REGULARITY AND IDIOMATICITY IN GRAMMATICAL CONSTRUCTIONS:

THE CASE OF *LET ALONE*

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Abstract

Through the detailed investigation of the syntax, semantics and pragmatics of one GRAMMATICAL CONSTRUCTION, that containing the conjunction *let alone*, we explore the view that the realm of idiomaticity in a language includes a great deal that is productive, highly structured and worthy of serious grammatical investigation. It is suggested that an explanatory model of grammar will include principles whereby a language can associate semantic and pragmatic interpretation principles with syntactic configurations larger and more complex than those definable by means of single phrase structure rules.

1. Background

This paper advocates an approach to grammar that differs from most current approaches in several ways. The overarching claim is that the proper units of a grammar are more similar to the notion of construction in traditional and pedagogical grammars than to that of rule in most versions of generative grammar. This is not to say that the generative ideal of explicitness is foregone; nor is the necessity of providing for recursive production of large structures from smaller ones set aside. Constructions on our view are much like the 'nuclear family' (mother plus daughters) subtrees admitted by phrase structure rules *except* that (1) constructions need not be limited to a mother and her daughters, but may span wider ranges of the sentential tree, (2) constructions may specify, not only syntactic, but also lexical, semantic and pragmatic information, (3) lexical items, being mentionable in syntactic constructions, may be viewed, in many cases at least, as constructions themselves, (4) constructions may be 'idiomatic' in the sense that a 'large' construction may specify a semantics (and/or pragmatics) that is distinct from what might be calculated from the associated semantics of the set of 'smaller' constructions that could be used to build the same morpho-syntactic object.

Not all current approaches to grammar in the broad generative tradition, in which the current effort situates itself, differ from Construction Grammar in each of the respects detailed above; for example, various forms of phrase structure grammar take as their basic unit a syntactic-semantic rule pair, thus integrating semantic and syntactic modeling. But no framework in this tradition, so far as we are aware, agrees with the approach advocated here in all of these details. For example, no current formal approach to grammar countenances direct pragmatic interpretation of syntactic structures, not mediated by the "proposition" expressed.

All of the many competing accounts of the workings of language draw a distinction in one way or another between what it is that speakers KNOW OUTRIGHT about their language and what it is that they have to be able to FIGURE OUT. For example, speakers of English have to know what *red* means and that it is an adjective, and they have to know what *ball* means and that it is a noun. They have to know that adjectives can co-occur with nouns in a modification structure (as in a phrase like *red ball*), and they have to know the proper strategies for giving a semantic interpretation to such adjective noun combinations. But they do not have to know separately, or to be told, what the phrase *red ball* means. That is something which what they already know enables them to figure out.

Current formal models of grammar take a severe view of the distinction between knowing and figuring out, assigning as much work as possible to the computing or figuring out part of knowing how to use a language, attempting to keep at a minimum those aspects of linguistic competence that have to be represented as STORED or KNOWN. Briefly the standard idealization of the workings of a grammar goes something like this:

[1] The speakers of a language have, first of all, knowledge of the WORDS in their language. This knowledge comprises information about what kinds of words they are, in what environments they can appear and how they function in the language's phrases and sentences, what they mean, and how they are pronounced.

[2] Secondly, speakers know one or more sorts of fairly elementary GRAMMATICAL RULES in their language, rules by which simple phrases are constructed, by which these are combined into larger and more complex structures, and by which they are selected or modified according to their position in the larger structures.

[3] Thirdly, they know the basic SEMANTIC INTERPRETATION PRINCIPLES by which the meanings of phrases and sentences can be constructed out of the meanings of their constituent words and phrases. These principles of compositional semantics are such that speakers do not in general need to 'know' in advance the meanings of complex structures (i.e., phrases and sentences); rather, the meanings of such larger structures simply FOLLOW FROM the knowledge of forms and rules that speakers have to know independently.

[4] Fourthly, in knowing how to use their language, speakers know how to create and recognize associations between semantically interpreted sentences and particular types of situations. Such PRAGMATIC knowledge uses but does not contribute to semantic interpretation. The notion of the 'literal meaning' of an expression does not, in short, incorporate information about the uses to which the expression can be put, beyond (perhaps) the pairing of conventional speech act forces with particular sentence types, such as the imperative and the interrogative.

There is vast disagreement in matters of detail, but most current formal models of grammar assume a limited categorial base and a limited set of configuration types upon which the rules of semantic interpretation are allowed to do their work. A commonly accepted categorial base is confined to the categories Sentence, Noun, Verb, Adjective, Adverb, Adposition (i.e., Preposition or Postposition), their 'phrasal projections' (the categories for which the named elements are 'heads'), and a small number of associated trappings of these, such as complementizers. In general, the permitted primary set of configuration types is limited to what in phrase structural terms can be spoken of as the 'nuclear family': a configuration consisting of a structural category, the 'mother' node, and its immediate constituents, the 'daughter' nodes.

The picture just sketched gives us an ATOMISTIC view of complex linguistic objects: generative syntax and compositional semantics provide the principles by which words whose meanings we know, arranged according to grammatical structuring principles whose semantic force we know, figure in the construction of an unlimitedly large set of possible meanings. Under the idealization just discussed, any sentence in a language can be resolved into configurations containing exclusively constituents of the designated types, arranged according to the standard rules, and yielding interpretations which follow from regular principles of compositional semantics.

It should be noticed that the natural and intuitively simple notion of GRAMMATICAL CONSTRUCTION plays a limited part in the workings of this model. Traditional grammars are likely to have descriptions of the use and meaning of, say, 'negative questions,' under the supposition that such structures might have certain properties of their own, as wholes. (An utterance of *Didn't you like the salad?* does more than ask a yes/no question.) But in the view which has just been described, a grammar that provides separately for both negation and interrogation, is counted on as giving the results which the treatment of these phenomena as separately identifiable constructions would have to present redundantly.[2]

1.1. Idiomaticity and its dimensions

As useful and powerful as the atomistic schema is for the description of linguistic competence, it doesn't allow the grammarian to account for absolutely everything in its terms. As anyone knows who has worked with practical grammar-writing or with detailed text analysis, the descriptive linguist needs to append to this maximally general machinery certain kinds of special knowledge: knowledge that will account for speakers' ability to construct and understand phrases and expressions in their language which are not covered by the grammar, the lexicon, and the principles of compositional semantics, as these are familiarly conceived. Such a list of exceptional phenomena contains things which are larger than words, which are like words in that they have to be learned separately as individual whole facts about pieces of the language, but which also have grammatical structure, structure of the kind that we ordinarily interpret by appealing to the operation of the general grammatical rules. This list is not merely a supplement to the lexicon: it contains information about fully productive grammatical patterns, including what have been variously referred to as 'minor sentence types,' 'special constructions,' and the like.

This 'Appendix to the Grammar' can be thought of as the repository of what is IDIOMATIC in the language. One of our purposes in this paper is to suggest that this repository is very large. A second is to show that it must include descriptions of important and systematic bodies of phenomena which interact in important ways with the rest of the grammar, phenomena whose proper understanding will lead us to significant insights into the workings of language in general. A third is to make the case for a model of linguistic competence in which phenomena of the sort we have in mind are not out of place.

At this point we offer a brief survey of concepts from the domain of IDIOMATICITY. We think of a locution or manner of speaking as 'idiomatic' if it is assigned an interpretation by the speech community but if somebody who merely knew the grammar and the vocabulary of the language could not, by virtue of that knowledge alone, know (i) how to say it, or (ii) what it means, or (iii) whether it is a conventional thing to say. Put differently, an idiomatic expression or construction is something a language user could fail to know while knowing everything else in the language.

1.1.1. Encoding versus Decoding Idioms

Following Makkai (1972), we begin by recognizing an important distinction between IDIOMS OF ENCODING and IDIOMS OF DECODING. A 'decoding idiom' is an expression which the language users couldn't INTERPRET with complete confidence if they hadn't learned it separately. With an 'encoding idiom,' by contrast, we have an expression which language users might or might not understand without prior experience, but concerning which they would not know that it is a conventional way of saying what it says. (Anything which is a decoding idiom is also an encoding idiom, by these definitions, but there are encoding idioms which are not decoding idioms.) The expressions *kick the bucket* and *pull a fast one* are examples of both decoding and encoding idioms; expressions like *answer the door, wide awake*, and *bright red* are examples of encoding idioms only. That is, while it is likely that each expression of the latter group could be understood perfectly on first hearing, someone who did not know that they were conventional ways of saying what they say would not be able to predict their usability in these ways.[3]

1.1.2. Grammatical versus extragrammatical idioms

Idioms can further be divided into those which have words filling proper and familiar grammatical structures, and those which have words occurring in constructions which the rest of the grammar cannot account for. The so-called GRAMMATICAL IDIOMS include *kick the* *bucket, spill the beans, blow one's nose,* etc., where verbs and noun phrases show up just where you would expect them. But expressions like *first off, sight unseen, all of a sudden, by and large, so far so good,* etc., have anomalous structures. Nothing we know about the rest of the grammar of English would enable us to predict that these expressions are sayable in our language. Such expressions have grammatical structure, to be sure, but the structures they have are not made intelligible by knowledge of the familiar rules of the grammar and how those rules are most generally applied. These, then, are the EXTRAGRAMMATICAL IDIOMS.

1.1.3. Substantive versus formal idioms

A still further distinction that we need to make is that between SUBSTANTIVE or LEXICALLY FILLED IDIOMS and FORMAL or LEXICALLY OPEN IDIOMS. The examples of idioms given so far have all been substantive idioms: their lexical make-up is (more or less) fully specified. Formal idioms, by contrast, are syntactic patterns dedicated to semantic and pragmatic purposes not knowable from their form alone. It is the formal idioms which raise the most serious theoretical issues, and which hold our main interest in this paper.[4]

A fact which sometimes obscures the difference between substantive and formal idioms is that formal idioms can serve as 'host' to substantive idioms. For example, there is a general syntactic pattern illustrated by such sentences as

(1) The more carefully you do your work, the easier it will get.

While (1) may be a novel creation using the syntactic pattern in question, (2) is a set expression that uses the same form.

(2) The bigger they come, the harder they fall.

1.1.4. Idioms with and without pragmatic point

We find that in many cases, idiomatic expressions have special PRAGMATIC purposes associated with them. A large number of substantive idioms have obvious pragmatic practices associated with them (e.g. *Good morning, How do you do?, once upon a time,* etc.), but there are many more which serve more contextually neutral purposes (as with *all of a sudden, by and large,* and the like). In the case of formal idioms, we find the *the X-er the Y-er* type to be more or less free of pragmatic commitments, while others, like the type exemplified in *Him be a doctor?* (Akmajian, 1984), appear to exist in the service of specific pragmatic or rhetorical purposes.

1.2. A Typology of idiomatic expressions

The contrasts and distinctions we have just named provide us with the means for constructing a typology of idiomatic expressions. The difference between encoding and decoding idioms will not figure in the classification (though it is important for other reasons), since the question of whether an interpreter could figure out what an expression meant on first encountering it cannot be established on general grounds. We will include examples of substantive idioms in each of the three categories we develop, but our major interest will be in the formal idioms. In the end the formal idioms will be absorbed into the category of GRAMMATICAL CONSTRUCTIONS.

1.2.1. Unfamiliar pieces unfamiliarly arranged

As our first category, we consider the case of idioms which contain unfamiliar pieces which are (necessarily) unfamiliarly combined. 'Necessarily,' because if the pieces are themselves unfamiliar or unique, there can be no standard principles for arranging them in larger patterns. In the case of lexical idioms, the unfamiliar pieces are words which appear only in the idiom in question, as in *kith and kin, with might and main,* and the like.

As an example of a formal idiom, or grammatical construction, which fits this category, we can return to our *the X-er the Y-er* construction seen in (1) and (2) above. This structure is used for expressing a correlation between an independent variable and a dependent variable. The propositions participating in the statement of correlation can be derived from the lexico-syntactic form of the sentence's two main components. In a syntactic representation of sentence (1), shown in Figure 1, we see that the degree expression *the more carefully* is linked with the gap in *You do your work [__]*, and the degree expression *the easier* is linked with the gap in *It will get [__]*. The interpretation, then, is paraphrasable as something like 'The degree to which you do your work carefully will determine the degree to which your work gets easy.'

Figure 1

This use of the comparative construction is unique; the use of the 'definite article' that we find in this construction is not, so far as we can tell, found generally elsewhere in the language;[5] nor is the two-part structure uniting the two atypical *the*-phrases found in any of the standard syntactic forms in English.

In spite of the fact that it is host to a large number of fixed expressions, the form has to be recognized as fully productive. Its member expressions are in principle not 'listable': unlimitedly many new expressions can be constructed within its pattern, their meanings constructed by means of semantic principles specifically tied to this construction.

