UNIVERSITY OF CALIFORNIA, SAN DIEGO

Prominence: from Sensation to Language

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy in

Cognitive Science and Linguistics

by

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The dissertation of Tracy Cameron Mansfield is approved,

and it is acceptable in quality and form for publication on

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Chair

University of California, San Diego

1997

To Deana and Caitria...

One Dragon.

CADE: It will be proved to thy face that thou hast men about thee that usually talk of a noun and a verb, and such abominable words as no Christian ear can endure to hear.

— William Shakespeare, *King Henry VI*

Daddy! Watch *this*... 'Pínk' ... 'Pùrple' ... 'Pínk' ... 'Pùrple' ... They make different shapes!

— Caitria Mansfield at 3 years of age

Table of Contents

List of Figures and Symbols

List of Tables

Foreword

ROPER So now you'd give the Devil benefit of law!
MORE   Yes. What would you do? Cut a great road through the law to
       get after the Devil?
ROPER I'd cut down every law in England to do that!
MORE   (*Roused and excited*) Oh? (*Advances on* ROPER) And when the
       last law was down, and the Devil turned round on you—where
       would you hide, Roper, the laws all being flat? (*He leaves him*) This
       country's planted thick with laws from coast to coast—man's laws,
       not God's—and if you cut them down—and you're just the man to
       do it—d'you really think that you could stand upright in the winds
       that would blow then? (*Quietly*) Yes, I'd give the Devil benefit of
       law, for my own safety's sake.

— Robert Bolt, *A Man for All Seasons*

It all started so very quietly.

Niccolo di Niccoli, a 15th-century Vatican clerk, designed what we think of

now as cursive handwriting in order that whole words could be written without having

to lift the pen off of the paper, and it was copied by European clerks who referred to it

as the 'Italian hand'. The italic typefont itself was created by Aldus Manutius in 1501

as a small typeset representative of the Italian hand for use in pocket books, and since

it was developed as a primary typeset, it was not originally used to set off anything,

but rather it composed the entire text.

Fifty years later, there was still neither use nor mention of italics in John Hart's

manuscript, *The Opening of the Unreasonable Writing of our Inglish Toung*; however,

just twenty years after that (1569), he *did* describe the use of italics for prominence in

his foundational volume on English linguistics, *An Orthographie, Conteyning the Due Order and Reason, Howe to Write or Paint Thimage of Mannes Voice, Most Like to Life or Nature*.

Some time between then and now, italic fell into disuse as a primary textual font. I suspect that this happened after the 17th century when the Dutch started to emphasize vertical rather than angled types, but before the introduction of the linotype machine in the 1880s, along with the adoption of a standardized handwriting pedagogy, such as Spencerian script in the mid-1800s.

Contemporarily, italics are used to mark excursions of variable length away from the main stream of a written text. Energetic gestures, both spoken and signed, are also articulated as departures away from the primary flow of conversation, and these two types of asides have come to be associated with one another. Some of these breaks are violent emotional explosions, while others are rigidly controlled tightenings of meaning which require great articulatory finesse, but of course most asides fall short of these extremes. Such gestural behavior actually spans language and species boundaries, and provides insight into the earliest forms of communication.

In this dissertation, I explain just what the devil is going on, while being mindful of the trees, "for my own safety's sake."

Acknowledgments

First and foremost, I thank Deana for giving me precisely what I needed to complete this project, namely the time to work while she fielded distractions, and the motivation to keep working when all I wanted to do was make up for lost sleep. Her love and her confidence in me is borne out by the fact that this dissertation is finished.

I also want to thank Caitria, my daughter, who during the time that all of this work was going on was only one-through-four years old. She was very generous with her time, advice, food, smiles, and love, all of which helped to sustain me when I just felt like chucking the whole mess in the trash.

My parents, Lorna and Dewey, have always come through for me, no matter what kind of help I needed. An education is merely one of the many luxuries that they have afforded me, as well as the freedom to spend more time with my family, and the understanding that I am a fortunate man indeed.

Jeff and I are *brothers*: always best friends; rarely bitter enemies; and usually partners in business, war, crime, or justice. When I needed to take a break from life and go to grad school, he helped me to get there and stay there. When I needed to take a break from grad school to come back to life, he found me a wife. I know that sounds grossly primitive, but it's essentially what happened. Without Jeff, I wouldn't have gotten into trouble nearly as often as I did, but then again, without Jeff, I also wouldn't have gotten anywhere nearly as interesting as I have.

The King of Imagination provides me with an inspiration of which I am sure he is wholly unaware. The way Bill lives and who he is always show me how thin the reality threshold is, and it brings me to believe not just that anything is possible, but entirely probable.

The greatest gift that I could wish for my friends is that they might have the opportunity to come to know each other as I have known them. Each of them is part of who I am, part of the person who was able to write this book. They might each take a little satisfaction in knowing that it is their speech patterns that have helped to form my intuitions about the structure of the language that I use, and in that way their own speech is given special attention. Then again, they might not give a hoot... some of my friends are just like that, bless them.

Thank you Margaret Langdon, for admitting me into the linguistics program on the simple condition that I promised to actually show up.

And speaking of promises, Ron Langacker has been friend enough to allow himself to be persuaded by my most outrageous demands, perhaps despite his better judgment, all because he felt that he could see the glimmer of promise in some of my work. Just as importantly, he has also been advisor enough to ensure that I made good on that promise. He has stuck his neck out for me so often that had Lamarck been correct in his theories, Ron would have become giraffid long before now. I did all this work just to prove to him that I am not, in fact, lazy.

Without Chris Barker, my most confident response to formal semantics questions would have been a resounding, "Duh?" He wins points for blithely aligning himself with Caitria's perspective, cheerfully crouching down when talking with her, much as he must have done when dealing with earlier drafts of this dissertation.

Kathleen Hubbard and I used to hang over the back fence in the midst of doing our chores to swap stories about our various aches, pains, setbacks, and triumphs. While the fence was figurative, the empathy was literal, and that helped me to get through this project just as much as her pointing out that I needed to whip my anatomy into line, not to mention my physiology.

Jeff Elman, Carol Padden, and Walt Savitch are the external members of my committee, and my contact with them over the years has been limited by my reluctance to let them read any draft that I thought might tempt them to quit. Despite this neglect, they have supported my efforts by agreeing time and again to serve on successive committees. Year after year, they have maintained their confidence in my ability to complete this project, which is finished in part precisely because I didn't want to disappoint them. I hope that they can now feel that their faith was well placed.

Karen van Hoek, Suzanne Kemmer, and Shanti Hofshi all gave their invaluable commentary on earlier drafts of this material, which started out as "The '*the*' Paper." Randall Rose was exceedingly generous with his time and insightful commentary when the project had reached ten times its original size.

Vita

August 8, 1962	Born, Castro Valley, California
1984	University of California at Davis B.A., Linguistics; Minor: Psychology Internship: raptor rehabilitation center
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Abstract of the Dissertation

Prominence: from Sensation to Language:

by

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Doctor of Philosophy in Cognitive Science and Linguistics

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Two written corpora were sifted to uncover 1,452 contemporary American English words in declarative sentences that were isolated for prominence with italics. This research shows that conversants rely upon a direct iconic proportion between phonological and semantic intensity, resolving ambiguous form-meaning associations by exceeding the dimensional limitations of sequential segmentation. A speaker/signer aligns a model of reality adopted by a looker/listener with its own, either identifying a word-internal meaning disparity through ELABORATION, or revealing a word which can

repair a word-external mismatch with REVELATION. These functions have their basis in the cognitive abilities of POWER and PRECISION, whose primitive progenitors provided the threshold across which sensation was adapted for communication.

Elaboration signifies either an increase in semantic POWER ('*huge*' is 'very huge') or a discharge of EMOTION. Meanings portrayed with essentially spatial imagery are articulated with greater PRECISION, often as INTOLERANCE ('*all*' is 'absolutely all'). Also, parcelling semantic variations as a type's instances allows a POSITION in that type to elaborate a word's meaning. PROPER instances are paragonal (where '*green*' is 'a real *green*-green'), and odd ones are PERIPHERAL (where '*green*' is 'a weird green').

In revelation, contextual mismatches are identified by shifting the intensity or location of primary prominence. The prominent word is exchanged for a counterpart located in a parallel setting either in discourse or in common knowledge. SUBSTITUTION exchanges an explicit, single-word discourse counterpart. DERIVATION exchanges implicit or multi-word counterparts through an appeal to conventional or contextual associations. Greater prominence is used to repair broader mismatches in construal, correcting errors which are rooted more deeply inside common knowledge or memory.

With LINKED close instances, mutual prominence is *interpreted* as significant. Mutually prominent words are taxonomically DISSOCIATED as labels, or COORDINATED according to their pre-existing causal or consequential links. Both dissociation and coordination can be augmented by the TIMING provided by close structural parallels.

CHAPTER 1

The Difference that Prominence Makes

There can *be* no difference that doesn't *make* a difference elsewhere…

— William James, *Pragmatism* (Lecture II)

Let's start out with a familiar Necker cube:
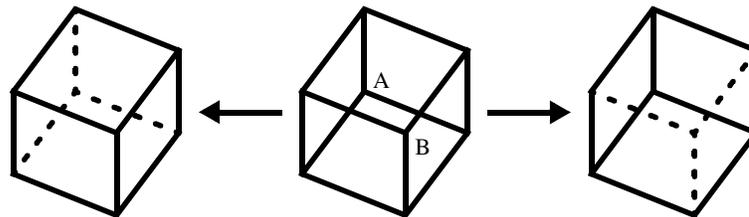
Figure 1-1: Wireframe Necker cube

This sensory illusion is intriguing precisely because it displays a classic form-meaning ambiguity. Its lower-dimensional construal might be that of contiguous polygons (or triangles ⊕), but its higher-dimensional construal is that of a cube, where one of its two central vertices (A or B) is repelled into the background *away* from the viewer, while the other is one drawn into the foreground *toward* the viewer. The figure has one FORM, but perceptive qualifications such as scanning and dimensionality conspire to broaden the potential range of its MEANING, where any of these form-meaning pairs is a SYMBOL.

Language is full of similar form-meaning illusions, such as the classic "...it is my privilege to extend to you a laurel, and hearty handshake" ('Laurel and Hardy'?), the generic 'Joe ran into John and he fell down' (which fell?), and the prosaic 'object, digest, contract, permit…' (nouns, verbs, mixed?). Each of these examples contains a core phonological form, as in the stressless versions of /kɔn trækt/ or 'Use the example you wrote'. Such a kernel can be associated with a variety of meanings depending upon its embellishment, as in the nominal /kɔnˈ trækt/ versus the verbal /kɔn træktˈ / (a WORD-INTERNAL MEANING DIFFERENCE), or 'Use the exámple you wrote' versus 'Use the example you wróte' (a WORD-EXTERNAL or CONTEXTUAL MEANING DIFFERENCE).

Changes made *outside* of an utterance's core, such as with pauses and pitches, disperse or refract this core's association among different members of a set of meaning variations; however, in the absence of external cues specifying a form-meaning pair, a *default* meaning can be assumed. I say 'can' because some of these defaults are much stronger than others. With no clarifying external cues, the core form of the phrase 'I have my /æs kɔt/ in the drawer' *probably* refers to the tie and not to the predicament, while a 'laurel' is *usually* the leafy crown and not the actor, yet stressless /kɔn trækt/ *might just as easily* be a noun as a verb. Language users rely upon the phonological underspecification allowed by these defaults, such as when readers inflect writing. External cues, such as prominence, can be used to advance or evade such implications. Normal prominence signals congruence between the message it embellishes and these defaults, which implies a proper understanding between language users, but abnormal prominence warns of potential or actual meaning differences and misunderstandings.

Prominence is only one of the cues which can resolve a linguistic illusion, but it is favored over other changes which tend to promote rather than clarify formal ambiguities. In fact, some modifications integrate so well with an illusion's form that they do not affect its potency at all, as in the application of shading or reduplication to this Necker cube:

0   1   2
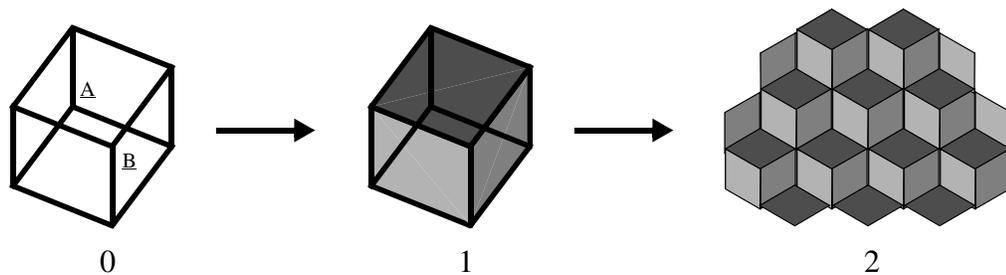
Figure 1-2: Necker Cube Elaborations

The first change (from 1-2.0 to 1-2.1) shades the sides surrounding the right central vertex (B), while those around the left central vertex (A) are left unshaded, and then the second change (from 1-2.1 to 1-2.2) reduplicates the shaded cube. Unlike prominence, shading and reduplication *conform* to the dimensional limitations established by the illusion, which in this case would be something like the extended surfaces of the three pairs of parallel planes which intersect to create the original cube (1-2.0). Assimilated changes cannot help to resolve the original formal ambiguity: the central vertices of the shaded cube can still be easily construed as moving in or out as surrounded by their shaded (B) or unshaded (A) sides, as can all of the central vertices of the reduplicated cubes (making nine or ten cubes, depending upon which go in, and which come out).

Like prominence, however, the following cylinders *potentially* exceed the
illusion's limited dimensionality, because they exist outside of its determining planes:

0   1   2
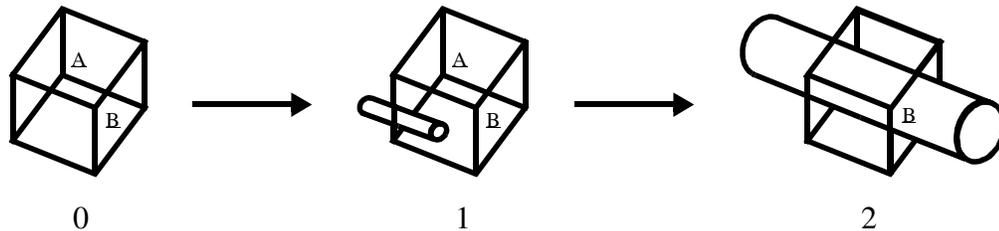
Figure 1-3: Necker Cube Resolved

They *meet* that potential when they exhibit incongruous behavior (occlusion) denied to
the strictly planar components, where that behavior specifies a relation *between* those
planes that would otherwise have been *definitionally* unrelatable. This allows for at
least partial resolution of the illusion in 1-3.1, which does not directly relate A with B,
and for complete resolution in 1-3.2, which does.

More specifically, A can still be construed as projecting outward in 1-3.1, but
only under two sets of circumstances. First of all, the effects of the small cylinder *can*
be ignored because the line it occludes is isolated from the illusion's pivotal elements,
namely A and B, which allows the viewer to pay more attention to those vertices than
the cylinder. Second of all, the occlusion can be absorbed (so A still projects forward)
when the line is interpreted as 'bent' under the cylinder, in congruity with the original
illusion's dimensional limitations. The larger cylinder's resolution is much stronger,
because it is neither isolated from the pivotal elements, nor is its occlusion slight
enough to allow it to be assimilated. The relation between A and B is direct.

As sequential segmental symbolism, spoken language is also of necessarily limited dimensionality, just like the cube, and so a core sequence like 'brown eyes and hair' would be prone to ambiguous interpretation were it not for extradimensional cues like the pitches and pauses in: 1) [(brówn) (eyes and hair)]; or 2) [(brówn eyes) and (háir)]. Elaborations such as 'big dark brown eyes and hair' do not resolve the illusion because they *accommodate* the core's dimensionality; however, external cues found in context or prosody can be used to exceed that dimensionality, and resolve the ambiguity.

With this 'resolving' function in mind, let's take a look at the following four passages, all of which were plucked straight out of the "Fiction: Romance" section of the Brown corpus (Francis and Kučera, 1961; with line numbers from the corpus superscripted for identification):

[1-1]   The ward was a small one, four beds, kept reserved for female alcoholics.... there was something about her– *Alice – But this woman's name was Rose Bancroft!*
…
She looked about sixty, though I recalled that the chart gave her age as forty-four. An ugly scar disfigured the somewhat familiar puffy face, already marred by the tell-tale network of broken red veins that heavy drinkers carry. Her coarse hair was two-colored– bleached blonde and its real, dirty gray. *Oh, could it be?* No, no – it was an unfortunate resemblance, that was all it was….
…
[Rose speaks] "I'm not going to be one of your guinea pigs. Let your pupils learn on someone else, doctor. Just let me die in peace".
I *stared* at her, almost speechless. Her little speech was totally out of character with the sort of person I thought she was. Even her voice had taken on a more cultivated tone. [P19 1400]

[1-2] Leaving Cathy with them [for two weeks], Myra had gone out to the Coast for a supposedly brief visit; but she had stayed all winter, and Cathy had stayed all winter too– with them…. "That was an awfully *long* two weeks". P15 0270

[1-3] If he *ever* did such a thing again she'd die of shame. P03 1530

[1-4] "I know you feel badly, but that sounds like such a queer thing for *you* to say". "Does it"? he asked. "Yes, perhaps. I'm supposed to joke about things, aren't I? – But sometimes life can be rather a disappointing business". P14 1250

The most obvious question to ask seems fairly harmless, namely: 'What are the italics *for*?' Our objective is to find out how the isolated italicized words differ in form and meaning from their counterparts which have had their italics removed.

Just take a first pass at explaining these meaning differences. In [1-1], so-called 'external contrast' doesn't provide a consistent explanation: "*stared*" is not a counter to some other process like 'glanced'; instead, while a normal 'stare' is a lingering rather than a wandering gaze, the focus of "*stared*" is intense enough to penetrate a patient's alcoholic veneer. In [1-2], "*long*" is six times longer than 'long', and two weeks last an entire Winter. If the "*ever*" in [1-3] were just plain 'ever', then "he" could still occasionally get away with doing such a thing without her dieing of shame (or perhaps even noticing). This is because 'ever' normally allows for some tolerance which the additional prominence on "*ever*" squeezes into nothing. Finally, in [1-4], "*you*" does not simply contrast with another pronoun in context, or mean 'you of all people', but rather it encompasses only those qualities found in 'the normal you' (such as that the person in question normally jokes about things) while leaving out queerer behaviors which have suddenly cropped up in 'the current you' (his seriousness).

This rough treatment shows that none of these examples are merely externally contrastive, and that they are unified by express, *positive* similarities in their behavior, and not just by a simple *lack* of normal prominence patterns. To begin with, both the penetration of "*stared*" and the endurance of "*long*" are greater in POWER than normal; in addition, both "*ever*" and "*you*" define more tightly controlled, albeit figuratively spatial areas, where the normal degree of tolerance allowed in the portrayal of their imaged or imagined boundaries is now drawn with stronger PRECISION. Greater power and precision are both more elaborate portrayals of increased INTENSITY. To the degree that these Brown corpus examples are valid representations of audible gestures, this first approximation suggests that an utterance's phonological intensity is in DIRECT ICONIC PROPORTION to the semantic intensity construed in its meaning, where intensity manifests itself as power or precision. Right now, this proportion is as gross-grained as it can get (binary), but finer gradations will be supported later. This is an intriguing beginning, and would be strong enough in itself to motivate a more formal analysis.

But now take a look at this next set of examples, taken from the same section of the Brown corpus ("Fiction: Romance"), in which 'external contrast' *does* play a significant part in making sense of the changed meaning:

[1-5]   …the sound coming through the walls like something on the other side of the curtain, so you knew they heard *you* when *they* were quiet, and while you lay wondering what they had heard, you listened. [P09 0220]

[1-6]   So they stayed quiet and hung not on what he said but on how he said it, not listening exactly, but rather, *feeling*. [P09 1140]

[1-7]   Holy mackerel, that's the most unique dog *I* ever saw. [P16 0950]

[1-8]   Roy smiled — he *did* have a nice smile…. [P03 1670]

These are *not* instances of word-internal meaning changes, and they do not display a straightforward application of increased intensity; instead, they make reference to COUNTERPARTS in the discourse, and they are marked by changes in the normal *placement* of prominence. This shift incidentally *results* in an increase in intensity, which can then be augmented even further to reflect a greater strength of conviction.

These counterparts vary liberally in their EXPLICITNESS and ENCAPSULATION. For example, in [1-5], "*you*" and "*they*" are single words actually appearing in the context, and so they are entirely explicit *and* thoroughly encapsulated counterparts for one another. When an explicit counterpart is more broadly DISTRIBUTED, you get a sentence like [1-6], in which the counterpart to "*feeling*" is a more rambling passage listing alternatives to "*feeling*" such as "not… what he said but… how he said it, not listening exactly." An IMPLICIT version of such a widely distributed counterpart can take the form of a CONVENTIONAL SET like the personal pronouns, as in [1-7], where other people (an implied 'he', 'they', or some other pronoun) have probably seen other dogs which have struck them as peculiar, but the girl represented by "*I*" has not. Finally, implicit counterparts can still be tightly encapsulated, in that the implicit '(did) not' against which "*did*" contrasts in [1-8] does not appear in so many words (and so is implicit), but negation itself is still a tightly encapsulated notion.

In [1-1] through [1-4], the abnormally prominent words each displayed a direct iconic proportion between the increased power or precision of their phonological form and their meaning. In [1-5] through [1-8], this phonological increase is proportional to the disparity rupturing the conversants' reality models, as reflected in the strength of

conviction needed to realign them. This is iconic because greater phonological effort is expended to more deeply penetrate either discourse, memory, or belief structures. The actual *level* of effort expended is intense (greater-than-primary) only when it needs to distinguish a word which is already located at the default site of 'normal', primary sentence stress; otherwise, a primary level of prominence makes a distinct enough impression.

To this point, power and precision have been described only as providing the bases for purely linguistic functions, showing that 'contrast' and 'emphasis' identify behaviors which are elemental only in linguistic alchemy; however, this analysis will go on to suggest a scenario in which their primitive progenitors are the two global, fundamental cognitive abilities which are still used to evaluate either the force of a single sensation (absolute magnitude), or to compare the difference in force between two or more sensations (relative magnitude). Empirical support for this intuition will show that prominence has roots in cognitive behavior primitive enough to represent the first step across the threshold from incoming sensation to outgoing communication, and then on into language in general, as well as across specific languages and language modalities.

Now, this strikes me as a very *pretty* description, but so far it rests on a rough analysis of nine instances in eight whole examples, and that analysis relies in turn on a network of vocabulary items whose definitions have yet to be presented, much less supported. This introductory chapter will go on to describe the fashioning of this handful of sparkly stones into glittering jewelry.

The enticing lustre which glows just beneath the surface of these rough gems is alluring enough to encourage not only the collection of additional data (§1), but the refinement of the two resulting gathered corpora into successive data sets (§2). Some terms will not be fully defined until chapter 2, but the tools needed to sort, classify, and polish these sets will be laid out in this chapter (§3), as will the theoretical and terminological settings within which these tools work. After that, an overview of the results of this analysis will be ready for display (§4), and the organization of the rest of this analysis will then be set out in the conclusion (§5).

1   Prospecting the Claim: Collecting Data

This analysis targets any contemporary American English morpheme or word in a declarative sentence that has been isolated for abnormal prominence with italics or underlining, where 'abnormal' or 'volitional' prominence is defined in chapter 2. To begin with, I sifted a new corpus of four million words in 38 books to expose 938 such instances, where a prominent word was selected only if the material surrounding it was not so marked. I used this OTHER CORPUS to generate some preliminary results, then culled the conventionally recognized BROWN CORPUS (Francis and Kučera, 1961) to form a fresh, independently-sourced data set. The Brown corpus gathers 500 American English texts samples of approximately 2,000 words each from sources printed in 1961, where source categories range from "Miscellaneous: Government & House Organs" to "Belles-Lettres" (cf. Francis and Kučera, 1979). Once sifted, I used the new set of Brown corpus examples to validate and develop the framework.

Several methods have been developed to portray these form-meaning patterns, but no standard exists which is familiar enough to native speakers that I could simply generate a comprehensive set of representative examples at will, because readers of this analysis would not be able to discern without error the same sound pattern for a specific example as I had intended. Furthermore, while many linguistic studies are not faced with the problem of having to convey intonation patterns in written form, this analysis was not afforded that luxury, and even after having disallowed questions, exclamations, and commands, the data involved presented wide variations on the basic declarative theme, variations which could lead different readers to interpret the same written example in different ways unless they were given other hints to guide them, such as an extensive body of context.

One of the major consequences of dealing even indirectly with intonation was that I could not rely upon examples which simply came off the top of my head. A sentence like "The *cat* is on the mat" does not present enough context that I could count on a native speaker being able to reproduce either the baseline *or* the abnormal prominence pattern reliably enough that I could then go on to compare the semantics of the two patterns in detail. A change of perceived prominence on the part of the reader would render a change in the semantics from their perspective, which would ruin the chance that the example would convey its intended meaning. In fact, showing that such a small shift in form *can* cause a significant change in meaning is the point of performing this analysis in the first place. It was important, then, to make sure that the data presented here would be read with the intended prominence pattern.

This consideration made it necessary to cling to the most basic principles of data gathering, starting with the precept that the strongest examples would be those which could be recovered by another analyst, such as the reader; therefore, written recorded instances isolated with italics or underlining seemed to be an obvious source of stable examples. Because I wanted to minimize the misinterpretation of the prominence patterns in the examples, I did not actually *analyze* any TRANSIENT data in this analysis, since it had no recorded source and was only stored in memory; however, I *did* interject generated examples sparingly into the text as brief illustrations. The analysis proper relies solely upon WRITTEN RECORDED data, using the preliminary results to establish the identities of a specific set of readily reproducible prominence behaviors.

Recorded or not, searching through a vast body of data for instances of specific linguistic behavior requires a lot of work, but it becomes easier if you establish a background against which the salient subset stands out. The *more* dimensional differences there are between the figure and the ground, and the *greater* the contrast within any of these dimensions, the better. For example, a test for color blindness would be *easy* if spots of a particular color were not only raised up off the page (an additional dimension), but were raised *well up* off the page (high contrast within that dimension). That is just what the search for instances of abnormal prominence is like. The phonological features distinguishing an instance of prominence as abnormal are iconic, so those instances then stand out from their surroundings *naturally*, making them easier to find.

For example, any spoken word which is supposed to draw greater attention to itself than would normally be accorded to others in the primary conversation stream is going to be rendered in a tone of voice *other* than that which is used for the main flow, as in John F. Kennedy's inaugural address (January 20, 1961): "Ask *not* what your country can do for *you*; ask what *you* can do for your country." In addition, Kennedy accompanied each of the prominent words "*not*," "*you*," and "*you*" with its own emphatic pointing gesture, and he punctuated the words following the second "*you*" with a trail of quick jabs, making a trail of weaker gestures which kept time with his increasing rate of speech. Words which are audibly or visibly prominent in this manner simply stick out from their surroundings, and the *type* of change in such a word's phonological form varies with the *type* of change in its meaning.

Likewise, a written word representing a sound which is 'not equal' to those around it will be printed with a *font* which is also 'not equal' to those around it, and there is a positive correlation between the *way* in which the sound and the font are 'not equal'. They are 'not equal' to their environments in *equivalent* fashions, subject to the restrictions imposed by their own modalities. For example, a loud noise is bigger than its surround, and a capitalized font is bigger than *its* surround, and so a capitalized (bigger) font is used to represent a louder (bigger) sound. It is easy to identify the word which represents the loudest sound in this set: "bang"; "Bang"; and "BANG." This has a natural enough appeal that operators of on-line services discourage the use of all capitals in writing electronic messages, because it comes across as aggressive shouting, LIKE THIS. In short, *written* prominent words also stick out.

To return to the color blindness test, a problem would arise if spots were raised not only due to closeness to the *targeted* quality (a particular color), but because they merely had 'more' of *any* quality greater than a baseline set of characteristics. This would mean that brighter, larger, or more sharply resolved spots might *all* be raised, simply because they were saturated with those respective qualities. This would not only obscure the color pattern, but examples *outside* of the intended data set would be prone to being tagged for analysis. Sticking out simply on the basis of 'more' hides targets with more of a *particular* quality.

Similarly, all-capital and bold fonts *would* be excellent markers of the data analyzed here, were it not for an ambiguity which makes them equally good indicators of just plain loud noise. Such words are used to represent pure shouting often enough, and they appear rarely enough (often simply identifying technical terms), that it is not efficient to gather them. Just as I would not collect instances of shouted material from audio or video data, I have ignored those very few instances rendered in all capitals or bold fonts in the written recorded material.

Italics, on the other hand, appear relatively frequently in a printed text among regular words (average = 0.0003, standard deviation = 0.0004). I don't know when it became standard practice to use italics to mark an aside, but that it is a *contemporary* standard is not in doubt. Examples of italicized words in context were collected for analysis, as were examples of underlined words in the one text which substituted underlining for italics (Source [19], p. 302). None of the sources resorted to any other alternative to italics, such as all capitals.

Each instance in the corpora representing an analog of spoken prominence was collected into the database, even when it was couched in an objectionable message. Each was gathered with enough context to ensure that a native speaker had an excellent chance of using the same prominence pattern as that intended by the analyst. While the main analysis of this data begins in chapter 3, the following section describes the types of examples which were *not* included for analysis.

Finally, to avoid font conflicts, I will adhere to the following standards from this point forward: 1) words which are treated specifically as objects of analysis will be underlined in both the examples *and* the main text; 2) small capitals will introduce technical terms; and 3) italics will only be used in the examples and the main text for abnormally prominent words which are specifically *not* being analyzed. In examples with more than one abnormally prominent word, the one which is specifically under analysis will be underlined, and the rest will remain in italics. Multiple underlining will be used later on in one small section to mark variable degrees of prominence.

2   Refining the Ore: Excluded Data

The data sets were pruned to reject only those instances which did not convey analogs of spoken prominence, and which therefore were not relevant to this analysis. The guidelines for this exclusion were developed while gathering data from the Other corpus, and so it provides many of the examples illustrating this section. The numeric labels superscripted on the Other corpus examples identify 1) a source text and 2) page number, separated by a dot, where those sources are listed in Appendix III, p. 301.

To begin with, instances were passed over when the italics were used to flag a nonconventional word or phrase, namely those expressions which were not commonly familiar to the users of the language in which the embodying text was written:

[1-9]   The [Persian] men crying love poems in an orchard on any summer's night are as often as not the <u>lutihaw</u>, mustachioed toughs who spend most of their lives in and out of the local prisons, brothels, and teahouses. ^{G05 0720}

This included words which were 'foreign' to any language either as nonsense (like Winnie-the-Pooh's "<u>tiddely</u>" $^{9.49}$ poems), or as having been assigned a significantly different meaning than normal (such as where "<u>leaning</u>" $^{24.30}$ was used to describe a type of forceful telepathic intrusion). Articulations such as grunts, groans, moans, sighs, and other sound effects were also ruled out due to their lack of conventional status ("<u>whoosh</u>" $^{13.318}$, "<u>chomp</u>" $^{8.262}$, "<u>Cchhwip Pttooey</u>" $^{8.344}$, "<u>umph</u>" $^{7.405}$).

Conventionality is a matter of degree, and so there are some borderline cases, such as "<u>shtick</u>" $^{10.156}$, "<u>Wunderkind</u>" $^{10.26}$, "<u>apartheid</u>" $^{F48\ 1690}$ (circa 1961), and:

[1-10]   According, then, to what I take to be the prevailing view, these rioters were merely a handful of irresponsible, Stalinist-corrupted <u>provocateurs</u>. $^{F42\ 1560}$

When *not* marked, these words are sometimes treated as conventional English, and it is difficult to determine if their italicized versions are: 1) prominent and conventional; 2) prominent and nonconventional; or 3) non-prominent and nonconventional. This ambiguity prompted their rejection from the data set, knowing that any such instance could easily be integrated later once its status as conventional had been established.

I ruled out any instance that only acted as a label for a person ("Oscar… P.G.… Frank" [P03 0610]), magazine ("Nation" [G70 1170]), vehicle, brand, caption, trademark, book, brochure, legal case, movie, play, television show, recording or other entity. This included the metalevel use of labels, such as when words or letters of the alphabet addressed their own use ("…the one-time shibboleth of socialism…" [G21 1530], "…the word friendship…" [G49 1230], "The word death…" [11.60], "He is the only dog I ever knew who could pronounce the consonant F." [2.24]).

This same guideline was extended to cover the deliberate correction of words which shared no more than an accidental phonological similarity. In such cases, the phonological difference between two words is emphasized, and the contextual difference in meaning is corrected only as a side-effect, like this:

[1-11]   REINER: You've lived so long, did you ever have an accident
         in all this time?
         2000: An accent? Always.
         REINER: An accident.
         2000: Oh, an accident. Yes, in the year sixty-one, I was run over
         by seven men fleeing a lion. They ran me over. [19.15]

In [1-11], the only semantic tie shared by "accent" and "accident" is a pretty schematic 'havability', which did not *motivate* the error, but merely *allowed* the mistake to have been made in the first place. In other words, while it does not seem all that likely that "accident" would be heard as "excellent," it is not *so* unlikely that "accidents" could be heard as "excellence." If this tie were semantic, then pluralizing should not affect their likelihood of being mistaken. Such cases seem similar to the data under analysis here, but any contextual meaning similarities between the words are adventitious.

While many italicized Latin and Greek scientific terms, such as *Coleus*, were ruled out, it was not because they were categorized as foreign terms, because some of their non-italicized forms are now plain English (coleus, vitamin, gluteus maximus, macrobiotic, acetaminophen); however, such terms *were* ruled out *when* they were used specifically as labels ("100 grams of tomato juice can contain two <u>Drosophila</u> maggots" [11.28]). Such scientific terms are usually, but not always, capitalized when they are intended as standard plant and animal labels, but this distinction is obscured when the word is capitalized at the beginning of a sentence, and so all of those sentence-initial cases were ruled out.

Italics can pull part of a text out of the primary flow of conversation, marking that section as dwelling in a reality aside from that occupied by the main body. In this way, words from another source are often quoted in midstream, such as when a sign is being read, or when thoughts are interjected ("…a dark look that said <u>later</u>…" [24.51]). The anthropomorphized thoughts of nonhumans often take this form, where telepathic invaders resort to italic assaults ("<u>You shall die</u>," [24.111]), and animals 'look' messages at us ("…<u>we are helpless puppies in your presence</u>." [14.xviii]). I left out italicized multiword sequences due to their infiltration by such examples, but good candidates for exceptions (had they been encountered) would have been italicized verb-particle constructions and multiword nouns.

Italics which only indicate that a person is raising their voice to be heard in general (and not for a meaning change) were not included in the database. Such phrases tended to be discluded anyway because they were usually not declarative:

[1-12]   "<u>Tea</u>," Nadine screeched. [P18 0770]

[1-13]   "Well," said her mother, "one of the pigs is a runt. It's very
small and weak, and it will never amount to anything. So your
father has decided to do away with it."
"Do <u>away</u> with it?" shrieked Fern. "You mean <u>kill</u> it? Just
because it's smaller than the others?" [29.1]

Fern does an awful lot of shrieking, yelling, and crying out in defense of her pig, and

so whether these instances were viewed as exclamations or interrogatives or both, they

had to be discluded. (In the tradition of William Goldman, I would briefly like to

mention that the pig does *not* get hurt at this – or at any other – time.)

Italics are commonly used to set off different mechanical properties within a

text, such as dedications (<u>To Judith Schnerk</u> [10.dedication]), sections, and headings for lists

and outlines:

[1-14]   <u>Air</u>: Whipped into the white stuff to make it frothy.
<u>Sugar and Corn Syrup</u>: The filling is about 42% sugar by dry
weight. [11.16]

Instances such as these do not reliably reflect gestural prominence in a natural way,

and so they were not included.

It should be clear, then, that instances of data were only ruled out when they

did not reflect analogs of spoken, isolated, abnormal prominence in an American

English declarative sentence, and that no potential instance of data was discarded

simply because it controverted any part of the theory being developed in this analysis.

The disallowed data simply tended either to be spoken with normal prominence levels

and placement, or they came across as if the words were quoted.

3   Tools: Theoretical and Terminological Background

Discourse will be characterized from two perspectives, the first of which is that of an isolated individual reacting to its environment, and the second of which is that of a group of individuals interacting with one another in a shared environment which changes over time. The first set of stages brings us from sensation to communication (§3.1), and the second moves us on from communication and into language (§3.2).

3.1   Discourse I: Sensation to Communication

This analysis assumes popular divisions between sensation and perception, as well as a model of sensory transduction as an ultimately electrochemical set of events. My analysis doesn't rely upon the accuracy of these accounts, but their familiarity eases the transition from sensation to communication. This analysis *does* rest upon previous research (Langacker, 1987: 100ff; Bolinger, 1986: ch. 6f; to begin with), in which power and precision are portrayed as fundamental cognitive abilities evaluating perceptual events. Discourse will be portrayed with a looped signal path, but only that part of that path needed to illustrate TRANSDUCTION is shown here ($S_o \rightarrow S_i \rightarrow$ brain):
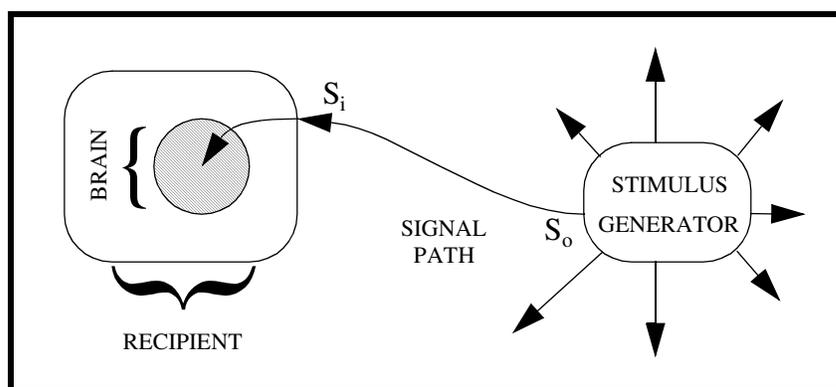
Figure 1-4: Transduction

For the moment, assume that there is a stimulus generator (or reflector) banging air molecules together or radiating light wavicles as output signals (S_o) over some range of directions in its environment. Some of that energy traces a signal path intersecting a recipient's sensory organs, which then transduce that portion of the energy patterns, including that portion's power, into incoming electrochemical signals (S_i).

The signal's power can be PROXIMAL or DISTAL. Forgive my metaphor, but if you pitch a dart at me, I can *directly* evaluate its impact as a *proximal* event simply by waiting to feel it. This measure is precise even if I have never had any experience with darts, because my evaluation is made after the signal's reception, and is based solely upon the energy of the impact (the articulatory energy put into the signal's energy) rather than any previous experience of my own. The same goes for any sensory signal.

I can also *indirectly* evaluate the strength of that same signal as a *distal event* by observing its generator (pitcher, speaker, signer, or whatever). Did the gesture appear efficient or wasteful? Did the articulation seem to be energetic? Was the motion terse and concentrated, or sustained and broadcast? How has it felt to *me* when I have made the same sort of gesture? The accuracy of this indirect measure must rely upon my previous experience (learned or innate) with similar events, where this experience can be as specific as my having pitched one dart at another person, or as general as my often having tossed aside inconsequential objects. The greater the experiential overlap between generator and receiver, the greater the likelihood that an indirect evaluation will be accurate, and that the intended meaning will be conveyed without the signal having to be *directly* powerful, which is a relatively wasteful encoding.

A *directly* powerful signal should have its origin in an efficient transfer of articulatory energy from the gesture which generated it, because the alternative would be enormously wasteful, namely where the power of the signal only represents a fraction of the articulatory energy. Such a waste is not conducive to the survival of the generator. Direct power has its advantages in primitive systems of communication, because the message gets across even when the generator and the receiver have little or no experience in common: signals which either overwhelm or saturate a sensory field will be evaluated as powerful (ICONIC). To avoid waste, the transfer of articulatory energy to signal energy has to be essentially equal. Evaluated as a proximal event, the strength of that signal's form has an equally intense meaning (again iconic), namely *that* the sensory field is being overwhelmed or saturated. Shared experience with this primitive equation promotes the development of communication systems which can rely upon the *additional* evaluation of signals as distal events, systems like language. When it comes to these more sophisticated signal systems, signal strength is not *necessarily* PROPORTIONAL to meaning, but perceived articulatory effort *is*.

This proximal/distal distinction will be important later when 'experience' is defined more clearly (cf. chapter 2, §1.3). Whether interpreted as a proximal or distal event, the *sensation* of a signal is a local consequence of a remote event. You don't really see lightning 'way over there', but rather *on* your retina, and then *in* your brain. Even with touch, the pressure itself, though immediate to the surface layer of the skin, is remote from the nerves. Sensors use (electro)mechanical processes to transduce these remote energy patterns into local electrochemical signals for further processing.

The next step transports the local signal to the brain through PERCEPTION:
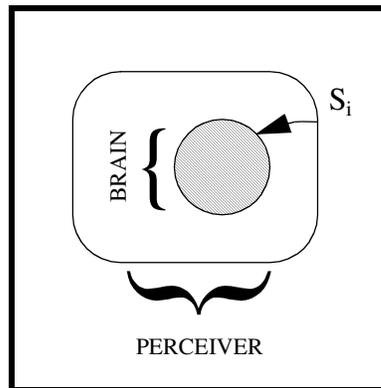
Figure 1-5: Perception

Roughly, SENSATION will be a signal's reception and the immediate transduction which aids that reception (reaction of rods, cones, cochlear nerves, and so on). PERCEPTION will be any transduction and transmission *beyond* the sensory organ which is needed to get the electrochemical signal to the brain, plus its reception there as a PERCEPT. There is a great deal of controversy surrounding the brain's boundaries, but that is beyond the scope of this work, and definitions that precise have no critical bearing here.

Now, what the brain *does* with these percepts will be a part of COGNITION:
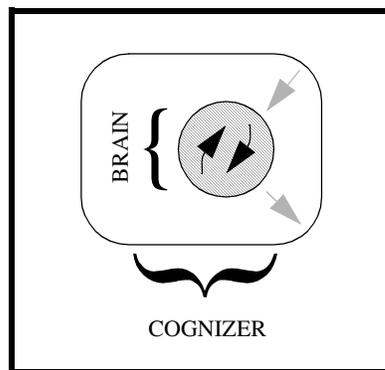
Figure 1-6: Cognition

In short, the actual input is assigned to perception, and the output *beyond* the brain is just another type of (electrochemical) signal generation, but what happens to percepts *within* the brain is what I am going to circumscribe as cognition. There is no way that I am going to pretend to be able to describe cognition proper, but I *am* going to propose two cognitive abilities that this analysis, and other research, suggests are necessary for semantic processing. Keep in mind that a signal's intensity can be encoded in proximal or distal terms. Proximal attributes should be processed more easily than distal ones, because they require no access to experience for evaluation; however, they should contribute to experience afterward to facilitate processing of distal signals. In that sense, proximal processing is a primitive precursor of distal processing.

The absolute intensity of an individual signal at a given point in time will be its POWER, and the relative intensity of one signal compared to another from which it is distinct (in space, time, or both) will be their PRECISION, which makes *primitive* precision a measure of how closely one signal approximates another in power. The processes that evaluate an *iconic* signal's power (whether proximal or distal) are essentially evaluating the power of that signal's generator; likewise; those cognitive processes which evaluate the precision *between* two or more such signals are evaluating the relative power of those signals' generators. This amounts to the perception of 1) the absolute size or strength of an event, such as a perceived emotion, color, or threat, and 2) the relative proportions of multiple events, such as perceptual changes in general, or the relative hugeness or imminence of a threat in specific. At this point, PROMINENCE is the evaluation of a signal's intensity as high.

The *set* of cognitive functions which actually *evaluate* a signal's power will be treated here as if they were a single entity, which will also be called POWER; likewise, the set of functions which evaluates relative power will be treated as a unitary entity called PRECISION (cf. "comparison"; Langacker, 1977: 100). In their most primitive forms, power and precision are essential functions across chordate behavior, whether or not vermiforms (for example) are actually suggested as providing the evolutionary *source* for these functions in human cognition.

Now take a look at all of this from a generator's perspective, where that generator will soon come to be discussed as it represents a speaker or signer:
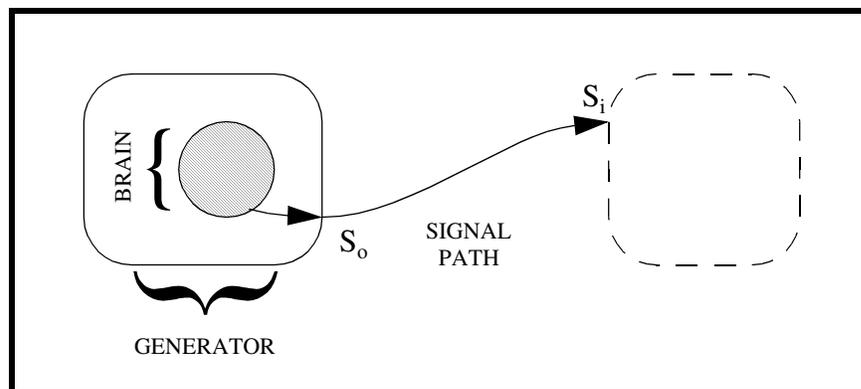
Figure 1-7: Articulation

Having processed the percept, the brain can send signals to the articulators. The action of articulation in the diagram above begins when the internal electrochemical signal leaves the brain, and continues as it becomes bodily motion, which essentially releases another signal into the outside world (S_o), ready to be picked up by something else (S_i).

Properties of intensity as conceived by the generator can be encoded iconically into these signals, which can then be reflected in the motion of the articulators when rendering that signal. This allows for a portrayal of a person as sensing something huge or intense in their environment, perceiving it, and then articulating a signal in response which is also large or intense. The reception of this subsequent signal forms the overlap which closes the coil where it was originally opened above at transduction. The only reason that this is a coil instead of a plain circular loop is because I am casually associating each generator with the configuration of a human head, so the articulators are below the receivers, and because I am choosing two participants.

Having set all of this up, here is what I think of as discourse:
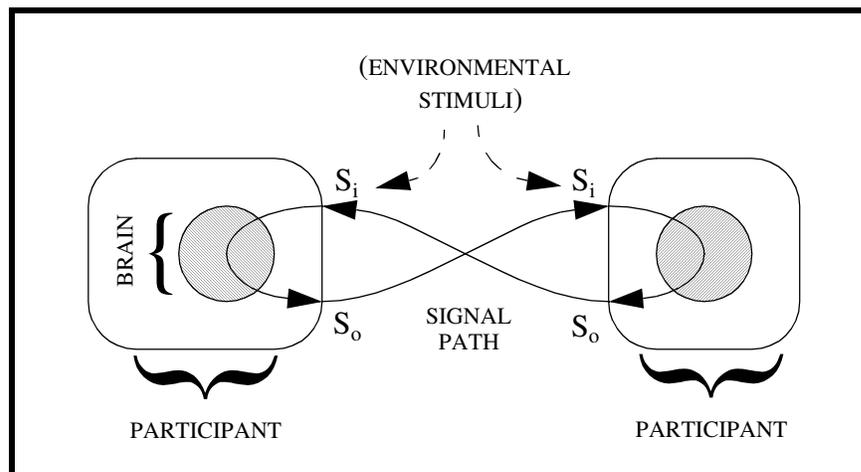
Figure 1-8: Discourse

In summary, some participant begins things by taking on the role of generator, drawing in perceptions from the outside and adding them to their current set of conceptions, then evaluating this conceptual set and articulating an audible and/or visible gesture.

This expression adds to the environmental input for the next participant, and so on. During this discourse, a signal can be perceived that contains iconically encoded information that signals prominence. This high intensity can be transferred to the physical form of the electrochemical signal sent to the articulators, and thus prominence in a string of words can have come iconically and proportionally from the largeness of an environmental signal generator. Note that the level of the prominence can then be encoded iconically and proportionally into the signal which is to be received by the next listener or looker.

Cognitive abilities such as power and precision are developed in an environment which presses the specific need to evaluate the intensity of perceptions. To the degree that communication itself becomes vital for a species in that environment, developing the additional ability to communicate or externalize conceptions or perceptions of prominence (as articulation) would present a great advantage over only being able to process incoming perceptions of prominence. A species has a distinct advantage if it is composed of individuals which can not only perceive danger, but which can communicate the imminence of that danger to other individuals. Given the iconic nature of these signals, and the universality of the behavior in reaction to these signals (fight/flight), some universality across systems of communication and language should also be expected.

The value of *language* universal gestures, whether visible (stabbing) or audible (explosion sound-effects), is not readily apparent when removed from a primitive environment, but it is clearly valuable at a *communication* universal level. Bigness and

loudness convey threat and authority, and power (often sheer size) is expressed visibly or audibly with such ferocity that even insects employ such pure representations of *threat*. For example, Ohala (1983: 7) supports the existence a cross-species "frequency code" which equates an emitter's smallness with high pitch, and its largeness or threat with low pitch and loudness. My work suggests that these primitive prominence gestures are *the* earliest of those used for communication. Given our personal, continual experience with prominence, it seems unreasonable to suggest otherwise than that it was beneficial to adapt an internal resource, namely the cognitive evaluation (or articulation) of prominence to serve an external purpose: the communication or physical articulation of prominence. The trick is to clarify this internal-to-external (reception-to-production) adaptation, and to make the way in which a cognitive ability is a resource seem natural.

The adaptation of *external* resources is familiar. New civilizations cannibalize their ancestors, and then leave ruins providing little more than a nice flat place upon which to rebuild. Physical and cultural resources such as old tires and folktales are repeatedly adapted to fit places and purposes for which they were not originally intended: carved stones from the colonnade in the Temple of Artemis are now part of a functioning aqueduct some distance away; pagan traditions have been co-opted by Christian holidays; an ancient check for weapons is our handshake; content verbs are a source of modals; and muddy main streets become paved Main Streets. This analysis supports a scenario in which the primitive cognitive abilities of power and precision were adapted in a similar way, externalizing the internal articulation of prominence.

This introduction will continue to trace the path of this adaptation, crossing the threshold from communication to the initial linguistic use of power and precision. This portrayal is supported by current research tied to cognitive function (and sensation and perception) promoting the candidacy of iconic or indexical gestures as the earliest units forming the foundation of subsequent linguistic evolution (Armstrong, Stokoe, and Wilcox; 1995). Previous research on the language functions of normal levels of prominence are covered in chapter 2, and the remainder of the dissertation houses the analysis proper, the results of which reveal the systematic application of power and precision to create a pair of prominence functions in language.

This analysis of abnormal prominence is a bridge between previous research on the primitive communication functions of intense prominence and the linguistic functions of the weaker or normal forms of contemporary prominence; I will use it to forge the final link in a chain of adaptation, a path starting at the primitive end with the transduction of sensations of intensity, and terminating at the contemporary end with the most strongly grammaticized portrayal of weak prominence, namely syntactically predictable 'normal sentence stress' (as described in chapter 2).

Over the last sixty years, linguistic analyses have uncovered the stages of the adaptation of prominence in an order running counter to the sequence in which these functions were originally developed. This is a normal, if not necessary, pattern in the analysis of any adapted resource. For example, nine major strata of Troy have been excavated out from underneath Hissarlik in Turkey, and you have to drop down over 15 meters (and 5,000 years) before finally hitting the remains of the Bronze Age

fortress at the bottom. It is not uncommon for more mysteries to be uncovered than are solved until researchers make the origin of a resource accessible, at which time the questions raised by previous analyses of that resource can be answered by the forward propagation of the new evidence through the chain of its adaptation. This is simply another way of looking at the chain of adaptation as being 'enervated'.

The obstacles for prominence are not as *strictly* layered as this, and so a more appropriate metaphor would be the alignment of windows of opportunity. All of the following propositions must be regarded as only mildly offensive for the path to be clear: 1) mechanism is able to tolerate mentalism; 2) competence can appreciate performance; 3) cognition and scientific disciplines can both thrive when distributed; and 4) primitive behavior is shared behavior, both among species and among forms of communication. These windows have been open simultaneously for less than ten years (cf. chapter 2), and so the timing of this analysis is no coincidence.

3.2   Discourse II: Expectation and Revelation

The previous section describes discourse primarily as it functions during the articulation of signals that are immediate to the cognizer both in space and time, where those signals are usually environmental in origin. This section will incorporate the cognizer's memories by describing discourse *over* space and time, including beliefs, portraying language as an activity shared among many cognizers. In general, the discussion will begin with the portrayal of one cognizer, and work toward the description of several of them acting in concert.

This analysis rests on a portrayal of language use and its users pieced together from Langacker's work on discourse (1991: 3.1.1), Fauconnier's study of reference (1985), Gunter's material on context and prominence (1974; cf. chapter 2, §3.2), and analogs in other approaches. Lakoff (1987) is generally my source for ideas about idealized cognitive models (ch. 4) and radial categorization (ch. 6). I also spent a lot of time with Hawkins (1978), and the way that I approach (in)definiteness is due in large part to his analyses, as well as Langacker's applications of them. All of these facilitate the description of cognizers working in concert.

To begin with, while any given person (P) is experiencing the world or reality with which we are all supposed to be familiar (R), that person will update their own individual set of EXPECTATIONS about reality in accordance with those experiences (R_P). Those things which remain stable in that person's experience are those ideas about reality which will rarely get updated, and the longer that something meets their expectations, the less likely they are to update that portion of their personal view of reality on the basis of minor disappointments. Something which is expected to *never* happen might, in fact, happen; it just might not happen often enough to change that person's expectations about the likelihood of its occurrence. This phenomenon is known in psychology as "per-SE-verence" (Krull, pc).

Such *stable* expectations are described by that person's IDEALIZED COGNITIVE MODELS (ICM). It is important to emphasize the fact that *stable* does not mean *highly likely to occur.* For example, there are conventional notions insisting that anyone can win the lottery, or that anyone can become President of the United States. These ideals

are maintained as stable despite the low expectation of seeing them realized, and they can be supported right alongside a high expectation that they will *not* be realized. In fact, *that* they are not realized is yet another ICM.

