EVEN

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0. Introduction

The word *even* has posed something of a puzzle since the early days of generative grammar. It is a word that presents what have appeared to be peculiar properties of grammar, meaning and use. It is perhaps not unfair to say that, on the whole, the perceived oddity of *even* has seemed to lie in a vague apprehension that its properties of grammar, meaning and use are connected in a way that has never seemed fully licit in the current state of linguistic theory. Does the behavior of speakers of English really contain a constraint that prohibits more than one token of *even* to appear in a given clause? If so, is this constraint best viewed as grammatical or merely as 'pragmatic'? If the former, what is the precise nature of the syntactic constraint (e.g., is it 'deep' or 'superficial')? If there is not really any such constraint, why do so many sentences such as (1-c), containing more than one token of *even* in a single clause, sound so odd?

(1-a) Even John swims daily in the winter.

(1-b) John swims daily even in the winter.

(1-c) ??Even John swims daily even in the winter.

What, if anything, does this constraint, if it in fact exists, have to do with what *even* means? For that matter, what kind of a meaning does *even* have? Examples (1-a) and (2) appear to be true under the same conditions but to mean something different and, moreover, to mean something different literally.

(2) John swims daily in the winter.

This paper addresses these and similar questions regarding the grammar, meaning and use of *even*. The principal focus will be on meaning and use, but questions of grammatical form will inevitably arise. The main technical innovation will be application to the semantics and pragmatics of *even* of the construct 'scalar model', developed by Fillmore, Kay and O'Connor (1987) in the analysis of the *let alone* construction, exemplified in

(3) She won't (even) open his letters, let alone answer them.

0.1. Construction Grammar

The grammatical approach assumed here will be that of Construction Grammar.[1] I use the word *approach* rather than *framework* as CG is not (yet) a formalized grammatical framework. It is neither necessary nor desirable that this introduction give a full account of the CG approach, but a brief discussion of some of its main principles is in order. In many cases a CG formulation of a given phenomenon will not differ from the formulation in more familiar approaches other than notationally. For example, whereas a phrase structure grammar might represent (part of) the phenomenon of *and* conjunction with a rule like (4), a construction grammar could represent the same idea -- that *and* forms a category of type X and bar level n by concatenating two or more phrases of category X and bar n with *and* preceding the last one -- with a schema like (5).

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[1] The version of construction grammar assumed here is represented in Fillmore 1983; Kay 1984; Lambrecht 1986a, 1986b, 1986c, forthcoming; Fillmore, Kay and O'Connor 1987; Fillmore 1987; and Fillmore and Kay 1987. Lakoff 1987 presents a version of construction grammar, which -- unlike the version adopted here -- emphasizes the semantic relatedness of partially similar constructions via such processes as metaphor and metonymy.

(4) $X^n \rightarrow X^{n}* \text{ and } X^n$

(5) $[_{X^n} X^{n}* \text{ and } X^n]$

That the difference here is merely notational could hardly be more obvious, especially since the kind of notation used in (5) has in fact been employed in some phrase structure grammars (e.g., Gazdar, Pullum & Sag 1982).

Two important respects in which CG differs from more familiar approaches arise in connection with constructions that (a) span large sections of a tree and (b) contain as part of their definition, not only syntactic and semantic information, but also lexical and/or pragmatic information. A construction that exemplifies these two properties is that illustrated by

(6) He may be a professor, but he’s an idiot.

Let us observe first that there is a difference in meaning between (6) and any of (7-a,b,c).

(7-a) It’s possible that he’s a professor, but he’s an idiot.

(7-b) He may be a professor; nevertheless he’s an idiot.

(7-c) It’s possible that he’s a professor; nevertheless he’s an idiot.

(6) means something more like (8) than like any of (7-a,b,c).

(8) Although he’s a professor he’s an idiot.

In each of (7-a,b,c) it is **affirmed** that he **may be** a professor, while in (6) it is **conceded** that he **is** a professor. That is, in this particular construction, which pairs the particular words *may* and *but* in this particular syntactic frame, the possibility meaning of the modal *may* is absent and the first clause is understood concessively. We could know everything else we know about the grammar and meaning of the words *may* and *but*, without knowing that (6) means something more like (8) than it does any of (7-a,b,c).