With respect to the question of whether the expressions that instantiate this construction can be handled by the 'regular' grammar, it is hard enough to believe that the familiar rules of English can so much as provide us the terms needed for describing the construction and labeling its parts. Do we, indeed, have the right to describe the *the* here as the definite article? Combined in what way with what? What is the constituent structure of either half of the construction? Is the antecedent of the first gap *the more carefully* (as indicated), *more carefully* or simply *carefully* ? Once we decide on one or another constituent structure grouping of the elements, to what syntactic categories can we assign each of these constituents? If the whole sentence is made up of the two parts, what syntactic category is represented by each of the parts? If we ever decide what syntactic category each of the paired *the*-phrases belongs to, can we be satisfied to say that the only grammatical rule in which the category figures is one which allows the construction of a sentence by juxtaposing exactly two of these?

In describing the pieces as unfamiliar we must recognize that they are not all completely unfamiliar: for example, the portions which follow the comparative phrase have some of the ellipsis properties of the complements of true comparative phrases. But they differ from ordinary comparative constructions in a number of ways: for example these do not occur with the complementizer *than,* but can sometimes occur with *that (the more that I eat,...).* The level at which the structure is most clearly unfamiliar (in the sense of not being represented elsewhere in the language) is the level of the paired THE-phrases and their mode of combination.

1.2.2. Familiar pieces unfamiliarly arranged

The second type of idiomatic expression includes those which are made up of FAMILIAR PIECES which are UNFAMILIARLY COMBINED. Here, too, the semantic interpretation is necessarily novel, since the principles of combination used for general semantic interpretations cannot serve us here. Substantive idioms which fit this category include phrases like *all of a sudden* and *in point of fact.* Some idioms in this category are of the ‘encoding only’ type. That is, they require special syntactic and semantic rules, but the hearer of an expression embodying these rules who was not familiar with them might nonetheless guess the meaning successfully. An example is the occurrence of the bare noun *home* in contexts calling for locative or directional complements.

(3) She went/called/stayed/is/*has/*loves home.

An interesting formal idiom of this kind is the one which allows us to construct cousin terms, as in *second cousin three times removed.* We consider now some of the properties of this construction.

The regular grammar of English provides for plural noun phrases lacking determiners, and when the head nouns or N-bars of these phrases denote symmetrical predicates, it provides an appropriate and general syntax and semantics for sentences with conjoined subjects and copular verbs, such as (4) through (6).

(4) Jane and Mary are *best friends*.

(5) Harry and Joe are *acquaintances of long standing*.

(6) Marge and Sue are *bitter enemies*.

Expressions for kinship relations are standard examples of noun phrases that may fill this role and other NP roles in the regular grammar:

(7) Jane and Sue are *sisters*.

(8) Harry and Sue are *cousins*.

(9) Jane is Sue’s *sister*.

(10) Harry is Sue’s *cousin*.

Many kinship expressions that can fill such slots are not lexical (like *cousin* and *sister*), but phrasal. Moreover, both the morpho-syntactic rules required to generate these phrases and the semantic rules required to interpret them are not predictable from knowledge of the general grammar; they have to be learned separately for the construction and interpretation of these particular phrases by the learner of English. Some subsets of these kinship phrases are of finite cardinality and so could be listed in the lexicon, although in so doing the grammarian would pass up an opportunity to extract a generalization. The expressions *mother-in-law, father-in-law, sister-in-law, brother-in-law, son-in-law and daughter-in-law,* exemplify such a finite set. But there are other sets of kinship expressions that are in principle of non-finite cardinality and hence unlistable, for example the series exemplified by

(11) grandmother, great grandmother, great great grandmother, ...; grandfather, great grandfather, great great grandfather, ...; grandson, ...

(12) first cousin once removed, first cousin twice removed; ...; second cousin once removed, second twice removed, ...; ...

The morpho-syntactic properties of the infinite set of phrases indicated in (12) may be summarized by the formula

(13) n*th cousin* m *times removed*

where *n* is a positive integer and *m* is a non-negative integer. (The expression ‘nth’ in the formula is intended to abbreviate ‘the English word for the ordinal number corresponding to the positive integer ‘n’’.) Note that n*th cousin* has the grammatical structure of *fourth chapter*, that *m times* has the grammatical structure of *two ways*, and that *removed* has that of *rewritten.* The regular syntactic machinery does not, however, provide us with the resources to assemble a nominal expression of the type *fourth chapter three ways rewritten.* This is the kind of situation we have in mind when, in speaking of *Nth cousin M times removed*, we talk about ‘familiar pieces unfamiliarly combined.’

Standard morphological rules operate within these expressions to reduce *one times* to *once* and *two times* to *twice.* A morpho-syntactic rule special to this construction realizes ‘zero times removed’ as the phonetically null string. The semantic rule associated with this phrasal construction produces a semantic form whose properties may be described as follows:

> Two distinct people X and Y are nth cousins m times removed iff (i) X and Y have a common ancestor, (ii) the common ancestor closest to either X or Y is n-1 generations removed from that person, (iii) either X or Y is m generations further removed from the closest common ancestor than the other is.

This semantic rule is illustrated in Figure 2 for the expression *second cousin four times removed;* the downward arrow represents the relation ‘parent-of.’

Harry is the second cousin four times removed of Susan
Susan is the second cousin four times removed of Harry
Harry and Susan are second cousins four times removed

Figure 2

As we have indicated, the internal syntax and semantics of such phrases require a special mini-grammar embedded within the general grammar, whose properties are not deducible from those of the larger grammar. Externally, such expressions behave as normal syntactic and semantic objects in the sentences in which they occur.

1.2.3. Familiar pieces familiarly arranged

The third type of formal idiom is made up of familiar pieces combined according to familiar combinatorial principles but to which idiomatic interpretations are assigned. Substantive idioms meeting these conditions include *hang/tie one on* (in the sense of 'get drunk'), *pull someone's leg,* and *tickle the ivories.* Formal idioms in this category include fate-tempting expressions of the kind seen in *now watch me drop it* said by someone who has just picked up a tray of drinks, as well as rhetorical questions that convey negative messages: *Who's gonna make me?, Am I invisible?, When did I say you could do that?,* and so on.

2. Formal idioms: the case of *let alone*

We are interested in investigating 'formal idioms.' The formal idioms which interest us are of both the grammatical and the extragrammatical kinds, and of both the encoding and the decoding varieties. They include the *the X-er the Y-er* case mentioned earlier, but also the constructions underlying such expressions as those in (14):

(14-a) There goes Charlie again, ranting and raving about his cooking.

(14-b) Look who's here!

(14-c) what with the kids off to school and all

(14-d) Why not fix it yourself?

(14-e) He's not half the doctor you are.

(14-f) Much as I like Ronnie, I don't approve of anything he does.

(14-g) He may be a professor, but he's an idiot.

(14-h) Him be a doctor?

(14-i) What do you say we stop here?

(14-j) It's time you brushed your teeth.

(14-k) One more and I'll leave.

(14-l) No writing on the walls!

(14-m) That's not big enough of a box.

(14-n) It satisfied my every wish.

In claiming that each of these expressions exemplifies a special grammatical construction or formal idiom, we claim that for each of them, both of the following questions can be answered in the negative. (1) Does the expression exhibit properties that are fully predictable from independently known properties of its lexical makeup and its grammatical structure? (2) Does the expression deserve to be listed in a general PHRASAL LEXICON of the language, and treated as a fixed expression? It is probably unnecessary to point out that it's sometimes difficult to know how to answer these two questions.

Consider example (14-h), illustrating what we may refer to as the Incredulity Response construction. This particular sentence exemplifies an indefinitely large set of English sentences *(Your brother help me?, Her write a novel about the Spanish Inquisition?,...),* discussed at length in Akmajian (1984), which consist of a main clause sentence whose subject is in the objective case and whose verb is in the bare-stem form. If a person spoke English perfectly except for never having encountered a sentence from this indefinitely large set, he could obviously not acquire its members one by one but would have to learn a general rule pairing a particular syntactic form (notably featuring a non-nominative subject and a non-finite main verb) with a specific pragmatic force. (Roughly, such sentences must be used to challenge or question a proposition just posed by an interlocutor.) No finite number of additions to the lexicon or phrasicon would do the trick. It is this sort of rule that we refer to as a 'formal idiom' or 'special grammatical construction.'

2.1. Preliminaries

Our central goal in this paper is to illustrate the analysis of GRAMMATICAL CONSTRUCTIONS, in their pragmatic, semantic and syntactic aspects, using that grammatical device in English that incorporates the phrase *let alone*. Our aim in exploring the properties of the *let alone* construction is, of course, to discover whether they comprise a good example of the kind of semi-autonomous grammatical construction that interests us. *Let alone* expressions have properties shared by many other construction types and lexical items in the language, so the argument about whether they can be seen as instantiating an autonomous grammatical construction needs to be conducted with care. It is our impression that *let alone* sentences possess a collection of properties that is unique to this particular family of expressions, and that they must therefore be given treatment as the kind of formal idiom or special construction we have been discussing.

Examples of sentences exhibiting the *let alone* construction, with preceding context provided, include:

(15) A: Did the kids get their breakfast on time this morning?
B: I barely got up in time to EAT LUNCH, let alone COOK BREAKFAST.

(16) A: I know that Louise is a picky eater, but I bought the kids some squid for dinner.
B: I doubt you could get FRED to eat SHRIMP, let alone LOUISE SQUID.

(17) A: You remember the battle of Verdun, don't you?
B: I was too young to serve in World War TWO, let alone World War ONE.

(18) A: Do you think anyone will mind if I take my clothes off before I jump into this quaint little water hazard?
B: Look, around here you can get arrested for going BAREFOOT, let alone for walking around NAKED.

(19) A: For Janey's birthday party I'm thinking of serving Coca Cola, but I'm afraid little Seymour's parents will be annoyed. They seem like health-oriented types.
B: Don't worry. Little Seymour's parents let him drink WHISKEY, let alone COKE.[6]

As a first approximation we can talk about *let alone* as a coordinating conjunction, each of whose conjuncts contains a focused element. To provide a notation for developing the arguments offered below, we propose analyzing any *let alone* sentence as a syntactic structure of either of the following two types:

(20-a) F <X A Y let alone B>

'I doubt you could get FRED to eat squid, let alone LOUISE.'

(20-b) F <X A let alone B Y>

'I doubt you could get FRED, let alone LOUISE, to eat squid.'

Here 'A' and 'B' are coordinated, prosodically focused, and contrasting constituents. 'X' and 'Y' are the neighboring, non-contrasting parts of the clause in which the coordination occurs. The type of coordination is that by which the phrase 'let alone B' is seen as 'parenthetical' (to be discussed further below). As we will discuss at length below, *let alone* appears to be a negative polarity item, and 'F' at this point can loosely be designated as a negative polarity trigger which has the rest of the sentence in its scope. (The entire construction, F<XAY let alone XBY>, can of course occur embedded within a larger structure, the contents of which are not relevant to this analysis, e.g.: *My observations warrant the inference that [Fred will not eat shrimp, let alone squid]*).

In demonstrating the divisions just named, we can examine sentence (21):

(21) [I doubt [he made COLONEL in World War II] let alone [GENERAL.]]

F X A Y B

In (21), ‘F’ is ‘I doubt’, ‘X’ is ‘he made’, ‘Y’ is ‘in World War II’, ‘A’ is ‘Colonel’, and ‘B’ is ‘General.’

We will have more to say about the operator ‘F’ below. Here we will simply point out that this element may be external (in surface structure) to the portion of the sentence yielding the <X A Y let alone B> element, but that it may also occur clause-internally, as the simple negative does in sentence (22):

(22) He doesn’t like SHRIMP, let alone SQUID.

In fact, the element ‘F’ must be understood abstractly enough to correspond in certain sentences to a grammatical property distributed throughout a sentence, such as the semantico-grammatical property of being a rhetorical question:

(23) Who could IMAGINE such a thing, let alone DO it?

The syntactic schemata given in (20) and (21) can be taken as corresponding to the semantic schema below:

(24) F’ <X A Y> and F’ <X B Y>

where F’ is a semantic predicate derived from the syntactic element F.

A second semantic requirement of a *let alone* sentence is that the two semantic structures of the schema above represent POINTS ON A SCALE, in a way to be described below. This background affects the illocutionary strength of the two clauses, so that F’ <X B Y> is being posed WITH GREATER FORCE than F’ <X A Y> and for the very reason that the latter is posed. If I doubt that he made colonel, I doubt all the more that he made general.

The pragmatic function of a *let alone* sentence is to enable the speaker to respond to a situation in which an expression of the meaning F’<X B Y> is RELEVANT but in which expression of the meaning F’<X A Y> is more INFORMATIVE. The construction, in other words, is pragmatically sensitive to a conflict between two Gricean maxims, the maxim of informativeness (or Quantity) and the maxim of relevance (or Relation). It presents the more informative proposition first.

As the examples above illustrate, the use of the *let alone* construction allows the speaker to simultaneously address a previously posed[7] proposition, and to redirect the addressee to a new proposition which will be more informative.