A person's *set* of ICMs is their individual ARCHIVE (small 'a'), and it is the store of those things about reality which that person holds to be highly resistant to change. Their view of reality represents the NONPHYSICAL CONTEXT of their conversations, and their archive is the stable subset of that mental reality model. Since any given person should expect things from their individual archive to be 'given', 'obviously true', or 'not open to question', their archive is a location to which a person readily refers during a conversation:
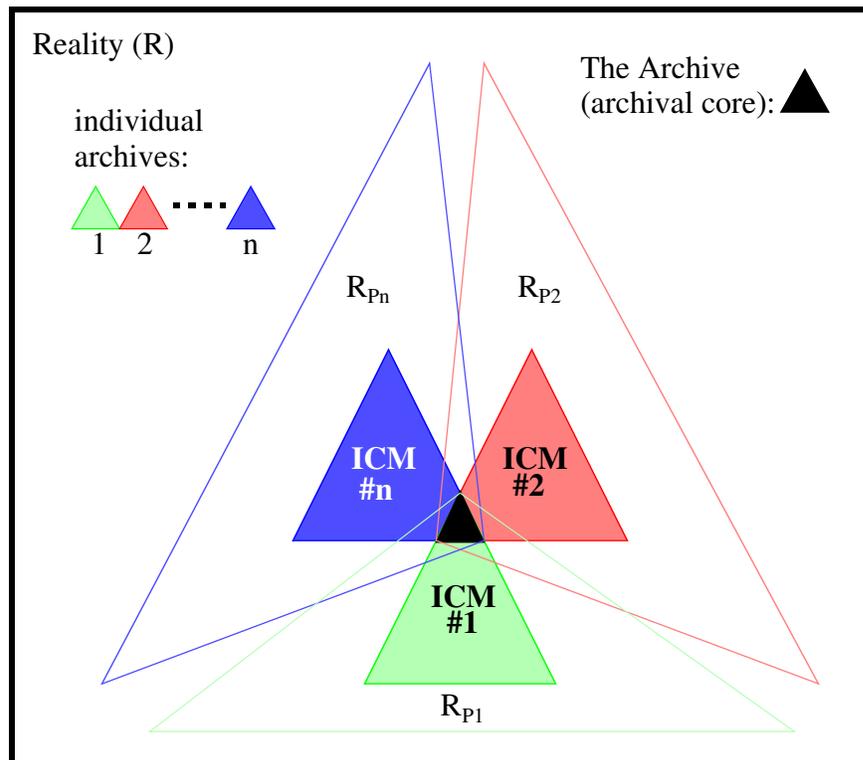

Figure 1-9: The Archive (Atemporal Model)

I will give evidence below which suggests that this intuition about archival knowledge

being 'given' is so strong that each of the participants in a conversation (P1, P2… Pn)

will *expect* their *individual* set of archival knowledge (R_{P1}, R_{P2}… R_{Pn}) to be shared

wholesale by *all* of the other participants ($R_{P1} = R_{P2} = … = R_{Pn}$). Of course, this is a

false consensus because their individual archives will necessarily intersect much less

closely than any of them expects ($R_{P1} \cap R_{P2} \cap … \cap R_{Pn}$).

It follows that ICMs should be similar from person to person since they are

building expectations about what the *same* reality will be like. Different people *should*

find a core of similar things to be stable about reality: gravity keeps you on the ground;

other drivers are idiots; and dogs are great. ICMs dealing more with discourse tell you

that when you want to refer to something, you point to it somehow, or you point in the

direction of its location. These are all intuitions that will hold from person to person;

however, to the extent that their archival knowledge *is* different, it becomes necessary

to distinguish between any given person's individual archive and the core of archival

knowledge shared by any given *set* of people. This core is the ARCHIVE (big 'A'), and it

is naturally the material in the intersection of all of the individual personal archives.

A person expects their experience of their PHYSICAL CONTEXT or WORLD to be

shared by others: if someone feels wind, they expect others to feel wind; if they see a

tree, they expect it to be seen; if they taste something sweet, or feel something soft…

ad somnium. Like the intuitions mentioned above, these sensations are supposed to be

equivalent from person to person, but there will be degrees of difference arising from

such pragmatic factors as people facing different directions, or from a person not using

one or more of their sensory modalities (due to nasal congestion, blindness, and the like), and so a distinction must be made between any given person's experience of their world (small 'w') and the experiences held in common by any set of people grouped together in the same WORLD (big 'W').

Just as there are central and peripheral densities in our perception of the world, the archive has areas distinguished by their accessibility. Chafe (1973) first describes this viscosity in terms of a familiar depth-continuum, defining surface, shallow, and deep memory; later on (1994), he modifies this portrayal to align better with his newer descriptions of active, semi-active, and inactive states of consciousness (ch. 5). In both works, Chafe shows that there are normal sentence structures and intonations designed to plumb each of these three depths or activation states.

Chafe's earlier work suggests that specific prominence patterns can be used to reach particular depths of a cognizer's memory, and he says in the later work (ch. 6) that accessing less active information exacts a greater activation cost, and prominence is an *expression* of that cost. Not only would activation of one's *own* inert memories (as experience for distal events) be costly, but so would activating any equally inert memories in someone else through the energetic articulation of prominence. The results of my analysis suggest that this cost is in direct proportion with memory or inertial depth. Chapter 2 portrays the coin of the realm as quanta of energy, which intense prominence spends in an *iconic* expression of energy. One cognizer can even pay the cost of a proximal event, activating deep or inert material in another cognizer's mind, which brings us to the discussion of cognizers working together as a group.

When people converse, the roles of SPEAKER or SIGNER (S) and LISTENER or LOOKER (L) will usually be passed around from person to person, and a temporary reality model or DISCOURSE SPACE will be created for the purposes of conversation. The Archive (the intersection of the nonphysical contexts held by the participants) plus the World (the intersection of their physical contexts), plus the information from earlier stages of the discourse, all add together to make the CURRENT DISCOURSE SPACE (CDS).

The CDS is updated frequently, on a faster than per-clause basis, and the most recently updated portion of the CDS is called the IMMEDIATE DISCOURSE SPACE (IDS). The construction of the INITIAL STATE of the CDS begins before any words have been spoken. It is the state of the CDS which exists before any conversant tries to update it by taking on the role of S and drawing something into it from the surrounding context, or by referring to any instance which already exists in the initial state of the CDS.

In short, the Archive plus the World equals the initial state of the CDS. In long, the physical context includes anything of which all of the conversants share a current sensory perception in their physical surroundings, and the nonphysical context is the intersection of all of the conversants' personal views of reality, so the initial state of the CDS includes anything in the physical context which provides sensory experience for *all* of the conversants (warm sun, rough floor), their perceptions of this stimuli, plus the core of archival knowledge shared by all of the conversants. The initial state of the CDS is the set of all entities (types, instances) of which the conversants are already mutually aware just prior to the beginning of any discourse, and so those entities do not need to be drawn into the IDS by any form of elaboration.

This temporary model is any given person's CDS, and it lives for the length of the conversation. Since no two people actually use the same brain, each person *must* have its own CDS, even though people behave *as if* they were manipulating only one CDS between them. As stated earlier, this feeling of being in consensus about shared information is strong, but always at least slightly false; however, to the extent that the people are supposedly building a shared body of information between them, I will refer to the CDS *as if* it were one entity, rather than as if it were a set of multiple, overlapping, near-identical copies, with one copy being distributed to each person. Such a view does not change this analysis, it merely makes the CDS much easier to discuss.

Given this definition of the CDS, it is surrounded by (and is a subset of) its CONTEXT, which is the union of its physical and nonphysical contexts. The set of information known commonly by all of the members of the group (the intersection or Archive) is a subset of the sum of the information known by all of the members of the group taken as a whole (the union). S can update the CDS by drawing new material into the IDS from the context of the discourse, including material drawn recursively from older stages of the CDS which have fallen farther away from proximal time as the CDS is updated. This suggests that there is also a temporal component to the discourse's context, parallel in structure and function to the physical and nonphysical contexts, but exploring this possibility will have to wait for future research. In any event, some of this new material has the potential to update the Archive in general, and therefore the archive of any P involved in the discourse.

This is all going to have a direct bearing on the characterization of the prominence function which will come to be called REVELATION, which comes into play when one P is disturbed by a perceived mismatch among R_Ps. When it is P's turn at being S, P will point out the error by making a correction which it thinks will realign the R_Ps to its satisfaction. That correction will be rendered as an utterance containing an abnormally prominent word. The greater the degree of the error, or the greater its inertia, the greater the intensity of the prominence. In other words, a small mismatch outside the archive might not even warrant correction, but an error within the archive will usually require abnormal prominence of primary intensity, and a misalignment within the Archive will probably elicit intensely abnormal prominence. Variations on this behavior will be discussed in chapter 4, and a number of preliminary examples will be given in §4 of this chapter.

3.3   Discourse Summary

I would like to describe how the results of this analysis are distributed across the claims that I have made up to this point. Although the direct iconic proportion holding between the form and meaning of linguistic prominence is supported by the results of this analysis, the *gradation* of that proportion is not as finely measured as it could be with audio or video data. As this analysis continues, I will demonstrate that there are two linguistic functions of abnormal prominence, namely ELABORATION and REVELATION, a division which is also supported directly by the results of this analysis, and which is reinforced by a straightforward process of simple reasoning.

In this section, I also talked about two cognitive functions, namely power and precision, and both of them have their existence supported by additional research outside of this analysis. I will show that their interaction supports the division between elaboration and revelation, and that they can be used to systematically organize a set of subfunctions for elaboration. The infrastructure of revelation will be defined later according to components derived from the definition of discourse. Finally, I would like to observe that this system as a whole hangs together in an entirely comfortable and consistent fashion.

4   Polishing the Stones: Display of Analytic Results

I now offer you a preview of the results of this analysis. The following functions will be illustrated with data selected from the Other corpus, because I am saving the Brown corpus instances for the analysis proper. First, I will guide you through an exhibition of elaboration (§4.1), then move on to revelation (§4.2), and follow up with the functions of linked instances of abnormal prominence (§4.3).

4.1   Elaboration

L interprets ELABORATION as singling out meaning variations whose *semantic* intensity most closely equals the greater *phonological* intensity used on a word by S, where that equation is a direct iconic proportion. *In essence*, L applies that greater semantic intensity to the word's meaning in an amount equal to the perceived formal intensity. This meaning change is word-internal, as if you were to change your shirt with a pair of scissors. As a change in intensity, it naturally lends itself to two

variations, namely elaboration for power, or elaboration for precision. The first type of change simply uses the prominence's POWER to represent a similar force added to the meaning of the word. The second type of change applies additional energy as PRECISION to control the degree of tolerance normally associated with the meaning of that word. These two linguistic subfunctions are named so as to explicitly associate them with the cognitive functions from which they are posited to have been adapted.

There are actually two kinds of power, the first of which directly reflects the inherent intensity of the size, speed, or other characteristic of the prominent word:

[1-15]   REINER: I'm a little queasy about this, telling tales about
Presidents and Presidents' wives.
2000: They're all a little power-crazy, right? And they love to
do it. Let's face it. They love it. They <u>love</u> it. They LOVE it.
REINER: Yes.
…
2000: Let them have a mistress or two. Let 'em, 'cause they
<u>have</u> to do it. [19.89]

In both of these cases, the additional intensity of the prominence is associated with an increased energetic intensity in the prominent processes, where "<u>love</u>" is stronger than "love" (but not as powerful as "LOVE"), and "<u>have</u>" is obsessive when compared to "have." Note that these are both changes in meaning internal to the word, and not external changes, such as having "<u>love</u>" swapped out for "hate," or for any other process. That would be a revelation instead, which is analyzed in section §4.2.

Power can also be added as an adventitious reflection of the intensity of S's emotional discharge, rather than any powerful characteristic inherent in the word itself. Only five examples exist in the Other corpus, and seven in the Brown corpus:

[1-16]   Trouble with women like you is you always want to <u>argue</u>. [4.166]

[1-17]   2000: …when I was a kid, when I got married, it was in caves. Caves. <u>Caves</u>. [19.80]

A confrontation *can* be heated and intense, but in these examples prominence displays the intensity of S's emotions, and not the ferocity of the tiff. Inherent and emotional power overlap, and so it is better to think of them as polar rather than as discrete.

Energy does not always explode, but rather sometimes it allows for a greater control over another process. Words are normally used with a range of tolerance in their meanings, such as where the word 'none' is understood to mean 'none except for a couple of insignificant exceptions'. Precision removes this tolerance, such that 'none' means 'absolutely none, with no exceptions whatsoever'. This next example shows how this INTOLERANCE affects the boundaries of "<u>all</u>":

[1-18]   "Alright, fine. Here."
          "*Chomp*."
          "Could I try one more, please?"
          "You said that was the last one."
          "Well, I made a mistake. Can I have *that* one? The one going in your mouth? That's the one I *really* want."
          "You're sure this time?"
          "Yes. That's the one that will satisfy my curiosity about <u>all</u> potato chips. I swear it this time."
          It's not the potato chip he wants. He just wants to know that he can have *another* potato chip afterward. [8.263]

In [1-18], "<u>all</u>" is not used in simple contrast with 'some' or 'none', neither is it set against some discretely parcelled measure of 'all', but rather prominence has removed any tolerance that 'all' normally displays toward exceptions, and so now "<u>all</u>" means

'absolutely each and every last one of them'. It is clear from the context ("I swear it this time") that in other cases when the dog has begged for chips, "all" was allowed to mean 'almost all' (as in 'all chips eaten right here and now'). The greater the reduction of the tolerance, the greater the phonological intensity of the abnormal prominence.

When a word's meaning variations are treated as a set, precision can identify a POSITION within that set or TYPE as special. Those instances precisely in the center are good, typical, PROPER members of the type (some of which are PARAGONS), and those on the border are badly atypical PERIPHERAL members. One of my favorite examples of abnormal prominence marks a noun as a proper member of its type:

[1-19]   The unwritten manifesto of this revolution states that the Negro, backed by a number of whites in every section of the land, is finished with being classed as not quite human; that he is no longer humble and patient—and unlettered; and that an astonishingly large group of Negro scholars and journalists and artists are expressing their resolution with courage and skills. They are no longer "colored people." They are <u>people</u>. [5.150]

The intent of the abnormal prominence is to emphasize the homogeneity implied by the word "<u>people</u>," and thus to make the centrality of this particular instance of the word readily apparent, but one of the strongest effects is to make the eradication of the noun's modifier absolutely clear. There is no longer any modifier drawing this instance of "<u>people</u>" away from being anything other than a good, absolutely typical member of its type. "<u>People</u>" represents a high standard which has been met.

Of the two prominent words in this next example, "<u>wrong</u>" is being treated as peripheral by S, and "<u>fit</u>" is a *negative* use of prominence for proper position:

[1-20]   …and something about the way she held hands was just…
         <u>wrong</u>. Our fingers didn't line up right. [8.146]
         …
         I think that what she did was slide her fingers in too *early* so
         they were all out of sync with mine.
         …
         We just didn't <u>fit</u>.

In the case of "<u>wrong</u>," S is trying to find a phonological form which matches up with the meaning he (Riser) wants to convey (hence the pause before the word), but that meaning is just too strange for words, so S compromises. S would *like* to find a form that has conventional ties to the meaning he has in mind, but he finally gives up and chooses something 'close'. That mismatch, and S's evident feeling of discomfort over the hand-holding, add together to get "<u>wrong</u>" interpreted as peripheral under abnormal prominence. In contrast to the positive use of proper position with "<u>people</u>," in which a standard was *met*, "didn't <u>fit</u>" shows the effects of negation ("didn't") on the use of proper position, where S holds up the proper instance as a standard which is *not* being met.

All of these subfunctions of elaboration involve L's interpretation of greater phonological prominence as providing the additional energy necessary to create or select an internal change in a word's meaning. This energy is construed as being in direct iconic proportion to that which is needed to augment the power inherent in a word's meaning or in S's emotional charge, or to exert tighter control over a word's range of tolerance, or to locate an instance within its type. The experimental evidence in support of this proportion will be reviewed in detail over the course of chapter 2.

4.2   Revelation

REVELATION is a contextual or word-external meaning change, so you just put

on a new shirt rather than tailor the old one. The three types of revelation vary with the

kind of mismatch in R_Ps that S wants to correct. When S can identify the error with a

single word elsewhere in the discourse, S uses an abnormally prominent word called a

CHANGE as a replacement for the error. This error is called the change's COUNTERPART.

In SUBSTITUTION, this change is just one word, which is completely ENCAPSULATED and

EXPLICIT. The portion of the discourse against which this error stands out so glaringly

is called the SETTING. When this counterpart is an actual gap in a setting, S fills that gap

with a change, making an ADDITION. When the counterpart is DISTRIBUTED across more

than one word, or when it is less than fully explicit, then S suggests a change arrived at

by a process of DERIVATION.

In a substitution, there is an explicit, encapsulated (unitary) counterpart in the

discourse setting which gets corrected by the abnormally prominent change:

[1-21]   …sometimes it's *not* a beautiful baby. And I can't lie. I tell them
           right to their face, "No, that's a <u>monkey</u> you've got there…."
           8.331

[1-22]   All this requires that the phone be modified. According to
           Caristi, it would be difficult, but probably not impossible, to
           detect room noises via the ringer circuit of an <u>unmodified</u> phone
           on the cradle, too. [11.87]

The discourse counterpart for "<u>monkey</u>" is unitary and explicit, namely "baby," and

for "<u>unmodified</u>" it is "modified." In each case, the counterpart is representative of

what S thought that L held to be true, which did not match up with S's own beliefs.

When the context has the prominent word filling in a specific *gap* in the setting, then that gap is referred as a NULL COUNTERPART, and the process is one of addition:

[1-23] "… The chief task of a librarian is to get people to read."
"You feel so? My feeling, Mrs. Kennicott, and I am merely quoting the librarian of a very large college, is that the first duty of a <u>conscientious</u> librarian is to preserve the books." [4.93]

[1-24] "Look, John, ever'body takes a crack at me 'cause I been a preacher. A preacher ain't nothin' but a man."
"Yeah, but—he's—a <u>kind</u> of man, else he wouldn' be a preacher. [7.305]

S is not using abnormal prominence here to refute an implication of 'unconscientious', 'careless', 'irresponsible', or any other notion with which "<u>conscientious</u>" might form a conventional pair, but rather it is specifically *adding* a modification which had been missing altogether, and thus is filling in a perceived gap. Similarly, S interposes "<u>kind</u>" where no modification had gone before, making the gap itself obvious. There aren't a lot of examples of addition in the corpora, but they are distinct in their behavior.

Derivation is used when the counterpart is more than one word, or is less than wholly explicit, but is not null. The independence of derivation as a revelation subtype is supported by Prince's (1981) INFERRED information, and by Needham (1990), who shows that the mention of an object in the background PRIMES information about its parts and qualities. This *lack* of a single, easily identifiable counterpart means having to ferret one out of the background, often by appealing to associations with the change, such as conventional or contextual pairings, or conceptual domains.

Sometimes an explicit counterpart is not unitary because it appears as a list:

[1-25]   But a hundred and fifty years ago nobody judged a river on its
          hydroelectric output, or even perhaps on scenic beauty. It was a
          <u>way</u>—or an obstacle. [38.244]

This is a case of "<u>way</u>" versus both "output" *and* "beauty." Sometimes the counterpart

is unitary, but not *explicit*, such as when an implicit reference is made to the other

member of a familiar conventional pair, as in ["<u>words</u>" vs. pictures]:

[1-26]   Victoria's Secret is big trouble. That's a good-looking
          catalogue….
          In all fairness, it's *more* than a catalogue. It's a lovely story, a
          novella, really, that I keep at my bedside, and every night I read
          a few pages and see what those wacky girls are up to this time.
          There are no <u>words</u>, of course, but you can put together the
          story. [8.313]

Such distributed counterparts still characterize S's perception of L's beliefs, with S

revealing those beliefs to be wrong, as backed up by a forceful expression of authority.

When it comes to revelation, then, three subfunctions are distinguished by the

explicitness and encapsulation of their counterparts. If the counterpart is unitary and

explicit, the subfunction is substitution. If the counterpart seems to be a gap in the

setting, then the subfunction is addition. If the counterpart is distributed, then the

subfunction is derivation. The changes in the form and the meaning of the marked

word rely upon the prominence being abnormal, just as they did in elaboration, but

because S uses revelation to correct an error in the discourse, the iconic relation is

proportional to the strength that S needs to promote its correction.

4.3   Linked Instances of Abnormal Prominence

Sometimes instances of abnormal prominence occur near one another, but this is simply coincidental (CLOSE INSTANCES OF ABNORMAL PROMINENCE) unless context and timing conspire to relate them (LINKED INSTANCES OF ABNORMAL PROMINENCE). Context can dissociate or coordinate prominent words, an effect which can be augmented by the rhythmic patterns arising from the use of parallel structures.

DISSOCIATION occurs in a context in which prominent instances are pushed apart, where a multiple substitution establishes what amount to taxonomic labels:

[1-27]   Soil consists of mineral particles, organic matter—some living, like soil bacteria, and some dead and in the process of decay— plus air and water in the pore spaces between the particles. The shapes, sizes, and relative proportions of the different mineral particles determine the type of soil; the quantity of organic matter influences the soil's quality. Soils, then, are almost infinitely variable. Nevertheless, gardeners speak of three general types—clay, sand, and loam. [12.74]

Dissociation emphasizes the distinct differences between the *normal* meanings of two or more words, solidifying the borders which are used to divide a domain, which in this case is the domain of "soil." Special word-internal meanings are *not* being drawn out by prominence, so this is not a form of elaboration, but rather the normal meanings are serving a special purpose in a prominent context, which is revelation.

A previously defined taxonomy can be replaced by its prominent reflection, as in the following:

[1-28]   "I'm the one unable to live without you."
"No, I'm totally unable to live without you, I swear." [8.304]

This reference swap is ["I'm (ref. *x*)… you (ref. *y*)" vs. "<u>I'm</u> (ref. *y*)… <u>you</u> (ref. *x*)"], which is a change of reference without a change of grammatical form.

COORDINATION occurs in a context which portrays a multiple substitution as if it were tying words together, rather than forcing them apart:

[1-29]   For years they've been promising us phones where you can *see* who you're talking to. I think they're putting it off because if people could see you, you wouldn't be able to *lie* anymore. You can't say, "Oh, I was just leaving." They <u>see</u> you're in your pajamas, they <u>know</u> you're not leaving. [8.322]

Coordination stresses what the normal meanings of the two words have in common, which goes on to promote a causal or consequential link unseen in simple contrasts. In this example, 'knowing' is a consequence of 'seeing', and the connection between the two is given a gentle boost by the rhythmic timing of their shared prominence.

Each of the two corpora holds one distinct example of TIMING (plus a number of mildly close cousins), in which parallel structures organize the prominent points which they surround into a rhythmic pattern, augmenting the dissociation or the coordination specified by the context. The following example displays the clearest case of timing in the Other corpus, specifically a dissociation augmented by timing:

[1-30]   I began to <u>think</u> more about what I felt and <u>feel</u> more about what I thought. [37.72]

The sing-song, rhythmic quality is evident, and this pattern helps to emphasize the dissociation between 'thinking' and 'feeling'. The Brown corpus example holds a five-instance rhythmic coordination, and it will be analyzed in chapter 5.

Notice that these sequences of linked prominent words do not determine any *new* functions, but are essentially contextual variations of revelation. In other words, the exact same sequence of abnormally prominent words could either be dissociated *or* coordinated depending upon the initial barriers or links forged by the context (when it does not leave them as mere coincidence). Either way, the strength of the link between these instances can be augmented by the rhythmic timing of the prominent beats in any parallel structures which might surround them.

4.4   Summary: The Functions of Abnormal Prominence

Everything comes down to two linguistic functions for abnormal prominence, namely elaboration and revelation. Elaboration signals a word-internal meaning change, where the phonological intensity of the additional prominence is interpreted as being in direct iconic proportion to an increase in the semantic intensity of the changed meaning, either in terms of power or precision. Revelation makes a contextual or word-external meaning change, specifically a correction in a mismatch between reality models as perceived by S. The type of revelation S uses depends upon the explicitness and encapsulation of the counterpart to that change. An explicit, thoroughly encapsulated (unitary) counterpart is exchanged in a substitution. A null counterpart is filled in an addition. Finding a more broadly distributed counterpart requires more work, namely derivation. In the case of revelation, the phonological intensity of the abnormal prominence is interpreted to be in direct iconic proportion to the effort expended by S in promoting the correction.

5   Conclusion

   These functions are all directly supported by this analysis of American English morphemes and words in declarative sentences which have been isolated for abnormal prominence with italics or underlining. The existence of these functions, the detailed description of the systems pervading their behavior, and the existence of a direct iconic proportion between form and meaning, all of these have been derived from a thorough analysis of these abnormally prominent words. Much of this data has been dismissed for decades as trivial matters of contrast and emphasis, but just look at how much is going on in the data sifted from just two corpora, and this isn't even the main analysis.

   Chapter 2 synthesizes firm definitions for normal or 'routine' prominence and abnormal or 'volitional' prominence from a thorough review of previous research on prominence anatomy, physiology, patterns, and functions. It will provide support for the portrayal of these two linguistic functions as having been adapted from communication functions, which had been adapted from cognitive functions designed to evaluate sensations of intensity in a physical environment. Chapter 3 is the first part of the analysis proper, and it lays out all of the details concerning elaboration; likewise, chapter 4 goes on at length about revelation. Chapter 5 is used to display these functions as applied to linked instances of volitional prominence. Finally, chapter 6 maps out my plans for performing further research on data recorded in an audiotaped or videotaped format rather than a written one, as well as the eventual extension of this project to encompass cross-modal volitional prominence, all of which will include the analysis of increasingly intricate prominence patterns.

CHAPTER 2

The Difference between Routine and Volitional Prominence

"You can bear a little more light?"
"I must bear it, if you let it in." (Laying the palest shadow of a stress
upon the second word.)

— Charles Dickens, *A Tale of Two Cities*

One of the first things that I would like to do is suggest alternatives to loaded terms like 'normal' and 'contrastive' in the interests of setting aside their implication that willful control of one's language is in some way a display of degenerate behavior. Even neutral pairs like 'typical' and 'paratypic' attribute far too little frequency to the amount of time that conversants spend ensuring that they have really been understood as well as they would like. It turns out that prominence behavior can most usefully be draped along a continuum which reflects the deliberate, conscious, VOLITIONAL control a user exercises over its language at one pole, and at the other describes how deeply a user can surrender that control to a variably mechanical, cognitive default or ROUTINE. All of the language behavior along this continuum is human, and so normal, and all of it occurs frequently enough to be typical at least in quantity, and close enough in proportion that to call any of it 'atypical' would be misleading.

Volitional prominence is the type S uses when it is concerned that it will not be understood correctly without resorting to effortful measures to ensure that it is making sense. S draws particular attention to those parts of its utterance which hold the key to

50

aligning L's model of reality with its own. This should sound familiar from the digest of this analysis given in the introductory chapter, and I will give two more examples of volitional prominence here, one each for elaboration and revelation:

[2-1]   They have some of the <u>best</u> papers, and current-events
          discussions – <u>so</u> interesting. [4.108]

[2-2]   And see, my friend, that you make your house a <u>home</u>. A house
          is a mere skeleton of bricks, lath, plaster, and wood; a home is a
          residence not merely of the body, but of the heart. [16.209]

Just to make sure that the function of volitional prominence is clear in each case, I will point out that the strong phonological forms of "<u>best</u>" and "<u>so</u>" are interpreted by L as selecting word-internal meaning variations which can be construed with equally great power. The substitution of "<u>home</u>" for "house" in [2-2] is detailed in the subsequent text, and the additional articulatory force reflects the strength of S's admonition, lifting the change up out of its surroundings and into the path of L's direct attention.

Volitional prominence, then, brings no *new* articulators to the communicative act; it just uses the same set of routine articulators with greater power and precision. Some of the research reviewed in this chapter has measured this effort as an increase in the expenditure of energy quanta, down to the cost of the motor units recruited for the fortified motion of the standard articulators. The reader can experience this effortful articulation directly by acting out the written data, or indirectly by reconstructing that data empathetically, since they represent distal events. This personal experience allows for a much more finely graded set of judgments about the proportions of phonological and semantic prominence involved than would be granted by the italic font alone.

Now let's take a look at these same examples without their italics, as if S were blithely assuming a well-aligned interpretation on L's part:

[2-3] (a) Thèy have some of the bést papers, and current-evénts
                discussions – só interesting. [4.108]
      (b) Thèy have some of the best pápers, ánd current-events
                discussions – so ínteresting. [4.108]

[2-4]   And sée, my friend, that you máke your hòuse a hòme. A hóuse
            is a mere skèleton of brícks, làth, pláster, and wòod; a hóme is a
            rèsidence not merely of the bódy, but of the hèart. [16.209]

To begin with, note that the prominence placements and levels vary between [2-3](a) and (b) despite the identity of their syntactic structures, so prominence is not *utterly* routine, as in being mechanically predicted according to syntax. In fact, the notion of this type of prominence being 'routine' is most evident when you watch how S directs the focus of a conversation. This tracking shows up most plainly in [2-4], because it was used earlier for a revelation, and this would only have occurred in an environment which was conducive to prominence identifying a contextual meaning difference. The standard strength of the focal prominence, and the pattern of subsidiary prominences dependent upon those points: *those* are matters of routine. S can rely on this routine 'filling in' the details even while S is preoccupied with another task. No effort has to be put toward determining just *how* not-strong the phonological form of the prominent word is going to be, because the *lack* of real intensity is only broadly reflective of the strength that L attributes to the construal of that word's *meaning*.

When S yields all volitional control over prominence to routine, its placement and level fall prey to the rhythmic patterning to which all human activity is susceptible:

[2-5]   And sée, my friend, that you máke your hòuse a hòme. A hóuse
          is a mere skèleton of brícks, làth, pláster, and wòod; a hóme is a
          rèsidence not merely of the bódy, but of the hèart. [16.209]

[2-6] (a) You walked ín and sat dówn ón the couch.
       (b) I just háte when my téeth bíte my fork.
       (c) Constantíne, you will bóogíe til dawn!

[2-7]   How kínd of you to let me come.

Note the familiarity of the sing-song pattern in the list of materials in [2-5], and the

ease with which [2-6](a), (b), and (c) can all be chained to the same rhythmic pattern

(da-da-DAA da-da DA-DA-Da-daa). If you gave [2-7] a Lerner-and-Lowe intonation

(*My Fair Lady*), then you surrendered to rhythm (daa-DAA Dada daa daa daa daa).

Some of these rhythms (question, command), or perhaps the rules for their automatic

generation, are so common that infants communicate quite capably with them before

and without words. Rhythm, then, is at the opposite pole from volitional prominence.

      These definitions are the result of reviewing over 400 years' worth of research

into English prominence, where those antecedent analyses addressed: 1) what it *is*; 2)

where it *goes*; and 3) what it *does*. This chapter is divided by this taxonomy. 'What

prominence IS' embodies the anatomy, production, and perception of prominence (§1).

'Where prominence GOES' holds notational schemes for draping intonation contours

over an utterance according to its sense, music, syntax, or metrical structure (§2).

'What prominence DOES' gathers analyses which have identified the function of

prominence over the years as targeting interest, information, discourse changes, theme

and rheme, and finally inward and outward focus (§3). The cumulative outcome of this

massive collective effort will be distilled at the end of this chapter (§4).

1   What prominence IS

Lungs, tongues, lips, throat... these speech organs display readily observable mechanical behaviors that are reflected in the functions of familiar tools like a bellows or woodwind. The buzzing of the voicebox can be felt right there at one's fingertips. Phonologists might consider this access to be a mixed blessing, since it lends itself to the proliferation of the same sort of intuitive, pervasive myths that turned dolphins into mermaids. Anyone who can take a deep breath can feel their chest rising as their lungs fill with air, and they will confidently tell you that this air is being pushed out of their lungs as they talk, and that the harder they push, the louder they sound. Everyone is an expert, and anyone can come to the same common-sense conclusion that louder noises become painful, so this same air must push on the eardrums more strongly, and so prominence is a more forceful expulsion of air. A number of linguists once came to similar conclusions, when looks were so clearly revealing that any evidence to the contrary was questioned sooner than the actual appearances.

There's no problem with such portrayals, just so long as two things are kept in mind that balance the value of the intuitively appealing surface descriptions evenly against the results of deeper scientific observations, namely: 1) that motion observed at the surface does not represent *everything* that's going on at *all* levels; and 2) just because there *is* more going on at deeper levels, that doesn't mean that people don't *behave* according to what they perceive on the surface, or according to what they *feel* is going on inside their bodies. This distinction is crucial here because prominence has been studied not only in terms of its production (§1.2), but its perception specifically

in regard to its production (§1.3), and it turns out that the perception of prominence has less to do with the mere reception of an acoustic signal than it does with the derivation of an articulatory gesture *out* of that signal (§1.4).

Strictly anatomical studies are much less controversial (§1.1).

1.1   Prominence ɪs Anatomical Configuration

Routine and volitional prominence are articulated with the same physiological structures, so they will be differentiated by their *activity*, and not their anatomy. To begin with, the respiratory system is a resource adapted for vocalization, and so none of its structures is devoted originally to making sound. Lungs, for example, are swim bladders opened to the outside. This system is then subject to the same constraints governing the power and speed of skeletomuscular activity in general. The laryngeal muscles can pull the arytenoid cartilages more tightly, more quickly, or more often than normal, but only at a greater cost than normal. Sequences of activity (walking, chewing, breathing) will exhibit rhythmic behavior when not deliberately disturbed.

It is not, then, important to restate the respiratory/vocal anatomy right here; besides, there are so many good dissections already available that just picking any year and a letter renders such references as *L*adefoged, *L*ehiste, or *L*ieberman, all in 1967. Because it is of *ancillary* importance to show the wide array of mechanisms available to prominence for variably energetic activation, material digested from a number of such sources has been isolated in Appendix I (p. 295).

Researchers are now in agreement as to the respiratory structures involved in speech; however, they do *not* agree on how those same articulators function together,

so the physiological portions of their studies are reviewed here. Simply parroting the *latest* consensus will not suffice, because analyses of respiration and prominence have naturally been developed in parallel over time, and so changes which have been wrought in the portrayal of prominence are best understood in comparison to contemporary analyses of respiration and vocalization.

1.2   Prominence IS Physiological Production

At the turn of the century, two manners of characterizing the respiratory system flowed together, the first of which appealed to the well-established metaphoric portrayals using bellows and bagpipes, and the second of which was based on new anatomical research such as that performed by Müller (1848: ch. II), who blew air through larynges excised from cadavers (p. 1009 in particular). The ability to *precisely* measure the activity of *specific* muscles in *living* specimens was available no earlier than the 1960s, and so the metaphors persisted during the earlier decades, continuing to be used as the basis of much of the first modern research into prominence.

In these early studies, the linguistic function of prominence is disregarded in favor of its mythical physiological functions. Such references were refuted as research methods improved and their results became more widely disseminated. Many linguists cite the early works of Jones and Bloomfield as influential, and yet in that work at the time, it was naturally taken for granted that superficial observations were enough to provide an accurate description of the respiratory mechanism. Stetson goes a step farther, interpreting his experimental results *in support* of a bellows metaphor that he assumed must be accurate, or more likely that he simply never thought to question.

Jones (1918) is taken as fundamental by many researchers (Klinghardt, Palmer, and Schubiger, to name a few), and he describes stress simply as the "degree of push from the diaphragm" (p. 24, §101). This seems naïve now, but was likely inoffensive at the time, since it was congruent with a very simple, common view of respiration dynamics. In fact, researchers continue to portray stress as greater effort, only as applied to their current model of respiration. Jones did, however, demonstrate a good deal of foresight in consistently differentiating stress from prominence, as follows:

> ...*prominence* depends upon combinations of quality with length, stress and (in the case of voiced sounds) intonation. (p. 24, §101)

> The prominence of sounds may be due to inherent sonority (carrying power, §101), to length or to stress or to special intonation, or to combinations of these. (p. 55, §209)

> The effect of *prominence*... is often produced by certain combinations of [stress and intonation]. (p. 275, §1008)

But this kind of prominence is only important to Jones when it comes to syllables within words, because the functions which make words prominent in sentences are all described in terms of physiological stress, and not length or intonation; therefore, there is no sentence prominence by his definitions.

Bloomfield (1933) is also often referenced in prominence studies, but it is his association of loudness with stress that later researchers mention, doing nothing other than to point out that he was wrong. They attribute a disproportionate strength to the attention that Bloomfield paid to this equation, which amounted to one sentence:

> Stress — that is, intensity or loudness — consists in greater amplitude of sound-waves, and is produced by means of more energetic movements, such as pumping more breath, bringing the vocal chords together for voicing, and using the muscles more vigorously for oral articulations. (p. 110f)

The problem here is not that stress is tied to effort, but rather that loudness is tied to stress *as* stress is equated with effort. These are not experimental results which were once taken to be fundamental, and which later research proved to be wrong, but rather only the same naïve, Jones-ish reliance upon common contemporary premises.

Stetson (1951) represents a crucial development in the support of these sorts of assumptions, because he worked at a time when the technology allowed him to make gross measurements of muscular activity on living speakers, getting immediately below the level of superficial observation. The problem was that this science hadn't yet been around long enough to wield any real authority over the metaphors that had already been in place for centuries, and in fact it made no impact on the structure of Stetson's own favored metaphor.

Stetson comes to three main conclusions, the first of which is that a pulse of air is made by the intercostal muscles with every syllable. This "chest pulse" pushes the subglottal air pressure beyond the mean value maintained by the abdominals (p. 96). The second is that *open* syllables involve a collapse of the lung which is countered by an expansion of the external intercostals. The third applies to *stressed* syllables, which have their chest pulse supported by an additional contraction of the abdominal muscles, primarily the rectus abdominis. Like the results generated in many pioneering studies, these will all come to be dismantled by their successors.

Stress, then, is proposed to be the motion of an *additional* set of muscles, where *everything* in Stetson's *Motor Phonetics* is muscular motion. Word accent (prominence) is a matter of stress, specifically duration and intensity, but not pitch:

> The logical analysis of sound as involving duration, pitch, and intensity, is responsible for the belief in pitch as an accentual factor; if duration and intensity affect accent, then why not pitch? But stress is not a matter of the properties of sound, it is a matter of the coordination and culmination of a movement. A movement must involve a stress, a pulse, and a movement must involve time, but a movement does not involve pitch.... In speech all stress involves increased force of the syllable movement, i.e. of the chest pulse. (p. 95f)

Because changes in pitch do appear, Stetson had to find a consistent way to dismiss them, and so he blamed them on changes in laryngeal musculature which are merely incidental to "tensions in the other musculatures of speech" (p. 95). Naturally, this view will also come to be dismantled.

Stetson made kymographic measurements of body wall movements, took subglottal pressure readings through a tracheal puncture, and derived lung pressure readings via a balloon in the stomach. While changes in such readings do suggest that there are muscles moving, they cannot specify *which* muscles those are. Stetson read such indications of general muscle movement only in congruence with the activity of those specific muscles which mapped well onto the simple bellows metaphor he supported:

> When the chest is slightly inflated for speaking, the air is not under pressure; like a hand bellows for blowing a fire, the volume is increased, but the nozzle is open and there is no flow of air....

>   If one makes quick strokes of the hands while holding the inflated air bellows, the nozzle emits little pulses of air; as the quick strokes are repeated the air pulses reduce the volume of the air, and the arm muscles must bring the boards of the bellows closer and closer to accommodate for the loss of air. (p. 1)

As others note, this does not reflect respiratory factors now taken for granted, such as the elastic recoil of the lungs (Lieberman, 1968). While Stetson gets criticized for not having the benefit of the results of the later research which his own made possible, he is also being held accountable for interpreting his data to fit his theory.

So, Stetson's work gets mentioned by other researchers for two reasons, namely to treat it as the first study which aggressively measured physical activity during speech without killing the patient (which involved procedures as invasive as intramuscular probes and tracheotomy), and to chide Stetson for having assumed that his experimental results would necessarily support his assumptions about the way that respiration must be working. Similarly, the metaphors underlying my own analysis (such as force/finesse, spatial imagery, adaptation, and so on) are just as susceptible to being modified in congruence with technological innovations, so don't rely too strongly on their specifics. For example, it might turn out that there is some highly influential factor in the environment (and so in human cognition) which makes a triad with force and finesse, in which case the subtypes of elaboration would have to be adjusted accordingly, just as Stetson's bellows metaphor has been altered.

These early studies leave syllable prominence made up of diverse factors like quality, loudness, stress, and intensity, but not pitch according to Stetson, who details the mechanisms upon which Bloomfield's 'vigorous effort' would work, all of which

is interpreted in support of the prevailing mechanical intuition, rather than modifying it. It took the following studies to really give in-depth observation the upper hand over intuitive assumption, and for prominence to be associated with measurable changes in the full set of fundamental frequency, duration, intensity, and vowel quality, rather than just some exclusive (and prevalent) subset like duration, pitch and intensity alone.

To begin with, Lifshitz (1933) performed the first of several studies which tied loudness to at least duration and amplitude, rather than just assuming that it was equated with stress. House and Fairbanks (1953) is similarly straightforward: changes in fundamental frequency affect vowel quality. This study is cited by researchers in support of experiments which demonstrate that pitch is an indicator for prominence, where those researchers go on to point out that changes in vowel quality must then also be available to provide clues to prominence in the speech signal.

Fry (1955) is often cited in support of claims that changes in duration and intensity affect the perception of stress, and is referred to less often to show that duration actually has a *greater* influence than intensity. There are also cases where it is cited in reference to *pitch* as an influence on stress, but Fry never addresses pitch. Something else to keep in mind is that these other researchers apply Fry's conclusions more broadly than Fry did. The stress tested here is that which makes part of a word prominent enough that it can be identified as either the noun or the verb form of an otherwise identical pair, where the five words tested were *object*, *subject*, *digest*, *contract*, and *permit*. The duration effects were consistent only when just the vowels were measured for change, and the intensity shifts were less consistent, though

significant. While these specific syllable-stress results might well be applicable to other words, or to sentence stress in general, Fry does not make these claims, and in fact he makes it quite plain that the scope of the conclusion's application is narrow.

Lieberman's work (1960–) shows that word stress judgments are affected by formant and fundamental frequency, pitch peak, and duration (psychoacoustic: 1965; acoustic: 1960, 1967). He brings together the results of several studies, *suggesting* that "The so-called 'phonemic' pitch levels described by Pike, Wells, Trager and Smith, and others... may merely reflect the phonetic effect of the discontinuities caused by the coupling of the subglottal system to the larynx" (p. 35). One particular study (1963) suggests that speakers avoid harmonics of the 300 Hz subglottal resonance because it will ruin pitch clarity. (My review of such phonemic pitch level studies begins with Ripman, 1922, p. 99).

Lieberman is effectively saying that no matter *what* set of articulations and energy expenditures defines the complex of activities that generate prominence, the speaker might avoid those processes which would contribute to the disturbance of the clarity of pitch. The resulting gaps which *appear* to delimit phonemic pitch clusters or levels are just the avoided areas in which the pitch becomes unclear due to interference from the harmonics of the 300 Hz subglottal resonance (the actual rate of which has an unspecified variance among speakers). If speakers were to consistently display this avoidant behavior, then the proposed proportion between phonological and semantic intensities could not be *purely* continuous for all modes of articulation, because pitch would manifest a stepwise discontinuity. The increased energy expenditure might still

be fluid, but at least a portion of the articulation of prominence would have discrete targets, which might well influence other aspects of the articulation. Of course, this is all moot to the extent that Bolinger (1951; p. 107 in this analysis) finds pitch to be continuous, and without any significant discontinuity.

In another study (1968), Lieberman supports Ladefoged's (1967) correlation between subglottal pressure peaks and stressed syllables, but only when such a syllable is the *only* stressed one in an utterance. Lieberman says, "peaks in subglottal air pressure are generally, but not always, one of the underlying manifestations of emphasis" (p. 1160). Since the words are still *perceived* as stressed despite the lack of an accompanying peak of subglottal pressure, Lieberman suggests that word stress must be able to be marked by something other than this sort of direct effort (perhaps a marking which facilitates distal reconstruction), and mentions that they all still have longer duration.

These results are less persuasive when the test itself is analyzed. For example, when subjects were asked to produce one emphasized word in a sentence such as, "<u>Joe</u> ate a big bowl of borscht last night," or, "Joe ate a <u>big</u> bowl of borscht," the word isolated by prominence was accompanied by a peak in the subglottal air pressure. When the subject was asked to emphasize more noncontiguous words in a similar sentence, namely "<u>Joe</u> ate a <u>big</u> bowl of <u>black</u> borscht," this accompaniment was not consistent. The problem is that rhythmically, this last example *sounds* odd. What I would like is to see this study performed on a more 'normal' multiple-emphasis utterance such as, "<u>Never</u> kick a <u>man</u> in the <u>foyer</u>."

One important aspect of this study is that Lieberman was able to test some *indirect* means of measuring subglottal air pressure, namely the tracheal catheter, as well as esophageal and tracheal balloons, demonstrating that they could return results which were not significantly different than those gathered by his more direct method, namely tracheal needle puncture, just so long as a mathematical correction was made to adjust for the elastic recoil of the lungs.

In summary to this point, the stress vocabulary broadens beyond 'intensity' and 'loudness', and even routine levels of prominence are said to be generated by muscular systems which simultaneously affect an inexact set of stress, fundamental frequency, duration, and vocal quality. As the bellows metaphor is discarded, a more sophisticated model is built for the generation of peaks in subglottal pressure which always accompany the isolated instances of routine syllable prominence. No specific explanation is given as to how those peaks would necessarily manifest themselves in terms of *all* of the other demonstrated changes in fundamental frequency and so forth, neither is any consistent *pattern* of change defined; furthermore, as research crosses into Lieberman and Ladefoged, all of the previous studies on syllable stress are subsumed as if they automatically applied to words when patterned into sentences. Most specifically, the strength of prominence is shown to be a matter of increased activity within a set of articulators, rather than the additional function of one or more ancillary articulators. The following studies show that the range of articulator activity over which prominence manifests itself can be measured in terms of the expenditure of discrete quanta of energy, down to the recruitment of individual motor units.

Malone (1926) analyzes accent and intonation into discrete units of absolute quantity, placing his system in opposition both to van Ginneken's *definition* of accent (1907: 287) and Jones' (1909a) *use* of intonation contours (cf. §2.3, p. 91), where Jones is held to be representative of current pitch and intonation research. Two quotes are compared to begin the argument. The first passage is pieced together and presented by Malone as if it were a direct quote from material in van Ginneken, where mental energy or mental effort is intended to stand in opposition to physical effort:

> I define "accent" as the mental energy which one phoneme has more of than any of the others, and which manifests itself explicitly in resorting more strongly to one of five qualities, namely: intensity; height; quantity; timbre; and articulation. (p. 371; my loose French translation)

Malone then presents a modified form of a quote from his own earlier work:

> The enunciation of any speech unit necessarily involves the expenditure of a certain minimum of energy. Such a minimum may therefore be looked upon as inherent in the unit. Any additional increment of energy would then constitute the accent of the unit. (p. 371; cf. Malone 1923: 6)

There is a minimum amount of energy inherent in the production of any speech unit, and anything above and beyond that is the energy required by the accent.

Van Ginneken's weakest syllables would have no lower limit on their energy, being successively relatively weaker than those in their environment, whereas Malone sets up the energy used by the weakest syllable as a base quanta, with increases in strength involving multiples of that base amount. Accent can then have an absolute strength, not just a relative strength. Malone divides this energy into: 1) the energy of

production, which is dynamic energy giving dynamic accent or stress; and 2) the energy of maintenance, which is static energy, giving tonic accent or pitch.

Having said this, Malone does not seem to do much with it. He reanalyzes a passage originally annotated by Jones (1914b: 190-195), using a system which is essentially like an earlier version of Palmer (1922), and he makes some casual notes about the differences between American and British intonation. He records changes in dynamic and static energy, but there is no accounting in terms of the absolute energy increments he posited.

Ladefoged collects ten years' worth of stress research into one book (1967), research he performed both alone and with a number of other people (Draper, Ladefoged, and Whitteridge 1957, 1958, 1960; Ladefoged, Draper, and Whitteridge, 1958; Ladefoged, 1960, 1962, 1963; Ladefoged and McKinney, 1963). Ladefoged dismantles Stetson (1951) in a businesslike fashion, but is just as open when it comes to implementing changes in his own previous work, readily revising portions which had been criticized by Kunze (1964; cf. Ladefoged, 1964, for his reply).

To begin with, Ladefoged provides a detailed description of the respiratory system's activity during speech intensities ranging from soft to shouting, based on electromyographic readings from an iron maiden's worth of intramuscular probes, as well as air pressure measurements with tracheal and esophageal balloons. These readings identify the movement of *specific* muscles, leading straight to one of the first results, which is that "It is quite clear that there is no simple correlation between intercostal activity and syllables; and... there is no *evidence* in Stetson to the contrary"

(p. 20). Although this dispels the myth of there being one chest pulse for every normal syllable, there *is* an intercostal burst which accompanies a variation in the degree of stress (as well as one which increases expiration for voiceless sounds).

When it comes to Stetson's rule for *open* syllables, Ladefoged says, "We could not find any evidence for Stetson's statement that English syllables with a certain kind of phonetic structure are always checked by the action of the external intercostals" (p. 25). Ladefoged says that the external intercostals are only active during quiet talking after a deep breath, and not during normal conversation.

Finally, the rectus abdominis does not reinforce the internal intercostals during the production of a stressed syllable, with the possible exception of "very emphatic stressing, when lung pressure may be unusually high" (p. 25). During normal conversation, however, the abdominals are only active at end of a very long utterance.

Ladefoged also runs a number of tests to determine correlations with increased subglottal pressure, and finds it to be proportional to volume velocity, vocal cord frequency, fundamental frequency, and peak sound pressure. In addition, loudness is proportional to both peak subglottal pressure and peak sound pressure. A little extra subglottal pressure goes a long way:

> These results reinforce the view stated earlier that stress is best described in physiological rather than acoustic terms. Because of the interaction of vowel quality and intensity, and the trading relationship between intensity, frequency, and duration (Lieberman, 1960), there is no single, simple acoustic event that always occurs in all stressed syllables in spoken English. But it is apparent that every stress is accompanied by an extra increase of subglottal pressure. (p. 46)

Stress is a matter of effort measured in terms of subglottal pressure, and when stress is applied to a syllable (prominence), that syllable is altered by some unpredictable subset of those factors which are proportional to that increase in pressure.

Öhman (1967) runs with the idea of quantum prominence. To begin with, no matter how chaotic a complex wave might look, *if* it is periodic, it can be analyzed as the sum of a set of very well-behaved wave patterns. Öhman projects this idea onto the notion that prominence patterns are rhythmic complex waves, developing a computer model which shows that "the salient features of these intonation patterns in simple utterances of a number of [Swedish] dialects can be simulated by means of a single positive step as input to the sentence intonation filter and an appropriately timed negative pulse as input to the word intonation filter" (p. 47). Just one positive pulse at the beginning of the first syllable of the stressed word, and then negative pulses at the word stresses, and the prominence pattern for the intonation surfaces.

Unfortunately, there is an insidious danger in the appeal of this study, and it lies in the same notion which spawned it, namely that *any* periodic wave can be broken down into simpler waves. As long as prominence is modeled as an approximation of a periodic wave, the experiment has no alternative but to work. Even at that, it *would* be nontrivial for the experiment to demonstrate that models of prominence patterns *could* be generated with a single positive pulse and a couple of negative pulses, were it not for the fact that the patterns in question are so short that it isn't hard for human speech to exhaust the mathematically possible results within those constraints, such as high-low-high, high-high-low, and so forth.

The physiological realization of this energy pulse is posited to work as follows:

> These pulses would reflect an instantaneous addition of a quantum of
> physiological energy to the speech production system as a whole. This
> energy is distributed spatially, over the articulatory, phonatory, and
> pulmonary channels, as well as temporally, over the time segment of
> the utterance immediately following the onset of the pulse. (p. 33)

A pulmonary pulse contracts the intercostal muscles ballistically, and the articulatory intensity translates as "faster and more vigorous movements of the tongue, lips, velum, and jaw, as well as the articulatory components of the larynx" (p. 34). This all sounds very interesting, but again it is just speculation.

Öhman analyzes Swedish, and while its prominence will vary from that of English, it is not different *physiologically*. This is supported by Gay (1978, below). In addition, part of Lehiste's (1970) book is a comparison of stress research performed on a number of languages in addition to English, and Lehiste concludes that:

> Prominence may indeed have several physiological and acoustic
> components. Intensity and fundamental frequency are probably both
> factors in the production and identification of a stressed syllable.
> Languages may differ in the relative importance of one or the other
> feature, and in the relative independence of the two features. (p. 146)

Lehiste also mildly implies that a language using one feature for lexical discrimination will use the remaining features for prominence. A tone language might use stress or duration to mark prominence rather than pitch. To the degree that prominence is a matter of energy expenditure, it is so for all physically articulated languages, although they vary in the proportion with which this energy is distributed across the set of available mechanisms, as described by Lehiste.

Kent and Netsell (1971) support a direct proportion between stress and effort that was actually measured rather than programmed. They had speakers utter carrier phrases of the type "My _ again" and "I _ again", with different amounts of stress on the inserted word. Their speaking motion was recorded with cinefluorography, which required the application of radiopaque patches and paste on the subjects' articulators. They found that "increases in stress are associated with increases in the muscular activity of the peripheral speech apparatus," influencing the articulation of the jaw, lips, and tongue (p. 43). Articulation was enhanced in the direction of the presumed target, with results such as increased lip protrusion for rounded vowels, or tongue position shifting anteriorly and superiorly for a high-front vowel.

Sussman and MacNeilage (1978) reduce the difference between intense and routine effort simply to saying 'æpÆ' rather than 'æpæ'. They show that greater effort entails 1) the recruitment of additional motor units, which means that any given unit does not have to fire as often as it did over the course of an utterance, 2) an increase in the motor unit discharge rate, with a shorter interval between the successful activation of motor units, and 3) a sharply reduced variability in recruitment intervals. At the articulator level, this amounts to the mandible lowering earlier for an open vowel, greater displacement of the jaw, with the whole movement being characterized as more carefully orchestrated and having greater precision, with the target more forcefully attained. Greater effort leads to greater power and precision.

Gay (1978) shows that when stressed vowels are spoken, increased speaking rate equals decreased duration. When unstressed vowels are spoken slowly, even if

they are of the same duration as the quickly spoken stressed vowels, there is a reduction in fundamental frequency, and some loss of overall amplitude and vowel color. Gay concludes from these results that, "two separate and independent physiological mechanisms control changes in speaking rate and lexical stress, one that horizontally compresses the string and the other that modulates overall articulatory effort. A change in duration is a deliberate strategy of the first, while only a consequence of the second" (p. 229). Gay has managed to differentiate a deliberate control over a change in spoken duration from the increased duration that is a consequence of stress.

As the 1950s became the 60s, then, speculation about prominence as energy gave rise to actual studies in which that energy was measured. Ladefoged (1957-1967) used electromyographic readings from intramuscular probes as well as air pressure measurements with tracheal and esophageal balloons to describe intensities of respiratory activity ranging from soft to shouting, identifying the movement of *specific* muscles. This set the stage for the association of vocal activity with specific measures of expended energy.

Öhman (1967) provided a mathematical model for prominence as a variable energy expenditure, which were described as energy quanta or pulses to reflect the notion that prominence contours are the result of an interpolation between stressed points. Beginning with Kent and Netsell (1971), there was an actual measurement of extra effort specifically associated with stress, followed by Sussman and MacNeilage (1978) showing how this energy is expended in terms of the recruitment of actual

motor units, and then finally Gay (1978), who has energy spent on a prominence-specific change in duration that is isolated from the mechanism which controls speaking duration. The difference between routine and volitional prominence should then be measurable as lesser and greater energy, even if that measurement is stochastic. All in all, this is one case in which intuition is borne out by science.

So far, volitional prominence is characterized by the expenditure of some amount of energy which triggers some mechanism (or *set* of articulatory, phonatory, and pulmonary mechanisms) to bring about an increase in subglottal pressure, which has proportional effects on some subset of volume velocity, vocal cord frequency, fundamental frequency, peak sound pressure, loudness, and somewhere along the line, duration. The greater expenditure of energy in the articulators can lead to both more powerful and more precise activation. Naturally, it would be nice to be able to be more specific at precisely those points where I have resorted to "some amount," "some mechanism," "some subset," and "somewhere," but such precision is waiting on even further technological advances.

1.3   Prominence ɪs Physiological Perception

It would also be nice to know if this production research has anything at all to do with what we actually *perceive* as prominence, hence this section, which supports the ability to evaluate signals as distal events.

