	2634		+
jungle	2722		+
Daniel	2763		+ 'el'
whistle	2773	<u>85%</u>	• 'le'

		<b>'el'</b>
		8
[d]61		5
After Non- [d] 57		1
Continuants		6
[k]		4
91		5
[p]47		5
[t]68		29
Total1323		

[s]5		21
[z]17		5
[f]19		1
[v]0		21
[th, <i>th</i> ]0		2
Continuants [h]	Affe 0	2
[j]0		2
[sh]0		5
[m]0		1
[n]0		7
[l]0		18
[r]0		0
[w]0		19
[y]0		10
Total41		0
		112

### On Affix Strings in Lexis.wpd

N.B. The following is based on an earlier, smaller version of Lexis. The current, larger version would likely produce somewhat different results.

At c. 120,000 words Lexis contained no string of seven or more suffixes. It did contain five words with strings of six:

WORD	XP
antifluoridationists	[anti+flu+or]+id/e]+at/e]+ion]+ist]+s]
nationalistically	nat/e+ion]+al]+ist]+ic]+al]+ly]
naturalistically	nat/e+ur/e]+al]+ist]+ic]+al]+ly]

rationalistically	rat/e+ion]+al]+ist]+ic]+al]+ly]
sensationalization	sens/e+at/e]+ion]+al]+iz/e]+at/e]+ion]

Some other informal counts:

Records with strings of five or more suffixes: 81

Records with strings of four or more suffixes: 985  
Records with strings of three or more suffixes: 8,523  
Records with strings two or more suffixes: 42,390

Records with one or more terminal suffixes: 98,741. A few are compounds with a medial suffix: mark+s]+man+ship].

Filtered at **Like "[\*]+\*" and not like "[\*]+\*]" and not like "\*\*?" and not like "\*\*!"** > Compounds with a single medial suffix (ex: mark+s]+man : 755.

Records with strings of four or more prefixes: 0  
Records with strings of three prefixes: 40  
Records with strings of two or more prefixes: 3,104  
Records with one or more prefixes: 32,142

If my arithmetic is right, there are thus 27,038 records with one and only one prefix—that is, 32,142-3,104). Similarly there are 3,3063 records with strings of two and only two prefixes, and 41 with strings of three and only three prefixes.

Among the 40 words with strings of three prefixes, there are fourteen different strings, with the following distinct stems. The number of words derived from each stem is given in parentheses:

[anti+[re+[dis antiredisposition (1)  
[de+[re+[com/ derecognize (5)  
[in+[com+[pre incomprehense+ (7)  
[in+[de+[com indecompose (1)  
[[in/+r+[re+[com/ +n unrecognize+ (2)  
[mis+[ad/+p+[pre  
[mis+[re+[com/  
[mis+[re+[pre  
[non+[re+[com  
[non+[re+[pre  
[over+[re+[pre  
[un+[ad/+c1+[com  
[un1+[ad/+c1+[com  
[un+[com+[pre  
[un+[re+[com/  
irreconcile+ (3)  
misapprehend (4)  
misrecognized (1)  
misrepresent (8)d/  
nonrecombinant (1)  
nonrepresentational  
(1) overrepresent (2)  
unaccompany+ (2)  
unaccomplished (1)  
uncomprehend+ (2)

## The endings ex, ices, ix, ax.wpd

Concerning the endings EX, IX, ICES. The following words ending EX all form plurals ending in ICES, though several have more integrated English plurals with -es:

Word	Source and XP	Base's Content
apex	< L m.	"top, tip"
aruspex	< L m. (h)aru+spex	"intestine" + "look at"
auspex	< L m., f. au+spex	"look at"
caudex	< L m. caud+ex]	"stem, trunk; book"
cimex	< L m. cim+ex]	"bedbug"
codex	< L m. cod/e+ex]	"tree trunk; book"
cortex	< L m., (f.) cort+ex]	"bark, rind, shell, husk"
culex	< L m. cul+ex]	"gnat, midge"
haruspex	< L m. haru+spex	"intestines" + "look at"
index	< L m. [in+dex	"show, declare"
latex	< L m. lat+ex]	"water, juice, liquid"
murex	< L m. (also <i>murix</i> ) mur+ex]	"shellfish, mollusk"
pollex	< L m. poll+ex]	"thumb, big toe; stump"
pontifex	< L m. pont+i+fex	"bridge" + "make, do"
scolex	< L m. scol+ex]	"worm"
simplex	< L adj. sim+plex	"one, same" + "bend, fold"
vertex	< L m. vert+ex]	"turn"
vortex	< L m. vort+ex]	"turn"

Some, like *culex*, explicate to *cul+ex*], but they have coforms with IC from the plural ending *-ices*: *culic-* as in *culicellus* (*culic+ellus*]). In the group above seven contains bases ending EX: *simplex*, *pontifex*, *index*, (*h*)*aruspex*, *auspex*, *apex*. The rest contain what should still be thought of as a suffix *-ex*, which marks Latin singular (usually masculine) nouns. It can also be described synchronically as entering paradigmatically into a relationship with the plural *-ices*: *vortices*, *vertices*, *indices*, etc.

Related to the above are several singular nouns ending in IX that form their plurals in *-ices*:

Word	Source and XP	Base's Content
appendix	< L. f. [ad/+p+pend+ix]	“hang”
calix	< L. m. cal+ix]	“cup”
cicatrix	< L. f. cicatr+ix]	“scar, wound”
directrix	dis/+rect+rix	“guide, rule”
dominatrix	domin+ate/+rix	“master”
executrix	ex+s/ec+ute/+rix	“follow”
fornix	forn+ix	“vault, arch”
generatrix	gener+ate/+rix	“beget”
helix	hel+ix	“twist, turn, roll”
matrix	matr+ix	“mother”
radix	rad+ix	“root”
testatrix	test+ate/+rix	“witness”
textrix	text+rix	“cover”
varix	var+ix	“dilated vein”

The suffix *-trix* has been used since Early Modern English to form feminine agent nouns parallel to masculine agent nouns in *-tor*. This would suggest something like *direc/t+trix*], for *directrix*, with the T-deletion in line with the constraint against doublets within concatenations. However, Partridge (at *-trix* in *Origins*) treats *-trix* as a shortened

compound of possibly *-tor* + *-rix*, saying that “the true f[eminine] 'answer' to L. *-or* is L. *-rix*. I'll posit two suffixes: (i) *-ix*: marks Latin usually feminine singular nouns, and (ii) *rix* marks Latin feminine singular agent nouns paralleling masculine agent nouns in *-or*. Thus suffix *-ix* has a coform *-ic*: *appendix*, *appendicitis*: *append+ix*, *append+ic+itis*.

A parallel set is *-ax*, *-aces*, *-ac*: *thorax*, *thoraces*, *thoracic*, etc.

## The family arc, arch.wpd

The family *arc+*, *arch+* illustrates some of the problems of drawing boundaries and maintaining motivating links:

Base	Sense	Comment	Relatives	Instance	F
arch1	Rule		+arch3, +arch4,	125	
arch3	Chief, extreme, primitive		+arch1, +arch4,	63	
arch4	Chief, extreme, primitive		+arch1, +arch3,	3	
archa	Ancient		+arch1, +arch3,	11	
archae	Ancient	Expansion of +arch3	+arch1, +arch3,	8	
arche1	Beginning	Expansion of +arch3	+arch1, +arch3,	12	
arche2	Ancient	Variant of +archae	+arch1, +arch3,	3	

Shipley lists the possible IE root *arkh-*\* (with a question mark) with the gloss “begin, take the lead, hence ruler” (*The Origins of English Words*, p.18), and says, “This root produced two sets of words. (1) Related to the beginning of things, early times. . . . (2) As chief or leader.”

Watkins lists *arkhein*, a “Greek verb of unknown origin” with the sense “to begin, rule, command,” and derives from it the following: *arch-*, *-arch*, *archaeo-*, *archaic*, *archi-*, *archives*, *archon*, *-archy*, *autarchy*, *exarch*, *menarche* (*AHDIER*, p.3).

In his list of elements, Partridge has the following: **-arch**, **-archic**, **-archy**, **—arch**; **archae(o)-** or mod[ern] **arche(o)**; **arche-**; **archi-**. Resp[ectively] (1) 'ruler'—(2) 'of rule or a ruler'—(3) 'rule' (government); (4) 'first in time or rank', hence 'chief, principal' and 'primitive'—(5) 'ancient, primitive'—(6) 'in the beginning, primary'—(7) 'chief' or 'primitive, original'. The Gr[ee]k originals, with E[nglish] ex[amples], are these: (1) *-arkhçs* or *arkhos*, ruler, occ[asionally] via L[ate] L[atin] *-archa*—as in MONARCH; (2) *-arkhikos*, of a ruler—as in *monarchic*; (3) *arkhia*, rule, occ[asionally] via L[ate] L[atin] *-archia*—as in *monarchy*.—(4) *arkh-*, short for *arkhi-*, from the s[tem] of *arkhein*, to be first, cf. *-arkhos* or *-arkhçs*, as in (1), and of *arkhç*, a beginning or origin—ex[amples] *archbishop* and [analogously] *archduke*, *archpiece*; (5) *arkhai(o)-*, from *arkhaios*, ancient or primitive, from *arkhç*—as in *arch(a)eology*; (6) *arkhç*, beginning, origin—as in *archetype*; (7) *arkhi-*, occ[asionally] via L[ate] L[atin] *archi-*, strictly the complete form of (4)—as in *archiepiscopal* and *architect*.

“Note that (1), *-arch*, has a Bot[anical] var[iant], as in *pentarch*, having five strands, from Gr[ee]k *archç*, a beginning.

“That all seven (eight) forms have a common origin is clear from the fact that 'the first in time' tends to 'the first in rank or importance' and it also tends to be 'primitive’” (*Origins*, p. 872).

In a sense, then, all of these forms have the same root sense, probably “first,” from which grow two main branches each with two more or less distinct stems:

### A. Time

- (i) “origin, beginning;
- (ii) old, ancient;

### B. Rank

(iii) principal, extreme;  
D. ruler.

Time will tell whether my analysis in AllBases does an adequate job of representing this structure.

## From Ruthie\_Appling CommonWords for BookHead Ed.wpd

I need to think about CommonWords through a vocabulary building lens, primarily, and a spelling lens secondarily. The themes were of great interest, of course, and the prefix and suffix sections.

1. One concern from Murray Suid (a member of our team) is that kids will get distracted from the lesson at hand if they click on words and then follow the thread. I see how this could be solved in that the first click on the word can give it's definition(s) and use in a sentence or phrase--for the most frequent definitions, and a second click could go into the data base. The first click might be to the American Heritage Dictionary, and the second click to the CommonWord data base, should it be in there. What do you think?

Also, I'll forward Murray's concerns to you. ruthie

P.S. I'm not sure if we have Access, but I'll let you know. I need to work with the system myself, obviously. r

On Apr 20, 2009, at 10:04 PM, Don Cummings wrote:

Ruthie -

Since we've been talking about CommonWords, I thought I'd send you the introduction to the revised version. Learning more about the several new fields might suggest some uses to you that I'm not immediately seeing.

I know this is a lot of reading, but I think there is some pretty good stuff in there -- and you can use the table of contents at the head to pick and choose your way through. If you want to try out some of the new fields, let me know. If you have Access, I can just send you the Access files. If not, I can send you a text copy that you can load into whatever database program you have. Or even into Excel, though I'm not familiar with Excel's somewhat limited filtering capabilities. (If you don't have a database program, Access is the best I've encountered so far -- and filtering is really very easy.)

Somehow this all reminds me of the way a homeschooling mother who is using my Basic Speller always signs off: "If all is not lost, where is it?"

## Ruthie\_On Spelling Bees.wpd

Hi, Ruthie –

For the last several weeks I had been revising a hunk of “Explication, Evolution, and Orthography” from my website, thinking that reworked to address the issue of reading rather than spelling, it might be of interest to your BookHeadEd project. It was more or less boiling down to the readers (and reading specialists) benefiting from knowing something about three distinctions: language code vs. language performance, meaning vs. content, and word vs. element. Those three and the notion of the edge of chaos involved in the act of meaning-making, for both writer and reader. I let it sit for a couple of weeks while Carol made me work in the yard, and when I got back to it, it seemed so incurably boring that I gave it up.

Then last Thursday I watched the finals of the national spelling bee, and besides amazing me (again) with the youngsters’ performances, it brought on the usual fit of the grumbles, grumbles over how much the teaching of spelling has been trivialized in spite of the great range of knowledge that can be brought to bear on it.. Mid-grumble it occurred to me that there was a connection here with the psychologist Abraham Maslow. Not his hierarchy of needs, necessarily, but rather his insight that we can learn a lot about the human mind by studying mentally healthy people as well as the mentally unhealthy ones that Freud and the others concentrated on. Besides I kind of like the notion of language arts class as a Maslovian peak experience.

I suspect language arts teachers could learn a lot by studying the strategies of youngsters who are skilled in the arts of language, including spelling. And one strategy that interests me most is the way the spellers in the bee asked questions: “Can I have a definition?”, “Could you use it in a sentence?”, “What is its language of origin?”, “What is its part of speech?”, “Are there any variant pronunciations?”, “Is its base so-and-so?” (The kid who really blew me away, when faced with the terrible word *psittacosis*, referring to some avian disease, asked “Does the base come from the Greek *psitta* meaning ‘parrot’?” – to which the somewhat astonished pronouncer said yes, and the kid had the word nailed.) For readers rather than spellers we might also add a seventh question: “Are there any accepted variant spellings?”

Those six or seven questions and their answers all bear on

Hirsch's notion that good readers need to know the words and the world that the words are about – both the referential world around us and the grammatical-rhetorical world inside the language itself.

Basically the kids are asking what the word means, how it can be used, what its syntactic function is, where it came from, how it's put together, how it can be pronounced. I believe that all of these, and the seventh question about variant spellings, are things that kids should be taught to help them become good readers.

Years ago when I was pronouncing words for the *Seattle Times* Scripps-Howard Spelling Bee, I noticed that there were two kinds of contestants. The first group, by far the larger of the two, prepared for the bee the way they had been taught to do spelling: by brute rote memory. Some of them were very good, almost savant-like. But when the bee progressed to the point where we were dealing with words that they had not been given to study ahead of time, the rote learners tended to fall by the wayside pretty rapidly. What was left were youngsters who had been taught, or had simply figured out for themselves, how to ask those six questions – and what to do with the information in the answers. Like the finalists last Thursday, they could think their way through the spelling of words. More than once I gave kids words that I know they had never seen or heard before (you can tell by the looks on their faces and the gasps), but they would ask their questions, and then they would come up with a spelling that if not always correct was at least always plausible. (Notice how even the idea of a plausible misspelling seems odd, because of the way our schools tend to leech out the idea of information and knowledge in the spelling of words.)

Some years before my experience with the Seattle bee, I took a year off from Central to teach at Newport High School in Bellevue. I worked a lot with a really sharp language arts coordinator by the name of Jim Sabol. He and some of the top notch teachers they had working in that district taught me a lot that year. And one thing that Jim said, pretty off-handedly, was that what teachers really wanted was lots of good stuff to teach. Which gets me back to grumbling about the trivialization of teaching spelling to youngsters and teaching future teachers how to teach spelling to youngsters, reducing it all pretty much to rote with a smattering of cutesies. Thus, as John Donne would say (in an utterly different context), “a great prince in prison lies.” I would like to see a project like BookHeadEd begin to spring that prince free.

(The article “How Do You Spell [d]?: On the Expansion of

Orthographic Knowledge” in the Short Articles section of my website deals with this same issue.)

But I rant, and this is getting too long. On the other hand, you have been spared that longer and incredibly boring rewrite I worked on.

Cheers, Don

P.S. Did you and Larry ever see the musical “The 25<sup>th</sup> Annual Putnam County Spelling Bee”? Carol and I saw it in Yakima. It’s a hoot. Oddly, we were having dinner after the play at the Olive Garden, and the cast sat down at a table nearby. They were just as goofy at dinner as they were on the stage. I offered condolences to the young woman who in the play got off a couple of what I thought were good shots at George W. Bush – at which, except for my giggling, the theatre had pretty much fallen silent. Yakima is a very red town. I got the impression that she was fairly used to that silence.

## Ruthie\_Response to Applying CommonWords for BookHead Ed.wpd

Here is a more detailed suggestion of how my Lexis database could be used in an application such as the box that you described. First, Lexis could not help with the word definitions, though it could help with the base and affix definitions in the right side of the box. Lexis also could not help with the etymology. Your on-line dictionary should be able to provide both the definitions and etymologies. I have good etymologies in my revised CommonWords table, but it only contains about 8500 words, as compared with Lexis' 129,000. (129,000 words covers well over 90% of the words one encounters in running text.)

Lexis could identify the base and its meaning, and the prefix and suffix and their meanings. It could also handle the related words field.

I could send you the necessary tables and fields from the Lexis database, and your techies could load them into whatever database you are using. This would involve the following tables and fields:

Words table (Word and Explication fields), Prefixes table (Prefix, Examples, and Comment fields), Bases table (Base, Examples, and Sense Links fields) Suffixes table (Suffix, Examples, and Comment fields).

Once the youngster cues the target word, the machine could go through the following procedure:

1. Search the Words table for the target word.
2. If it's not found, display the default message, whatever you want that to be.
3. If it is found, get the Explication field.
4. Parse the Explication field to identify and store the prefix(es), base(s), and suffix(es). This can be a bit tricky, but the basic pattern is that all prefixes are preceded by a left-hand square bracket, all suffixes are followed by a right-hand square bracket, and bases are letter strings that don't contain brackets and are two or more characters long. It gets a bit more complicated than that, primarily because of assimilated prefixes and <e>-deletions, but it can be done. I did it some years ago, and still have the dBase program I wrote to do the parsing and storing of bases and affixes.

I'm sure your techies could come up with a far more efficient program, though I would be happy to send them a copy of mine, if they promise not to burst out laughing.

5. Search the Bases table for the base (or bases, though I don't know how you'd want to handle words with two or more bases or prefixes or suffixes).

6. Display the base and the crucial information from the Sense Links field. Two points here: First, many of the bases have index numbers to distinguish between homographs. Those indexes are necessary for the various machine searches, but they would be stripped off when they are displayed to the student. Second, I will have to tweak the Sense Links field some so there is more consistency in the format.

7. Search the Prefixes table for the prefix and display it and its Comment field to the student. Again I'd have to do more tweaking in the Comment field.