The context proposition plays an important role in our understanding of the construction, since it is the denial of the informativeness of this context proposition that determines what can and what cannot count as the syntactic operator F and its semantic projection F’.

2.2. The Syntax of *let alone*

Syntactically, *let alone* can be characterized as follows: it is a kind of conjunction; constructions containing it are examples of PAIRED FOCUS constructions; the post-*let alone* part of a sentence of this type is a particular type of sentence fragment; *let alone* appears to be a negative polarity item of a particularly ‘tolerant’ type, which permits under certain contextual conditions (to be discussed below) utterances of sentences such as (18-19); and the construction creates special syntactic problems from the fact that it permits multiple paired foci in a single sentence. Each of these points will be taken up in turn.

2.2.1. *Let alone* as a coordinate conjunction

The expression *let alone* (generally) pairs two grammatically equivalent constituents. The interpretation of the sentence as a whole depends on constructing two sentences, each of which needs to be given an evaluation. (That is, if the sentence is an assertion, both the version containing ‘A’ and the version containing ‘B’ need to be ‘true’.) Its conjuncts comprise (at least) two paired foci, elements by which the two sentences being compared differ from each other.

The phrase *let alone* functions like a coordinating conjunction, in that it occurs in a wide variety of sentential environments where ordinary coordinating conjunctions occur. Consider examples (25) through (30):

(25-a) I don’t even want to read an article ABOUT, let alone a book written BY, that swine.

(25-b) I don’t want to read an article about, or a book written by, that swine.

(26-a) You couldn’t get JOHN to TOUCH it, let alone LUCILLE to EAT it.

(26-b) I want John to write it and Lucille to recite it.

(27-a) Max won’t eat SHRIMP, let alone SQUID.

(27-b) We’ll need shrimp and squid.

(28-a) Max won’t TOUCH the SHRIMP let alone CLEAN the SQUID.

(28-b) I want you to cook the shrimp and clean the squid.

(29-a) They couldn’t make JOHN eat the SHRIMP let alone LUCILLE the SQUID.

(29-b) They made John eat the shrimp and Lucille the squid.

(30-a) He wouldn’t give A NICKEL to his MOTHER, let alone TEN DOLLARS to a COMPLETE STRANGER.

(30-b) He gave a nickel to me and a dollar to my sister.

We find in these examples many of the properties associated with coordinating conjunctions: Coordinating conjunctions join like categories (illustrated above with VPs, clauses, and NPs); they permit right node raising, gapping, stripping, conjunction reduction, various sorts of ‘non-constituent conjunction,’ etc. Yet we also find in these and other *let alone* sentences some properties that are not found in ‘proper’ coordinate conjunction.[8]

For example, there is little reason to believe that the entire sequence *A let alone B* is a constituent. The following examples might lead us to assume that *let alone* does not conjoin phrases. Consider the asymmetry between true phrasal coordination and a *let alone* phrase with respect to topicalization:

(31-a) Shrimp and squid Moishe won’t eat.

(31-b) *Shrimp let alone squid Moishe won’t eat.

(31-c) *Shrimp Moishe won’t eat and squid.

(31-d) Shrimp Moishe won’t eat let alone squid.[9]

WH-extraction from one side of a *let alone* phrase is also sometimes easier than similar extraction from a coordination containing *and*. Although (32-b) is not unexceptionably grammatical, it seems better to us than (32-a).[10]

(32-a) * a man who Mary hasn’t met or ridden in his car

(32-b) ? a man who Mary hasn’t met let alone ridden in his car

‘IT-clefting’ is possible with the full constituent of a coordinate construction, but not with *let alone*. Notice (33) and (34).

(33) *It’s shrimp let alone squid that Max won’t eat.

(34) It’s shrimp and squid that Max won’t eat.

Some properties of the kinds of sentence fragments available in the second ‘conjunct’ of a *let alone* sentence show them to be similar to the *than*-clause of a comparative construction, as seen in (35) through (38).

(35) Max won’t eat shrimp, let alone Rabbi Feldstein.

(36) Max ate more shrimp than Rabbi Feldstein.

(37) Minnie wasn’t born by 1941, let alone Meg.

(38) Minnie was born much earlier than Meg.

VP ellipsis, possible with coordinated constructions and comparative clauses, is not possible with *let alone*.

(39) Max will eat shrimp more willingly than Minnie will.

(40) Max won’t eat shrimp but Minnie will.

(41) *Max won’t eat shrimp let alone Minnie will.

In many of its uses, the *let alone* conjunction has much in common with what we might speak of as parenthetically used conjunctions. These form a constituent with their second conjunct, appearing either next to their first conjunct with ‘parenthesis’ intonation, or extraposed to the end of their clause. Examples of such ‘parenthetical conjunctions’ can be seen in (42) to (46).

(42-a) John’ll do it for you, or maybe Bill.

(42-b) John won’t do it for you, let alone Bill.

(43-a) John was there, and Louise (too).

(43-b) John wasn’t there, let alone Louise.

(44-a) I wanted Fred to do it, rather than Sue.

(44-b) I didn’t want Fred to do it, let alone Sue.

(45-a) Louise surely understood it, if not Susan.

(45-b) Louise surely didn’t understand it, let alone Susan.

(46-a) I bet Louise, not to mention Susan, could pass that test.

(46-b) I bet Louise, let alone Susan, couldn’t pass that test.

2.2.2. *Let alone* as a paired focus construction

The *let alone* construction has several features in common with what are sometimes called FOCUS CONSTRUCTIONS (see Prince 1981 for a review of the unique aspects of each construction). Pseudoclefts, clefts, leftward movement constructions like Topicalization and Yiddish Movement are commonly held to have the function of foregrounding a particular element, the ‘Focus’ constituent. Each of these has its own prosodic and syntactic characteristics which, together with its particular semantics and pragmatics differentiates it from the others in its class. Similarly, in the class of constructions we describe here, each has idiosyncrasies and particularities which distinguish it from the others. However, just as the constructions cited above can be characterized as a group by the appearance of some phrasal constituent at the left-most point of an English sentence, so these can be grouped on the basis of several structural features.

Some examples:

(47) He doesn't get up for LUNCH, let alone BREAKFAST.

(48) He doesn't get up for LUNCH, much less BREAKFAST.

(49) She didn't eat a BITE, never mind a WHOLE MEAL.

(50) She didn't eat a MEAL, just a SNACK.

(51) She beat SMITH at chess, not to mention JONES.

Each of these examples contains a complete clause, followed by a connective of some sort, followed by a fragment.[11] The fragment bears a certain relationship to some part of what we have called the CONTEXT SENTENCE. The fragment and the constituent that it corresponds to (in a way to be discussed below at length) are both IN FOCUS, as is shown by the prosody typically associated with them, and their pragmatic status (also to be discussed below). In these double focus constructions, the unmarked prosodic shape consists of prominence on both the first and the second focused elements. Thus:

(52) She doesn't get up for LUNCH, let alone BREAKFAST.

All of these constructions allow the speaker to (1) make an assertion or contradict some proposition implied or asserted by another speaker, by focusing on a particular constituent of that proposition, and (2) to 'reset the value' of that constituent, as it were.[12]

2.2.3. Sentence fragments and the complement of *let alone*

A full account of the syntax of *let alone* would ideally be embedded within a comprehensive theory of the syntax and semantics of sentence fragments. That is, the syntax (and semantics) of a sentence like

(53) John hardly speaks RUSSIAN let alone BULGARIAN.

would form part of a general formulation of the syntax and semantics of sentences like the following, which contain what we might call fragment taking conjunctions and whose semantic interpretation requires the reconstruction from the fragment of a full semantic clause.

(54) John speaks Russian, if not Bulgarian.

(55) John speaks Russian, in fact Bulgarian (too).

(56) John doesn't speak Bulgarian, just Russian.

(57) John killed a shark, and with his bare hands.

Most approaches to fragment creating phenomena to date have been rather piecemeal, involving, for example, separate and unrelated rules of gapping, conjunction reduction, right node raising, stripping and the like, and containing little if any analysis of constructions containing conjunctions like *if not, in fact, but only, just,* and so on. We also are not prepared to present an integrated account. In section 2.3.1, however, we say enough about the constraints which the particular case of *let alone* would place on any unified and encompassing account of fragment creating phenomena to permit us to present the semantic analysis of *let alone* without equivocation.

It was noted above that *let alone* does not permit VP ellipsis. This follows from a more general property of the *let alone* construction. In stating this principle we will refer to the 'INFL-complex', by which we intend to denote the surface constituent that contains a tensed auxiliary and negation when these are present.

> In a *let alone* sentence, the INFL-complex is part (or all) of the F element whenever the F element receives surface expression.

Note the contrast between (58) and (59).

(58) Louis won't eat shrimp and (Sarah) will/won't eat squid.

(59) *Louis won't eat shrimp let alone (Sarah) will/won't eat squid.

This does not of course amount to a GENERAL prohibition on tense and negation in the fragment. When the F element is external to the <X A Y> clause, a tensed or negated element may appear in the fragment since the INFL-complex/F-element principle is, so to speak, already satisfied.

(60) I doubt she won't eat them let alone won't touch them.

As suggested in the preceding note, tense and negation may also appear in the fragment when there is no F element, that is when the F' element is purely pragmatic.

(61) A: Did the most recent research confirm the Macro-Penutian hypothesis?
B: The latest results dissolved Penutian let alone didn't support Macro-Penutian.

2.2.4. *Let alone* as a negative polarity item

In earlier versions of this paper we were convinced that *let alone* was a straightforward NEGATIVE POLARITY ITEM, believing that it was welcome only in sentences which provide 'affective' (Klima, 1964) contexts for it. The set of possible F's included simple negation, *too* complementation, comparison of inequality, *only* as 'determiner' of the subject, and various 'minimal attainment' qualifiers, these and more illustrated in examples (62) through (70).

(62) He didn't reach DENVER, let alone CHICAGO.

(63) I'm too tired to GET UP, let alone GO RUNNING with you.

(64) She gave me more candy than I could CARRY, let alone EAT.

(65) Only a linguist would BUY that book, let alone READ it.

(66) I barely got up in time for LUNCH, let alone BREAKFAST.

(67) I had all I could do to get out of BED, let alone do my morning CALISTHENICS.

(68) It would surprise me if JOHN could pass the test, let alone BILL.

(69) He failed to reach the sixth GRADE, let alone get a B.A.

(70) Anyone who'd been to HIGH SCHOOL, let alone GRADUATE students in MATH, should be able to solve that problem.

Since all of these are contexts welcoming *any* (one of the tests for a negative polarity environment), and since most of the *let alone* sentences we encountered in the first months of our inquiry were 'negative affect' sentences,[13] we concluded that negative polarity was one of the special properties of this construction. However, attested sentences like (71) and (72) began to accumulate, forcing the conclusion that if *let alone* is in fact a negative polarity item, it is not simply and straightforwardly one.

(71) You've got enough material there for a whole SEMESTER, let alone a WEEK.

(72) PENUTIAN has been broken up, let alone MACRO-Penutian.

The troublesome facts of the matter are that (1) it is very hard to think up convincing examples of *let alone* sentences without the usual negative polarity triggers and (2) we have come across incontrovertible cases of attested utterances of non-negative *let alone* sentences that seem perfectly natural and which there is no apparent justification to ignore as performance errors. Our explanatory speculation is as follows. Consider sentences (73). We have no record of the contexts in which they were uttered, but we imagine they may have been something like those provided by speaker A:

(73-a) A: I doubt I have enough material here for a week.
B: You've got enough material there for a whole SEMESTER, let alone a WEEK.

(73-b) A: Macro-Penutian is still a viable hypothesis, isn't it?
B: PENUTIAN has been broken up, let alone MACRO-Penutian.

Note that in both (73-a) and (73-b) the fragment clause of the *let alone* sentence uttered by B is the DENIAL of the context sentence uttered just previously by A. That is, the first speaker suggests that there is not enough material for a week or that Macro-Penutian is still considered a serious hypothesis. In both cases the second speaker B offers as the contextually relevant part of his *let alone* response the negation of the context sentence. It appears that, given the strong pragmatic requirement of the *let alone* construction for a context sentence, for some speakers at least the DENIAL of the context sentence has enough 'negative affect' to serve as a polarity trigger for *let alone*.[14]

2.2.5. Multiple paired foci: a syntactic puzzle

We have already observed that the 'A' and 'B' parts can be multiple. That is, there can be multiple matched foci in the two parts of the LET ALONE sentence, as in example (74).

(74) You'd never get a poor man to wash a car for $2 in bad times, let alone a rich man to wax a truck for $1 in prosperous times.

An important and puzzling characteristic of the multiple paired-focus versions is the possibility of multiple use of *let alone* in the same sentence, as is seen in example (75).[15]

(75) You'd never get a poor man, let alone a rich man, to wash, let alone wax, a car, let alone a truck, for $2, let alone $1, in bad times, let alone in prosperous times.