Lehiste and Peterson (1959) is a study of primary stress on a few noun/verb pairs (like Fry, 1955), showing that stress is perceived in terms of many influences on the acoustic signal, which are listed as "speech power, fundamental voice frequency,

vowel quality, and duration" (p. 435). Objective measurement is left for future research, but vowels which are *subjectively* judged to be equally loud are evaluated by the researchers as equal in physiological stress or effort, not actual loudness. They anticipate the Motor Theory of Speech Perception in saying, "It is our belief that the interpretation of the speech signal by a listener is based on a very complicated set of auditory parameters by means of which he makes an interpretation of the speech production" (p. 429). These findings have a parallel in the work of Josephs, Giesler, and Silvera on the judgment of quantity (1994), which shows that a task is interpreted as if it required greater effort if nothing other than its perceived *size* is increased.

Ladefoged (1967) performs more tests, showing that when vowels such as /i/ and /u/ are produced with the same subglottal pressure as /a/ and /ɔ/, the /i/ and /u/ (suffering greater impedance) will have a peak sound pressure about 5 dB *lower* than the /a/ and /ɔ/, but will be judged to be just as loud. The same effort put into an /i/ and an /a/ will give you a louder /a/, measured objectively; however, when subjects are asked to judge the *loudness* of /i/ and /a/ produced with the same effort, the two will be rated as equally loud. Ladefoged says, "It is, of course, probably true that what listeners were doing when they were judging the loudness of the words in this test was assessing the amount of effort they themselves would have to make in order to produce corresponding sounds" (p. 40). This result is also consistent with the Motor Theory of Speech Perception, which is built around the notion that the hearer perceives a *gesture* and not an acoustic signal, suggesting that the hearer draws upon their experience in having produced the sounds they are trying to understand. In the 1963 version of this

theory (Liberman, Cooper, Harris, and MacNeilage), vocal activity is a matter of independent articulator movements, where those movements are identified with subphonemic features. Those features are implemented by the selection of invariant motor commands sent to the muscles prior to the encoding of an utterance. The hearer is assumed to appeal to their own speech-motor system to perceive these commands.

When Folkins and Abbs (1975, 1976) showed that articulation was not a matter of independent movements, but coordinated complexes, Liberman and Mattingly (1985) revised the Motor Theory, and individual movements became choreographed articulator gestures. The hearer was no longer trying to perceive the invariant motor commands assigned to particular subphonemic features, but rather trying to ferret out the equally abstract control structures for the articulatory gestures.

Mattingly and Liberman (1988) give a general auditory mode for "ecologically arbitrary events" and a specialized phonetic mode for "ecologically important events" like "biologically important sounds" (p. 775), saying that, "The phonetic mode... is 'heteromorphic' in the sense that it is specialized to yield perceived objects whose dimensionalities are radically different from those of the proximal stimuli" (p. 779f). Essentially, ecologically arbitrary sounds are evaluated proximally, and ecologically important ones are distal events. This makes sense in that important events are more likely to have experience associated with them, and regular communicative value. Formants heard homomorphically sound like noises, and formants heard heteromorphically sound like speech. It would be in the latter case that a speaker would make a kinaesthetic appeal to their speech-motor system.

Fowler and Rosenblum (1991) dislike the Motor Theory in its specifics. They provide support for the perception of speech as gesture, but point out that no actual evidence is given in any version of the Motor Theory to suggest that the hearer makes a kinaesthetic appeal to a specialized cortical system. "There is another way to explain why listeners recover phonetic gesture. It is that phonetic gestures are among the 'distal events' that occur when speech is perceived and that perception universally involves recovery of distal events from information in proximal stimulation" (p. 43). In order for this point to be clear, I need to distinguish their use of "perception" from the definition that it is given in my analysis. Although there are certainly specialized sensors involved in the recovery of signal information (eyes, ears, nodes of Ranvier), there might well be a great deal of equivalence (universality) in the electrochemical transport of the transduced signal to the brain without regard to which type of sensor originated the signal, and on top of this, at least some of the receptive areas of the brain are also specialized. The alternative that Fowler and Rosenblum are trying to support is as follows: once that signal is *in* the brain, so to speak, and is actually being evaluated, they suggest that the only processes needed to reconstruct the distal event are universal, and do not necessarily require an appeal to any specialized modules like a speech-motor system. As far as congruence with my analysis is concerned, I would expect primitive power and precision to be universal, but in order for the articulatory force of a signal to be usefully iconic, that is to say, for a language user to be able to *feel* the gesture, as such, elaboration and revelation rely upon cognitive abilities which access personal *experience* with speech as it appeals to linguistic power and precision.

In summary, Ladefoged has anticipated much of the Motor Theory, much of which is still speculative, such as whether people actually access their motor cortex in the evaluation of speech. Although Fowler and Rosenblum propose a diffuse, universal cognitive recovery of information from distal events as an alternative to a direct appeal to specialized cortical systems, the following study on Swedish suggests that there really is some sort of target or unvoiced speech-specific entity that is an ideal, and that this ideal is accessed during speech.

1.4 Prominence ıs Baseline Excursion

Whereas the studies up to this point have all been treating prominence as if it changed the otherwise normal, ideal form of a sound, Lindblom (1963) studies how the *un*stressed syllables in a word change, effectively portraying the sounds in *stressed* syllables as normal. In other words, it is not stress that deforms a sound, but the *lack* of stress. "Although a vowel phoneme can be realized in a more or less reduced fashion, the talker's 'intention' that underlies the pronunciation of the vowel is always the same, independent of contextual circumstances. A vowel target appears to represent some physiological invariance" (p. 1778). In specific, a speaker of Swedish (another language that uses heavy stress) was found to consistently undershoot the formant frequencies of eight Swedish vowels in unstressed contexts, such that they tended to sound centralized. The shorter duration gave the speaker just that much less time to approximate the ideal, and it also resulted in a closer proximity to the surrounding consonants, causing greater coarticulatory interference.

Lindblom's study shows that a speaker *aims* for an ideal form of a sound, even though its realization will always fall short unless the sound is stressed. The speaker does *not* deliberately overshoot the target in order to have the actual articulation land closer to where that ideal would be, but rather the speaker shoots directly at the target no matter what, even though it is going to fall short. The listener is expected to understand this, and to extrapolate the intended ideal target from the consistently undershot realization. Bolinger's analysis of reduced vowels (1986: 347-360) supports the translation of these results onto English, where any given reduced vowel is the undershot version of a full vowel target.

Lieberman (1967, ch. 3) builds a case in favor of interpreting an infant's attention-getting cries as innate precursors to the intonation contour of the unmarked breath-group found in most languages. Both the cries and the breath-group typically display a rising-falling fundamental frequency contour with a duration of one or two seconds, and a gradual decrease in the baseline frequency. Lieberman presents studies which show that deviations from this crying pattern can signal neurological and other abnormalities, suggesting that there *is* such a thing as a routine, innate base intonation. Lieberman also includes references to research showing that infants learn intonation patterns sooner than language.

While I agree with Lieberman's conclusion that there is an innate pattern there, I do not accept some of the projections that he makes based on that conclusion. He characterizes the breath-group as being designed to segment speech into sentences, which seems backwards. Why would breathing need to adapt to speech? Vocalization

in general should have had to adapt itself to respiratory patterns, and so it would be better to posit an innate breath-group designed to optimize the exchange of gases and so forth, and assume that the unmarked breath-group is the one which least disturbs respiration while allowing for vocalization.

1.5   Prominence ɪs Effortful Motion

These studies cough up a great deal of information, but the results are not predictive so much as they are simply statistical. For example, prominence is not created by an increase in subglottal pressure, but it is 'virtually always' accompanied by just such an increase. In those cases of prominence where this pressure is absent, the slack is picked up by features such as formant and fundamental frequency, duration, and vowel quality. Each of those features has its own set of studies which proves it to be more important than any of the others in the perception of prominence. This substitution of features applies not just to the utterances of individual speakers, but to the prominence strategies chosen by languages as well. In addition, given two equally powerful acoustic signals, the hearer will attribute greater prominence to the sound which requires the greatest gestural effort to make, which means that the hearer must know what it feels like to make such gestures.

To continue, technological advances in research methods allowed observations to recede below the surface, where they were made not only at an increasing depth, but at a greater minuteness of scale. The results of such readings did *not* undercut the traditional intuitions about respiration and vocalization (e.g. prominence is extra physical effort), but rather they pulled the support out from under the common sense

projections about those processes which had up until then accommodated surface observations. The traditional portrayals simply adapted themselves to the newly revealed evidence, giving the bellows a recoil spring. Prominence remains physical effort, and the only thing that has changed is the array of mechanisms to which that effort is applied, plus the intuition that this expenditure is now made in discrete quanta. Prominence still plays into all of the familiar metaphors which involve the expenditure of energy, such as those which equate a raised voice with anger and heat, or a more precise articulation with an effort of will or a narrowed focus of attention.

The intuitions which have changed the most are primitive ones which apply to sensation in general. The first is that all sensations are local, even though they all *seem* to be remote. *That* this is a counterintuitive system is no surprise: sensing a threat on your retina is nice, but projecting the threat's relative location on an environmental image is better, and doing so intuitively is best. This external-to-internal equation would be facilitated by any iconic relationships holding between physical and mental structures. The second is that not all of the information about an event is evaluated proximally for all signals, but rather cognition involves the reconstruction of distal events through at least some kinaesthetic appeal to specialized cortical systems in at least some cases, and probably to more universal cognitive processes in other, if not all, cases. Whether proximal or distal, the effect of perceiving an increase in the energy of a gesture's form is to attribute a similar increase in energy to its meaning.

These intuitions about effort and iconicity are also of primary importance to studies which explain where prominence goes (§2) or what it does (§3).

2   Where prominence GOES

When prominence is treated as a fluid motion or holistic process, it becomes an intonation contour, with critical points along curves acting as borders and stresses, like high-tension towers lifting draped lines above a rolling landscape. Pitch is no longer levels, but inflection, and its closest cousin is music, the only difference being that speech is held to be continuous, while song is made up of discrete notes. These shapes are not applied to speech to *cause* a meaning, but are drawn to it according to qualities determined by an utterance's *sense*. The critical points at which intonation contours are aligned with these sense groups were first transcribed as punctuation (§2.1), and then as musical notation (§2.2). As phonemic principles came to be applied to studies of prominence, intonation fragmented first into tune peaks (§2.3), then syntactic units (§2.4), and finally rhythmic beats (§2.5). When the prominence's meaning carries no more importance than just where it goes, the user has often relinquished control to rhythm as a lowest-level default, and prominence is just a beat in a larger pattern.

2.1   Prominence GOES on Points of Punctuation

Here, prominence has a shape as you draw it– you can feel its form, and this physical feeling is iconically associated with the emotional rise and fall of the sense of the meaning. A period is a short stab, but it can be made more lingering with a tail that turns it into a semicolon. (Parentheses are enclosures that hold energy and meaning inside.) And how bold the exclamation point! These are the first attempts to represent prominence in terms of a physical activity that reflects the emotional feeling or meaning of the contour it supported, namely its tune.

Hart (1569) supports at least three different tunes, which are differentiated as early as the beginning of a sentence: "And for the mark of the interrogative and admirative, I would think it more reasonable to use them before than after, because their tunes do differ from our other manner of pronunciation at the beginning of the sentence" (folio 41, side 2, with font and spelling standardized). In other words, question marks and exclamation points might be better placed where their associated tunes *start* to differ from the declarative, namely at the beginning of the sentence (e.g. Spanish); however, he stops short of trying to implement this spelling reform, "seeing the matter is of no great moment." Whole tunes are associated with an emotional sense or mood, which gets signified by a punctuation mark of critical shape. Hart's predecessor to this work holds the earliest English version of what became a standard system of three accents for marking syllable stress, with one iconically-shaped mark each for higher/sharper, lower/flatter, and circumflexed tunes (1551, ch. 10, folio 164).

In Butler (1632), "Tone" is tune/pitch, "Sound" is force/stress (p. 54, ch. 4, §1), and "Accent is the expressing of one syllable of a word above others; with a little higher tune and longer time, in whatsoever Tone or Sound" (p. 54, ch. 4, §1-2). The dimensions of an utterance's Tone, Sound, and Pauses follow punctuation, where Butler's system is comprised of both "Primary" and "Secondary Points" (p. 58, ch. 4, §3.1). The secondary points have no accent, and are the apostrophe, dash, dieresis, and hyphen. The primary points are either simple (period, colon, semicolon, comma) or mixed (exclamation point, question mark, parentheses, square brackets), but only simple primary points are tied to a consistent *pattern* of accent, as follows:

Table 2-1: Butler's Association of Punctuation with Accent

		Accent (Intonation Pattern)			
		Tone (tune/pitch)	Pause	Sound (force/stress)	
				sense	sentence
Simple Primary	period	fall (*on* the last word)	long	perfect	perfect
	colon		shorter than for a period		imperfect
	semicolon	continued (*to* the last word)		imperfect	middle of : or .
	comma		shortest	more imperfect	

Tone is final, unless drawn away by emphasis. The secondary points are defined in terms of accent, but not in as tidy a fashion, where their patterns vary with the primary point that they have "expressed or understood, in them" (p. 60, ch. 4, §3.2), which can involve rising Tone. Hultzén (1939: 42) equates this with the two-tune system adopted by Jones (1918), but only does so by interpreting as *rising* Butler's description of a level tone: "it continues the tenor or tone of the voice to the last word" (p. 59, ch. 4, §3.1). This doesn't look like a two-tune system any more than does the three-tone system found in Walker (1787: 15f), given Butler's 'continued' tune and Walker's Monotone (§2.2).

So punctuation once signified the sense of an utterance, or the shape of the mood over which the intonation was to be draped. The actual punctuation mark was tied to the end of the contour, although Hart suggested placing it at the beginning of the sentence, where the difference in intonation begins. Hart doesn't say what those tunes are, but Butler suggests the typical components: rising; falling; and level tones.

2.2   Prominence GOES on Notes of Music

As the 18th century became the 19th, the treatment of prominence as a musical contour became increasingly prevalent. This outlook initially opened up in response to a demand to transcribe spoken intonation for efficient English teaching, and the perception of that demand only grew through the 20th century in response to the consequences of the World Wars. One of the first issues in this musical alignment was the matter of the most appropriate degree of complexity necessary to capture the needs of language, as seen in the flow from Sheridan (percussion alone), to Burnet (drums), to Steele (complex vocal orchestration), to Walker (simplified melody, as later in Sweet), and finally to Odell (musical, but without strict musicality). The adaptation of the iconic physicality and spatial orientation of the straightforward tone strokes to musical notes on staves was a natural one.

Sheridan (1762) holds that there are special villains responsible for English accent being commonly misconstrued as musical in nature, namely those masters of grammar schools who revived the teaching of ancient literature. He contends that they decided that in the absence of knowing just what it was that the Greeks had meant by their accentual marks, those marks must have described *tonal inflections*. Sheridan admits that the Greeks must have done *something* with their language to make it sound pleasing, as "Foreigners listened to their Orators, tho' they did not understand their language, with as much pleasure as we do Italian singers" (p. 45), but he concludes that whatever it was they *did* do, it was nothing like the artificial inflections recreated by the teachers of Greek. He also cuts off any inquiry into the musicality of English

accent by saying that the only modern use of musical accent is pursued by the Chinese, "of whom we know but little, and a thing about which we can have but very obscure ideas" (p. 46). The reader is supposed to flush all of their *old* misinformation about English accent in order to make room for *new* (mis)information, which is that English accent is not musical, and is not a matter of inflection. It only distinguishes one syllable in a word from the rest, either by duration or stress, which is simply called "smarter percussion" (p. 41).

Burnet (1773) wrote six volumes on the origin and evolution of language in general, as well as the state of English in particular, and deep inside the second volume he buried a characterization of syllable stress as "nothing better than the music of a drum, in which we perceive no difference except that of louder or softer" (v. 2, ch. 4, p. 300). Earlier, he had differentiated syllable and sentence stress as follows:

> As to accents in English, Mr. Foster... would fain persuade us, that in English there are accents such as in Greek and Latin. But to me it is evident that there are none such; by which I mean that we have no accents upon syllables, which are musical tones, differing in acuteness or gravity. For though, no doubt, there are changes of voice in our speaking from acute to grave, and vice versa... these changes are not upon syllables, but upon words or sentences. (v. 2, ch. 4, p. 298)

> That there is truly no other difference, is a matter of fact, that must be determined by musicians. Now I appeal to them, whether they can perceive any difference of tone betwixt the accented and unaccented syllables of any word. (p. 299f)

Burnet ends up recanting when Steele meets and exceeds this challenge, changing his perspective in later editions of his work.

Steele (1775) associates speech with a complex musical representation (p. 51):

Figure 2-1: Sample of Steele's Transcription

The bottom portion of an accent is a straight or circumflexed line iconically describing

the variable path of quarter tones (lines and spaces) over which the voice traces a slide,

and the top portion is a mark of quantity (cf. Thelwall, 1812: xliv). Acute and grave

accents are simply monotonic slides which traverse most of the scale. Steele has gone

to great lengths to show Burnet some tones differing in acuteness and gravity, as well

as all of the other kinds of musical notation applied to speech, saying further: "Neither

is it like the intonation of the chorostates, or precentor in our cathedrals, where the

change of tone is made between one sentence and another, or between one word and

another; that is, where the change is made, *not upon syllables*, but upon *words* or

sentences" (p. 15). It is in the face of this system that Burnet decides to change future

editions of his work.

Although Walker (1787) is much more practical than Steele, the notion that

singing can be "reduced to notes" so as to "delineate them on paper" also suggests to

Walker that the same might be done for speaking (p. 1):

ALL vocal sounds may be divided into two kinds; namely, speaking sounds and singing sounds. Singing sounds are such as to continue a given time, upon one precise point of the musical scale, and then leap as it were from one note to another; but speaking sounds, instead of dwelling on the note they begin with, slide either upwards or downwards to the neighboring notes, without any perceptible rest on any; so that speaking sounds are exactly of the same kind with those which are produced by a violin when a finger slides up and down the string, while the bow is drawn across it. The singing sound, therefore, is a Monotone, and the speaking sound a slide or inflexion. (p. 7)

This looks beyond what prominence is and on into where it goes, blending points into intonation contours. They slide rather than leap, and so are motion and inflection.

Walker describes the voice as having five properties (p. 8): his musical Monotone (⁻); rising and falling "slides" (′ `); and two "circumflex slides" (^ ˅). This in-line marking is less costly than printing musical or tonetic information above the line, and for some purposes the details that it ignores are not important. These marks are part of what will become a standard tonal toolbox (cf. Sweet, 1890: 2f, 1892: 228f; Kingdon, 1958b: 2; Palmer (§2.3)), and they reflect Hart (1551).

These are schematic patterns of relative motion without specified sound, and all speaking sounds are held to move in one of these five ways. Amongst the other properties of voice which may accompany these slides are pitch ("high or low"), loudness ("loud or soft"), duration ("quick or slow"), and some sort of emotional charge ("passion", "forcible or feeble"). While pitch and duration (as such) are noted to have precise musical counterparts, all of these other qualities are denied definite scales when it comes to reading, speaking, or singing (p. 10), only relative proportions. These are marked as parenthetical asides, such as, "Arguing; a cool, sedate, middle

tone of voice" (p. 26). In addition to accented and unaccented syllables within words, he also lists "the emphatic syllable" within a sentence, "which is but the accented syllable made louder" (p. 11). This equation of emphatic stress and loudness draws far less criticism than Bloomfield's associating general stress with loudness.

Odell (1806) minimizes his own contribution, saying that "On the subject of accents, I have done little more than comment on the text of Mr. Steele" (p. vi), but his commentary itself is not so little. While Steele illustrates speech by emphasizing its *similarity* to song, Odell wants to drive home two *differences*, denying both discrete and level tones in speech. He says that accurate observers notice:

> ...that an acute accent was indeed an elevation, and a grave accent a depression of the voice; but that, in this elevation and depression, the tone of the voice was varied, not as in singing, by distinct intervals, but by a *continued* motion, gliding up and down, in a kind of undulation. (p. 58)

> It is evident, that in such a movement, whatever the interval from tone to tone, through which the voice may glide, it can never *dwell* for an instant on any tone whatever. (p. 59)

In addition, Walker's Monotone is dismissed as "merely a succession of accents of small dimension, and nearly of one uniform pitch" (p. 121), so while speech can *seem* monotonous, it cannot *be* monotonous.

Odell supports these claims with ancient Greek and Latin passages describing speech, proving not only that those texts *can* be interpreted in a manner consistent with his own descriptions of language, but that they *need not* be interpreted as if they supported the prevalent conception of Greek and Latin as a sort of musical oration. In

order to turn that 'need not' into 'should not', Odell argues that neither Greek nor Latin *could* have been strictly musical, resting his contention on four points. First, Odell suggests that Greek and Latin never really were strictly musical, and that their mistaken characterization was all just a matter of scholars misinterpreting those passages which portrayed language in terms of tone. Second, since there are still human descendents of Greeks and Romans, but no trace of strict musicality in their descendant languages, it is "morally impossible" for there ever to have been a quality to leave a trace (p. 56). Third, even *had* the Greeks and Romans been utterly wiped out at some point, the organ-based human ability to *have* such a musical language would *not*, and therefore the modern lack of musical languages is testament to the fact that they never could have existed. Fourth, and finally:

> It is at the same time a fact, of which we have the attestation of our own ears, that, in modern *speech*, anything like a *musical tone* is so far from being either significant or pleasing, that we turn from it with universal disgust: nor can we endure the smallest mixture of *speech* and *song*....

> That which is universally disgusting now, can never have been pleasing to either Greeks or Romans. (p. 57)

Odell is intending that "disgust" is registered relative to a sensory aesthetic rather than a moral one, and so he is suggesting that this sort of sensory appeal must be universal among humans. All in all, Odell is supporting Steele's association of speech and song insofar as accent is concerned, but is firmly denying the strict musicality of language by emphasizing the inflection of speech as continuous, as well as the innate human antipathy for mixtures of song and speech.

The path traced to this point is natural: Burnet tosses a gauntlet by challenging musicians to disprove his contention that speech is no more musical than that it has a louder or softer beat (which is similar to Sheridan's description); this prompts Steele to go to great lengths to support as musical a portrayal of speech as possible; Walker then simplifies this notation, allowing for the analysis of long contours into sequences of five shorter contours, and paving the way for those who will want to know where those contour pieces go (§2.3); and, finally, Odell emphasizes the critical differences between speech and song as far as strict musicality is concerned, while leaving a feeling of predominant similarity with Walker.

So, whether seen in terms of punctuation or musical notation, prominence is a matter of alignment, and its contour (as a whole or broken into critical points) settles over a landscape determined by an utterance's sense. It is treated as systematic and rhythmic, like music, with the proviso that the tone of a spoken voice is a continuous motion, while a song is a string of jumps along a sequence of discrete, domesticated notes. The answer to the question, "Where does prominence go?" is not, "Wherever it wants to," but more like, "It just *follows* an 800-pound gorilla named Sense". My own analysis shows how Sense was first trained for communication with power and precision, and then tamed with elaboration and revelation for language.

As linguistic analyses become more sophisticated in the 1900s, holism goes out of vogue in favor of iterative analytic dissection. Increasingly smaller *utterance* parts will create additional moorings for smaller *contour* parts, namely: component tune peaks and phonemes (§2.3); syntactic units (§2.4); or beats (§2.5). Volitional

prominence will stop being portrayed as a broad emotional outburst that lifts the whole contour, or as an inflation of a contour's peak that draws other parts along with it elastically, and start to be seen as having a local effect. The *meaning* of prominence starts out well under user control, but withers as this decomposition continues, and it is no small wonder that these methods of placement become predictive by default. When the language user gives prominence no power to go where it makes sense, prominence simply gets placed where the language makes it mark time.

By this time, the question of 'what prominence *is*' is no longer physiological, but structural and functional, and so it starts to become an integral part of the question of 'where it *goes*'. In effect, all of the studies from this era resort to answering the general question of 'where prominence goes' in essentially the same way:

> In a sentence, those words are said to be stressed which are pronounced with greater breath force than the others. These are the words which are felt by the speaker to be important; if he feels one idea only in a sentence to be important, he stresses the word embodying the idea; if many ideas, he stresses many words. (Armstrong and Ward, 1926: 3)

They have their own pet names for Sense. Palmer (1933) says that his tone-pattern placement depends upon the "words which the speaker feels to be the most prominent" (p. 5), or upon what "the speaker wishes to give the maximum of prominence" (p. 8). The rest of the studies in this section make similar statements.

This *laissez-faire* attitude can be blamed upon the end of World War I, as the massive influx of foreign students of English into Britain motivated teachers to devise an intonation notation that would safely ignore irrelevant details while generating an

organized list of intonational phrases. Such a list would be cumbersome, but necessarily limited, and the suggestion of patterns in the data (both in form and meaning) would make the material seem easier to memorize. Contours recorded as vectors at critical points on a graph are much easier to organize than detailed, continuous contours. These patterns can then be viewed as cognitive routines, and since the notion that humans resort to routine or rhythm is well-established, these analyses certainly capture that aspect of prominence well.

2.3   Prominence GOES on Peaks of Tunes

Jones (1909a) uses analog curves to try to hit a point between 1) pitch diacritics, which are too schematic for his tastes, and 2) kymographic tracings of voice vibrations, which are too elaborate. Of the diacritics, he says that:

> Such marks may give a rough idea of the kind of intonation required...
> but they fail to show with any sort of accuracy the precise points of the
> sentences at which the changes of pitch begin and end, and they do not
> profess to indicate the absolute pitch, or the subtle variations of pitch
> which are perpetually occurring in speech. (p. iv)

Of the kymographs, he says:

> The vibrations... may be measured, or the number occurring in short
> units of time counted and the results plotted on squared paper, the
> variations of pitch being thus expressed by curved lines. Such curves
> are, however, inconveniently large and elaborate, and the phonetic
> symbols to which the various parts of the curves correspond have to be
> placed far apart and at irregular intervals, thus rendering the text
> difficult to read. Besides, the work of preparing curves by this method
> is so laborious, that no one has ever yet analysed texts of sufficient
> length to be of any practical value to language students. (p. iv)

In compromise, Jones records speech on paper as *analogous* to song, just as it was in the earlier century. He starts with recordings and phonetic transcriptions of English, French, and German conversation. A musical staff is printed above lines encoding vocal quality, upon which Jones marks duration (: or .), loudness (with a stress mark), and vocal pitch as a musical note or dot. He gets this note by removing the needle from the record at the same place a number of times, and then comparing his impression of the note at that point with the absolute pitch rung on a tuning fork. When these note-dots are connected, intonation curves appear, and prominence becomes a curve's peak. Intense prominence is then simply a statistically higher-than-normal peak.

Coleman (1914) uses a digital system derived from Jones (1909a), translating intonation curves into numbers representing relative pitch heights during an utterance, with his 1-9 scale projected onto a musical staff over the phrase. The contour peak is simply the highest local number in the sequence. Prominence (sentence stress) is a local contour peak, and when intensity falls on that word, its height is exaggerated to further differentiate it. When intensity falls elsewhere, "a distinctive intonation is probably never absent" (p. 15, §26), but it can be marked by any number of changes, amongst them a crescendo of stress rather than just loudness, or "extra slowness, extra quickness, length of word, additional words *before* the intensified word to gain attention by keeping one waiting, pauses with the same object, and other devices, such as repetition or additional words generally" (p. 15, §26). Also mentioned are the use of an "afraid voice" when talking about huge or awful things, or saying "leetle" for something especially little.

Klinghardt (1920) uses a string of dots to represent a contour for a sequence of syllables, where darker dots (point size) indicate stronger stress, and rather than resorting to numbers, he uses dot height (vertical spacing) to indicate shriller pitch. The pitch range is indicated by what amounts to the upper and lower lines of a musical staff, without the intervening lines. An apostrophe or comma at the end of a contour is used to mark a rising or falling final fillip. Prominence is continuous at the level of stress and pitch. This system of notation rests on such assumptions as that stress is iconically related to size, just as pitch is to height. Analyses of intonation which appeal to this system of notation (often to illustrate a new system) include Kingdon (1939), Trim (1964), Chappalaz (1964), and Crystal and Quirk (1964), but the most immediate successor is Armstrong and Ward.

Armstrong and Ward (1926; A&W) devised a popular two-tune toolbox, and wrote *A Handbook of English Intonation* as a manual for "foreign students" (p. 1). A&W felt that intonation was *not* simply acquired naturally over time, and that its study was typically neglected. "If the student realized that correct speech melody is as important as correct speech sounds, they would devote more time and energy to this essential characteristic of our language" (p. 1). It is apparent that these students were supposed to learn some sort of *standard* English intonation, because A&W specifically omit "more elaborate schemes of English melody" that vary according to region or individual speaker (p. 1). What we have here is a detailed, taxonomically classified set of observations intended to describe how intonation *appears*, and not proof of *why* intonation *works* the way it does.

Avoiding other analyses, A&W credit only Klinghardt (1920), who is cited in the preface only as the originator of their adapted intonational marking system. Their encoding is simply a sequence of segments, any of which can be: 1) a pitch-contoured line which is as short as the syllable it marks; or 2) a dot over an unmarked non-final syllable; or 3) a pitch contour over a final syllable. Pitch marking is only placed on the syllables of "grammatically important" words, such as "nouns, adjectives, principal verbs, and adverbs"; and by squishing together the timing of the dotted syllables, the stressed syllables are able to maintain a regular spacing, which "gives English its characteristic rhythm" (p. 7). The segments are not drawn connected, but their actual pronunciation should flow together continuously.

If you can picture the great number of patterns that can be generated under this system of lines and dots, even when the pitch gradient tends to be monotonic, then you can start to imagine the number of intonation contour skeletons that are classified in this book. The drawings representing these patterns run all the way from a single curved line, right on through patterns with over a dozen segments. The upper limit on the number of syllables is defined by the limit applied to the length of a "sense-group," which is paralleled by an "intonation group" (p. 25). According to the range of data presented by A&W, a sense-group is well familiar as a 'next-size-larger-than-single-word-idea-unit', and while a sentence is typically used to express only one such complex but readily circumscribed idea, there are also conjoined series of intonation patterns that are used for sentences which express two or more likewise linearly linked ideas.

A&W manage to wrestle this broad array of patterns down to a few sets of variations on two basic tunes. Tune I is a *generally* falling contour, varying with the initial rise or fall of the first few segments on their way to meeting up with the middle. Tune II looks about the same, except that the last couple of end segments can show some independence and rise a little bit, but usually not very high. These variations are subclassified primarily according to the number of stressed syllables which appear in the string, or whether the sentence expresses more than one sense-group, and therefore requires the conjunction of sequential contours. In addition, intonation patterns of both tune types can appear in either emphatic or unemphatic forms.

The big change found in Palmer (1922a&b, 1924, 1933, some editions edited with Blandford) is a shift from the two standard tunes with their intractable variation to six basic "tone-patterns" (p. 16; all references are from 1924), as follows:
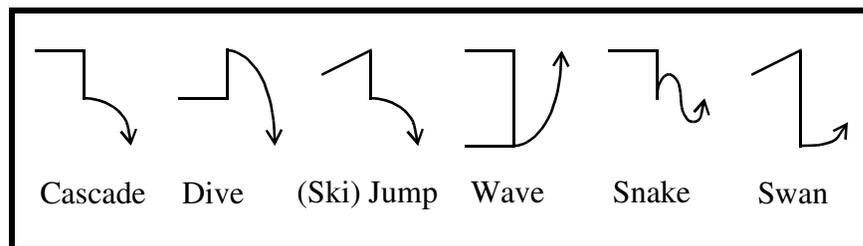
Figure 2-2: Palmer's Six Tone-Patterns

Each of these tone-patterns is built around one of five "nucleus-tones" (p. 14), either a high fall (acute, ↘), a low fall (chronic, ↘), a full rise (acute, ↗), a low rise (chronic, ↗), or a rise-fall-rise (acute, ⌒↗). Pre-nuclear variation is handled by one of three monotonic "heads" (p. 15f), the pitch of which either: 1) falls to meet the

nucleus ("superior", ‾); 2) ends no higher than the start of the nucleus ("inferior", _); or 3) rises above the starting point of the nucleus ("scandent", ⌣). The pattern's "tail" is not transcribed (p. 15), but is simply understood to be matter of extrapolating the direction of the end of the nucleus, or interpolating between two nucleus-tones.

As early as 1922, Palmer had abandoned the intralinear tonetic dot notation for his new intratextual transcription of lines and arrows, although for the sake of clarity he listed 48 patterns in dot notation for reference in later editions of 1922b. These marks were written in-line, right where the tone started. By 1933, these functional head and nucleus units were fused into tone-patterns. Although it obscured certain details, Palmer felt that the newer system was better for teaching because it was less technical, easier to read, and concise. The patterns were named after the shape of the resultant contour (listed in the same order as in the above figure). There's the Cascade (high head, low fall), the Dive (high head, high fall), the Jump (rising head, low fall; called the Ski-jump in 1933), the Wave (high or low head, full rise), the Snake (high head, rise-fall-rise), and the Swan (rising head, low rise). Some of these patterns may repeat or alternate in an utterance.

None of the six tones has a unified meaning or function. Tone 5, the Snake, is close with only two subfunctions, so-called contrastive and emphatic utterances. Both of these revolve around the isolated prominence of one word, so they *could* be seen as uniting to make Tone 5 the pattern used to mark focus. Tone 4, the Wave, is a type of question intonation, also with one word isolated for prominence. In both 4 *and* 5, then, the word in focus would be marked by the peak of the nucleus-tone, the difference

being that the intonation does not drop back down in 4 because it is a question (hence the Wave), while in 5 it does (likewise the Snake). What this all comes down to is that while Palmer has classified the data according to head-nuclear combinations, the data falls out more naturally when classified simply according to 'prominent' or 'not'.

Kingdon's (1939) intent is to develop a *unified* transcription system for stress and intonation, because the two are "so interdependent that to indicate one without the other is unsatisfactory" (p. 60). He dismisses Palmer's in-line premodifier system because the tone-pattern symbols are "too prominent to be placed in the line of the text" (p. 60). Kingdon's own superscripted premodifiers identify stress ('level, 'falling, and ′ rising) and intonation ('fall, ′ low-rise, ˅(rise-)fall-rise, and ^rise-fall), which are doubled for emphatic forms. While these symbols certainly are *smaller* than those used by Palmer, they are just shrunken representations of the nucleus-tones that Palmer used early on, before he fused them into tone-patterns.

Kingdon goes on to transcribe 44 different patterns for "I can't find one," where variables in the generated table include routine and emphatic stress on *can't*, crossed with routine and emphatic tunes on *find*. (Four patterns are missing because routine falling stress on *can't* evidently doesn't cross with routine tunes on *find*.) The remaining eight patterns are routine and emphatic forms of *can't* and *find* intoned alone. (Trim (1964) adapts this system for German.) Each pattern is assigned a contextual meaning along the lines of "apologizing for not having found it in the place indicated," "according to context may express either mystification or exasperation," or "unemphatic contradiction, made deprecatingly" (p. 62).

By 1958, the tones split again, as the system accommodates: 1) the separation of (rise-)fall-rise into fall-rise and rise-fall-rise; 2) the two subsequent types each of fall-rise and rise-fall-rise (divided and undivided amongst syllables); 3) the three subsequent types of rise-fall (one-, two-, and three-syllable versions); and, 4) the doubling of *everything* to take into account the possibility of its being spoken in a generally high or low pitch. The pendulum has simply started to swing back. If Kingdon were just to write these superscripts outside the line of text, he'd have reinvented an intralinear tonetic system like Klinghardt's.

In these tune peak studies, prominence continuously varies by pitch and stress, with a resulting proliferation in systems designed to record this information for later classification of these contours. The first step is to break contours into critical points, with everything in between accounted for by an expectation of interpolation. All that any given individual point needs to reveal is a direction and a strength, so it's just a vector. Direction can be just a matter of interpolation (i.e. just aim at the next dot), or actual direction (i.e. aim up until further notice, such as when reaching the upper edge of the staff). Strength is either the darkness of the dot or can be conflated with the height of the dot. Variation comes in when analysts fuse patterns of critical points into clumps of different sizes, and then classify by dot-clump rather than dot-sequence. That explains the pendulum effect: if none of these systems is truly satisfactory, or if their intended function changes (from teaching to analyzing and back again), then developers will simply fuse distributed systems or analyze holistic ones, back and forth, looking for a compromise which pleases everyone.

This treatment of prominence in terms of tune peaks seems to be a peculiarly British game, as isolated as its American counterpart, namely the phonemic analysis of intonation.

Ripman (1922) is the liminal stage between treating intonation as contours or music and the phonemic analyses of pitch below. He uses a 1–3 scale for recording pitch over syllables, where "1 represents what we may call the 'level of indifference,' the note on which we utter words to which we attach no special importance; 2 is a higher note, 3 higher still. 3-1 will indicate a fall from 3 to 1" (p. 68). Only rarely does Ripman resort to a 4 or 5, though he indicates that more numbers may be used to widen the pitch range. There are also three pauses, namely short (|), longer (‖) and longest (|—|). While he makes no actual phonemic claims (complementary distribution, and so forth), these are not just contour points. The number of pitch levels, once determined, is fixed, as opposed to Coleman, for example, in which they can just keep on going up, but still, his system is based on how many levels are adequate, rather than necessary.

Bloomfield (1933) is the one who manages to congregate (if not strictly unify) the segmental and prosodic processes of English into one system with his principles of phonemic analysis. The trick turns out to be as simple as calling the segments *primary* phonemes, since they behave consistently under phonemic analysis, and then identifying the contours and stresses as *secondary* phonemes, because although they are not as readily susceptible to phonemic analysis as the segmental material, they still comply after a fashion, rather than not at all.

Bloomfield would *like* to find complementary distribution for whole contours according to their meanings, but settles for partial sentence-final contours according to grammatical type. He admits that there is no steady correlation for given contours and specific grammatical types, but he is willing to work with trends, which is entirely reasonable since that's as close as he's expecting to get. He derives the following prosody-grammar associations, using punctuation for symbols since he's only working with utterance-final pitches: a period is a falling or final pitch; a question mark is a rising pitch at the end of a yes-no question; and an inverted question mark is a rising-falling pitch which can have a "lesser rise at the end" (p. 92), which is identified with other-than-yes-no questions (p. 114). An exclamation point is a non-distinctive and gesture-like distortion of these other pitch schemes which is used to express anger and surprise, or for voice types like sneering or calling (p. 115). There is also the unassuming comma, which: 1) is used for a pause-pitch; 2) is said to be preceded often by a rising pitch; and 3) "promises continuation" (p. 115). Prosodic material is seen as no more than a *modification* of the fundamental segmental material, such that stress and intonation are taken as varying "in otherwise identical forms" (p. 114).

The levels of phonemic stress are more straightforward: "Our *highest stress* ["] marks emphatic forms, usually in contrast or contradiction; our *high stress* or *ordinary stress* ['] appears normally on one syllable of each word; our *low stress* or *secondary stress* [ˌ] appears on one or more syllables of compound words and long words" (p. 111). The function of stress is only brought up so that *having* one can be used to separate abnormal from normal stress, where normal stress only has a location.

Bloch and Trager (1942) are unconcerned with the intonation notation, saying that "Tone levels (higher and lower) and tone contours (rising, level, falling, etc.) may be indicated by accent marks over the letters, by superior numerals with assigned values, or by other devices" (p. 35). They adopt Bloomfield, though, adding symbols for suspensive and contrastive pitch, as well as secondary phonemes for juncture, which differentiates the likes of "night-rate", "nitrate", and "dye-trade" (p. 36).

Harris (1944) expects a phonemic analysis 'improper' to be the right approach: "the components described in this paper are not complete physical events; therefore, they cannot actually be substituted for each other to see if any two of them are free variants or 'repetitions' of each other" (p. 201); but, "pitch and stress... constitute morphemes by themselves, independent of the rest of the speech, with which they are simultaneous" (p. 182). Stress creates allophones, for example, "we... consider pitch 2 to be an allophone of pitch 1 in stressed position," and "occurrences of relative high pitch 4 at one or more places... will always be accompanied by a loud contrastive stress... and can therefore also be considered an allophone of pitch 1" (p. 189). It is the pitch patterns and not the pitches themselves which are suprasegmental (as opposed to Wells, Pike, and Trager and Smith, below), "Since... components are not restricted as to length... each of these pitch sequences is a single component whose length is that of a whole utterance or phrase" (p. 190). Pitch patterns 112, 113, and 114 are allophones with increasing stress placed at the end of 112. The actual number of pitches is not a matter of necessity, but of adequacy, where he shows examples of pitches 0 through 6, but there could obviously be more if there were simply time for a longer rise.

Others researchers have treated suprasegmentals such as stress and juncture to a phonemic analysis, or have analyzed whole contours into pitch phonemes, but Wells (1945) wants to subject the component *pitches* to a phonemic analysis, which draws the familiar apology:

> In proving the existence and distinctness of the four pitch phonemes by minimal contrasts, we ought to consider the same string of segmental phonemes with minimally contrasting pitch contours imposed on it; but it is difficult to find one such string equally well adapted to two minimally contrasting contours. In most of the examples, therefore, the contrast is minimal only so far as the contours are concerned. (p. 32)

This brings him to compare the numerical pitch sequences with no attention paid to the utterances upon which they sit. Of all of the possible combinations of four pitch phonemes (1 low, 4 high) taken *up to* four at a time (341 if you include 'no phonemes'), he finds 19 sequences which can be matched to English utterances, and distributes these sequences over 29 example sentences. Minimal contrasts are identified in such examples as "[3]I [1]did it" and "[3]I [2]didn't ask you, did I?" (between 1 and 2), or in "[2]The [4]tel[2]ephone's ringing!" and "[3]How did it [4]hap[2]pen?" (between 2 and 3). He accommodates Bloomfield's analysis, such that a question mark becomes a 23 sequence, and the appearance of an exclamation point means that there is a 4 in the string. He assimilates Palmer's contours, but makes the critical remark that "tying up pitches with stresses in one system engenders not merely repetitions but difficulties" (p. 69). He does not explain why it is okay, then, for Wells himself to say that stress always falls on a 3.

In Wells, suprasegmental phonemes aren't simultaneous (4 ≠ 3 + 1), because "the length of a pitch phoneme is variable.... Its effect will continue until replaced by another pitch phoneme, or until the end of the utterance" (p. 31). Wells also says that:

> The pitch phonemes... are organized into meaningful sequences called pitch morphemes, which are the strict analogs of segmental morphemes composed of segmental phonemes. But pitch morphemes are so few in number that it seems unnecessary to regard them as in turn organized into syntactical arrays…. (p. 34)

He only talks about two sequences, the first of which is 231, which means 'normal sentence stress', and the second of which is 4, which indicates "surprise" (p. 35).

Pike (1945) doesn't treat "glides" in terms of their directions (falling, rising, and so forth), but rather analyzes them in terms of the pitch heights of their end points. This is necessary to distinguish between, for example, two rising glides which differ only according to their end points. Pike determines that four pitches are all that is necessary to distinguish the end points that differentiate all of the contrasting pitches.

The resulting sequences describe contours which can contract to drape over one syllable, or expand to cover a whole utterance, and so they are not dependent upon particular grammatical structures, but rather the speaker's attitudes:

> The utilization of any specific contour is not determined by the structure of the sentence upon which it is to fall, but by the attitude of the speaker utilizing that construction. Any specific construction may have superimposed upon it any of the English contours, provided the speaker has the requisite attitude when he does so; this holds true even when the meaning of the words conflicts with the meaning of the intonation—but irony, or jest, or some special innuendo results from such semantic conflicts.... Intonation contours cannot be defined in terms of the grammatical constructions with which they occur. (p. 163)

While this is the same thing that the British researchers were saying in their section, it has taken until Pike for the same sentiment to be expressed once the Americans got on their phonemic kick.

These sequences are independent of the dictates of the grammatical types which they are normally assumed to accompany, which frees them to have meanings more sophisticated than 'goes on a yes-no question', where lexical and intonational meaning are differentiated as follows:

> English words have basic, intrinsic meanings; these LEXICAL MEANINGS are the ones found in the dictionary.... [They] are indicated only by the requisite consonants, vowels, and stress, and a context where such a meaning is possible; in that sense, the lexical meaning is intrinsically a part of the word itself and not dependent upon extraneous phenomena such as pitch produced by emotion.
>
> The intonation meaning is quite the opposite. Rather than being a stable inherent part of the words, it is a temporary addition to their basic form and meaning. Rather than being carried by permanent consonants and vowels, it is carried by a transitory extrinsic pitch contour. Rather than contributing to the instrinsic meaning of a word, it is merely a shade of meaning added to or superimposed upon that intrinsic lexical meaning, according to the attitude of the speaker.... In English, then an INTONATION MEANING modifies the lexical meaning of a sentence by adding to it the SPEAKER'S ATTITUDE towards the contents of that sentence (or an indication of the attitude with which the speaker expects the hearer to react). (p. 21)

The meanings assigned to the contours are sometimes no more specific than, "Rising contours generally imply that the speaker considers them to be INCOMPLETE by themselves, and NEEDING SUPPLEMENTATION of some type, by himself or by the hearer" (p. 51), where that supplementation is another clause, but rising clauses are also noted to sometimes be polite or cheerful. A 23 contour is hesitant when non-final,

but implies endearment when final. Pike also mentions that tone overrides lexical choice (p. 22), in that we believe the message conveyed by tone if it doesn't match up with the words.

So much for the reliability of good old question intonation.

Haugen (1949) suggests that only successive sound features be referred to as phonemes, while simultaneous ones be called 'prosodemes', even if this means giving up attempts to demonstrate that stress is phonemic in the sense of being distinctive. In general, "any significant sound feature whose overlap of other features is temporally correlated to syllabic contour should be called a prosodeme, and should be treated by itself in a manner appropriate to its special nature" (p. 282). Even though this seems to fling the door wide open to demonstrating that stress is 'prosodemic', the term seems to have died here, evidently losing out to 'suprasegmental', due in large part to Trager and Smith's adoption of the generative grammarian perspective.

Trager and Smith (1951; T&S) provide a segmental inventory of English along with organized observations about structure at various levels. Their stated purpose is to show that linguistics, a social science, is not immune to the scientific method. It is intended as a new foundation for further study, and so a few references are cited (such as Pike and Newman, below), but no analyses are actually examined. The intent is to *start* a tradition rather than follow one.

The study is of English, both broadly (US, UK, South Africa, Australia, New Zealand) and narrowly (older generation Middle Western American), including a lengthy comparison of the authors' vocalic inventories. There are few actual instances

of data presented, because they are demonstrating a method of analysis rather than defending its results. Phonetic data is generally omitted, syntax is "treated sketchily" at best, and "metalinguistic" issues are "only hinted at" (p. 8). (Trager (1964) updates this material, crediting Wells (1945) and Pike (1946) as the basis for the T&S outline.)

Their view of prominence is straightforward. One of three stress phonemes is applied to each syllable of a word, as constrained by typical rules (one primary stress per word and so forth). Internal "plus junctures" are added to distinguish the likes of 'test tickle' from 'testicle', as well as to link words in a phrase. Some primary stresses become secondary to distinguish "Lòng Ísland" from "lông ísland," and this new stress becomes a fourth phoneme. A word's pattern of stresses and junctures is a morphemic "superfix," and word-superfixes combine linearly to form phrase-superfixes. Pitch phonemes (four) and terminal boundaries (three) are assigned, forming "intonation patterns" which are dependent upon phrase-superfixes. These morphemes are assigned schematic meanings along the lines of "word with one primary stress," or "phrase with pitch and boundary pattern *x*." It is unclear at this point whether this is simply an inventory, or a theory developing seriously around the linear structure of prominence.

T&S argue in favor of normal sentence stress being final, and some variations are treated as being susceptible to analysis, while others are not. At first, they list some possible strategies used for contrast, such as changing the placement or increasing the pitch height of the primary sentential stress, or changing the ordering of two of the higher pitch phonemes in the same phrase, or increasing the loudness in general over some range of the utterance. They then note that:

> ...this is then the point at which we draw the line between microlinguistics and metalinguistics: the phenomena that are segmentable were analyzed as phonemes of one kind or another; the phenomena that transcend segments are now stated to be metalinguistics, matters of style, and not part of the microlinguistic analysis. Here, then, phonology ends. (p. 52)

Later, as another variation, they posit a series of incremental "shift morpheme" superfixes (p. 73), one for each number of syllables that the morpheme is to be moved back away from the normal position. In *their* book, linguistic analysis is segmental analysis. While they make such a distinction, they also support the need for what they categorize as metalinguistics, which for them involves studies of meaning in general, and intonational meaning in specific.

Bolinger (1951: 205n14) notes that T&S have discarded from consideration those patterns of intonation which they classify as emotionally non-neutral, coupled with their categorization of such patterns as not regular, which they use to suggest that they are studying only normal, intellectual meaning. Bolinger illustrates his concern by noting that while cold is the absence of heat, the cold of physics (only negative) is not the same thing as the cold of physical experience (treated as having a positive value), and that the types of instances that T&S would like to dismiss as emotionally neutral will be treated as having positive values in their own right. Bolinger uses this to show that the *whole* field needs to be looked at before any values are determined.

More importantly, it is in this same study that Bolinger really brings down the curtain on phonemic analyses of pitch. He shows that those analysts who indicate that there are a discrete number of relative phonemes (four for both T&S and Pike 1945)

must not mean that they are *purely* relative, but only variable within mutually

exclusive ranges. Having clarified that this is what such analysts must mean (the other

option leading to absurdities), he goes on to show that such an analysis will not stand

up to testing. Plotted intonational contours rise too steadily to lend themselves to being

cut up into discrete segments in anything other than an arbitrary fashion. There are

also intonational contours which under testing demonstrate differences in meaning,

but whose difference in contour is too slight to be described as one pitch phoneme

reaching into the range of another. Intonation is then best seen as continuous. For

Bolinger, the important part of prominence will always be as simple as up or down, but

not how far, which is just gradience.

Having said that, it should be noted that humans hate liminal things, wanting

them to belong to one class or another (Huntington and Metcalf, 1979). Red and green

traffic lights are no problem, but anticipating the onset of the amber light can cause

genuine anxiety. Similarly, there are a lot of ways to dispose of a dead body, but no

culture normally just lets one lay around in the middle of the street. A corpse is not

alive, but it's not *really* typically inanimate either, and we don't want the rotten thing

getting up and chasing us around, that's for sure. We have to do *something* (Mitford,

1963).

Language is the same way. It's partly grammar-driven, and partly user-driven,

and a lot of linguists are very concerned about (not) being able to force the whole

package one way or the other. Prominence is a deeper liminal case *within* the liminal

case of language in general. What this all comes down to is that phonemic analyses of

prominence have all the earmarks of trying to pigeonhole liminal material. The ready

susceptibility of segmental material to phonemic analysis, and possibly the illusion of pitch phonemes generated by the avoidance of the subglottal resonance, contribute to the desire to pull prominence all of the way over onto the ordered side of the boundary. These failed attempts to discretely portion the form and meaning of prominence make me wary of identifying the behavior of any of the data in my analysis in too tyrannical a fashion, and it should be plain that even to the degree that I use labels like "primary" or "rhematic," they are intended as poles along continua, and the spaces between them are not genuinely devoid of data.

2.4   Prominence GOES on Units of Syntax

The division of intonation in terms of syntactic units is not musical, but it is the logical successor to the phonological ordering of prominence seen in the preceding section. Prominence is still not serving any real *function* here, but rather this research is bent on determining where it goes strictly on the basis of information encoded elsewhere, namely the structure of the syntactic constituency. Rhythmic studies (§2.5) will maintain this notion of an intonational default, but they will return to an appeal to musical structure.

The works reviewed in the center of this section have a peculiar importance to my analysis, because much of the data that I have gathered is of precisely the type that these studies were not designed to handle. Some of them actively rejected examples displaying volitional prominence as abnormal, or treated them as if they were beyond the reach of linguistic analysis. As far as I was concerned, such taboo, pristine data was irresistible. I would like to make it clear that my intent is *not* to portray these

previous analyses as wrong simply because they excluded data of this type, but rather,

I want to show that this data can now be treated as *continuous* with theirs, and that

while such examples may in some ways be *statistically* atypical, they are still frequent,

and they by no means constitute abnormal or deviant language behavior. In fact, they

fall prey quite nicely to an orderly *linguistic* analysis.

These analyses of syntactically predictable stress placement display a distinct

shift in this perspective over time. Newman (1946) starts by showing that two linear

strings of words differ in meaning if their stress patterns differ, and that this meaning

change *can* be labeled in common grammatical terms. Chomsky, Halle, and Lukoff

(1956) specifically label prominence patterns falling beyond the predictability of their

rules as deviant and abnormal, and suggest that such examples will only be tractable

when new, not phonemic, methods of linguistic analysis are developed. Chomsky and

Halle (1968) continue with the promotion of a grammar that can generate all normal

stress placement, providing a somewhat more specific and less pejorative metric for

the segregation of the data, at which point Bresnan (1971, 1972), Lakoff (1972), and

Berman and Szamosi (1972) argue about how well this transformational cycle actually

works, deciding that even normal stress must be positioned early by the *user* rather

than being predicted by the grammar. Bolinger makes this contention from as early as

his response to Newman (1958), consistently suggesting that the language user makes

an assignment based upon information and predictability (1972, 1987, for starters).

In Newman (1946), "stress accent" is presented as *defined* for any lexical item

or affix primarily as articulatory force, where that force's strength varies with

accentual contexts like loudness and pitch. Stress accent also varies widely with a superimposed expressive accent, which modifies the stress through changes in force, pitch, quantity, and aspiration. While stress accents are individually meaningless, prosodic expressive accent patterns can convey a range of conventionalized meanings for the user's intent, mood, and personality. He gives examples such as a confident tone of voice or mumbling, and social factors such as those which demand that a church chant be monotonous. Newman sums up these observations by saying, "The system of stress phonemes and the expressive prosody constitute two accentual planes which are constantly found to be interwoven and blended" (p. 171). He would *like* to show that once expressive accents have been factored out of the picture, the placement of the remaining stress accents is predictable according to user-independent criteria.

Before starting his phonemic analysis of stress accents, Newman describes two familiar types of expressive patterns, the first of which is a contrast of references in a predicate. ('We chased them.') This places extra force (articulatory intensity) on one referent, shifting the peak from the end of the intonational unit back to that word, no matter the unit's contour. (A unit-right-end tone peak is taken as the established norm.) These changes are not absolute, but can be modified by expressive factors such as those arising from emotion. The second pattern, *rhetorical* accent, does not shift the intonation peak, but it *does* use extra force and quantity (size iconics) for elaboration. ('Look at the bones.') This is described as reflecting such equally big evaluations on the part of the user as awe, amazement, and admiration. The choice of target in both of these cases is held not to be predictable since it is entirely user-dependent.

The placement of a *stress* accent, however, *is* held to be predictable according to its phonemic level, namely: heavy (nuclear, subordinate); middle (full, light); and weak (sonorous, pepet). A word has a clearly defined heavy stress that appears when it is pronounced in isolation, and "When no expressive accents disturb a sequence of heavy stresses, the last heavy stress in an intonational unit takes the nuclear heavy stress" (p. 176). Intonation and expressive accent turn a neutral, subordinate heavy stress allophone into a prosodically heightened nuclear heavy form. Subordinate stress placement is therefore predictable by definition, and nuclear stress is predictable by its position in an intonational unit. Given Newman's choice of what constitutes an intonational unit, this last part comes across as tantamount to saying that the end of an intonational unit occurs when you think you hear a very heavy stress.

Some of these intonational units have no constituent counterparts in any theory with which I am familiar: "*he bróught óranges*⌐ *ápples*⌐ *and peáches*﹨ (nuclear heavy stress on *óranges* and *ápples*, the nuclei of enumerative units, and on *peáches*, the nucleus of a declarative unit)" (p. 176). It is not that syntactic constituency *should* be used to make such a determination, but rather that later studies which use Newman as proof of the *syntactic* predictability of the placement of nuclear stress are mistaken in their interpretation of Newman, as detailed shortly hereafter.