8. Search the Suffixes table for the suffix and display it and its Comment field. More tweaking.

9. Search the Words table for other words that contain the same base, for the Related Words field in your box. (Actually, I'd be inclined to list these related words as part of the display for the base, as in the example below, which would move this search up into step six in the procedure.) There's a complication here: Probably you'd only want six or so related words. In some cases there would be only six or less – no problem. But in many cases there are way more. For instance, in Lexis there are 172 words that contain the base *fect*. You'd need a strategy to spread the six out, for if you just take the first six from an alphabetized list, you get *affect*, *affectation*, *affectations*, *affected*, *affectedly*, *affectedness* – not too helpful. You could randomly sort the list and take the first six – or you could devise a more intelligent algorithm. For instance, if there are no related words, display the default message. If there are 1 through 6 related words, display all of them. If there are 7 through 18, display every second one – that is, every one with a count number divisible by two. If 19 through 36, display every third one – with a count number divisible by three. Etc.

By the way, I'd recommend a brief list of related words containing the same prefix and suffix to be displayed with the prefix and suffix and their meanings. This can be easily done with the Examples fields in the Prefixes and Suffixes tables. It's included in the example

below. Here's a for-instance, using *intangible* as the target word, with the additions and changes mentioned above:

*Intangible's* explication is [in1+tang2+ible]

Display: Prefix = [*in*, "Not, opposite, without."

Related Words with [*in*: *inability, incongruity, indemnity, insignificant, invalid*

Display Base = *tang*, meaning "Touch, handle."

Related Words with the base *tang*: *cotangent, tangent, tangential, intangibility, tangibly, tangoreceptor*

Display Suffix = *ible*, "Capable of, fit for."

Related words with *ible*]: *admissible, audible, deducible, flexible, sensible, terrible, visible*

Well, that's one line of thought. Some of that tweaking could get a bit time-consuming, but I'm always looking for an excuse to fiddle with my databases.

## Ruthie\_Assumptions Behind the Basic Speller.doc

Ruthie--Here are a series of assumptions that I believe are more seriously and insistently addressed in my spelling materials than they are in any other program with which I am familiar. Since I'm not clear exactly what you need and how much, I've written a lot more than I suspect you need. Pick what seems useful, revise it into what you have, and chuck the rest.

1. Youngsters (and not-so-young-sters, too) learn better when they experience a sense of structure. Thus, my program strives to be unified, in the sense of keeping its focus on the task of learning to spell rather than introducing various distracting elements. It also strives to be coherent, in the sense of having each lesson build off of those that have preceded it so that there is a set, coherent order of presentation. It also strives to display a sense of what the Gestaltists called "good continuation"--that is, the smooth and steady introduction of new information into the structure that the students are being brought to perceive. In my mind and in the senses just described, other spelling programs with which I'm familiar do not encourage a sense of structure because they are neither unified nor coherent nor characterized by good continuation. They tend to be all over the place, disjointed, arbitrary, and empty repetitive.
2. The notorious and so-called "exceptions" that in the minds of many people render English spelling literally unruly are the by-product of a combination of the inherent complexity of our spelling system and other programs' insistence on a deductive approach. To be taught deductively, the patterns that underlie spelling rules must be kept so short and oversimplified that they inevitably leak all sorts of so-called exceptions. To do justice to the complexity and to accommodate the limits of humans' capacity to learn deductive rules, you must go at things inductively, allowing the students to learn the patterns and rules gradually, coherently and in a discovery mode. Taught inductively, English spelling is a structured and systematic affair that is not more exception than rule.
3. The principle of good continuation suggests a general plot line that runs from the most simple and basic to the most complex. So far as spelling is concerned, this plot starts with identifying the basic units (letters and sounds, vowels and consonants). Next come the relationships among these units: simple sound-to-letter correspondences ("The sound [t] is usually spelled either <t> or <tt>") and simple tactical strings (VCV vs. VCC). Then you move on to the

next higher order of units (elements: prefixes, bases, suffixes) and begin to look at things that happen when these elements combine (simple addition, twinning, final <e> deletion). Then you move on to those things that can complicate these simple basics: assimilation in prefixes, palatalization in words like 'nation' in which [sh] is spelled <t>, shortening rules like the Suffix -ity Rule and the French Lemon Rule. By the time you get this far, the simple sound-to-letter correspondences you started with have matured to the point that they can do justice to the living complexity of our spelling system. The so-called exceptions have become vanishingly few, and those few can nearly always be made understandable through some work with etymology, which students tend to find intriguing anyhow. To sum up the foregoing: More than any other program I know of, my program allows the students to discover the structure and form within our spelling system because it is an inductive description that is unified ("on task"), coherent (presented as a fixed sequence), and marked with good continuation (because it gradually adds new and complicating information).

**Ruthie\_Defending the Basic Speller from a California Dean of  
Education. wpd**

Ruthie-- Here are my initial responses to Dr. Calfree's initial responses. His are in italics, mine in Roman. [M.B. Calfree was the Dean of Education at the University of California at Riverside to whom Ruthie had sent a batch of my early stuff.]

*My sense is that he is like Leonard Bloomfield: He is an "English" type who has wandered into the decoding-spelling arena, and wonders about the relative lack of linkage to the historical foundations of the orthography.* I think he is right here, though I would put it a little less daintily. I don't wonder so much about the lack of linkage with the historical foundations as I do about the fact that the people who write the programs don't seem to know much of anything about English spelling. The current research on readiness, et al they know, but not the stuff of spelling itself. It's as if you had arithmetic and math being taught by people who didn't know anything about arithmetic and math but were up on the latest on learning styles, etc. Then those math materials were being taught by people who were even more so. Then, of course, (at least with the language arts materials I've looked at) the presentation and layout are rendered incoherent and too much like comic books by marketing and book design people. Pretty soon it is all hat and no head. But I rant.

*Parents worry some about spelling, mostly because teachers hassle them. But they aren't likely to purchase a comprehensive spelling program. Doesn't he have this backwards? Teachers worry some because parents hassle them? I suspect the main reason they (or the school districts) don't buy comprehensive spelling programs is due to the presence of all those big, colorful language arts series that allege to include spelling.*

*The grade levels for SH aren't clear, based on the materials, which seem aimed toward a remedial model. I see the materials as being for grades 3-6 at the earliest. I think it is wrong to begin the systematic study of spelling before grade three, primarily because until then most students are still wrestling with the spelling-to-sound problems of learning to read, and they should be given a chance to get control of them before they tackle the sound-to-spelling problems of learning to spell and write. The idea of a remedial third grade spelling program I have a little trouble getting my mind around. However, I do believe that the materials can effectively be introduced later, and of course the later they are introduced, the more remedial they may appear to be. I think that that versatility is one of the strengths of the program. And that is one of the reasons there is nothing in them to identify them with little kids, etc. No*

condescension. The combination of self-pacing and testing-out that the pad provides would build off of that strength.

*Not clear how the program has been implemented in other settings. The lessons appear to be worksheet-like, without teacher-based instruction.*

Basically the materials were taught 3 times a week for a half hour or so. They are worksheet like, but teachers were expected to teach, which consisted primarily of reading the lesson aloud, being particularly careful with the reading of the words the youngsters were analyzing, monitoring the students' pronunciation as they read them back and giving brief definitions of words that raised questions. They also went around the room making sure the kids understood what they were expected to do. The first part of this could be handled by the pad, the last part could be handled in part by the judicious use of "More Info" or "Repeat" buttons, the way we were talking about here at the house.

*For instance, the VCV and VCC strings are clearly important, but what happened to the CVC[V] pattern that is at the core of the current program. I'm not sure what CVC[V] pattern he's talking about. I do remember some discussions with Ann Earp about strings in the Twist 'n Spell. If by CVC[V] he means the contrast between, say, *mat* (CVC#) and *mate* (CVCV), those things are covered in my materials.*

*The presentation of technical concepts and language, at the outset, terms like prefixes, bases, and suffixes will disengage some students and parents (this is not second-grade stuff), but the real challenges arise with tactics, shortening, addition, assimilation, and so on. My experience in teaching books one and two to third graders all those years ago was that the technical concepts and language did not bother most of the students nearly as much as adults thought they would. Some students needed more help than others. Some struggled mightily throughout. But I suspect that that is true of any program. I came away from my brief experience with the youngsters convinced that they could learn a whole lot more than they are usually given credit for. Shortening and assimilation are difficult, which is why they are introduced later in the sequence: Assimilation doesn't get introduced until the end of the second year (and then very slowly and carefully); shortening rules don't get introduced until book eight. In the original version, I held off on <e>deletion and twinning until later books, but I eventually decided that by the end of the first year of instruction (that is, by the end of book two), students should have had work with simple <e>-deletion and with twinning in monosyllables, which of course entails work with VCV and VCC strings. So I changed it to the current sequence. He is quite right that it is not second grade stuff, but, as I say, I believe the first two books are appropriate for third graders.*

*Which difficulties arise in large part, in my judgment, because of the lack of a*

*clearcut developmental progression in this program. I'm looking at Book 1, clearly not for a young child, but for whom? A fifth grader? Eighth grader? College student? As I go through the syllabus and the materials, sometimes one and sometimes the other. I think he is simply wrong here. There is a clearcut developmental progression. He might not see it, or like it, but it's there (of which more later). The earlier lessons are for younger, less informed students; the later lessons are for students who are older and better informed (by the preceding lessons). Coherence, in the rhetorician's sense of each part building off previous parts and thus fixing a fairly strict sequence, is something I worked very consciously and hard at. And my major problem with other spelling materials is that they are in that same sense incoherent.*

*I'm less convinced about the inductive aspects. I'm not sure what he is saying here about the inductive approach. If he is saying that the materials are not inductive, then we have different definitions of induction. If he is saying that induction is not a good approach here, then we have a real difference of opinion. And I would point to the lack of induction in most (or all?) published materials and the students' notoriously poor spelling as evidence that it is time to consider a different approach.*

*Actually, there is little scaffolding to provide students with insights into the word history aspects of English. Cummings certainly appreciates this foundation, but nowhere in the syllabus is there mention of this history. It sounds to me as if he is mixing up "Words and Their Ways" with the Basic Speller. The Basic Speller is for teaching spelling; "Words and Their Ways" is talking about a more general kind of word study, primarily vocabulary and careful reading, primarily for older students. The Basic Speller mentions word history to give the rationale for things like the French Lemon Rule (book eight), and there is quite a bit more tucked into the teacher's edition concerning how silent final <e>'s got that way, etc.*

More about coherence, progression, readiness, and the like: I think that many of Dr. Calfee's concerns are due to the fact that my materials are more subject-based than he is used to. I suspect he is used to seeing such things in more student-based terms. This is a real and important difference in how one thinks about teaching kids to spell. And do much of anything else, for that matter. Obviously, we have to be concerned about the youngsters (and their teachers), just as we always have to be concerned about our audience (remember that I am an old composition teacher). But if we spend too much time on the latest (too often ephemeral and faddish) research on learning, we risk leeching out the substance or subject matter, and we get ourselves into a bad situation. An analogy: In my old field of literary criticism it became clear to me that the criticism was becoming more important than the literature, which is sad and misdirected. One result is a version of Parkinson's Law: As more and more people wrote more and more about a finite amount of stuff, the trivial and ephemeral grew more important; the arguments and distinctions grew more

hyperbolic and strident, and the whole affair grew thin and watery, a la Parkinsonism. Reading current literary criticism became (for me, at least) painful and unedifying. And the joy and wisdom of the literature was getting lost. I think that something like that can be happening in the professional education business, though admittedly that is an area I really don't know a lot about.

## Ruthie\_Doubling vs twinning; derivational constancy.wpd

In his note Shane [Templeton] observes that in longer words “the role of doubling is much more tenuous.” In response I would say, first, that I can't find any definition of 'tenuous' that I could agree with here. Complicated, yes, but not tenuous. Second, I think the word 'doubling' is being used to refer to two quite different things. The first thing is twinning, as when a speller inserts a twin consonant between a free stem and a suffix, a la the Twinning Rule: *run+n+ing=running*. Twinning is a process that the speller must go through, adding an additional letter to the given elements. Twinning is part of the inflectional morphology that Shane refers to. The second thing covered by Shane's use of 'doubling' is the occurrence of double consonants in the given spelling of certain elements: the 'tt' in 'lettuce' or the 'nn' in 'annual.' Here it's not a question of elements coming together or of the speller adding additional letters; the double letters are part of the given spelling of the element.

Let's use 'doubling' to refer to that second thing, and 'twinning' to refer to the first. (If this begins to get tedious, be forgiving; I'm using your good questions to help me think this out for myself, too.) Doubling can actually produce problems in monosyllables: For instance, why is it 'if' with 'f' but 'stiff' with 'ff'? 'Egg' but 'leg'? Both 'in' and 'inn'? But more importantly, doubling also produces problems in words of two or more syllables: 'finish, general, competitive, declamatory,' etc., in which we get single consonants where we would expect doubles because of the open-closed syllable pattern (or the expected VCC string). Whether we deal in terms of syllable-structure or VCC strings, these problems involve unfulfilled expectations: We expect two consonants but get only one. Surely there are various ways of explaining, or at least responding to, these unfulfilled expectations, but the way that I prefer is to think in terms of the preemption of more general, or global, rules and patterns by more specific, or local, ones. It is a very old and well-established principle that in cases of conflict between global and local rules or patterns, the local ones prevail (quite the opposite, I guess, of the political scene). Thus, the globally expected closed-syllable, or VCC, in 'finish' is preempted by the more local French Frontshift Rule and by the even more localized Suffix -ish(2) Rule, which is essentially a subset of the French Frontshift Rule. Such preemptions complicate things beyond what they would be in an artificial code (like, say, a simple computer programming language), but this higher degree

1 of complication is typical of naturally evolving complex systems.

2 The problem is how localized, and thus detailed, you want to get in  
 3 the classroom. Most spelling texts don't get localized and detailed  
 4 enough to present a very coherent view of the issue. My hunch is  
 5 that kids can handle a much more detailed treatment than we act as  
 6 if they can--if we present it to them in the right way. The right way is,  
 7 I believe, a way that is gradual, incremental, coherent, inductive,  
 8 analytical -- leading to that shock of recognition as they discover  
 connections within the words and thus connections within their own  
 minds.

9 There actually are not a whole lot of preempting patterns:

10 1. Assimilation in prefixes: To account for the unexpected  
 11 double consonants after schwas in words like 'appear, connect,'  
 12 etc. ("unexpected" because initial and medial syllables in which  
 schwa occurs are usually open).

13 2. The Third Syllable Rule

14 3. The French Frontshift

15 Rule 4. The Suffix Rules

16 My hunch is that, properly applied, these four account for something  
 17 like 90% of the preemptions with which we are concerned. The rest  
 18 would be usually recent and still exotic adoptions and a few (but  
 19 often peskily frequent) oddballs and fossils, like the silent final 'e's in  
 20 'some, come, gone, done,' which involve preempted VCV strings  
 21 (though since they're monosyllables, I guess there's no apparent  
 problem so far as syllable-juncture is concerned).

I believe that this notion of the preemption of more global patterns by  
 more local ones like the four listed above makes possible a very  
 systematic explanation of doubling, with, admittedly, that strand of  
 unpredictability I mentioned earlier.

You asked specifically about 'competitive.' First, we'd have to point  
 out to the students that 'competitive' derives from 'compete,' which  
 itself analyzes to the prefix [com "with, together" plus the bound base  
 'pete' "seek" (The root, and unifying, sense of 'compete' is of two or  
 more people seeking the same thing.) So 'competitive' comes out to  
 be [com+pet/e+itive]. ("/e" indicates a final 'e' deletion; the overstrike  
 doesn't work in email.) The suffix -itive] is an extension of the more  
 common -ive]. (It picked up a fossil 'it' from the stem of its Latin  
 source word, another instance of the way things change in the  
 evolution of spelling over the centuries.) And in 'competitive' the

1 short 'e' in the VCV string 'eti' is due to preemption by the Third  
 2 Syllable Rule. So for us to explain 'competitive' to the youngsters  
 3 they need to know about the analysis of words into prefixes, suffixes,  
 4 bases; about final 'e' deletion; about the VCV/VCC distinction, and  
 5 about the Third Syllable Rule. That is quite a lot. One of the reasons  
 6 the Third Syllable Rule doesn't show up in the Basic Speller until  
 7 Book 8 is that we need time for all of the other stuff to sink in. But  
 8 once they do have all of that, notice how many words they are set up  
 9 to handle:

8 anticompetitive [anti+[com+pet/e+itive] compete  
 9 [com+pete competed  
 10 [com+pet/e+ed] competence [com+pet/e+ence]  
 11 competencies [com+pet/e+enc/y]+i+es] competency  
 12 [com+pet/e+ency] competent  
 13 [com+pet/e+ent] competently  
 14 [com+pet/e+ent]+ly] competes [com+pete+s]  
 15 competing [com+pet/e+ing] competition  
 16 [com+pet/e+ition] competitions  
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 21 [com+pet/e+itor] competitors  
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Thus, our explanation of 'competitive' has a great deal of heuristic power. I believe that that heuristic power speaks to the systematicity of derivational constancy.

Actually, what I'm saying is different in only one, but one very important, way from what Shane was getting at when he said that 'finish' is related to 'final': There's a necessary directionality here that avoids the circularity of Shane's statement: We are saying that 'competitive' is derived from (not just related to) 'compete.' That gives 'compete' and thus the base 'pete' (with its one 't') priority. It is still just one 't' in 'competitive' because of that priority, and the only apparent anomaly in the spelling ('t' rather than 'tt') is accounted for by the Third Syllable Rule.

At the risk of really over-staying my welcome: Shane's statement could be restated as follows: 'Finish' derives from the old verb 'fine' whose root sense is "stop, cease, desist": fin/e+ish]. And so does the word 'final': fin/e+al]. 'Finish' has a single 'n' and a short 'i' because of derivational constancy and the French Frontshift Rule. 'Final' has 'n' and a long 'i' because of derivational constancy. 'Final' did not come from French; it came directly from Latin, where the 'i' was long. Now we can't really expect kids to know about the French vs. Latin sources of words. There comes a point where the teachers and textbook writers have to just say "That's the way it was. You don't have to know all the details, but trust me: one came from French and has short 'i', and the other came from Latin and has long 'i'." Telling them something like that is better than saying that 'finish' (or 'final') is an exception to the rule. Because it isn't. Actually, the etymologists don't all agree about the source of 'final': Some say it came directly from Latin; some say it came through French; others (like the recent "Barnhart Dictionary of Etymology") say it came from both. I prefer the Latin origin because it fits the general pattern we're working out.

When I say that 'finish' and 'final' derive from 'fine', I'm not speaking in a strictly historical sense. Historically, 'finish' derives from the French stem 'finiss-', and 'final' derives from Latin 'finalis'. I'm talking about analytical derivation: In the attempt to explain as many words as we can from as few elements as necessary, and without doing too much violence to the history, we can say that 'finish' and 'final' can be

1 analyzed into fin/e+ish] and fin/e+al], and thus both derive from 'fine'  
2 in that sense.  
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## Ruthie\_Hirsch and Teaching Metonymy

### Metaphor.wpd Ruthie –

I was glad to get that copy of Hirsch's article. I hadn't read it before, but I've been impressed with his *Dictionary of Cultural Literacy* ever since it came out back in the 80's. The tagging of Hirsch words in the Rank field in CommonWords is a sign of that respect. I really do think that his *Dictionary* is something teachers should make more use of. Among other things, it was nice to learn that he, like us, is just another school teacher.