Multiple paired focus sentences of the type just illustrated provide evidence for the 'scalar semantic' nature of the *let alone* construction. The details will be developed in the subsection on semantics below. Here we limit our attention to the interesting syntactic problems which the existence of such sentences raises. We note the existence of two sentence forms with the same meaning, illustrated by (76) and (77):

(76) You couldn't get a poor man to wash your car for two dollars let alone a rich man to wax your truck for one dollar.

(77) You couldn't get a poor man, let alone a rich man, to wash, let alone wax, your car, let alone your truck, for two dollars, let alone for one dollar.

The first thing to notice is that the second syntactic form, in which each pair of focus elements is linked by an instance of *let alone,* is possible only when the multiple prosodic foci represent multiple propositions in semantic interpretation. Thus, the following (a) sentence with a single *let alone* cannot be paraphrased as a sentence (b) containing multiple instances of *let alone*.

(78a) You'll never get Gorbachev to denounce communism, let alone Reagan to denounce capitalism.

(78b) ??You'll never get Gorbachev, let alone Reagan, to denounce communism, let alone capitalism.

Leaving aside the problem of how to represent matters so as to formalize this fact perspicuously, we turn to the problem of representing the varying syntactic forms of the multiple focus/multiple proposition sentences themselves. To describe the distributional facts, we must adopt some fairly precise idiom. The idiom we find convenient, without making any theoretical commitment to it, is that of an older form of transformational grammar, one which countenanced a wide variety of transformational rules converting structures of one specified type into structures of another specified type. In such a framework, we could posit an underlying structure for multiple focus/multiple proposition *let alone* sentences along the lines of

(79) $X_1A_1X_2A_2...X_nA_nX_{n+1}$ *let alone* $X_1B_1X_2B_2...X_nB_nX_{n+1}$

where the various X's are syntactic variables and the A's and B's are the contrastively focused elements.

This underlying form would then be realized on the surface in sentences having only one instance of *let alone* by deleting some or all of the right-hand X variables. As our discussion of the status of *let alone* as a conjunction showed, exactly which combination of deletions would be possible, depending on the detailed constituent structure of the sentence, might be difficult to specify according to general principles. A substantial fraction of the constraints on deletions associated with *let alone* conjunction appear not to be deducible from knowledge of general rules that mention the syntactic category conjunction.

A more serious problem arises with respect to the syntax of the sentences containing multiple tokens of *let alone*. In these sentences, any unbroken sequence of the right-hand focused elements (the 'B's) can be moved to the left and conjoined with a preceding *let alone* to the corresponding 'A' focused element sequence. For example, all of the following sentences are possible.

(80) A poor man, let alone a rich man, wouldn't wash your car for $2, let alone wax your truck for $1.

(81) A poor man wouldn't wash your car, let alone a rich man wax your truck, for $2, let alone for $1.

(82) A poor man wouldn't wash, let alone a rich man wax, your car for $2, let alone your truck for $1.

Note that each of the three preceding examples means the same as

(83) A poor man wouldn't wash your car for $2 let alone a rich man wax your truck for $1.

What can be concluded from these sentences is in effect that to any stretch of the form A_i ... A_j we can conjoin the stretch of the form *let alone* B_i ... B_j, removing this stretch from the right-hand side, as in 'a poor man wash your car, let alone a rich man wax your truck,' or 'a poor man, let alone a rich man, wash your car, let alone wax your truck.' Variables (non-focused elements) on the right get deleted if they are flanked by moved 'B' elements.

To state this transformation, the indices on the A and B elements would have to be mentioned in both the structural description and the structural change. The ordinary language of expressing structural descriptions and structural changes would not, of course, permit this. It is unclear to us how dependencies of this type could be represented in traditional transformational grammar. In fact, it appears they could not, without a radical redefinition of transformation, making it a more powerful device. It would seem that the perspicuous representation of dependencies of this kind might pose an interesting problem in current syntactic frameworks as well.

We have been able to find only one other construction of English which has this peculiar syntactic property, though the semantics of this formal idiom differs considerably from the semantics of *let alone*. We have in mind the construction that employs the discontinuous conjunction *not* ... *but* .... Note the parallelism between (84)-(87) below and (80)-(83) above.

(84) Ivan sent, not an album to Albania for Anna on her anniversary, but a book to Bulgaria for Boris on his birthday.

(85) Ivan sent, not an album but a book, (and) not to Albania for Anna on her anniversary, but to Bulgaria for Boris on his birthday.

(86) Ivan sent, not an album to Albania for Anna, but a book to Bulgaria for Boris, (and) not on her anniversary but on his birthday.

(87) Ivan sent, not an album to Albania but a book to Bulgaria, not for Anna but for Boris, and not on her anniversary but on his birthday.

The syntax of *not...but...* is not in general identical to that of *let alone,* as the former exhibits some special constraints, particularly involving subject and verb foci. Nevertheless, as illustrated in (80-83) and (84-87), both constructions possess the property just discussed.

Failing our or someone else's success in accounting for these dependencies through some general principle of grammar, the most prudent conclusion would appear to be that the learner of English acquires such distributional constraints as a part of the learning of a small number of special constructions, perhaps exactly two. If no more general solution is to be found (and we will be pleased if some of our readers can find it and will tell us about it), we will be forced to conclude that a small class of lexical items may possess syntactic properties that require descriptive devices of surprising mathematical power, which are quite general within the sentences containing them, but which are apparently absent from general grammar.

2.3. The Semantics of *let alone*

We saw that syntactically a *let alone* sentence allowed an initial analysis into the components F <X A *let alone* B Y>, with the proper adjustments in case there is more than one pair of elements which the construction puts into contrast. The process of constructing a semantic interpretation of a *let alone* sentence begins with building (for each contrasting pair of 'A's and 'B's) two sentences, one with 'A' and one with 'B', in which the syntactic 'F' element is represented by the semantic F' element, in the formula F' <X A Y>.

In the simplest case, the case in which the F constituent is simply grammatical negation, we can say that the sentence simply asserts both 'not(X A Y)' and 'not(X B Y)'. (That is, from *He didn't make colonel, let alone general* we derive the two propositions, that he did not make colonel and that he did not make general.) The general effect of the construction is to assert the first and to suggest that the second necessarily follows, and so the relation between the two parts, 'not(X A Y)' and 'not(X B Y)' is one of entailment. ('He didn't make colonel; a fortiori, he didn't make general.') But it is not simply an entailment relation. In particular, the entailment in this case must be against the background of a PRESUPPOSED SEMANTIC SCALE. The interpretation of any *let alone* sentence requires seeing the two derived propositions as POINTS on a scale. A second and essential step in the interpretation of a *let alone* sentence, then, requires the construction of a scale in which the 'A' proposition and the 'B' proposition are distinct points.

The discussion in this section will concentrate on (1) the interpretation of the sentence fragment containing or constituting the 'B' constituent; (2) the nature of the ENTAILMENT relation that holds between the 'A' part and the 'B' part; (3) the dimensions and scalar relations presupposed by a use of the construction; (4) the special case of complex scales (corresponding to the use of the construction with multiple paired foci); and (5) the roles of negative and positive polarity in the interpretation of the entailment relationship.

2.3.1. The Interpretation of sentence fragments

It is our job here to present the salient syntactic and semantic facts about the *let alone* construction and to suggest their relevance for grammatical theory generally. While among these suggestions will be a claim that some of these facts are not readily accommodated within existing grammatical theories, we do not attempt to present a new formal framework of our own. Consequently, it should not be surprising that we come upon facts whose certain designation as syntactic versus semantic is not intuitively given and must wait upon a fully explicit treatment that establishes this distinction formally, if such a formal distinction is justified. We will continue here to use the idiom of the older form of transformational grammar as a heuristic, descriptive device, without intending any theoretical commitment regarding the issue of whether the phenomena we consider are 'really' syntactic or semantic.

It will be recalled that a *let alone* sentence containing *n* pairs of foci may contain any number of tokens of *let alone* between 1 and *n* (the interpretation of such an expansion being, however, contingent on the independence of the dimensions, as discussed with respect to example (78)). In the simplest case, *n* of course equals 1. It will be further recalled that any sentence containing more than one token of *let alone*, such as (75), means the same as another *let alone* sentence that contains just one instance of *let alone*, such as (74). In general, given the restriction to independent dimensions, any *let alone* sentence containing n paired foci belongs to a set of 2^{n+1}-1 synonymous *let alone* sentences containing these same paired foci. The members of the set differ of course in the number and placement of tokens of *let alone* (as well as in semantically irrelevant details regarding whether various non-focused elements occur more than once on the surface or are 'deleted under identity' after their initial occurrence). Thus, when we have specified the semantics of an *n*-focus *let alone* sentence containing a single token of *let alone*, we have specified the semantics of every other member of the set of sentences 'syntactically derivable' from this one by the process described in section 2.2.2. If we take the process of 'syntactic derivation' described in section 2.2.2 literally, we are accounting for the relations of intersentential synonymy thereby specified with a syntactic as against an interpretive process. Our need here, however, is merely to establish that these relations of synonymy exist and we abjure any position on the issue whether a fully explicit theory should provide a syntactic or a semantic account of these relations. What we need to establish for present purposes is no more than the following: a semantic account of all the sentences containing a single token of *let alone* is a semantic account of all *let alone* sentences. Consequently, for the remainder of this section (2.3), we may use the expression '*let alone* sentence' as a shorthand for '*let alone* sentence containing a single token of *let alone*' without loss of generality.

The interpretation of a *let alone* sentence of the form

(88) $F[X_1A_1...X_nA_nX_{n+1}$ *let alone* $(X_1)B_1...(X_n)\ B_n(X_{n+1})]$

proceeds first by 'restoration' of any X element on the right of the *let alone* that may have been 'deleted,' yielding the abstract form

(89) $F[X_1A_1...X_nA_nX_{n+1}$ *let alone* $X_1B_1...X_n\ B_nX_{n+1}]$

For example, from an actual sentence such as

(90) You could never get Fred to eat SHRIMP at Jack-in-the-Box let alone SQUID.

an abstract structure is reconstructed that is representable by

(91) You could never get (Fred to eat shrimp at Jack-in-the-Box let alone Fred to eat squid at Jack-in-the-Box).

In the preceding example the abstract structure happens to correspond closely to an acceptable surface sentence, but in other cases this is not so, as when the F element is simple negation. For example, reconstruction of (92) yields (93).

(92) Fred won't eat shrimp at Jack-in-the-Box let alone squid.

(93) Not (Fred will eat shrimp at Jack-in-the-Box let alone Fred will eat squid at Jack-in-the-Box).

Succeeding stages of the interpretation of a *let alone* sentence involve obtaining propositional interpretations P_1 and P_2 of the sentences of the form $X_1A_1...X_nA_nX_{n+1}$ and $X_1B_1...X_nB_nX_{n+1}$ respectively; and obtaining from F the semantic operator F' in such a way that the form of the meaning of the full sentence is

(94) $F'(P_1);\ F'(P_2)$

We now proceed to a description of these processes and the constraints they exhibit.

2.3.2. The Entailment relation: presupposed dimensions and scales

A sentence about the unlikelihood of *Fred eating shrimp let alone squid* is a sentence whose user presupposes (let us say) a dimension of ‘distastefulness,’ recognizing that while a number of people find all sorts of seafood distasteful, more people are willing to eat shrimp than are willing to eat squid. A sentence about somebody being surprised at *Fred eating squid let alone Louise* is one whose user presupposes a dimension of ‘squeamishness’ by which Louise is taken to be consistently more squeamish than Fred: there are things that Fred would eat which Louise would not eat but not the other way round. And a sentence that tells us

(95) You could never get *Fred* to eat *shrimp,* let alone *Louise squid*.

presupposes a complex two-dimensional scale combining the squeamishness of diners with the yuckiness of exotic food.

The SEMANTIC rules of English do not allow the interpreter to determine the nature of the scale from the form of a *let alone* sentence – the background for the cases just illustrated could easily involve the stinginess of the diners and the cost of the food – but they require that some scalar array of the compared variable pairs be automatically set up as an initial step in interpreting the sentence, the details being correctly or incorrectly filled in by the interpreter.

In many cases the required scale in question may be readily determined independently of the context in which a *let alone* sentence is used, but in other cases it might be quite specific to the context. Some of the range of variation is illustrated by the following examples.

(96) He’s not even 18, let alone 21.

(97) He isn’t heavy enough to play QUARTERBACK, let alone TACKLE.

(98) This water isn’t hot enough to WASH DISHES, let alone MAKE TEA.

(99) A GROWN MAN couldn’t LIFT this boulder, let alone a CHILD TOSS it SIX FEET.

(100) There’s no chance she’s even gonna LOOK at me, let alone REMEMBER my NAME.

(101) MEG wasn’t born by 1941, let alone her DAUGHTER.