With middle stress placement, Newman *does* mention one construction which *appears* to appeal to syntax (cf. Bolinger, 1958), namely: "I have instrúctions to leàve" (I have instructions which I need to leave); and "I have instrúctions to leáve" (I have been instructed to leave). The strong/weak stress pattern is associated with the "noun

as the logical object of the verb" structure, just as the strong/strong stress pattern is tied to the "verb stands in the relation of complement to the noun" structure (p. 179). Even if they *are* taken to support a syntactic placement theory, it should be noted that these structures allow for a unit whose rightmost element has other than a heavy stress phoneme ("I have instrúctions to leàve"), which means that it is a mistake to cite this *as if* it supported the notion that a heavy stress *has* to be on the right.

Finally, while Newman decides that "Expressive prosody is not necessarily capable of the same type of systematization as that which is applicable to the usual kinds of morphemes" (p. 172), he evidently does consider them to be unusual morphemes that are subject to a *different* systematization. Such notions as the prosodic generation of the nuclear heavy stress and so forth suggest that Newman would not consider that different analytic framework to be anything other than linguistic.

Chomsky, Halle, and Lukoff (1956; CH&L) analyze data from Newman and T&S, intending to "establish the predictability of stress from accent," and leaving out pitch (1959: 69). They propose a single stress phoneme (accented/unaccented) which is defined for every vowel in a word. There are two juncture morphemes, one internal (word), and one external (phrase), which are placed at morpheme boundaries and assigned hierarchic levels to render the desired phonetic effects. Rules assign phonetic stress, "the particular degree of loudness with which a vowel is pronounced" (p. 69), based on phonemic accent, cyclically from smaller to larger constituents. The upper limit to the number of stress levels is user- and style-dependent. CH&L end up in part redefining their dissatisfaction with boundaries and junctures as readjustment rules.

CH&L are proponents of the notion of objective normal stress, stating,

> We have specifically excluded from consideration all forms of expressive stress, including contrastive stress. In language, expressive elements are deviations from the normal pattern. The possibility for such deviation is, of course, enormous, and almost any stress arrangement can occur under special circumstances. Therefore, if this distinction between normal and expressive stress is not made at the very outset, the number of significantly different stress levels is only limited by the capacity of the vocal apparatus, and any hope for a systematic account has to be abandoned. (p. 78)

This counters any suggestion that the word 'normal' is only used here as a convenient term for the data which works with their system; they really intend to imply that the instances that work with their system are in fact normal *objectively*. They say:

> It should be noted that as a consequence of our decision to exclude contrastive stress from consideration we do not provide for the normal stress patterns of such utterances as "This is the brown house, not the white one," where there is extra heavy stress and extra high pitch on "brown" and "white." The description of such utterances poses many problems which have never been adequately handled. We feel that these utterances are best regarded as being in a special sense deviations from the normal pattern, and that a satisfactory description of them will require the development of methods not currently in use in phonemics.[11] (p. 78)

The footnote indicates that the predicted "methods" should be like those found in Chomsky's thesis (1955), which would seem to anticipate Chomsky and Halle (1968) were it not for the fact that such utterances are ruled out there as well. It's not that I have any qualms about CH&L having circumscribed a set of data for study, but I am wary of the lack of definition for the metric used to implement the segregation, namely

that in their estimation some patterns are simply "contrastive." This would not be a problem were it not for the fact that no characterization of "contrastive" is given which is independent of the applicability of rules, in addition to which the two types of data are too similar to go without some sort of explicit, isolated differentiation (e.g. 'I like the bóok you wrote' versus 'I like the book you wróte'). This brings me to question the appropriateness in this case of vocabulary like "normal" and "deviations." I am *not* saying that CH&L in specific is circular in its reasoning, but it does seem evident that there is an insidious *potential* for circularity lurking underneath the common practice in linguistics of using the same brains to generate the data as are used to figure out how that data was generated.

In *The Sound Pattern of English* (1968; SPE), Chomsky and Halle intimate that the user determines the *position* of emphatic stress before the surface structure gels, and that the actual phonological form for that stress must be assigned after that by a necessarily user-free rule, which, for unspecified reasons, they never specify. The notion that the user should be able to assign different intensities of stress is not addressed. Like the user's choice of lexical items, the assignment of an emphatic stress position is a matter of performance rather than competence, and SPE is designed in congruence with the assumption that it should "neglect matters that [C&H] have assigned to the theory of performance" (p. 25n13). Any explanations involving discourse or context are also ruled out, because reference to a stored 'background' (other than an example's printed form on a page of SPE) is a memory restriction, and so is not solely a *linguistic* function, but a parameter on *all* cognitive functions.

The definition of the Nuclear Stress Rule (NSR) in SPE puts primary *sentential* stress on the rightmost element within a major constituent that has already been assigned primary *word* stress. Now, Newman says that *if* a heavy stress phoneme is at the end of an *intonational unit*, then it takes on the value of its nuclear allophone, but SPE cites his view mistakenly in support of its contention that a *major syntactic constituent* has a rightmost element which *must* be assigned primary sentential stress (p. 90). There is a significant difference between talking about what happens *if* a heavy stress phoneme is placed rightward, and insisting that such a phoneme *must* be placed there. Newman's study does not say anything of the kind that SPE suggests. This citation is all the more puzzling in view of the fact that Newman's formulation *works* for his data, such as the "instructions to leave" pair, while the NSR as stated clearly does *not*.

Bresnan (1971) tries to integrate many of the exceptions to the NSR by placing restrictions on its ordering. The formulation of her ordering hypothesis in its 1971 version is: "The Nuclear Stress Rule is ordered after all the syntactic transformations on each transformational cycle" (p. 259). Bresnan also states this less formally in the article's abstract, saying that the NSR "is ordered within the transformational cycle after all the syntactic transformations" (p. 257). In addition, she gives some proof for the cyclicity of Relative Clause Formation and Question Formation, after which she says that, "From this demonstration and the fact that the NSR precedes these transformations while following other cyclic transformations, it can be concluded that the NSR is indeed cyclic..." (p. 277). It would seem reasonable, therefore, to conclude that Bresnan intends to characterize the NSR as cyclic.

It seems odd, then, that Bresnan *1972* should label Lakoff (1972) and Berman and Szamosi (1972) not only as mistaken in their interpretation of the *1971* version of her ordering hypothesis as cycle supportive, but that she would call their objections simply inapplicable on the basis that they "assume incorrectly that the NSR must, under the ordering hypothesis, be a *cyclic* rule..." (1972: 327, my emphasis). Bresnan 1972, however, is clearer than Bresnan 1971 in two ways. First, she says that the NSR is not cyclic, but Cyclic (my capitalization). It is *outside* and *after* all of the transformations in a cycle, but *within* the transformational domain (Cycle) which houses that cycle, applying after the postcyclic transformations at the end of the last cycle. That Bresnan refers to both *this* domain *and* the cycle it houses with the word 'cycle' only fosters confusion, and Bresnan's evident surprise at the misunderstanding it causes is in itself surprising.

Second, it comes to light that Bresnan 1971 was in no way defending the NSR, but was simply using it to demonstrate that no matter *what* method was used to assign stress, call it 'Method X', that stress would be assigned in deep structure, and that Method X would be the last thing to apply to the output of any given Cycle, not cycle. Be that as it may, as the material generated by the critics of Bresnan 1971 is covered in the next few paragraphs, keep in mind that they are responding to the *apparent* formulation of Bresnan 1971, and *not* its later clarification in Bresnan 1972.

Lakoff (1972) uses his treatment of Bresnan 1971 to expound upon the virtues of global rules, noting that "Once one sees that global rules are necessary, many of the old-style transformational arguments for rule-ordering go out the window" (p. 287n).

Lakoff states the NSR globally because even though it gets information from early on in the list of transformations, it only *applies* to the surface structure, not earlier. So, the cycle itself is supported here, and syntactic predictability is not questioned.

One small but strong point of interest for me is that although Lakoff identifies "Bury the mán the you killed," as contrastive (with "chipmunk"), and "...man you kílled" as non-contrastive (p. 286), Bresnan (1972) does the opposite, saying "I had observed the possibility of two stress contours in examples like *Mary buried those mén she killed* and *Mary buried those men she kílled*; but I had concluded, because of the meaning, that the latter was contrastive" (1972: 337n). All of these are good options, and none of these *necessarily* has a contrastive meaning. A sentence like "Bury the mán the you killed" could be said in parallel to 'Clean up the méss you made', where 'mess' is *not* in contrast to something like 'sandwich'. As will be shown in the analysis proper, part of the problem here is that the same notation is being used to mark two different levels of stress, only one of which is intense.

Berman and Szamosi (1972; B&S) step in and claim that Bresnan's ordering of the NSR makes incorrect predictions when applied to data other than that presented in her article, and that generalizations about English prosodic stress cannot be made by the ordering hypothesis.They maintain that Bresnan explains only *her* data, and so her examples are mere non-counterexamples. B&S also provide example sentences which suggest that stress assignment must be at least in part semantic ("In 1556, what kíngs reigned?" vs. "In 1556, what kings ábdicated?"). They provide more examples which have alternative normal stress readings, such as "What book was banned?" (p. 313). While they analyze only "normal, non-contrastive, non-emphatic stress" (p. 312), they

note that "the difference between a contrastive reading and a non-contrastive reading is not so clear-cut" (p. 314n). In sum, they find syntactic structure to be involved but not sufficient as a stress placement determiner, and even at that, only at the surface, and not in deep structure.

Bresnan (1972) then argues that Lakoff and B&S fail to see that their examples do not counter her ordering hypothesis, but merely present arguments against the NSR being cyclic. She agrees with B&S that the NSR itself, cyclic or not, will not work as it is stated; for example, it places stress on "shining," rather than "sun," in the sentence, "The sun is shining." Bresnan proposes a rule which applies *before* the NSR, assigning primary stress according to "topical stress" (p. 328), which is the material determined by the user to be the new information conveyed in the utterance (which is traditionally the comment, and not the topic.) After this rule applies, the environment for the NSR does not exist, and so it will not generate B&S's exceptions.

Bresnan states that B&S are wrong about surface stress assignment, because a deep-structure topic might be deleted on the way up, and a word stressed at the surface might not be the *real* topic. The classic Newman phrase "instructions to leave" then has one form stressing a surviving deep topic, and one which is a consequence of the deep topic having been deleted before reaching the surface. Bresnan ignores the fact that B&S are addressing actual semantic (lexical, contextual) information being used to assign stress, and concludes that they are wrong about sentence stress being assigned at the surface, when the real argument is over what constitutes the 'real' topic.

A telling quote from Bresnan works well as a summary to this point, in which she comments on some structurally identical sentences differing in their prominence placement: "They all argue that these are normal, non-contrastive intonations, *which I accept*. But if so accepted, these examples constitute evidence not only against the ordering hypothesis, but also against the possibility of any systematic structural explanation of stress assignment" (1972: 337, my emphasis). *Precisely.* There is a consensus that while prominence is used to mark information which is important to the language user, just what it *is* that the user will hold to be important is not mechanically predictable, syntactically or otherwise, although when utterances are strung together in context, notions revolving around new and old information can provide some strong hints. These descriptions of information will be provided some detailed definitions in the section on what prominence *does* (§3).

So, to end the section with, intonation does not react well to being broken up into a small, limited number of isolated building blocks when they have no way of being truly continuous contours (although some amount of discontinuity might be helpful for analyzing prominence subfunction patterns), and it does not submit itself to lexically composed meanings which are consistently associated with specific grammatical constructions. Even the best attempts have only managed to eke out a few schematic meanings which end up being driven entirely by the user. Having failed to force intonation to conform to segmental behavior patterns, researchers decided to see what it would do when left to its own devices, which leads us to the rhythmic analyses of prominence.

2.5   Prominence GOES on Beats of Rhythms

Human activity in general will tend to fall into a rhythm if left undisturbed, and the studies in this section appeal to just these sorts of default prominence patterns. I want my analysis to show that volitional patterns are continuous with the routine ones, and these are the analyses which offer up rhythm as the routine extreme.

Liberman (1975; Liberman and Prince, 1977) develops a metrical analysis of intonation, creating prominence patterns on a rhythmic basis and *expecting* them to be disturbed by the user's desire to move things. Liberman says this metrical NSR means that you "put the strong element on the right in any given metrical constituent, if you have no good reason to do otherwise" (p. 244), recognizing that there are a number of good reasons to do otherwise. This view is derived from his portrayal of intonation as ideophonic in origin, becoming metaphoric. Tying routine stress to strong metrical elements is consistent with my analysis, where routine behavior is an attenuated form of that which links activity iconically to prominence. It is entirely plausible to analyze strong rhythmic feet as derivative of other forms of rhythmic articulation.

According to Pierrehumbert (1980; JBP), every well-formed pattern of English intonation can be generated by properly spacing instances of only two levels of tones over an utterance according to the metrical strength of the syllables. Models of English sentence stress patterns (SPE; Liberman, 1975; Liberman and Prince, 1977) generate the relational targets or metrical grids along which to aim the tones which make up the intonation contours. JBP was brave enough to do the following: 1) demonstrate that any contour can be described in terms of precisely two primitive tones; 2) develop a

system for generating all of the possible two-tone patterns which might underlie the maximal set of intonation contours; 3) adjust the tone generator to produce only those patterns which underlie well-formed contours of English intonation; 4) provide rules for tune-text alignment; and finally 5) show how to phonetically realize the underlying patterns in terms of pitch (fundamental frequency) as transformed into prominence (units above the lower limit of a speaker's voice, or baseline). I will digest JBP in accord with this sequence, and then discuss JBP in regard to my own analysis.

JBP's has two elemental tones, High (H) and Low (L), which are differentiated as follows: 1) L is always lower than H in the same context; 2) L's phonetic value is inversely proportional to its prominence (as defined below), while H's phonetic value is directly proportional to its prominence; 3) the intonation contour between L tones is interpolated as a straight line, whereas between H tones it dips. A more concrete pitch height value for H or L is computed according to: 1) the relation of H or L to preceding tones; 2) the relation of H or L to the baseline (S's lower voice limit); and 3) the degree of prominence that the user assigns to H or L. My own work systematizes some of the variations in user-assigned prominence that affect this height value.

JBP uses these two tones in the definition of three types of accent, namely PITCH ACCENT, PHRASE ACCENT, and BOUNDARY TONE. A pitch accent can either be an isolated tone, which is aligned with a metrically strong syllable, or it can be a pair of tones, where one of its two halves is aligned with a strong syllable, and the other half precedes or trails this strong alignment. An isolated tone representing a pitch accent is marked with an asterisk (H* or L*), as is the strong member of a bi-tonal pitch accent.

Bi-tonal pitch accents can be any heterogeneous L/H pair, linked with '+', with a superscripted '−' on the non-central half. H*+H⁻ is supported by cases in which it contrasts with H*, as when the tonal spread from the trailing H⁻ protects an intonation plateau that would dip between a sequence of H* tones. The other patterns are possible theoretically, but there are no contexts in which they are contrastive with any others. Unnecessary, they are treated as nonexistent by JBP. A phrase accent (L⁻ or H⁻) cannot be bi-tonal, landing on the main phrase stress immediately after the pitch accent. It is an expression's last pitch accent, which controls the intonation contour from itself to the boundary tone (not bi-tonal, L% or H%), which goes at the expression's end no matter what the metrical structure of the text. It can be used as a medial utterance boundary when an expression is divided into one or more phrases (breath groups, essentially), and in this guise it appears at the beginning of an expression after a pause.

An expression can start with a boundary tone after a pause, picking up one or more pitch accents, then a phrase accent, and a final boundary tone, which terminates the expression or separates it from the next phrase (as adapted from JBP, p. 13):

... [Boundary Tone] + [Pitch Accent(s)] + [Phrase Accent] ...

H%	H*	H⁻
L%	L*	L⁻
	L* +H⁻	
	L⁻ +H*	
	H*+L⁻	
	H⁻ +L*	
	H*+H⁻	
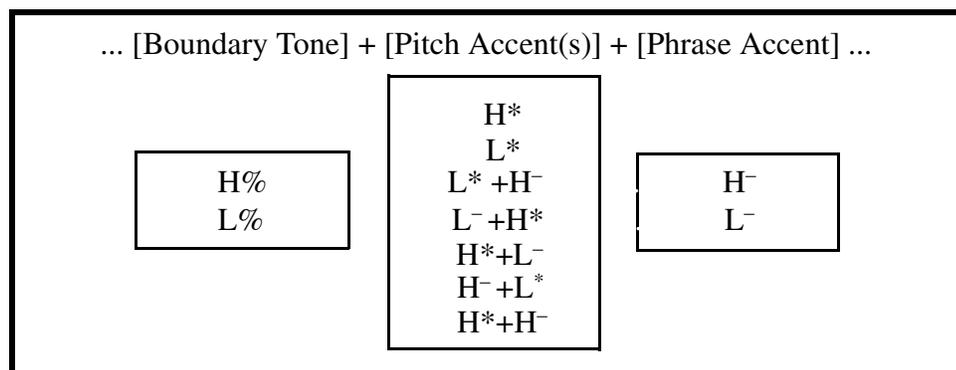
Figure 2-3: Tone Pattern Generator

Here are two *single* accent choices for two contours of "Anna" (p. 146, fig. 1.1 A-B),

and one *multiple* pitch accent choice for "Another orange" (p. 148, fig. 1.2 A):
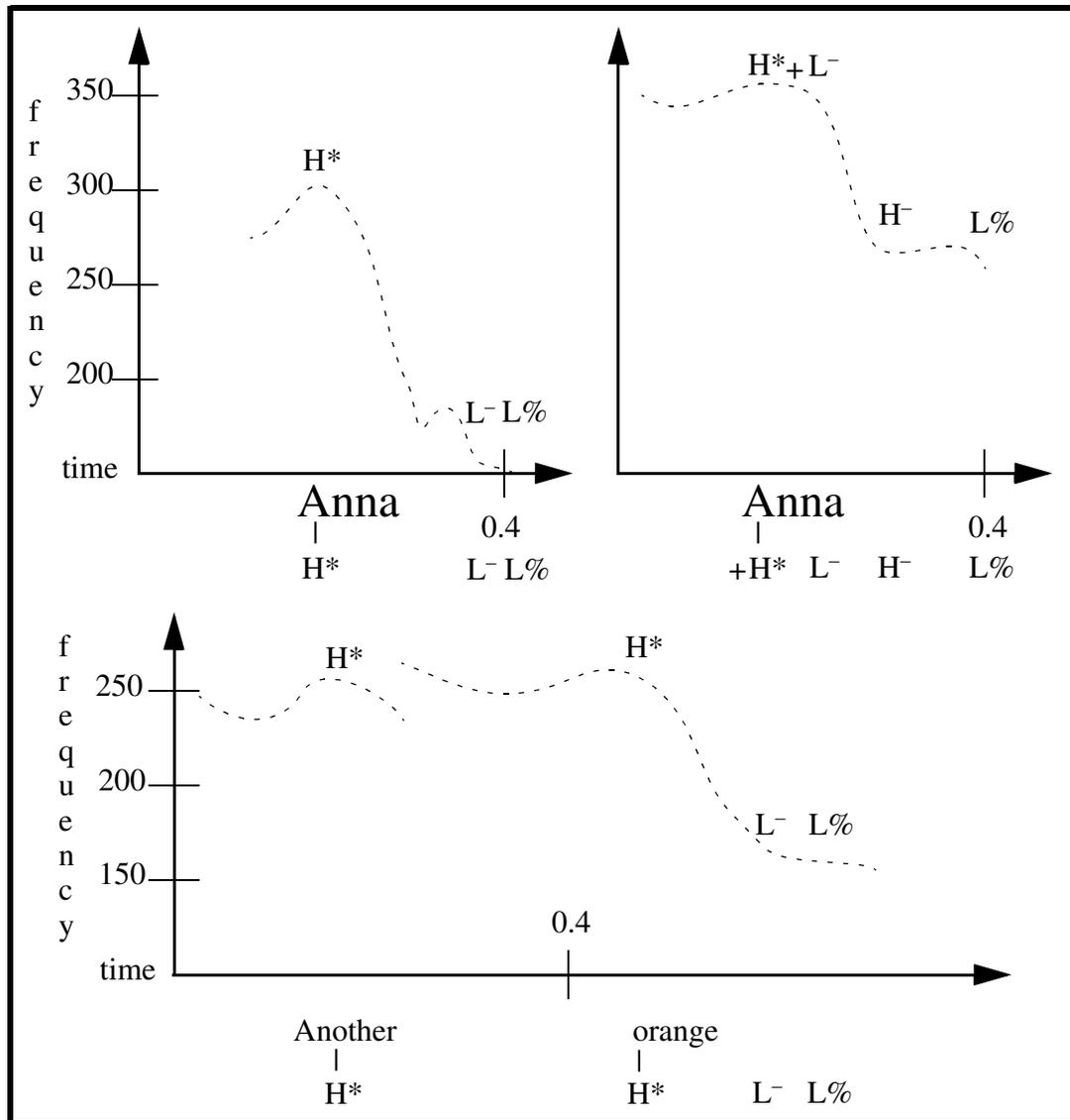
Figure 2-4: The Tone Pattern Generator in Action

The intonation pattern for *tag* expressions requires that one of two modifications be

made to the tone pattern generator, the first of which allows an optional *additional*

phrase accent to appear before the boundary tone (p. 202, fig. 2.46):

[2-8]   I'm sorry, Benjamin.
              |
        H%   L* L⁻ L⁻   H%

The original and the additional phrase accents are L⁻ in this case, but in others they can be any L⁻/H⁻ combination. The second change allows for an additional phrase accent *and* another optional boundary tone to follow an earlier boundary tone (p. 51, ex. 17):

[2-9]   "Good heavens," Joe muttered.
                    | |
              H*L⁻H%   H*L⁻ L%

Again, the two boundary tones can come in any combination.

This tune is aligned with a metrical representation of an expression's syllable strength (Liberman, 1975; Liberman and Prince, 1977). Pitch accents go with strong syllables, and the phrase accent goes with the syllable following the pitch accent that falls on the main phrase stress. Boundary tones are simply placed at both ends of the expression. This example gives possible tune-text alignments where the placement of the main phrase stress is dependent upon user highlighting (p. 19, ex. 26a-d):

[2-10]   (a) It's organized on the model of a gallon of worms.
                  | |
                 H*   H*L⁻ L%

         (b) It's organized on the model of a gallon of worms.
                              | |
                             H*   H*L⁻ L%

         (c) It's organized on the model of a gallon of worms.
                  | | |
                 H*   H*   H*L⁻ L%

         (d) It's organized on the model of a gallon of worms.
                  | | | |
                 H*   H*   H*   H*L⁻ L%

This next example uses bi-tonal pitch accents (p. 26, ex. 44):

[2-11]   I really believe Ebenezer was a dealer in magnesium.
       | | | | |
   H* H⁻+L*   H⁻+L*   H⁻+L*   H⁻+L*L⁻ L%

The alignment rules are the same for single and bi-tonal pitch accents, except bi-tonal pitch accents specifically align one tone of their pair with a metrically strong syllable.

The question, then, is: what actual *sounds* do these representations represent?

To begin with, JBP defines a number of rules designed to interpolate a contour between accented syllables when fed their assigned tones, and three of these rules stand above the rest. The first is a rule of tone spreading, where any T⁻ (any trailing tone or phrase accent) spreads to the right across any intermittent unaccented syllables towards a tone that is of equal or greater value. The second rule maintains that the contour between L tones is a nice, straight line. The third and final rule requires the contour to dip between H tones.

This last rule is motivated by processes of low-tone elision in some African languages, when the low tone triggered a downstep. The dip between Hs is underlyingly an 'H*+L⁻ H' pattern, where the L⁻ triggers a downstep and evaporates. This rule applies in a case such as the following high-mid 'calling' contour:

[2-12]   _____
     •—
      •–
   _____
   Tommy
   H*+L⁻H⁻L%

The pitch accent has a high center and a low trailing tone, where that same L⁻ tone is required by rule to lower the following H tone before that very L⁻ tone is deleted.

On top of these rules is a transformation where intonation as measured in terms of pitch (fundamental frequency) becomes represented as perceived PROMINENCE, the value of which is given in UNITS ABOVE THE BASELINE (p. 213, fig. 3.10 A-B):
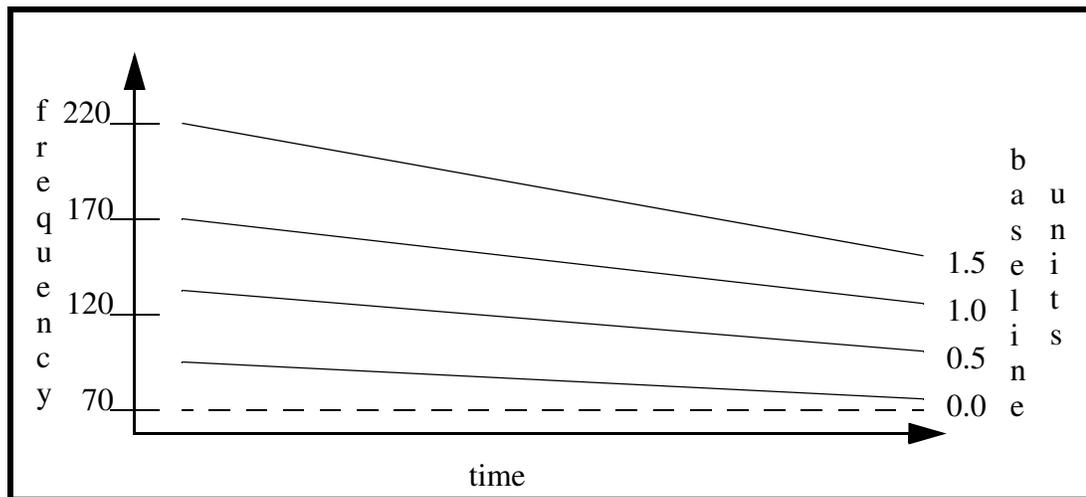
Figure 2-5: Baseline Units

Every speaker establishes a baseline frequency (lower voice limit) at the beginning of every phrase, and the contour will approximate this baseline asymptotically over time. Several H* tones over time might decline in pitch but have the same (or an increasing) prominence.There is, however, research which suggests that this DECLINATION applies inconsistently or not at all to some speakers (Lieberman, 1986: 255).

As far as the relevance to my own work is concerned, JBP shows that English intonation contours can be analyzed into precisely two tones assigned to an utterance's salient elements (strong syllables, post-peak syllable, and boundaries), as long as you

have the right rules needed to interpolate a contour between those tones. (This might just project Öhman's mathematical certainty onto a linguistically real system.) The metrical grid defining those elements is a null hypothesis, to be applied (in its creator's own words) only "if you have no good reason to do otherwise" (Liberman, 1975: 244). My work systematizes some of these good reasons, but JBP is not really interested in *how* an element is identified as salient so much as locating elements that have already been so identified. The results of my work would merely provide JBP with a different source of information for locating salient elements for tonal assignment; likewise, JBP's work would be more relevant to my analysis if I were trying to figure out how to generate a tonal contour *given* a point of volitional prominence.

Hayes (1995) is the perfect study for rounding out this section on the rhythmic patterning of prominence points as an intonational default, beginning with his central claim that "stress is the linguistic manifestation of rhythmic structure, and that the special phonological properties of stress can be explicated on this basis" (p. 1). Simply put, stress goes on the beat. This flows well into the paired contentions that:

> pitch is directly determined by the intonational system, but rules linking tones to texts refer to the position of stress. As a result, pitch can serve as a powerful phonetic cue for stress location. However, in locations where the intonational system places no tones, pitch cannot serve as a cue for stress, and other cues such as duration take over.... (p. 11)

and

> My view instead follows that of Pierrehumbert 1980, in which phrasal stress is an independent domain, and pitch accents are constrained to attach to the strongest available stresses. (p. 370)

In other words, stress not only goes on the beat, but if there is an available pitch, it will locate a point of stress, otherwise duration, loudness, and the like are the most readily identifiable associates of that pitchless stress.

As far as physiological correlates of stress are concerned, Hayes says that, "if a breath pulse is present, it is probable that stress is present, but there are many stressed syllables produced without a breath pulse" (p. 6). In addition:

> Naturally, certain phonetic correlates serve more readily as cues for stress than others: it is only natural that strong rhythmic beats should coincide with breath pulses, with greater duration, and with raising of pitch. But these are only tendencies, and since phonology serves many ends other than rhythmic ones, they sometimes override the natural correlation between strong rhythmic beats and particular phonetic phenomena. (p. 9)

As usual, the physiological correlates of stress are portrayed as highly variable (while the fact of its perception is stable, §1.3). As far as levels are concerned, Hayes finds three necessary, motivates four and five, and suggests that there may be more, subject to the constraint that too many levels will end up being indistinguishable, or the differences between them will be masked by other sounds (as in SPE, cf. §2.4.).

All of the rhythm researchers would be in agreement with Hayes when he says, "the [NSR] represents... only the phonological default, and may be overridden by many factors, including focus marking and predicate-argument structure. Non-default phrasal stress assignment is an enormously complex area" (p. 369). Rhythm is then a default with an enormous scope: "It has been conjectured... that the principles of eurhythmy are invariant across languages, and that they may extend beyond language

into other cognitive domains" (p. 372). It is consistent with the findings of this study to treat speech as gesture and motion, and to expect that intonation will be susceptible to the same sort of rhythmic defaults which are applicable to other human activities such as walking and breathing.

2.6   Prominence GOES on the Beat *unless* it is Making Sense

Since the 1500s, intonation has been treated as a contour whose critical points are aligned according to rhythm when not disturbed by sense. Attempts to analyze intonation into a static set of subcontours never does any better than to suggest that the primary contour has a beginning, a middle, and an end, just like the sense which it follows, in addition to which these subcontours keep sliding towards an approximation of points of sense or rhythm. When it comes to where prominence goes, volitional prominence would not be a matter of level so much as placement for reasons other than the rhythmic default.

This is one of the reasons that the image appealed to me of the high-tension lines draped over towers dominating a rolling landscape, because although towers are placed at regular intervals over level ground, that pattern will be broken in order to maneuver lines around obstacles, or to place towers on high ground in order to lift the lines clear of intervening terrain features. It's tempting to just relax and enjoy this bucolic landscape, where intonation is no more complex than up and down, and where prominence simply goes here or there, but this rest is premature because 'sense' has yet to be given an adequate definition.

3   What prominence DOES

The research in the previous section treats prominence as redundant, as if it provided no information that had not already been encoded through the function of some other set of elements in an utterance. In this section, prominence is actually providing or altering information not otherwise made available, and so prominence is meaningful. The description of this meaning has been thoroughly refined over time, being portrayed in turn as: semantic (§3.1); contextual (§3.2); pragmatic (§3.3); discourse functional (§3.4); and finally in terms of outward and inward focus (§3.5 and §3.6). No matter how the function of prominence is characterized, the common ground is that the user appeals to volitional prominence when the grammatical or rhythmic routine does not clearly convey the right 'sense', where 'sense' is 'an unmolested congruence of meaning from S to L'. (Trust me.) These are the studies that showed what volitional rather than routine prominence was needed to mean.

3.1   Prominence DOES Semantics

Bolinger has been an advocate of semantic primacy since at least as early as 1957, where he warns against overextending intonation segmentation studies, quoting Pike's (1945) similar reservations. He then detaches syntax from stress, walking through a number of counterexamples to the syntactic predictability claim, concluding with the statement that, "The encounters between intonation and grammar are casual, not causal. Grammar uses intonation on those frequent encounters, but intonation is not grammatical" (p. 37). Prominence acts as a clue, but not as a specific identifier.

Bolinger (1958) continues along the same line in disagreeing with Newman's analysis of stress accents, showing that there is a positive correlation in Newman's examples between the syntactic structures that he identifies, and the "informativeness" of the item which receives stress. Bolinger says, "It is true that in the instances cited, the stress tells us something about the syntactic relationship. But is this identifying function essential to it, or is it like a green hat worn by a thief, which may help us to identify him, but which he may change at any time?" (p. 7) The intended meaning of an utterance should be apparent through some means other than stress, and stress functions other than to merely identify a particular grammatical construction.

Bolinger then identifies several cases of the strong/weak stress pattern rather than the strong/strong stress pattern which are *also* used with what Newman labels as the "noun as logical object of the verb" structure, showing that there is not a *unique* correlation between syntactic patterns and stress patterns. This draws Bolinger to the conclusion that when it comes to Newman's examples:

> it was not the construction, but the informativeness, that determined the stresses. In the narrow but frequent contexts typified by 'There's a... to...' and 'I've got a... to...' we usually find the thing pictured as constituting an *incentive* to perform the action that would normally be performed upon it anyway (bread has little other purpose than to be eaten, whence *eat* in such a context is relatively more redundant than *bread*) or that it is foreknown to speaker and hearer as likely to be performed.... (p. 8)

This identifies relative informative weight as the determining factor in the placement of stress, and it dissociates any specific *syntactic* pattern from any specific *stress* pattern. A stress pattern is seen as being only *indirectly* correlated with a particular

syntactic structure, if at all. It is correlated *only if* the relative informativeness of an item happens to be linked to a reasonably predictable position in a particular structure.

Bolinger has long used 'accent' instead of 'stress' to avoid propagating those problems which continuously arise from confusing various types of stress with one another, and 'stress' is only used to refer to a potential, namely the syllable in a word that would normally be accented were that word to receive accent. "Stress belongs to the lexicon. Accent belongs to the utterance" (1972b: 644). This is why Bolinger claims that the placement of pitch *accent* is not syntactically predictable, but says that the placement of stress *is* explainable in this way. He is *not* suggesting that the placement of *prominence* is syntactically predictable, even though 'stress' is.

Whereas Bresnan focusses on *when* prominence gets assigned, Bolinger (1972b) is concerned with *what* gets pitch accent, and *how* it gets it, maintaining that accent is assigned according to user intent, and not according to syntax:

> The Chomsky-Halle Nuclear Stress Rule and its modifications by Bresnan, and to some extent the criticisms that have been leveled at it, have in common an attempt to account for accent in terms of syntax. Instead, accent should be viewed as independent, directly reflecting the speaker's intent and only indirectly the syntax. Accented words are points of information focus. (1972b: 633)

> The distribution of sentence accents is not determined by syntactic structure but by semantic and emotional highlighting…. Syntax is relevant indirectly in that some structures are more likely to be highlighted than others. But a description along these lines can only be in statistical terms. (1972b: 644).

The syntactic and semantic views are not really at odds, given that Bresnan assigns prominence on the basis of 'topic' rather than the NSR, where Bolinger points out that

Bresnan's 'topic' is more commonly called 'comment' or newer information. As far as *when* pitch accent gets assigned, Bolinger does not address the ordering hypothesis directly. He notes that the speaker makes word choices very early, but *his* 'early' does not mean 'deep'. These word choices help determine later accenting, which supports prominence being considered early.

Gussenhoven, Bolinger, and Kjeispur (1987) collect articles exchanged by Gussenhoven and Bolinger in the *Journal of Linguistics* (ca. 1983), and expand it to include one more volley apiece, with final commentary by Kjeispur. Gussenhoven has his Sentence Accent Assignment Rule (SAAR) break a sentence into candidate focus constituents (based on old versus new information), one of which the user selects for focus, after which the accent *within* the constituents is mechanically determined by the SAAR. Bolinger has no need for intermediate focus domains of any size, much less multiple domains of varying size, saying that the user places accent *directly* on words, expressing focus or other concerns, and so there is no need for a mechanical rule of sentence stress assignment. For example, Bolinger (1986: 95) differentiates a focus of interest from a focus of information, which do not always overlap because the most informative material in an utterance is not necessarily the most interesting ("Whý did he léave?"), in which case *both* foci are accented. So, Gussenhoven portrays accent as conveying meaning at best indirectly, while Bolinger has the user applying accent to assign meaning directly.

Kjeispur tries to reconcile the two by shrouding their focus differences in their mutual appeal to the use of old and new information to *determine* focus. Here is one

example she uses in illustration: "What's that fellow doing? He's looking for BREAD to eat." Gussenhoven would put the whole phrase "bread to eat" in focus because it is all new relative to the first sentence, and then his SAAR would mechanically assign accent to "bread" alone. Bolinger would suggest that perceptions of old and new track through the context, and that once you hit "bread," the notion "to eat" is expected, and since "to eat" is 'old' or 'predictable', only "bread" has an accent, with no recourse to an intermediate focal constituent. Both theories rely upon the user's evaluation of the 'age' of the information in an utterance to determine focus, and it *is* interesting to point out that this reliance has been a disregarded similarity; however, because there is no need for the SAAR other than to reach beyond a limit placed on the user's influence *by* the SAAR, and because Bolinger supports the user's choices right through the *direct* placement of the accent, there is a difference between user-driven and grammar-driven accent which leaves their incompatibility significant.

Relative to Bolinger, 'sense' keeps the user from surrendering to a syntactic default, marking elements that are interesting, informative, or otherwise deserving of special attention, *not* as specifically tied to anything else in the discourse. Bolinger suggests that when contextual information places prominence, volitional prominence proper is not needed, even when that context is not the current discourse, but the Archive (bread has little use other than to be eaten). In that sense, the user never *really* defaults to syntax, since there is always *some* background information influencing routine prominence placement. Marking this information preserves S's meaning to L, where a syntactic default might permit an inadvertent misalignment of attention.

3.2   Prominence DOES Context

This section marks a switch from prominence described as marking relatively important points in what amounts to an isolated sentence, to its doing so relative to the information in a series of sentences. This is not the same as assigning an actual discourse function peculiar to prominence, which happens in subsequent sections.

Gunter (1966, 1972) develops a "context grammar [which] is the study of features of the sentence that reach back to context, thus binding sentences together into larger coherence" (p. 165). This provides the basis for analyses of ellipsis, reference, the temporal relation between sentences in a dialogue, and the use of accent placement as a grammar signal to indicate whether a sentence is pointing to an overt or non-overt context. Although he is not studying *points* of prominence, he still finds contextual comparisons equivalent to some types of revelation, but no elaboration analogs, and emotion is trivialized. So, there is at least a partial, clear, similarity between context grammar and my analysis, particularly in the motivations for subtyping revelation by a discourse counterpart's explicitness. In specific, Gunter states (all in small capitals):

> Any variety of a sentence in live speech is connected through accent placement... to a context, which may be overt or non-overt. If there is connection to an overt context, the accent placement specifies what the connection is; if there is a connection to a non-overt context, the accent placement signals that fact, and simultaneously limits the form and content of that non-overt context. Accent placement, like all other features of context grammar, reaches back to a foregoing sentence, and shows the relevance of the response to its context. (p. 167)

While I developed addition and substitution (his REPLACEMENT) before reading Gunter, his notion of RECAPITULATION did not occur to me until I came across his examples. In

recapitulation, L repeats S's entire sentence exactly, with a shift in accent placement for confirmation of one word. My data only show brief examples of this, just short strings of words. That might be due in part to the lack of *any* questions in my data, much less questions which follow Gunter's precise format.

In Gunter (1972), intonation signals contextual relevance. All that matters is a contour's gross shape (falling, high-rising, falling-rising, or low-rising), and not pitch levels defining their endpoints (e.g. 42↓ = 41↓ = 21↓). Contours fit monosyllables, or are stretched to fit longer utterances. Gunter presents a taxonomy in which each of the four contour types is associated with a specific function, where variations on a contour do not change the function, but rather are seen as rendering unstable emotional flavors. Such forms of expression are stated to be "a proper object of linguistic study" (p. 203), but just not *his* study.

So, Gunter's analysis *does* tie prominence to context; however, 1) it only studies process and not point prominence; 2) it dismisses emotion or expression (while noting that they *are* influenced by gesture); and 3) it does not address volitional prominence *levels*. Even at that, the notion of 'sense' does start to take on one of its more important qualities, that of preserving meaning congruence across contexts, where different contexts are equated with the meanings understood by S and L.

3.3   Prominence DOES Discourse

Bardovi-Harlig (1983; BH) analyzes major stress beats in intonation contours, not the contours themselves, and not the phonetic characteristics of those beats, only their placement. English sentence stress is demonstrated to be context sensitive, where

the sentence's functional organization determines its placement by fitting the utterance into the discourse. BH finds two stress-and-discourse-function associations, namely that primary stress is always placed on the RHEME, and secondary stress is placed on the THEME, when there is one: "the theme relates the utterance to preceding discourse; the rheme is the portion of the utterance which most advances the discourse" (p. 7). Almost as much of her analysis is devoted to making the definitions of these functions less brief as it is to reassimilating stress patterns which have traditionally been cast aside as matters of 'contrast'.

BH's strategy follows these steps: 1) quickly and quietly dispatch any analyses which conclude that sentence stress is syntactically predictable; 2) critique the limited success of previous functional analyses of sentence stress in order to synthesize stronger definitions of theme and rheme; 3) propose a formal stress assignment rule for theme and rheme which explains previously problematic data in a unified fashion; 4) use this rule to dispel myths surrounding prominence (such as that it marks focus, that it is influenced by syntactic categories, that it cannot mark theme or pronouns); and then 5) identify contrastive stress as a category which is not supported by the data, a garbage can into which intractable patterns have been tossed for decades.

The first of two functional analyses of stress which BH cites as influential is that of Daneš (1960), who says that intonation and prominence function to tease an expression into position in its discourse context. Daneš proposes two functions: THÈME (theme); and PROPOS (rheme). The rheme occurs at the sentence's end, and stress is the CENTER OF INTONATION, falling on the last word of that rheme. This overgeneralization

primes a sense of circularity when the rheme is *not* found at the end of an utterance, because the rheme is determined to be wherever the center of intonation has fallen. There can be more than one center of intonation, the last one of which is hierarchically superior to the rest, unless of course the *real* center (the one which identifies the rheme) happens to be the first one in the utterance, in which case the whole phrase is emphatic. Finally, further emphasis can be placed on a word in final position.

BH has five complaints: 1) Daneš studies rheme to the neglect of theme; 2) too much emphasis is on word order, as reflected in the rule placing the rheme normally at the end of an utterance; 3) this emphasis disallows a more general rule of functional stress assignment; 4) any non-final stress assignment is contrastive; and 5) there is no part of the definition of rheme which is *not* dependent upon the definition of stress, resulting in a circular relationship between the rheme and the center of intonation.

The second influence is Schmerling (1973), who has four (Roman-numeraled) stress-assignment rules: I) stress cannot fall on any "items" which S deems "relatively insignificant" (p. 73); II) arguments are stressed over predicates; III) the last among equal stresses is the strongest (which adjusts the output of Rule IV); and IV) both topic and comment are stressed when they exist. Rule II applies only to news sentences, just as Rule IV obviously applies only to topic-comment (t-c) sentences.

BH expresses some preference for Schmerling over Daneš because Schmerling attends to theme, even though she characterizes it no more strongly than as 'pragmatic aboutness'. BH's complaint is that the stress pattern of a sentence is used to decide which of Schmerling's rules must have applied. For example, the generic sentences:

[2-13] (a) Great óaks grow from little ácorns.
          (b) Great óaks from little ácorns grow.

are both identified by Schmerling as news sentences because they follow Rule II, despite their typically being regarded by other researchers as t-c sentences. BH spends some time showing how increasingly complicated it would be to alter Schmerling's system to accommodate this distinction between news and t-c sentences (such as having sub-Rules for transitive t-c sentences), and at the peak of having created a real mess, she mentions just how much easier it would be to use a system which already works in a straightforward manner (such as her own) rather than to waste time trying to patch up Schmerling. A more detailed comparison between Schmerling's rules and BH's stress assignment principle appears later in her analysis, and in this review.

BH switches from a review of functional analyses of sentence stress to those which develop the functional framework in general, beginning with the work of Kuno (1972, 1977, 1980). Like Schmerling, Kuno characterizes theme in terms of pragmatic aboutness, and where Schmerling has t-c and news sentences, Kuno has thematic sentences and neutral descriptions, but the similarities end there.

BH's review of Kuno reveals a proliferation of terms that were left inconsistent in accord with the philosophy that it is better to have loose definitions that work, rather than tight ones which don't. Kuno ends up with seven overlapping theme types arising from pragmatic aboutness, namely: 1) contrastive; 2/3) un/predictable; 4) prominent (primary); and 5/6/7) latent/hyper-/secondary theme. Focus is defined as newer information, but the focus can also sometimes be the topic, and the topic can also

sometimes be the theme, which is not *new* at all, but rather is defined as being discourse anaphoric. BH complains that Kuno pays attention to sentence-initial stress and theme in neglect of rheme (opposite to Daneš), and so he does not explain comment or primary stress.

As representative of the Prague school and their functional framework, Firbas (1964, 1966, 1975; see also 1992, post-BH) comes closest to what BH is looking for, studying the whole sentence in context, thus paying attention to theme *and* rheme, as well as to the functional elements which link the two (called TRANSITIONAL elements). The rheme has a high degree of COMMUNICATIVE DYNAMISM (CD; BH's FUNCTIONAL VALUE), and the theme has a low value. CD is influenced by: "context (in)dependence, the distinction between given and new, predictability, semantic relations (presentation/ specification), and definiteness" (p. 15). The rheme is newer information, that which is the least predictable on the basis of the information already present in the context. In support of this definition BH cites Prince (1981), Chafe (1974), and Firbas (1975, 1981). Rhematic material tends to be high in context independence.

The theme is context dependent, where the definition of 'dependence' draws upon: 1) the familiar notion that some information is already GIVEN; 2) Bolinger's (1972) PREDICTABILITY (dependence is higher for predictable items); 3) Kuno's (1972) DISCOURSE ANAPHORIC material; and 4) Kuno's (1977, 1980) TOPIC/THEME/FOCUS. Prince (1981) is also cited in reference to material which is dependent upon the information in the context from which it is EVOKED or INFERRABLE. The theme is also likely to be definite or generic, and its unmarked position is as the subject of a sentence.

BH draws upon two semantic scales distinguished by Firbas to identify some of the characteristics which are used to measure a word's degree of CD, and to set up a standard of RHEMATICITY against which to compare some examples later on in her analysis. The first is the appearance/existence (A/E) scale:

Table 2-2: Firbas' Appearance/Existence Scale

Degree of Communicative Dynamism		
low	medium	high
element setting the scene (setting)	element expressing A/E on the scene	element representing the phenomenon A/E on the scene

Here are examples where each [bracketed] rheme is the phenomenon which appears or exists on the scene, and so has the highest degree of CD on the A/E scale (p. 17):

[2-14]   Over the veranda, prone on the paddock, flung over the fences were [exhausted-looking bathing dresses and rough striped towels].

[2-15]   In the center of the room, under the chandelier, as became a host, stood [the head of the family, old Jolyon himself]. (1975: 50)

"On the appearance scale, the verb expressing appearance or existence is transitional, the item representing the phenomenon appearing on the scene is the rheme.... The rheme may be either the object... or the subject" (p. 16). The clothes appear or exist "over," "prone," and "flung" (lower CD elements which set the scene), and old Jolyon appears or exists "in," "under," and "as," portraying both the swimming attire and the man with high CD values relative to the lower CD material describing them in context.

The attributive scale measures CD as follows:

Table 2-3: Firbas' Attributive Scale

Communicative Dynamism				
Low	Lower	Medium	Higher	High
scene (setting)	bearer of quality	quality	specification of quality	further specification

"On the attributive scale, the attribute or the quality expressed is the rheme," where, "Adjectives, noun phrases, and verbs may all express qualities" (p. 17):

[2-16]   Mary is [beautiful].
[2-17]   His father was [a musician]. (permanent quality)
[2-18]   His mother played the piano [extremely well]. (just temporary)

BH goes on to say, "Further specification of a quality, if present, will be the rheme;" as in example [2-18], but "if it is not present, the quality or attribute is the rheme," as in [2-17]. The theme bears a quality, and that quality is the rheme.

Firbas (1992) presents a new version of the functional sentence perspective, proposing two CD distributions in an utterance, the first of which is its "non-prosodic CD distribution" (p. 148) as determined interdependently by its linear modification, semantic content, and context, and the second of which is the placement of "prosodic prominence" (PP) or "at least four degrees of PP" (p. 143), specifically differentiated as: 1) a lack of stress; 2) a stressed syllable inside the prehead or tail (stress without accent); 3) a stressed syllable inside the head (stress with accent); and finally 4) the one such stressed syllable in the head which acts as the nucleus of the utterance.

The alignment of these distributions affects the interpretation of the overall CD of the utterance. When in "perfect correspondence" (p. 148), prosodic prominence "reflects" and "amplifies" the non-prosodic CD, giving "additional meaning" which Firbas describes variously as "intensification," "emotive coloring," and "special emphasis" (p. 154f). These distributions *lack* correlation when prominence provides "selective non-reevaluating intensification" (p. 156), assigning a *theme* (as identified by non-prosodic factors) greater prosodic CD than some *rheme* (likewise), where this overly important theme *remains* just a theme. When the prosodic CD imbalance is so severe between a non-prosodic theme (with high prosodic CD) and a non-prosodic rheme (with virtually no prosodic CD) that the theme is re-evaluated as a rheme, then the CD distributions misalign due to "re-evaluating prosodic intensification" (p. 159). Firbas stresses that these prosodic and non-prosodic factors are equally interdependent when it comes to determining CD, but prominence has the final vote.

By synthesizing the best parts of the previous analyses of sentence functions, BH is making good progress towards providing strong, unified definitions for rheme and theme. In addition, every complete utterance is defined as having a rheme, while a theme is optional. The catch is that theme and rheme are not functions as such, in that they do not cause specific effects when applied to a word (such as turning it into a topic or comment, or bestowing upon it a particular level of prominence). Rather they are *roles* in the sentence, which other linguistic functions help to identify by determining their CD; for instance, when a word provides new information, this can help to identify the rheme. Firbas attributes a critical part in this role-identification

function to prominence, in that once these other factors have provided a word with the potential to be a theme or rheme, then prominence can sort them out. So, definitions of theme and rheme which give the *impression* that they are functions in themselves should be understood to mean that they are identified by other factors as *roles*. It is that identification which is used to *maintain* sense as it has been described to this point.

3.4   Prominence DOES Theme and Rheme

Having established substantial definitions for theme and rheme, BH goes on to show why they are better than the alternatives.

To begin with, Schmerling's Rule IV assigns stress to both the rheme and the theme (without a theme, Rule II applies), and then Rule III makes the stress on either the rheme *or* the theme primary, whichever is sentence-final (the rightmost of equally strong stresses). In contrast, BH's PRINCIPLE OF FUNCTIONAL STRESS ASSIGNMENT (PFSA) simply assigns secondary stress to the theme when there is one, and primary stress to the rheme always, without regard to its position. The PFSA can be supported over the Rule {(IV + III), (II)} system with examples of utterances in which an early rheme has the primary stress, and a late theme has the secondary stress, such as in, "Who hit Judy? Púnch hit Jùdy." At best, Schmerling would need to introduce sub-Rules.

Schmerling identifies different stress patterns for t-c and news sentences, and so has different stress assignment Rules for each of them. The PFSA treats both as context sensitive, and it is just one rule which applies to both equally, assigning stress according to their functional organization. The examples used to make this distinction in both studies are as follows:

[2-19] (a) Trùman díed. [Schmerling: t-c > (IV + III); PFSA: "died" =
             rheme]   (part of an on-going discourse about Truman's health.)
       (b) Jóhnson dìed. [Schmerling: news > II; PFSA: "Johnson" =
             rheme]   (out of the blue.)

Schmerling needs two rheme stress rules, one with and one without an accompanying
theme stress rule, and it is only by determining the sentence type that the appropriate
rheme rule is accessed (II or IV). The PFSA is stated as if it were one rule, but it acts
as two, being applied as the rheme and theme are identified. Schmerling goes through
sentence type to get at function, needing a redundant rule, and the PFSA economically
goes straight for the function. Schmerling's stress-pattern division is artificial, and the
real division is simply whether or not the thematic function exists in an utterance.

BH relies on Liberman (1975) for the precise assignment of stress *within* a
rheme which is multisyllabic ("Pùnch hit [Júdy]") or multiword ("Pùnch hit [Judy and
the Dévil]"). Liberman suggests that the metrical system should be applied "only if
you have no good reason to do otherwise" (1975 [1979: 244]). Rheme stress only goes
so far, after which there is no good reason to do otherwise than resort to a relational
assignment of stress within a rheme.

BH also notes that any word can be the rheme, so any word is a candidate for
primary stress, however, the nature of discourse tends to restrict this tolerance. No
stress pattern is disallowed outright, only in a particular context, namely one in which
the proposed candidates for stress would not be rhematic in context. In the absence of
context, such as in a typical presentation of linguistic examples, BH once again applies
stress according to the null hypothesis, or metrical grid.

BH goes on to reanalyze data approached in Bresnan (1972), showing that Bresnan's problems came from trying to identify stress patterns in syntactic terms rather than according to functional organization, and that her successes only occurred when the two happened to overlap. Bresnan's use of a functional rule (Topical Stress Assignment) to take care of exceptions to her ordering hypothesis is an admission that syntactic rules only work when there is an overlap with function, because an appeal to a functional rule is required when no such overlap exists.

This is a recurring theme throughout BH: discourse functions are independent of word order, but they *tend* to be distributed theme-left and rheme-right, with the degree of CD likewise *tending* to increase as the sentence progresses in alignment with function, not syntax. It is *this* tendency that allows syntactic analyses of sentence stress to often be correct by coincidence, and it explains why many of them appeal to semantic or functional explanations when the syntactic base collapses, that is to say, when the functional order and the syntax do not coincide.

Now BH is ready to use her system to demythologize stress.

Myth #1: Syntactic Category Influences Stress

Truth #1: Prominence doesn't Prefer Content over Function

Ladd (1980) proposes a hierarchy in which grammatical category determines accentability, where nouns are the most accentable of content words, and content words are more accentable than function words. This continuum exists in the same system in which broad focus is unmarked or normal compared to narrow focus. This leads to inconsistency, as in the following examples (ignoring any theme stress):

[2-20]   (a) (Why are you so terrified?) My párents are coming.
         (b) (I think your parents will stay home.) My parents are cóming.

[2-21]   (a) (I like one of the Beatles in particular.) Jóhn is wonderful.
         (b) (I'm so in love!) John is wónderful.

[2-20](a) has noun stress and broad focus according to Ladd, and yet the noun stress of

[2-21](a) leads to a narrower focus than the adjective stress in [2-21](b). If 'normal' is

measured in terms of the broadest focus, then syntactic category cannot be used

identify 'normal'.

Schmerling says that such examples are problematic for information theories:

[2-22]   (a) John is a wónderful man.
         (b) John is a wonderful mán.

If "man" adds no information beyond that specified by "John," but still gets primary

stress, then the primary/new association is wrong. There are two functional solutions:

1) "man" *can* stand alone as the rheme when it specifies a further quality of "John," as

in, "John isn't just a wonderful linguist, John is a wonderful mán"; and 2) when

"wonderful man" is a multiword rheme, "man" gets primary prominence metrically.

It-cleft sentences are often used to support stress as following mobile syntax:

[2-23]   It is Jóhn who writes poetry in the garden.

Prominence hasn't followed "John" as the formerly-rightmost constituent, but it goes

on "John" the rheme. In context, prominence could just as well go on other elements.

For the functional approach, these are all just cases of theme and rheme stress.

Myth #2: No Theme Stress

Truth #2: Prominence doesn't Avoid the Theme or Topic

Here is BH's answer to the claim that the theme or topic cannot be stressed:

[2-24]   (a) The statue's hèad is míssing.