His notion of the reader's need to have knowledge of the words and of the world seems to me to be right on the mark. It brings down to earth the somewhat airier assertion by the French philosopher Paul Ricouer that the process of making meaning requires a "bringing to the text" by the language user. The conversion of public textual content into personal meaning is, I think, what folks are getting at with their emphasis on decoding skills, but that conversion is, as Hirsch says, bigger than just decoding. The fluent reader can't continue worrying about decoding forever, any more than the fluent speller can continue to worry about sound-to-spelling correspondences. (I try to explain the way I see the process of converting the public content conveyed by the text into the private meaning created by the user in the "Content and Meaning" section of "Orthography as an Evolving Complex System" in the Short Articles section of [dwcummings.com](http://dwcummings.com).)

But the problem is how to apply all this to the kind of things BookHeadEd is about. I've been thinking about Hirsch's example of the chess master who can glance at a chessboard in mid-game and then later duplicate the position of each piece on the board. He says that the chess master does this by comparing the pieces' positions with the vast number of games in his memory. I suspect that this is right, or at least half right. Hirsch is saying that the master uses paradigmatic (which would be metaphoric) thinking. But I think he also uses syntagmatic thinking (which would be metonymic): He knows not only what the pieces' positions are but also pretty much how they got there. That kind of thinking in terms of spatial-temporal relationships is one kind of metonymy. The problem, then, is how to apply the metaphor-metonymy distinction not to chess pieces, but to words.

It should boil down to getting the student fluent in thinking about words in terms of the paradigms they can enter into, which is

metaphoric, and in terms of the syntagmatic relations they can enter into, which is metonymic. This approach makes it possible to structure the presentation of words in a way that spelling and vocabulary lists, which tend to be random and arbitrary, do not.

One more distinction: Think of words in terms of their expression and their content. Expression for our purposes would be pronunciation, spelling, and morphology. Content would be what most books call “meaning” but which I would call “content”: Content is the word’s potential for being used to make meanings. Words have content with which people make meanings. Content is polysemous, as a glance at the definitions in a good dictionary will show. But meaning, in ordinary language at least, has to be mono-semous. Literary language can complicate meanings so they work almost polysemously, but in ordinary language, which we are mostly concerned with, meaning has to be clear and specific, mono-semous. Since words are single units, it’s not always easy to tell when you’re talking about expression and when content, but I think it remains a useful distinction.

Okay, so we end up with various kinds of patterns or structures:

1. How is the expression (that is, pronunciation, spelling, morphology) of this word like other words? For instance, given the word *deceivingly*

In what other words is long <e> spelled

<ei>? What other words contain the base

*ceive*? Etc.

2. How is the content of this word like the content of other words? This includes synonyms, and antonyms since opposition is a kind of similarity.

What other words suggest dishonesty?

The base *ceive* is from Latin where it had the sense “take, seize, catch.” The prefix *de-* has the senses “make opposite, reverse, remove, reduce, degrade.” Which senses seem part of the word *deceive*? (This is that root meaning business I mentioned in an earlier epistle.)

Etc.

3. How is the expression of this word related metonymically to other words?

The string *deceive*, *deceiving*, *deceivingly* goes from verb to adjective or noun, to adverb. In which sentence does *deceivingly* fit?

He decided to try to \_\_\_\_\_ his boss.

He was a \_\_\_\_\_ rat.

He treated his boss \_\_\_\_\_.

Etc.

4. How is the content of this word related metonymically to other words? This leads to a concern for cause and effect, spatial or temporal relationships, and to syntax in general: subject-predicate, modifier-modified, etc. I think it also gets into Hirsch's notion of domain knowledge.

The whole syntax thing is really important, as I learned when I was directing the Academic Skills Center and we were teaching remedial reading. The normal reading programs were pap, pretty much like what Hirsch describes language arts texts in general as being. And here we were taking some marginal freshman and using pap to try to prepare him for college reading. The poor kid might find himself next quarter in an Intro to Philosophy course where he encounters something like the following, taken at random from John Locke's "An Essay Concerning Human Understanding":

This, therefore, being my purpose – to inquire into the original, certainty, and extent of human *knowledge*, together with the grounds and degrees of *belief*, *opinion*, and *assent*; – I shall not at present meddle with the physical consideration of the mind; or trouble myself to examine wherein its essence consists; or by what motions of our spirits or alterations of our bodies we come to have any *sensation* by our organs, or any *ideas* in our understandings; and whether those ideas do in their formation, any or all of them, depend on matter or not.

What a tangle of syntactic-metonymic relationships! The largest of these relationships would be between the first part of the sentence (up through the word *assent*), in which Locke lists what he is going to do, and the rest of the sentence, in which he lists what he is not going to do – a positive-negative metonymic relationship. One lesson

learned from recognizing that split would be to spend more attention and time on the first part than the second. (It would take an

unusually mean-spirited professor, even among philosophy professors, to ask a question like, “What did Locke say he wasn’t going to do in the essay?”) Concentrating on the first half: Locke is promising to inquire into two sets of things: “the origin, certainty, and extent of human knowledge” and “the grounds and degrees of belief, opinion, and assent”. Another metonymy: first-next. Nothing too complex going on in the vocabulary, except for the now-obsolete *original* where we would have *origin*. Each of these two sets is also divided metonymically: “origin, certainty, and extent of human knowledge” (metonymically, first-next-next), and “grounds and degrees of belief, opinion, and assent” (first-next and then first-next-next again).

The foregoing is somewhat like old-fashioned sentence-diagramming, but not much, since its basis is not grammatical parts of speech, but rather logico-rhetorical relationships as reflected in syntactic prallelisms and series. The fluent reader will see most or all of those relationships more or less clearly, more or less immediately. The problem is to help the student do it. Maybe something like a complex cloze sentence could help:

Locke will inquire into (1a) the \_\_\_\_\_, (2a) the \_\_\_\_\_, and (3a) the \_\_\_\_\_ of human knowledge, and into the (1b) \_\_\_\_\_ and (2b) \_\_\_\_\_ of (1c) \_\_\_\_\_, (2c) \_\_\_\_\_, and (3c) \_\_\_\_\_.

In filling in those eight blanks, the youngster writes a pretty good summary sentence as well as having highlighted for him some metonymic relationships (which don’t even have to be called metonymic relationships)

Each of the words in those eight blanks can route to semantic or content paradigms: What other words are synonyms of *assent*? What are some antonyms of *assent*? What’s the difference between *assent* and its synonym *acquiescence*? That sort of thing.

In CommonWords there are some fields designed to help in developing metaphoric and metonymic thinking. Themes would be a clear case, so would the Explication field and the Prefixes and Suffixes fields. The Source field is a very skeletal start towards diachronic relationships, both metonymic and metaphoric. For instance, filtering on, say, “Amerindian” returns 81 words, mostly American place names, plus some interesting nouns: *canoe*, *caucus*, *cigar*, *cocaine* – even *tux*, short for *tuxedo*, which can lead

1 to some interesting looks at diachronic changes, especially in  
2 expression and content. Though more restricted to orthography, the  
3 Analysis field suggests plenty of paradigms: other Twinning Rule  
4 words, other cases of long vowels in VCV strings, etc. etc.

4 The general strategy seems clear enough in my mind, but how  
5 to incorporate it in BookHeadEd's project is challenging.

6 Well, this is already too long, but I just wanted to get back to you –  
7 and to spend some time away from putting in the new irrigation  
8 system in our backyard, along the canal and road. Carol is finally  
9 getting her way, due to an act of God, who decided to break one  
10 of the pipes under our driveway last winter.

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## Ruthie\_More Uses for CommonWords.wpd

Because I have always intended the CommonWords database to be a help for teachers and writers of language arts materials who want to develop specialized word lists, I'm having more trouble than I anticipated in thinking of how to have students work directly with it. I think the morphological stuff I illustrated in the previous email lends itself easily to hands-on activities for the students. Here are a few more dealing with different fields in CommonWords, which are based on the expanded upgraded version of CommonWords:

Given a word, the students could go to the Suffixes field and find what words can be derived from it. For instance, at *absolute* the Suffixes field contains "ion1 ism ist1 (ic1 (ally)) ize (ation) ly1 ness". The student could be asked to combine the suffixes with *absolute*, forming *absolution*, *absolutism*, *absolutist*, *absolutistic*, *absolutiscally*, *absolutize*, *absolutization*, *absolutely*, *absoluteness*. This would involve work with final <e> deletion. It can lead to some dictionary work with the less familiar derivations, like *absolution* and *absolutist*. Being big on sorting activities, I'd think in terms of having the students sort the derived words in various ways – for instance, into their different parts of speech.

A similar strategy would work with the Prefixes field. One problem with this strategy is that not all words can take affixes and thus have empty Prefixes and/or Suffixes fields.

As an etymology buff, I'd really like to do something with the Sources field – maybe have the youngsters check the Sources of their target words, then filter to other words that have the same source. The problem is that with most words, there are way too many other words with the same source. For instance, there are 2,772 words with Old English in their lineage; 4805 that come directly from Latin. Even being more detailed doesn't always help: There are 3,012 that come from Latin through French. Some of the less popular source languages are more useful, and interesting: 47 words from Arabic, 49 from Hebrew, 61 from Amerindian, 14 from Portuguese, 68 from Spanish, etc.

And then there is the Themes field, which often also provides an over-abundance of riches. Take our old friend *absolute*: It is tagged with the themes Math2 and Science5. Math2 consists of mathematical concepts and calculations like *equal*, *multiply*, for which there are 59 words tagged. Science5 lists nouns and adjectives for physics and astronomy (*comet*, *particle*, 152 tagged words).

Filtering on Math2 returns *absolute*, *add*, *addition*, *angle*, *angles*, *array*, *average*, *circle*, *constant*, *count*, *curve*, *decrease*, *degree*, *degrees*, *distribution*, *divide*, *division*, *double*, *equal*, *estimate*, *factor*, *factors*, *figure*, *figures*, *graph*, *law*, *laws*, *line*, *mass*, *mean*, *mode*, *multiply*, *odd*, *origin*, *parallel*, *percent*, *plane*, *planes*, *point*, *primary*, *product*, *proof*, *proportion*, *prove*, *proved*, *quarter*, *rate*, *result*, *results*, *series*, *set*, *single*, *slope*, *solve*, *square*, *sum*, *union*, *universal*, *volume*. Some problems to pose for the students might be which of these Math2 words show up as less technical words in ordinary speech? How does the ordinary meaning differ from the technical Math2 meaning? For instance, how is an odd

number like – and unlike – an odd person? How is a mathematical law like – and unlike – a traffic law? How is a mathematical product like – and unlike – the product of a factory? Filtering on Science5 returns 152 more: *absolute, acceleration, accelerator, adhesion, adsorption, alternating, alternator, altitude, antimatter, antiparticle, apogee, Apollo, asteroid, astronaut, astronomer, asymmetry, atom, atomic, azimuth, blackbody, buoyancy, calorie, cathode, celestial, chaos, circuit, comet, compass, complexity, conduction, conservation, constellation, convection, core, cosmic, cosmonaut, covalent, cyclotron, dielectric, diffraction, diffusion, dipper, Doppler, eclipse, electric, electromagnet, electron, elevation, endothermic, energy, entropy, equilibrium, exothermic, extraterrestrial, fission, fluorescent, focal, friction, fulcrum, fusion, galaxy, gamma, gravitation, gravity, half-life, impedance, inductance, induction, inertia, infinite, infrared, insulator, interference, ionosphere, Jupiter, kinetic, laser, lattice, lodestar, macrocosm, magnetic, magnetism, Mars, mass, matter, meson, meteor, meteorite, momentum, moon, motion, nebula, neutron, nimbus, nova, nucleus, optics, particle, particles, perigee, photoelectric, photon, photovoltaic, planet, planetarium, planets, polarization, positron, prism, proton, pulsar, quanta, quantum, quark, quasars, rad, radiation, radioactive, radioactivity, radium, reactor, reflection, refraction, relativity, resistance, satellite, semiconductor, skies, sky, solar, solstice, space, spectrum, sputnik, stratosphere, subatomic, sun, sunspot, superconductor, supernova, symmetry, thermodynamics, thermonuclear, transistor, troposphere, uncertainty, universe, uranium, Venus, volt, voltage, wavelength.*

So what to do with this great bunch of thematically related Science5 words? More sorting perhaps: How many of these words deal with astronomy? With physics? Etc. This kind of activity, especially as a group effort with discussion and disagreement, begins to suggest the way words can be useful in more than one area and can change meaning slightly when they move from one area to another.

Or perhaps more of the technical vs. ordinary: How is a motion in physics like – and unlike – a motion in a meeting? How is the resistance in an electric wire like – and unlike – the resistance to a political movement?

So work with themes can involve a lot of sorting and a lot of work with same and different, which is a variation of the comparison and contrast frames we used to use in teaching composition. It also leads, in a way, to work with metaphoric expansions of meaning. This all seems to me to be important to vocabulary building.

The Homographs and Homophones fields have some problems if you think of them as fields with which the students work directly. One problem is that there are only 600 Homophones in CommonWords, only 116 homographs.

Homographs are particularly limited for vocabulary work since nearly all of them (109) are one or two syllables and not likely to occur on vocabulary lists beyond

the very elementary years. Most of the two-syllable homographic pairs are noun-verb pairs like the trochaic noun *cónvict* and the iambic verb *convíct*. The longer homographic words in CommonWords are *advocate*, *appropriate*, *intimate*, *invalid*, *piano*, *separate* – four of which are noun-verb pairs with stress shift. *Invalid* is a noun-adjective stress pair. So is *piano*, though the contrast here is in syllable break rather than pure stress. Work with any such words could be useful to the study of word stress, as in studying rhythm and meter in poetry. Homophones are of more use, being more common, and of special relevance to spelling, where the fact that nearly all of them – 727 of the total 742 – are one and two syllable words is less important than it would be in vocabulary study. Looking at the differences between, say, *bear* and *bare* is essential to spellers. Several of the other fields in CommonWords have less to do directly with vocabulary than they do with my first love, spelling. Just as much of teaching literature consists of finding ways to keep the text before the youngsters long enough for the various nuances of meaning and implication to reveal themselves, so too does much of teaching spelling (and vocabulary) consist of finding ways to keep the youngsters working with the words long enough for their various patterns and correspondences to reveal themselves.

Take the Sound-to-Spelling field, for instance: Say you are teaching the Spelling Demon *auxiliary*. The Sound-to-Spelling field shows “[o4]=<au> [gz]=<x> [i1]=<i> [l1]=<l> [y]=<y> [u4]=<a> [r]=<r> [e2]=<y>”. The two most demonic correspondences here are probably [o4]=<au> and [gz]=<x>. To find other instances of the first, you filter the Sound-to-Spelling field on [o4]=<au>, which returns in addition to *auxiliary*: *applause*, *assault*, *astronaut*, *audience*, *audit*, *auditory*, *aught*, *August*, *aurora*, *Australia*, *Austria*, *author*, *authorize*, *autistic*, *autobiography*, *autocracy*, *automatic*, *automation*, *automobile*, *autonomic*, *autonomy*, *autumn*, *because*, *caucus*, *caught*, *cause*, *caused*, *causes*, *caution*, *cautiously*, *clause*, *claustrophobia*, *cosmonaut*, *daughter*, *default*, *exhaust*, *fault*, *fauna*, *fraud*, *gauntlet*, *haughty*, *haul*, *haunt*, *haunted*, *Holocaust*, *hydraulic*, *jaundice*, *juggernaut*, *launch*, *leprechaun*, *manslaughter*, *mausoleum*, *menopause*, *Milwaukee*, *naught*, *naughty*, *no-fault*, *pauper*, *pause*, *precaution*, *Santa Claus*, *sauce*, *saucer*, *sausage*, *slaughter*, *taught*, *vaudeville*, *vault*.

Filtering on [gz]=<x> returns *coexistence*, *exact*, *exactly*, *exaggerate*, *exalt*, *examination*, *examine*, *example*, *executive*, *exert*, *exhaust*, *exhibit*, *exile*, *exist*, *existence*, *existentialism*.

It seems to me that thinking about *auxiliary* in terms of these two groups is inherently more helpful than thinking about it in isolation. But beyond this typically professorial airy generalization, there are some more specific lines of activity. For instance, going to the Sound-to-Spelling table (not the field in the CommonWords table, but the separate table) you find the following things about how the sound [o4] is spelled:

	<b>Examples</b>	<b>Instances</b>	<b>Percentage for This Sound</b>
[o4]=<a>	false	[o4]=<au>	caught
[o4]=<ah>	Utah	[o4]=<aw>	awful

1	[o4]=<o>	strong	69	35.94%
2	[o4]=<oa>	broad	31	16.15%
	[o4]=<ou>	thought	3	1.56%
3	73	38.02%	4	2.08%
4	1	0.52%	11	5.73%

5 About 90% of the time [o4] is spelled <a>, <au>, or <aw>. N.B. You (and some  
6 students) may well hear a slight difference in the pronunciation of [o4] when it is spelled  
7 with the unigraph <a> as compared with the digraphs <au> and <aw>, with the [o4]  
8 when it's spelled <a> sounding more like [o1], short <o>. There's a lot of unavoidable  
9 variation here, some of the details of which are worked out in numbing detail in *AES*  
10 15.2 and 15.3, though the analysis of low back vowels is different in *AES* from that in  
11 *CommonWords* (as explained in the introduction to *CommonWords*).

12 Still there are some generalizations that can profitably keep the students thinking about  
13 [o4] = <au>. For example, it's regular before <ght>, never in word-final position where  
14 <aw> prevails, but (like <aw>) it occurs before word-final consonants.

15

16 Since <x> is the only spelling of [gz], more interesting is the contrast between <x>=  
17 voiced [gz] and <x> = voiceless [ks]. The bottom line here is that <x> only spells voiced  
18 [gz] when it has a voiced sound in front of and behind it. More details in *AES* 27.3.3.14.

19

20 For the other fields the strategy for the teacher or writer is pretty straightforward: Filter  
21 on the target feature – or features in more than one field – and select your word list  
22 from the returned set.