A construction grammar provides templates that allow us to account for very long distance dependencies, which may or may not involve particular lexical items, and which may provide special pragmatic instructions, such as concession, as part of the value associated with the form. In such a framework, the familiar, highly local syntactic rules, or syntactic-semantic rule pairs, are seen merely as local constructions with no lexical information beyond syntactic category specified and no pragmatic value attached. The familiar rules (of the S $\rightarrow$ NP VP type) are thus looked upon as degenerate constructions.

Constructions carrying direct pragmatic interpretation may or may not be lexically headed, by which I mean only that they may or may not mention particular lexical items. Examples of non-lexically headed constructions with direct pragmatic interpretation are the imperative construction, exemplified in (9), and the construction exemplified in (10).[2]

(9) Shave (yourself).

(10) Him be a doctor?!

0.2. Plan of the paper

The remainder of this paper is about the construction headed by the lexical item *even*. As I have mentioned, our principal concern will be with the meaning of this construction, but matters of form will also require our attention.

[2] See Akmajian (1984) for discussion of this construction.

Section **1** introduces the notion of scalar model, which will play a critical role in the further analysis, and gives an initial analysis of the meaning of *even* in terms of this notion. In section **2** I take up cases in which various forms of pragmatic accommodation must be postulated to reconcile certain sentences in *even* with the scalar model analysis. Section **3** concerns previous analyses of *even*, comparing and contrasting them with the scalar model analysis. Section **4** introduces consideration of some of the syntactic and prosodic concomitants of the *even* construction as a background to considering the problem of clauses that contain more than a single token of *even*.

1. Scalar Models

Even is a scalar operator with direct pragmatic interpretation. The notion ‘scalar operator’ will be explicated in terms of a set-theoretic construction called a scalar model. The intent of the expression ‘direct pragmatic interpretation’ derives from the fact that a scalar model is taken empirically to contain a set of propositions which are part of the shared background of speaker and hearer at the time of utterance. This presuppositional and utterance-specific character of *even* is well known and figures in one way or another in all existing accounts of the meaning and use of this operator. Thus in a circumstance in which (11) is true, utterance of (12) will nonetheless be infelicitous unless certain additional background conditions can be construed to hold.

(11) John did it

(12) Even John did it

Getting clear on the nature of these required background conditions will amount to providing much of the semantic and pragmatic analysis of *even*.

The notion of scalar model and the derivative concept of pragmatic informativeness are defined and motivated in Fillmore, Kay and O’Connor (1987). I will briefly review that discussion.

Empirically, a scalar model is taken to consist in a set of interrelated propositions commonly accepted as background by speaker and addressee. On the formal side, the nature of a scalar model SM can be sketched as follows. One assumes the set of truth values T = {0,1} and a set of states of affairs S. The set F of functions from S to T is interpreted in the standard way as a set of ‘propositions’. What is special to a scalar model is the imposition of a particular structure on the set F -- and of course the empirical interpretation of this structured set of propositions as being ‘in the context’. To form F in the desired way, we posit a finite set $D = \{D_1, ..., D_n\}$ $(n>1)$, each member D_i of which is a set (not necessarily finite) on which a simple order exists. The members D_i of D may be thought of as semantic dimensions. A two dimensional example might include a set of jumpers ordered with respect to jumping ability and a set of obstacles ordered with respect to difficulty. In a given state of affairs, we may not know which, if any, jumpers can jump which, if any, obstacles, but we do know that if any jumper can jump any obstacle then the best jumper can jump the easiest obstacle. Similarly if there is any jumper who can’t jump some obstacle, then the worst jumper can’t jump the hardest obstacle.[3]

We are interested next in the Cartesian product of the members of D, that is the set of n-tuples the i*th* member of which is a member of the i*th* semantic dimension. Let us call this Cartesian product an ‘argument space’, for reasons that will soon become apparent, and represent it D_x. In the example, D_x represents the set of all ordered pairs of which the first member is a jumper and the second member is an obstacle.

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[3] In this paper all the examples to be considered will be two dimensional. Scalar models of dimensionality greater than two are involved in the interpretation of certain multiple focus constructions, such as the *let alone* construction. For example, a sentence such as

(i) You couldn’t get a **poor** man to **wash** your **car** for **ten** dollars, let alone a **rich** man to **wax** your **truck** for **five** dollars.

is interpreted in a four dimensional scalar model. See Fillmore, Kay and O’Connor (1987) for discussion of this and similar examples.