The theme gets secondary stress, and the myth is easily countered by this data.

Myth #3: No Pronoun Stress

Truth #3: Prominence doesn't Avoid Pronouns

Her answer to the claim that anaphoric pronouns cannot be stressed is similar:

[2-25]   Punch hit Judy and then shé hit hím.

Once again, the data belies the myth.

Myth #4: Prominence is Contrastive Stress

Truth #4: Prominence doesn't do 'Contrastive Stress'

BH presents several arguments in favor of strongly curtailing the use of the

term 'contrastive stress', the first of which is that researchers can take a look at

precisely the same examples and come to contradictory classifications, as follows:

[2-26]   (a) Bury the man that you kílled.
         (b) Bury the mán that you killed.

As mentioned earlier, Lakoff (1972: 286, cf. p. 118) finds [2-26](a) to be contrastive,

but not [2-26](b), whereas Bresnan (1972: 337n12) does just the opposite.

BH goes on to note that contrastive stress tends to be abused as a label for intractable data, where these exceptions tend to fall into specific categories, namely:

1) non-rightward placement:

[2-27]   (a) Júdy hit Punch.
          (b) The sún is shining. [vs. The sun is sétting.]

2) non-content placement:

[2-28]   (a) I'd go, but there's no one to go wíth.
          (b) Yóu get it.

3) equally good stress patterns for the same syntactic structure:

[2-29]   (a) Just think of all the júnk we sold.
          (b) Just think of all the junk we sóld.

and 4) 'abnormal' utterances with no 'normal' placement counterpart:

[2-30]   Even a línguist has more sense than that.

Purely syntactic or rhythmic accounts handle such examples by treating them as exceptional, but a functional analysis integrates them all as normal utterances, disallowing the need to refer to contrastive stress.

For example (from [2-27]), qualities attributed to highly rhematic material tend to appear rightward in English, but when it appears leftward, primary prominence follows the wayward rheme without creating an exception to the general rule,

integrating the 'abnormal' non-rightward cases. In addition, examples which used to be dismissed as matters of non-content placement (such as [2-28]) are in BH's view simply cases in which a 'function' word expresses content in a prominent context, even though in other situations it tends to express little content.

Because the notion of 'rheme' is not bound by syntax, any word in an utterance potentially has a measure of rhematicity without regard to its structural position, and so in context, some words are close to one another in rhematic level, which means that an utterance might have more than one equally good primary prominence placement (as in [2-29]). This not only obviates the need to chose one prominence placement as normal while the rest are identified as matters of contrast or narrow focus, but it also makes it unnecessary to find a normal or non-shifted counterpart for any sentence which is traditionally held to only *have* either a so-called contrastive form or one with a shifted center of focus (e.g. [2-30]).

BH finishes off her dismantling of contrastive stress by commenting on analyses which target those stress patterns which typically accompany parallel structures, such as the following:

[2-31]   (a) His name wasn't Bíll, but Géorge.
         (b) Prátt roasted a píg in the fireplace last year, and Whítney did it
              with a gáme hen.

Any contrast in meaning is encoded by the contrastive *statements* being parallel in structure, and not by some specific stress pattern being contrastive. As long as that clarification is understood, BH does not object to its being called 'contrastive stress'.

Of course, Bolinger treats stress as a matter of accent potential, so his version of contrastive stress is used to highlight contrasting syllables in otherwise equivalent words, such as in [déport vs. éxport vs. ímport]. Bolinger calls this a resolution of "homonymic or near-homonymic conflict" (1961a: 93). So, a phonetic definition can be applied to this contrastive stress, but it is not predictable, and although its use can imply contrastive accent, the reverse is not true.

Myth #5: Focus is Equated with Stress

Truth #5: Prominence doesn't do Focus (as it is ill-defined)

BH's says that studies equating focus and stress are limited simply by having to depend upon poor or no definitions of focus. Chomsky (1971) assigns focus to stress or "a phrase containing the intonation center" (p. 205), and then labels the remainder as a presupposition, and does not talk about stress assignment (assuming SPE-type rules). Jackendoff (1972) and Ladd (1980) go the other way around and assign stress to focus. Ladd's failing, according to BH, is simply that he does not define focus well enough.

Ladd treats portrayals of focus by Chomsky (1971) and Bolinger (1972) as if they were compatible, but BH not only denies that compatibility (Bolinger's definition is not syntactic in nature), she also indicates that they amount to no definition at all. Other than that, Ladd only says that focus is: 1) "an ill-defined concept, but intuitively not hard to grasp" (p. 108); and 2) an "independent semantic phenomenon" (p. 111). That *is* a pretty vague set of descriptions compared to BH's work on theme and rheme.

Ladd does, however, distinguish broad and narrow focus (cf. Halliday, 1967):

[2-32]   (a) I'm leaving for Crete tomórrow.   (narrow focus acc. to Ladd)
         (b) I'm leaving for Créte tomorrow.   (broad focus acc. to Ladd)

Ladd identifies [2-32](a) as narrow focus, and says that there is a context for [2-32](b) in which the whole sentence is in focus, such as in answer to the question that BH proposes, namely "What are you doing this summer?" BH finds it hard to interpret these differences in scope, suggesting that the answer lies in the identification of the focus constituent, which is waiting for a better definition of focus.

Jackendoff (§3.5, below) defines focus as information which the speaker assumes is not shared with the listener. (I am not substituting 'S' and 'L' here because they allow for cross-modal analogs which might not be included in Jackendoff's original intent.) Focus is allowed assignment anywhere, and its location determines the assignment of primary stress. The rest of the stresses fall prey to SPE. The problem here is that this multiple focus is described as topic and comment, which means that a point of focus can be either topic or comment, which means that only one kind of focus, namely topic, determines the location at which stress is assigned. BH would prefer that these terms be sorted out, and that a better definition be provided for focus or topic before expecting them to support an equation with stress.

In summary, BH concludes that English stress is sensitive to context, where the functional organization of the utterance determines the stress contour's major beats. Stress identifies the theme when there is one, and primary stress identifies the rheme always. Care is taken to define theme and rheme well enough that BH does not fall prey to the same problems as those which up to this time had tried to equate stress with

focus. In the absence of context, rhythmic principles are used to assign stress. The

limited success of syntactic analyses is attributed to the tendency for functional

organization to be aligned with syntactic structure. Finally, BH treats formerly

problematic data in a unified fashion, discarding appeals to contrastive stress.

3.5   Prominence DOES Outward Focus

The predominant complaint about linking prominence to focus is the lack of

any really good definition of focus. Another issue that needs to be settled is the *scope*

of focus, which is an issue that has been around since Walker distinguished "two kinds

of emphasis; namely, emphasis of passion, and emphasis of sense," which refer to

sentential and word focus, respectively (1774: 18f).

Jackendoff (1972) is a good place to start, as he clearly explains the interaction

of prominence, focus, presupposition, and assertion for those sentences which have

one focus, and then likewise for two foci. The problem is that the definition of focus

gets all tangled up when the two accounts are tied together, as BH complained about.

Focus and presupposition are first defined in terms of the sentence information, where

S assumes that L shares presuppositional information, but not focal information. *Given*

a routine sentence contour, wherever the main stress and highest pitch are located, that

is where the focal word is found. A focus marker can be attached to any node in the

surface structure, and prominence falls on the syllable of the (non-function) word in

that constituent which would normally be assigned SPE primary stress.

A sentence's semantic representation is derived in three steps: 1) identify the

Focus and a function $\text{Presupp}_S(x)$; 2) construct the presuppositional set $\lambda x \text{Presupp}_S(x)$,

and 3), form the actual presupposition and assertion (p. 245f). The lambda operator simply means "the property (or class) of *x* which are such that ...*x*...," as opposed to "the one individual that..." (Carnap, 1956: 3). In sum:

$$\text{Focus} \in \lambda x \text{Presupp}_S(x) \left\{ \begin{array}{l} \text{is a coherent set} \\ \text{is well-defined} \end{array} \right\} \begin{array}{l} \text{in the present} \\ \text{discourse} \end{array}$$

is amenable to discussion
is under discussion

(with brackets indicating *Presupposition* spanning the full expression and *Assertion* spanning the Focus portion)
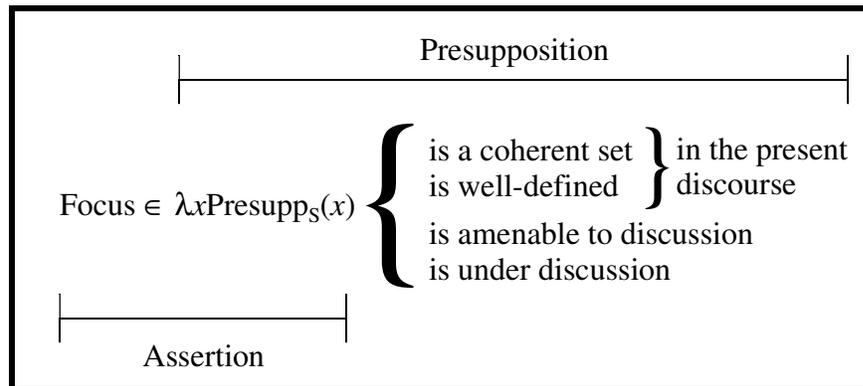
Figure 2-6: Focus, Presupposition, and Assertion

The Focus simply "consists of that semantic material associated with surface structure nodes dominated by the marker F," and the predicate $\text{Presupp}_S(x)$ is made by replacing this Focus with "an appropriate semantic variable *x* in [the semantic representation]" (p. 245). The replacing information and the Focus overlap in semantic content only at the variable, and differ elsewhere (e.g. "cactus" and "grass" can overlap at the variable "green" or "plant", without having to overlap at "barefoot")

Appropriateness is defined in terms of a "coherent class of possible contrasts," meaning that the information represented by the variable *could* have been used in place of the focus in context, having the same functional semantic (but not necessarily syntactic) form. Jackendoff notes that:

The problem of defining appropriateness is amenable to linguistic analysis only to a limited extent. Beyond a rather quickly attained point, however, it becomes clear that the solution deeply involves conceptual structure and knowledge of the world, which we are (arbitrarily) not investigating here. Hence we will be relying heavily on unanalyzed intuition in certain aspects of the discussion. (p. 242f)

Such conceptual structure and knowledge of the world *is* investigated in *this* analysis.

The presuppositional set, $\lambda x\text{Presupp}_S(x)$, is "the set of values which, when substituted for *x* in $\text{Presupp}_S(x)$, yield a true proposition" (p. 245). This set is used to construct the actual presupposition and the assertion, as in the figure above. As far as I can tell, this is the same formal object that Rooth will shortly call a "p-set."

Words such as *even*, *just*, and *only* (Horn, 1969) are ASSOCIATED WITH FOCUS. If the focus falls anywhere within a word's individually defined RANGE, then that word affects the assertion, and not the presupposition. *Even*'s range is as follows: "If *even* is dominated by a node X, the range of *even* includes X and all nodes dominated by X to the right of *even*, plus the subject if X is an S" (p. 251). The range of *not* is the same as for *even*, but it is only optionally associated with focus. When *not* pursues this option, the assertion is negated, and the $\in$ in the figure above becomes $\notin$. "Another semantic element that associates with focus is the Yes-No question [which]... obviously changes the form of the assertion" (p. 257) from a declaration to a yes-no question.

Jackendoff analyzes sentences with two foci, where the assertion has one pitch contour per focus. Bolinger's B accent (high pitch, abrupt drop, rising end) marks the independent variable or topic, and the A accent (high pitch, abrupt drop, falling end) marks the dependent variable or comment. When there is only *one* focus, *it* takes the B

accent, and so affirmation-negation is chosen to serve as the dependent variable, as allowed by association with focus.

This is where BH has problems with Jackendoff. At first he says, "we observe that emphatic stress occurring anywhere in a sentence attracts the focus" (p. 234), but then he says, "In the theory we have been discussing, emphatic stress is assigned according to placement of the focus marker F" (p. 259). The first of these definitions *might* have been intended in context to be an informal description of the behavior of the stress within a specific set of examples, rather than a statement designed to actually describe the direction of causation between stress and focus.

The real confusion comes in when focus as unshared information gets tangled up with topic and comment and (in)dependent variables in discourse. At first, focus is defined in terms of the information which the speaker assumes not to be shared with the hearer, but now both topic (shared) *and* comment (unshared) are types of focus, and they both draw prominence. The way things are set up, the freely chosen *topic* demands pitch accent B, which defines an independent variable. The *comment* is constrained to saying stuff about the topic, and it takes pitch accent A, which defines a dependent variable chosen in order to make the sentence true. A comment can be an entire focus, including a presupposition if there is one, and the second variable.

This notion of 'free choice' leads to convolution. Jackendoff sets up examples where the topic of a second sentence is *freely* chosen from any material contained in the first, but the comment is *restricted* to anything in the vast presuppositional set. So, the topic is freely chosen from a very limited set, but the comment is constrained to

being chosen from a virtually unlimited set. The freely chosen topic is restricted to

shared information, and the comment, though not free, is unrestricted in that it is

unshared. I think that BH is right in suggesting that the definitions could be tidied up a

bit, as in the following research.

The next example (derived in part from Krifka, 1992) shows how Rooth's

"domain selection theory" (1985) represents an expression (a) in terms of an abstract,

stressless MEANING (b); a set of ALTERNATIVE MEANINGS or "p-set" (c) as generated by

the expression when in focus; and a MEANING POSTULATE (d) for the FOCUSSING

OPERATOR (*only*). The formal representation for the expression (e) is created by

substituting the meaning and the p-set for the two arguments defined in the meaning

postulate. The whole formal representation has a paraphrase (f):

[2-33] (a) John introduced Bill to [SUE]$_F$
      (b) M = **introduce**(**j**,**s**,**b**)
      (c) A = p-set = {p|∃x[x∈ ALT(**s**) & p=**introduced**(**j**,x,**b**)]}
      (d) ONLY(M,A) iff **true**(M) & ∀p[p∈ A & **true**(p) → p=M]
      (e) ONLY(**introduce**(**j**,**s**,**b**), {p|∃x[x∈ ALT(**s**) &
          p=**introduced**(**j**,x,**b**)]}) iff **true**(**introduce**(**j**,**s**,**b**)) &
          ∀p[p∈ {p|∃x[x∈ ALT(**s**) & p=**introduced**(**j**,x,**b**)]} & **true**(p) →
          p=**introduce**(**j**,**s**,**b**)]
      (f) Out of all the people John might have introduced Bill to, there
          was one and only one person he actually introduced Bill to: Sue.

Notice that Rooth portrays an expression's 'usual meaning' (b) as one without a focus.

Rooth's *alternative* meaning encodes information about the focus. This encoding is

explicit (but indirect for entities), in this case a set of alternatives to "SUE," which in a

lack of other context might be the set of all individuals capable of being introduced to

someone by someone else. The meaning postulate (d) for the focussing operator 'ONLY' states that the only true element of the set of alternatives A to the meaning M is M itself. Applying this meaning postulate (d) to the alternative (c) and usual meaning (b) of the expression (a) renders the formula given in (e), which has the paraphrase in (f). Rooth's work is characterized by von Stechow (1989) as "alternative semantics."

This is the same example with the same focal word, but a different focal *scope*:

[2-34] (a) John [introduced Bill to SUE]$_F$
        (b) M = **introduce**(**j**,**s**,**b**)
        (c) A = p-set = {p|∃P[P∈ ALT(λx.**introduced**(x,**s**,**b**)) & p=P(**j**)]}
        (d) ONLY(M,A) iff **true**(M) & ∀p[p∈ A & **true**(p) → p=M]
        (e) ONLY(**introduce**(**j**,**s**,**b**), {p|∃P[P∈ ALT(λx.**introduced**(x,**s**,**b**)) & p=P(**j**)]}) iff **true**(**introduce**(**j**,**s**,**b**)) & ∀p[p∈ {p|∃x[x∈ ALT(**s**) & p=**introduced**(**j**,x,**b**)]} & **true**(p) → p=**introduce**(**j**,**s**,**b**)]
        (f) Out of all the things that John might have done, there was only one thing that he actually did: introduce Bill to Sue.

The alternatives here are not to [SUE], but rather to [introduced Bill to SUE]: same focal *word*; different focal *scope*. The portrayal of prominence such that: [semantic scope ≥ phonological scope] was already floating around, but only the phonological part of the inequality had been addressed. For example, BH took care of such cases by resorting to rhythmic defaults. The formal difference presented here takes on the semantic half, suggesting that word scope is not manipulated in the same way as a broader focus of attention, in part because the greater breadth can come to encompass operators rather than just a single argument. As will be shown in more detail below, this significantly changes the way that the prominent material in the foreground is understood to match up with the background.

Krifka (1992) moves on from Rooth to develop a framework for representing

FOCUS–SENSITIVE QUANTIFICATION. Krifka refers to his system as DYNAMIC because

rather than simply identifying the focus of an isolated expression, it is used to track

focal elements and their alternatives across successive stages of discourse, including

any anaphoric binding with respect to those focal elements.

Krifka begins by analyzing instances of quantification in terms of a function of

the form QUANTIFIER(RESTRICTOR, MATRIX), identifying as prototypical the following

example with a relative quantifier:

[2-35] (a) Most frogs croaked
(b) MOST($\{x|$**frog**$(x)\})(\{x|$**croak**$(x)\}$),
   with MOST $= \lambda X \lambda Y[\#(X \cap Y) > \frac{1}{2}\#(X)]$

This next expression is given as an example of quantification over situations *s* as well

as objects/entities *x*. It will be important that Rooth (1985) only quantifies over

situations:

[2-36] (a) Mostly / Most of the time, if a frog is happy, it croaks.
(b) MOST($\{<s, x>|$**frog**(x) **& happy**$(x,s)\})(\{<s, x>|$**croak**$(x,s)\}$)

Utterances are turned into formulaic equivalents by motivating SEMANTIC PARTITIONS

(Diesing, 1990), where clues to the proper partitioning of an utterance are found in

sources such as phrase structure, syntactic markers, and morphological markers. In

this particular study, focus is the partition source of greatest importance, where focus

"is typically marked by sentence accent in languages like English" (p. 216).

When focus is used to form semantic partitions, expressions such as [2-37](a) or [2-38](a) divide into their respective restrictors ([2-37](b); [2-38](b)) and their matrices ([2-37](c); [2-38](c)):

[2-37]   (a) [In St. Petersburg], OFFICERS$_F$ always escorted ballerinas.
   (b) EVERY({s|∃x∃y[**escorted**(x,y,s) **& ballerina**(y)]})
   (c) ({s|∃x∃y[**officer**(x) **& escorted**(x,y,s) **& ballerina**(y)]})

[2-38]   (a) [In St. Petersburg], Officers always escorted BALLERINAS$_F$.
   (b) EVERY({s|∃x∃y[**officer**(x) **& escorted**(x,y,s)]})
   (c) ({s|∃x∃y[**officer**(x) **& escorted**(x,y,s) **& ballerina**(y)]})

Lines (b) and (c) go together in each case to make a single assertion. I would like to ensure the clarity of Krifka's statement that "expressions that are in focus are mapped to the matrix" (p. 216). Notice that the single *words* in focus in either [2-37] or [2-38] do not give rise to their respective matrices alone. These matrices require information found in the whole utterance, but it is not the whole utterance that receives the actual focal prominence. So, when Krifka refers to "expressions" here, he is talking about an entire *utterance* which has some element *in* it which is in focus, and not just the prominent word alone. In that sense, *matrix* partitioning actually treats the scope of focus as irrelevant, with the result that the utterances above have identical matrices despite different focal scopes.

Krifka intends for this system to encode the focal constituent (of whatever scope) onto the matrix along with everything else, which is entirely reasonable and consistent if *only* non-focal material is mapped onto the restrictor, which it is. The whole utterance is mapped onto the matrix, and the scope of the focus is only apparent

as the material which appeared in the matrix but not the restrictor. Just in case it is not clear, what matters is the relationship between the restrictor and the matrix. While only the focus "OFFICERS$_F$" is missing from the restrictor of [2-37] when compared to its matrix, only the focus "BALLERINAS$_F$" is missing from the restrictor of [2-38] likewise. This is what portrays the focal material as the variable for which other semantically appropriate material might have been substituted.

There is a reliance in Krifka upon syntactic constituency to determine the range potential of the focal scope:

> ...focus is represented by a feature F that applies to syntactic constituents and may be spelled out by sentence accent on certain syllables of certain words of the constituent in focus. The constituent in focus may be associated with a focusing operator such as *only* that c-commands its focus. (p. 216)

Some instances of focus are well known not to obey syntactic constituent boundaries, such as Newman's list of fruit, or parallel structures. After acknowledging them, Chomsky and Halle suggested that resolving this behavior was complex and beyond the scope of SPE. The solution is to treat such examples as multiple individual instances of focus, some of which work in a systematic, coordinated fashion, and others of which are simple coincidence. I analyze such linked volitional prominence in chapter 5.

Krifka complains that Rooth fails to represent "Most of the time, Mary took [JOHN]$_F$ to the movies," as possibly meaning that "Most of the time, Mary took only John to the movies *and no one else*." Quantification over situations instead of entities

leaves [JOHN] inaccessible for portrayal as unique. Krifka rejects solutions involving the nesting of focal operators such as "MOST" and "ONLY" on the basis of even further meanings that they fail to capture. In addition, Krifka notes that variables in the matrix and restrictor remain unbound in expressions like:

[2-39]　(a)　Most of the time, a frog that sees a fly tries to CATCH it.
　　　　(b)　MOST({s|∃x,y[**frog**(x) & **fly**(y) & **see**(x,y,s)]})({s|**try-to-catch**(x,y,s)]})

Alternative semantics fails to capture anaphoric reference. Finally, a sentence which has no situation argument over which to quantify presents problems for Rooth, as in "Most of the time, a three-colored cat is INFERTILE" (p. 219, ex. 16).

　　　　Krifka synthesizes four semantic representation systems into his dynamic framework, which operates as follows: 1) focus is used to partition an expression into background and focus elements; 2) which are fed as direct arguments to focal operators; 3) where quantification can be expressed over cases, and not just situations; and 4) dynamic semantics allows for the projection of information about background and focus, such as that involved in anaphoric binding, through obstacles such as complex foci, multiple foci, and the stages of discourse. Prominence then becomes a matter of helping to align S and L not just over the immediate context, but across the stages of discourse as well, including the tracking of anaphor.

　　　　Now we come to Lambrecht's take on focus (1994), who uses ALLOSENTENCES (p. 6; after Daneš, 1966) to illustrate the differences in three types of sentence focus structure. The following examples are adapted from his work (p. 223):

[2-40] (a) My car broke dówn.   (What happened to your car?)

(b) My cár broke down.   (What happened?)

(c) My cár broke down.   (I heard your motorcycle broke down?)

[2-40](a) is an example of predicate-focus, where the car (topic) is already a part of the discourse context, the proposition is the comment about that topic, and the prominent word is the focus of that proposition. Example (b) displays sentence-focus, where a whole new set of referents is introduced into the discourse, so: 1) there is no topic (except the speech event and its participants by default); 2) there is little formal pragmatic presupposition ('something happened'); and 3) the assertion coincides with the focus. Neither one of these strikes me as representing an analog of volitional prominence.

Then there is the argument-focus in example (c), which has the presupposition that "S's *x* broke down" (p. 228), and the assertion that *x* (the presupposition's focus) was the "car." Lambrecht does not mention the additional intensity of "car" in (c), but he does specifically mention that, "The assertion made by uttering [(c)] is therefore not merely the identification of X with the speaker's car but also the correction of a mistaken belief on the part of the addressee" (p. 229). This sounds like substitution to me. Finally, the prominence pattern differences between argument-focus and predicate-focus structures evaporate when predicates are made intensely prominent, because such predicates approach being treated as if they were just as referential as arguments.

While Lambrecht pays attention to routine patterns of prominence, I am mostly interested in their volitional forms, on top of which, Lambrecht is "concerned with prosody only inasmuch as it serves to mark contrasts in the INFORMATION STRUCTURE of sentences," and specifically not with its use "for other kinds of semantic or pragmatic purposes" such as "SPEECH-ACT DISTINCTIONS" or "SPEAKERS' ATTITUDES" (p. 238f). So, my concern is not routine, and his is neither volitional nor word-internal; nevertheless, there *is* overlap. Argument-focus seems to be a type of outward focus or revelation whose volitional prominence simply did not merit Lambrecht's attention; similarly, predicate-focus is used for revelation *when* its prominence is volitional.

To top this off, I really had not expected Lambrecht to say anything at all about the iconic relationship between prominence and communication, much less something specifically supportive, but he does:

> One of the tasks in the description of sentence prosody must therefore be to show how prosodic prominence as an iconic information signal is converted into informational meaning by being mapped onto grammatical structure, which is an essentially non-iconic system for the expression of meaning. (p. 242f)

Lambrecht reveals prominence functions at their most advanced state of adaptation *away* from their origins in sensation, portraying the relationship between grammatical, 'normal' prominence and communication as only "PARTIALLY ICONIC" (p. 242); however, the functions of volitional prominence studied here reflect an earlier stage of adaptation, and their iconicity is greater because they are closer to their completely iconic origins in sensation.

3.6   Prominence DOES Inward Focus

These previous analyses of focus deal primarily with shifts in the *placement* of prominence that select one out of a set of alternative values to the variable or focal element. For example, 'cactus' would be interpreted as 'cactus in particular versus all alternative values of the variable "plant," such as grass or palm tree', and so on. Shifts in meaning also accompany changes in the *form* of prominence, but they generate a different kind of alternative to the focal element. In such a case, 'cactus' might be interpreted to mean 'one of those dangerously spiny kinds of cactus in particular, rather than some sort of succulent which is sometimes called a cactus, even though it really isn't one'.

Alternatives of the first kind present the focal element (cactus) as the specially chosen member of a set which contains an indefinitely huge number of things (plants) which are as similar (succulents) or as different (orchid) from that element as Jackendoff's semantic appropriateness will allow. Alternatives of the second kind present the focal element as a select member of a set (cactus) which contains a very small number of things which are so absolutely similar to it (cactus-like things) that they would usually be ignored by the conversants (succulents are included as cacti), were not prominence deliberately brought to bear on the differences that distinguish that element from the others (only spiny cacti). Where external focus compares the typical meaning of a word to that of others in its context, *internal* focus draws attention to shades of the word's meaning which would normally be overlooked. This inward focus is ELABORATION.

Just as the formal semantics version of revelation is outward focus, elaboration or inward focus finds analogs among Lasersohn's (ms.) "pragmatic slack," where "slack regulators" tighten the routine tolerance for falsehood around the denotation of an utterance (p. 8). To begin with, Lasersohn uses the example, "Mary arrived at three o'clock" (p. 3) to point out that it usually doesn't matter if Mary actually arrived a minute (or so) earlier or later than 3:00. Suggesting that Mary arrived at 3:00 when it was actually 3:02 would be "saying something which is literally false, but close enough to the truth for practical purposes" (p. 8). 2:59 and 3:01 are usually so similar to 3:00 that people ignore the difference, allowing for what Lasersohn calls pragmatic slack in meaning, which is a truth-theoretical counterpart to what I have been studying as conceptual or ideational INTOLERANCE.

Lasersohn portrays the arrangement of the primary alternatives to the utterance as arrayed in a circle around its denotation in a "pragmatic halo" (p. 15). The pragmatic context determines how many of these alternatives are associated with the event without any of them exceeding the limit of irrelevant detail. it might be expected that the slack allowed in the mention of a particular minute (3:03) might include *at least* 20 or 30 one-second increments to either side (plus an increasingly large number of increments with increasingly smaller size), and that a minute which coincides with the top of the hour (such as 3:00) might normally be used as an approximation of that hour so often that a few *minutes* to either side might well be ignored.

Words such as 'exactly' and 'precisely' function as "slack regulators" (p. 8), and the process of "tightening" this slack is "an elimination from the halo of those

elements ordered furthest from the core formed by the expression's truth-theoretic denotation" (p. 17). This reminds me of radial categorization (Lakoff, 1987: 91), and while Lasersohn would not likely take exception to the 'radial' part, I would not want to project the ideational associations of 'categorization' onto this truth-theoretical representation. (Although Lasersohn specifically does not promote halos as mental representations, some sort of mental principles are involved in determining what goes into the halo and what does not.) Even at that, I am interested in the similar facilitation of functions which is allowed by a radial construal of the alternatives, even if in Lasersohn this spatial arrangement is not supposed to reflect mental structuring.

Finally, both of these analyses define the halo of a complex entity as a combination of the alternatives to its individual components, but Lasersohn intends for this to be taken as syntactic phrasal componentiality (NP-halo + VP-halo = S-halo), and I prefer an interpretation in terms of the syntagmatic combination of semantic units (cf. Langacker, 1987: 82).

In comparison to Lasersohn's treatment, I interpret 'Mary arrived at 3:00' as one activation pattern distributed through a web of potential semantic substructures, where that web in its entirety is composed of all of the possible alternatives to each of the utterance's subunits over the course of its combination. The assignment of an utterance's strongest prominence, volitional or otherwise, defines what the *primary* set of alternatives will be which surrounds that utterance, but the secondary shadows must radiate at a greater remove, because that is part of the way that conversants navigate their way through discourse. Somewhere around 'Mary arrives at 3:00' there lurk

alternatives to 'Mary' as we usually know her (different moods, physical appearance), and alternatives to 'arrived' (á la Dolly Levi), and alternatives to the actual time (and to 'at', for that matter), all of which occur within some pragmatically unimportant margin of the definition in the utterance, and all of which are crossbred as individual alternatives to the utterance as a whole.

Routine prominence indicates which of these radiations is the primary set of alternatives, whose variations are being ignored, and volitional prominence brings attention either to that or to some other set of alternatives such that this margin for error is no longer overlooked. Revelation draws attention to a contextual alternative, and elaboration signals a word-internal alternative. Now, a *proper* pragmatic halo only surrounds a denotation which plays a role in determining truth and falsity, and so while most of what I talk about as sets of meaning alternatives are not halos at all, halos still represent a type of tolerance. I interpret the reduction of word-internal tolerance to be a type of elaboration (and instantiation), which has been examined in great enough detail by Langacker that I was easily able to identify this inward focus function of prominence *as* elaboration (to begin with: 1987: 68; 1991a: 61; also described at the beginning of chapter 3 in this dissertation).

3.7   Prominence DOES Focus, both Outward and Inward

Prominence is characterized so far as performing two discourse functions, which until now have been called inward and outward focus. As this analysis progresses, I will differentiate each of these functions internally, and in light of the increasingly detailed information exposed about their behavior, they will be

rechristened elaboration and revelation. There are a few places in the literature where a similar pairing of functions has been proposed, and there has even been some mention of the possible components of these functions, but no analysis has ever pulled it all together before.

The earliest similarity I found to revelation was Sweet's (1890) "negative emphasis," which gets its name from the fact that once any given utterance is stripped of information which is old in the context, and then also has its function words removed, then what's left must be "the logically prominent words—those which are most indispensable for expressing the sense" (p. 28). Sweet gives the example (in phonetic transcription), "I got *wet*" (p. 28f), which when stripped of old information ("I"), and then function words ("got"), would leave only "*wet*" designated as the logically prominent word with negative emphasis. Note the implied equation drawn between Sweet's "sense" and 'the part of the meaning to which S and L should both be paying the most attention'. If, however, "*wet*" were used to mean 'very wet', then that would be "*positive* emphasis, or emphasis proper" (p. 29), or elaboration, which sets up the two functions as a pair.

Coleman's (1914) division into prominence and intensity is the same thing:

> 14. We have not thus far *defined* the meaning of emphasis. It is however desirable to give a definition before preceding further. The first kind of emphasis may be defined as that manner of utterance which marks any word or phrase of greater importance than its neighbors. This kind of emphasis may be termed *Prominence*.

> 15. The other kind, which may be termed *Intensity*, may be defined as that manner of utterance which imparts an added degree of intensity to some part of the idea represented by a word. (p. 11)

So, while *prominent* 'black' is opposed to 'dark blue', *intense* 'black' is opposed to regular old 'black'. While Coleman finds this to be similar to Sweet's "Negative Emphasis" and "Positive Emphasis" (p. 29), respectively, he still finds Sweet's characterization of those categories difficult to follow, given a disagreement over Sweet's identification of contrastive emphasis as positive (p. 7n1).

A&W (1926) attach increased pitch and optional deaccenting in the surround ("Special Prominence") to the expression of contrast (revelation), and combinations of increased breath force and pitch changes ("Intensity") to prototypical or peripheral meanings (p. 43f; elaboration). Admittedly, this sets up all emphatic sentences as being based on unemphatic forms, but at least A&W do not throw out emphatic utterances altogether, which some later analysts seem all too eager to do.

Jones also grazes the 'precision' subtype of the elaboration function, which displays a characteristic reduction of tolerance: "The stressing of *this*, *these*, *that* (demonstrative), *those* depends upon the amount of 'demonstrativeness' it is desired to suggest. Sometimes they are equivalent to little more than the definite article *the*, and in such cases are unstressed" (1918: 266; §2.968). In addition, he says that emphasis can be used either for "intensity" or "contrast," where a word like "*enormous*" would come to mean "particularly large" (1950: 109; the 'power' subtype of elaboration).

Then there are Newman's (1946) two types of expressive accent. One used a peak shift and extra articulatory intensity for a contrast of references in a predicate (revelation), and the other used extra force and quantity (size iconics) to augment the meaning of the targeted word (elaboration).

Bolinger (1986) posits two classes of accent patterns, namely accents of power (ch. 6) and accents of interest (ch. 7). An accent can be placed on an individual word to highlight its *interest*, and there are patterns of pitch accent called PROFILES (ch. 8) which throw portions of varied scope into prominence. When a profile's accents are shifted to the outer edges of an utterance, the impact or *power* of the message *as a whole* is made prominent. Accents of power affect meaning broadly, involving the release of an "effusion of feeling" (p. 83). My functions of elaboration and revelation are *both* subsets of his accents of interest, depending upon the reason a word is interesting enough to highlight.

Taken together, this gives the same sort of strength to the definition of inward and outward focus that BH's work was able to attribute to theme and rheme, which amounts in great part to putting the functions through their paces. Inward focus is used by S to let L know that a word is being used with an unexpected variation of its typical meaning, and this warning helps to preserve the sense of the utterance, where 'making sense' refers to preserving the meaning unmolested from S to L. Outward focus is used by S to keep L's attention directed towards the information that preserves or corrects the alignment between their perspectives on the discourse, helping to make sense by tying newer information to older stuff which has already proven stable and sensible.

3.8   Prominence DOES Proportion

The phonological levels of prominence have been described so far as having four rough divisions, namely: intense; primary; secondary; and then the significant *lack* of prominence (zero/weak). Prominence has also been portrayed as identifying

areas of semantic attraction along a CD continuum, specifically: focus; rheme; theme; and then the little or no prominence that is assigned to transitional elements.

The appearance of any given phonological component or set during a specific, individual instance of prominence has been treated as unreliable, but Wells (1986) at least establishes a likely distribution of these components across prominence as a whole. In addition to this, Wells goes on to show that each of four typical sets of components are strongly correlated to the expression of four distinct levels of outward focus in an utterance. (For the sake of clarity, I am going to substitute the vocabulary which has been promoted in this analysis for those terms used by Wells, such that his use of "subsidiary" is replaced by "secondary," and so on.)

Wells presented each of 30 test subjects with a transcription of 23 sentences which had been removed from the context of an audiotaped conversation. While listening to the tape on which the sentences were separated by short pauses, each subject was to underline the part of each sentence which "the speaker [was] focussing on as particularly important" (p. 54). Multiple foci were to be numbered for relative order of importance. Wells found that the test subjects appealed in common to four distinct levels of focus which are analogous to the outward focus, rheme, theme, and transition levels of prominence from the previous chapter.

Each focus level is consistently correlated with a specific phonological level (focus = intense = 1, rheme = primary = 2, theme = secondary = 3, zero = weak = 4), each of which is characterized by a consistent set of phonetic characteristics, as laid out in the table below. There are three main groups of such characteristics which are

significant in the identification of intensity levels: pitch; loudness maxima; and tempo changes. Pitch takes the form of 1) tone movement on the point of focus (any pitch movement in an otherwise still surround), or 2) a pitch maximum on the point of focus (either the pitch peak or maximum movement of pitch). Loudness maxima include either 3) the loudness peak, or 4) a decrescendo (a step downward in loudness when leaving the point of focus). Tempo changes are 5) virtually any change in the rate of speech at the point of focus, either faster (allegro) or slower (pause/drawl). Duration is not measured.

These findings are summarized in the following table:

Table 2-4: Prominence Components Associated with Focus

		Pitch		Loudness Maxima		Tempo
		Tone Movement	Maxima (peak, movement)	peak	decrescendo	allegro *or* pause/drawl
Level	1	1	2	3	4	5
	2	1			4 (or 5)	5 (or 4)
	3	1			4	
	4	1 (or 4)			4 (or 1)	

Each of the four phonological levels of prominence can be consistently identified by a specific combination of these five features. An intense phonological level of prominence marks outward focus (an intense semantic level) with all five phonetic components (1, 2, 3, 4, 5). Primary prominence on the rheme is less intense in that it is only marked by tone movement and *either* decrescendo *or* tempo (1, (4 or 5)).

Secondary prominence for the theme is somewhat less intense yet by being marked only by tone movement and decrescendo (1, 4). Weak prominence, when it is used at all, only accompanies transitional elements with the presence of *either* tone movement *or* decrescendo (1 or 4).

This supports the consistent, proportional variation in the intensity of the phonetic characteristics of prominence from intense all the way down to the weak levels, and there is also support for the intensity of the level of focus or interest marked by prominence varying along a scale as well, from outward focus to rheme to theme to weak. There is a direct iconic proportion holding between the phonological and semantic levels of prominence intensity. I would like to introduce a symbol for this relation, to be used as follows: focus ⬦ intense; rheme ⬦ primary; and so forth.

In summary to this point, Wells shows that prominence has phonetic feature sets associated with semantic distinctions in what he calls focus levels. Bardovi-Harlig was shown earlier to demonstrate that this association which determines primary and lower prominence placement can be described in terms of two synthesized discourse functional terms, namely theme, which gets secondary stress, and rheme, which gets primary stress. Also arising from the comparison of prominence analyses is the suggestion that there is a direct proportion holding between the phonetic and semantic properties of any given level of prominence intensity. Wells supports such a contention as portrayed in terms of focus levels, and goes one step farther, showing a few cases which suggest that rhematic prominence might have been a continuous adaptation of the meaning of volitional prominence. Together, these studies predict that just as the

phonetic characteristics of prominence consistently disperse from intense through the lower levels, so might rheme and theme be weaker forms of the communication function appealed to by focus prominence.

4   Prominence MAKES Sense

Physiologically, an increase in prominence is accompanied by a greater expenditure of energy, which results in greater efforts such as the recruitment of additional motor units for the movement of the lungs and articulators, with consequent increases in subglottal pressure, and changes in the baseline values of features such as formant and fundamental frequency, duration, and vowel quality. Language users have this price so well internalized that hearers will attribute greater prominence to sounds which require the greatest gestural effort to make on the part of the user (distal evaluation), and as I keep repeating, I'm sure that there are not only analogs in other modalities, but even cross-modal universals. This realization is buried deep in the metaphorical structure of our language, which equates greater size and anger and heat and sound all together with a greater energetic power, as well as focus of attention with greater energy put towards an intense precision of movement.

Similarly, an otherwise undisturbed, continuous expenditure of energy will fall into rhythmic patterns which require no additional input from its generator, and any deviation from that low-energy physical default state (other than to lapse into inaction) requires the expenditure of greater energy. The greater the shift of an event from its normal timing, the greater the effort required. Cognitive routines, conventional

meanings, and undirected attention are all representatives of low-energy mental default states which cycle just this side of sleep: the lower the activity, the lower the processing, and the lower the energy expended. Inward and outward focus are used to convey novel meanings in the service of preserving the sense of an utterance within a discourse, or the sense of a word's meaning within an utterance. The greater the shift in a cognitive event from its routine timing, or the greater the distance from the central meaning of a word, the greater the mental effort required.

For each of these types of prominence taken individually, linguistic or otherwise, greater prominence takes greater effort. The rest of this analysis is devoted to providing the linguistic functions of prominence with enough structure that all of these types of effort can be demonstrated to be in direct iconic proportion to one another.

CHAPTER 3

Elaboration

⸻

> If a language permits a contrast in form to survive, it ought to be for a
> purpose.
>
> — Dwight Bolinger, *Meaning and Form*

The analysis of volitional prominence for elaboration requires a clear portrayal of what people do when they actually speak or sign *about* something, namely isolating portions of their shared reality as: THINGS ('food', 'nothings', 'Marilyn'); TEMPORAL RELATIONS (processes such as 'defend' and 'graduate'); or ATEMPORAL RELATIONS ('fairly', 'green', 'in'). To begin with, a potential S brings to mind material about which it wants to converse, thus making MENTAL CONTACT with a TARGET, after which S describes that target so that L can contact similar material. S narrows down the range of reality through which L has to search by defining a schematic TYPE SPECIFICATION (Langacker, 1991: 53; TS). The TS describes properties of the target, identifying a set which encompasses all of the entities which belong to the same class as the target, without actually singling out either the target itself or any other particular entity in that class. The process of describing this TS in greater detail, thereby helping L to locate the target more easily, is one kind of ELABORATION (Langacker 1987: 68; 1991: 61). For example, the type [PLANT] is less elaborate than the type [EDIBLE PLANT], which is less elaborate than the type [CARROT], and so further elaboration narrows down the material through which L has to search.

As a refinement of this tactic, S can use variations in prominence to ensure an even closer alignment of L's conceptual construals with its own. This is simply another way of saying that S uses volitional prominence to make sure that L *really* understands what S means. In this case, prominence works to correct or avoid those mismatches between S's and L's conceptual construals that are provoked by a WORD-INTERNAL difference in meaning. S presents L with a prominent phonological form, drawing L's attention to the fact that the full, fuzzy spectrum of meaning conventionally evoked by that form is *not* what S had in mind. This internal meaning change is a special form of elaboration, where the full set of a form's potential range of meanings is treated as if it were a TS, and the individual, subtle variations of meaning within that set become member instances of that type.

When S applies volitional prominence to a phonological form, L interprets that effort in terms of a directly proportional ICONIC (physical force ⬦ nonphysical force) change in its conventionally associated semantic representation (cf. ch. 1, §3.1; ch. 2, §1.3, §3.4). There are two interpretations of elaboration, divided according to whether this increase is taken as signifying greater brute force or exceptional finesse. With the brute force approach, L takes the specification of additional effort as promoting one of the meaning variations which exploits the application of greater POWER in its construal (§1), such as larger things and intensified relations, including more forceful processes.

It is obvious that PRECISION (§2) influences literally physical arrangements; just go to any grocery store and try to find a 32-ounce plastic jar of Brand X reduced-fat, no-preservatives-added, no-sugar-added, chunky-style peanut butter. In fact, your

thoughts about doing so reflect the existence of cognitive processes which are at least *compatible* with the articulation of figurative spatial organization, even in the absence of visualizing (or otherwise sensualizing) any spatial structures inside of your head. The figurative space representative of such thoughts is familiarly portrayed in terms of delimiters such as boundary placement and tolerance, orientation, or measures of quantity, where L interprets the additional effort not just as raw power, but as finer precision. The analysis of prominence as it represents exceptional finesse draws upon the common attribution of a figurative spatial structure to the conception of relative quantifiers, demonstratives, types and their instances, and some adverbs. The efficacy with which this heuristic explains their linguistic behavior is taken as *reflecting* the existence of cognitive processes which are at least compatible with the representation of spatial structure, even if those processes are not *defined* as literally spatial in an actual language user.

When this finer precision amounts to a closer alignment of boundaries, an increasingly exact identification of a location, or a more accurate measurement of a quantity, then precision is used with narrower tolerance (§2.1). When precision draws upon a spatial portrayal to characterize instances within a type as 'things located in parcelled space', then L understands this precision to accurately isolate a prominent instance within its type, so L interprets prominence as identifying a particular POSITION within that type as special (§2.2). Context determines whether an instance is pushed right to the center of its type as a PROPER member, or forced outward toward the type's PERIPHERY.

In all of these cases, L interprets the increase in the phonological intensity of the physical form as being in direct iconic proportion to the increase in the semantic intensity, as represented by the conception of increased power or precision in the form's associated meaning.

1   Power

Prominence for the attribution of greater power elaborates a word's meaning by emphasizing size or perceived imminence. Power can be inherent in an entity, or it can be added adventitiously in accord with S's emotional charge. If this potential potency *is* built in, then it should essentially be universal across personal construals, as well as virtually context independent ('plunge', 'always', 'hero', 'huge'). When not in contextual competition with each other, such entities always elicit at least a *respectful* rhematic prominence, and they are naturally prone to being assigned intense potency by S. This power can be physical or nonphysical (mental, spiritual, emotional), or can derive from indefinitely large quantity (big, lots), and it encompasses things which are physically large, emotionally overwhelming (abject terror), valuable (gold), or deeply personal (intimacy). Of course, the vast majority of entities *have* no great power, but any of them can be *treated* as powerful when S makes them personally prominent in context. This power reflects S's experience with the entity in general, or S's emotional charge or investment in that entity in a specific context. Elaboration for internal *and* external power can overlap sometimes, in which case an inherently or adventitiously powerful entity is attributed even greater power by S's emotional charge.

Capitalizing on the potential power inherent in most adjectives (as continua or relations with open upper ends) is particularly popular:

> [3-1]   ...Cathy had stayed all winter too.... "That was an awfully <u>long</u> two weeks". [P15 0270]

> [3-2]   [The dishes] looked so formidable, however, so <u>demanding</u>, that I found myself staring at them in dismay and starting to woolgather again.... [R02 0350]

Other examples include: "<u>terrible</u> step" [G49 0830]; <u>real</u> money" [P10 0630]; "<u>big</u> fight" [K15 1220]; "<u>swell</u> party" [P03 1540]; and, "fast, <u>fast</u> muscle growth" [E01 0200]. Prominence does not add power that was not here before, but forces the relation toward the extreme end of the scale. Some modifiers, though open-ended, do not describe properties which tend to be associated with power, and so when made prominent, they tend to be treated with finesse rather than brute force, as if precise or paragonal ("Ben is so *gentle*").

Prominent adverbs elaborate with precision (§2) in a context where they approach a limit to within a narrow degree of tolerance, but they elaborate with power when taken to mean simply *that* the limit is being approached (rapidly, inevitably), or that it has in fact been reached or exceeded:

> [3-3]   It had gone like clockwork. Almost <u>too</u> smoothly.... [L24 1170]
> [3-4]   Families are <u>very</u> interesting. [N19 0970]
> [3-5]   Of <u>course</u> he's in. [L14 0260]

Other examples are "<u>too</u> much...". [N17 1290], and the pair "<u>awfully</u> good" [R07 1130] and "<u>awfully</u> kind" [R07 1140] by two successive speakers. As relations, adjectives and adverbs don't have types to specify as such, and so they are not prone to elaboration in

the same way that an instance of a noun or verb type might be; however, these same principles can be applied analogously in the sense that there are locations along the relation's continuum used to identify instances of greater or lesser power.

Just as with modifiers, some verbs have a greater tie to physicality than others, but unlike the modifiers, a lack of such a tie does not as strongly suggest that prominence will be used for precision rather than power. Verbs draw upon the power of prominence so that the given process can fulfill a potential for expending great energy, but some do so less generically than others:

[3-6]   I wish so much someone <u>loved</u> me. [P14 0290]

[3-7]   "I could go with him. He knows me as your niece, which, of course, I am. But I am a slave! You <u>own</u> me. It's your decision", said Juanita, holding her face very still, trying to contain the bitterness of her voice as she enunciated her words too distinctly. [K15 1710]

[3-8]   I <u>drove</u> him away. [P03 0240]

[3-9]   "You could try. And if I *ever* hear you say 'Mist Laban' again I'll <u>scream</u>." [P03 0660]

Other examples are: ["<u>prohibits</u>"] [J46 0900]; ["<u>stared</u>"] [P19 1400]; and ["<u>come</u> on"] [N29 0710]. The distinction that I am trying to draw here is that there is an inherent physicality to a modifier like "<u>long</u>" or "<u>fast</u>" that is lacking in a verb like "<u>own</u>". The power of "<u>own</u>" comes not from size or speed as such, but from the potential potency of the process, which determines how long the process will last, how many entities it will affect, how strong that effect will be in its consequences, and so forth. As there aren't that many examples of prominent content verbs in the Brown corpus, I'm going to illustrate this point more clearly by drawing upon a few examples from the Other corpus.

So, some content verbs have greater inherent physicality than others ('punch' vs. 'ponder'), but the effect of additional power on physical verbs like "bust" [3.303] or "sails" [8.-11] is just as clear in the 17 instances of the non-physical verb 'know':

[3-10]   But though the chapter is ending, you know they're coming back next month, because they never tell you which one is Victoria, and what's the big secret. [8.314]

[3-11]   A typical example of the occasional resistance mustered by intuitive thinking against the clear conclusions of analytical thinking is D.H. Lawrence's opinion of the nature of the moon: "It's no use telling me it's a dead rock in the sky! I know it's not." [17.192]

[3-12]   C'mon, she knows I love her. [8.302]

[3-13]   Crooks said gently, "Maybe you can see now. You got George. You know he's goin' to come back...." [6.127]

The meaning comes to reflect a daunting depth of intuition, and a formidable strength of conviction. Other examples are: ["care"] [5.202]; ["live"] [11.51]; ["need" (not vs. want)] [37.359]; and ["needed" (not vs. want)] [37.359]. There are also some cases in which the repetition of a verb is used to enhance this power:

[3-14]   REINER: I'm a little queasy about this, telling tales about Presidents and Presidents' wives.
2000: They're all a little power-crazy, right? And they love to do it. Let's face it. They love it. They love it. They LOVE it. [19.89]

[3-15]   Her mind echoed with Stephen's voice, and, try as she might, she could unlock no secret meanings from his words. She did try—pressing deep into those dim memories of her infancy for words and phrases. [24.83]

[3-16]   "I mean the whole thing with prostitutes and men—I just don't get it...."
"I just don't get it." [8.174]

[3-17]   The Boys would blink and stiffen, and then they answered him.
That was the moment when Frank knew he had control. They
<u>answered</u> him. [37] [100]

This repetition supports the contention that the intensity of the phonological form is in
direct iconic *proportion* to changes attributed to the intensity in the semantic structure,
particularly in the example which goes from "love" to "<u>love</u>" to "LOVE". There was
also a repeated adjective earlier ("fast, <u>fast</u> muscle growth" [E01 0200]), but there is no
evidence yet which clearly suggests that nouns behave like this.

When it comes to intensely prominent nouns, it is best to begin with the regular

old nouns which are attributed greater size or imminence of threat:

[3-18]   This brings us squarely to the problem of <u>power</u>, and the uses a
nation makes of power. [F23 0490]

[3-19]   In *Inside Africa*, John Gunther describes one of these [huge
cartels], the Societe Generale, as "the kind of colossus that
might be envisaged if, let us say, the House of Morgan,
Anaconda Copper, the Mutual Life Insurance Company of New
York, the Pennsylvania Railroad, and various companies
producing agricultural products were lumped together, with the
United States <u>government</u> as a heavy partner." [A41 0450]

[3-18] resembles the use of prominence for technical terms, and it would have been

disallowed *if* it had only mechanically set off a section of the passage, but in context

the intent was to make "<u>power</u>" come across as ominous. In [3-19], prominence

associates "<u>government</u>" with threateningly inhuman size and power, not only making

its actions seem ponderous and destructive, but isolating its impersonal nature, which

makes it seem indifferent to the populace, perhaps even malevolently oppressive, all of

which add up to portray the "<u>government</u>" as a shadowy, invulnerable Enforcer.

These examples easily resolve the "shrimp" problem that puzzles Schmerling (1976: 43), undermining Ladd's (1980) treatment of Schmerling in general, as well as their mutual mistreatment of Bolinger. Suffice it to say that in this analysis, it seems straightforward to suggest that the sheer size or volume (not necessarily physical) of "all these" shrimp is enough to explain the prominence used on, "I've got all these shrimp to {clean, sort, peel, devein, package, etc.}," and that predictability is not the issue. One of the points here is that this same prominence pattern can not only be applied to a *lot* of shrimp, but also to just *one* shrimp ("I've got this shrimp to..."), just so long as that shrimp (or other entity) is construed as having a more elaborate TS than normal, such as if the particular shrimp were repulsive, vast, or *more* anything. The shrimp doesn't have to be new or not predictable, just disturbingly conspicuous.

In English, 'classifiers' are those nouns which often appear in constructions and perform functions similar to those of the classifiers found in other languages, such as 'lot (of)', 'bunch (of)', and 'mess (of)'. They can be elaborated for power because their meanings are related to quantity and size:

[3-20] ...the hebephrenic patient... shows... laughter– laughter which now makes one feel scorned or hated, which now makes one feel like weeping, or which now gives one a glimpse of the bleak and empty expanse of man's despair; and which, more often than all these, conveys a welter of feelings which could in no way be conveyed by any number of words, words which are so unlike this welter in being formed and discrete from one another. [J31 1280]

[3-21] Maybe because they have had virtually no radioactive exposure and don't have any R's stored up, they could take a lot without harm. [M04 0840]

The additional prominence increases the merely large diversity of "welter" and

quantity of "lot" to their greater "<u>welter</u>" and "<u>lot</u>" capacities. This behavior is

reflected in examples from the Other corpus as well:

[3-22]   Try the game a few times, and you think you're doing really
         well to score 800 points. Then you find out that <u>lots</u> of guys
         have broken 100,000, and someone in Japan hit 300,000. [11.148]

The context links "you" with "guys," so prominence on the quantity "<u>lots</u>" emphasizes

the proportion against the implied singularity of "you." The tie between players and

scores points out that 800 is pretty lousy compared to one or more 100,000 scores, and

prominence indirectly makes it plain just how *many* of those 100,000 scores there are

(possibly in proportion to the number of players and scores as a whole). So, where one

guy equals one score, "you" might still have saved face had there been a few *aberrant*

100,000 scores, *if* scores were normally in the 500s, but there are so many scores of

100,000 that the 800 points looks particularly pitiful. Alternately, it's not just that a

number of guys have done better than "you," but that the number in itself is huge. The

prominence on "<u>lots</u>," then, emphasizes the number of 100,000 scores, and thus is an

elaboration for power. So, as welters go, that was one heck of an impressively large

welter, and amongst lots, these are no piddling lots, but vast lots.

Prominence also conveys a wide range of moods, attitudes, and charges of

passion, or EMOTION. The portion of that range which falls within the current scope of

this study is the application of adventitious power. In this section, power for emotion

will be distinguished from the rest of this general emotion. Bolinger's wave metaphor

(1964) frames this distinction well, describing intonation as "the ups and downs... of the fundamental pitch of the voice," and likening it to "ripples on waves on swells on tides" (1964: 282). The ripples are irrelevant, involuntary changes in pitch, such as the first part of a vowel's pitch being heightened after a stop due to the release of pressure. The waves are the familiar patterns of pitch accent, and the tides are the broad surges of emotion (with swells going undefined). The article in which this metaphor appears makes the point that when it comes to making the (para)linguistic distinction, such as in language teaching, ripples can be ignored, waves must be taught, and if tides are addressed, it is likely that teaching their suppression will be important, given cultural differences in accepted displays of emotion during speech. The range of emotion conveyed by prominence in this study only amounts to that which is poured into one italicized word. It does not deal with long impassioned speeches, or boiling tirades, or any more widely distributed outpourings, except to the extent that one italicized word is understood to occasionally take the brunt of such an emotional explosion.