The possibility of absolute context specificity is illustrated by such cases as the following: if we hear someone say

(102) She didn’t get to BERLIN let alone WARSAW.

we infer that a journey from West to East is under discussion, while if what we heard had been

(103) She didn’t get to WARSAW let alone BERLIN.

we would have inferred a journey from East to West. To give another example, we have a ready-made scale to interpret a sentence like (104)

(104) She’s not even in the $30,000 a year category, let alone the $60,000 a year category.

But in a context in which we are talking about eligibility for welfare benefits, it could make sense to say (105) of somebody.

(105) She’s not even in the $6000 a year category, let alone the $3000 a year category.

The necessity of seeing the entailment relationship as one involving a SCALAR SEMANTICS can be shown by the out-of-context anomaly of a sentence like (106-a)

(106-a) Fred doesn’t have an ODD NUMBER of books, let alone SEVENTY-FIVE.

Surely not having an odd number of books ENTAILS not having exactly seventy five books; yet the sentence is bad, because the entailment is not within a scalar semantics. But if the possibilities can be reinterpreted, so that a genuine scale is involved, the relationship between being an ‘odd number’ and being the number 75 can provide the kind of scalar entailment we require.

The situation you are asked to imagine is that in a particular lottery, every holder of an odd number received a small prize, but the number 75 was the big winner. Now, in a context in which somebody asked whether Fred got the big prize in the lottery, we can say

(106-b) He didn’t even have an ODD NUMBER, let alone SEVENTY-FIVE.

Returning to our military rank examples, we might point out that ‘not being a commissioned officer’ entails ‘not being a second lieutenant’ just as clearly as it entails ‘not being a colonel.’ If entailment alone were sufficient warrant for the use of the *let alone* construction, a sentence like (107) should not be better than a sentence like (108).

(107) He wasn’t even a COMMISSIONED OFFICER, let alone a COLONEL.

(108) #He wasn’t even a COMMISSIONED OFFICER, let alone a SECOND LIEUTENANT.

But sentence (108) is odd, and precisely because the rank of ‘second lieutenant’ is the lowest commissioned rank. Sentence (108), in other words, is to be understood as claiming that since we have reason to believe he never entered the scale, we have all the more reason to believe that he could not have reached some non-lowest point on the scale. But since second lieutenant IS the lowest point, the sentence is anomalous.

The preceding examples show that even where not-p unilaterally entails not-q, a sentence of the form ‘Not p let alone q’ may still be unacceptable, that is, precisely when the entailment is not seen as holding within a scalar semantics.

But what exactly do we mean by a ‘scalar semantics?’

A *let alone* sentence is interpreted in a SCALAR MODEL. A scalar model is a set of propositions with a certain structure; that structure can be thought of as a generalization to *n* dimensions of what is known in social psychology as a Guttman scale. We introduce the idea of a scalar model with a two dimensional example. A more precise characterization is given in the Appendix.

Suppose we have four professors of Indo-European linguistics named *A*potheosis, *B*rilliant, *C*ompetent and *D*imm. Let us suppose that what we know about these four is that Apotheosis knows every language that Brilliant knows, Brilliant knows every language that Competent knows, and Competent knows every language that Dimm knows. The languages we are concerned with in this discourse are *E*nglish, *F*rench, *G*reek, and *H*ittite. In the world of Indo-Europeanist scholars we are imagining, anyone who knows Hittite knows Greek, anyone who knows Greek knows French, and anyone who knows French knows English. If P is a variable over our four professors and L is a variable over our four languages, the propositional function ‘P can read L’ together with the set of ordered pairs of the form{<Professor,Language.>} determine a lattice of sixteen elementary propositions: ‘Apotheosis knows English’, ..., ‘Dimm knows Hittite.’ Denoting truth ‘1’ and falsity ‘0’, the structure of this set of propositions can be diagrammed as

(109)

$$
\begin{array}{ccccc}
 & E & F & G & H \\
A & 1 \rightarrow & & & \\
 & \downarrow & & & \\
B & & & & \\
C & & & & \\
 & & & & \uparrow \\
D & & & & \leftarrow 0
\end{array}
$$

The ‘1’ in the upper left and the ‘0’ in the lower right corners indicate respectively that if there is only one 1 cell in the lattice it must be the cell AE and if there is a unique cell with a 0 entry that cell must be DH. That is, if it is true for only one linguist-language pair that the linguist knows the language, that pair must match the most polyglot linguist, Apotheosis, with the most accessible language, English. Similarly, if it is true for only one linguist-language pair that the linguist does not know the language, then that pair must contain the most benighted linguist, Dimm, and the least attainable language, Hittite.

Let us call the corner of the lattice which must be ‘0’ if any entry is ‘0’ the ZERO CORNER, here DH. Similarly, we will call the corner of the lattice that must contain ‘1’ if any entry is ‘1’ the ONE CORNER, here AE. The arrows extending to the right and downward from the 1-corner and to the left and upward from the 0-corner indicate, loosely, that in any particular state of affairs that fits this scalar model, the lattice is filled only by propagation of 1’s rightwards or downwards (or both) from the 1-corner and of 0’s leftwards or upwards (or both) from the 0-corner. A little more precisely, if we know, for a given state of affairs, only that some entry in the lattice is 1, we automatically know that in that state of affairs, every entry above or to the left of the first entry is 1; similarly, if we know that some entry is 0, we know that every entry below or to the right of that entry is zero. The following diagrams indicate a few of the states of affairs that conform to the scalar model sketched above for the linguist-language example.

(110)

a.

	E	F	G	H
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	0	0	0	0

b.

	E	F	G	H
A	1	0	0	0
B	0	0	0	0
C	0	0	0	0
D	0	0	0	0

c.

	E	F	G	H
A	1	1	0	0
B	1	0	0	0
C	0	0	0	0
D	0	0	0	0

d.

	E	F	G	H
A	1	1	1	1
B	1	1	1	1
C	1	1	1	1
D	1	1	1	1

The general property of scalar models that we have been discussing motivates the notion of RELATIVE STRENGTH of two scalar propositions. The relative strength of the scalar propositions in turn plays a key role in determining the semantic constraints on the acceptability of *let alone* sentences. Intuitively, in our example it would be maximally informative to learn that Professor Dimm can read Hittite, since from this we could infer that every linguist can read every language; equally it would be maximally informative to learn that Apotheosis can’t read English, because from this we may conclude that none of our linguists can read any language. By the same token, learning that Apotheosis can read English is minimally informative, since from this we may deduce nothing about the value of any other proposition; in parallel fashion knowledge that Dimm can’t read Hittite is minimally informative, again telling us nothing about any other linguist-language pair. Roughly, then, the farther an α-polarity proposition is from the α-corner, the more informative it is. Somewhat more precisely, where α is as usual a variable over polarity values,

(111) For two propositions *p*, *q* of α polarity, *p* is MORE INFORMATIVE (equivalently STRONGER) than *q* iff *p* is more distant from the α-corner than *q* on at least one dimension and no closer to the α-corner than *q* on any dimension.

Thus, of the following statements, all the ‘a’ versions are more informative (stronger) than the ‘b’ versions.

(112-a) Brilliant can read Hittite.
(112-b) Brilliant can read French.

(113-a) Brilliant can’t read French.
(113-b) Brilliant can’t read Hittite.

(114-a) Competent can read Hittite.
(114-b) Brilliant can read French.

(115-a) Brilliant can’t read French.
(115-b) Competent can’t read French.

The basic semantic conditions on *let alone* sentences are the following:

[1] The full clause preceding *let alone* and the reduced clause (or fragment) following *let alone* are interpreted as two propositions from the same scalar model.

[2] The two propositions (represented by the full clause and the reduced clause) are of the same polarity.

[3] One of the two propositions, syntactically that expressed by the initial, full clause, is stronger than the other.

As we discuss elsewhere in this paper, the reduced (weaker) clause is interpreted as expressing a proposition that is the same as that expressed by the full (stronger) clause, EXCEPT that the interpretation(s) of the focused expression(s) on the right is/(are) substituted for the corresponding interpretation(s) on the left. Since the left proposition is, as we have seen, necessarily stronger than the right proposition, the whole *let alone* sentence has a meaning that can be represented STRONGER PROPOSITION *a fortiori* WEAKER PROPOSITION. That is, whatever reason we have to believe, state, impere, suggest, etc., the stronger proposition, we have even stronger reason to so express the weaker proposition.

2.3.3. *Barely* as the F Element

Were one to attempt a purely semantic account of the distribution of *let alone*, one might note that the two points on the presupposed scale are such that failing to attain point ‘A’ entails not reaching point ‘B’ and MINIMALLY ATTAINING point ‘A’ also entails not reaching point ‘B’. There are, however, expressions indicating both failure to attain and minimally attaining which do not provide proper contexts for *let alone*, namely *almost* and non-subject *only*. Notice that we do not get either (116) or (117). It is perfectly clear,however, what these sentences would tell us if they were sayable.

(116) *He almost reached Denver let alone Chicago.[16]

(117) *He only reached Denver let alone Chicago.

Barely of course is a negative polarity item which accounts for the difference in grammaticality between on the one hand (116) and (117) and on the other

(118) He barely reached Denver let alone Chicago.

That is, *let alone* is syntactically a negative polarity item, and so must appear in the scope of an appropriately ‘affective’ trigger. Whatever this property of ‘affectivity’ is, it is clear that *almost* and nonsubject *only* don’t have it, as evidenced by (119,120).

(119) *He almost earned any money.

(120) *He only earned any money.

While the syntactic property of negative polarity seems surely to have a semantic basis ultimately (consider the fact that *be surprised, doubt, too + Adjective*, etc. are standard triggers), the reduction of the syntactic property of polarity to a semantic property is not a task that we can carry out here. For present purposes, it suffices to assign the difference in grammaticality between (116,117) on the one hand and (118) on the other to the fact that *barely* is syntactically a negative polarity trigger while *almost* and nonsubject *only* are not, despite the fact that the latter two items seem also to have a ‘limiting’ semantics.

Nonetheless, *let alone* sentences with *barely* as trigger present a problem for our semantic analysis of *let alone*, because only the negative part of the meaning of *barely* is interpreted as obtaining in the second <X B Y> conjunct. That is, (118) means, not (121), but (122).

(121) He *barely* reached Denver; a fortiori he *barely* reached Chicago.

(122) He *barely* reached Denver; a fortiori he did NOT reach Chicago.

There is independent evidence that *barely* may be analyzed semantically as ‘almost not’, which space does not permit reviewing here. But even granting an analysis of *barely* as ‘almost not’, an explanation would still be required why only the *not* part of this complex operator distributes semantically to the second, <X B Y>, conjunct in *let alone* sentences. We are not at present able to offer such an explanation.

2.3.4. Complex scales

The discussion in section 2.3.2 of the linguist/language example (and its formalization in the Appendix) provide the basis of the explanation of the semantics of a sentence like

(123) You’d never get a poor man to wash a car for $2 in bad times, let alone a rich man to wax a truck for $1 in prosperous times.

In this case the corresponding scalar model contains five dimensions, invoked by the lexical contrasts poor/rich, wash/wax, car/truck, $1/$2, bad times/prosperous times. In purely notional terms it is clear that these contrasts do not necessarily have a dimensional character independently of each other. For example, it seems that the wash/wax and car/truck contrasts only take on a dimensional character within a context they create mutually and with the assistance of the other dimensions and the F element *You’d never get...’* That is, the sentence as a whole, together with some generally shared background knowledge, permits the hearer to construct a scalar model of five dimensions that satisfies the essential formal property of such structures: for two propositions p,q, if p exceeds q on at least one dimension and q does not exceed p on any dimension, then p unilaterally entails q. (That is, in the set of possible states of affairs imagined, the set of states in which p is true is a proper subset of the set of states in which q is true.) In effect, the concept of scalar model we are using here, and which is defined in the Appendix is an n-dimensional generalization of the one-dimensional structures described more or less formally under the heading ‘semantic scale’ or ‘argumentative scale’ by Horn (1972), Fauconnier (1976), Ducrot (1973), Anscombre and Ducrot (1983), Gazdar (l979), and others.

With respect to the substantive interpretation of scales, there are two traditions, which may be very roughly characterized as ‘semantic’ and ‘pragmatic’, according as whether the scales are taken as part of the meanings of sentences or of utterances. The semantic approach was taken by Horn in (1972) and followed by Gazdar (l979), although Gazdar states that he finds Fauconnier’s empirical demonstration of the pragmatic nature of scales convincing (p.55). Our interpretation of scales is generally of the pragmatic variety and thus similar to that of Fauconnier and Ducrot with one additional proviso. Not only do certain lexical items have as part of their INHERENT (non-context-dependent) semantic value that utterances of sentences which contain them will (that is, must) be contextually interpreted in a scalar model, but also there will commonly be conditions that relate the syntactic form of the sentence to the scalar model used in its interpretation. For example, in a *let alone* sentence the proposition of the scalar model expressed by the <X A Y> syntactic portion must unilaterally entail the proposition expressed by the <X B Y> portion. The lexical entry *let alone* thus implies an entire grammatical construction in which syntactic, semantic, and pragmatic information are interrelated. *Let alone* is but one such item among many: other examples include *even, almost, few, merely,* and many more.