Without loss of generality, we may think of the ordering of each semantic dimension D_i as being assigned in such a way that the n-tuple consisting of the lowest numbered member of each semantic dimension is that point **o** in D_x such that for any state of affairs if the proposition corresponding to any point in D_x is true then the proposition corresponding to **o** is true. This unique point of the argument space is called the **origin** of D_x. In our example the origin is the point that pairs the easiest obstacle and the most able jumper.

We now define a propositional function P whose domain is D_x and whose range is F. That is, P is a function whose domain is an argument space and whose range is a set of propositions. In the example P is thus a function from <jumper, obstacle> pairs to propositions, e.g., 'jumper X can jump obstacle Y', taking the propositional function P to be '...can jump...'. To capture the scalar property, we need now to constrain P.

Returning to the general case, in order to restrict P in the desired way it is convenient first to define a binary relation on members of D_x. Given two members d_i, d_j of D_x, d_i is **lower** or equivalently **closer to the origin** than d_j iff d_i has a lower value than d_j on at least one semantic dimension and a higher value than d_j on no semantic dimension.

P is then constrained as follows:

(i) For distinct d_i, d_j in D_x, $P(d_i)$ entails $P(d_j)$ iff d_j is lower than d_i

A scalar model SM is then defined as an ordered four-tuple $<S,T,D_x,P>$ satisfying (i).

In our example involving obstacles and jumpers, the significance of constraint (i) for the resulting set of propositions F is that we know that in any state of affairs (a) that if, say, Stretch is a better jumper than Dumpy, then for every obstacle that Dumpy can jump, Stretch can also jump it and (b) that if the Fence is a tougher obstacle than the Sawhorse, any jumper who can jump the Fence can jump the Sawhorse. Similarly for the negations: (a) if Stretch can't jump some obstacle then Dumpy can't jump it and (b) no one who can't jump the Sawhorse can jump the Fence.

The system of entailment relations in a scalar model can be depicted diagrammatically as in Figure 1. In every state of affairs all the '1' (TRUE) entries form an unbroken cluster around the origin of the space. Of course in any particular state of affairs there may be no '1's, or as many '1's as there are cells in the matrix, or any number in between; but the '1's must always form an unbroken cluster around the origin. From this it follows that if we know for a given state of affairs that a particular cell has a '1', say that jumper number 27 can jump obstacle number 35, then we know that in that state of affairs for any jumper X who is better than jumper 27 and for any obstacle Y that is easier than obstacle 35, X can jump Y. Similarly for the negatives: if jumper 28 can't jump obstacle 36, then no jumper worse than 28 can jump any obstacle harder than 36. This pattern of entailment in a scalar model is indicated in the diagram by the arrows pointing leftward and downward from the cell <27,35> and rightward and upward from the cell <28,36>.

It will be recalled that we specified that the argument space contain at least two dimensions. The intuition behind this is that seemingly one-dimensional scales only exist against the background of the things they order, and so at least two correlated ordered sets are involved in each scalar model. A scale of, say, weight presupposes a set of things that may be ordered with respect to weight. I believe the intuition lying behind this stipulation on scalar models is essentially the same as that employed by Cresswell (1976: 280 ff.) in developing the notion 'degree of comparison'. (See Fillmore, Kay and O'Connor for further discussion.)

Figure 1.

		.	
hard	O	.	
	B	.	↑
	S	36	0 →
	T	35	← 1
	A	.	↓
	C	.	
	L	.	
	E	2	
easy	S	1	
			1 2 3 ...27 28 ...
			J U M P E R S
			good bad

The scalar model construction enables us to define the Gricean notion of **informativeness**, that is, what the Maxim of Quantity tells us to optimize. The definition of informativeness is relativized to a scalar model. (In what follows I will loosely say that a proposition p is "in" a scalar model SM = $<S,T,D_x,P>$ if p is a member of the range P.) Given a scalar model SM containing two distinct propositions p and q, p is **more informative** than q iff p entails q. [4]

1.1 Initial analysis of *even*

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[4] I have argued elsewhere (Kay 1986) that this definition of informativeness supplies what is needed for an explication of Grice's maxim of quantity, or more precisely for the parade examples of conversational implicature that provide the major motivation for this maxim. Thus (ii) is said to conversationally implicate (some epistemic qualification of) (iii).

(i) John didn't eat any of his dinner.

(ii) John didn't eat all of his dinner.