Here is an example of this emotion being discharged with one word, "<u>rabbits</u>":

[3-23]   [Lennie] laughed delightedly. "Go on now, George!"
"You got it by heart. You can do it yourself."
"No, you. I forget some a' the things. Tell about how it's gonna
be."
"O.K. Someday– we're gonna get the jack together and we're
gonna have a little house and a couple of acres an' a cow and
some pigs and —"
"*An' live off the fatta the lan'*," Lennie shouted. "An' have
<u>rabbits</u>. Go on George! Tell about what we're gonna have in the
garden and about the rabbits in the cages and about the rain in
the winter and the stove, and how thick the cream is on the milk
like you can hardly cut it. Tell about that, George." [6.30]

The prominent use of "<u>rabbits</u>" is a strong discharge of Lennie's excitement and emotional investment, and it is *not* due to his stating that they will have some sort of unusual or prize-winning rabbits rather than regular ones (position), nor is he showing his confidence in his *belief* that they will have rabbits, as if it were specifically in contrast to George's belief that they will have cows (revelation). It is also not merely a mechanical matter of speaking loud enough to be heard. The notion of rabbits simply carries a strong emotional charge for Lennie, which he discharges with power.

Here is a similar example from the Brown corpus:

[3-24]   They held the funeral the next morning from the crossroads church and buried the little box in the quiet family plot. Kate moved through all the preparations and services in a state of bewilderment. She would not accept the death of such a little child. "God called her to Him", the minister had said. God would not <u>do</u> that, Kate thought stubbornly. [K15 0180]

In this example similarly, the word "<u>do</u>" is not made prominent to distinguish it from 'hope' or any other process, neither is it being isolated as odd, but rather the woman is discharging emotion as pain and strength of conviction. The meaning of the prominent word is changed in these examples such that it stands for an entity which holds great importance. Neither the strength of "<u>rabbits</u>" nor that of "<u>do</u>" is compared to any earlier use, not even to the typical emotional strength with which that or any other word might normally be expressed. Just as a battery has a charge without comparing it to the capacity of other batteries, or to the strength of its own earlier charge, it is useful to think of such an expression as having a strong emotional charge or discharge *without* any comparison or relative difference.

The source of this emotional charge is sometimes portrayed as a matter of disbelief or sheer surprise, which displays variations such as indignance, delight, bafflement, and repugnance:

[3-25]   I was shown, to my surprise, into the <u>kitchen</u>. ^{R01 1690}

[3-26]   "But do you know something curious"? she added. "I reached into that funny little pocket that is high up on my dress. I have no notion why I reached. And I found a <u>radish</u>. ^{R07 1170}

[3-27]   2000: All right. After I eat asparagus and I make Number One, there's such an <u>odor</u>. You know? Such a nutty flavor. I mean, that really puzzles me, why there should be that— ^{19.63}

[3-28]   His mother took out a tissue, <u>spit</u> on the tissue, and rubbed it into the kid's face. I'm not making this up.... You know that if babies could talk, that's the first thing they'd bring up. "Hey, don't do that. It's revolting. Would you like it if someone did that to you? Okay, then." ^{8.330}

Outright revulsion (down through mild distaste) also commonly generates an emotional charge:

[3-29]   That this abandonment [of outer guise to display inner self] takes place on a stage, during an 'artistic' performance, is enough to associate Jacoby with art, and to bring down upon him the punishment for art; that is, he is suspect, guilty, punishable, as is anyone in Mann's stories who produces <u>illusion</u>... ^{G15 0810}

[3-30]   ...Jenny could look forward to years of conflict with an <u>animal</u> who disliked her intensely and showed it. ^{P03 0920}

[3-31]   Jenny wished now that she had had Dr. Dunne, feeling that somehow he wouldn't have allowed the dear baby to turn into triplets. There was something not <u>nice</u> about triplets.... ^{P03 1120}

Personally, I experience a mild sympathetic scrunching of my articulators just reading some of these passages, which motion I associate with one type of greater effort.

There are analogs of this emotional function mentioned often in the literature. In Walker (1787), tonal slides were not only accompanied by pitch, loudness, and duration, but also some sort of emotional charge, which he characterized as "passion," "forcible or feeble" (p. 10). Emotion is attributed a relative proportion, rather than a definite scale such as that associated with pitch and duration, and Walker marks it in the notation as an aside written in parentheses. Here are a few of my favorites:

> Arguing; a cool, sedate, middle tone of voice. (p. 26)
> Enquiry, with surprise; higher, and more forcible tone. (p. 26)
> Hatred and detestation; lower tone. (p. 30)
> Strong grief suppressed; lower tone. (p. 32)
> Disturbed; broken lower tone. (p. 32)
> Resignation; cheerful, solemn, lower tone. (p. 34)
> Over-acted earnest entreaty; high tone. (p. 40)
> Dread and terror; low tone. (p. 42)
> Enumeration of particulars; firm, loud, lower tone, rising in
>   strength on each to the end. (p. 62)

Walker provides a good number of these sorts of meanings, but there are no consistent forms said to accompany them. All of Walker's contemporaries said much the same thing about this type of emotional expression.

These attributions of power, both the type which is inherent in the intensely prominent word and the type derived from the strength of S's emotional charge, are best understood as a pair of poles along a functional continuum, rather than as two discrete subfunctions of power. In retrospect, there seems to be little doubt but what I peremptorily ruled out many cases of emotion on the basis of their having been included in exclamations. Given this new framework, however, the next pass with audio or video recordings need not be so negligent.

2   Precision

Unlike power, precision is not an effect of prominence which occurs freely across grammatical categories, but rather it works most compatibly with the likes of simple or complex relations, types and their instances, and deictics, because they are most easily characterized in terms of figuratively spatial representations. When prominence applies precision as INTOLERANCE (§2.1), the spatial components in a word's conception are understood to display less than their normal degree of variation. When the spatial components more precisely define the location of an instance within its type, then prominence is used as precision of POSITION (§2.2).

2.1   Intolerance

To begin with, members of closed classes are not often subject to elaboration at all, tending to be treated as parts of conventional pairs or sets (chapter 4, §5.1f), as in ["this" vs. that]. Except for the prepositions, there is a lack of physicality that makes them unlikely to be elaborated in terms of power, and their conventionality tends to keep them from being used for position, especially peripherally. Within elaboration, that leaves intolerance.

Here are some intolerant or precise conditionals (look for "if" twice herein):

[3-32]   Mr. Philip Toynbee affirms at one point that if he shared the anticipations of Orwell in *Nineteen Eighty-Four*, if he believed Communism was not only evil but "also *irredeemably* evil", then he might "think it right to do anything rather than to take the risk of a communist world. Even a nuclear holocaust is a little less frightful to contemplate than a race of dehumanised humans occupying the earth until doomsday". [D11 1160, D11 1700]

This is a matter of intolerance to the extent that the set of conditions is being narrowed down to almost nothing, and there are now *very* few reasons why Toynbee would agree to destroy the world rather than live under communism. In fact, he will no longer do so if communism only proves to be *horribly* evil, but specifically 'if and only if' it were precisely "*irredeemably* evil". That's how much more strict "<u>if</u>" is in this case than 'if'. Other examples are: "<u>if</u> they're Japs..." [N15 1140] (sic); "<u>provided</u> the farm is owned free of debt…" [F13 0450]; and "<u>except</u>... toward impious folk..." [R09 0670]. Note that these are not examples of *external* contrast, such as [<u>if</u> vs. when].

Now let's take a look at some precise demonstratives. These are not to be confused with the use of demonstratives as part of a conventional pair or set, as in [<u>this</u> vs. that], but rather to be *compared* to them. The following all display intolerance:

[3-33]   "And <u>that's</u> what I'm going to tell Jim". [P15 1630]

[3-34]   "<u>That</u> does it. That dog *has* to go". [P16 1380]

[3-35]   What difference does your batting average make? Or your
fielding average. Or even the way you run bases. I tell you
when it's necessary to hurt in order to win– you won't do it.
<u>That's</u> what I mean by no heart for the game. [P24 1440]

In none of these cases is "<u>that</u>" being used to correct the impression that 'this' is what is going to be 'told' or 'done' or 'meant', so it's not revelation. In each case, "<u>that</u>" indicates a severe if not absolute reduction in tolerance that *used* to be present at a time when the person might still have been willing to use plain old 'that', but not any more. Taking [3-34] as an example, perhaps 'that' didn't do it (chewing up the sofa), and neither did 'that' (always barking at nothing), but 'that' *almost* did it (peeing on the

carpet), and sure enough, "that" finally did it (gorging on a ham). In this case, "that"

not only isolates one instance out of many over *time*, but could also do so in *space* if

the residue of earlier offenses were still around (the dog was gorging by the couch).

Now, in [3-35], the coach had already told the ballplayer that he had no heart

for the game, and then told the ballplayer to sacrifice himself during a game. The

ballplayer simply wouldn't do it, counting on his impressive stats to keep him from

getting fired. In the example itself, the coach lists the stats (hitting, fielding, running)

in order to point out that they do *not* have anything to do with what he had been trying

to describe as having a heart for the game, which he isolates in terms of one quality:

self-sacrifice for the team and the game. The coach is saying, "Having heart is *not*

being a good hitter, and it's *not* being a good fielder, and it's *not* being a good runner,

but being a *team* player. *That* is having a heart for the game."

A feeling of power haunts these examples *in part* because emotions run high,

but mostly because of the *immediacy* of "that," and in any case *not* due to an actual

application of power. Suppose I were to put the open palm of my hand right in front of

your face, ever so slowly and gently. The imminence in itself would come across as

intimidating, which would *feel* like power. Similarly, in these examples, precision is

drawing two things closer together, where one of those things is the boundary of one's

fight-or-flight zone, which is an artifact of the relation between the function of deictics

and the composition of the ground. On top of that, in all of these examples, there is

some degree of identification with the person to whom "that" is being said. What this

comes down to is that prominence is actually used for precision in these cases, but it is

treated as having a side-effect of power because one of the boundaries involved is L's personal space. There are cases where power and precision *do* act coequally, rather than casually, but this isn't it. Even at that, that's not the end of 'that' (cf. Lakoff 1987: 527; the paragon-intonation construction).

The following demonstrative pronouns display an interesting variation:

[3-36]   The big factories which are relatively near the centers of our cities– the rubber factories in Akron, Chrysler's Detroit plants, U.S. Steel's Pittsburgh works– often began on these sites at a time when that was the edge of the city, yet close to transport (river), storage (piers) and power (river). [J60 0410]

[3-37]   When that was broken up after the First World War, [Constantinople's] name was changed once more. [E13 0230]

[3-38]   She could easily understand why the two men had been startled to find a strange girl in the back seat of their car (she had figured that out), but she couldn't understand their subsequent actions. [L03 1090]

In [3-36], the city site is a variable which takes on different values. (These 'algebraic' terms will be defined more rigorously for use with revelation in chapter 4.) Its value starts out as the edge, after which it alternates over time between being the center and the edge. In [3-37], the ancient city is a variable with a value identified by a sequence of cultures: the indigenous population; then the Megarians; then the Romans; then the Eastern Romans; then the Ottomans; and so on. (The whole quote is too long to put it all here.) Example [3-38] is precisely similar in that she works at understanding one action and then another. In each case, the value associated with the variable changes over time, and while 'that' can be used to refer to *any* of those values, "that" is only associated with the *current* value. This change in meaning is precision.

At first, it seems reasonable to suggest that this is actually a word-external change or revelation, where "that" is being swapped wholesale for a thoroughly distributed counterpart (e.g. "The big factories which are relatively near the centers of our cities– the rubber factories in Akron, Chrysler's Detroit plants, U.S. Steel's Pittsburgh works…"), but this sort of exchange is what a pronoun *normally* does, and so in this case it is not a function of the volitional prominence. Intolerance allows "that" to be used as an increasingly precise word-internal meaning variation of "that" in this context, which is elaboration.

As you might expect, regular pronouns behave this way as well, using prominence to clarify an elaboration chain:

[3-39]   Often, I heard my uncles and cousins speak of it when I was a small boy growing up in Rabaul. They had never seen a ['jumping platform' of death] but they had heard about it from their fathers. [N21 0780]

[3-40]   Somehow I think that Watson paid more attention to me than he otherwise might have because his foe, Colonel Van Hamm, wouldn't touch me with a ten-foot blue pencil. I remember one day when Mr. Hearst (and I never knew why he liked me, either) sent the Hetman a telegram.... [G40 1600]

[3-41]   This included Mamma, jolly, generous, and pretty, with whom they all fell in love, just as Papa had first fallen in love with her Mamma before he chose her.... [G31 1640]

[3-42]   At the same time, the wallpaper strips themselves seem to be pushed into depth by the lines and patches of shading charcoaled upon them, and by their placing in relation to the block capitals; and these capitals seem in turn to be pushed back by their placing, and by contrast with the corporeality of the woodgraining. [J59 0770]

In each of these cases, this same chaining of values for the variable occurs, and the elaboration of the pronoun indicates that it points with narrow tolerance precisely and only at the current value of the variable, namely: 1) the older male relatives of the older male relatives of the boy; 2) not the first person who is said to like S, but the most recently mentioned person who provides the value for that variable (Mr. Hearst); 3) not the Mamma, but the Mamma's Mamma, who provides the current value for the variable of the person who was fallen in love with; and 4) the capitals which provide the current value for the variable 'something which gets pushed back by its placing relative to the value of something else'. These examples are *by nature* convoluted.

As mentioned, some examples of revelation are similar, but in those examples the exchange of the counterpart for the pronoun is a normal function of pronominal reference even *without* the volitional prominence. In the current examples, the switches of value are treated as mundane, a lot of them happen, and what is important is being able to point to the most current value, whereas in the revelation examples, what will be important is the fact that there has *been* a switch.

To analyze volitional prominence with relative quantifiers, I need the terms GROUND (G) and REFERENCE MASS (M), drawn from Langacker (1987: 126; 1991: 82). Think of S and L as trying to make mental contact with the same entities for the purposes of conversation. The speech event and its participants make up the ground, and S helps L to make contact with the target by using the ground as a REFERENCE POINT from which to locate the desired entities. Nominal grounding predications such as 'the', 'a', and 'those' ground primarily in G, and only secondarily (if at all) in M.

M is the primary ground for relative quantifiers, and it is a conceptual construct against which to measure the magnitude of the expanse designated by a thing. For example, 'some water' (as in 'There might not be much left, but I think that there's still some water left in the pitcher') does not necessarily imply any connection to any aspect of G, such as either S or L, but rather primarily compares the amount of water designated by 'some water' against M, where M in this case is some sort of maximal extension of the category [WATER], such as 'all water', or 'all the water in the universe'. Relative quantifiers are distinct from the TRUE or ABSOLUTE QUANTIFIERS ('several', 'few', 'little', 'numerous', 'much', 'many', the open-ended set of cardinal numbers), which describe an instance's magnitude without such reference.

Crucial to this analysis is the assertion that under normal circumstances, some tolerance is allowed in the conception of the borders of the compared instance relative to M. For example, a statement such as, 'All politicians are corrupt', is taken with a grain of salt, and at least a very few politicians are presumed to be honest, even though 'all' is specified; however, the phrase 'All politicians are corrupt' leaves no margin for error, and there is absolutely no such thing as a politician who is not corrupt.

As it turns out, the Brown corpus only contained one example of an intolerant relative quantifier ("no"), so I am going to illustrate its behavior under volitional prominence accompanied by instances from the Other corpus:

[3-43]   Certainly, in analyzing an action which truly faced such
          alternatives, "it is *never* possible that no world would be
          preferable to some worlds, and there are in truth no
          circumstances in which the destruction of human life presents
          itself as a reasonable alternative". D11 0290

[3-44]   "Are *all* of you going?" asked Wilbur. "You can't <u>all</u> go. I
          would be left alone, with no friends. Your mother wouldn't
          want that to happen, I'm sure." [29.180] (The first "*all*" is discluded
          as a question.)

If "<u>no</u>" had *not* been made prominent in [3-43], the narrator might well have been able

to follow up the injunction with at least a hesitant exception, such as, "Well, okay,

maybe if we all lived in a ghastly world where we all endured constant torture or

something like that, then maybe no world would be preferable to that one"; however,

the prominence of "<u>no</u>" removes the option of any hedging like this. Without the

intense prominence on "<u>all</u>" in [3-44], L's attention would wander to an emphasis on

some other element ("you," "can't," or "go"), which would allow for some tolerance

in the construal of the relative quantity of baby spiders who could or couldn't go, but

"<u>all</u>" leaves no question in L's mind but what Wilbur is worried about absolutely every

last one of the little cuties leaving. (It's okay, three of them stay to keep him company.)

Not all relative quantifiers work this way. The ones which do are the four

PROPORTIONAL relative quantifiers ('all', 'most', 'some', 'no'), because they compare

the magnitude of a profiled mass against M, and the tolerance between the measure of

the two masses is prone to being construed with narrower tolerance.

Of the four UNIVERSAL relative quantifiers ('all', 'every', 'each', 'any'), the

three non-proportional ones ('every', 'each', 'any') do not behave this way. While all

four of these quantifiers treat the profiled mass as coincident with M, 'all' does *not*

designate one arbitrary instance in M. 'Every' scans all the instances *simultaneously*,

and finding them equal in regard to some contextually critical feature, selects one as a

representative example. 'Each' makes a similar selection as the result of *sequentially*

scanning the whole set of instances. 'Any' chooses a *random* exemplar, so it is not

necessarily representative. When one of these three 'individual' relative quantifiers is

made prominent, it is this mutually differentiating feature which is made conspicuous:

[3-45] It is interesting that it is not the getting of <u>any</u> sort of knowledge
that God has forbidden, but, specifically, the knowledge of the
difference between good and evil…. [17.98]

In [3-45], randomly selected knowledge is set against one deliberately chosen specific

sort of knowledge, which emphasizes the very randomness which differentiates 'any'

from 'every' and 'each'; therefore, this is not a matter of intolerance, but rather a type

of revelation, specifically derivation by conventional set. So, prominent individual

relative quantifiers will be analyzed with the other conventional sets (chapter 4, §5.2).

Think of M as a timeline, and it is easy to understand why adverbials of time

are prone to precision. The following example is a particularly good one:

[3-46] Ekstrohm never slept. Some doctors had informed him he was
mistaken about this. Actually, they said, he did sleep, but so
shortly and fitfully that he forgot. Others admitted he was
absolutely correct– he <u>never</u> slept. His body processes only
slowed down enough for him to dispel fatigue poisons.
Occasionally he fell into a waking, gritty-eyed stupor; but he
never slept. Never at all. [M04 1200]

At first, "never" is used with the normal tolerance (i.e. Ekstrohm doesn't sleep well or

often, but certainly he must sleep enough to stay alive) which ignores any exceptional

intervals that are short and irregular enough to be easily forgotten; however, "<u>never</u>"

has an "absolutely" *in*tolerant definition, which supports the later use of "Never at all."

Prominent "<u>never</u>" denies any of the short gaps in "never" that he is purported to have

forgotten. This is not 'never' as compared to some member of the conventional set of

adverbials of time, but an internal comparison of its precise meaning as used here with

its usual, more tolerant one. The elaboration makes it clear that there are absolutely no

exceptions. Whatever process Ekstrohm experiences may only resemble sleep in some

necessarily few regards. This intolerance is found in two other uses of "<u>never</u>" [J69 1030,

P22 0530], with similar examples in "<u>only</u>" [J08 1490, J41 0710, J58 1300, D02 0490] and "<u>ever</u>" [P03 0650,

P03 1530]. While the 'negative' adverbials tend to be used for precision, the 'positive'

ones tend to be used for revelation in contrast to other members of the adverbial set.

    With regular adverbs, intolerance is the increasing approximation of a limit:

  [3-47]   It can't be wrong, can it? Not <u>really</u>. [P22 0880]

  [3-48]   [Kennedy is compared to Louis XVI] ... not <u>completely</u>
           virtuous, but <u>completely</u> incompetent. [B26 1740]

[3-47] shows that something can be 'really' wrong without being "<u>really</u>" wrong. In

[3-48], a type of precision is evoked similar to that for "<u>all</u>," comparing how much of

something (virtue or incompetence) someone has versus how much of it exists. In the

case of virtue, the boundaries of the two quantities come as close as they can without

actually matching. In the case of incompetence, they match; if they do so exactly, then

this is precision, but if one is seen to forcefully overrun the other, then it might well be

power. These cases of precision merely look similar to the behavior that Lasersohn

describes as a regulation of "pragmatic slack" (cf. §3.6, p. 166).

These examples have emphasized the difference between intolerance signaling a word-internal meaning change (e.g. 'always' with some exceptions versus absolutely 'a<u>lways</u>'), and derivation by conventional pair or set correcting a mismatch between the set member which S has in mind (e.g. 'a<u>lways</u>'), and the one which S *thinks* that L is likely to have in mind (e.g. some other adverbial of time, like 'never'). In fact, there would *be* no use for intolerance, or *elaboration*, if a language parcelled every word's range of meaning variations into conventional sets, as if every last one of the degrees of 'always' were a separate word. Intolerance is the more economical alternative.

2.2   Position

There are two salient positions that an instance can occupy within its type, namely: 1) the center, as a typical, PROPER member, where some instances are virtual paragons of their type, and 2) far outside of that center, on the PERIPHERY with other examples which are atypical for one reason or another. Obviously, this elaboration for position only applies to those classes of words which *have* TSs within which to be proper members, such as nouns and content verbs, or those modifiers whose continua define the central areas against which these 'proper' nouns and verbs are related.

Simply indicating that this position is necessary to understand the meaning of a prominent word makes that meaning more elaborate. Establishing the *importance* of an instance's position is a type of elaboration provided directly by prominence itself, as if it were shoving an instance around inside of its type, but the *direction* of that pushing is determined by the context; in that sense, marking an instance specifically as proper or peripheral is not a direct function of prominence, but rather of context.

There are two further contextual variations of elaboration for proper position, called simply POSITIVE and NEGATIVE. Positive position seems to establish a PARAGON:

[3-49]   She had assumed before then that one day he would ask her to marry him. Blanche couldn't remember when she had first arrived at this conclusion. She thought it was sometime during the second week she worked for Stanley. It was nothing that he said or did, but it seemed so <u>natural</u> to her that she should be working for him, looking forward to his eventual proposal. [L10] 1280

The word "<u>natural</u>" is not used here in opposition to something *un*natural, neither is it iconically representing the level of Blanche's emotional charge, which is calm indeed, in addition to which she lacks the surprise, revulsion, disbelief, or the other 'irreal' overlays typical of elaboration for emotion. She is not *currently* disbelieving that she had ever assumed anything so stupid as that Stanley would propose to her. This leaves us with a critical assertion of purity or centrality, one which portrays this specific instance of "<u>natural</u>" as utterly unadulterated by any *im*proper characteristics. Blanche is specifically drawing L's attention to the fact that her assumption seemed *absolutely* natural. It is a fantastic representative of "<u>natural</u>" amongst other uses of 'natural'. Just as there are variable intensities of 'green', there are variable intensities of 'natural', and if "<u>natural</u>" isn't an actual paragon, it is certainly a contender for that position.

Parts of this context, such as "nothing that he said or did," *could* be interpreted as providing the source for deriving a counterpart to "<u>natural</u>," such as 'designed', in which case prominence would be used to elaborate a word which has been used for revelation. Similar conflations will be analyzed in chapter 4.

[3-49] is the only positive proper elaboration in the Brown corpus, so I will

support it with the only two positive examples from the Other corpus. These describe

paragons for 'firm' and 'good':

[3-50]   His hands are <u>firm</u>. I wonder if sculptors don't have thick hands,
         too? [4.333]

[3-51]   There were my first mountains, the Catskills; there were
         Ichabod Crane and Rip Van Winkle visible on the blue uplands
         or in the mountain gorges; George Washington rode all over the
         place; and there were stone houses that, compared with the
         frame cottages of a prairie village, seemed to me coeval with
         the Acropolis– and in considerably better repair. This, I
         decided, oh, this was <u>good</u>; I was simply going to love the East,
         particularly New York; love it and dominate it. [5.5]

[3-50] is not a matter of simply contrasting ["<u>firm</u>" vs. flabby], but of portraying the

artist's hands as "<u>firm</u>" amongst the firm. Likewise, [3-51] is not just describing a big

amount of good, or a big good thing in itself, but an intensely or precisely good thing.

It is a paragon of goodness, and it is accompanied by an aspiration of awe. These

positive examples are used by S in context to assert that something is in fact a paragon.

Negative position is more common, and S uses it to assert that something *else*

in context is not up to the standards of a paragon, and so in fact is not itself a paragon:

[3-52]   Line? Line? But there is no line between France and Germany,
         that is, no actual <u>line</u>... [G47 0540]

[3-53]   In my estimation, they were people who read Daphne du
         Maurier, and discussed Kafka; well, not <u>discussed</u> him exactly,
         but said, "Kafka"! reverently and raised their eyes, as if they
         were at a loss to describe how they felt about Kafka, which they
         were, because they had no opinions about Kafka, not having
         read Kafka. [R02 1590]

[3-54]   Finally, there is the undeniable fact that some of the finest
          American fiction is being written by Jews, but it is not <u>Jewish</u>
          fiction.... ^{G74 0730}

Other examples from the Brown corpus are: "<u>wrong</u>" ^{L08 1350}, "<u>shape</u>" ^{J59 1520}, and

"<u>selective</u>" ^{B26 0270}. Notice that it is the context in particular which determines that the

important proper position is missed, with words like "no actual" and "not... exactly"

indicating that the material in comparison to the prominent word is not as proper an

instance of the type. This creates a context in which the phrase 'as such' could

comfortably be added ("no actual <u>line</u> as such", "not <u>Jewish</u> fiction as such"), which

acts as a good diagnostic for identifying this use of volitional prominence.

      With peripheral elaboration, regular words fall short, and there is always a lack

of alignment between the meaning associated with the conventional form of a word

and the concept that S is trying to convey. Either the intended meaning of the word

only approximates the concept it normally conveys, or there are no words in English

which match the concept any more closely than the one chosen. Sometimes there is a

social reason for using a different phonological form to get to the associated semantics

in a circuitous manner (EUPHEMISM), and sometimes there is an available phonological

form which is conventionally tied to a semantic structure which is *almost* what S has

in mind. Sometimes the concept is just too different, strange, or gross for words.

      The diagnostic for euphemism is 'so to speak', and I don't know what the

signed analogs might be:

[3-55]   George W. Cable... agitated continuously the "<u>Southern</u>
          question". ^{G17 1550} [vs. saying 'the question of slavery' outright]

[3-56]   Turning in at the Flannagans' driveway, he tried to remember if
            he had ever met them. The [Flannagans'] name encouraged him,
            because he always felt that he could <u>handle</u> the Irish. [K22 0810] [vs.
            saying 'manipulate...' or 'intimidate the Irish']

These are both cases in which a socially acceptable phonological form is understood to
be cross-linked to additional meanings which have poorer connotations than the one
with which the form is conventionally associated. This detour achieves its own degree
of conventionality over time, and S uses volitional prominence to tell L to access the
'hidden' meaning. They then both pretend that they are dealing with the nobler
sentiments, and not fouling themselves with the offensive, crude, or painful meanings.
In [3-56], "<u>handle</u>" might also be elaborated for some degree of power.

        In the examples above, S is not only *aware* of the redirected meanings, but
willingly *supports* the use of euphemisms as a social convention in collusion with L;
however, in the examples below, contextual incongruities suggest that S wants to
expose the charade (if mildly) rather than surrender peacefully. The diagnostic for this
sort of euphemism is 'so-called':

[3-57]   Where were the hardships she had expected? She was certain
            now that it would be no harder to bear her child here in such
            pleasant surroundings than at home in the big white house in
            Haverhill. With childlike innocence she wrote of the Indians as
            "walking with fruit and umbrellas in their hands, with the tawny
            children around them.... This is the most delightful <u>trial</u> I have
            ever had", she decided. [G37 1240] [so-called 'trial']

[3-58]   Anyway, Julia asks me to...".
            "Julia"?
            "Come on, <u>Inspector</u>, look alive. Julia Buck, the deceased",
            Moore said, slipping me his smug, idiot-grin again. [L20 0380] [so-
            called 'inspector']

In [3-57], the contextual incongruity is simply the mismatch between "delightful" and "trial," and in [3-58] it is a woefully ignorant detective. I don't know that these fig leaves are considered proper cases of euphemism, but they fit here well as defined.

Sometimes the problem is not that S is trying to *avoid* the semantic structure conventionally associated with a phonological form, but rather that S wants to *reach* a particular semantic structure, but cannot. The concept is so alien to the language and its users that no phonological form has ever been attached to a notion like it often or long enough (if ever) for it to be able to achieve anything like conventional status. The diagnostic again is 'as such' (or 'for lack of a better word'), and the prominence warns L that the phonological form's conventional associations are an approximation, and that the marked form is only being used because no closer link could be located. Here are some examples of this almost apologetic use of euphemism:

[3-59]   Detached from their prior statuses and social groups and exposed
           to the pervasive stimuli of the university milieu, the students tend
           to assimilate a new common <u>culture</u>, to converge toward norms
           characteristic of their own particular campus. [G57 1210]

[3-60]   I—I didn't do it deliberately, just suddenly I was in a dream that
           wasn't my own and I made it <u>change</u>. [24.30]

In [3-59], S is trying to describe the homogenizing effect that cohabitation has on the (allegedly) previously diverse behavior of two or three thousand young adults living in the same dorm rooms for an academic year. There simply are no really good words to describe what amounts to this new social structure, relative to the age of the language. S resorts to using the word "<u>culture</u>" because that's as close as he can get, a concept which *typically* involves a much greater number of people living together and raising

families over several centuries as members of the same genetic and geopolitical set.

This mismatch is the internal meaning change applied to "<u>culture</u>." In [3-60], S *wants*

to find a straightforward link to the semantic structure that she has in mind, but she is

simply unable to locate a conventional phonological association with that structure in

a language whose users are virtually all nontelepaths. In these examples, the semantics

are peripheral not due to ostracism, but due to novelty.

In some such cases, the concept is just too different for words, and there is such

a strong feeling of inaccessibility that S just gives up and resorts to a pronoun. In the

following examples, 'God' and 'the familiar thing' are both at a distance:

[3-61]   I am merely a channel for... <u>something</u>. [D17 0180]

[3-62]   Again there was something familiar about her, <u>something</u>... [P19]
          [1440]

The diagnostic here is still the feeling of grasping for the right word, any word, which

will explain what S is trying to encapsulate, accompanied by the feeling of giving up.

The peripheral elaboration means that the "<u>something</u>" in question is inaccessible,

elusive, deep, small, and isolated, whereas the revelatory use would indicate that it

was just accessible enough to avoid being swapped for nothing at all.

This next example stands out because on the one hand, prominence *might* be

used to point out that English has no word for "all manner of Martian" creatures:

[3-63]   McAuliff, for good reasons, had a hypochondriacal view of his
          cows; he suspected that all manner of Martian <u>things</u> were out
          to get them, to make them lean, sick, and fitful in their milk
          production. [35.16]

On the other hand, prominence is *definitely* used to express revulsion here as an emotional charge. My analysis leans towards a simple categorization as elaboration for emotion without any overlap with periphery on the basis that the word 'things', although schematic, is a *perfectly* good word for "all manner of Martian" creatures.

In peripheral elaboration, S lets L know that the semantic structure conventionally associated with the prominent phonological form is not the one that S has in mind, and so L aims at a target towards the edge of the word's possible range of meanings. Euphemism can be used to support or ridicule taboo semantic structures, where S avoids phonological forms that are properly connected to a concept in favor of ones which are only linked peripherally. Sometimes S *wants* to make a direct connection, but *cannot* due to the novelty of a semantic structure, so S settles for the closest appropriate phonological match, which might be no nearer than a prominent indefinite or interrogative pronoun.

3   Conclusion

S wants L to understand exactly what S means, and so S necessarily wants their construals of a given semantic structure to be as closely aligned as possible. Volitional prominence for elaboration repairs or avoids those misalignments which are caused when S wants L to associate a phonological form with a different semantic structure than normal. L interprets prominence as a signal to draw upon a meaning which is either more powerful or more precisely intolerant than normal, or whose relation to other word-internal variations in meaning is crucially either more perfect or more

peripheral than normal. S *physically* articulates a change in the level of prominence in the phonological form, which L *cognitively* articulates as a directly proportional change in the level of prominence in the semantic structure. This direct proportion between these physical and cognitive efforts is iconic. Elaboration as a whole, then, is said to be a function which affects phonological forms and their associated meanings in direct iconic proportion to one another.

CHAPTER 4

Revelation

> "How can I be mistaken in what I say, unbelieving traitor?"
> returned Don Quixote; "tell me, seest thou not yonder knight coming
> towards us on a dappled grey steed, who has upon his head a helmet of
> gold?"
> "What I see and make out," answered Sancho, "is only a man on a
> grey ass like my own, who has something that shines on his head."
> "Well, that is the helmet of Mambrino," said Don Quixote….
>
> — Miguel de Cervantes, *Don Quixote* (1615)

When engaged in conversation, people rely upon a significant overlap between their individual sets of beliefs about reality, patching the occasional mismatch with the strategic use of volitional prominence. As S updates an exchanged discourse space, or unilaterally unfolds a monologue, S marks the most important additions with routine prominence, and resorts to volitional prominence to pinpoint any necessary *corrections*:

[4-1]   One man remarked that if he had a hundred pounds, he would give ninety of them to be back in England. Up spoke carpenter Staffe, who said he wouldn't give <u>ten</u> pounds to be home. [F16 1310]

To the degree that routine prominence marks new information ("ninety" in the context of the first sentence), volitional prominence reveals new information *about* old information (["<u>ten</u>" vs. "ninety"] in the second), whence the term REVELATION. S is revealing L's mistake to L.

Revelation is usually a volitional *shift* of prominence specifically away from its routine location, and it only raises the prominence level of the word it falls on as a consequence of that movement, since that word would otherwise only have secondary prominence at best. That is why such a volitional placement requires only a primary level of prominence to uniquely identify a word as volitionally prominent, rather than an intense level. In contrast, elaboration raises the prominence level of a particular word without regard to its location, dragging the primary sentence prominence along with it as a side-effect. The routine *location* of sentence prominence normally has a primary *level* of prominence, and so an elaboration or revelation at *that* location will need to be intense to distinguish it from the routine pattern.

Here is an example of revelation which results from volitional placement:

[4-2]   Suppose it was <u>not</u> us that killed these aliens.[M04 0900]

This notation represents the pattern, "Suppose it was nót us that killed these aliens," with a primary level of prominence on "<u>not</u>," as opposed to "Suppose it wasn't us that killed these áliens," with a primary level on the first syllable of "aliens." Underlining the whole word only indicates a volitional prominence level on one syllable, where even though the change only *needs* primary prominence to differentiate the utterance from the routine pattern, sometimes it *gets* intense prominence anyway.

In those cases where the placement of revelatory prominence *does* coincide with the routine location of sentence stress, the level of the revelatory prominence will need to be greater than that which normally associates itself with the primary sentence

stress. The revelatory prominence will need to be intense to make it stand out from the primary prominence that would normally go on the routine location. For example, a primary *level* of prominence would normally fall on the last word of the following example, in accord with the routine placement of sentence stress:

    [4-3]   I was shown, to my surprise, into the kítchen. [Adapted from R01 1690]

When this expression gets revelatory prominence, the same notation for volitional prominence is used as was shown in [4-2]:

    [4-4]   I was shown, to my surprise, into the <u>kitchen</u>. [R01 1690]

The difference here is that [kit] needs intense prominence, and so such an example should be understood in this case to represent a phonologically intense level, as in, "I was shown, to my surprise, into the KITchen." The underlining in the examples, therefore, does not represent an absolute level of prominence, but one which is at least one increment higher than the routine level at that location (cf. chapter 2, §3.8).

This same utterance can also be interpreted as an elaboration for power, where a person who had overly fastidious tastes regarded the kitchen as an odious room in which to wait, and was surprised to be there rather than in the parlor. Both the revelation and the elaboration in those cases require an intense level of volitional prominence.

Volitional prominence is almost always marked on whole words, but it can also be used to single out part of a word:

[4-5]   Since then, and since the pure grain had gotten him divorced from every decent– and even <u>in</u>decent– group from Greenwich Village to the Embarcadero, he had become a sucker-rolling freight-jumper. [N29 0040]

[4-6]   If it is an honest feeling, then why should she not yield to it? "*Most* often", she says, "it's the *monogamous* relationship that is <u>dis</u>honest". [G13 1140, G13 1140, G13 1150]

[4-7]   He made many tasteless, irreverent and <u>un</u>funny remarks, not only about me in the title role, but about religion in general. [R03 1550]

[4-8]   And if you're the surpris<u>ee,</u> it's even worse… [8.256]

[4-9]   I sensed that there was a deep tension between the two, but I was used to behavior that <u>re</u>pressed rather than <u>ex</u>pressed. [37.37]

[4-10]   The next step of mind and imagination is to grasp the fact of <u>long</u>-term change in the larger design of an ocean shore or continent. [38.28]

These are the only such cases in either corpus (plus one pair listed in chapter 5), but none of these prominent affixes is an overt grammatical marker, such as for subject-verb agreement. This gap in the data set is not just because the appropriate contexts are all that uncommon in spoken (and perhaps signed) language, but because writing conventions tend to disallow forms such as 'I was paint<u>ing</u> the shed' [vs. painted], or 'I'm not just going to have a pool, I'm going to have pool<u>s</u>' ('pool<u>zzz</u>' or 'pool-ᴢᴜʜ'). In such cases, the whole word tends to be underlined. Even at that, there are no prominent nouns, for example, which are used to make count/mass, number, or common/proper distinctions. Examples will be given later which show what happens in cases where this phonological dependence is a matter of wholesale integration, such that revelations can be made for tense or aspect.

That's all there is to the notation used for revelation.

Now, every revelation can be analyzed into a set of characteristic components, namely: 1) a change; 2) a setting; 3) a counterpart; and 4) an omen. These all appeared in the first example, repeated here for convenience:

[4-11]   One man remarked that if he had a hundred pounds, he would give ninety of them to be back in England. Up spoke carpenter Staffe, who said he wouldn't give <u>ten</u> pounds to be home. [F16 1310]

change   =   "<u>ten</u>"
setting   ≈   a trip back home has a *value*
counterpart   =   "ninety" (explicit, thoroughly encapsulated)
omen   =   "Up spoke carpenter Staffe" (distributed)

To the degree that background or shared information is analogous to Krifka's matrix, the SETTING is parallel to Krifka's restrictor (cf. chapter 2, §3.5). It is the coefficient of Jackendoff's "appropriate semantic variable," namely the *portion* of the background which most immediately cradles the variable which has been assigned the value of the newest information or focus (cf. chapter 2, §3.5). The setting in this case is a model wherein a trip back home has a value. That value is variable among Ps, but because it is archival knowledge, it gets treated *as if* the value should be the *same* among Ps. This setting is that portion of the discourse which aligns so well with carpenter Staffe's beliefs about reality (or his current model of the discourse space) that the discrepancy within it caused by 'the one man who remarked' just stands out too strongly for Staffe to ignore. Staffe believes that a trip back home has a *low* value, and he takes exception to the glaring error made by the man who spoke up and suggested that it had a high value instead. That man must be made aware of the error of his ways.

In its turn as S, P is motivated by its perception of the discrepancy to respond with an utterance which uses a volitionally prominent word, one which identifies and insists upon a CHANGE to correct the mismatch ("ten"). The error is represented by the DISCOURSE COUNTERPART to the change ("ninety"). These counterparts vary both in their EXPLICITNESS (their expression in so many words) and in their ENCAPSULATION (their expression in *how* many words, explicit or otherwise). I have come across no cases in which the counterpart was actually absent, although this configuration *is* theoretically possible to the degree that a word might be made volitionally prominent to emphasize its appearance out of the blue (INITIATION). The problem would be in distinguishing examples of that sort from those in which the volitional prominence was intended to convey an emotional value representing shock or surprise over the unanticipated appearance of the marked word.

The OMEN is a qualifying word or phrase which heralds an imminent change ("Up spoke carpenter Staffe"). Like a counterpart, an omen varies in encapsulation (distributed across four words in this case), but unlike a counterpart, the absence of an explicit omen is not uncommon, and *specific* omens are not left implied. Omens constitute a subset among Fauconnier's (1985) SPACE-BUILDERS, supporting the characterization of discourse in terms of his MENTAL SPACES.

Changes have been portrayed so far in terms of one S making a statement to which another S takes exception in turn, but in a common variation on this theme, S *anticipates* that the other conversants will object to its portrayal of reality, and so it heads off any opposition by insisting upon a change according to what S *expects* the

others to believe. In such cases, S's utterance provides: 1) the setting (e.g. 'Like lots of ignorant slobs, you probably think that tomatoes are vegetables'); 2) which cradles the counterpart that S intends to refute ('vegetables'); as well as 3) an omen that not only heralds an impending change ('Well, let me tell you…'); 4) but which characterizes S as an authority ('…I know all about this stuff…'); and then 5) S tops it all off with the change ('…and tomatoes are a *fruit*.'). The notion is to silence any objection *before* it has a chance to be expressed. Revelations by authors in their own books can usually be attributed to their making these sorts of authoritative statements as they promote a particular belief that they expect the reader to adopt.

This is simply one way to portray changes in belief as being associated with the reception of new information. There is experimental evidence to suggest that initial comprehension of new information entails belief, and that people by nature tend to be gullible rather than skeptical, at least for a moment (Gilbert, Krull and Malone, 1990; Gilbert, 1991; and Gilbert, Tafrodi and Malone, 1993). People automatically, and at least momentarily, accept everything as true upon initial exposure (á la Spinoza), only changing this marking later if the material proves false when it actually comes under evaluation. In this system, unmarked material is true, and marked material is false.

The alternative disallowed by these experiments is one in which discourse and other perceptual material are not evaluated for veracity during a person's initial exposure, but are only explicitly tagged as true or false under later evaluation (á la Descartes). This system would produce initially unmarked material which was neither true nor false, then some material which was marked true under later evaluation, as

well as some which was likewise marked false. Explicitly marking only false items in the first system is more efficient, and it is also more adaptive, allowing a creature to react more quickly to perceptions of its environment, only wondering later whether the sensation was a mirage.

These experiments indicate that people are likely to accept things as true, even if only for a moment. They also show that interrupting a person's processing will tend to block reevaluation, leaving the material categorized as true. I suspect that volitional prominence helps to keep L off-balance or interrupted (with L often a willing victim in the interests of promoting closer understanding), thus increasing the likelihood that S will be believed (whether or not L actually adopts the belief, or simply acknowledges S's belief). While these studies do not go into detail about the mechanics of subsequent reevaluation, my analysis would suggest that people tend to maintain their beliefs, and so intense prominence is needed to add authority to the pronouncement. Keeping L off-balance during this pronouncement might make them more prone to giving it weight, just as an interruption would do in the initial stages of perception. In addition, if comprehension equals belief, then anything that makes a perception loom large will increase the likelihood of its comprehension, and this study suggests that this entails an increased likelihood of belief, or at least that is what S *expects*.

This description provides enough of an overview of the salient components of revelation to make a deeper discussion of its behavior navigable. The three main types of revelation are differentiated below according to the explicitness and encapsulation of their counterparts, and so I am going to continue this chapter with a more detailed

description of changes and their counterparts in terms of those two criteria (§1). This will be followed by a more thorough discussion of the setting (§2), because its careful characterization is crucial to the best understanding of the discourse counterpart. Each of the revelation subtypes will then be discussed in its turn, namely: substitution (§3); addition (§4); and derivation (§5).

1   Change and Counterpart

Volitionally prominent personal pronouns provide excellent early examples of discourse counterparts because not only are there plenty of instances of them in the Brown corpus, but those instances are distributed across a wide range of explicitness and encapsulation values, as shown in the following examples:

[4-12]   The whole act is tailored to her pleasure, and not to theirs. [F08 0160]

[4-13]   Next on his program was a call to the Jackson office of Peerless Business Machines to find out if Vincent Black was still with them– or, more specifically, still with us. [L07 1370]

[4-14]   But the only love I was giving him was the pure kind. [P22 0430]

[4-15]   His rock was to the right of a V-shaped inlet…. [P16 0100]

[4-16]   "Holy mackerel, that's the most unique dog I ever saw", she said firmly. [P16 0950]

Linked instances of volitional prominence are analyzed in chapter 5, but I've included [4-12] here as an example of a linked counterpart/change pair ("her," "theirs"). Both are as encapsulated and as explicit as they can get, because they are both single words sharing intense prominence. In [4-13], the counterpart "them" is no less encapsulated,

but it *is* less explicit because it has weaker prominence. Counterparts with this lower, but routine, level of intensity should be treated as typical (normally explicit). They are almost five times as common as the intensely prominent, linked counterpart/change pairs which appear in instances of linked prominence.

The counterparts for "I" in [4-14], namely both Johnny's wife and his lover (a different lover than S), are also explicitly mentioned earlier in the passage from which this example was taken, but they are not as thoroughly encapsulated because: 1) the two of them are referred to with separate words, and therefore they are referred to in at least minimally different places; and 2) those words are short phrases. In [4-15], the implicit counterpart to "his" is understood to be any one of a number of possessive pronouns representative of anyone else tied to the beach in such a way that they might think of themselves as having their own rock. Finally, [4-16] comes out of the mild blue, and so the counterpart to "I" can be interpreted either as 1) standing in contrast to everyone else in the world, not represented pronominally, which is about as implicit and distributed as it gets, or 2) only being in contrast to the other members of the conventional set of personal pronouns, which is less distributed, but no more explicit.

2   Setting

Counterparts and changes reside in a setting, in that they are values assigned to variables couched in their setting. Example [4-12] cashes in on the stereotypical portrayal of sex where men are insensitive jerks who are by nature able to do no better than to use women for their own selfish pleasure and so forth. This can be boiled down

into a pithy model which holds a variable that can take such values as "her" and "theirs," namely the setting 'sex is for only *one person's* pleasure.' The analysis of linked instances of volitional prominence in chapter 5 will identify this as a case of DISSOCIATION, which divides the domain of pleasure into that which is "her" pleasure and that which is "theirs," as specified by the setting.

In [4-14], the setting is arrived at differently. It is true that one proposed setting could be the equally ugly set of double standards for women which revolve sluggishly around myths concerning fidelity and the looseness of their collective and individual virtues; however, there is a specific, parallel line earlier in the context which describes *someone other than S* as giving S's boyfriend love of the not-so-pure or adulterated kind. Schematically, this contextual setting is '*y* gives him ((im)pure) love'. In [4-13], the setting is also not derived from an archival model, ugly or otherwise, but just the contextual phrase "still with *x*," even though the phrase 'at large' has ties to a complex domain which involves an employee 'being with' a company.

[4-15] needs an archival setting because none exists in the context. It has to be broad enough to house all of those other potential rock-havers, or perhaps a notion as general as a person experiencing some typical sort of mild territoriality as a result of becoming more comfortable in a particular environment. Other than the boy, no such person is identified specifically in the passage from which the example was lifted, but the fact that *at least* the boy 'has' a rock proves that it can happen to a beach-goer, and the presence of other people on the beach makes them all potential rock-havers, which is what elicits a setting involving territoriality.

The setting for [4-16] is also broad, because even though the scene only really encompasses the girl giving her estimation of the dog to its owner, the counterpart can be taken to be anyone else in the whole world who might be able to have an opinion about the dog, which makes the setting itself something along the lines of the vast notion of 'people having opinions', as cast in terms of the idea that the value of one person's opinion can be rated against another's. The range of the counterpart to the change depends upon the interpretation of the context by L, or if you prefer, upon the intent of the interpretation by S. The change is "I," so if the girl's assertion is taken to mean that she is specifically comparing her opinion to the boy's, then the counterpart is simply a reference to that boy ('he', 'you', 'Jeff'), but if it is her opinion against the world's, then the counterpart refers to the opinion-holders of her world.

These descriptions of change, counterpart and setting are now strong enough to be used as tools to pull apart the rest of the examples of revelation from the corpora, starting with substitution.

3   Substitution

Substitution uses all of the components and obeys all of the rules, defining the hub of typical revelatory behavior from which the others extend. There is a setting, in which one word acts as an explicit, unitary counterpart to the change. There is almost always at least one omen of the oncoming change, and then there is the change itself. There are two radiations of REGULAR SUBSTITUTION (§3.1), namely RECAPITULATION (§3.2), in which the counterpart is a duplicate of the change, and REFERENCE AND

PRONOUNS (§3.3). These sections will provide background conducive to a discussion of REFERENCE AND PARALLEL STRUCTURES (§3.4), in which volitional prominence signals a detachment of reference, but does not identify the reattachment necessary for a full disambiguation of reference.

3.1   Regular Substitution

Here are some typical examples of substitution from the Brown corpus:

[4-17]   We were at a party once and heard an idealistic young European call that awful charge <u>glorious</u>. [G75 0660]

[4-18]   But to say that at a moment in history something is <u>new</u> is not necessarily to say that it is modern…. [J57 1550]

[4-19]   Lacking the pioneer spirit necessary to write of a <u>new</u> economy, these writers seem to be contenting themselves with an old one that is now as defunct as Confederate money. [G08 0670]

[4-20]   Truman Capote is still reveling in Southern Gothicism, exaggerating the old Southern legends into something beautiful and grotesque, but as unreal as– or even <u>more</u> unreal than– yesterday. [G08 0550]

[4-21]   Almost everything about the movies that is peculiarly <u>of</u> the movies derives from a tension created and maintained between narrative time and film time. [F33 0780]

This is by far the most easily identifiable form of revelation, where the substitutions in these examples are as follows: [“<u>glorious</u>” vs. “awful”]; [“<u>new</u>” vs. “modern”]; [“<u>new</u>” vs. “old”]; [“<u>more</u>” vs. “as”]; and [“<u>of</u>” vs. “about”]. Substitutions will often be represented in this analysis with this particular form of the square-bracket notation, where both words are in quotes because they both appear explicitly as single words in their example, rather than having to derive the counterpart (§5).

Whereas L has the ability to appeal to conventional pairs, sets, and domains in order to derive the appropriate counterpart necessary for making mental contact with the instance that S has in mind, substitution amounts to simply being told right up front specifically what that counterpart is. Substitution has the advantage of being able to establish its own conventions, such that while "new" *can* be used as a conventional counterpart to "old," as in [4-19], it can also pair up with "modern," as in [4-18], or even with 'green' in the right context ('I don't care if the car's green, just so long as it's <u>new</u>.')

Other substitutions include: ["<u>cascaded</u>" vs. "channel-type"] [J78 0270]; ["<u>feeling</u>" vs. "listening"] [P09 1160]; ["<u>writes</u>" vs. "assembled"] [C14 0830]; ["<u>used</u>" vs. "interpreted"] [D02 0140]; ["<u>was</u>" vs. "like"] [P17 0840]; ["<u>risk</u>" vs. "certainty"] [D11 1080, D11 1120]; ["<u>need</u>" vs. "reason"] [L10 1520]; ["<u>treatment</u>" vs. "retention"] [F11 1110]; ["<u>money</u>" vs. "cash"] [K22 0920]; ["<u>mankind</u>" vs. "it"] [D11 0810]; ["<u>involuntary</u>" vs. "voluntary"] [F07 0680]; ["<u>complicity</u>" vs. "conditions"] [F48 1590]; ["<u>basic</u>" vs. "real"] [J41 1560]; ["<u>human</u>" vs. "inhuman"] [G22 1620]; ["<u>conduct</u>" vs. "cause"] [F48 0690]; ["<u>personality</u>" vs. "type"] [G08 1110]; ["<u>pace</u>" vs. "content"] [J27 0860]; ["<u>even</u>" vs. "especially"] [M03 0900]; ["<u>try</u>" vs. "can"] [B23 1510]; and (as seen earlier) ["<u>ten</u>" vs. "ninety"] [F16 1310].

Here are some similar substitutions in which the counterparts (not the changes) happen to be indefinite pronouns ("someone else's" marginally cheats as two words):

[4-22]   Insofar as these nations claim to incarnate traditions and ways
of life which constitute ultimate, trans-political justifications for
their existence, such people are inevitably led to emphasize the
ways in which these traditions and ways are <u>theirs</u> rather than
someone else's. [D10 0890] ["<u>theirs</u>" vs. "someone else's"]

[4-23]   I do not mean to suggest that these assumptions are self-evident, in the sense that everyone agrees with them… I do mean, however, that I take them for granted, and that everything I shall be saying would appear quite idiotic against any contrary assumptions. [F23 0050] ["I" vs. "everyone"]

[4-24]   From an initial investment of $1,200 m 1943, it has grown, with no additional capital investment, to a present value estimated by some as exceeding $10,000,000 (we don't disclose financial figures to the public). [G22 1870] ["we" vs. "some"]

And of course there are cases in which the change itself is an indefinite pronoun:

[4-25]   They couldn't have much dough, but then none of the freight-bums Feathertop rolled had much. [N29 0610]

[4-26]   I've been ready a long time– goodness, we all have… [M01 0930] [vs. (all in Mike's commune)]

Notice that when "all" acts as an indefinite pronoun, it is taken as counter to a small quantity such as 'one' or 'few', and in this case "I," whereas it runs counter to 'some' when it appears as a prominent quantifier, or is elaborated for precision when used as a prominent proportional relative quantifier.

Sometimes, a series of substitutions is made in close succession with the intent of drawing causal or consequential links between them… but not this time:

[4-27]   These rumors of permanent separation started up a whole crop of stories about her. One had it that a friend, protesting her snobbery, said, "But, Gracie, you are an American, aren't you"? and she replied, "I was born in America, but I was conceived in Vienna". [G67 1240, G67 1240, G67 1240]

This is just a coincidence in this case, or close instances of prominence. Actual instances of linked prominence are analyzed in chapter 5.

3.2   Recapitulation

As mentioned in chapter 2 (§3.2), recapitulation is not a type of behavior that I

had considered until I came across a description of it in Gunter (1966), by which time

I had already gathered the Other corpus. Gunter portrays recapitulation in the

following way, where the whole first sentence acts as the setting, and the rest of the

sentences are speculated responses (as listed in a form more like my own notation):

[4-28]   The man can see the bóy.
           The man can see the bóy.
           The man can sée the boy
           The man cán see the boy
           The mán can see the boy

The way that Gunter describes recapitulation, it is used by L to confirm that S and L

are in agreement, just so long as the volitionally prominent material in particular is

understood by S to be correct. According to Lambrecht (1994), these should only

occur with volitional prominence when they have argument-focus structure (cf.

chapter 2, §3.5, towards the end on Lambrecht's allosentences).

The problem is that nothing as strictly parallel as these examples ever came up

during the sifting of data from either corpus, except for these two examples from the

Other corpus, where the identical strings are only three words long:

[4-29]   REINER: I'm a little queasy about this, telling tales about
           Presidents and Presidents' wives.
           2000: They're all a little power-crazy, right? And they love to
           do it. Let's face it. They love it. They love it. They LOVE it. [19.89]

[4-30]   "Here's what we do. I got it, I got it—I got it…. Here's the plan.
           I'll get the chicken, and you get the salmon…." [8.248]

The problem is that L is not repeating S in order to confirm agreement, but rather *S is repeating S* more powerfully to drive home a point. In any case, to the degree that the first example uses successively greater levels of prominence to increase the amount of force attributed to "love," and to the degree that it works like elaboration in all ways other than that the change happens to be repeated in the setting, I suspect that it *is* elaboration (and so it has already been analyzed in that chapter). To the degree that in the second example, increased prominence is used for confirmation rather than power, I suspect that it is actually a type of derivation discussed below (§5.3) which appeals to the conventional positive/negative opposition.