Considering examples like (123) now from the point of view of the formal scalar property, we note a prediction that is immediately verifiable. In a multiple focus *let alone* sentence if one permutes any pair of foci, the resulting sentence will normally be semantically/pragmatically anomalous. Thus while (124) is good, (125-a,b,c), each of which permutes one pair of foci, are bad.

(124) You couldn't get a poor man to wash your car for $2 let alone a rich man to wax your truck for $1.

(125-a) #You couldn't get a RICH man to wash your car for $2 let alone a POOR man to wax your truck for $1.

(125-b) #You couldn't get a poor man to WAX your car for $2 let alone a rich man to WASH your truck for $1.

(125-c) #You couldn't get a poor man to wash your car for ONE dollar let alone a rich man to wax your truck for TWO dollars..

We had to enter the qualification 'normally' above because there is always the possibility that the scalar model requirement may be satisfied by a different set of contextual assumptions. Thus, in a context in which it is more distasteful to wash a vehicle than to wax one (say the water has to be carried a long way), example (125-b) becomes readily acceptable; but of course in THIS context (124) itself becomes anomalous. That is, the basic scalar property puts constraints on pairs of sentences with respect to their interpretation in the same scalar model. If we change our background assumptions, then different scalar models fit the context. The semantic/pragmatic behavior of multiple-focus, multiple proposition *let alone* sentences, such as (123), (124) and (125-a,b,c) thus provides further evidence for both the SCALAR and the CONTEXTUAL nature of the kind of unilateral entailment their semantics requires.

Interestingly enough, not all *let alone* sentences that have the syntactic property of multiple prosodic focus have the semantic property just noted. This occurs when the sentence does not (in context) permit an interpretation in which each pair of focused elements corresponds to two points on a semantic dimension of a scalar model. An example of such a multiply focused *let alone* sentence is

(126) I didn't have time to FEED the CHILDREN let alone PREPARE my LECTURE.

Here there seems to be no natural interpretation in which feeding and preparing can be imagined to represent points on one dimension and children and lectures as points on another dimension in such a way that the propositions expressed in (127 - 130) are not only sensible but presupposed.

(127) That I feed the children entails that I prepare the children.

(128) That I feed my lecture entails that I prepare my lecture.

(129) That I feed the children entails that I feed my lecture

(130) That I prepare the children entails that I prepare my lecture.

In this case, feeding the children is just considered, as a whole, to be something one will necessarily have time for if one has time to prepare ones lecture (and not conversely).

In the case of (126) we cannot test to see if the kind of anomaly found in (125-a,b,c) goes away since talk of 'feeding lectures' or 'preparing children' (in this sense of *prepare*) is anomalous anyway. However, let us consider a sentence like

(131) I didn't get up in time to EAT my LUNCH let alone COOK my BREAKFAST.

for which there is a perfectly sensible interpretation in which cooking breakfast and eating lunch are also viewed as non-decomposed events, (like feeding the children and preparing ones lecture), but where it also is not incoherent to talk about cooking lunch and eating breakfast. In this case we see that permuting a pair of corresponding foci does not necessarily lead either to anomaly or to a change of interpretive scalar model:

(132) I didn't get up in time to COOK my LUNCH let alone EAT my BREAKFAST.

Example (132) is acceptable, unlike examples (125-a,b,c) because it is easy to imagine a dimension of a scalar model containing, perhaps as a proper subset, the ordered set <*cooking breakfast, eating breakfast, cooking lunch, eating lunch*> such that one who gets up in time to do some member of the list necessarily gets up in time to do any earlier member (and not conversely).

2.4. The Pragmatics of *let alone*

A description of the pragmatic conventions associated with the *let alone* construction must mention

1. the two speech acts which utterance of a *let alone* sentence confronts (i.e., the stronger 'A' part F' <X A Y> and the weaker 'B' part F' <X B Y> and their SEPARATE evaluations as 'informative' (satisfying the Gricean Quantity maxim) and 'relevant' (satisfying the Relevance maxim) respectively; and
2. the manner in which the utterance of a *let alone* sentence fits its conversational context.

Briefly, The essential pragmatic conditions on the felicitous utterance of a *let alone* sentence are the following:

[1] By way of the raising of what we may call the CONTEXT PROPOSITION, the immediately preceding context has created conditions under which a speech act represented by the weaker ('B') clause is an appropriate or 'relevant' response.

[2] The weaker 'B' clause of the *let alone* sentence specifically accepts or rejects the context proposition.

[3] In either case, the speaker, while committing himself emphatically to the 'B' clause, indicates that limiting himself to it would not be cooperative, since there is something even more informative to be said: the stronger 'A' clause.

Thus the *let alone* construction, with its two parts, can be seen as having the function of meeting simultaneous and conflicting demands of Relevance and Quantity. The weaker clause answers to the demands of Relevance, either reasserting or denying the context sentence, according to the dictates of Quality. In either case, the stronger clause satisfies the demands of Quantity by saying the most informative thing the speaker of the *let alone* sentence knows to be true. The effect of the whole, of course, is to emphasize the strength of the speaker's commitment to the 'B' part.

It is important to notice a potential confusion regarding the notion of 'strength.' When we say that the 'A' clause is 'stronger', we mean that it is more 'informative,' in the sense that it asymmetrically entails the 'B' clause; but the speaker's and hearer's attitude to the 'B' clause can be said to be 'stronger' in the sense that it is uttered in greater confidence, being supported by the 'A' clause. The 'A' clause (given the presupposed background) is more 'informative'; the speech act performed through the 'B' clause is more 'certain,' more 'emphatic.'

It is not surprising that the word *even* fits comfortably into the 'A' clause of a *let alone* sentence, since EVEN is used fittingly with expressions of propositions which are stronger than some contextually present or imagined proposition. Thus sentences like *He even made general* and *He didn't even make colonel* are usable in contexts in which, respectively, a lesser or greater achievement may be presumed. The word *even* appears to have the function of indicating that the sentence in which it occurs is somehow 'stronger' than another sentence with which it can be compared. (See Karttunen and Peters (1979) and the literature cited therein. The Appendix to the present paper gives a formal definition of informativeness in terms of the wider concept scalar model.)

As we have noticed, the expression *let alone* belongs to a family of phrasal conjunctions with somewhat similar functions, these including *if not, in fact, much less, not to mention, never mind,* and others. While constructions built around these conjunctions differ from each other in a number of ways, what is common to them all is the presupposition that the two propositions which they confront identify distinct points on a scale. If we see the two points F'<X A Y> and F'<X B Y> as points on a scale of certainty, the intent of the construction can be described as claiming that since some quantity has reached the point represented by F'<X A Y>, then it has, *ipso facto* and *a fortiori*, reached the point represented by F'<X B Y>. Expressed informally, we find that *let alone* sentences can be paraphrased, this time with the clauses in the order B-A, in some such fashion as 'You want to know whether I'd pay ten dollars for it? Well, I'll have you know that I wouldn't even pay five dollars for it.' (*I wouldn't pay five dollars for it, let alone ten dollars.*) 'You ask if I permit my children to drink whiskey? Well, I don't even permit my children to drink beer.' (*I don't let my children drink beer, let alone whiskey.*) 'Could he persuade them that he's a baron? Why, he could persuade them that he's a duke.' *(He could persuade people that he's a duke, let alone a baron.)* There are of course conjunctive constructions which present the conflicting elements in the more 'natural' order. That is, while *let alone,* together with *much less* and *not to mention,* presents the stronger statement first, such conjunctions as *in fact* and *if not,* present the stronger point second.

(133) He didn't make general; in fact, he didn't even make colonel.

(134) He did make colonel; in fact, he even made general.

(135) I believe he made colonel, if not general.

As with many lexical items and grammatical constructions having pragmatic presuppositions, here too the presupposed scale underlying the construction's felicitous use does not need to be part of the speaker's world, but can be attributed to the 'source' of reported speech or thought. Thus, we might be representing General Shotwell's feelings more faithfully than our own if we report, as in (136), that

(136) General Shotwell said that in the Grenada affair not enough Cubans were wiped out to make it worthwhile to open a bottle of champagne, let alone put on a proper banquet for the Joint Chiefs of Staff.

3. Conclusion

We hope to have demonstrated in the preceding pages that in the construction of a grammar, more is needed than a system of general grammatical rules and a lexicon of fixed words and phrases. Those linguistic processes that are thought of as 'irregular' cannot be accounted for by constructing lists of exceptions: the realm of 'idiomaticity' in a language includes a great deal that is productive, highly structured, and worthy of serious grammatical investigation. It has come to seem clear to us that certain views of the 'layering' of grammatical operations are wrong. We have in mind that view of the interaction of syntax and semantics by which the semantic composition of a syntactically complex phrase or sentence is always accomplished by the iteration of atomistic local operations, and that view of pragmatics by which semantically interpreted objects are invariably FIRST situated in contexts and THEN given their contextualized construals. It has seemed to us that a large part of a language user's competence is to be described as a repertory of clusters of information including, simultaneously, morpho-syntactic patterns, semantic interpretation principles to which these are dedicated, and, in many cases, specific pragmatic functions in whose service they exist. The notion of LITERAL MEANING should perhaps be anchored in what is common to the UNDERSTANDING of expressions whose 'meaning' is under consideration; and that might necessarily bring in information that goes beyond considerations of 'truth conditions.' Further, certain lexical items and constructions, such as *let alone*, may have literal meanings that determine (in part) truth conditions on the UTTERANCES of sentences in which they occur but not on the SENTENCES themselves. A language can associate semantic information with structures larger than elementary lexical items and can associate semantic interpretation principles with syntactic configurations larger and more complex than those definable by means of single phrase structure rules.

It appears to us that the machinery needed for describing the so-called 'minor' or 'peripheral' constructions of the sort which has occupied us here will have to be powerful enough to be generalized to more familiar structures, in particular those represented by individual phrase structure rules. A phrase structure rule characterizes a structure whose external category is identified with the category indicated on the left hand side of an arrow (in the traditional notation) and whose constituent categories are those indicated on the right hand side of the arrow; the semantic interpretation of such a construction is the semantic rule associated with that phrase structure rule. (In general, such constructions do not have associated pragmatic rules.) It can be hoped that the structure building principles of the so-called 'core' and the machinery for building the 'phraseological units' of the kind discussed in this paper may be of a uniform type, the former being a degenerate instance of the latter.

Appendix: Scalar Models

In this Appendix we present the ideas on which our semantic analysis of *let alone* sentences is based in a more precise way than in the preceding text. The exposition will be illustrated throughout with the example about linguists and languages given in the text. For the reader's convenience, diagrams (109) and (110) are reproduced below. It should be borne in mind that while the examples deal with two semantic dimensions (linguists and languages) each of which is finite, in the general case there may be any finite number of semantic dimensions, and a dimension need not be restricted to a finite number of values.

(137)

$$
\begin{array}{ccccc}
 & E & F & G & H \\
A & 1 \rightarrow & & & \\
 & \downarrow & & & \\
B & & & & \\
C & & & & \\
 & & & & \uparrow \\
D & & & & \leftarrow 0
\end{array}
$$

(138)

$$
\begin{array}{ccccc}
 & E & F & G & H \\
A & 0 & 0 & 0 & 0 \\
B & 0 & 0 & 0 & 0 \\
C & 0 & 0 & 0 & 0 \\
D & 0 & 0 & 0 & 0
\end{array}
\qquad
\begin{array}{ccccc}
 & E & F & G & H \\
A & 1 & 0 & 0 & 0 \\
B & 0 & 0 & 0 & 0 \\
C & 0 & 0 & 0 & 0 \\
D & 0 & 0 & 0 & 0
\end{array}
\qquad
\begin{array}{ccccc}
 & E & F & G & H \\
A & 1 & 1 & 0 & 0 \\
B & 1 & 0 & 0 & 0 \\
C & 0 & 0 & 0 & 0 \\
D & 0 & 0 & 0 & 0
\end{array}
\qquad
\begin{array}{ccccc}
 & E & F & G & H \\
A & 1 & 1 & 1 & 1 \\
B & 1 & 1 & 1 & 1 \\
C & 1 & 1 & 1 & 1 \\
D & 1 & 1 & 1 & 1
\end{array}
$$

a. b. c. d.