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**Ruthie\_On Two Competing Spelling Texts and Readiness in General, 1.wpd**

I want to thank you for sending me the recent spelling materials. But brace yourself. I feel a screed coming on:

I've worked my way through *Words Their Way*, Templeton's grade 4 speller, and the Zaner-Bloser text. I've had a lot of different and tangled reactions: I like *Words Their Way* very much. It intrigues me that Templeton ends up with so many conclusions similar to those I've arrived at, even though we started at opposite ends of the problem: he from the young spellers and their spellings, I from the abstract system of English spelling. For studies that start so far apart to end up sharing conclusions has to add plausibility to those conclusions, it seems to me. But there are some things about *Words Their Way* that seem less convincing to me. For one thing, or two things, it seems to me that it is weak on the concept of the syllable and on the concept of what I'd call the element. It's still not at all clear to me what Templeton means by a syllable nor by a root or base. He doesn't seem to do justice to the role of meaning in the the definition of bases (or elements in general). But that, or those, disagreements are not really the serious ones. The serious one is a squeamish feeling I have towards the notion of readiness that is so basic to the studies and conclusions that inform *Word Their Way*. I've never yet found a good way to say what I think I mean here: I'm not anti-readiness. Obviously you have to be concerned about the abilities that the student brings to the tasks at hand. But to pace oneself or to be tightly constrained by a notion of readiness, which Templeton seems to me to be, is worrisome. I fear that it leads to an unintended but de facto dumbing down of the effort, a kind of teaching to the suspected lowest common denominator. It seems to me that part of the job of a teacher, and of teaching materials, is to stretch the students' readiness, which involves a constant over-reaching, more so for some students than others. Over the years at the Academic Skills Center I found myself over and over again telling new tutors and students that even the seemingly least ready of our students (the true basket cases) knew more about the English language than they knew they knew. Even the students who already thought they knew a lot knew more than they knew they knew. I guess it gets down to Chomsky's competence-performance distinction: Linguistically folks are always more competent than they reveal in their performance. So if you confuse performance for competence under the rubric of perceived readiness, you are constantly underrating and thus

short-changing students. (That's about as good a statement of that uncomfortable and perhaps politically incorrect position as I've ever come up with.) I think Jerome Bruner has had an even greater influence on me than I realize. I've always been impressed with his notion that you could teach anyone anything, given enough time —and patience. A notion that does odd things to the concept of readiness. And I've been mightily impressed, too, with Bruner's notion of the ascending learning spiral, which I had self-consciously in mind when organizing my elementary spelling materials.

So far as the two examples of spelling texts are concerned: I'm truly struck by how little orthographic information there is in the Z-B text. All in all, it seems to me to be just a gussied up version of “here's this week's list of words to memorize.” Templeton's text seems far better. But there are things even there that seem to me to work against the desideratum of system and perceived motivation (motivation, that is, in the sense of the reason for things in the system). One very small for-instance: Why introduce twinning by talking only about the suffixes *-ed* and *-ing*? Clearly because they are the two most common suffixes. But the motivation for twinning has nothing to do with the fact that those two suffixes are *-ed* and *-ing*; it has to do with the larger fact that they start with vowels. Without getting the students to see that fact as soon as possible, you can't explain *why* we twin those consonants. All of the work with patterns within syllables, what I'd call tactical strings or patterns, really sets Templeton up to talk about the motivation for twinning rather than just the fact of its existence and thus requirement. I suspect that tip-toeing into twinning via *ed* and *-ing* is again due to concern for readiness. My impulse would be to say screw the readiness: Explain things as clearly and thoroughly as possible, explaining not just *that* we twin but also *why* we do so. (This is part of the motivation-as-hero vs. arbitrariness-as-villain pitch that I made to you in an earlier epistle.) In spite of what King Lear says, systematicity, not ripeness, is all, at least in matters like this.

This touches on the thing that has really struck me most tellingly about both Templeton's and the Z-B texts: Just how different they *look* from what I think elementary spellers ought to look. There are at least two issues here: First, they look too much like comic books. Comic books are what we are trying to get the students beyond. Actually I started fretting about this

several years ago and had a graduate student do a quick library search to see whether she could find any studies that confirmed my suspicions that all those brightly colored pictures were more distracting than reinforcing. She found some studies that indicated that when youngsters were given material in which the pictures contradicted the text, they would register the meanings conveyed by the pictures not that conveyed by the text. For instance, give them a sentence like "Sally pulled George in the wagon" together with picture of a *boy* pulling a *girl* in a wagon and ask them who is being pulled, and they will say the girl, as is portrayed in the picture. Or give them a sentence like "The bicycle is red" and a picture of a blue bicycle and ask them what color the bicycle is, and they will say blue, again like the picture. (That example stuck with me because I saw a language arts text in which that very contradiction occurred on a page.) What things like this say to me is that even in cases where the text and pictures do not disagree (which is usually the case), the students are still paying way too much attention to the pictures. We are, after all, trying to make textual animals out of them, not pictorial ones. Pictures are what we are trying to wean them away from. But I rant . . . .

Another source of the big difference in how the texts look from the way it seems to me they should look is the way each page is all broken up with a bunch of itty-bitty little snatches and side-bars that do not always hang together. Or if they do hang together, it is difficult to see the unifying principles at work. I believe texts should convey a compelling sense of unity and system at work in the language. (This is another facet of that motivation vs. arbitrariness thing.) Again, I suspect that in these overly broken-up texts, a morbid concern for readiness is the culprit: Youngsters are taken to be not yet ready for sustained acts of attention and concentration, so the message gets broken up into diverse and varied little pieces (with lots of color!), and the larger and more powerful message (unity and system) gets lost.

The fact that two very expensive and recent series look so different from the way I want my materials to look is extremely sobering. If I were a publisher looking at spending a huge amount of money to develop a series, would I want to risk developing one that looks so different from the current norm? Would I want to put my money on the minority views of an orthographer like Cummings, who, after all, has very, very little first-hand experience with elementary students? Probably not. Probably I'd want him to bring his stuff more in line with the current norm. And there's the rub. I (speaking now for myself) don't want to spend these my golden

years massaging those eight books so that they look more like something that I think is wrong-headed. Life is too short. So I guess what I'm saying is that I feel less optimistic about the prospects for the elementary spelling materials than ever before.

But there is still your conviction that the place to concentrate anyhow is on a text for teachers. That is something I am interested in doing. There is a lot of stuff in the elementary speller that is not yet in the text for older students, especially material on sound-to-spelling correspondences and sustained work on the explication of words into their elements, a lot more work with bound bases in particular and their often subtle contribution to the meaning of words. Such a book for teachers would be a perfect complement to *Words Their Way*, which is weakest, it seems to me, on the very things that my book would focus on most sharply. It should be a fairly easy rewrite. The hard part was getting the explanations clear enough for grade schoolers. Now that that is done, making the pitch to their teachers should be fairly easy. And it would allow me to go more into the things that are most intriguing to me: the history and pattern behind our current system. On the other hand, it would expand the text beyond that nonthreatening ten-week size that appealed to you.

On another line of thought, or, as Monty Python would say, And now for something entirely different: The other day, while I was deep in mid brood, Carol said to me, "Well, honey, if you die before you get the elementary speller published, I'll find some way to put it on the Internet, and we'll give it away to interested parents and teachers." Although there were things about that *if*-clause that I didn't particularly like, her main clause conveys an interesting idea. Assuming that Joe Miller (and other potential publishers) are going to be constrained by the kinds of things I mention about the elementary speller, and since money is not a particularly high priority with us, maybe the thing to do is to find some fast-and-dirty way to load the stuff onto the Internet, charge a very low fee (just enough to support the website), expect to get ripped off mightily—and at least get the stuff in circulation among home schoolers and a few adventuresome teachers. What do you think of those apples?

I apologize for whipping these great long missives on you, but I value your opinion. What do you think about my pessimism concerning the elementary speller and my thought of an ambitious rewrite of the speller for teachers?

## Ruthie\_Orthography as a Discipline; Arbitrariness and Alienation.wpd

It has occurred to me more than once recently that what is really going on in my work is the attempt to create a new discipline. Phonology is a discipline; so is syntax. But no one (or at least very few) see spelling, or orthography, as a discipline: From the typical linguistic point of view, spelling is a relatively unimportant secondary coding system. From the standpoint of teachers and parents, it is a rather mysterious affair to be reduced to the rote memorization of arbitrary weekly lists of words. The problem is to get people to see that there is a subject matter here and that it can be addressed systematically.

When you are trying to get folks worked up behind a cause, I believe it helps to have a villain. As the villain for spelling teachers to battle I nominate **arbitrariness**. The goal becomes to reduce the sense of arbitrariness and to increase the sense of motivation in our spelling system, which I suppose is the goal of any discipline. In our case we are concerned because spelling (both in writing and reading) is so important to individuals today that we cannot afford a high level of the sense of arbitrariness: Arbitrariness leads to a sense of a loss of individual control. And we know that when people feel a low sense of control, they function poorly: They tend to become sullen, uncreative, passive— things not at all conducive to efficacy in learning and grace of performance. They see the English language, usually their native tongue, as something alien.

The following description of alienation and the alienated individual is from the psychiatrist and social philosopher Erich Fromm's *Marx's Concept of Man*:

Alienation (or “estrangement”) means, for Marx, that man does *not* experience himself as the acting agent in his grasp of the world, but that the world (nature, others, and he himself) remain alien to him. They stand above and against him as objects, even though they may be objects of his own creation. Alienation is essentially experiencing the world and oneself passively, receptively, as the subject separated from the object (*Tempo*, 150)

Of course, Marx and Fromm are speaking of a much larger issue, but the pattern is the same: If users of written English view their spelling system

as essentially arbitrary, to that extent they become alienated from the language, in most cases from their native language. And to be alienated from one's native tongue is no small thing. One of the things the alienated miss is the simple fact that English spelling, like any aspect of language, is changing and evolving due to its practice by people. As a symbolic system, spelling was created by people — that is, by its users. It was created by and for them. It changes by and for them. But if you are alienated, or estranged, from it, you do not play, or at least feel that you are not playing, a role in this ongoing process of creating a spelling system. It is the function of Language Arts to expose students actively to the subject matter of spelling and to begin the process of replacing the alienating sense of arbitrariness within the system with the empowering and socializing sense of motivation. The major tool in this effort is explication: It highlights synchronic patterns and simplifying unities as it lays out the elements and procedures that make up the Modern American English lexicon. It also highlights diachronic patterns and simplifying unities as it lays out the histories of these elements, tracing them back to their etymological sources, showing the patterns of change and development over the centuries and in the flow from one language into another.

(The following is from the working draft of a monograph on the history of the English spelling system, which I hope will someday become the companion to *American English Spelling*. [N.B. It never did, though parts of it show up elsewhere in the Short Articles.] If AES describes where we are today in our spelling system, the companion piece would be meant to explain how we got there.)

The arbitrariness of language was first pointed out by Ferdinand de Saussure, the grandfather of modern structuralism. Saussure divided the linguistic sign into the signifier and the signified — that is, its expression and its content. Saussure makes his point very unequivocally: “The bond between the signifier and the signified is arbitrary. Since I mean by the sign the whole that results from the associating of the signifier with the signified, I can simply say: *the linguistic sign is arbitrary*” (67, his

emphasis). This much has become almost catechismal in modern structural linguistics. However, Saussure went on to draw a distinction between this radical arbitrariness and a more orderly quality that he called *motivation*. “Some signs are absolutely arbitrary; in others we note, not its complete absence, but the presence of degrees of arbitrariness:

*the sign may be relatively motivated*" (131). For example, a simplex word like, say, *six* is, in Saussure's terms, absolutely arbitrary in its association of expression and content, as is evidenced by the fact that other languages have quite different expressions for conveying the content "six." However, a complex word like *sixteen* is not absolutely arbitrary and can be said to be at least relatively motivated because it can be analyzed into two components, *six* and *-teen*, which he calls syntagms and I would call elements. Each of these elements relates *sixteen* with several other words in the language: *Six* relates *sixteen* paradigmatically to *sixty*, *sixth*, *twentysix*, and so on; *-teen* relates it to such words as *thirteen*, *fourteen*, *teenage*, and *fifteenth*. These paradigmatic relationships provide the orderliness that Saussure calls relative motivation and I have been calling ruliness. Saussure says that "motivation varies, being always proportional to the ease of syntagmatic analysis and the obviousness of the meaning of the subunits present. . . . The notion of relative motivation implies: (1) analysis of a given term, hence a syntagmatic relation; and (2) the summoning of one or more other terms, hence an associative relation" (132). He also argues that "Everything that relates to language as a system must, I am convinced, be approached from this viewpoint, which has scarcely received the attention of linguists: the limiting of arbitrariness. . . . [T]he whole system of language is based on the irrational principle of the arbitrariness of the sign, which would lead to the worst sort of complication if applied without restriction. But the mind contrives to introduce a principle of order and regularity into certain parts of the mass of signs, and this is the role of relative motivation" (133).

It is precisely this function, "the limiting of arbitrariness," that explication addresses in the written lexicon. Because explication is open to diachronic information, as in etymologies and patterns of historical lexical change, it extends the range of relative motivation beyond the limits set down by Saussure. For instance, he would say that the simplex *six* is absolutely arbitrary, absolutely unmotivated. However, explication would point out that there is a history behind the modern expression 'six', [swks]. It also has larger synchronic and diachronic contexts defined by the words for "six" in

other languages, past and present. That history and those contexts can provide other paradigmatic relationships, which can be illustrated by comparing *six* with other expressions for the same content:

1				
2	<b>Words for "6"</b>			
3	Words from Indo-European *s(w)eks-, "Six"			
4				
5	Greek <i>hék</i>	Latin <i>sex</i>	Irish <i>se</i>	Gothic <i>saihs</i>
6	Tocharian <i>sak</i>	Sanskrit <i>šaš</i>	Old Slavonic <i>šestj</i>	Lithuanian <i>šeši</i>
7				
8	Old English <i>six</i>	Old Saxon <i>sehs</i>	Old Norse <i>sex</i>	Gothic <i>saihs</i>
9	Dutch <i>zes</i>	Icelandic <i>sex</i>	Danish <i>seks</i>	Swedish <i>sex</i>
10	German <i>sechs</i>	Welsh <i>chwe</i>	Cornish <i>whe</i>	Breton <i>chouech</i>
11				
12	Czech <i>šest</i>	Russian <i>šestj</i>	Italian <i>sei</i>	French <i>six</i>
13	Spanish <i>seis</i>	Portuguese <i>seis</i>	Romanian <i>șase</i>	
14	Non-Indo-European Words			
15				
16	Basque <i>sei</i>	Etruscan <i>sa</i>	Finnish <i>kuusi</i>	Hungarian <i>hat</i>
17	Turkish <i>alti</i>	Arabic (m.) <i>sittun</i>	Hebrew (m.) <i>šeš</i>	Japanese <i>rokú</i>
18				
19	Chinese <i>liu</i>	Korean <i>yösöd</i>	Aztec <i>chica-ce</i>	Mayan <i>uac</i>
20				
21	Tahitian <i>ono</i>	Maori <i>ono</i>	Hawaiian <i>eono</i>	Ainu <i>I-wan</i>

Among the words from other Indo-European languages there is a rich set of relationships. In most cases, the relationships are not currently productive, but in some they are: For instance, the Greek form *hex* is echoed in the still-productive element *hex+*, as in *hexagon*. And in the cases of other number words, other languages can still be productive: Latin *decem* "ten" occurs in *December* and other technical terms; Spanish *cinco* occurs in English in, at least, the proper name *Cinco de Mayo*. And certainly in the American Southwest and other areas with heavy Hispanic populations, Spanish counting words must work their way into the daily vocabulary.

Among the number words from languages that are not

Indo-European, though the differences are more pronounced, there are still some

interesting similarities that may provide support for those people who argue for a common language from which Proto-Indo-European and other language families descended. Be that as it may, the point here is that the kinds of relationships upon which Saussure based his notion of motivation and non-arbitrariness can be extended back in time and outward in space to provide an even richer network that can help the language user see connections and hold the system together. They, too, can help limit arbitrariness. In fact, that limiting of arbitrariness may be precisely the source of the charm that most people feel in the study of etymologies and the discovery of cognate words across languages: There is that recurrent shock of recognition as what had before seemed unrelated and disjunct proves to be quite definitely related, not so arbitrary, motivated. This is precisely the kind of information that explication tries to foreground.

# 1 Ruthie\_syllable juncture vs derivational constancy and strings.wpd

2

3 In your letter to Shane you mention that learning about syllable-juncture is  
 4 more difficult for students than is learning about derivational constancy. I  
 5 think I have a possible reason for that difficulty: Syllable-juncture must  
 6 seem very arbitrary and artificial to students so that it doesn't often lead to  
 7 that little flash of "Ah ha! Now I get it!" Derivational constancy, on the  
 8 other hand, is a form of etymological study, and I haven't yet found a  
 9 student of age eight on who couldn't be captivated by work with word  
 10 history. They get a kick out of learning that some of their own words,  
 11 words that are part of their everyday life and in a sense part of their own  
 12 minds, and that they thought were unconnected, were actually related in a  
 13 very logical way. For instance, to learn that (using Shane's examples)  
 14 'finish' and 'final' are historically kin provides a little strand of unity where  
 15 there wasn't any before, and thus comes the "Ah ha!" I think of it as "the  
 16 shock of recognition" (borrowing Edmund Wilson's phrase from a different  
 17 context). It's not just seeing the relationship; it's also seeing that the  
 18 relationship makes perfectly good sense and feeling a bit surprised (maybe  
 19 even chagrined) that you hadn't noticed it before. I know that people don't  
 20 take Ralph Waldo Emerson very seriously anymore (I admit to being one of  
 21 the last of the remaining red-hot Emersonians), but just listen to what he  
 said in 1837 in his "American Scholar" address: "To the young mind  
 everything is individual, stands by itself. By and by, it finds how to join two  
 things and see in them one nature; then three, then three thousand; and  
 so, tryannized over by its own unifying instinct, it goes on tying things  
 together, diminishing anomalies, discovering roots running under ground  
 whereby contrary and remote things cohere and flower out from one stem."  
 That little statement sets out almost eerily well much of what I'm trying to  
 do with the Basic Speller: help the young mind to join things together, to  
 develop its unifying instinct, to discover roots, to make remote things  
 cohere. Okay, no more transcendentalism.

You wrote to Shane that you believe in a process of alternating between  
 syllable-juncture and derivational constancing. With that I agree whole-  
 heartedly, though I fear I remain apostate in that I still feel that tactical  
 strings (VCC, VCV, etc) will get us as far in the spelling class as will  
 worrying about syllable boundaries. What appeals to me in your notion  
 is the compementarity implicit in it. Use what works. I think that great

teachers are necessarily persistent pragmatists--as opposed to professors,  
 who have some pitch to profess and thus are really more interested in

winning converts than in helping youngsters (or oldsters) learn something.

But (and this is, I guess, the professor coming out) I believe that whatever we do, it should be done systematically. One more bit of Emerson: “But what is classification but the perceiving that these objects are not chaotic, and are not foreign, but have a law which is also a law of the human mind?” Yea, verily.