Given the paucity of these sorts of examples, it seemed like a good idea to try to adapt the function of recapitulation to work with the patterns that were more readily available in the data, and so I tried to use the function to classify instances similar to substitution, with the exception that the only repetition required would be that just the change and its counterpart would be the same word. Even at that, there were only four examples that came out of the Brown corpus, out of which this one instance was the most clear:

[4-31]   The major weakness of vocational training programs in labor
          surplus areas is their focus on serving solely local job demands.
          This weakness is not unique to labor surplus areas, for it is
          inherent in the system of local school districts in this country.
          Planning of vocational education programs and courses is
          oriented to local employer needs for trained workers. All the
          manuals for setting up vocational courses stress the importance
          of first making a <u>local</u> survey of skill needs, of estimating the
          growth of <u>local</u> jobs, and of consulting with <u>local</u> employers on
          the types of courses and their content. [J38 1110-1130]

There just doesn't seem to be any specific reason to identify this as anything other than three repetitions of a derivation which is based upon the conventional pair ["local" vs. remote < outlying, removed] (§5.1). In other words, simply *calling* this behavior 'recapitulation' doesn't seem to serve any purpose. The other two examples are another repeated derivation and a case of coordination, but their analyses have both been put off until the section on conventional sets (§5.2). Of course, to the degree that these three close instances of "local" *can* be interpreted as having a consequential link, [4-31] is an example of coordination, cf. chapter 5, §2. In any case, none of these examples motivate the establishment of recapitulation as a type of revelation.

With the revised definition of recapitulation, I managed to find twelve more likely candidates from the Other corpus, but half of them turned out to be examples of elaboration for power, like this:

[4-32]   Her mind echoed with Stephen's voice, and, try as she might, she could unlock no secret meanings from his words. She did try—pressing deep into those dim memories of her infancy for words and phrases. 24.83

and the rest were derivations based on the familiar positive/negative opposition (three with prominent content verbs, and three with prominent auxiliary forms of BE), like this:

[4-33]   "It's a perfectly beautiful egg sac," said Wilbur, feeling as happy as though he had constructed it himself. "Yes, it is pretty," replied Charlotte, patting the sac with her two front legs. 29.145

Everything considered, the behavior in this analysis which most closely resembles recapitulation is a type of derivation which uses an appeal to a basic domain in order to find the appropriate counterpart to the change (§5.3), which will be defined later as the confirmative version of appealing to the conventional positive/negative opposition. As this analysis stands right now, there is no application for the term 'recapitulation'.

3.3   Disambiguation of Reference and Pronouns

There generally isn't enough semantic content in the TS of a personal pronoun for elaboration to work (cf. chapter 3), and so virtually all of the volitionally prominent pronouns are cases of revelation, either substitution or derivation, with one instance of "m̲y̲" providing addition. This is in comparison to demonstrative pronouns, for example, which are often usefully elaborated for precision. Crucially, while revelation draws L's attention to the fact that the value of a prominent pronoun (as a variable in the setting) has indeed changed, revelation does *not* actually disambiguate pronominal reference because it does *not* identify the new replacement value.

The trick is that pronominal reference is similar in behavior to substitution even in phrases which have *routine* prominence patterns. In a generated phrase like, 'Tammy let Shelby crawl into bed with them, but Shelby drooled on the pillow, so Jeff made her get out of bed', there is either a regular pronominal (but *not* 'prominential') substitution of 'her' for 'Shelby' (a dog), or there is a pragmatically somewhat less likely pronominal substitution of 'her' for 'Tammy' (a human). The prominence pattern can be routine in both cases.

Now, when volitional prominence is added for revelation, as in 'Tammy let Shelby crawl into bed with them, but Shelby drooled on the pillow, so Jeff made <u>her</u> get out of bed', there has to be a mismatch related to '<u>her</u>' which gets corrected in the interpretation, or else the additional prominence would not have been applied in the first place. This is definitely *not* a disambiguation of reference, because the volitional prominence is *not* used to indicate that '<u>her</u>' is intended to be the pronominal substitution for 'Shelby' rather than 'Tammy', or vice-versa. S uses prominence in this case to disabuse L of the notion that Jeff might be the one who is going to get out of bed rather than '<u>her</u>', no matter *who* '<u>her</u>' happens to be. The prominence goes on a referentially ambiguous pronoun, but the *revelation* is a substitution of 'her' for 'Jeff'.

These sorts of examples are *not* the same as the sequential value examples from the chapter on elaboration. Volitional prominence for *revelation* emphasizes the *change* in the value of the participant in a process (['<u>her</u>' vs. 'Jeff']), but *elaboration* emphasizes the change in the *values* of the participants in a process by *precisely* selecting one value from among many.

In each of the following substitutions, both the change *and* its explicit, encapsulated counterpart are personal pronouns, but the change and counterpart each have different referents:

[4-34]   The air, he said, was just right; a cigarette would taste
         particularly good. I really didn't know what he meant. It was a
         nice day, granted. But <u>he</u> knew; he sniffed the air and licked it
         on his lip and knew as a vintner knows a vintage. [G05 0790]

[4-35]   His advice, his voice saying his poems, the fact that he had not
         so much as touched her– on the contrary, he had put his head
         back and she had stroked <u>his</u> hair– this was all new. [N19 0620]

The prominent pronouns are not referentially ambiguous here, with the substitutions ["he" ('y knows') vs. "I" ('x know$_{not}$')] and ["his" ('stroke y') vs. "her" ('touch$_{not}$ x')]. The semantic similarities between the verbs are treated as significant, and their differences are ignored (know ≈ know$_{not}$; stroke ≈ touch$_{not}$), as is the difference between the possessive and personal pronouns in "his hair" and "her." The setting is that someone is participating in a particular type of process, where the variable holds the identity of the participant, the value is a person in the context, and the pronoun acting as that value is a POINTER which is substituted for a participant. The volitional prominence does not substitute one *participant* for another, but rather it changes one *pointer* for another as the value of the variable, and then by *normal* processes of reference, one pronominal referent gets substituted for another. The point once again is that prominence is *not* being used for a disambiguation of reference.

There are examples in which two pronouns share the same phonological form before the addition of prominence, and in such cases volitional prominence is prone to being mistakenly described as if it were placed on one of the two pronouns in order to distinguish between them, as follows:

[4-36]   He limps, and the man who hit you and took the cane, he
          limped. L13 0160

An argument might be made that volitional prominence is used here for precision to elaborate the meaning of the word "he," thus distinguishing it from the "he" at the beginning of the sentence, but the fact of the matter is that the two pronouns only

match in phonological form because of the context. In a different context, any pronoun

could have been made prominent instead of "h̲e̲," such as 'y̲o̲u̲': 'He limps, and after

you tried kicking the door down, y̲o̲u̲ limped'. No one, however, is going to argue that

volitional prominence is used for precision to elaborate the meaning of "he" into

'y̲o̲u̲'. The confusion arises simply because the two pointers "he" and "he" have the

same phonological form before the addition of prominence.

Confusion of this sort also arises when two referents participate in the same

process, particularly BE:

[4-37]   But my people– Martians, I mean; I now grok y̲o̲u̲ are my
          people– teach plants another way. [M01 0700]

Here's the case: ["y̲o̲u̲" ("are x") vs. "Martians" ("are x")], where (x = "my people").

Now here is the problem: because the value of the variable in each case ("Martians",

"y̲o̲u̲") is equal ("are") to the same thing ("my people"), there is an impression that

volitional prominence is somehow disambiguating this reference by marking one of

the two equations as the most newly true. Volitional prominence *is* used to imply that a

correction is being made, and that "y̲o̲u̲" should be the value of the variable in the

setting rather than the one which is there ("Martians" in this case), but it is the *context*

which defines that setting as [*some people* are my people]. The omens (the pause, "I

mean," and "now") and the setting do all the rest of the work.

All of these examples of substitution make it clearer that this same behavior is

displayed in some cases of derivation (by conventional set):

[4-38]   …there was an anecdote about a group of English and
Americans visiting Germany, more than a hundred years ago. In
the railway station at Berlin, a uniformed attendant was
chanting, 'Foreigners this way! Foreigners this way'! One
woman… went up to him and said, 'But <u>you</u> are the
foreigners'". ^{R06 0410}

In this case, 'you' is understood implicitly in the chant "(You) Foreigners this way!"

This example works the same way as a substitution, in that the prominence emphasizes

that there has been a change in a variable's value without actually *specifying* that new

value, but in this case the counterpart's value (a pronoun/pointer) needs to be derived

since it is only implicitly understood in context: ["<u>you</u>" (ref. *x*) vs. you (ref. *y*)].

The point is that disambiguation of reference is not a subfunction of revelation,

but rather that revelation can be used to help disambiguate the reference in a scenario

like this one, as can other linguistic devices.

3.4   Reference and Parallel Structures

This is a special application of substitution, and it is prone to being used in

some fairly complex, convoluted utterances. The problem is that volitional

prominence added to a pronoun's form can have an effect on the meaning of a referent

located somewhere else. I am going to start out by using some simple, generated

examples to explain this behavior and then lead into a description of the complex,

actual instances from the corpora. What will end up happening is that the generated

examples involving single substitutions will be explained in *this* section, and they will

be used to introduce the description of the parallel reference behavior, but then the

remainder of this part of the analysis will be deferred to a section in the chapter on multiple instances of volitional prominence, which is where the actual examples from the corpora deserve to be categorized and treated. I will do what I can to keep the natural convolution of the data from infecting the prose used to describe it.

To help keep things straight, I am introducing one addition to the notation. Until now, a single level of underlining has been sufficient to mark the single occurrence of primary prominence, but the examples in this section need to have the locations of both their primary *and* secondary prominence marked. In this section alone, then, 1) a single underline will be used to mark the word which takes secondary prominence, 2) a double underline will mark the word which gets primary prominence, and 3) CAPS will be used for any word which has intense prominence. I realize that a potential for confusion lies in the intuition that 'primary = single' and 'secondary = double', but I'm appealing to a different intuition, namely that 'more lines = more prominence', which is an intuition I prefer because its notation is consistent with that used in the rest of this analysis where the most lines mean the most prominence (e.g. secondary vs. primary stress).

I credit getting this material clear in my mind with having had the opportunity to compare research methods and results with those of Jennifer Balogh, who is performing some interesting psychology experiments on 'abnormal' prominence and the disambiguation of reference in parallel structures. The following generated example is from one of her experiments, with the prominence left unmarked:

[4-39]   The butcher hit the baker and the waiter hit him.

Subjects are presented with a routine prominence pattern, then with a version which

has volitional prominence on the pronoun, after which they take tests designed to

ferret out in each case which nominal the subject identifies as the pronoun's referent.

Here is the routine prominence pattern for the first part when it is by itself:

[4-40]   The <u>butcher</u> hit the <u>baker</u>.

Here is a typical alternative to this pattern in terms of volitionally placed prominence:

[4-41]   The <u>butcher</u> hit the <u>baker</u>.

This is often treated as no different than:

[4-42]   The BUTCHer hit the <u>baker</u>.

In other words, the "butcher" (and not someone else) hit the "baker." This expression

is assumed to take place in the midst of a discourse context, and not out of the blue,

where in the latter case it would have an emotional meaning something along the lines

of "[*Shock + Surprise*] The BUTCHer (of all people) hit the baker."

The routine pattern for the whole parallel structure is:

[4-43]   The <u>butcher</u> hit the <u>baker</u>, then the <u>waiter</u> hit 'm.

In this sense, first the "butcher" and then the "waiter" pound on the "baker." The

prominence follows a routine pattern, and so the alignment of the reference in the

parallel structures gets treated in a similarly simple, routine manner, that is to say:

predicate with predicate; first argument with first argument; and second argument with second argument. Used in this routine manner, test subjects normally identify "him" with "baker" (80% of the time as measured by Balogh). Because this is the routine structure and pattern, this identification *should* be more regular from subject to subject than if they were dealing with patterns which were more novel, simply because the subjects' experience with the conventional pattern is greater, and their responses should more closely approximate that of a reflex.

Now let's compare the routine pattern in [4-39] to a number of its alternatives, starting with volitional placement on the first half, and no change on the second:

[4-44]   The butcher hit the baker, then the waiter hit 'm.

The difference in the meaning is that the "butcher" is now a mild change, that is to say, a correction from an even *earlier* stage of the discourse. This meaning effect would be stronger, but most of the attention is on the second half, where the prominence pattern and the identification of the pronoun with the "butcher" remains the same.

This is how the expression looks when the *second* half has a volitional prominence pattern, and the first half is either routine *or* volitional:

[4-45]   The butcher hit the baker, then the waiter hit HIM.
[4-46]   The butcher hit the baker, then the waiter hit HIM.

The prominence on the pronoun can be primary or intense, and the meaning will be interpreted *as if* it were intense due to the great difference in level when compared to

the cliticized non-prominent pronoun. In each case, "HIM" is identified with the "butcher" (60% as measured by Balogh), but the volitional prominence placement in the first half of [4-46] again implies that the "butcher" is in itself a correction of an earlier discourse stage. Again, it makes sense that the consistency of the behavior with the novel constructions (60%) is less than with the conventional patterns (80%).

A routine prominence pattern would not disturb the expectation that a routine argument order would align the structures for reference, but volitional prominence suggests that there is a different alignment of some kind. The first thing that strikes L as different, however, is *not* the prominence on "HIM," but the *lack* of the prominence on "waiter." L would normally expect to come across primary prominence on the entity in the position occupied by "waiter," which would be the newish information or rheme. The lack of prominence indicates that "waiter" is *not* the rheme, and so there is a signal for L right there that the point of the expression is *not* going to be about what happens when the "waiter" is treated as just another hitter who has been substituted for the "butcher." L knows that the "waiter" is going to be involved in *something* different.

A subsequent lack of prominence on "hit" tells L that the same action as before is going to be performed, so the change *must* be to the second argument, which means that what has changed from the first half of the parallel structure to the second half is the "baker." It is really important to notice that while this draws L to the point of *not* identifying "HIM" with the "baker," this is crucially *not* the same thing as having L identify "HIM" with the "butcher" in specific. It is only the artificial narrowness of the context which suggests that "butcher" would be the obvious alternative to "baker."

If we pretend that the context of these examples is one step closer to real life, as if they were used in a discourse context, it is easy to understand that L would absolutely *not* be surprised to hear or see any of the following alternative endings:

[4-47] (a) The <u>butcher</u> hit the <u>baker</u>, then the <u>waiter</u> hit the BARtender.
         (b) The <u>butcher</u> hit the <u>baker</u>, then the <u>waiter</u> hit them BOTH.
         (c) The <u>butcher</u> hit the <u>baker</u>, then the <u>waiter</u> hit the CEILing.
         (d) ? The <u>butcher</u> hit the <u>baker</u>, then the <u>waiter</u> hit the BAKer.

All is fine, just so long as the "waiter" doesn't hit the "BAKer" (with the exception of some contexts which I will defer for the moment). So, while L knows that "HIM" does not identify the "baker," there is no necessary reason to choose "butcher" as the only alternative. People *should* only identify the "butcher" 60% of the time if the pronoun is prominent because of the novelty of the construction, especially considering the range of alternatives available to "butcher," a range which was nonexistent for the referent "baker" when the pronoun was *not* prominent.

In this particular kind of substitution, then, the first half of the parallel structure sets up the expectation of a routine prominence pattern, and so *any* deviation during the second half signals to L a detachment of referents, rather than just a deviance in the placement or level of one prominence. The range of potential discourse counterparts determines what the alternative referents are for the newly prominent pronoun. People *should* be expected to behave similarly to one another when it comes to the assignment of reference when the pattern is routine and their responses more closely approximate a reflex (80%), and there *should* be more deviance in their behavior when the pattern is novel, and when the range of alternative referents grows (60%).

Okay, now let's get back to this example:

[4-48]　　? The <u>butcher</u> hit the <u>baker</u>, then the <u>waiter</u> hit the BAKer.

In this case, elaboration is used to distinguish an individual "BAKer" in the second half of the structure from some other baker in what must be a very close context indeed, probably the very "<u>baker</u>" whom the "butcher" has just clobbered. This revelation produces an elaboration as a side-effect, because the "BAKer" is implied to be identifiable as the *real* "baker" due to its greater power or paragonal status, or it can even be set apart specifically as the "so-called baker" through its periphery. It should be kept firmly in mind that we are getting into linguistically rarefied air here, which is one of the dangers associated with an analysis of generated examples, and so it should be clearly understood that there are no examples in either of the corpora displaying this detailed a level of explicit *contextual* differentiation.

Things have to get one step worse before they get better, so here is the obnoxious rendering that occurs when *both* instances of "baker" are equally volitionally prominent:

[4-49]　　* The <u>butcher</u> hit the BAKer, then the <u>waiter</u> hit the BAKer.

There is only one way that I can think of which makes an expression like this work, and that would be in a context where person after person hits the same "baker" until it is pure monotony, in which case the additional prominence would be emphasizing the regularity of the rhythm in a sing-song pattern reflecting the beating itself:

[4-50]   The <u>butcher</u> hit the BAKer, then the <u>waiter</u> hit the BAKer, then
the <u>poodle</u> hit the BAKer, then my <u>mother</u> hit the BAKer…
(and so forth…)

But just in its dual version, where two identical words are equal in their volitional prominence, the sentence is rotten. If [4-47] and its alternatives are going to work, the two objects of hitting must be unequal in *some* way which does not tie them to the same referent, whether segmentally, suprasegmentally or otherwise.

This brings us to the linked prominence variation of parallel reference, which is a very common form of [4-45], namely:

[4-51]   The <u>butcher</u> hit the BAKer, then the <u>waiter</u> hit HIM.

This has the same sing-song type of pattern as the longer [4-50]. The "baker" gets just that much more prominence in anticipation of maintaining a parallel rhythm, which is the result of TIMING, as demonstrated in the next chapter (cf. §3). Suprasegmentally, "BAKer" and "HIM" are equally intense, but even though they are segmentally different, they still are not allowed to be taken to refer to the same thing any more than in those rotten cases where "baker" was used twice instead of the pronoun.

Further analysis of these examples will be deferred until chapter 5, where they will be compared against the examples of linked volitional prominence gathered from the corpora. The most important point to be made until then is that while volitional prominence is used to shake referents loose, it is the context which reattaches them, and so it is not the volitional prominence itself which actually functions to disambiguate reference.

3.5   Summary of Substitution

When S identifies a discrepancy between the portrayal of R and R_S during discourse, it draws L's attention to a correction with a prominent phonological form that can be substituted for the perceived error. L is aided in making the appropriate exchange through apparent parallels in the older and newer contextual settings, which cradle the word representative of S's desired change. The change will be substituted for its discourse counterpart, both of which are housed in similar settings. In addition, S tends to warn L about an impending substitution with an omen. In noting a mismatch between R and R_S, substitution can upset the routine assignment of reference in a context, but it does not actually reassign reference. Derivation was also shown to exhibit similar uprooting behavior, leading to the conclusion that revelation in general detaches reference, but does not disambiguate reference.

4   Addition

These are four examples (one with two instances) in the Brown corpus where a null counterpart or a gap in the setting is filled by a volitionally prominent word:

[4-52]   Yet adequate compensation—and particularly merely adequate compensation…. [A35 1450]

[4-53]   Indeed, the set of endings can be replaced by the name of a set of endings. [J32 1650]

[4-54]   I guess she was between affairs or something, but anyway, she had set her sights on Johnnie, my Johnnie. [P22 0400]

[4-55]   I admired their easy way of doing things but I couldn't escape an uneasiness at their way of always doing the right things. [R02 0700, R02 0700]

There are also two cases in which *part* of a word fills a gap:

[4-56]   If it is an honest feeling, then why should she not yield to it?
"*Most* often", she says, "it's the *monogamous* relationship that
is dishonest". [G13 1140, G13 1140, G13 1150]

[4-57]   Since then, and since the pure grain had gotten him divorced
from every decent– and even indecent– group from Greenwich
Village to the Embarcadero, he had become a sucker-rolling
freight-jumper. [N29 0040]

One of the examples that appeared earlier with [4-56] ("unfunny") is a derivation by

conventional pairing, discussed below, and another ("pre-attack", "post-attack") is a

matter of linked prominence, and so it is discussed in chapter 5.

There is a difference between: 1) the notion of 'counterpart' being inapplicable

in elaboration; 2) there being no explicit counterpart in a derivation; and 3) there being

an explicit, null counterpart or obviously filled gap in a repeated setting. Take [4-52]

for example. If "merely" were an elaboration, it would emphasize the paltriness of

"merely"; however, that does not account for the meaning conveyed by the repetition

of the setting "_ adequate compensation." It could be argued that an elaborate form of

"merely" was dropped into the gap, but that gap is still evident enough that the

addition itself cannot be ignored, even if the change itself is also a case of elaboration.

Taking [4-52] once again, addition can be told from derivation because S does

not use "merely" to evoke a conventional or contextual counterpart like 'sufficiently'.

The repeated setting assures that L will equate "merely adequate compensation" with

"_ adequate compensation," portraying "merely" as taking the place of a previously

unspecified modifier, not an antonymic one. The rest of the examples behave similarly.

The consistency of the behavior across these few examples, plus the support rendered by dozens more in the Other corpus, promotes addition as a subfunction of revelation, as opposed to suggesting that it is merely a special variation of derivation or substitution.

5   Derivation

Substitution provides an entirely explicit counterpart in a setting encapsulated as a unitary word, and addition suggests that there is a null counterpart which is being filled, but derivation provides a counterpart which is either 1) not entirely explicit in the given context, or 2) not unitary, or 3) some overlap of 1 and 2. Derivation is most easily thought of as having its counterparts more tenuously or broadly DISTRIBUTED than they are in substitution. For example, the counterpart might be given explicitly in the context, but could consist of anything from two words (which differs minimally from substitution) to a much longer narrative. Alternately, the setting might have to be derived with a little more effort by L based upon what it knows about the entities with which the change normally associates. The counterpart that L derives might be able to be summed up in one easily encapsulated notion, or it might just be too difficult to put into one word. Cases of derivation range within these boundaries.

CONVENTIONAL material in an utterance allows for implicit counterparts to be more easily accessed (with a range of encapsulation), and CONTEXTUAL or novel material allows for the explicit specification of new or alternative counterparts to a change. These counterparts can be derived through an appeal to conventional pairs

(§5.1; ['word' vs. 'picture'], or ['mind' vs. 'body']), conventional sets (§5.2; numbers, modals, or prepositions), basic conventional domains (§5.3; [BODY], [TIME]), and complex conventional domains (§5.4; the guest/host or doctor/patient relationship); likewise, there are also *contextual* pairs (§5.5), contextual sets (§5.6), basic contextual domains (§5.7), and complex contextual domains (§5.8).

5.1   Conventional Pairs

Some derivational domains are conventional pairs ([me vs. you], [up vs. down], [left foot vs. right foot]), many of which are antonymic modifiers ([big vs. small], [smart vs. stupid]). While these pairs can be members of larger sets, such as the pronouns and prepositions, that does not preclude their being *treated* as an autonomous pair for the purposes of derivation. Their mutual exchange in cases of explicit substitution supports their being appealed to as a pair for derivation. For example, the familiar pair [now vs. then], which has already been shown to appear in substitutions, is also used in derivation:

[4-58]   "Oh, [the cavalry charge] would be butchery all right", the
European said. "We would see it that way, but it was glorious
<u>then</u>…." ^{G75 0730 (cf. D16 1630)}

change   =   "<u>then</u>"
setting   ≈   "We would see it that way *when*"
counterpart =   now
omen   =   "would", "but"

There is no explicit counterpart in this context for "<u>then</u>," but 'now' comes to mind naturally. For any L which notices it, the gap after "We would see it that way _" can

act as an implicit, encapsulated counterpart for "then," helping to support the

derivation of 'now'. In comparison, the following example displays two explicit,

distributed counterparts:

[4-59] "I'll get around to it a little later", he mumbled desperately.
"Just as soon as I go to the bank, and"– "Huh-uh. Now, Mis-ter
McBride", said Lord, and he laid a firmly restraining hand on
the field boss's arm. [N09 1360]

change   = "Now"
setting   ≈ go to the bank *when*
counterpart   = "a little later" + "as soon as" > then
omen   = "–", "Huh-uh"

In other words, just because 'then' belongs to a conventional pair with 'now' doesn't

mean that no other counterpart will be offered, although L might still derive some

sense of 'now' from the explicit counterparts.

Other conventional pairs include: ["economy" vs. profligacy] [F48 1310]; ["rough"

vs. fine] [E17 0530]; ["exclusive(ly)" vs. inclusively] [J27 0130, J43 1380]; ["specifically" vs.

approximately] [E27 0010]; ["natural" vs. unnatural] [J57 1170, L10 1280]; ["prepared" vs. not

prepared] [D09 0210]; ["using" vs. studying] [F12 1610]; ["responsible" vs. careless] [F15 0480];

["allowing" vs. denying] [D11 0760, D11 0770]; ["because" vs. that] [G02 1600]; ["industrialized"

vs. agrarian] [G08 0730]; ["given" vs. proven] [G16 1800]; ["spirit" vs. body] [G17 0230];

["monogamous" vs. nonmonogamous] [G13 1150]; ["non-partisan" vs. partisan] [G21 1580];

["explain" vs. describe] [G30 0900]; ["unconscious" vs. conscious] [G21 1600]; ["one" vs.

many] [G22 0760]; ["special" vs. normal] [G30 0220]; ["primary" vs. ancillary] [G30 1770];

["person" vs. animal] [G35 1160]; ["this" vs. that] [D11 0260]; ["direct" vs. indirect] [J50 0690];

["implement" vs. maintain] [F15 1000]; ["force" vs. yield] [F15 1010]; ["formally" vs. informally] [G50 1090]; ["prove" vs. believe] [G29 1230]; ["defend" vs. attack < "take the initiative"] [B23 1410]; ["mind" vs. body] [G70 0360]; ["chance" vs. guarantee] [L08 1360]; ["qualitative" vs. quantitative] [J17 1180]; ["linear" vs. nonlinear] [J50 0730]; ["regardless" vs. with regard to] [M03 0590]; ["dark" vs. light] [N19 0960]; ["acting" vs. actual] [P27 1270]; ["elected" vs. appointed] [P27 1320]; ["subconscious" vs. conscious] [F03 1470]; ["before" vs. after] [D09 0460]; ["independent" vs. dependent] [J59 1460]; ["level" vs. rate] [J41 1250]; ["transversally" vs. lengthwise] [E26 1710]; ["slowly" vs. quickly] [E24 0920]; ["head" vs. underling] [L20 0080]; ["conduct" vs. support] [F48 1070]; ["readers" vs. writers] [P10 0240]; ["ordered" vs. chaotic] [G27 0500]; ["immediate" vs.delayed] [J24 1600]; ["generalize" vs. specify] [J59 1080]; ["most" vs. least] [G13 1140]; ["if" vs. when] [L20 1380]; ["choices" vs. whims < "not… arbitrary and whimsical"] [G57 0370]; and ["real" vs. unreal] [D02 1530].

Many instances of partial word prominence belong here:

[4-60]   He made many tasteless, irreverent and unfunny remarks, not only about me in the title role, but about religion in general. [R03 1550]

When this sort of prominence appears in a text, the whole word tends to be italicized or underlined, and so its spoken (and perhaps signed) frequency is probably misrepresented. There are a number of instances in the list given above ("exclusive," "non-partisan," "independent," "unconscious," "subconscious") which effectively display this same sort of behavior, but each of then just happens to be marked as a whole word.

If a pairing is semantically conventional, but phonologically novel *as a pairing* because the counterpart is lacking or distributed, then that counterpart tends to be treated as a phonologically null form or gap, which superficially resembles addition:

[4-61]   In the latter research program, information is available for
2,758 Cornell students surveyed in 1950 and for 1,571 students
surveyed in 1952. Of the latter sample, 944 persons had been
studied two years earlier; hence <u>changes</u> in attitudes and values
can be analyzed for identical individuals at two points in time.
G57 0100

If this were addition, then there would be an explicit mention of the '_ attitudes and values' earlier in the context. There is no readily available unitary counterpart for "<u>changes</u>," just some not-strictly-conventional or distributed alternatives like 'nonchanges', 'unchanged things', or even 'the things that didn't change'. The easy solution to the problem is just to point out that pairings don't need to be unitary, particularly because one of the features which distinguishes derivation from substitution is the need to accommodate distributed counterparts. L then derives novel alternatives to "<u>changes</u>."

The prepositions as a whole provide a common conventional set, but they are categorized as pairings because they typically *act* as conventional pairs, rather than as if any given prominent preposition were chosen in opposition to *all* of the other pronouns in the set:

[4-62]   A BTU is a unit of heat, and the BTU rating of a conditioner
refers to how much heat your machine can pump <u>out</u> of your
house in an hour. E20 1120

In other words, [4-62] pairs ["out" vs. in(to)], and not ["out" vs. {on, around, through…}]. Further examples of prominent prepositional pairings are: ["within" vs. between] [F37 0330, J54 0500]; ["in" vs. out] [J27 0720, N12 0760]; [("choose") "between" vs. ("choose") both] [J59 1210]; ["top" vs. bottom] [E24 1110]; ["up" vs. down] [E24 0940]; ["out(side)" vs. in(side)] [F33 1520, G36 1230]; ["or" vs. and] [H28 0400, H28 0410]; and ["without" vs. within] [F15 1530]. Some conventional pairs like this are infused by the determining characteristics of conventional basic domains (§5.3), such as when an antonymic pair like [off vs. on] has an inherent link to the positive/negative opposition, or when the [left vs. right] pair is understood to be just one division of dimensional space or bilateral symmetry, but this is to be expected when meaning is distributed and encyclopedic in nature.

One such positive/negative appeal is when "and" evokes 'and not':

[4-63]   In the absence of direct evidence to the contrary, decomposition of solvent alcohol and coordination of its fragments to the metal were not considered, following the above heretofore-accepted assumption in preparative coordination chemistry. [J72 1230]

[4-64]   I'm talking about the grand manner of the Liberal– North and South– who is not affected personally. [G17 0910]

[4-65]   A signal cannot be cleared until all the related turnouts are properly thrown and locked. [E07 0300]

In [4-63], *only* the "decomposition of solvent alcohol" was considered, and not the "coordination of its fragments to the metal," and so deriving 'or' as a counterpart to "and," despite their otherwise popular pairing, does not convey the right meaning. The same thing happens in the next two examples, which balance "North and South"

against 'North and not South' rather than 'North or South', likewise "thrown <u>and</u> locked" is compared to 'thrown and not locked' rather than 'thrown or locked'. The counterpart 'and not' is two words, but the other half of a conventional pair need not be unitary. This is discussed in more detail in the section on contextual pairs (§5.5), which often appeal to multiword counterparts.

The prominent possessive pronouns tend to provide interesting cases. The following examples would be substitutions, but the change is possessive, and so it really requires a possessive counterpart for pairing, which is derived in an essentially trivial fashion from the context:

[4-66]   Having (through <u>my</u> unflagging effort and devotion) achieved stardom, a fortune and a world-renowned wife at an age when most young men are casting their first vote, Letch proceeded to neglect them all. [R03 0740]

[4-67]   But didn't [the New Englanders] get off too easy? The slaves never shared in <u>their</u> profits, while they did share, in a very real sense, in the profits of the slave-owners: they were fed, clothed, doctored, and so forth; they were the beneficiaries of responsible, paternalistic care. [G17 1270]

In [4-66], S is Letch's wife, and the possessiveness of "<u>my</u>" keeps this from being a straightforward substitution like ["<u>me</u>" vs. "Letch"]; instead, what happens is more like: ["<u>my</u>" vs. Letch's < "Letch"]. In [4-67], you have: ["<u>their</u>" vs. slave-owner's < "slave-owners"]. Other examples are: ["<u>its</u>" vs. mankind's < "mankind"] [G22 0190]; ["<u>my</u>" vs. Jack's < "Jack"] [K28 1380]; ["<u>her</u>" vs. my < "I"] [L24 1630]; ["<u>his</u>" vs. Phil's < "Phil"] [P24 1520]; ["<u>their</u>" vs. her < "she"] [R07 0590]; and ["<u>his</u>" vs. the South's < "the South"] [G17 0180].

Finally, here is an example which could either be derivation by conventional pair or elaboration for precision, depending upon S's intent (or L's interpretation):

[4-68]   <u>The</u> obvious natural fact to ancient thinkers was the diurnal rotation of the heavens. [G30 0050]

If L takes this example to be a case of ["<u>the</u>" vs. a], then it is a derivation, and the intended meaning is something along the lines of 'There were a lot of obvious natural facts, but this was the most important one of the bunch'; however, if L treats this utterance as if it were ["<u>the</u>" vs. the], then the word-internal meaning change is an elaboration for precision, and the meaning becomes, 'At the time, there was more than one obvious natural fact that was identified by its great importance, but this one was the most important obvious natural fact of them all.' Examples of "<u>the</u>" are what got me started in this line of research, which soon extended to cover prominent nominal grounding predications, then the verbal grounding predications, and then all the rest.

5.2   Conventional Sets

As you might expect, conventional sets are similar to conventional pairs (implicit counterparts), but they are less encapsulated. Here is a good set of related examples all taken from within the same context:

[4-69]   (a) [Jesus Christ] is in your hands– <u>now</u>…. [D16 1510]
      (b) God is in your hands, <u>now</u>. [D16 1610]
      (c) What He does with you <u>then</u> depends on what you do with Him <u>now</u>. [D16 1620, D16 1630]
      (d) <u>Then</u> it will be a "fearful thing to fall into the hands of the living God" if you have abused Him in your hands. [D16 1630]

There are a lot of "<u>now</u>"s and "<u>then</u>"s in this example, but they are not all used the same way. In (a), when "<u>now</u>" is used for the first time, its counterpart is not 'then', but rather it is any time in the conventional set of temporal adverbials other than 'now' (e.g. 'Don't worry about what went on last year, and don't worry about what's going to happen tomorrow, and in fact, don't worry about what's going on at any other time, because [Jesus Christ] is in your hands– <u>now</u>').

The use of "<u>now</u>" in (b) could be called recapitulation, but for the reasons explained earlier (§3.2), it makes more sense just to identify it as the second of two close derivations. Example (c) is a case of DISSOCIATION, which is also analyzed in more detail in the next chapter (§1). In brief, dissociation emphasizes what the two volitionally prominent words do *not* mean in common, which strengthens the borders which divide their meanings, after which they can be more easily interpreted as taxonomic labels which divide up the context between them, which in this case is present and future time.

By the time that "<u>then</u>" comes along in (d), its counterpart is not the whole conventional set of temporal adverbials (note that in this context, "<u>then</u>" is not a substitute for 'at any other time'), neither is it the other half of the conventional pair to which it belongs with 'now', but rather *this* "<u>then</u>" is an emotionally charged repetition of the *earlier* "<u>then</u>." In addition to this emotion, the earlier "<u>then</u>" is also volitionally prominent, and so rather than finally identifying a case of recapitulation, this is an example of COORDINATION (chapter 5, §2).

Here are three more examples of prominent adverbials of time:

[4-70]　　Noting such evidence is the first step; and almost the only
　　　　"cure" is <u>early</u> detection and removal. [G22 0070]

[4-71]　　And if he surrendered <u>after</u> raving at her. [P28 0660] [vs. without
　　　　having raved at all]

[4-72]　　For example, the marksman gets 5 shots, but we take his score
　　　　to be the number of shots <u>before</u> his first bull's-eye, that is, 0, 1,
　　　　2, 3, 4 (or 5, if he gets no bull's-eye). [J19 1410]

Each of these prominent adverbs has a counterpart of 'no time at all', which suggests

that 'no time' is a member of this conventional set, just as 'null' is a member of every

set. As shown in the previous chapter, the negative adverbial of time 'never' always

behaves as if it were elaborated for precision.

The cardinal and ordinal numbers are special conventional sets, namely

continua:

[4-73]　　Some experiments are composed of repetitions of independent
　　　　trials, each with <u>two</u> possible outcomes. [J19 0010]

[4-74]　　Even granted that the Congo should be unified, you don't
　　　　protect Western security by <u>first</u> removing the pro-Western
　　　　weight from the power equilibrium. [B23 1480]

[4-75]　　The binomial probability distribution may describe the
　　　　variation that occurs from one set of trials of such a b<u>inomial</u>
　　　　experiment to another. [J19 0040]

There are some numbers which often act as pairs ([one vs. two], [none/zero vs. one],

[third vs. second]), but the data suggest that they are usually substituted for one

another in the less-than-ten range ([one vs. four], [six vs. nine]), or substituted by

factors of ten ([eighteen vs. eighteen-hundred], [five vs. five-thousand]).

When quantifiers (and their related indefinite pronouns) are not being elaborated for precision, they are used for derivation by conventional set. To begin with, there is ["some" vs. none]:

[4-76] But the practice is likely to be misleading, since it may seem to support a conclusion that, as long as the revenues from any class of service cover the imputed operating expenses plus some return on capital investment, however low, the rates of charge for this service are compensatory. [J50 1260]

[4-77] One thing we haven't discussed, expense money. We'll need some at least, if only bus fare to the scene of the crime. [L24 1490]

[4-78] "You can get something," Nadine would snap. [P18 1630] (blackballed)

Others examples of ["some" vs. none] are: ["some new homes"] [E20 0080]; ["some of us"] [M01 0930]; and ["somebody" vs. nobody] [B21 0670].

Here are some examples of ["all" vs. some]:

[4-79] Eichmann himself is a model of how the myth of the enemy-Jew can be used to transform the ordinary man of present-day society into a menace to all his neighbors. [F14 1470]

[4-80] The aim was to state the results of all available determinations of atomic positions in crystals. [J73 1120]

and ["all' vs. most]:

[4-81] Molotov, in particular, is being charged with all kinds of sins — especially with wanting to cut down free public services, to increase rents and fares; in fact, with having been against all the more popular features of the Khrushchev "welfare state". [B25 0640]

[4-82] …contraception was condemned by all Christian churches as immoral, unnatural and contrary to divine law. [F15 1220]

Others are: ["<u>all</u> cultures" vs. most] [G22 0330]; and ["<u>all</u> nations" vs. most] [G72 1160]. Some of these are similar to the cases of quantifiers elaborated for precision, and can be interpreted that way by L, but when compared to the behavior of "<u>never</u>" and "<u>none</u>," these examples stand out more clearly as derivation. Again, it is a matter of whether the meaning change is taken to be word-internal, or contextual.

Here are some examples of intensely prominent, individual relative quantifiers, which were first introduced in chapter 3, §2. As you recall, the proportional relative quantifiers were all prone to prominence for precision, but each of the individual relative quantifiers was described as having a particular functional aspect emphasized by prominence which differentiated it from the others in its set:

[4-83]   Moreover, the cost of operations is always high in <u>any</u> new store, as the conservative bankers who act as controllers for retail giants are beginning to discover. [J60 1210]

[4-84]   The DRDW statement may also be used to generate an RDW defining <u>any</u> area specified by the programmer. [J69 1370]

[4-85]   It is interesting that it is not the getting of <u>any</u> sort of knowledge that God has forbidden, but, specifically, the knowledge of the difference between good and evil—that is, abstract and moral judgments, which, if they reside anywhere, reside in the neocortex. [17.98]

[4-86]   The performer just gets the assistant to lie and say that he saw the performer seal the prediction days before. There are illusions as infuriatingly misleading as this. <u>Every</u> illusion is misleading, somehow. [11.192]

The related indefinite pronouns work the same way:

[4-87]   Out cold, if not dead; and he'd never known what hit him- he'd never known that <u>anything</u> had hit him. [L24 0610]

[4-88]   You know it and I'll tell <u>everybody</u> exactly how it happened. ^{P03}
         0240

[4-89]   "Have a party an' leave 'em out, hon", he suggested. "A *swell*
         party, send an invite to <u>ever'body</u> but them…. ^{P03 1540}

[4-90]   Ekstrohm nudged it with a boot. "Hey, this is pretty close to a
         wart-hog".   "Uh-huh", Ryan admitted. "One of the best
         matches I've ever found. Well, it has to happen. Statistical
         average and all. Still, it sometimes gives you a creepy feeling to
         find a rabbit or a snapping turtle on some strange world. It
         makes you wonder if this exploration business isn't all some big
         joke, and somebody has been <u>everywhere</u> before you even
         started". ^{M04 0650}

The two examples of "<u>any</u>" from the Brown corpus, namely [4-83] and [4-84], both

emphasize the random nature of an instance's selection: no matter which new store or

area gets chosen, it will have some amount of the desired quality, which would be a

high cost of operation or susceptibility to being specified, respectively. The "<u>any</u>"

example in [4-85] works the same way, posing the getting of a randomly selected sort

of knowledge against the getting of one deliberately chosen, specific sort of

knowledge.

The only example of "<u>every</u>" is also from the Other corpus, where in [4-86] L's

attention is drawn to the fact that it is not just the specific illusion currently under

scrutiny which is misleading, but rather that no matter which trick had been chosen as

a representative, it would also have been misleading in some way. Unfortunately, there

were no examples in either corpus of "<u>each</u>," and so for now I am only speculating (on

the basis of imagined examples) that the difference between "<u>each</u>" and "<u>every</u>" would

be the emphasis on the type of scanning involved.

There is another set which I am treating as conventional simply because a lot of instances in the data appeal to it, and that set is [want vs. need vs. like vs. tolerate (vs. their negative oppositions)]:

[4-91]   [Some men] <u>like</u> to be dominated. [F08 1020]

[4-92]   Obviously, such a Northern tourist's purpose (in ignoring Southern industrial reality and hallucinating Southern romantic fantasy) is somewhat akin to a child's experience with Disneyland: he <u>wants</u> to see a world of make-believe. [G08 1510]

[4-93]   I sometimes feel that God, in His infinite wisdom, <u>wants</u> us to have these inexplicable little lapses of memory. [R03 1130]

This conventional set, just like any other, encompasses a range of appropriate alternatives to the change, which is itself a set member.

Similarly, there is a set which is made up of the union of two other sets, namely the [smells vs. feels vs. looks (and so forth)] set with [looks vs. seems vs. is]:

[4-94]   The aborigine lives on the cruelest land I have ever seen. Which does not mean that it is ugly. Part of it is, of course. There are thousands of square miles of salt pan which are hideous…. But much of the land which the aborigine wanders <u>looks</u> as if it should be hospitable. It is softened by the saltbush and the bluebush, has a peaceful quality, the hills roll softly. [G04 0450]

[4-95]   Spatiality becomes part of the tactual sensation only by way of visual representations; that is, there is, in the true sense, only a <u>visual</u> space. [J53 0210]

[4-96]   Charlie grinned. She didn't <u>sound</u> like a pale girl. [P23 1360]

The values for the senses and appearances can all act as appropriate counterparts for one another, such as [smells vs. is], or [feels vs. seems].

Finally, there is this last set which deals with likelihood (epistemics):

[4-97]   By contrast, a good deal of nuclear pacifism begins with the contingencies and the probabilities, and not with the moral nature of the action to be done; and by deriving legitimate decision backward from whatever may <u>conceivably</u> or possibly or probably result, whether by anyone's doing or by accident, it finds itself driven to inaction…. [D11 0580]

[4-98]   …surely anything is better than a policy which allows for the <u>possibility</u> of nuclear war. [D11 0830]

These examples both came from the same tract on nuclear war, but as with the earlier conventional sets, this set is backed up by a significant data from the Other corpus.

5.3   Basic Conventional Domains

Examples from two basic conventional domains are categorized here, where the domain of SIZE demonstrates that 'basic' can be simple, and where the POSITIVE/NEGATIVE OPPOSITION shows that 'basic' can be complex, albeit systematic. Examples of another domain (WHOLE/PART) which resemble PROMINENT ADMISSION (a type of positive/negative opposition) are included at the end of this section not just because they illustrate a common type of construction, but precisely because some of the positive/negative opposition examples behave similarly to the whole/part instances, and the two types of revelation need to be differentiated.

To begin with, there is a natural gradation from conventional sets to basic domains which involves not just an increase in the number of members, but an increase in the density of the interconnections among members. There is no strict boundary between a large set and a small domain. For example, one common domain

is composed of concepts related to size, and while some of the members also take part

in conventional pairings ([big vs. small]) and sets ([smallest vs. smaller vs. small vs.

big vs. bigger vs. biggest]), size as a basic conventional domain encompasses a greater

number of members than does a typical conventional set like the prepositions, and the

interconnection between its members has a greater degree of freedom ([ungainly vs.

minuscule]… could work) than is found in some sets ([five vs. 7,987,754]… rare).

Here are examples evoking the size domain from the Brown corpus:

[4-99] I think that readers generally hate <u>minute</u> polemics and
recriminations. [C05 0540]

[4-100] From maturity one looks back at the succession of years, counts
them and makes them many, yet cannot feel <u>length</u> in the
number, however large. [G14 0310]

The derivations are ["<u>minute</u>" vs. regular-sized] and ["<u>length</u>" vs. quantity <

"succession"]. The vast scope of the domain allows for a great deal of freedom in

choosing a counterpart, but conventionality places enough limits on that freedom to

make the task possible.

This is where the conventional positive/negative opposition comes in. I am

including some examples of substitution and addition here as well because their

behavior is all based on this same domain, and because *most* of the examples by far are

derivations. There are three main types of behavior common to this domain, namely:

1) PROMINENT NEGATION, in which a positive value of a variable in the setting is refuted

by "<u>not</u>"; 2) PROMINENT CONFIRMATION, in which both the setting assertion and the

change are positive; and 3) PROMINENT ADMISSION, in which the setting variable has a

negative value, but the change is positive. There are no cases in the Brown corpus in which a negative setting is associated with a negative change, although this behavior occurs in speech.

Prominent negation is specifically contextual or external to the phrase in which it resides, refuting an assertion made earlier in the discourse (cf. Langacker, 1991: 132-141). Here are examples in which there is a positive setting and a negative change (prominent negation):

[4-101] "All is <u>not</u> sex", declared Lawrence. [G13 0100]

[4-102] Suppose it was <u>not</u> us that killed these aliens. [M04 0900]

[4-103] For the only time in the opera, words are <u>not</u> set according to their natural inflection; to do so would have spoiled the dramatic point of the scene. [J64 0690]

[4-104] And women were not expected to know that the pitcher was trying <u>not</u> to let the batter hit the ball. [F38 1700]

[4-105] …the truth of the matter is that most American Catholic colleges do <u>not</u> owe their existence to general Catholic support but rather to the initiative, resourcefulness and sacrifices of individual religious communities. [A35 0340]

[4-106] But the main point here is that even if such a restatement were <u>not</u> possible, the demand to demythologize the kerygma would still be unavoidable. [D02 0890]

[4-107] And, as we know, the Virgin Lands are <u>not</u> producing as much as Khrushchev had hoped. [B25 0580]

Without prominence, Lawrence is simply declaring what might be a completely new discovery, but *with* prominent negation, he is specifically denying an earlier contention to the contrary. That contention might be conventional or contextual. Likewise, the volitional prominence in [4-102] indicates that the guilt of the astronauts has already

been suggested, where without that prominence ('Suppose it wasn't us that killed these áliens') the statement could be the first mention of that possibility after the aliens were found dead. In each of these cases, the setting amounts to a positive assertion which is denied by the change. In [4-103], words are always (positive) set according to their natural inflection, except "<u>not</u>" (negation) at one dramatic point. The rest of these examples behave similarly.

For "<u>not</u>," the setting is always positive in the Brown corpus, but for the volitionally prominent auxiliary verbs, the setting can be negative *or* positive. Because the volitionally prominent forms of these utterances always have a positive change, sometimes the setting and the change are equal in polarity, and sometimes not. I find it interesting that the distributions of the examples across equal and unequal polarities are similar. There are 31 examples in which prominence confirms a positive setting (equal: 16 BE, 8 DO, 2 HAVE, 5 modals) and 27 where prominence admits a positive outlook despite a negative setting (unequal: 13 BE, 6 DO, 3 HAVE, 5 modals). I don't know if the distribution among routine utterances is as balanced.

The prominent confirmation (positive-positive) examples look like this:

[4-108]   The pretty little twittering WACS said he had the look of
            eagles– and Penny, hating the cliche, had to admit that in this
            case it applied. Keith <u>was</u> an eagle. [N23 1130]

[4-109]   THE MOST surprising thing about the Twenty-second
            Congress of the Soviet Communist Party is that it <u>was</u>
            surprising — perhaps quite as much, in its own way, as the
            Twentieth Congress of 1956, which ended with that famous
            "secret" report on Stalin. [B25 0020]

[4-110]   This, he was sure, was the way they <u>would</u> act; laughing at a
            dying man, laughing as a man was beaten to death. [N09 1680]

[4-111]   That unused room was large enough for – well, say an elephant
           could get into it… and, as a matter of fact, an elephant <u>did</u>….
           G40 0070

[4-112]   "The commander has failed in *his* duty if he has not won victory
           — for that <u>is</u> his duty". C03 1120, C03 1130

The assertion in the setting is positive, and it is either unitary ("had," "surprising,"

"could"), or distributed (descriptions of actions or duty in background), in addition to

which the change is also positive ("<u>was</u>," "<u>would</u>," "<u>did</u>," "<u>is</u>").

        Finally, the examples of prominent admission (negative-positive) look like

this:

[4-113]   I'm not saying you're yellow. I <u>am</u> saying you're not a
           professional ballplayer. P24 1270

[4-114]   Naturally, the patient does not say, "I hate my father", or
           "Sibling rivalry is what bugs me". What he <u>does</u> do is give
           himself away by communicating information over and above
           the words involved. F01 1701

[4-115]   Dave <u>has</u> qualities of leadership. P27 1730

[4-116]   You <u>can</u> take it with you…. E14 0700

[4-117]   But, as Scripture everywhere reminds us, God <u>does</u> have need
           of his creatures, and the church, *a fortiori*, can ill afford to do
           without the talents with which the world, by God's providence,
           presents it. D02 0760

These settings are all negative ("not (saying)," "(does) not," "has" voiced with doubt

in an earlier sentence, "can't," a lack of need suggested earlier in context), but they are

still either unitary ("not") or distributed (ICM: 'You can't take it with you').

Prominence draws L's attention to the admission of a positive outlook in the face of

these negative settings.

The interpretation is straightforward in all of these examples: there is a contention made at an earlier stage of the discourse, which when positive is either denied (negation) or supported (confirmation), and which when negative is countered in a positive light (admission). Once again, ICMs serve to make background assertions just as well as the discourse context.

The following examples superficially resemble prominent confirmation, but they actually appeal to a basic conventional domain defining whole/part relationships:

[4-118]   With no strong men and no parliament to dispute his will, he
          <u>was</u> the government. [B26 1690]

[4-119]   …Helva was unconditionally graduated and installed in her
          ship, the XH-834…. When she awoke, she <u>was</u> the ship. [M05 1580]

[4-120]   It implies two misconceptions. One is that whatever is
          ecumenical has to do with some over-all organization at "the
          top" and needs only to be understood at the so-called "lower
          levels". The truth, however, is that the ecumenical church <u>is</u> just
          the local church in its own true character as an integral unit of
          the whole People of God throughout the world. [F37 0430]

In paraphrase, [4-118] is really saying, 'At first, he was <u>in</u> the government, but then he <u>was</u> the government'. That's actually quite a bit different than if this were a prominent admission, which would be more like, 'At first, he was <u>not</u> the government, but then he <u>was</u> the government'. Similarly, [4-119] works something like ["<u>was </u> (the ship)" = WHOLE vs. "was… in (the ship)" = PART]. In [4-120], rather than saying that the ecumenical church 'is over' the local church (and so is a distinct part of the whole governing structure of the church), it "<u>is</u>" the local church (and so they are whole), which can be represented as ["<u>is </u>" = WHOLE vs. 'is over' < ("top," "lower") = PART].

[4-118] *could* be a derivation by conventional pair if the verb 'to be' were interpreted as one half of a typical pairing with the verb-particle construction 'to be in'. An extension of this same judgment would also allow [4-119] to be treated as a derivation by conventional pair, namely ["was" vs. "was… in" < "installed in"]. An example like [4-120] would simply be ["is_" vs. 'is over' < ("top," "lower")]. A more generous lumping together of verbs and verb-particle variations as counterparts would even allow [4-119] to be categorized as a simple substitution, namely ["was" vs. "installed in"].

5.4   Complex Conventional Domains

Because complex conventional domains are composed of extensive, well familiar details, people notice quickly when something is mismatched, and they treat that error specifically as if it were odd (more subjectively or emotionally disturbing) rather than just wrong (more objectively or rationally disrupted). This feeling of strangeness means that examples of this type are often interpreted as similar in meaning to peripheral elaborations. Here is an example which wreaks havoc with the complex conventional domain that defines the formal relationship holding between a doctor and a new patient, where the patient is speaking:

[4-121]   "Don't give me a lot of talk, Joe". [P19 1480]

The doctor's expectations are disturbed by the patient's use of a familiar form of address, on top of his being bewildered by the fact that a total stranger knows his first name. It turns out that the patient is his long-forgotten, barely recognizable, formerly

alcoholic, ex-wife. She is using the doctor's first name deliberately to shock him, and it works. The counterpart is 'Doctor *X*' as prescribed by convention, and so this is a form of revelation, but this use of his first name is *meant* to strike the doctor as weird, and the meaning of 'Joe' has changed – "Joe" is far more ominous than usual. This is why cases similar to this one can come to be classified as elaboration for periphery.

This simply shows that revelation and elaboration are not mutually exclusive behaviors, but the use of volitional prominence for one can have side-effects like the other, and only context determines which is the 'real' use in any given case, depending upon S's intent or L's interpretation.

5.5   Contextual Pairs

Derivation by contextual pairing comes as close to substitution as you can get without actually being substitution. For example, had the adjective 'revolutionary' been used in the following passage rather than the noun "revolution," then the adjective "simpler" could have substituted for it directly rather than derived from it less so:

[4-122]   Historical records indicate that Copernicus was unaware of the
            fundamental aspects of his so-called 'revolution', unaware
            perhaps of its historical importance, he rested content with
            having produced a simpler scheme for prediction. [G30 1190]

As it is, the counterpart for "simpler" has to be derived from the nominal form of the counterpart, namely "revolution." Similarly, the verb "juxtaposed" was used below instead of an adjective like 'dependent':

[4-123]   Large planes juxtaposed with other large planes tend to assert
           themselves as <u>independent</u> shapes, and to the extent that they
           are flat, they also assert themselves as silhouettes; and
           independent silhouettes are apt to coincide with the
           recognizable contours of the subject from which a picture starts
           (if it does start from a subject). [J59 1460]

The counterpart has to be derived from an adjectival synonym for "juxtaposed" that

makes a contextual pair with "<u>independent</u>." This is also influenced by the complex

contextual domain described later.

     The difference between this type of derivation and substitution is not just

pickiness. There is an important difference between pairs which are conventional

enough to share grammatical class, making them easily accessible by L even when

implicit, and those which are contextual, and which therefore must be made explicit

while L is paying attention. But take a look at this next example, which would be a

substitution were it not for the counterpart being two words:

[4-124]   They are two sides of the same coin and the South will not
           change– <u>cannot</u> change– until the North changes. [F42 1190]

This ["<u>cannot</u>" vs. willnot < "will not"] would be ["<u>can</u>$_{not}$" vs. "will$_{not}$"] were it not for

a spelling convention. There is no 'contextual' derivation, so this is really substitution.