Every *let alone* sentence is interpreted in terms of a SCALAR MODEL. In order to develop the idea of a scalar model, some preliminary assumptions and definitions are necessary. Assume a finite set $D = \{D^1, ..., D^n\}$ $(n>1)$ whose members, D^i are denumerable sets, and assume a simple order on the elements of each set.[17] The members D^i of D will be interpreted as semantic dimensions. In our example there are two semantic dimensions: linguists and languages. The simple orders on the members of each dimension D^i will be interpreted as specifying that each dimension is an ordinal dimension. Thus, the linguists Apotheosis, Brilliant, Competent and Dimm constitute, in that order, a dimension of, let us say, erudition, and the languages English, French, Greek and Sanskrit, in that order, constitute a dimension of accessibility, or something of the sort.

We will be concerned with the set of all n-tuples made up by selecting one value from each dimension, that is with the Cartesian product of the semantic dimensions. Since in our example there are just two dimensions, this comes down to the set of ordered pairs {<Apotheosis, English>, <Apotheosis, French>, ..., <Dimm, Hittite>}. In the general case, we call the set of all n-tuples that contain as their i*th* component some member of the i*th* dimension an ARGUMENT SPACE. In the example, we see that the set {<Apothesosis, English>, <Apotheosis, French>, ..., <Dimm, Hittite>} furnishes the full array of possible arguments for the propositional function '(Some linguist) can read (some language)'; this illustrates our reason for selecting the appellation 'argument space'. Thus, a finite set D of simply ordered denumerable sets D^i determines an argument space as follows:

(A1)def $D^x = D^1$ x...x D^n

That is, argument space D^x, determined by a set D of dimensions D^i, is the set of all n-tuples that can be formed by filling the first position with a member of the first dimension, the second position with a member of the second dimension, and so on. We will sometimes have occasion to call the individual members of the argument space D^x ARGUMENT POINTS.

As noted, D^x is called an argument space because together with a propositional function (to be defined) this space will determine a set of propositions. That set of propositions will in turn constitute our scalar model. Viewing a proposition as a function from states of affairs to truth values, the characteristic property of scalar models will be expressed as a constraint on the permitted relations between states of affairs and truth values, that is, as a constraint on the membership of the set of propositions constituting the scalar model.

One further preliminary is necessary before we define scalar model. We need to generalize the intuition expressed in the text with regard to diagram (109), (here (137)), which portrays a scalar model with exactly two dimensions. In connection with that diagram, we had the concepts ‘nearer the 1-corner’ and ‘nearer the 0-corner.’ In the general case, a scalar model comprises any finite number of dimensions, and furthermore, the dimensions need have a finite number of values. Hence there may not be any ‘corners’ for anything to be nearer. The idea expressed in the text in terms of ‘closeness to the corners’ in a two dimensional argument space (with finite valued dimensions) may be expressed in the general case as follows.

(A2)def For distinct argument points d_i, d_j in an argument space D^x, d_i is LOWER than d_j iff no coordinate of d_i has a higher value than the corresponding coordinate of d_j and at least one coordinate of d_i has a lower value than the corresponding coordinate of d_j.

The intuitive idea of the kind of partial metric we want is easily conveyed with an example from elementary economics. Suppose we have two distinct bundles, each composed, say, of varying amounts of the four commodities: shoes, rice, steel, chicken soup. Suppose further that we have no common metric, such as money, for these four kinds of commodities. We can still say that one bundle is worth more than the other if the first contains as much of every commodity as the other and in addition contains more of at least one commodity than the other.

A scalar model may now be defined as the set of all propositions that can be formed by applying to each argument point of an argument space a propositional function which is subject to a condition that involves the notion of the relative distance from the origin of two argument points. We first give the abstract definition and then discuss and exemplify its parts. (Recall that we take a PROPOSITION to be a function from states of affairs to truth values. When we say that one proposition ENTAILS another we will mean that the set of states of affairs in which the first is true is a subset of the set of states of affairs in which the second is true.)

Assume a set S of states of affairs, the set T of truth values, an argument space D^x, and a function P from D^x to the set of functions from S to T. A SCALAR MODEL is defined in terms of these four objects and a constraint on the function P, which expresses the notion of scalarity.

(A3)def $\langle S,T,D^x,P \rangle$ is a SCALAR MODEL iff, for distinct d_i, d_j in D^x, $P(d_j)$ entails $P(d_i)$ just in case d_i is lower than d_j.

The following is an immediate consequence of definition (A3).

(A4) $-P(d_i)$ entails $-P(d_j)$ just in case d_i is lower than d_j.

In our example, P is the propositional function ‘...can read...,’ which yields for each argument point, e.g., <Brilliant, English> a proposition; in this case ‘Brilliant can read English.’ Each such proposition is of course itself a function from the set S of states of affairs to the set T of truth values. In our example, the proposition ‘Brilliant can read English’ is a proposition that assigns to the states of affairs labeled a and b in (138) the value false and to states of affairs c and d the value true. (Of course the four states of affairs pictured in (138) are not sufficient to distinguish all the propositions in our sample scalar model; but there are many relevant states of affairs not pictured.)

Definition (A3) and its consequence (A4) express generally our restricted and informal remarks regarding the intent of diagram (138). The idea of 1's propagating outward and downward from the origin to form a solid block and zeros forming a solid block around the 'zero corner' is expressed equivalently in (A3) and (A4), except that now, of course, we have nothing corresponding to the 'corners' because the model is no longer finite.

Illustrating the notion SCALAR MODEL just defined with our running example, consider the propositions 'Brilliant can read English' and 'Brilliant can read Greek.' Looking at the states of affairs pictured in (138), we note that the latter assigns the value true only in state of affairs d, while the former, as previously noted, assigns the value true in states of affairs c and d. Since the argument point <B, E> is lower than the argument point <B, G> (i.e., the former has the same coordinates as the latter on the linguist dimension and a lower coordinate on the language dimension), the proposition built on the latter, 'Brilliant can read Greek,' should entail the proposition built on the former, 'Brilliant can read English.' The fact that that the set of states of affairs in which the latter is true, {d}, is a subset of the set of states of affairs in which the former is true, {c,d}, illustrates (with respect to the arbitrarily selected states of affairs in 138) that the required entailment holds.

Informativeness (Strength)

The informal and partial characterization of informativeness (strength) proposed in (111) can now be given a more satisfactory, and simpler, form.

(A5)def A proposition p is more INFORMATIVE (STRONGER) than a proposition q relative to a scalar model SM iff p entails q in SM and q does not entail p in SM.

Note that the definition of informativeness is relativized to a scalar model and further that the empirical interpretation of scalar models requires the situation of a sentence in a context of discourse. That is, according to our approach, the empirical phenomena which give rise to the theoretical notion 'scalarity' cannot be modeled in terms of the truth conditional semantics of SENTENCES taken as semantic types. This conclusion agrees with that of Fauconnier (1975a,b; 1976) and Ducrot (1973). Gazdar, (1979, 55ff.), who reformulates Horn's (1972:112) narrowly semantic characterization of scalarity acknowledges the correctness of Fauconnier's observation and for this (and other) reasons is forced to consider 'semantic scales,' along with Horn, as somehow 'given to us' (ibid. 56). Further, Gazdar must content himself with offering only a necessary condition on such objects rather than a definition. This less than satisfactory formulation, which Gazdar forthrightly acknowledges as such, appears to us to have been necessitated by Gazdar's strict adherence to the Gricean program, which insists that truth conditions be fixed at the level of semantic types, in particular at the level of sentences and not utterances.[18] But as we have shown repeatedly in the text, *let alone* sentences acquire their truth conditions only in context. In the view advanced here, pragmatic force is frequently part of literal meaning.

Footnotes

1. We would like to acknowledge the good, if not always heeded, advice of Farrell Ackerman, Daniel Andler, George Bergman, Joan Bresnan, Claudia Brugman, Regina Bustamante, Linda Coleman, Amy Dahlstrom, Michelle Emanatian, Pierre Encrever, Gilles Fauconnier, Michel de Fornel, Mark Gawron, James Greeno, Jacqueline Guéron, Ron Kaplan, Ed Keenan, Paul Kube, George Lakoff, Tom Larsen, Monica Macaulay, Jim McCawley, Kiki Nikiforidou, Peter Norvig, Eric Pederson, François Recanati, Ivan Sag, Paul Schacter, Manny Schegloff, Barry Schein, Dan Sperber, Donca Steriade, Eve Sweetser, Len Talmy, James Watters, Bob Wilensky, Karl Zimmer, and three anonymous referees for *LANGUAGE*. The work reported here was supported in part by a grant from the Alfred P. Sloan Foundation to the University of California at Berkeley.

2. Our purpose here was not to give an accurate sketch of current frameworks, but to point up the absence of a place within most of them to deal with the complexities of the sort we are examining here, phenomena which we hold to be central to any grammar, not peripheral. In particular, we wish to emphasize that when constructions are interpreted as the products of maximally general rules, no place remains in the grammar for spelling out the non-predictable semantics and pragmatics that is frequently conventionally associated with particular constructions such as those we will describe.

Our rather sweeping sketch of the atomistic model is of course more appropriate as a characterization of some current frameworks than others. There are a number of individuals who do not subscribe to the atomistic model and who have contributed to work in the vein we argue for here. These include Dwight Bolinger, George Lakoff, Anna Wierzbicka, Igor Mel'chuk and others. With these people, we also maintain that pragmatics pervades grammar, i.e. is not confined to a few lexical items with associated conventional implicatures. Wierzbicka in particular has invested a great deal of time in spelling out in detail the range of implications or meanings of the patterns she describes, such as the tautological construction exemplified by the fixed phrase "Boys will be boys" (see Wierzbicka, 1987).

One particularly important focus illuminated by Wierzbicka's work in this area is the question of derivation – are the semantico-pragmatic forces associated with particular constructions to be thought of as arbitrary? Or are they interpretable on the basis of universal maxims of conversational behavior, augmented by contextual factors? We feel that a unified answer to this question does not exist, and that some constructions will, in a process similar to the semantic drift and freezing of certain lexical items, become non-transparent and apparently arbitrary. In any case, important as this issue is, our emphasis is somewhat different. We wish to call attention particularly to the range of ways which constructions may have obligatory pragmatic and semantic attachments.

3. The distinction between decoding and encoding idioms is an important one, since a frequent objection to our claims about the extent of idiomaticity in the productive apparatus of the language is the suggestion that speakers should be able to interpret the intent of the expressions we discuss by making use of analogies from their linguistic knowledge or by depending on cognitive abilities not properly a part of 'the language faculty.' It needs to be emphasized that linguistic competence is composed of two parts, not only the part that enables us to figure out what other people have said to us, but also the part that enables us to talk to them.

4. What we have here is actually a gradient or cline rather than a simple two-way distinction. At one extreme we find idioms in which every element is fixed, such as *It takes one to know one*. Close to that extreme are idiomatic expressions in which everything is specified except what Pawley and Syder (1983) refer to as INFLECTION: In *trip the light fantastic*, the actual form of *trip* can vary (*trips*, *tripping*, etc.); in *blow one's nose*, the 'nose possessor' can

vary (*I blow my nose, you blow your nose*); and so on. The best examples of formal idioms are special syntactic patterns whose use is not predictable from the 'regular' grammatical rules, as in expressions fitting the pattern *Him, be a doctor?* But even here we find lexically limited means of 'expansion' (Pawley and Syder, 1983), allowing, say, *What? Him, be a doctor?*

5. Historically, the definite article in this construction has an instrumental demonstrative (OE Θy) as its source. The same definite article+comparative adjective sequence is found in a few other formulae (pointed out to us by L. Talmy) such as 'The better to see you with'; 'all the more reason to ...'; 'so much the better' etc.

It has been suggested to us that synchronically this use of the definite article is related to that found in superlative expressions: 'the best, brightest, etc.'. Many aspects of this construction are suggestively similar to parts of other constructions. However, when the syntax and semantics of these are examined in detail, no predictable relationships emerge, at least nothing which speakers could use to ENCODE these meanings if they were ignorant of the construction. The existence of a diachronic relationship or a partial synchronic similarity between two constructions does not release the language learner from the obligation to acquire the construction as such. The notion of 'encoding idiom' is particularly important here. Suggestive partial similarities among constructions may help the decoder who is ignorant of a particular construction guess at what a token of it is intended to convey, but our notion of a construction is precisely what a speaker has to know, independent of whatever else he knows about the language, in order to encode correctly an utterance of this form, meaning and use.

One reviewer suggested that this construction could profitably be seen as an instance of a more general 'paired parallel phrases' construction, as exemplified by the proverbs *Cold hands, warm heart; Scratch a Russian, find a Tartar; Garbage in, garbage out*; etc. The more general construction could presumably be said to encode the implicational relationship between the two parallel phrases, thus providing an account of the implicational semantics in examples like *The more the merrier*. Such family resemblances may facilitate the decoding of such conventional structure/meaning pairings. However, this more general paired parallel phrase construction still must be listed as having a conventional pairing of structure and meaning.