You asked about my response to Shane's response to your response . . . . I think it's a lack of systematicity that bothers me: He is surely correct to point out that the word 'finish' (with its syllable-juncture problems, or in my terms, its preempted VCV string) is related to 'final' (where there is no syllable-juncture or tactical string problem). But it's a non-systematic, anecdotal observation, and it leads to a circular argument: If you start the other way around (“The regular word 'final' is related to 'finish'”), you end up with 'finish' still being inexplicably anomalous. But if you take the issue more seriously, you can say that 'finish' is (as Shane points out) a regular instance of the French frontshift rule, which covers hundreds if not thousands of two-syllable words borrowed from the French. Or, more specifically, you can say that 'finish' contains the suffix -ish(2), which forms verbs and which is always preceded by a stressed short vowel, regardless of the syllable junctures (or tactical strings). I did a quick check of the -ish(2) words listed in *AES* (pp. 121-22). French had and has a number of verbs that end in 'ir', like 'finir' “to finish,” with present participles and present tense forms with stems that end 'iss': 'finissant' “finishing” and 'finissons' “we finish.” In English the inflectional suffixes like -ant and -ons got clipped (as usual) and the 'iss' became 'ish', leading to the English suffix -ish(2) that shows up in a lot of English verbs. Most of those verbs don't pose any problems for the speller because they have a VCC string right in front of the suffix: 'languish', 'extinguish,' etc. But a number of them have preempted VCV strings (that is, with short vowels, preempted by the -ish(2) rule that states that the suffix is preceded by a stressed, short vowel): 'finish, abolish, astonish, banish, blemish, demolish, polish, punish, replenish, vanish,' etc. And then Emerson's tyrannizing instinct to find unities kicks in and words from other sources and with different original spellings develop by analogy into verbs that look and sound like those from

the the French 'ir' verbs: 'diminish, famish, lavish, relish,' and maybe even, more remotely, non-verbs like 'fetish' and 'radish.' Now I'm not really advocating teaching French verb inflections to third graders. But it seems like you could say something like “Early on English adopted a number of

1 French words that had an 'iss' that the English changed to 'ish' and turned  
2 into a suffix, etc.” Anyhow, to say that the first 'i' in 'finish' is short because  
3 of the -ish(2) rule seems to be a more thorough and systematic explanation  
4 than is saying that 'finish' is related to 'final.' And to forget about -ish(2)  
5 and explain that short 'i' in terms of the more general French frontshift rule  
6 gives you an even more systematic and powerful explanation, one that  
7 explains where a whole lot of seemingly “contrary and remote things  
8 cohere and flower out from one stem.” (You might take a look at the  
9 teaching notes to Lesson 13 of Book 8 to see my attempt to present the  
10 frontshift rule to students. There it is called the French Lemon Rule,  
11 because 'lemon' is an instance.)  
12

10 Well, this letter is getting too long. Every once in a while the  
11 retired professor locked up inside breaks loose.  
12

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## Ruthie\_Syllables vs elements.wpd

That leaves the second contrasted pair: syllables and elements. Your question about the usefulness of syllables in teaching spelling is a pretty darned good one. I remember back when I met for the first time with some elementary teachers for whom I was to start writing spelling lessons (which would lead to the *Basic Speller*): I was making much too shrill a pitch for the importance of elements and the lack of any real value in work with syllables. Mrs. Francisco, the third grade teacher with whom I was to work over the next two years, came up to me after the meeting and said gently, "You know, there really are some useful things you can do with syllables." I didn't have enough wits to ask her what they were. I just assumed it had something to do with teaching reading, which was, and pretty much remains, a cabalistic mystery to me. I just assumed it had something to do with very early word-attack techniques in the initial cracking-of-the-code. But I didn't, and still don't, really know.

As you suggest in your e-note, knowing how many syllables (which becomes simply knowing how many different vowel sounds) is important for things like determining stress and the criteria for twinning. But knowing the boundaries between syllables is not necessary for those things. Since how-many-syllables pretty much equals how-many-vowel-sounds, counting is useful for getting the students clear on what the various vowel sounds are.

The *Basic Speller for Older Students* talks about syllables because we assumed that college students would be more or less familiar with them. But in the elementary speller I tried to talk to the students only about vowel sounds and to avoid any mention of syllables except in the teacher's manual (and then only to make sure that the teachers didn't assume that elements were the same thing as syllables).

There doesn't seem to be much system at work in dictionaries' syllabication in their pronunciation respellings. Or if there is, they are pretty coy in their front matter about saying what system it is. The division into "written syllables" in their entry words seems to be more systematic, and it comes closer to a division into elements than does the "spoken syllables" in their pronunciations. It is usually described as "following the conventional usage of publishers and typesetters." So, for instance, Merriam-Webster gives us **mis@take** in the entry word but [mcÿ@0stâk] in the

pronunciation. Maybe the thing to do would be to tell students not to worry about the spoken syllables and try to divide the word into written syllables. That way they could check their intuitions against the dictionaries, and they would get a gentle immersion into the analysis of words into their elements. But then again, maybe not: Probably a youngster when asked to divide the *mistake* into its parts is more likely to come up with **mi-stake** than **mis-take**, the priority of the spoken language being what it is. It would be interesting to try it on kids. Just give them a list of, say, two-syllable words and then ask them to divide each word into two parts. Then ask them to divide each of a list of three-syllable words into three parts. It would be interesting to see if they were more likely to come up with “written syllables” or “spoken syllables.” I guess what all this means is that I really don't know what to say about syllables. My inclination is to ignore them, to settle for the notion of vowel sounds without worrying about syllable boundaries, and to get the students working as soon as possible with elements. If they were studying a controlled list of words, it would be pretty easy to select the words so that you could tell them that each word contains, say, a prefix, a base, and a suffix and that they should divide each word up to show those three parts. But since you want your study guides to work with any word that the students might want to study, you don't have that kind of control.

Getting them working with elements right away allows you to talk about juncture problems, it is just that you would be talking about junctures between elements rather than between syllables. I suspect element junctures work better for talking about spelling changes anyhow and that the usefulness of syllable junctures is a secondary effect, due to the fact that so many elements and syllables share the same boundaries.

(What follows are odds and ends written over the course of several days).

I've been working slowly through [Bear et al's] *Words Their Way*. [Templeton is one of the et al.] It really is a good book. But I noticed a funny wrinkle that is germane to the question of syllable vs. element junctures: On page 27 in a discussion of the Syllable Juncture stage, Bear *et al* say the following: “The analysis of multi-syllabic words is more

complicated, for there is more than one perceptual unit. For example, a two-syllable word like *clopped* may be divided into *clop(p)* and *ed*.” But *clopped*, [klopt], is not a two-syllable word, at least not a two-spoken-

syllable word. It's monosyllabic. But it is a two-element word: base *clop* plus suffix *ed* with twinning. At first I thought this was just a trivial slip-up on the part of Bear *et al*, but seven lines down they compare *clopped* with another, more common, word that they treat as two-syllables, *stopped*. Apparently they are saying that the end of the first syllable is the end of the base and that that syllable boundary remains constant even after the addition of the suffix. But phonologically the syllable boundary moves to contain the [t]: [klop] + [t] -> [klopt]. Another way of saying it, I guess, would be that they are talking about elements, which would put them closer to written syllables (as in dictionaries divided entry words) rather than to spoken syllables (as in dictionaries pronunciation respellings). I guess this just encourages me more to say that we should ignore syllable boundaries and just start talking about element boundaries as soon as possible—and before that talking only about vowel sounds, for counting purposes. This still leaves a methodological muddle, I fear, but at least it is a slightly smaller muddle than before.

Maybe now I'm beginning to understand the reason behind something else in Bear *et al* that puzzled (puzzles?) me: They do this sort of thing elsewhere, but there's a good example on page 27, where they say that in the Syllable Juncture stage students can begin “looking deeper at some of the basic English bases like *ten* in ***tennis***, ***tendency***, ***tenet***, ***tenant***, ***pretend***, and on and on.” What puzzled me was why they left out the second 'n' in *tennis* and the 'd's in *tendency* and *pretend*. (I'm not sure that it is important to their point, but in citing these words as containing the base *ten* they have conflated two related but different bases here: *Tendency* and *pretend* come from a Latin source with the root meaning “stretch”; *tenet* and *tenant* come from a Latin source word with the root meaning “hold.” I'd treat this *ten* and *tend* as two separate but related bases—separate because they carry different root meanings and come from different Latin sources, related because they both come from the same proto-IndoEuropean root, **ten-\*** “stretch.” Also there is some doubt that *tennis* belongs in either camp. [I'm touchy about homographic bases because they gave me fits when I was compiling the list of bases for the words in the

elementary *Basic Speller*.]) Apparently what Bear *et al* are doing with the use of boldface in their list is to mark syllable boundaries, not element boundaries, even though they talk about bases. Whoops, that's not right either, unless they are claiming a syllable boundary between the 'n' and 'd' in *pretend*, which seems unlikely. Oh, Lord.

Here is an example of the use of the word *syllable* in a typical elementary dictionary, *Webster's New World Dictionary of the American Language, Basic School Edition*, 1979: In the section "Word Division in Writing," (p. 31): "There is no easy rule for dividing words into syllables, but your dictionary can help you. Each entry word of more than one syllable is shown in this way.

**el•e•phant    ab•bre•vi•a•tion**

"The small center dot separates a word into syllables. You may divide a word at any place where a dot appears. Try not to divide short words."

Then in the section "Word Division for Pronunciation," (p. 35): "Each respelling is shown in parentheses following the entry word. These respellings are divided into syllables. In some words the division of syllables for pronunciation is the same as the division of syllables for writing shown in the main entry. . . . However, sometimes the word division for writing and the word division for pronunciation are not the same. Remember, you use the word division shown for the entry word when deciding how to divide the word when writing. The word division shown in the respelling will help you in pronouncing the word."

Here is what the *Random House Unabridged* says in the section dealing with the division of entry words: "These divisions follow traditional American practice in the fields of editing and typesetting. Thus, although some word segments, as *-tion* and *-ble*, are never divided, entry words are primarily broken phonetically, that is, after vowels for either long or unstressed (open) syllables and after consonants for short (or closed) syllables" (p. xxxi). Later, in the section on pronunciation, they say the following: "In the normal stream of speech, words are pronounced in a continuous flow, not as distinct syllables. Pronunciations are divided into syllables in the

Dictionary, however, so that the reader may more easily sound out unfamiliar words. These divisions also aid the user to produce the

1 appropriate phonetic variant of a given sound. For example, *mistake*  
2 is recorded as (mi stâk') so as to avoid the pronunciation (mis tâk'),  
3 which might sound as if the word meant "to take badly" (p. xxxvii). The  
4 *American Heritage Dictionary* (3<sup>rd</sup> ed., 1993) says that "The  
5 syllabication of the pronunciation may not match the syllabication of  
6 the entry word because the division of the pronunciation follows  
7 phonological rules, while the division of the entry word reflects the  
8 long-established practices of printers and editors in breaking words at  
9 the end of a line of text" (p. xxii). They do not summarize the  
10 phonological rules.

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1 In order to get some sense of what the dictionary editors meant by “the  
2 long-established practices of printers and editors,” I checked the section on  
3 word-division in *The Chicago Manual of Style* (13<sup>th</sup> ed.). They start out by  
4 saying that for matters of syllable-definition, consult Webster! But they  
5 then go on, in effect, to describe some of the differences between written  
6 and spoken syllables. They give nine general rules for dividing words at  
7 line's end (sections 6.34-6.42). Four of the rules work against element  
8 boundaries in favor of pronunciation; two of them work to support element  
9 boundaries (in compounds and words with prefixes); three of them  
10 sometimes support and sometimes work against element boundaries. All  
11 in all, as they say it, they prefer basing word-division on “pronunciation (the  
12 American system, reflected in Webster),” which they contrast with division  
13 based on “derivation (the British system)” (6.33). (It sounds to me as if our  
14 job would be a lot easier if we followed the British system: syllables defined  
15 by derivation would almost invariably be commensurate with elements.)  
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## Ruthie\_Teaching Critical Thinking Philologically.wpd

I've been thinking about Murray's response (while wrestling with a broken irrigation line under our driveway). I share his continuity concerns. But I have some opinions on the critical thinking and reading issue that I'd like to share: Years ago, when teaching critical thinking was the *buzz d'jour* in colleges, I attended some teaching-critical-reasoning workshops. What struck me was that these people were setting up artificial situations to exercise students' critical reasoning skills without recognizing that they could realize many of the same results by teaching language, including vocabulary and spelling, inductively and analytically. And in doing so they would get more bang for the buck: critical reasoning, and vocabulary, and spelling, and reading.

That's what I was trying to do in the *Basic Speller* and in *Elements and Processes*. The English lexicon provides a huge reservoir of raw data that students can be taught to analyze, classify, and sort, while they discern strands of similarity and other relationships among the words. Looking for similarities among the differences engages them in metaphor and analogical thinking – like looking for the word *magic* in the troublesome *magician*. And discerning relationships not based on similarity, such as cause-effect, part-whole, before-after, agent-product, engages them in metonymic thinking. Metaphoric and metonymic thinking, I think, form the basis of critical thinking and reading, (and, indeed, of all human thought) and they can all be found while working with the wonderful word-ward of English.

So I think that maybe Murray is drawing an unnecessary distinction between critical reading and what I would call philological analysis and description – which is somewhat ironic in that James Murray, the original editor of the *Oxford English Dictionary*, was quite likely the greatest philologist of all time.

I think Murray's right about the Root Meanings: My thought was that the oddity but aptness of them would trigger some of that metaphoric and metonymic thinking. But I suspect that end would be better served if they had a modern definition to compare with the Root Meaning. Maybe the metaphoric and metonymic business should be laid out more explicitly, but then that would probably exacerbate the continuity problem about which Murray is rightfully concerned.

## Ruthie\_Uses for CommonWords.wpd

Dealing with morphological paradigms works quite well using just CommonWords, but using CommonWords in conjunction with the Prefixes, Bases, and Suffixes fields in the larger Lexis database extends things a lot further. Here's an example with the relatively nodescript word *denominator*:

Entering *denominator* in the CommonWords table returns this explication: [de+nomin+at/e]1+or]2

Filtering to "Explication contains *nomin*" in CommonWords, leads to the following words with the base *nomin*: *nominate*, *nomination*, *nominative*.

Going to the Lexis database and filtering on "Explication contains *nomin*" returns the following 59 words: *adnominal*, *agnomina*, *agnomination*, *cognomina*, *cognominal*, *denominable*, *denominate*, *denominated*, *denominates*, *denominating*, *denomination*, *denominational*, *denominationalism*, *denominationalisms*, *denominationalist*, *denominationality*, *denominations*, *denominative*, *denominatives*, *denominator*, *denominators*, *ignominies*, *ignominious*, *ignominiously*, *ignominiousness*, *ignominy*, *innominate*, *interdenominational*, *nominal*, *nominalism*, *nominalisms*, *nominalist*, *nominalistic*, *nominalized*, *nominally*, *nominals*, *nominate*, *nominated*, *nominates*, *nominatim*, *nominating*, *nomination*, *nominations*, *nominative*, *nominatives*, *nominator*, *nominee*, *nominees*, *nondenominational*, *praenomina*, *praenominal*, *pronominal*, *pronominally*, *renominate*, *renominated*, *renominates*, *renominating*, *renomination*, *undenominational*. This is clearly more than you would want to mess with, especially since some of these *nomin* words are so technical and rare, but just seeing the size of the list suggests something about the extent to which Saussure's motivation is at work.

Also looking at the various derivatives of *denominate* (the root of the original *denominator*) is revealing. And you might ponder what *ignominy* and its derivatives are doing in there, which could lead to some etymological sleuthing.

Going to the Bases table in the Lexis database and searching on *nomin* returns the information that *nomin* has the sense “name, reputation”. This information is also available in the etymology of any good college-level dictionary, like the *American Heritage*.

Going to the Prefixes table in Lexis, searching to “Prefix contains *de*” returns a number of senses that the prefix [*de-* has, one of which is “below, under”. A denominator (as in math’s “least common denominator”) is the number that is written below the line in a fraction.

Going back to CommonWords and filtering to “Explication contains +ate]1” returns 67 verbs that end in the verb-forming suffix -ate]1: *accommodate, accumulate, advocate, aggravate, alternate, anticipate, associate, calculate, celebrate, certificate, circulate, communicate, concentrate, confederate, conglomerate, congratulate, contemplate, cooperate, coordinate, create, cultivate, decorate, dedicate, delegate, deliberate, demonstrate, desolate, dictate, dominate, educate, elaborate, elevate, eliminate, estimate, evaporate, exaggerate, hesitate, hibernate, illuminate, illustrate, imitate, incorporate, indicate, insulate, integrate, intimate, investigate, irritate, isolate, legitimate, locate, mandate, moderate, nominate, operate, originate, penetrate, postulate, precipitate, predicate, private, probate, regulate, separate, stimulate, vibrate, violate*.

Again, there is more here than one probably wants to mess with, but one could point out that in all those verbs the -ate is pronounced with a long <a>. But many of the verbs have homographic adjective/nouns in which the homographic suffix -ate]2 is pronounced with a short <i>: *delegate* (vb.) vs. *delegate* (n.). A possible activity would be to sort the verbs into two groups: one that have homographic adjective/nouns (with short <i>) and the other that does not. This kind of sorting activity can lead to some interesting disagreements in groups.

1 Still in CommonWords, filtering to "Explication contains "+or]2"  
2 returns the following 57 nouns: *accelerator, actor, advisor,*  
3 *alternator, ancestor, author, calculator, capacitor, chancellor,*  
4 *competitor, conductor, conqueror, counselor, creditor, debtor,*  
5 *denominator, dictator, director, divisor, editor, elevator, emperor,*  
6 *equator, factor, generator, governor, incubator, inspector,*  
7 *insulator, inventor, investor, motor, narrator, numerator, operator,*  
8 *pastor, processor, professor, proprietor, protractor, reactor,*  
9 *refrigerator, sailor, sector, semiconductor, senator, spectator,*  
10 *successor, superconductor, tailor, tractor, traitor, transistor, tutor,*  
11 *vector, victor, visitor.*

12 It could be interesting to ask the students to sort these 57 nouns  
13 into three groups: 1. Those that are human, 2. Those that are not  
14 human, and 3. Those that can be either. This could lead to the  
15 agent vs. instrument distinction, which could get somewhat  
16 philosophical-ish: For instance, are human beings agents, or are  
17 we instruments of some divine will, or evolution, or Obamacare? It  
18 can also lead to discussions of metaphoric extensions, as when  
19 we refer to a person as a generator or a motor.

20 The problem, it seems to me, is knowing when to stop.  
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## Cassirer on Symbolic Expression.wpd

Another German philosopher who was much influenced by Kant's critical philosophy was Ernst Cassirer.