     But there *are* many cases in which the other half of the contextual pair is a

multiword counterpart which can only come directly from the context:

[4-125]   The assisting musicians from the Vienna Octet are somewhat
           lacking in <u>expertise</u>, but their contribution is rustic and
           appealing. [E04 0660]

[4-126]   Had Churchill been returned to office in 1945, it is just possible
that Britain, instead of standing fearfully aloof, would have <u>led</u>
Europe toward union. [G72 0420]

Neither of the changes elicit the other half of a conventional pair which will lead L to

the right meaning (["led" vs. followed]… no); instead, they rely upon contextually

defined counterparts. It's not just that the counterparts are distributed ("rustic and

appealing", "standing fearfully aloof"), but longer constructions are more likely to be

novel than shorter ones, and so are less likely to be conventional. Other examples are:

["<u>processes</u>" vs. "formula"] [J27 1320]; ["<u>one</u>" vs. "long and diverse tradition"] [D02 1240];

["<u>language</u>" vs. "mode of action"] [F48 0790]; [(make) "<u>suable</u>" vs. 'not to cause

constitutional problems'] [J43 1000]; and ["<u>defend</u>" vs. "take the initiative"] [B23 1410].

5.6   Contextual Sets

A contextual set amounts to one prominent word contrasted with at least two

separate (possibly multiword) counterparts:

[4-127]   Papa was disappointed that none of the brothers had heard the
Call. Not George, Townley, or Ted, certainly not Ludie. Burt
was at Hackettstown and Will at Albany Law School, where
they surely could not hear it. Someday God would choose <u>him</u>.
[K06 1260]

[4-128]   After all, the money dispensed by the state goes not to the
farmer, the laborer, or the businessman, but to <u>foreigners</u>. [F46 0240]

In [4-127], the counterpart set is {"George," "Townley," "Ted," "Ludie," "Burt,"

"Will"}, and in [4-128] it is {"farmer," "laborer," "businessman"}]. The counterparts

are multiword in ["<u>causes</u>" vs. {"causes directly," "(causes) indirectly"}] [D11 0160], as

well as in ["done" vs. {"deliberately willed or intended," "not intended or not directly intended"}] [D11 0180].

5.7   Basic Contextual Domains

These are contextual sets with some complexity or systematicity, which leaves them prone to being treated as basic conventional domains, or as complex contextual domains. For example, a word such as "newspaper" can provide a satisfactory basis for such a domain. People know about a newspaper and its parts, but it is arguable whether it gets used often enough to warrant the status of a *conventional* set:

[4-129]   Since brevity is the soul of ambiguity as well as wit, newspaper
          <u>headlines</u> continually provide us with amusing samples. [R05 0700]

This provides the derivation ["<u>headlines</u>" vs. {set of other parts of a newspaper}], which is categorized as contextual simply because 1) the domain seems to lack the familiarity of other conventional domains and 2) the passage from which this example was taken provides an explicit contextual definition for this set, and so conventionality is either superfluous or superseded.

5.8   Complex Contextual Domains

Longer contexts have the room to define plenty of specific terms, and to narrow down the range over which L is likely to select the counterparts for changes. In the Brown corpus, there are two extended contexts which take advantage of this latitude. In the first, the Ptolemaic description of the universe is contrasted with the systematic Copernican explanation giving sense to that description:

[4-130]   Let us re-examine the publicized contrasts between Ptolemaic
            and Copernican astronomy. Bluntly, there never was a
            Ptolemaic <u>system</u> of astronomy. Copernicus' achievement was
            to have <u>invented</u> systematic astronomy. ^{G30 0640, G30 0650}

To begin with, "<u>system</u>" is used as an elaboration for negative position, meaning

'system in the strictest use of the word', and then "<u>invented</u>" is a revelation whose

counterpart is derived to be a type of initiation which is less prestigious, like

'developed' or 'borrowed'. So, while Ptolemy *merely* recorded a staggering number of

astronomical observations, Copernicus actually discovered that those observations

could be organized into a system of astronomy. The elaboration of "<u>system</u>" is then

repeated:

[4-131]   But none of this has prevented scientists, philosophers, and
            even historians of science, from speaking of the Ptolemaic
            <u>system</u>, in contrast to the Copernican. ^{G30 0860}

This determines the interpretation of prominent forms in the rest of the context, such

that Ptolemy is nothing more than an aggrandized clerk, while Copernicus unveils a

system of interrelated explanations. Take the next prominent word as an example:

[4-132]   Ptolemy recurrently denies that he could ever <u>explain</u> planetary
            motion. This is what necessitates the nonsystematic character of
            his astronomy. ^{G30 0900}

Whereas "<u>explain</u>" might be used in other contexts in a conventional pairing with

"confuse" or "obfuscate," or in some form of elaboration, this contextual domain has it

defined to contrast with a poorly connoted form of "describe." Likewise:

[4-133]   It is the chief merit in Copernicus' work that all his planetary
           calculations are <u>interdependent</u>. ^{G30 0970}

[4-134]   In a <u>systematic</u> astronomy, like that of Copernicus,
           retrogradations become part of the conceptual structure of the
           system; they are no longer a puzzling aspect of intricately
           variable, local planetary motions. ^{G30 1040}

In this context, "<u>systematic</u>" is not derivatively countered with something like

'chaotic' or 'asystematic', but it specifically acts in partial synonymy (PARANYMY)

with the term "<u>interdependent</u>," and both are run counter to notions like 'independent'.

The potential counterparts 'chaotic' and 'asystematic' are not evoked because they are

not members of the complex contextual domain that S has been defining.

    The other extended context involves a reviewer trying to support a

differentiation between literal and figurative depth, spilling over into the contextual

definition of related concepts:

[4-135]   By its greater corporeal presence and its greater extraneousness,
           the affixed paper or cloth serves for a seeming moment to push
           everything else into a more vivid <u>idea</u> of depth than the
           simulated printing or simulated textures had ever done. ^{J59 0410}

The initial difference between real and illusory depth on a two-dimensional field

comes into play as a contextual set ["<u>idea</u>" vs. actual < "texture"]. This contextual

definition helps L to avoid appealing to a conventional pair like [idea vs. action], or

from floundering around trying to come up with some other implicit counterpart.

    In the next example, paper applied to the canvas is noted to make more of an

impression in terms of its flatness than its additional thickness on top of the canvas,

thus this application of the paper has the opposite effect of that which was intended,

because it supports the 2-d rather than the 3-d perspective:

[4-136]   Because of the size of the areas it covers, the pasted paper
           establishes undepicted flatness <u>bodily</u>, as more than an indication
           or sign. Literal flatness now tends to assert itself as the main
           event of the picture, and the device boomerangs: the illusion of
           depth is rendered even more precarious than before. [J59 0500]

"<u>Bodily</u>" is not used as part of the conventional pair [mind vs. body] as was in earlier

examples, but rather as part of the growing contextual domain [(body = literal =

flatness) vs. (illusion = figurative = thickness)]. Contextual or novel descriptions, then,

can be used to redefine or supersede conventional associations between concepts.

5.9   Derivation Summary

       The counterparts for substitution are not only unitary and encapsulated, but

they are cradled in a setting so similar to that which houses the prominent change that

they are just that much more easily identified. Derivation is the process of identifying

counterparts which are more obscure, either because they are not tightly encapsulated,

or because they are not entirely explicit. Derivation provides L with a number of

strategies to ferret out the distributed counterpart that S has in mind, or, alternately,

derivation provides S with a number of strategies to make the identification of an

obscure counterpart clearer for L.

       To begin with, a counterpart might be entirely implicit, but conventional

associations of the prominent change with a counterpart can make its identification

significantly easier, and so such relationships are relied upon heavily during

conversation. These conventional links run from simple pairings, to small sets, to simple networks, to complex systematic domains. When no conventional ligature is available, one or more can be provided by the context, where such contextual definitions can become quite involved, providing cues to the identification of counterparts for several prominent changes over the course of the conversation.

6   Conclusion

Rather than reiterating the definitions of the subtypes of revelation one more time, or mentioning that the data can be exhaustively categorized according to the explicitness and encapsulation of the counterparts, I would like to discuss one conclusion that I was not able to support substantially in this chapter, given that I chose to analyze written rather than audio or video recorded data. I would like to have been able to show that the more strongly that S asserts the correction to the mismatch, or the more deeply that the mismatch invades the archive, the stronger the intensity of the volitional prominence. A fine gradation is hard to support firmly with written data.

Much of the material in chapter 2 suggests that such a gradation exists, as does other work linking intonation patterns with memory depth, but the written recorded data analyzed here simply can't be measured to back that up. That is not as much of a problem when it comes to the examples of elaboration, because it seems to be easier for native users of the language to internalize the written representation of those examples into a feeling for how intense the volitional prominence is supposed to be, and how its form would change if the meaning were made even more intense.

CHAPTER 5

Linked Instances of Volitional Prominence

ANTIPHOLUS OF EPHESUS   twin brothers and sons to
ANTIPHOLUS OF SYRACUSE   Aegion and Aemelia

DROMIO OF EPHESUS   twin brothers, and attendants on
DROMIO OF SYRACUSE   the two Antipholuses

ANTIPHOLUS OF SYRACUSE
    This purse of ducats I receiv'd from you,
    And Dromio my man did bring them me.
    I see we still did meet each other's man,
    And I was ta'en for him, and he for me,
    And thereupon these *errors* are arose.

— William Shakespeare, *Comedy of Errors*

When instances of volitional prominence appear together in close context, their proximity is often just coincidence as CLOSE INSTANCES OF VOLITIONAL PROMINENCE, but it is so natural to interpret shared elevation as *meaningful* that any relations *already* holding between the words will likely be treated as significantly LINKED INSTANCES OF VOLITIONAL PROMINENCE. Members of conventional pairs or sets, for example, can be subjected to taxonomic DISSOCIATION (§1), and consequential or causal links between words can be activated by their COORDINATION (§2). Both of these effects can be augmented by rhythmic TIMING (§3), the strength of which is proportional to how parallel the structures are that hold the linked prominent instances. So, volitional prominence itself only lifts the instances clear of the baseline, and the significance of this upheaval is drawn from existing links between the words' meanings.

1   Dissociation

Dissociation occurs in a context which drives linked prominent words apart, causing them to function as taxonomic labels which identify two (and rarely more) exclusive sections of a domain. These instances *border* on being disallowed as data because they approach the behavior of words being made prominent for definition as technical terms; however, these cases are saved by the difference between 1) using prominence to draw out a special or technical meaning of a word, and 2) the familiar treatment of prominence *as if* it necessarily implied that the word serves a special purpose with its normal meaning intact. Obscuring this difference makes dissociation *seem* to be shaded by elaboration. Here are some examples of linked volitionally prominent members of a conventional pair, a conventional set (pronouns), a basic domain (positive/negative opposition) and a complex domain (Christianity), respectively:

[5-1]   …we have insufficient <u>specialists</u> of the kind who can compete with the Germans or Swiss…. we have not enough <u>generalists</u> who can see the over-all picture…. [G20 1600, G20 1660]

[5-2]   The whole act is tailored to <u>her</u> pleasure, and not to <u>theirs</u>. [F08 0160]

[5-3]   The word that is <u>not</u> used can be as important as the word that <u>is</u> used…. [F01 1800]

[5-4]   Notice that this man had a threefold conception of God which is the secret of his faith. First, "the Lord is my <u>light</u>"…. This is the faith that moved the psalmist to add his second conception of God: "The Lord is … my <u>salvation</u>"…. And so the psalmist gives us one more picture of God: "The Lord is the <u>strength</u> of my life". [D07 1220, D07 1390, D07 1600]

These examples are allowed because they each reflect an analog of isolated volitional prominence in an American English declarative sentence. Notice the primacy of pairs in the following list of additional examples: ["whether" vs. "how much"] [G02 0600] (left in because "whether" is perfectly good data); ["what" vs. "how"] [G43 0110, G43 0130]; ["normal" vs. "excessive"] [F11 0470]; ["I" vs. "he"] [R03 0810]; ["for" vs. "against"] [A36 1370]; ["local" vs. "federal"] [G08 0930, G08 0940]; ["down" vs. "up"] [E24 1120, E24 1130; G20 1430, G20 1450]; ["then" vs. "now"] [D16 1620, D16 1630]; ["gradual" vs. "abrupt"] [G08 0840, G08 0900]; ["means" vs. "motive"] [F15 1570]; ["national" vs. "local"] [G02 0820]; ["beyond" vs. "behind"] [D02 1380]; ["aircraft" vs. "airfield"] [E03 1010]; ["pre-" vs. "post-"] [E03 1620, E03 1630]; ["accept" vs. "repel"] [F07 0770, F07 0780]; ["left" vs. "upon" vs. "right"] [J13 0230, J13 0230, J13 0240]; and ["necessary" vs. (not) "sufficient" vs. (is) "sufficient"] [F44 0050, F44 0070, F44 0090]. Those few examples affected by timing are listed later in this chapter.

This unusual example gives each half of a taxonomic division *two* labels:

[5-5]   …the only place left for a three-dimensional illusion is in front of, upon, the surface. In their very first collages, Braque and Picasso draw or paint over and on the affixed paper or cloth….
[J59 0570, J59 0580]

Earlier (cf. §5.8, p. 267), a passage was analyzed in which literal and figurative depth were opposed to one another, and this example is from that same passage. Both "front" and "upon" are used as labels applicable to the domain of literal depth, while "over" and "on" refer to figurative depth, where surfaces which are drawn or painted on only give the illusion of depth. This example does not really represent four linked prominences so much as two instances of two linked prominences each.

Now here are some examples of *novel* divisions being defined in context, ones which are allowed as data because they also reflect volitional prominence:

[5-6] One such disagreement, which will receive attention in this next chapter, concerns the question whether rates for different kinds of service, in order to avoid the attribute of discrimination, must be made directly <u>proportional</u> to marginal costs, or whether they should be based instead on <u>differences</u> in marginal costs. [J50 0100, J50 0110]

[5-7] Now <u>good</u> definition is one thing that all of us can acquire with occasional high-set, high-rep, light-weight workouts. But <u>contest</u> definition– that dramatic muscular separation of every muscle group that seems as though it must have been carved by a sculptor's chisel– is something quite different. [E01 1170, E01 1190]

Notice that these terms do not form pairs conventionally, but rather contextually. This is natural behavior for definitive sources like *Principles of Public Utility Rates* and *Mr. America* magazine.

This is a similar case which was *disallowed* as data:

[5-8] * If we look about the world today, we can see clearly that there are two especially significant factors shaping the future of our civilization: <u>science</u> and <u>religion</u>. [*D13 0030]

This example *does* appeal to a conventional pair, ["<u>science</u>" vs. "<u>religion</u>"], but in this particular example, the members of that pair are only marked mechanically to identify them as labels, and not to change the intensity of their prominence, disallowing this example as an instance of data.

This delicate care taken with the rules brings up the question of whether an allowance might have been made for some instances of *individual* volitional

prominence which were ruled out due to their mechanical nature. The fact of the matter is that these same issues *did* come up during the sifting of the data, and instances *were* ruled out only when they seemed entirely mechanical, such as when they followed identifying phrases that seemed to put the prominent material in quotes, as in "…the word <u>death</u>," or "…the letter <u>E</u>." Such instances were left out because they did not reliably reflect spoken volitional prominence.

Just as taxonomy can be used to divide up a domain, there are examples where prominence is used to change or switch just such a previously defined taxonomy:

[5-9]   …the sound coming through the walls like something on the other side of the curtain, so you knew they heard <u>you</u> when <u>they</u> were quiet…. [P09 0230]

[5-10]   The most unbelievable thing about the chance meeting was that <u>he</u> seemed interested in <u>me</u>, too. [P22 0370]

Such examples are entirely dependent upon the context already having established a taxonomy to switch, just as the taxonomic cases are entirely dependent upon how strong the pre-existing relations are between the prominent words. For members of conventional sets, this link is familiar enough to make it difficult to come up with a *continuous* context in which their linked prominence would be entirely coincidental, but contextual domain members are often only schematically bonded *outside* of that specific context, and so their coincidental prominence is less unlikely ('I don't have the <u>strength</u> to find a <u>light</u>,' cf. [5-4] outside of 'Christianity'). Linked prominence makes it easier or possible for the words to be related *at all*, but neither dissociation nor taxonomy nor switching are actual *functions* of linked volitional prominence itself.

2   Coordination

COORDINATION activates or registers as *significant* any causal or consequential

conduit which familiarly links two words. Prominence does not actually function to

create *new* links, and so such a tie must have existed previously, when the words were

not prominent, but even a tenuous tie can be *given* strength in context. Using linked

volitional prominence triggers the response that there *should* be a link to find between

the words, and so one will tend to be found, even if it requires a stretch:

[5-11]   And if I <u>ever</u> hear you say 'Mist Laban' again I'll <u>scream</u>. [P03 0650]

[5-12]   But I have been blest with excellent spirits, and to-day have
            been running about the deck, and <u>dancing</u> in our room for
            <u>exercise</u>, as well as ever. [G37 0500, G37 0500]

[5-13]   It is because each side has sought to <u>implement</u> its distinctive
            theological belief through legislation and thus indirectly <u>force</u>
            its belief… upon others. [F15 1000]

[5-14]   It will be shown that the <u>objectives</u> of the cooperative people in
            an organization determine the type of <u>network</u> required…. [G20 0010]

[5-15]   <u>Then</u> it will be a "fearful thing to fall into the hands of the living
            God" if you have abused Him in your hands." [D16 1630]

[5-16]   One must first <u>detect</u> a fleeting mobile or moving target, <u>decide</u>
            that it is worthy of destruction, <u>select</u> the missile to be fired
            against the target, <u>compute</u> ballistics for the flight, and <u>prepare</u>
            the missile for firing. [E03 0430 - E03 0450]

In [5-11], the charge applied to "<u>ever</u>" is as absolutely extreme as the power of the

"<u>scream</u>" itself, where this "<u>scream</u>" is also linked along the entire temporal expanse

of "<u>ever</u>." In [5-12] through [5-14], respectively, "<u>dancing</u>" is for "<u>exercise</u>,"

'implementation' causes 'forcing', and the "type of <u>network</u>" is a consequence of the

"objectives." As you no doubt recall, the "then" in [5-15] is an emotionally charged repetition of an *earlier* "then" (cf. §5.2, p. 250). Most of these are only examples of *dual* coordination, but regular conversations sometimes use longer strings, and [5-16] is the longest example of coordination in the Brown corpus.

The sense of coordination comes through because: 1) the meanings of the prominent *dual* entities are not strongly in dissociative opposition; 2) the omens "if," "for," "because," "determine," "first", and the alternation of "now" and "then" indicate that there is a tie between the words; and 3) the linked volitional prominence suggests that it is this very tie which is important in this context. Notice that in [5-16], the prominent words *could* be used in strong dissociative opposition *if* their sequential linking as steps was ignored, that is to say, if they were treated as *discrete* members of 'the set of things that are done during the firing of a missile'. Again, linked volitional prominence only functions to elevate these words and to prompt a search for the significance of their being lifted together, and it is the pre-existing links which lend themselves to being interpreted in dissociating or coordinating terms.

3   Timing

TIMING (§3) uses parallels in structure to promote the regularity of the rhythmic pattern in a set of volitionally prominent beats. The more closely parallel that structure is, the stronger the regularity of the rhythmic pattern, where the strength of that rhythm augments the significance or strength attributed to the dissociation or coordination of the words on which the beats fall.

To begin with, here are a couple of examples in which *dissociation* gets a boost from timing:

[5-17]   …while common peril may be the measure of our <u>need</u>, the existence or absence of a positive community must be the measure of our <u>capacity</u>. [G72 0160, G72 0180]

[5-18]   Conscience and religion are concerned with private <u>sin</u>: The civil law is concerned with public <u>crimes</u>. [F15 1870, F15 1880]

Of course, this timing would also have a greater effect if there were more than two beats with which to establish a rhythm, but there are few examples which display three or more close prominences; in fact, there are only three examples with three instances apiece, and then there is [5-16], which has five instances. Rarer still are those among such examples which actually use timing to any effect, namely just the coordination of the missile-launching steps in [5-16]. This constitutes linguistically rarefied air, but the few examples of timing found so far are clear and consistent enough to warrant the proposal of this filter for the sifting of audio- or video-recorded data in the future.

This analysis of timing harkens back to the end of the discussion about volitional prominence and parallel reference (chapter 4, §3.4). In that section, I generated an example which would only work in a context where a series of people hit the "baker" until doing so became monotonous, where the additional prominence emphasized the regularity of the rhythmic sing-song pattern of the beating:

[5-19]   The bútcher hit the BAKer, then the wáiter hit the BAKer, then the póodle hit the BAKer, then my móther hit the BAKer… (and so forth…)

The measured rhythm of the prominence over the parallel structures can now be seen more easily as linking the high points together, giving the impression of a conjoined meaning which involves the notions of the prominent words representing respective stages in a series. The rhythm even suggests that these actions are performed in regularly timed intervals. This slideshow-like measure of beats is *not* an irrelevant or fortuitous aspect of S's construal, but rather it is a crucial part of the message that S is trying to convey to L. Without congruence in this regard, their construals will not be in alignment, and L will not really understand what S means.

4   Conclusion

Neither a conventional nor a contextual basis for linking material with italics automatically determines that the result will reflect a pattern of volitional prominence; while this is obviously more likely for conventionally than contextually linked words, each set of prominent instances must be evaluated individually. Volitional prominence serves no new function here, essentially making multiple substitutions with absolutely explicit and thoroughly encapsulated counterparts, lifting the words above the baseline distinctly enough that their linked prominence is interpreted as necessarily significant. It is this implication which drives the search for the links between the words which would have supported their being elevated together, but this search in itself is not a prominence function. Linked prominent words are either dissociated as taxonomic labels, or they are coordinated according to pre-existing causal or consequential links, where both are augmented by the timing provided by close structural parallels.

CHAPTER 6

Conclusions and Future Research

> You *need* stress in your life! Does that surprise you? Perhaps so, but it is quite true. Without stress, life would be dull and unexciting. Stress adds flavor, challenge, and opportunity to life.
>
> — Louis E. Kopolow, "plain talk about... HANDLING STRESS"

The results of this analysis provide direct support for the organization of the functions of volitional prominence in terms of elaboration (word-internal meaning change), revelation (word-external meaning change), and then their application to instances of linked intense prominence. There is also direct support for the division of elaboration into power and precision. Contextual effects portion power into inherent and emotionally adventitious forms, and precision into its uses for intolerance and position. The division of revelation according to the explicitness and encapsulation of the change's counterpart is useful, and it reflects the results of other research into the structure of belief and discourse. These linguistic functions are speculated to have been adapted for use by language from communication-universal progenitors, whose origins are in turn tied to research which supports the existence of primitive cognitive abilities whose functions are analogous to the ones revealed here.

Further results of this study will be discussed in more detail in the following sections, as they are devoted to describing what will be done in future research to better support the more speculative conclusions.

1　Live Data

While the data analyzed in this study worked perfectly when it came to revealing a systematic structure underlying the functions of volitional prominence, there are only a few places where the written data can actually provide *direct* support for the direct iconic proportion holding between form and meaning. Those few places are not enough to supplement empathetic judgments. The questions involved in the adaptation of sensation into language are the ones that I really want to get at, and so the first thing that I want to do is incorporate audiotaped and videotaped data into the analysis. I need to gather data using a format which allows audible and visible gestures to be measured in terms of placement and level.

2　Increased Complexity

I am gong to increase the complexity of the data gathered, both in terms of the length of the abnormally prominent sequences within a given utterance, and the types of utterances within which those gestures reside. This will bring in more examples of abnormally prominent interrogative pronouns and so forth, as well as expressions of emotional discharge. As the sequence lengths increase over time, it is going to become increasingly necessary to come up with a stronger distinction between an emotional build-up that is discharged on one word, and a 'mood' whose effects are more broadly distributed over the course of an utterance. While smaller changes in the allowed data won't change the analysis much, if at all (e.g. prominent one- and two-word sequences essentially behave identically), there are sure be changes at *some* point.

Increasing the complexity of the examples will facilitate work on puzzles like the following:

[6-1]   It just seemed as if there was nothing else to do. [P18 1440]

[6-2]   "Peter, it wouldn't hurt you to put your journey off for one more day," Fred had said. "It isn't as if you've got anything to go to, especially. And Greg and Vicky are badly shaken by all this, you know they are." [21.33]

To provoke a preliminary understanding of these examples, just imagine using [6-1] in answer to, "Why didn't you do something?" A rough initial analysis posits multiword phrases of the form 'to V' or 'to V particle' which form conventional sets of the following sort: {'to (go (into))', '(to) go (into)', '((to) go) into'}. This formalism reflects the notion that the meaning is a purpose-movement-goal triad, and emphasis on any one of the three is taken in contrast to the remaining two (which might or might not appear explicitly in the utterance). In other words, when one word in such a 'to V particle' sequence is made prominent (e.g. 'to'), then the related member of the conventional set is identified as the change (e.g. 'to (go (into))'), and the remaining members automatically become counterparts (e.g. '(to) go (into)' and '((to) go) into'). So, the counterpart of "to" in [6-1] is "(to) do (particle)" or perhaps "(to) do (something)," perhaps with volitional prominence on "do." As things stand, however, there's not enough data of this sort to support a conclusion of this complexity, so for a more complete answer: read the sequel.

3   Increased Selectivity

I am interested in completing my analysis of elaborate grounding predications, beginning with the nominal ones ('the,' 'a(n),' 'unstressed some'), which was shelved for lack of the stable definition of precision presented herein, which suffered at the time from a lack of recorded data specific to the problem. The behavior of these predications as projected from generated data has precision approximating delimiters equated with those boundaries proposed by Langacker (1991: 276) for his DYNAMIC EVOLUTIONARY MODEL of reality. For example, the analysis suggested that the verbal grounding predication 'may' targeted the borders of potential reality which separated it either from irreality or projected reality. This might be essentially the same behavior that 'most' displays in approximating either an upper extreme boundary (virtually all M) or a lower extreme boundary (as little more than half of M as it can manage without being only 'some' of M). Now that a stable definition of precision *has* been developed, the precise modals, for example, can be used to reveal an equally precise model of reality. But first, a selective set of this rarefied data needs to be recorded.

4   More Modalities of Communication

One natural extension will be to study language forms other than that printed in texts, including both human and nonhuman communication, and perhaps perception. Such studies should eventually show that this behavior is communication universal to the extent that prominence is iconic for power and precision, relative to the modality of the articulators used in a given language or communication system.

This study already nurtures three tentative tendrils along these lines which reach towards four intriguing statements made recently in Armstrong, Stokoe, and Wilcox. The first creeper is drawn towards their contention that "it becomes evident that there may have been evolutionary steps from animal to human emotion displays, to iconic and symbolic visual gesturing, to fully developed gestural language that involved primarily the visual field" (1995: 88). The second one closes in on an assertion they support with their research, namely that "The earliest linguistic units may have been either visible or vocal gestures or, quite likely, both. We will explore the notion of visible signing as a basis for subsequent linguistic evolution" (p. 19). What my analysis does at this point is simply to approach this same notion from the side of *audible* gesture.

The third thread touches on two quotes from this same source, each of which describes the abnormally prominent signing of DECIDE: "If the answer to the question is definite or authoritative, the movement will be abrupt, strong…", and "An exaggerated lengthening and slowing of the arm might mean that the decision has been long delayed" (p. 87). This portrayal ties in with Bolinger's work, where he researches intonation patterns specifically taking into account the visible gestures which accompany them (1986: ch. 9). He supports the notion that abstract intonational meaning is derived from primitive iconic relations holding between the magnitude of pitch, length, and loudness and the display of emotional arousal, which he takes in support of a suggestion that at least some universality of meaning should be expected (pp. 194, 202).

Revealing the potential universality of meaning between spoken and signed language once provided the greatest drive behind this research. Several years ago, I started to write about the degree of overlap between signed and spoken semantic structure, showing that it might be extensive despite the disparity in their associated physical articulations. I wanted to know how this overlap correlated with a continuum running from iconic to symbolic representation. In effect, I wanted to collapse the following square into a more triangular diagram by having the spoken and signed semantics share components. Essentially, I was trying to find out to what degree connection #4 could be shortened or eliminated into full overlap:
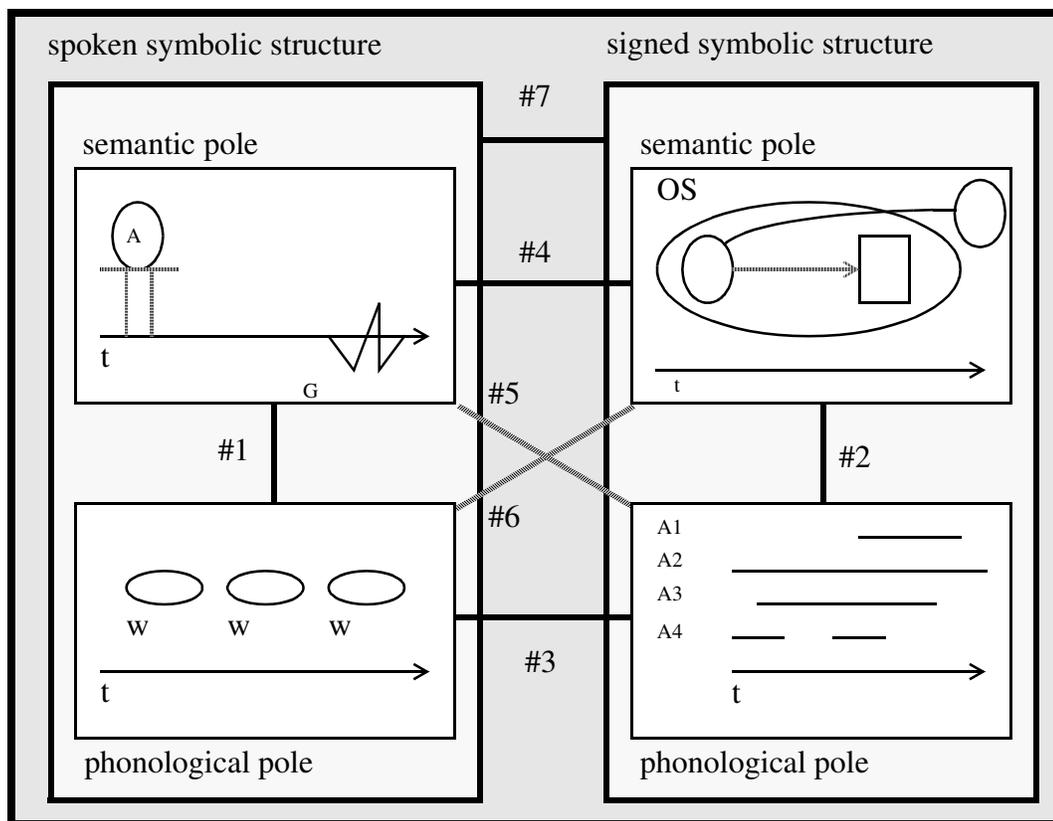
Figure 6-1: Full Symbolic Structure

This dissertation began as ancillary support for this research, addressing the depiction of iconic meaning in semantic structure and its physical articulation. It got all of my attention when clearer definitions were needed for 'prominence', 'iconic proportion', 'sense', and so forth. Now that this dissertation is complete, all of the vocabulary has been defined which will allow for the original line of research to be pursued, and I feel far more comfortable suggesting that signed and spoken semantics overlap most closely in the representation of prominence. I am also far less worried about being torpedoed by the complaint that 'prominence' is too ill-defined for reference.

5   Developmental Studies

Mehler, Jusczyk, Lambertz, Halsted, Bertonici and Amiel-Tison (1988) determine that a newborn can show a preference for its mother's native language over others which are not yet familiar to it. The results of their study indicate a sensitivity to prosody which develops *before* birth, much as a newborn can identify their mother's voice in preference to that of others. This sensitivity to intonation in general is attested in Walker-Andrews and Grolnick 1983, Fernald 1984, and Fernald and Kuhl 1987. Trehub, Endman, and Thorpe (1990) show that infants (7 to 8.5 months) can discriminate timbre (in this case the difference between [a] and [i]) apart from frequency, intensity, and duration. Children 3 to 4 years old were tested by Baltaxe (1991) and found to be able to match four emotional intonation patterns well with drawings of faces (angry, happy, sad, neutral). Studies of this sort on prominence would be invaluable for supporting the adaptation scenarios proposed here.

6 The Big Picture

REASONABLE SPECULATION (§6.1) is promoted by the ACTUAL RESULTS (§6.2).

6.1 Reasonable Speculation

Meaning *used* to be just and only form. An environmental stimulus which

dominated a sensory field would naturally evoke an iconically voluminous set of

neural discharges (by magnitude and/or frequency) from an array of sensors that was

directly proportional to that stimulus in breadth, and that massive perceptual load

would be processed and reacted to just as severely as if the stimulus itself were a

proximal event (inside whatever served as the primary neural aggregation) rather than

a distal one (somewhere beyond the sensory extensions of that same mass). Similarly,

stimuli moving swiftly across a sensory field would evoke an iconically quick change

across a sensory array, and so forth. The primitive cognitive ability which allowed for

the immediate evaluation of and reaction to sensory input was power. The initially

derivative but eventually semi-autonomous cognitive ability which allowed for a

comparison between two (or more) such evaluations was precision.

At some point along the way, the equation between meaning and form adapted

into an equivalency, probably first by elaboration ('great size' now equals both 'great

size' *and* 'greater size', *plus* the immediate consequences of and reactions to 'great(er)

size'), and then by transitivity ('hunger' evokes the equivalent 'food', and 'food'

evokes the equivalent 'green', so sooner or later 'hunger' is cognitively, though not

always environmentally, associated with 'green'). Meaning eventually achieves a

degree of detachment from environmental form which allows for reactions to internal

representations of sensory input *without* the presence of external stimuli ('hunger' evokes 'green' *beyond* the physical presence of any actual green stimulus in the environment; 'rapid approach' is an external stimulus which evokes fear, which also comes to elicit cognitive models representing 'great size').

Phonological forms then get attached to other physical forms in the environment as mediated by semantic representations, starting with nonsegmental, nonsequential iconics (big undifferentiated articulations for big generalized stimuli), and moving toward increasingly arbitrary, increasingly conventionalized units, since segments are naturally more prone to conventionalization of their sequencing. The earliest attachment of phonological form to physical form marks the transition from sensation to communication, where communication runs through and beyond the use of conventionalized iconic units. Somewhere right after that, these same units are used to establish novel forms, ones which are not necessarily iconic, and that is where communication starts to become language. Somewhere just before this *process* of establishing new forms becomes conventionalized with its own units, language has started to really settle in.

Now, power and precision have been tagging along this whole time, but where once they were solely cognitive abilities, their application to the motion of the physical articulators provides the venue for their adaptation first for communication, and eventually for language. At first, they iconically determine the brute force (power) and finesse (precision) that are used in the shaping of articulations, which are forms that will come to achieve conventional status. Finally, their functional interaction comes to

be conventionalized as linguistic prominence, namely elaboration and revelation, which has an influence on other linguistically conventionalized primitive functions, like rhythm.

6.2   Actual Results

My analysis directly supports the characterization of prominence behavior in terms of two linguistic functions, which are defined here as elaboration and revelation. In general, prominence is used by S to correct a perceived mismatch between R and R_S, where S assumes that L adopts the shared model. S uses prominence for elaboration on a phonological form as a signal to L that the conventional meaning of that form is not the one that S has in mind. L can usefully interpret the additional intensity of that prominence as a directly proportional iconic measure of the change to be applied to its construal of the word's semantic structure, that is to say, the meaning becomes equally intense.

In those cases where the semantics represent an entity which is prone to having some inherent quality increased in power, as happens in words like 'huge', 'fast', or even 'quiet', it is likely that S intends for the additional prominence to be applied semantically *as* an increase in power. In other cases of power, however, the additional energy is simply a discharge of emotion on S's part, as in surprise. Some words appeal to spatial components which are prone to being articulated with greater precision, such as the proportional relative quantifiers which rely upon sets of boundaries which can be construed intolerantly. The range of variations in a word's meaning can essentially

be parcelled into instances of a type, where the variation's position within that type

becomes important to L's understanding of the meaning that S has in mind. That

location can be right in the center of the type as a proper instance of the word (where

'green' means 'a real green-green'), or it can be out on the periphery as an odd

example of the type (where 'green' means 'a weird green'). These subfunctions are

conveyed by context and subtle *non-intensity* variations in prominence.

Sometimes the perceived discrepancy in reality models is not word-internal,

but word-external, or contextual. In those cases, S draws L's attention to a word either

by shifting the location of primary prominence (which has the side-effect of raising the

level of prominence on that word, which leads to its being treated as if it were

intensely prominent), or by increasing what would normally be a primary level of

prominence on a word to an intense level. S wants L to exchange that prominent word

for one which was introduced earlier in the discourse, or for one which S expects that

L has preloaded as archival material. L is more easily able to locate this earlier

counterpart to the prominent word because both words supply a value for the same

variable in a similar setting.

When the counterpart is explicit and encapsulated, namely when it appears

earlier as a single word in the context, then L is able to perform a simple substitution.

There is some limited evidence to support a variation in which the counterpart is

actually a gap in the earlier context, and that S is suggesting a prominent word as an

addition. When this counterpart either does not appear as a single word, or appears

only by implication, then both S and L can rely upon a number of strategies which aid

in L's derivation of the counterpart, such as a familiarity with the prominent word's conventional associations, or extra attention paid to new associations described in context. These subfunctions of revelation are also conveyed by contextual effects and subtle *non-intensity* variations in prominence.

Volitional prominence serves no new function in instances of multiple volitional prominence. When two absolutely explicit and thoroughly encapsulated counterparts are lifted above the baseline, L interprets their linked prominence as necessarily significant. This implication drives L to figure out why the words would have been elevated together, choosing from among their being dissociated as taxonomic labels, or their coordination according to pre-existing causal or consequential links. Either of these types of links can be augmented by the timing provided by close structural parallels.

To the degree that written data can reliably evoke internal representations of prominence patterns in native users of a language, this analysis provides firm support for the direct iconic proportion between changes in the phonological intensity of a form and changes in the semantic intensity of a meaning (i.e. changes in the construal of a semantic structure commensurate with the imaged or imagined application of additional energy). This assessment of internal representations of prominence is significantly more reliable for elaboration than revelation, and so the support for the direct iconic proportion is not as strong for revelation. Further analysis of tape recorded data should fortify the fundamental support for revelation and elaboration, revealing that the change in phonological form for revelation is in fact proportional to

the level of disparity between models as perceived by S, who will be shown to use greater prominence to repair broader mismatches in construal, correcting errors which have their origin more deeply inside L's archive or memory.

This division of linguistic prominence into elaboration and revelation falls out naturally from the behavior of the data, as does the characterization of their subfunctions. I originally tried to account for the data with a number of other filters (grammatical, geometrical, directional…), but they all failed until I hit upon power and precision. This heuristic has vigorous lobbyists in other domains, and the lack of credible competitors increasingly defends the likelihood that prominence has in fact based elaboration and revelation on these two cognitive abilities. The reliance of both physical and cognitive articulation upon power and precision, plus their actual *existence* as primitive cognitive functions, both seem evident. My work simply promotes their primitive-to-contemporary adaptation.

⬧ *An* End ⬧

Afterword

...the structure was too pretty not to be true.

— James D. Watson, *The Double Helix*

Two years ago, when I opened Alistair Cooke's *America* to sift it for data, a browned panel from an old 'Dennis the Menace' comic strip fluttered to the floor. It had been clipped out of the *Stockton Record* almost twenty years earlier (August 13, 1977). Dennis and Joey are relaxing under a tree, and Dennis simply says, "I was just thinkin'... *this* is what I want to do when I grow up."

Whoever clipped that panel had no idea that I would literally be doing '*this*' when I grew up. I love little ironies like that. Thank you Hank Ketcham.

— Tracy C. Mansfield   Asheville, North Carolina; 1997.

The Anatomy of Prominence

The point of this appendix is not just to separate the less controversial material out of a long research review, but to demonstrate the breadth of the array of mechanisms available to prominence for activation with variable amounts of energy. This figure should help in identifying at least some of the anatomical structures described in the passage that follows:
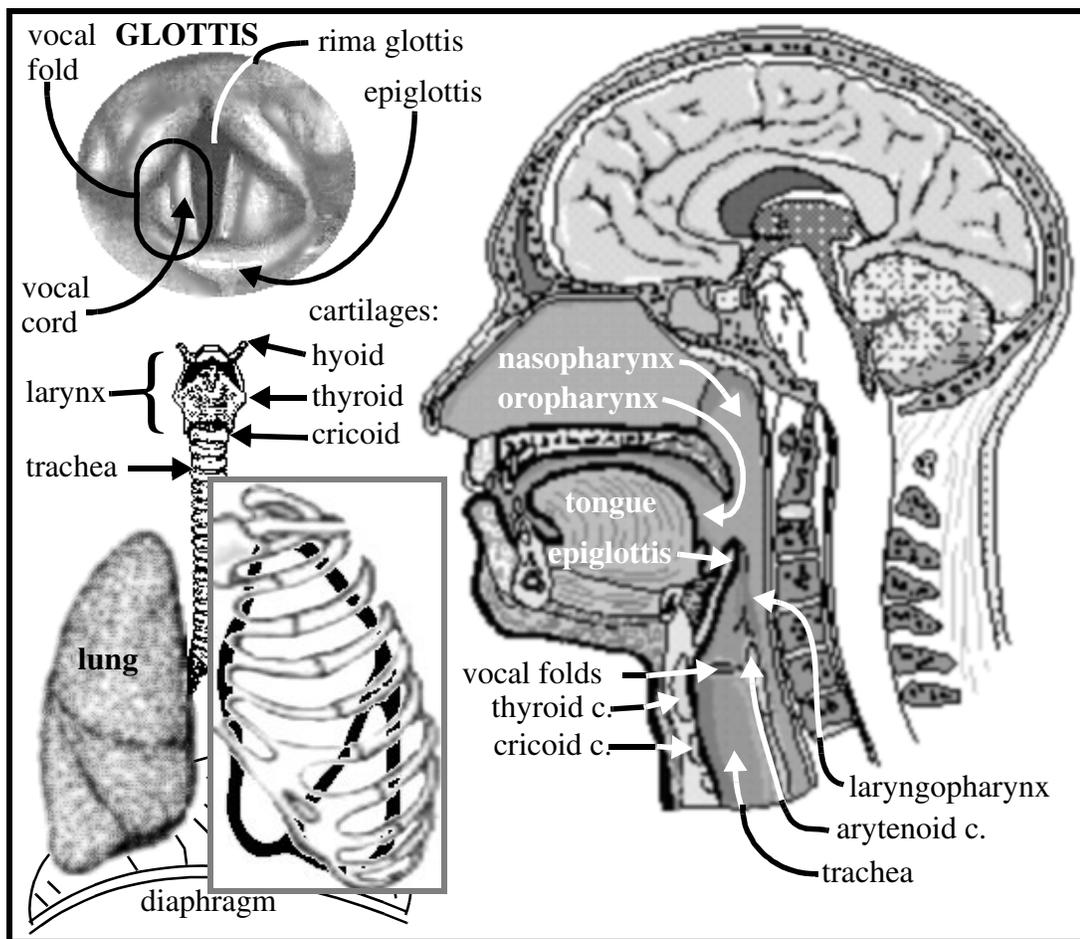
Figure I-1: Anatomy of the Vocalization Tract

If you reach up and place the tips of your thumb and middle finger close together on either side of your Adam's apple, then the tip of your index finger will naturally come

down to rest on the v-shaped notch of your THYROID CARTILAGE, which partially encircles your LARYNX. The larynx is lined with mucous membrane, and it is the musculocartilaginous opening of the enlarged upper end of the TRACHEA. The HYOID BONE (an adapted gill bone, like the bones of the middle ear) runs in a semicircle above the thyroid cartilage, and forms the upper lip of the larynx. The CRICOID CARTILAGE is a narrow tube sitting just below the thyroid cartilage, and below *that* is a series of similar tubes (open in the back) which define the rest of the trachea. The trachea is lined on the inside with ciliated epithelium, and it runs down for a little over 11cm before dividing at the CARINA (at the level of the 5th dorsal vertebra) into two BRONCHI, each of which goes to a LUNG.

All told, the larynx is made up of nine cartilages (three paired and three single) held together by an elastic membrane and moved by at least a dozen muscles. The three paired cartilages are the ARYTENOIDS ('pitcher- or spout-shaped') at the back of the larynx, the small yellow CUNEIFORM cartilages which lie just anterior to the arytenoids in the epiglottic fold (explained below), and the CORNICULATES ('having horn-shaped bits'). Two of the single cartilages have already been mentioned, namely the thyroid (which is actually a pair of broad, vertically curved laminae fused at the Adam's apple or LARYNGEAL PROMINENCE), and the cricoid. The third is the EPIGLOTTIS.

The epiglottis (or EPIGLOTTIC CARTILAGE) is a thin flap of fibrocartilage anchored just posterior to the root of the tongue. It runs up out of the larynx, and is pulled down to divert swallowed material away from the GLOTTIS. The glottis consists of the VOCAL FOLDS and the space between them (RIMA GLOTTIDIS or RIMA VOCALIS), which form the sound-producing parts of the larynx. (Some researchers identify the glottis solely as the rima glottidis.) Similarly, the RIMA RESPIRATORIA is the space behind the arytenoids, the RIMA ORIS is the mouth opening, and the RIMA VESTIBULI (or VESTIBULE) is the space between the FALSE VOCAL FOLDS. The false vocal folds are also called the VENTRICULAR FOLDS, and the ventricle of the larynx is the space between the true and false vocal folds. The third division of the LARYNGEAL CAVITY is the INFERIOR ENTRANCE TO THE GLOTTIS.

Now for the muscles of the larynx. To begin with, there are exterior muscles running from the bones and cartilages to the surrounding structures in the neck, such as the STERNOTHYROID, STERNOHYOID, and OMOHYOID. To end with, there are interior muscles running in all directions between most of the bones and cartilages of the larynx, such as the OBLIQUE and transverse arytenoid, the CRICOTHYROID, the THYROEPIGLOTTIC (or THYROEPIGLOTTIDEUS, the depressor of the epiglottis), and the INTERNAL and EXTERNAL THYROARYTENOID. Technically, the VOCAL CORDS are specifically the thin bands of tissue which vibrate in the tracheal airflow, the VOCAL FOLDS are the edges of these bands, and the VOCAL LIGAMENTS are enclosed in the vocal folds. Lateral to and touching these ligaments are lengths of the internal thyroarytenoid, the posterior ends of which are anchored to the ARYTENOID PROCESSES, which are the upper knobs of the arytenoid cartilages. Muscles which rotate these processes away from the glottis cause the vocal ligaments and attached tissue to become taught.

Inspiration itself relies upon the contraction of the diaphragm and the external intercostals to lift the rib cage, enlarge the thoracic cavity, and decrease the mean subglottal pressure. A normal breath takes in about half a liter of air, and preparation for speech draws in one-and-a-quarter liters or more. The diaphragm leaves off at the peak of the inspiration, and air is expelled due to the relaxation pressure of the lungs (due to the stretched elastic tissues, torque, and gravity) and the contraction of the external intercostals. Each of the external intercostal muscles attaches to the lower margin of a rib, and then reaches up and inserts itself in the upper margin of the next rib, together forming a sheet over the outside of the ribcage. When they contract, they pull the ribs up and together like a set of horizontal blinds.

When the subglottal mean air pressure is equal to that in the lungs, the external intercostals leave off and the internal intercostals take over, decreasing the size of the thoracic cavity, and increasing subglottal pressure. Each of the internal intercostals lies between two adjacent ribs, underneath the external intercostals, which pulls the ribs together, but not up. For every half second (or thereabouts) that speech is prolonged after that, additional muscles act to compress the abdominal contents against the diaphragm, starting with the external abdominal obliques (which run from the lower eight ribs down to the iliac crest and linea alba), then the rectus abdominis (up from the pubis to the cartilage of the 5th to 7th ribs), and finally the latissimus dorsi (up from the lower spine and tip of the iliac crest to the groove between the two large processes on the head of the humerus). They all leave off at once when the next inspiration begins.

My analysis has yet to adequately explore the hands and face as articulators of prominence, and so I will not include their full anatomical description here, but even without such a recital it should be evident that they would both be susceptible in their anatomical sophistication to a wide range of variably powerful and precise activations, just as are the vocal articulators described above.

Distribution of Data

Table II-1: Prominence Frequency (Functions in Order of Analysis)

The functions are listed in the same order as their appearance in the analysis.

Function	Grammatical Category								
	noun	pronoun	verb	auxiliary	adjective	adverb	simple rel.	word part	Total
power	13	1	12		9	8	2		45
intolerance		19		4	1	13	7		44
position	13	5	4		6	1			29
substitution	11	30	7		11	2	1		62
addition	1	1			1	2		2	7
derivation (conv.)	16	13	19	64	30	32	29	1	204
derivation (cont.)	12	16	4	1	7	3			43
dissociation	15	11	2	3	15	5	9	2	62
coordination	3		9			2	4		18
Total	**84**	**96**	**57**	**72**	**80**	**68**	**52**	**5**	**514**

Table II-2: Prominence Frequency (Functions Ranked by Total Instances)

The functions are ranked by their total.

Function	pron	noun	adj	aux	adv	verb	simp	part	Total
derivation (conv.)	13	16	30	64	32	19	29	1	204
substitution	30	11	11		2	7	1		62
dissociation	11	15	15	3	5	2	9	2	62
power	1	13	9		8	12	2		45
intolerance	19		1	4	13		7		44
derivation (cont.)	16	12	7	1	3	4			43
position	5	13	6		1	4			29
coordination		3			2	9	4		18
addition	1	1	1		2			2	7
Total	**96**	**84**	**80**	**72**	**68**	**57**	**52**	**5**	**514**

Table II-3: Expanded Functional and Grammatical Categories

			Whole Word														Part of a Word	Total
			nominal					verbal			relation							
				pronoun					auxiliary		complex		simple				
			noun	personal	indefinite	possessive	other	verb	nonmodal	modal	adjective	adverb	preposition	conjunction	ngp[a]		
Elaboration	power		13				1	12			9	8		2			45
	intolerance			2	5	4	8			4	1	13		4	3		44
	pos'n	proper	3					3			4						10
		periphery	10	3	2			1			2	1					19
Revelation	substitution		11	24	2	4		7			11	2	1				62
	addition		1			1					1	2				2	7
	derivation conventional	pair	14		2			10		1	29	13	11	6	11	1	98
		set		8	1	1	1	1		2	1	5		1			21
		basic						4	56	5		14					79
		complex	2					4									6
	derivation contextual	pair	3	1		8		1		1	3	1					18
		set	7	1				2			2	1					13
		basic	1														1
		complex	1	2		4		1			2	1					11
Link	dissociation		15	6		2	3	2	3		15	5	9			2	62
	coordination		3					9				2	4				18
Total			84	47	12	24	13	57	59	13	80	68	25	13	14	5	514

a. nominal grounding predication (e.g. 'the', 'a', relative quantifier)

Table II-4: Expanded Categories with Subtotals

				Whole Word																			part of a word	Total
				nominal							verbal					relation								total		
					pronoun							auxiliary				complex			simple							
				noun	pers	ind	poss	misc	total	total	verb	nav	mod	total	total	adj	adv	total	prep	conj	ngp	total	total	total		
Elaboration	power			13				1	1	14	12			0	12	9	8	17		2		2	19	45		45
	intoler.				2	5	4	8	19	19			4	4	4	1	13	14		4	3	7	21	44		44
	position	prop		3					0	3	3			0	3	4		4				0	4	10		10
		per		10	3	2			5	15	1			0	1	2	1	3				0	3	19		19
		total		13	3	2	0	0	5	18	4	0	0	0	4	6	1	7	0	0	0	0	7	29	0	29
	total			26	5	7	4	9	25	51	16	0	4	4	20	16	22	38	0	6	3	9	47	118	0	118
Revelation	subs			11	24	2	4		30	41	7			0	7	11	2	13	1			1	14	62		62
	addition			1			1		1	2				0	0	1	2	3				0	3	5	2	7
	derivation	conventional	pr	14		2			2	16	10		1	1	11	29	13	42	11	6	11	28	70	97	1	98
			set		8	1	1	1	11	11	1		2	2	3	1	5	6		1		1	7	21		21
			bas						0	0	4	56	5	61	65		14	14				0	14	79		79
			cx	2					0	2	4			0	4			0				0	0	6		6
			tot	16	8	3	1	1	13	29	19	56	8	64	83	30	32	62	11	7	11	29	91	203	1	204
		contextual	pr	3	1		8		9	12	1		1	1	2	3	1	4				0	4	18		18
			set	7	1				1	8	2			0	2	2	1	3				0	3	13		13
			bas	1					0	1				0	0			0				0	0	1		1
			cx	1	2		4		6	7	1			0	1	2	1	3				0	3	11		11
			tot	12	4	0	12	0	16	28	4	0	1	1	5	7	3	10	0	0	0	0	10	43	0	43
		total		28	12	3	13	1	29	57	23	56	9	65	88	38	36	74	11	7	11	29	103	248	1	249
	total			40	36	5	18	1	60	100	30	56	9	65	95	49	39	88	12	7	11	30	118	313	3	316
Link	dissoc.			15	6		2	3	11	26	2	3		3	5	15	5	20	9			9	29	60	2	62
	coord.			3					0	3	9			0	9		2	2	4			4	6	18		18
	total			18	6	0	2	3	11	29	11	3	0	3	14	15	7	22	13	0	0	13	35	78	2	80
Total				84	47	12	24	13	96	180	57	59	13	72	129	80	68	148	25	13	14	52	200	509	5	514

APPENDIX III

Other Corpus: Sources for Abnormal Prominence

These sources are listed in the order in which they were searched for data:

[1] Steinbeck, John. 1943. *Once There was a War*. New York [1960]: Bantam.

[2] Steinbeck, John. 1962. *Travels with Charley (in Search of America)*. New York [1963]: Bantam.

[3] Lewis, Sinclair. 1922. *Babbitt*. New York [1961]: Signet.

[4] Lewis, Sinclair. 1920. *Main Street*. New York [1961]: Signet.

[5] Maule, Harry E., and Melville H. Cane. 1963 [1950]. *The Man from Main Street*. New York: Pocket Books.

[6] Steinbeck, John. 1937. *Of Mice and Men*. Camden: Haddon Craftsmen.

[7] Steinbeck, John. 1939. *The Grapes of Wrath*. New York: Stratford Press.

[8] Reiser, Paul. 1994. *Couplehood*. New York: Bantam.

[9] Powers, Joan. 1995. *Pooh's Little Instruction Book*. New York: Dutton's.

[10] Poundstone, William. 1983. *Big Secrets*. New York: Quill.

[11] Poundstone, William. 1986. *Bigger Secrets*. Boston: Houghton Mifflin.

[12] Sunset Books. 1982. *Azaleas Rhododendrons Camellias*. P. Edinger (ed.) Menlo Park: Lane Publishing.

[13] Fosburgh, Lacey. 1991. *India Gate*. New York: Crown. (only disallowed data)

[14] Thomas, Elizabeth M. 1993. *The Hidden Life of Dogs*. Houghton Mifflin: Boston. (only disallowed data)

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The software around which this whole project revolved was FrameMaker, starting with Version 2 for Unix circa 1989, and ending with Version 5 for Windows 95. I can't say enough about the program. It never let me down.

I used Corel Draw 3 (and 3D Design Plus) at certain intermediate stages of the research when the analysis relied more heavily upon some fairly elaborate figures to explain some of Langacker's dynamic timeline material, and it was used for the anatomical sections in Appendix I. Corel Chart imported frequency tables from Lotus Improv and created the bases for the graphs in Appendix II.

This document is set in Microsoft's version of the Times New Roman and Symbol fonts (TrueType), generally in 12pt, and where these fonts did not suffice, I drew upon characters that I designed for Trace's New Roman with Corel Draw 3.

This dissertation is printed on 24-pound, 100% white cotton paper.