6. Although this is a PAIRED FOCUS CONSTRUCTION (about which more later) capital letters are not intended to indicate what is in focus. Rather they are intended to indicate which constituents or elements sound most natural to us when rendered as prosodically prominent. Sometimes the prosodically focused element is a member of the focused constituent, sometimes it is the entire focus. For a discussion of the prosodic realization of focused VPs vs. NPs vs. Ss, and prosodic concomitants of paired foci, see Selkirk (1984).

7. Of course, the posed proposition may simply be part of the unspoken, pragmatically given context. Uttering a *let alone* sentence in an 'out of the blue' fashion simply causes hearers to expand their shared base of presuppositions. If hearers don't already realize that the content of the second conjunct is somehow given by the non-linguistic context, they ACCOMODATE (Lewis, 1979) by adding it to their store of shared assumptions. An example of accommodation is readily available: in the context for sentence (17), readers who did not know that the Battle of Verdun took place in World War I will automatically have inferred that it did AFTER they understand B's *let alone* utterance.

8. We are aware that the semantics, pragmatics, and syntax of 'proper' coordinate conjunction are themselves not perfectly understood, and so specifying in complete detail the departures of *let alone* from this norm would be well beyond the scope of the present work.

It may be that some of the syntactic peculiarities of *let alone* correlate with certain aspects of its semantics and pragmatics according to regularities that we have not yet discovered. To the extent that this is the case, the account given here of the *let alone* construction could be reduced as such discoveries were made and the more general properties discovered assigned to distinct, perhaps more abstract, constructions.

9. It has been suggested to us that (31-b) might be bad for a reason unrelated to the constituency or non-constituency of a sequence of the form A *let alone* B, namely that in (31-b) *let alone* occurs outside the scope of the entitling negation. This hypothesis can be checked by considering cases in which there is no entitling surface negative, the negative polarity trigger consisting only of the pragmatic denial of the context proposition. Under these circumstances the hypothesis according to which (31-b) is bad on account of *let alone* appearing outside the scope of negation predicts that topicalized A *let alone* B sequences should be okay. But they are not. In a discourse context that permits (i), (iii) should be just as good as (ii) on this hypothesis.

(i) They've broken up Penutian let alone Macro-Penutian.
(ii) Penutian they've broken up, let alone Macro-Penutian.
(iii) *Penutian, let alone Macro-Penutian, they've broken up.

10. On the other hand, there are cases in which extraction from a true coordinate structure is unexceptionable (Cf. G. Lakoff, 1986 and the literature cited therein) while extraction from the corresponding *let alone* sentence is impossible. Compare (i) and (ii):

(i) That's the kind of adventure that you don't go home and tell your mother about.

(ii) *That's the kind of adventure that you don't go home let alone tell your mother about.

(iii) That's not the kind of movie that you get scared and have nightmares about.

(iv) ?That's not the kind of movie that you get scared let alone have nightmares about.

The difference in relative acceptability within the pair (i-ii) from that within the pair (iii-iv) may have to do with semantic differences between *and* and *let alone*. Lakoff's explanation of the constraint on non-across-the-board extraction with *and* hinges on the type of interpretative scenario evoked by the entire conjunction of verb phrases. Our point here is merely that the syntax of *and* and of *let alone* differ in this environment.

11. A classical transformational analysis would describe these fragments as having undergone deletion under identity with material in the preceding clause by some process that shares characteristics of Stripping (Hankamer, 1971). A non-transformational analysis could have recourse to a process that would copy the functional structure of the context sentence onto the fragment (Levin, 1982). Our analysis does not depend on the form of the solution.

12. The *let alone* construction shares certain prosodic and semantic properties with other paired focus constructions, such as Gapping and Comparative Subdeletion (Selkirk, 1984).

13. In addition, *let alone* seemed in many ways to be syntactically exactly like *much less*, which is a standard negative polarity item, and like the German equivalent of *let alone*, namely *geschweige denn*, which is described in German dictionaries as limited to occurrence in negative sentences.

14. In fact there are people who get pure positive *let alone* sentences like

(i) A: He was pleased.
B: He was delighted, let alone pleased.

There are two distinct stories we can give regarding the grammar of *let alone* for such speakers. First Story: *let alone* is a negative polarity item for such speakers, but B's disagreement with the level of informativeness of A's contribution carries for him sufficient 'negative affect' that it can serve as a negative polarity trigger. For this same speaker, if the context had gone like the following

(ii) A: He wasn't pleased.
B: He was delighted, let alone pleased.

we could say that *let alone* is also negative polarity but here it is disagreement with the content of the context proposition (i.e., denial of it) which serves as the negative polarity trigger. The Second Story is simply that *let alone* has no polarity requirement in this speaker's grammar.

The linguistic behavior of speakers with the First grammar and those with the Second grammar is indistinguishable, but it still may be worthwhile to distinguish these grammars for historical reasons. If we consider the following synchronic facts regarding variation in judgements, a plausible history can be reconstructed.

We have found speakers who accept neither (i) nor (ii) and also those who accept both (i) and (ii). Among both of these groups all speakers who nevertheless detect a difference between (i) and (ii) find (ii) the more acceptable or the more nearly acceptable. There are also speakers who accept (ii) but not (i), while we have found no speakers who accept (i) but not (ii). This pattern of judgements suggests strongly that acceptance of (i) is innovative with respect to acceptance of (ii).

A plausible historical conjecture which would be consistent with the above facts is the following. Originally *let alone* was a standard negative polarity item and it remains so for some speakers, those who reject both (i) and (ii). Then certain speakers generalized the notion of negativity or 'affectivity' to include pragmatic denial of the TRUTH CONDITIONAL CONTENT of the context proposition. Such speakers accept (ii) but not (i). Then speakers of this type made a further extention of what counts as a trigger for *let alone* to include also disagreement with the INFORMATIVENESS of the context proposition even when agreeing with its content; these are the Story One speakers, who of course accept (i) as well as (ii). In the final step speakers learning English from Story One speakers had no reason to construct Story One, since Story Two accounts for the same data with much less machinery.

Now there is a further fact to be accounted for, namely that it's hard to get people to make up or accept positive polarity *let alone* examples out of context. This fact may reflect an actual usage situation in which positive polarity *let alone* tokens are rare. This fact would be readily explained by simply positing that the Story One/Story Two (i.e.,positive polarity *let alone*) speakers are themselves rare. On this account positive polarity *let alone* is simply a recent innovation that hasn't gained a strong foothold yet.

However, there is another possibility. It could be the case that positive polarity *let alone* tokens are more frequent in natural discourse than their general acceptability in isolated example contexts would suggest. If this were the case (1) the mismatch of usage frequency facts and isolated example acceptability facts could be explained in terms of the 'marked character of negation' as follows: in a great many cases a sentence with an explicit negative automatically evokes a preceding context that contrasts with the present utterance. That is, any negative sentence pretty much declares itself as a 'reply' even when cited in isolation (Mandel, 1974; Clark, 1974; Allwood, 1972). Since, in all versions *let alone* has a context proposition requirement, it could be that, even for positive polarity *let alone* speakers, negative *let alone* sentences cited in isolation are more clearly acceptable because they are more easily contextualized as replies.

To sum up: the one thing we know for certain is that it is much easier to make up and get agreement for negative polarity *let alone* sentences. This may or may not reflect an actual usage situation in which tokens of *let alone* occur more frequently in negative polarity contexts. If the acceptability judgements are an accurate reflection of usage, then we must conclude that the positive polarity dialects are rare and probably recent. To whatever extent the acceptability of positive polarity examples in isolation is an insufficient indication of their frequency in actual usage, that tendency can be explained by the fact that, even for positive polarity speakers, the automatic contextualizing potential of explicit negatives (they are heard as 'replies' even when cited out of context) makes them sound better as *let alone* examples since *let alone* has a context proposition requirement IRRESPECTIVE of the question of polarity.

The kind of negative polarity dialect for *let alone* that counts DENIAL as a trigger but does not countenance INSUFFICIENT INFORMATIVENESS as a trigger is reminiscent of the account of negative polarity in general offered by Baker (1970) and Linebarger (1981) to deal with examples like

(iii) It will be a cold day in Hell when I get the slightest bit of attention from him.

Baker and Linebarger both pursue an analysis in which under certain conditions a NEG can be introduced by implicature. A paraphrase is constructed which contains the relevant implicatures and which will consequently contain the negative that sanctions the negative polarity item. In the paraphrase of (iii) that is given in (iv), NEVER constitutes the trigger.

(iv) (Since it will never be a cold day in Hell), I will never get the slightest bit of attention from him.

After three years of concerning ourselves with sentences containing *let alone*, we have only recently been forced to believe that there is a small but not insignificant minority of speakers of English (in our sample they are in their early twenties) for whom *let alone* is a negative polarity item and who present the stronger statement second! That is, they freely use sentences like *I wouldn't give you a dollar, let alone a nickel*; in their speech *let alone* seems to have come to mean *or even*.

In the remainder of this paper we will continue to treat *let alone* as a (normal) negative polarity item which presents the stronger item first.

15. The *let alone* construction displays certain syntactic similarities to and also marked syntactic differences from the *respectively* and *vice versa* constructions. An extended comparison would take us too far afield. But briefly, *let alone* shares with *respectively* the unusual, though of course by no means unknown, phenomenon of crossed dependency.

(i-a) Fred and Louise hated their shrimp and squid respectively.

(i-b) Fred, let alone Louise, wouldn't order shrimp, let alone squid, at Jack-In-The-Box.

The *let alone* construction shares with the *vice versa* construction the related and seemingly more general property of having dependencies which are based on linear order, regardless of constituent structure. For the *let alone* construction this property (and others) are illustrated by sentences (80-83). In examples ((i)a,b,c) below the sentence most likely understood to be implied by *vice versa* involves interchange of subject and object, subject and prepositional object, and object and prepositional object, respectively.

(i-a) The chef always helps the owner with his problems and vice versa.

(i-b) The chef always saves his best jokes for the owner and vice versa.

(i-c) The chef always substitutes shrimp for squid and vice versa.

In the following sentence, some people get all three types of readings.

(ii) The chef always complains to the owner about the headwaiter and vice versa.

The point is that whatever impenetrable mysteries the *vice versa* construction may hold, it seems to operate on linear order in a manner that is impervious to constituency, as also can be true for the *let alone* construction as exemplified in (80-83). (For these and other facts about the *respectively* construction, see McCawley (1976) for *vice versa* see Fraser (1970).

16. Sentence (116) could be well formed under a set of circumstances (discussed in Section 2.2.4) which allow *let alone* in non-negative polarity contexts. For example, if a context proposition contained the information that Joe was driving to LA from New York, and amazingly reached Chicago in two days, the interlocutor might counter with (115), pointing out that Joe's progress was even more amazing than first suggested. In this section we are discussing only negative polarity readings of 'barely' and 'almost'.

17. Intuitively a scalar model must contain at least two dimensions. We have no conceptual way to distinguish, say, two different degrees of height unless there are two (possible) people which could bear these distinct degrees. See Cresswell (1976). If we were to allow one-dimensional scalar models, we would furthermore have no explanation of why example (106-a) is bad while example (106-b) is good. In this case unilateral entailment would ensure for example (106-a) a structure that conforms to everything we have to say about scalar models in this appendix *except* the stipulation that the model have at least two dimensions. On the formal side, the explanation of why (106-b) is good while (106-a) is bad is that in the (106-b) context we can imagine a two-dimensional structure in which individual lottery participants form one dimension which is scaled by another dimension consisting of the size of prize they receive (and conversely). In the (106-a) context no such second dimension is apparent. We are indebted to Jim Greeno and Paul Kube for discussion on this point.

18. In fact, Gazdar finds it necessary to postulate a level of 'semantic representation' intermediate between surface structure and truth conditions at which the scalar property holds, because, as he points out, sentences like (i) and (ii) (Gazdar's [18,19 p. 126]) have the same truth conditions but distinct quantity implicatures.

(i) John did it or Mary did it.
(ii) John did it or Mary did it or both of them did it.

Gazdar does not present motivation independent of the facts regarding quantity implicatures just noted for this level of representation.

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Wierzbicka, Anna. 1987. Boys will be boys: ‘Radical semantics’ vs. ‘radical pragmatics’. Language, 63.1:95-114. In the atomistic view, which would not provide for a separate negative question construction, there is no way to treat the distinct semantic and pragmatic properties that emerge when negative and interrogative syntax are combined in an English sentence. (Moreover, there is evidence from the domain of negative contraction that negative questions are also syntactically distinct from other inverted negative structures. Kay 1987: 33 fn.)[19]

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Errata

In the **Footnotes** section beginning on page 33, the numbering is off in most cases by one number. The correct numbering should read as follows:

old	new
1 =	1
2 =	2
19 =	3
3 =	4
4 =	5
5 =	6
6 =	7
7 =	8
8 =	9
9 =	10
10 =	11
11 =	12
12 =	13
13 =	14
14 =	15

15 = 16
16 = 17
17 = 18

Errata

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13 = 14
14 = 15
15 = 16
16 = 17
17 = 18