"The process of language formation shows for example how the chaos of immediate impressions takes on order and clarity for us only when we 'name' it and so permeate it with the function of linguistic thought and expression. . . . Thus language becomes one of the human spirit's basic implements, by [88] which we progress from the world of mere sensation to the world of intuition and ideas. . . . Here lies the first beginning of that universal function of separation and association, which finds its highest conscious expression in the analyses and syntheses of scientific thought." [Cassirer, Philosophy of Symbolic Forms. Volume 1: Language, pp. 87-88]

"Thus, with all their inner diversity, the various products of culture -- language, scientific knowledge, myth, art, religion -- become parts of a single great problem-complex: they become multiple efforts, all directed toward the one goal of transforming [81] the passive world of mere impressions, which the spirit seems at first imprisoned, into a world that is pure expression of the human spirit." [Cassirer, Philosophy of Symbolic Forms. Volume 1: Language, pp. 80-81]

"For what language designates and expresses is neither exclusively subjective nor exclusively objective; it effects a new mediation, a particular reciprocal relation between the two factors. Neither the mere discharge of emotion, nor the repetition of objective sound stimuli yields the characteristic meaning and form of language: language arises where the two ends are joined, so creating a new synthesis of 'I' and 'world'." [Cassirer, Philosophy of Symbolic Forms. Volume 1: Language, p. 93]

"When, for example, we link a given intuition or idea with an arbitrary linguistic sound, we seem, at first [107] sight, to have added nothing whatever to its content. And yet, on closer scrutiny, the content itself takes on a different 'character' for consciousness through the creation of the linguistic sign: it becomes more definite. Its sharp and clear intellectual 'reproduction' proves to be inseparable from the act of linguistic 'production'. For the function of language is not merely to repeat definitions and distinctions which are already present in the

mind, but to formulate them and make them intelligible as such. Thus in

1 every sphere, it is through the freedom of spiritual action that the chaos of  
 2 sensory impression begins to clear and take on fixed form for us. The fluid  
 3 impression assumes form and duration for us only when we mould it by  
 4 symbolic action in one direction or another. . . . It is in the basic symbolic  
 5 function and its various directions that the spiritual consciousness and the  
 6 sensory consciousness are first truly differentiated. It is here that we pass  
 7 beyond passive receptivity to an indeterminate outward material, and begin to  
 8 place upon it our independent imprint which articulates it for us into diverse  
 9 spheres and forms of reality." [Cassirer, Philosophy of Symbolic Forms.  
 10 Volume 1: Language, p. 107]

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 10 Of signs in general, including linguistic signs: "In a sense it can be said of them all  
 11 that their value consists not so much in what they stabilize of the concrete,  
 12 sensuous content and its immediate factuality, as in the part of this immediate  
 13 factuality which they suppress and pass over. . . . What constitutes the true force of  
 14 the sign, here as in other fields, is precisely this: that as the immediate, determinate  
 15 contents recede, the general factors of form and relation become all the sharper and  
 16 clearer. The particular as such is seemingly limited; but precisely thereby that  
 17 operation which we have called 'integration' is effected the more clearly and  
 18 forcefully. We have seen that the particular of consciousness 'exists' only in so far  
 19 as it potentially contains the whole and is, as it were, in constant transition towards  
 20 the whole. But the use of sign liberates this potentiality and enables it to become  
 21 true actuality. . . . In positing the sign, consciousness detaches itself more and  
more from the direct substratum of sensation and sensory intuition: but precisely  
 therein it reveals its inherent, original power of synthesis and unification." [Cassirer,  
Philosophy of Symbolic Forms. Volume 1: Language, p. 108] "It is one of the  
 essential advantages of the sign . . . that it not only offers a symbolic abbreviation  
 for what is already known, but opens up new roads into the unknown." [Cassirer,  
Philosophy of Symbolic Forms. Volume 1: Language, p. 109]



## How CommonWords got written.wpd

Teresa – Your question about how CommonWords got written set me to thinking. About 40 years ago, back in my early forties, I started compiling a big word list that led to the 129,000+ words in the Lexis database. The first bunch of words were downloaded from an early spell check program. Then came others from different dictionaries and a vocabulary list from a course I taught in the lexicon of biology. The next step was to analyze those words into their elements and procedures, as shown in the Explication field in Lexis. That took a lot of sitting and staring at the monitor and consulting various dictionaries. And changing my mind – a process that still goes on.

Then I got to thinking that it would be good to extract a shorter word list of high frequency words that was intended primarily for teachers and educational researchers. That meant consulting word frequency counts, especially Thorndike-Lorge's *Teacher's Word Book of 30,000 Words* and the *American Heritage Word Frequency Book*. A number were added from Hirsch et al's *Dictionary of Cultural Literacy*. That led to the 8,000 plus words in CommonWords.

One of my convictions from the very start has been that there is a lot of information in our words that can be useful to teach students of reading, spelling, and vocabulary. I don't believe that spelling and vocabulary instruction have to be simply "Give 'em a list on Monday and a test on Friday." So it became a case of figuring out what kinds of things would be useful for teachers to know and be able to teach. As I recall, first came the Explication field, which I simply copied over In Access from Lexis. Then because of the widespread interest in phonics, came the Sound-to-spelling and Spelling-to-sound fields. That required a lot of looking at the pronunciations given in various dictionaries – especially the *American Heritage*, *Webster's 3<sup>rd</sup> International Unabridged*, and Kenyon and Knott's *A Pronouncing Dictionary of American English* – plus some assorted phonology books.

Right around in there I realized that CommonWords would be especially useful for developing specialized word lists for the classroom. So that led next to the Analysis field, which tries to show all of the useful orthographic information about each word that I could think of. The letter counts were pretty much generated by the machine; the syllable counts took a bit more thought.

1 Then I got interested in the question of difficulty and placement. The Spelling  
2 Difficulty field was based on the *New Iowa Spelling Scale* (which is actually not so  
3 new). The Rank field was based on Thorndike-Lorge again. The Range and  
4 Subrange fields were my own invention, based on the issue of what students  
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6 And then I just sort of added fields that popped into my head. The Themes field  
7 was the last one – and in some ways the most fun. After the main CommonWords  
8 datatable was complete, the smaller statistical datatables were pretty much  
9 machine-created.

10 That's the long answer. The short answer is that it took a whole lot – more than  
11 four decades – of sitting on my fanny in front of a keyboard. The thing that  
12 continues to amaze me – and that really amazes my wife – is that the two  
13 databases have continued to hold my interest over all those years. I really enjoy  
14 working on them and various spinoffs from them – like the Indo-European lineages  
15 on the website and a vocabulary program that an ex-student and I are putting  
16 together for him to use in his high school classroom, using maps much like those in  
17 the lineages. There is some stuff in the Short Articles venue of the website that  
18 may be of interest to your work.

19 Well, this was probably a whole lot more response than you bargained for, but, as I  
20 said, your question set me to thinking. And you are the first person to ever ask that  
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## Misspelling and correct spellings in a letter from Carly.wpd

The following is a verbatim copy of a letter Carol and I received from our granddaughter Carly in the spring of 1998, when she would have been 7 or 8: “How are you gramma and How is grammPa i got two loos tooth’s and a new hamster her name is Poly she is swet and ckut She is tan and withe i Love to hold my new hamster and my sister Love’s to hold her to and I Love to tack care uf her Love Carly” There is a lot going on here illustrating a newly literate writer grappling with the conventions of written English: To mention a few: the uncertainty over the distinction between upper and lower case (leading to the first person singular as both *\*i* and *l*) ; the lack of punctuation, except for the misused apostrophes; the unconventional spellings.

My interest is primarily with the spellings.

(1) *\*gramma* and *\*grammPa* may be due to the natural assimilation of the alveolar [n] to the labial [p] after the loss of [d] in the cluster ‘ndp’, leading to [nd] ÷ [m], or it may be a spelling she has seen in some of her reading, though the dictionaries prefer *grandma* and *grandpa*. *\*grammPa* is interesting, too, for the doublet ‘mm’ within the concatenation ‘mmp’: It not only violates the weak restraint against such doublets within larger clusters or concatenations, it also is an example of the misdivision of elements. The second ‘m’ echoes the ‘m’ in *ma*, so the correct division would lead to *\*grampa* [gram+pa], not *\*[gramm+pa]*.

(2) *\*swet* and *\*tack* could be examples of “letter spelling”—that is, assuming that a vowel letter spells the sound of its name: thus, [ç] is spelled ‘e’, and [â] is spelled ‘a’.

(3) Truly odd is *\*ckut* (*cute*), which violates the restraint against word-initial ‘ck’ and also the VC# pattern, which regularly implies a short rather than a long vowel sound – or it could be letter spelling again.

(4) There is the more-phonetic spelling of *of*: *\*uf* (though *\*uv* would be maximally phonetic).

(5) Though some silent final ‘e’s make it into her spellings (*are*, *name*, *love*, *care*, and in the otherwise anomalous *\*withe* [*white*]), they are missing in *\*loos* and *\*ckut*.

(6) She missed the homophonous *too*: *\*to*, *too*. But she did get the other two of the homophones: *to* and *two*.

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3(7) Those two misused apostrophes are interesting. Actually it is not uncommon for even  
4 adult spellers (and printers of signs and posters!) occasionally to use the apostrophe in  
5 non-genitive plurals, as Carly does in \*tooth's., \*Tooth's also has a missed ablaut, in a  
6 good example of over-generalization, which pesters youngsters in more than their  
7 spellings. Carly's third person singular \*love's, though phonetically like the apostrophe in  
8 \*tooth's, is quite unusual, apparently an even greater over-generalization.

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9 So the short passage is interesting for its variety of anomalies. But it is interesting, too, for  
10 the many words that do get spelled correctly: *how, are, got, two, an, new, hamster, her,*  
11 *name, is, she, and, tan, love, to, hold, my, new, sister, care.* One suspects that she had  
12 some help with *hamster* and *sister*. But even so, it is an impressive list of sometimes hard  
13 and nonphonetic spellings. One gets a good sense of the mind's predisposition to pattern  
14 and simple repetition contending with the intricate set of more local subpatterns imbedded  
15 within more general patterns and rules.

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## Old rhetorical names and terms.wpd

I continue to be fascinated by the wonderful nomenclature developed by the old rhetoricians and grammarians. I would like to apply as many as possible of them to the morphological concerns that interest me, in part to see the extent to which what I am trying to do has a history and in part to see how much of it can be subsumed under the metaphor-metonymy distinction.

Definitions are from *RHUD* or *W3*:

*Anastrophe* : The inversion of structural units for certain effects.

*Hypotaxis* : Syntactic subordination (as by a conjunction) — opposed to parataxis.

*Parataxis*: 1 a : coordinate ranging of clauses, phrases, or words one after another without coordinating connectives (as in \*he laughed; che cried\*) — opposed to hypotaxis b : the placing of a subordinate clause beside a main clause without a subordinating connective (as in \*I believe it is true; there is a man wants to see you\*

*Metaplasms*: alteration of regular verbal, grammatical, or rhetorical structure usually by transposition of the letters or syllables of a word or of the words in a sentence.  
a. a change in the structure of a word or sentence made by adding, removing, or transposing the sounds or words of which it is composed or the letters that represent them.

*Periphrasis*: the use of an unnecessarily long or roundabout form of expression; circumlocution.

*Syncope*: the contraction of a word by omitting one or more sounds from the middle, as in the reduction of never to ne'er.

*Bahuvrihi*: a compound noun or adjective consisting of two constituents, the first of which is adjectival and describes the person or object denoted by the second, which is nominal: the compound as a whole denotes or describes a person or object having what is denoted by the second element, as bonehead, heavy-handed, redcoat.

*Anaphora*: Gram. the use of a word as a regular grammatical substitute for a preceding word or group of words, as the use of it and do in *I know it and he does too*. Cf. *cataphora*.

*Cataphora*: the use of a word or phrase to refer to a following word or group of words, as the

use of the phrase *as follows*.

*Cleft sentence*: a sentence in which a simpler sentence is paraphrased by being divided into two parts, each with its own verb, in order to emphasize certain information, esp. a sentence beginning with expletive it and a form of be followed by the information being emphasized, as *It was a mushroom that Alice ate instead of Alice ate a mushroom*.

*Desinence*: Gram. a termination, ending, or suffix of a word.

*Dvandva*: Gram. a compound word neither element of which is subordinate to the other, as *bittersweet*, *Anglo-Saxon*.

*Ellipsis*: . Gram a. the omission from a sentence or other construction of one or more words that would complete or clarify the construction, as the omission of *who are*, *while I am*, or *while we are* from *I like to interview people sitting down*. b. the omission of one or more items from a construction in order to avoid repeating the identical or equivalent items that are in a preceding or following construction, as the omission of *been to Paris* from the second clause of *I've been to Paris, but they haven't*. {Notice the notion that ellipsis, like any abbreviation or synecdoche, leads to more generality, less specificity, and thus increased likelihood of ambiguity.}

*Endocentric*: Gram. (of a construction or compound) having the same syntactic function in the sentence as one of its immediate constituents. *Cold water* is an endocentric construction, since it functions as would the noun *water*. *Greenhouse* is an endocentric compound, since it is a noun as is its head *house*. Cf. *exocentric*.

*Exocentric*: Gram. not having the same syntactic function in the sentence as any one of its immediate constituents. *In the garden* is an exocentric construction, since it does not function in the same way as the noun *garden*. The noun *bittersweet* is an exocentric compound, since it is a noun but its elements are both adjectives.

*Homonymous construction*: a construction that consists of the same morphemes in the same order as those of another construction, as *Flying planes* can be dangerous, in which *planes* in one construction is the object of *flying*, and in another the subject of *can*; **a terminal string of formatives having two or more structural descriptions**. [My emphasis.]

*Infix*: an affix that is inserted within the body of the element to which it is added, as Latin *m* in *accumbô* "I lie down," as compared with *accubuî* "I lay down." {Notice that Latin infixes are the source of much of the variation in form of bases and also enter into many vestigial forms.}

*Logogram*: a conventional, abbreviated symbol for a frequently recurring word or phrase, as the symbol & for the word *and*. {Somewhat like the contractions that are used to form complex technical and scientific words.}

*Theme*: the element common to all or most of the forms of an inflectional paradigm, often consisting of a root with certain formative elements or modifications. Cf. *stem* 1 (def. 16).

*Stem*: the underlying form, often consisting of a root plus an affix, to which the inflectional endings of a word are added, as *tend-*, the stem in Latin *tendere* "to stretch," the root of which is *ten-*. Cf. *base* 1 (def. 18) , *theme* (def. 5)

*Base*: the part of a complex word, consisting of one or more morphemes, to which derivational or inflectional affixes may be added, as *want* in *unwanted* or *biolog-* in *biological*. Cf. *root* 1 (def.

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*Root*: a. a morpheme that underlies an inflectional or derivational paradigm, as *dance*, the root in *danced*, *dancer*, or *ten-*, the root of Latin *tendere* "to stretch." b. such a form reconstructed for a parent language, as \* *sed-*, the hypothetical proto-Indo-European root meaning "sit."

*Proclitic:* (of a word) closely connected in pronunciation with the following word and not having an independent accent or phonological status.

*Prosthesis:* Gram., Prosody. the addition of one or more sounds or syllables to a word or line of verse, esp. at the beginning.

*Syncretism:* the merging, as by historical change in a language, of two or more categories in a specified environment into one, as, in nonstandard English, the use of *was* with both singular and plural subjects, while in standard English *is* is used with singular subjects (except for *you* in the second person singular) and *were* with plural subjects.

*Zeugma:* Gram., Rhet. the use of a word to modify or govern two or more words when it is appropriate to only one of them or is appropriate to each but in a different way, as in *to wage war and peace* or *On his fishing trip, he caught three trout and a cold.* Cf. *syllipsis*

*Syllepsis:* the use of a word or expression to perform two syntactic functions, esp. to modify two or more words of which at least one does not agree in number, case, or gender, as the use of *are* in *Neither he nor we are willing.*

*Aphesis:* Historical Ling. the disappearance or loss of an unstressed initial vowel or syllable.

From *OED*: The gradual and unintentional loss of a short unaccented vowel at the beginning of a word; as in *squire* for *esquire*, *down* for *adown*, *St. Loy* for *St. Eloy*, *limbeck* for *alimbeck*, *'tention!* for *attention!* It is a special form of the phonetic process called *Aphæresis*, for which, from its frequency in the history of the English language, a distinctive name is useful. Now also used in the sense of *aphæresis*.

*Apheresis:* the loss or omission of one or more letters or sounds at the beginning of a word, as in *squire* for *esquire*, or *count* for *account*.

*Crasis:* Gr. Gram. The combination of the vowels of two syllables, esp. at the end of one word and beginning of the next, into one long vowel or diphthong.

- 1 The explanation given in quot. 1836 is that of the late Greek  
 2 Grammarians, and in the Greek Grammars of the 16th c.  
 3  
 4 1833 E. Robinson tr. Buttman's Larger Grk. Gram. 60 Avoiding the  
 5 hiatus\_(1) by elision with the apostrophe; and (2) by contracting both syllables  
 6 into one compound sound, or Crasis.  
 7  
 8 1836 Edin. Acad. Grk. Rudiments (ed. 4) 14 There are three modes of  
 9 contraction: Crasis, Synæresis, and Syncope. Crasis is the mixture of two  
 10 sounds with a change of the vowels: as \_\_\_\_\_.
- 11 *Synaeresis*: 1. the contraction of two syllables or two vowels into one, esp. the  
 12 contraction of two vowels so as to form a diphthong. 2. synizesis. Also, syneresis.
- 13  
 14 *Synizesis*: the combination into one syllable of two vowels (or of a vowel and a  
 15 diphthong) that do not form a diphthong. Also called synaeresis
- 16 *Diacope*: Gram. and Rhet. \_A figure by which two words that naturally stand  
 17 together, especially two parts of a compound word, are separated by the  
 18 intervention of another word; tmesis'
- 19  
 20 *Tmesis*: The separation of the elements of a compound word by the  
 21 interposition of another word or words. (Often a reversion to the earlier  
 uncompounded structure.)

*Enallage*: The substitution of one grammatical form for another, e.g. of sing. for pl., of present for past tense, etc.

*Excrescent*: Of a sound in a word: Having no etymological value, but developed by the influence of euphony.

1868 Key Philol. Essays 204 Excrescent Consonants. I have thought it desirable to ask for one [a new grammatical term]\_because the ordinary term \_epenthesis' seems to have been formed on a false theory.

1881 Skeat Etym. Dict. s.v. Sound, The final d\_ is excrescent, just as in the vulgar gownd for gown.

*Epenthesis*: (See quot. 1657) Subsequently used in a wider sense to account for the presence of an unetymological vowel (cf. anaptyxis) or consonant.

In mod. philology applied spec. to the phonetic change which consists in the transference of a semi-vowel to the syllable preceding that in which it originally occurred, as in Gr. \_\_\_\_\_ from an earlier \*kharjo.

1657 J. Smith Myst. Rhet. 171 Epenthesis is the interposition of a letter or syllable in the midst of a word.

1954 Pei & Gaynor Dict. Linguistics 66 Epenthesis, the interpolation in a word or sound-group of a sound or letter which has no etymological justification for appearing there.

1955 Sci. Amer. Aug. 79/2 Sometimes you hear a consonant inserted where the spelling of the word suggests no such sound: fambly for family, chimbley for chimney. The name of this phenomenon, from the Greek, is '\_epenthesis'.

*Formative*: Serving to form words: said chiefly of flexional and derivative suffixes or prefixes. {Would vestigial elements be formatives?}

*Metaphrastic*: Gram. (See quot.) rare<sup>1</sup>. 1861 Max Müller Sci. Lang. Ser. i. viii. (1864) 338 The formation of such phrases as the French j'aimerais, for j'ai à aimer\_ may be called analytical or metaphrastic.

*Mimetic change*: b : resulting from analogy — used of change in a word form. Gram. (See quot.) rare. 1877 March Comp. Ags. Gram. \_40. 27 Mimetic changes are those occurring through the influence of other words.

*Paragoge*: Gram. The addition of a letter or syllable to a word, either inorganically

1 as in peasan-t, or, as in Hebrew, to give emphasis or modify the meaning. the  
 2 addition of a sound or group of sounds at the end of a word, as in the nonstandard  
 3 pronunciation of height as height-th or once as once-t.

4  
 5 *Patrial*: Gram. Applied to a word denoting a native or inhabitant of the country or place  
 6 from the name of which it is derived; also to a suffix forming such words. Also as n.,  
 7 a word of this class. rare.

8 *Pleonasm*: Gram. and Rhet. The use of more words in a sentence than are  
 9 necessary to express the meaning; redundancy of expression (either as a  
 10 fault of style, or as a figure purposely used for special force or clearness);  
 11 with a and pl., an instance of this, or the superfluous word or phrase itself.

12 *Proclitic*: In Greek Gram., used of a monosyllabic word that is so closely attached in  
 13 pronunciation to the following word as to have no accent of its own; hence,  
 14 generally, used of a word in any language, which in pronunciation is attached to the  
 15 following stressed word, as in an \_ounce, as \_soon, at \_home, for \_nobody, to  
 16 \_\_compre\_hend.

17 *Paronomasia* (n. Rhet.1. the use of a word in different senses or the use of words  
 18 similar in sound to achieve a specific effect, as humor or a dual meaning; punning.  
 19 2. a pun. [1570–80; < L < Gk paronomasia a play on words, assonance, deriv. of  
 20 paronomázein to make a slight name-change ( par- PAR- + onomázein to name,  
 21 deriv. of ónoma NAME) ; see -IA]— par•o•no•mas•tic (par f n÷ mas,tik) adj.— par  
 21 o•no•mas,ti•cal•ly, adv.

*Paronymous*. adj. Gram. containing the same root or stem, as the words *wise*  
 and *wisdom*. [1655–65; < Gk paronymos. See *PARONYM*, -OUS]

*Paronymy*. 1. = paronomasia. Obs.

1627 W. Sclater Exp. 2 Thess. (1629) 29 Tribulation to them that trouble. The  
 paranomasie, or paronymie, I thinke is not casuall, but intended to point at the  
 Talio God holds in recompencing.

2. The family of words derived from one root.

1682 Weekly Mem. Ingen. 375 The Paronymie or derivatives from thence.

3. Formation from a word in another language with but slight change; adaptation of a

foreign word to native word-types.

1885 B. G. Wilder in Jrnl. Nervous & Ment. Dis. July (title) Paronymy versus Heteronymy as Neuronymic Principles.

1885-9 Buck's Handbk. Med. Sc. VIII. 519 (Cent.) The relation between the Latin pons and the French pont is one of paronymy; but between pons and the English bridge it is one of heteronymy.

*Paronym*: A word which is derived from another, or from the same root; a derivative or cognate word.

## On Spelling the Names of Really Big Numbers.wpd

Here are the *illion* words in order:

Value	Name	Notes	Rank	XP
$1000^2$	million	Ital. milione, mille+one]	1	milli+on]
$1000^3$	billion	Blend of bi- + million	2	b/i+illion
$1000^4$	trillion	$10^{12}$	3	tr/i+illion
$1000^5$	quadrillion	$10^{15}$	4	quadr+illion
$1000^6$	quintillion	$10^{18}$	5	quint+illion
$1000^7$	sextillion	$10^{21}$	6	sext+illion
$1000^8$	septillion	$10^{24}$	7	sept+illion
$1000^9$	octillion	$10^{27}$	8	oct+illion
$1000^{10}$	nonillion	$10^{30}$	9	non+illion
$1000^{11}$	decillion	$10^{33}$	10	dec+illion

Plus the indeterminants *jillion* and *zillion*. I guess we have to treat these as phonoaesthetic simplexes.

Given the xp's above, what value do the various elements have? In terms of contemporary American usage: We can assume a rank order with *million* at 1 and *decillion* at 10. This rank order is one less than the power of 1000 given in the Value column. So the first element indicates the rank order: *bi+* "2", *tri+* "3", etc. And the second element, *illion*, indicates "thousand." So the first element indicates one less than the power to which 1000 must be raised to equal the value indicated by the name. I will need a separate definition for each of these initial elements, tagged "when concatenated with *illion* "thousand." Or "In the *illion* sequence."

There have been changes in the numerical value of *billion* and *trillion*. From the *OED*: a. F. billion, purposely formed in 16th c. to denote the second power of a million (by substituting bi- prefix<sup>2</sup> for the initial letters), trillion and quadrillion being similarly formed to denote its 3rd and 4th powers. The name appears not to have

been adopted in Eng. before the end of the 17th c.: see quot. from Locke. Subsequently the application of the word was changed by French arithmeticians, figures being divided in numeration into groups of threes, instead of sixes, so that F. billion, trillion, denoted not the second and third powers of a million, but a thousand millions and a thousand thousand millions. In the 19th century, the U.S. adopted the French convention, but Britain retained the original and etymological use (to which France reverted in 1948). Since 1951 the U.S. value, a thousand millions, has been increasingly used in Britain, especially in technical writing and, more recently, in journalism; but the older sense, a million millions' is still common.

## Piaget & Bruner on learning and structure.wpd

The following is from Jean Piaget's *The Child and Reality* (Grossman, 1973): Speaking for the importance of reconstruction and schematization in building memory, Piaget says “what is recorded in memory is not the perceptive and objective fact . . . but rather the idea the child creates of it. . . . // the memory-picture merely forms a symbol representing a scheme” (44-45).

The following is from “The Importance of Structure” in Jerome Bruner's *The Process of Education* (Vintage, 1960): “The first object of any act of learning, over and beyond the pleasure it may give, is that it should serve us in the future. Learning should not only take us somewhere; it should allow us later to go further more easily. . . . [One] way in which earlier learning renders later performance more efficient is through what is conveniently called nonsecific transfer or, more accurately, the transfer of principles and attitudes. In essence, it consists of learning initially not a skill but a general idea, which can then be used as a basis for recognizing subsequent problems as special cases of the idea originally mastered. This type of transfer is at the heart of the educational process—the continual broadening and deepening of knowledge in terms of basic and general ideas. // The continuity of learning that is produced by [this] type of transfer, transfer of principles, is dependent upon mastery of the structure of the subject matter. . . . what is meant by 'fundamental' [or 'basic'] in this sense is precisely that an idea has wide as well as powerful applicability” (17-18).

“Mastery of the fundamental ideas of a field involves not only the grasping of general principles, but also the development of an attitude toward learning and inquiry, toward guessing and hunches, toward the possibility of solving problems on one's own. . . . an important ingredient is a sense of excitement about discovery—discovery of regularities of previously unrecognized relations and similarities between ideas, with a resulting sense of self-confidence in one's abilities” (20).

Teaching to such ends “requires a combination of deep understanding and patient honesty to present physical or any other phenomena in a way that is simultaneously exciting, correct, and rewardingly comprehensible” (22).

Bruner offers “four general claims that can be made for teaching the fundamental structure of a subject.” Two of them follow: “The first is that understanding fundamentals makes a subject more comprehensible.

“The second point relates to human memory. Perhaps the most basic thing that can

be said about human memory, after a century of intensive research, is that unless detail is placed into a structured pattern, it is rapidly forgotten. . . . // We remember a formula, a vivid detail that carries the meaning of an event, an average that stands for a range of events, a caricature or picture that preserves an essence—all of them techniques of condensation and representation. . . . A good theory is the vehicle not only for understanding a phenomenon now but also for remembering it tomorrow” (24-25). The following is from Jerome Bruner's *Beyond the Information Given: Studies in the Psychology of Knowing* (Norton, 1973): He argues that “the principal problem of human memory is not storage, but retrieval. . . . The key to retrieval is organization or, in even simpler terms, knowing where to find information and how to get there” (411). “One can cite a myriad of findings to indicate that any organization of information that reduces the aggregate complexity of material by embedding it into a cognitive structure a person has constructed will make that material more accessible for retrieval. In short, we may say that the process of // memory, looked at from the retrieval side, is also a process of problem solving: How can material be placed in memory so that it can be gotten on demand?” (411-412)

1 “In sum, the very attitudes and activities that characterize figuring out or discovering  
2 things for oneself also seem to have the effect of making material more readily  
3 accessible in memory” (412).

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## To Civilize our New Teachers.wpd

Remarks to Washington State Professional Education Advisory Committee, April, 1986

I don't very often preface prepared statements like this with an apology, but this time I feel I must. The remarks that follow simply have not been ground down to the smoothness I would like. Things have been busy the last few weeks, and the request to sit in on this panel came quite late. So rather than having the unified and coherent piece of prose I keep yowling about to my students, I can offer you only a partially edited version that reads rather like a shopping list, and a somewhat free-associational shopping list at that. However, the major themes of what follows are these, I think:

I do not believe that Haberman's proposed reorganization of liberal studies will speak to the problem of making liberal studies more effective in preparing our new teachers. I believe that his proposal reflects the attitudes of the social scientist and that those attitudes are not appropriate to the spirit of liberal studies, as I understand liberal studies. To the extent that I can be said to have a counter proposal, it would be that rather than changing liberal studies to fit the predispositions of an educationist's view of the social sciences, we should change the educationist's views away from those of the social scientist and towards those of the liberal scholar. The reformation should not come in the liberal studies but rather in how we view the liberal studies in the total preparation of our new teachers, including that professional training that Haberman excludes from his discussion. In short, I believe that professional educators should look for their intellectual roots not in the social and physical sciences but in the arts and humanities.

I suspect that there are more notions than that squirming around in the following pages, waiting to get out, but the few outlined above will have to do for now.

Haberman's proposal reflects the spirit of the sciences, not that of the liberal arts and humanities. And though it is clear and efficient and rational, it would be lethal to the soul of the very thing it tries to nurture and sustain, liberal studies. It has the rationality characteristic of the social scientist. It assumes a faith in the organizational methods and ways of thinking that have served the physical scientists (and, oddly, the business world) so well for so long. The jury is still out

on the question of whether or not such methods are appropriate for the social sciences. I, for one, am convinced that they are fatal to the liberal arts and humanities.

Haberman points out that the sciences were added just recently to the liberal studies. I don't speak for the sciences today. In fact, I'm not sure that the notion of a liberal science can be anything other than a self-contradiction: I can imagine curricula, and have even taught in them, that try to present science as a liberal study. They can be great and exciting stuff, in the spirit, say, of Carl Sagan's *Cosmos*. But most of my scientist friends won't recognize them as real science. Sagan, Loren Eiseley, Lewis Thomas, Isaac Asimov -- all of that lot are popularizations, fun maybe, but they ain't science, buster. At least that is what I've been told, by tight-lipped physicists and chemists. So I'm not sure, as I say, what a liberal science would be. I speak today only for the liberal arts and humanities.

The arts and humanities are not physical systems, not the sort of things studied by physical scientists. Nor are they social systems, made up of living, breathing human beings, like the things studied by sociologists or psychologists. The arts and humanities are cultural systems, systems of symbolic structures, the products of the human imagination and spirit. They are not law-governed the way a physical system is governed, say, by the law of gravity or the laws of thermodynamics. They are not even rule-governed like social systems -- not governed, for instance, by rules of conduct like the incest taboo or more locally defined rules of democratic fair play. To the extent that cultural systems can be said to be governed at all, they appear to be governed by norms. Norms, I believe, are simply conventionalized expectations. And in cultural systems they are expectations that exist as much to be broken in the name of innovation as to be sustained in the name of tradition.

These symbolic cultural systems are different from physical systems, different even from social systems. One of the main differences is the fact that cultural systems are marked by extreme indeterminacy. Putting it another way, it is damned hard to tell in cultural systems what is going to happen next. They are systems that are poised constantly in a state of extreme disequilibrium, ready to go shooting off at the slightest provocation, reorganizing themselves in unpredictable ways. This unpredictability, or indeterminacy, is an important theme in my remarks. It affects how we do and must teach the arts and humanities, how

students learn within them, what we can and cannot do with and about them. The indeterminacy of our symbolic systems is one reason why we in liberal studies have always been skeptical of deterministic strategies like performance objectives, ITIP,

and other such analyses, which we tend to view as behaviorist reductionism run amuck. Though I don't believe that he is in any sense running amuck, I do believe that Haberman's proposed reorganization of liberal studies is in this same deterministic spirit. We in the arts and humanities can't convincingly determine ahead of time what we're going to do, what we want our students to learn, student learning objective fashion, because except at the most trivial of levels we can't determine things like that before they happen. The painter can't know the painting until it's painted. The poet can't know the poem until it's on the page. And even then the waiting is not over, for each reader or viewer must go through much the same creative act in experiencing and discovering anew the meaningfulness of the work. We are still discovering what Shakespeare's plays are about and the paintings of poor, pathetic Vincent Van Gogh.

In general our social scientists -- including our professional educators -- have tried too hard to study our social systems as if they were physical systems. Our social scientists strive too much to emulate the physical scientists. And now we seem to be learning, though slowly, that what works with law-governed physical systems may not work very well at all with rule-governed social systems. One reads of anthropologists and sociologists who are musing that the models from the physical sciences are not so useful after all. One reads of renewed interest in insights from the other camp -- from the arts and humanities. Many social scientists seem to be swapping their old models for new metaphors. And that comes as no real surprise. We in the arts and humanities have suspected all along that what anthropology and sociology and psychology -- and professional education -- needed were fewer aspiring physicists and more aspiring poets, fewer people who think like accountants and more who think like philosophers.

Haberman's analysis, practical and efficient, assumes that the study of the liberal arts will help someone become "a better practitioner of any profession." He says, "The teacher needs general liberal studies for all the same reasons any college graduate needs them **and** as a basis for teaching particular subject matter to children and youth." He uses the word *need* a lot, and we should think about that word. One dictionary defines *need* as "A condition or situation in which something necessary or desirable is required or wanted: *crops in need of water.*"

That definition seems to assume a scale of needs: At one extreme are needs that are necessary and required, like water for parched crops. If you don't get the water, you don't get the crops. But at the other extreme we get needs that are only desirable and wanted. Considerably softer.

Where do the liberal arts and humanities fit on this scale of needs? Not, I would submit, at the necessary and required end. Down through the millennia most of the people of the world have managed to live rich and full lives without benefit of a liberal education. They have survived quite well with no philosophy or literature or classical music or fine art and very little historical sensibility. So I don't buy the necessary and required notion. Not only that, but I've spent most of my adult life on a college campus working and living with people who have had massively liberal educations, and after two and a half decades of faculty meetings, I have to admit, with a heavy heart, that people who have dedicated their lives to the study of philosophy and literature and art and history can be just as outrageous in their fits of bovine stupefaction as any mere mortal. In fact, I've thought more than once, more in awe than in anger, that if these people can act like such incorrigible boobs after all that liberalizing and humanizing, what sort of nightmares would they have been if left in their unliberalized, unhumanized state?

It maybe sounds funny the way I say it. It doesn't sound so funny the way George Steiner says it in his essay "To Civilize Our Gentlemen," when he asks with horror how it can be that during the Second World War in Europe those Nazi officers would spend their days gassing and burning Jews and then go home to their Goethe, the poetry of Rilke, the music of Bach. How could it be that these men would sit in rooms decorated with the very finest paintings and sculptures they could loot from the museums of Europe, listening to the exquisite music of Mozart, while they pared the ashes of Jews from under their fingernails? Steiner's question -- or cry -- is, How in the face of this can we say that studying the arts and humanities does in fact humanize?

And I guess I have to say, "Dr. Steiner, sitting here in Washington state, trying to cope with the civilizing of our new teachers, I'm not sure in what sense we can say that the arts and humanities humanize." And that is why I have trouble with Haberman's use of the word *need* in all of this. This is perhaps our ultimate indeterminacy.

So, if we can't even answer a straightforward question like whether or not the humanities do in fact humanize, do lead to better people and teachers, what is all the fuss about? We in the arts and humanities like to speak of ourselves as stewards of the traditional knowledge of our culture. We see ourselves as having been granted a very precious trust. I believe that the possessions entrusted to our stewardship are not only precious; they are fragile. The lessons and values of the

arts and humanities can be lost in a twinkling, through the best-intentioned acts of neglect. Think of the immensity and suddenness of the cultural loss in modern China under Chairman Mao -- with **his** concern for applicability, relevance, and persistent life themes. These cultural possessions are easily lost, and once lost, very difficult to regain, in part because once they are lost, too few people know enough even to recognize that anything is missing. That is one of the most scary things about all of this: By the time the values of the arts and humanities have begun to be lost, people aren't even able to miss them.

(My belief in the fragility of the arts and humanities is not universally held. I have a colleague in our department, for instance, a poet, who insists that the arts and humanities are tougher than nails. He likes to say things like, "We need Shakespeare a hell of a lot more than Shakespeare needs us." Or "If we don't read *Oedipus Rex*, it is our never-ending loss, but it makes no difference to the play." And there is, as there usually is in his aphorisms, a certain truth there. But still I worry about that fragility.)

In any case, what do we say about these arts and humanities, precious and maybe fragile, but carrying no guarantees so far as humanizing is concerned, no guarantees of making better people and better teachers?

I believe that one thing the arts and humanities do do is make it possible for us to keep alive a sense of the best that mankind has managed to do. They help us keep alive our sense of what has gone into getting us where we are, what great thoughts thought, what great books written, what great paintings painted. The study of the arts and humanities need not finally have anything to do with making better people or with making better professionals. Undoubtedly it sometimes does. But very often it doesn't. And very often the best of people and of professionals manage to escape anything at all that you would want seriously to call a liberal education. But it is only by studying the arts and humanities that we can keep alive the tradition of the best and all that it implies about the human condition and the aspiring human spirit.

And in this argument that has been marked already by any number of twists and turns, comes yet another: One of the great values of the arts and humanities is that they offer refuge from the din and roar of persistent life problems. They are all symbolic structures, not real people doing real things. The poet does not claim to

tell the truth about the much-touted and ill-defined "real world." The luminous women in Renoir's paintings are not real women. And the over-sized characters in a William Faulkner story are not real people. In their symbolic representations the artists clear away the underbrush that keeps cluttering up the landscape of the so-called real world. Because of that we can learn more about the human condition from a character in a Faulkner story in an hour or two than we can learn from a so-called real person in years. I am not talking art-for-art's-sake here. I am talking rather of a special kind of knowledge gained only from the arts and humanities and only if they are addressed as arts and humanities, not as some born-again applied social science.

One next-to-final thought: There's a disturbing parallelism between the Nazis of Steiner's essay and the Elementary Education majors I deal with at Central. They both seem to be masters at compartmentalization, at refusing or being unable to see connections. Those students, when they show up, for instance, in English 432, Children's Literature, make it very clear that they are interested only in learning what they need to know to teach youngsters. They don't want to waste their time with anything that they can't use directly in their future classrooms. We say, "But we feel it is important for you to do the kind of close reading that can help you see more clearly your sense of literary values and to do the kind of close writing that will help you articulate your value judgements and your declarations of taste." And they say, "Hoo haw. Just give me a list of books to read to my future students and some snazzy tricks to get them to read them. They're just little kids and they don't need this kind of stuff, so neither do I."

And what is really discouraging is that they have learned this attitude in their education classes in our Education Department. And it is right in there, I think, that we will find one key to revitalizing the role of the liberal arts, in all of their indeterminacy, in professional education. So long as our aspiring teachers are taught to lust after the immediately and obviously applicable, after the concrete, after the countable and accountable -- so long as that goes on, there isn't much that anyone can do in the liberal arts that is going to make much difference. To reform, as Haberman suggests, on the basis of felt social needs, with a special concern for practicality and social applications simply aggravates this same

compartmentalization. The heart and soul of liberal studies gets lost in the trade. The energy flow must go the other way: Let the spirit of the arts and humanities

inspire professional education. Let the education people stop aspiring to be social scientists -- as their journals, their attitudes, their theses and dissertations testify they are doing. Let them aspire instead to the arts and humanities. Let them stop treating the arts and humanities as some kind of varnish that we daub on in the name of general education. Let them stop teaching their students that the only value in studying children's literature is the value of the practical bibliography and the pedagogical quick fix. Let them turn away from the patterns of feeling and thought characteristic of those johnny-come-lately social sciences and turn instead to the much older, much more humanized patterns of feeling and thought characteristic of the arts and humanities. Let them trade their models for metaphors. It is there, in the paradigm shift that such a change would represent that we can expect the liberating studies really to make a difference in professional education. But so long as the attitudes of the social scientists and the accountants prevail in our schools of education, we shouldn't really expect too much.

I keep wanting to mention here a poem by one of my favorite poets, Wallace Stevens. His poem "A High-Toned Old Christian Woman" starts out "Poetry is the supreme fiction, madame." And you must know that to Stevens fiction and fictive things are all of the products of the human imagination, which would include all of those symbolic systems that make up the stuff of the arts and humanities. The poem teases the high-toned old widow lady for her belief that her dead husband is up in heaven acting like a good little angel. Ah, the poem says, maybe he is up there having himself a high old time! Perhaps he is up there, "[his] bawdiness / Unpurged by epitaph, indulged at last . . . / Squiggling like saxophones." Perhaps up there he and the other

. . . disaffected flagellants, well-stuffed,  
 Smacking their muzzy bellies in parade,  
 Proud of such novelties of the sublime,  
 Such tink and tank and tunk-a-tunk-tunk,  
 May, merely may, madame, whip from themselves  
 A jovial hullabaloo among the spheres.

And the poem concludes:

This will make widows wince. But fictive things

1 Wink as they will. Wink most when widows wince.

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3 As much as I like that poem, as many times as I've read it and taught it, I've never  
4 convinced myself that I really understand it. Indeterminacy again. But it feels to me  
5 that that is what the arts and humanities, well taught, well learned, do: Wink most  
6 when widows wince. Now, if we could just understand **that**, then smacking our  
7 muzzy bellies in parade, we too might whip from ourselves a jovial hullabaloo  
8 among the spheres. Which might not be half bad.

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## A Lot About gh.wpd

I'm beginning to think that treating <ght> as a minor spelling of [t] is a mistake. Probably it is better to treat <gh> as a silent diacritic after long vowels and diphthongs. The problem is that it seems odd to say that in *weight* the <gh> is part of a consonant spelling but in *weigh* it is a silent diacritic or even a vowel spelling.

After	Spelled	Word
â	ai	straight
â	ei	weight
â	ei	eight
â	ei	weigh
â	ei	freight
â	ei	sleigh
â	ei	neigh
â	ei	neighbor
â	ei	inveigh
î	ei	sleight
î	ei	height
î	i	delight
î	i	bight
î	i	might
î	i	nigh
î	i	blight
î	i	bright
î	i	bedight
î	i	slight

î	i	dight
î	i	wright
î	i	fight
î	i	flight
î	i	spright
î	i	sight
î	i	sigh

After	Spelled	Word
î	i	fright
î	i	light
î	i	wight
î	i	night
î	i	high
î	i	hight
î	i	plight
î	i	knight
î	i	thigh
î	i	right
î	i	tight
o	au	aught
o	au	naughty
o	au	naught
o	au	haughty
o	au	daughter

o	au	distraught
o	au	onslaught
o	au	fraught
o	au	caught
o	au	slaughter
o	au	taught
o	ou	nought
o	ou	bought
o	ou	fought
o	ou	brought
o	ou	wrought
o	ou	sought
o	ou	ought
o	ou	thought
o	ou	dreadnought
ô	ou	brougham
ô	ou	furlough

After	Spelled	Word
ô	ou	dough
ô	ou	thorough*
ô	ou	though
ô	ou	borough*
ouÿ	ou	doughty
ouÿ	ou	clough*

ouÿ	ou	drought
ouÿ	ou	plough
ouÿ	ou	bough
ouÿ	ou	sough*
û	ou	slough*
û	ou	through

In some native English words that descend from OE words with the voiceless palatal and velar fricatives spelled yogh and <h> in OE and <gh> in ME, the <gh> is silent. This silent <gh> occurs after the long vowels [â] spelled <ei> (8) or <ai> (1), [î] spelled <i> (26) or <ei> (2), and [ô] (6) and the diphthong [ouÿ] (8), both spelled <ou>, and the short vowel [o] spelled <au> (11) and <ou> (9). [Why this short <o>? It breaks an otherwise useful generalization: <gh> is silent after long vowels and diphthongs, probably/usually because of the lengthening effect of <gh> during late OE and ME. Technically, it seems like in these words <gh> should be [f], because it is pronounced [f] after [a] spelled <au> and [u] spelled <ou>. Look for signs of [f] in earlier spellings. I think the *OED* speaks of this contention somewhere:

The word *fight* was in Old English *fihtan*, the <h> spelling a palatal fricative sound similar to that at the end of the German pronunciation of *ich*. Eventually the fricative dropped out of the language, but the <gh> stayed in the spelling. Sometimes the <gh> became pronounced [f]: *rough*, *laughter*. Sometimes, after long vowels and diphthongs, it fell silent. [And sometimes it merged with the spelling of [t], leading to the minor spelling <ght>, as in *right* and *weight*.???

Thinking more about <gh> and the question of silent letters in general: I assume a basic principle of economy at work in orthosys, a la Zipf's Law. One manifestation of this principle is a drive towards simplification, shortening, the reduction of redundancy. This in turn leads to a constant process of

recombination, redivision, shortening, abbreviation at work within all of the phases that make up the language process: the semantic phase, the morphological, the syntactic, the phonological, the orthographic. New units emerge as old ones are combined into new ones, as long, more redundant, units are simplified to shorter, more efficient ones. Within the phonological phase there occurs a process of

1 constant sound change, as new phonological units are created. The same happens  
2 within the orthographic phase, though more slowly. Thus, for one thing, words often  
3 have more letters than sounds and practically never have more sounds than letters.  
4 Sounds disappear but letters tend to persist. That is one of the advantages of  
5 letters, one of the reasons, according to Mulcaster, that Sound had to give up his  
6 singlehanded rule of Right Writing.

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## Earliest Etruscan alphabet.wpd

The earliest Etruscan inscription is “the 8th-century-BC Marsiliana Tablet, preserved in the Museo Archeologico in Florence. This is also the earliest preserved record of a Western alphabet. The early Etruscan alphabet, unlike any early Greek alphabet found in the Greek inscriptions, contains the original—the prototype—Greek alphabet, consisting of the 22 North Semitic letters, with the phonetic values given to them by the Greeks, and the four additional Greek letters at the end of the alphabet. The Etruscans introduced various changes in their script, and several features in the modern alphabets can be attributed to the influence of the ancient Etruscans. An example is the phonetic value of ‘k’ for the letters *c*, *k*, and *q*. Like the Semitic and early Greek alphabets, Etruscan writing nearly always reads from right to left, though a few inscriptions are in boustrophedon style. The probable date of the origin of the Etruscan alphabet is the late 9th or early 8th century BC.

“About 400 BC, the ‘classical’ Etruscan alphabet took its final form of 20 letters—four vowels and 16 consonants. Because the voiced and voiceless sounds *b* and *p*, *d* and *t*, and *g* and *k* were not differentiated in the Etruscan language, letters *b* and *d* never appear in pure Etruscan inscriptions, and after the disappearance of *k* and *g*, the letter *C* was employed for *g* and *k*. . . .

“The adaptation of the Etruscan alphabet to the Latin language probably took place at some time in the 7th century BC.” David Diringer, “Alphabets” *EB* 1:624, 15th ed. (1977).

## Teaching English Spelling to Spanish Speaking Students.wpd

People for whom English is not their native language can have special problems where the sound and spelling structures of their native language differ from those of English. The habits they've formed in learning their native tongue are deeply ingrained and thus extremely strong, so much so that they will tend to apply those habits to their hearing, pronunciation, and spelling of English. This interference is not due to slowness nor to perversity nor laziness. The persistence of those native habits is, rather, a testimony to the strength of the students' mastery of their native tongue.

Take, for instance, the lack of agreement between vowels in English and Spanish: People tend to hear what they have learned to hear in their native language. If they have problems hearing and distinguishing among the new English vowel sounds, they will have problems spelling words containing those vowels.

Spanish contains only five simple vowels, which in our notation would be [ɔ̄] (long <e> as in *beet*); [â] (long <a> as in *bait*); [ô] (long <o> as in *boat*); and [û] (long <u> as in *boot*).

Notice that the English short vowels are not represented: no [ă] as in *bat*, [ɪ] as in *bet*, [ɒ] as in *bit*, [ʊ] as in *but*, or short <oo>, [ʊ̄] as in *book*. Since native Spanish speakers are not used to hearing these short vowels, they may have trouble hearing the differences between, for instance, *than* and *then*, *bet* and *bit*, *buck* and *book*. Further, they can tend to substitute one of the familiar five simple vowels of Spanish for various of the unfamiliar English vowels. Thus, familiar long <e> will tend to substitute for unfamiliar [ɒ], leading to the confusion of contrasting words like *deed* and *did*, *seat* and *sit*, *leave* and *live*, *steal* and *still*; *pool* and *pull*, *coed* and *could*. More generally, such students may have problems with long vs. short vowel contrasts: *hopping* vs. *hoping*, *cutter* vs.

*cuter*, so *sadder* can easily be misspelled as \**sader*; *fitter* as \**fiter*, etc. In short, the work with VCC vs. VCV contrasts can be a persistent problem, and thus the whole issue of twinning and final <e> deletion.

The differences between Spanish and English consonants also can cause problems. Since there are very few word-final voiced stops in Spanish, students will tend to replace word-final voiced stops with their voiceless counterparts. Thus, you might expect misspellings with word-final [p] for [b], [t] for [d], [k] for [g]: confusions of *hit* for *hid*, *pick* for *pig*, *mat* for *mad*, *not* for *nod*, *sat* for *sad*, *set* for *said*, *cant* for

*canned*, *buck* for *bug*. Add common vowel confusions, and you

might even expect things like *beak* for *big*, *shoot* for *should*.

Spanish-speakers can also tend to devoice other word-final voiced consonants. Thus *ridge* (with voiced [j]) can become *rich* (with voiceless [ch]). *Bridge* and *judge* could become \**britch* or \**brich* and \**jutch* or \**juch*.

Spanish-speakers tend to replace word-final [m] with [n] or [õ], so *gum* can become \**gun* or even \**gung*; *swim*, \**swin* or \**swing*; *system*, \**system*.

Since [z] does not exist in Spanish, students may replace [z] and <z> with [s] and <s>: \**prise* for *prize*, \**sipper* for *zipper*, \**bus* or \**buss* for *buzz*, \**soo* for *zoo*. Also, this unfamiliar contrast between [s] and [z] could make quite difficult the discussion of the [s] and [z] pronunciations of the noun and verb suffixes -s.

Strictly speaking, Spanish does not have a [b] or [v]; it does have a sound similar to but not equivalent to either one. Thus, Spanish-speaking students can be expected to confuse <b> and <v>: \**ebery* for *every*, \**hovy* or \**hovvy* for *hobby*, \**ravit* or \**ravit* for *rabbit*, \**billage* for *village*.

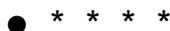
Since Spanish-speakers tend to pronounce [y] like [j], such misspellings could occur as \**jear* for *year*, \**jellow* for *yellow*, \**jours* for *yours*.

Since Spanish does not contain as many consonant clusters as English, many spelling errors are likely to involve the simplification of English clusters: \**boser* for *boxer*, \**wasy* for *waxy*. Common clusters like <nt>, <st>, <nd> and the like are vulnerable, as are the sometimes complex clusters in the middle of compounds.

Clusters like <st>, <sp> do not occur in initial position in Spanish, and students are liable to introduce an initial <e> in imitation of Spanish practice. Thus *stop* could become \**estop*.

English uses more double consonants in Latinate words than does the more phonetic Spanish: English *appear* is Spanish *aparacer*; English *oppose* is Spanish *oponer*, etc. Thus, you might expect misspellings like \**appear*, \**opose*.

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3 The preceding notes sketch out some of the problems of Spanish-English  
4 interference for the spelling class. The question then becomes how these  
5 problems should be addressed. The following suggestions, though far  
6 from complete, could provide some help:

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8 1. Remember that these problems testify to the students' mastery of their native  
9 Spanish rather than to any slowness or perversity on their part.

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10 2. Be particularly careful in modeling the problem sounds when presenting the  
11 words in your spelling lessons, and listen carefully to the students' recital of the  
12 words. Emphasize common contrasts like [s] and [z], [t] and [d], [i] and [o].

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14 3. But remember that you are dealing here with deeply ingrained habits,  
15 and don't be surprised if progress is painfully slow and sporadic.

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17 4. You might select three or four specific problem contrasts—again, for instance,  
18 those between [s] and [z], [t] and [d], [i] and [o]. Have students work with minimal  
19 pairs based on those contrasts—that is, pairs of words the pronunciations of which  
20 contrast only in terms of the target contrast—for instance, [s] vs. [z] words like *fuss*,  
21 *fuzz*; *price*, *prize*; *loose*, *lose*. The following are lists of high-frequency minimal  
pairs based on some of the contrasts most troublesome to Spanishspeaking  
students. You can use these lists in various ways. A few suggestions: Give the  
students one half of the pair and ask them to provide the other word. Or give them  
a scrambled list and have them sort them out into minimal pairs. Or have them  
compile their own lists.

### Minimal Pairs Involving the [z] vs. [s] Contrast

(Starred pairs are related historically or semantically.)

advise | advice\*

buzz | bus

devise | device\*

close (vb.) | close  
(adj.)\* graze | grace  
hers | hearse

his | hiss

eyes | ice

lazy | lacy

news | noose

phase | face

prize | price\*

rise | rice

seize | cease

use (vb.) | use

(n.)\* zeal | seal

zinc | sink

Some special cases:

sign | design, resign\*

sire | desire

serve, conserve | deserve, observe, preserve, reserve\*

solve | dissolve, resolve

### **Minimal Pairs Involving the [ɪ] vs. [0] Contrast**

(Starred pairs are related historically or semantically.)

bead | bid bean

| been, bin beat

| bit cease | sis

cheap | chip

cheek | chick

deal | dill dean |

din deed | did

deem | dim

deep | dip each

| itch ease | is

eat | it

feast | fist

feat, feet |

fit feel | fill

field | filled

fleet | flit

green | grin

greet | grit

heal, heel, he'll | hill

heap | hip

heat | hit

heed, he'd | hid

he's | his\*

keen | kin

lead (v.) | led\*, lead (the

metal) leap | lip

least | list

meal | mill

mean | men

meat, meet\* | met

peach | pitch

peak, peek | pick

peal, peel | pill

peep | pip

reach | rich

reap | rip

scene, seen | sin

scheme | skim

seal | sill

seat | sit\*

seek | sick sheep

| ship sleep | slip

steal, steel | still

weak, week |

wick weep | whip

we'll, wheel | will

### **Minimal Pairs with Word-final [d] and [t]**

(Starred pairs are related historically or semantically.)

add | at

aid | ate

and | ant, aunt

bad | bat

bead | beat

bed | bet

bend | bent\*

bid | bit

bold, bowled | bolt

brewed, brood |  
brute bride | bright  
bud | but

build, billed |

built\* card | cart

cloud | clout

code | coat

cold | colt

contend | content\*

dead | debt

descend |

descent\* extend |

extent\* fade | fate

feed | feat, feet

ford | fort

found | fount

gild | gilt\*

god | got

grand | grant

grade | grate,

great guild | guilt

had | hat

hard | hart, heart

heard, herd | hurt

heed, he'd | heat

hid | hit

hide | height

inside | insight

intend | intent\*

kid | kit

laid | late

lead (n.), led | let

lend | lent\*

lid | lit

loud | lout

mad | mat

made, maid | mate

mend | meant

mid | mitt

mound | mount

mud | mutt

need | neat

nod | knot, not, naught

pad | pat

plead | pleat

raid | rate

reverend | reverent\*

ride | right, rite, write

road, rode, rowed | rote,

wrote rod | rot, wrought

rude | root, route

sad | sat

said | set

seed | seat

she'd | sheet

side, sighed | cite, sight, site

slid | slit

slide | slight

soared, sword | sort

spade | spate

spend | spent\*

spurred | spurt

starred | start

tend | tent

thread | threat

tide, tied | tight

toad, toed, towed | tote

1 trade | trait

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3 wade, weighed\* | wait,

4 weight\* wand | want

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6 ward, warred | wart

7 weed, we'd | wheat

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9 wide | white

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