(iii) John ate part (some) of his dinner.

The idea is that to utter the less informative sentence (ii) of the first two sentences (i, ii) is to convey the negation (iii) of the more informative sentence (i). (If the speaker had been in a position to say the more informative thing he would have done so.)

Fillmore, Kay and O'Connor have argued that in a sentence employing the conjunction *let alone* such as (iv), the proposition expressed by the first clause (v) is more informative (in the sense defined here) than that expressed by the fragment following *let alone* (vi).

(iv) John didn't eat any of his dinner let alone all of it.

(v) that John didn't eat any of his dinner

(vi) that John didn't eat all of his dinner

If the sense of 'informative' defined here is the same concept as that operating in Gricean quantity implicatures, the facts in (iv-vi) predict that an utterance of a sentence expressing (vi) should implicate the negation of (v). And that is of course just what we observed regarding examples (i-iii).

The idea of an entailment against a set of presupposed background assumptions that nonetheless has grammatical consequences goes back at least as far as Lakoff (l971), who noted that in a sentence like (vii) the contrastive stressing of *she* and *him* requires the presupposition that calling someone a virgin is a species of insult.

(vii) John called Mary a virgin and then **she** insulted **him.**

Our basic analysis of *even* is the following: *even* indicates that the sentence (or clause, see the discussion of scope in Section **4** below) in which it occurs expresses, in context, a proposition which is more informative (equivalently ‘stronger’) than some particular distinct proposition taken to be already present in the context. I will call the sentence in which *even* occurs the **text sentence** or **text proposition** (tp) and the taken for granted, less informative proposition the **context sentence** or **context proposition** (cp). The tp to cp relation is most straightforwardly illustrated in the case of a direct response to a yes-no question. We will consider such a case first and then take up more complex and interesting cases afterwards.

Let us assume a background like that shown in Figure 1, in which one of the jumpers is named John and the obstacles are ranked according to height in feet. Against this background question (13) may be depicted diagrammatically as in Figure 2.

(13) Can John jump six feet?

Figure 2.

		.	
hard	O	.	
	B	.	
	S	7	
	T	6	?
	A	5	
	C	.	
	L	.	
	E	2	
easy	S	1	
			. . . John . . .
			J U M P E R S
			good bad

We are interested in the possible responses which explicitly include a yes or no answer to the question, providing a cp, and which then go on to specify a height greater or less than six feet which John either can or can’t jump. The yes or no answer will provide the cp and the continuation will count as the tp. The prediction of our proposed analysis of *even* is that those and only those sentences in which the tp entails the cp in the scalar model depicted in Figure 2 will accept *even*. There are eight possibilities, from a purely combinatorial point of view, since we include in the answer the following three binary contrasts: John can/can’t jump six feet; John can/can’t jump some height other than six feet (let’s make it either 5’ or 7’); the height other than six feet is less/greater than six feet (i.e., 5’ vs. 7’). All eight replies are grammatical sentences without *even* (though some require unobvious background assumptions). Only the two of the eight that express a tp which is more informative than the cp accept *even*.

(14) [Yes (and)] he can (even) jump seven feet.

(15) [Yes but] he can’t (*even) jump seven feet.

(16) [No but] he can (*even) jump seven feet.

(17) [No (and)] he can’t (*even) jump seven feet.

(18) [Yes (and)] he can (*even) jump five feet.

(19) [Yes but] he can’t (*even) jump five feet.

(20) [No but] he can (*even) jump five feet.

(21) [No (and)] he can’t (even) jump five feet.

As mentioned all these sentences are acceptable without *even*, but only the first and last are acceptable with *even*. It is in just these two cases, where the tp is more informative than the cp in the way we have defined informativeness (unilateral entailment in a scalar model), that *even* is acceptable: in the case of (14) we have a positive (‘1’) tp **above** its cp; in the case of (21) we have a negative (‘0’) tp **below** its cp, as shown in Figures 3 and 4 respectively. (The sentences requiring unusual assumptions for acceptability without *even* are (16) and (19). In each of these cases we encounter a peculiar jumper, who can clear a greater height but not a lower one. [Perhaps his adrenaline doesn’t pump sufficiently unless the challenge is adequate...] It should be noted that in these cases, where the scalar model assumptions are necessarily not part of the accepted background, the version with *even* is also unacceptable.)

Figure 3.

		.		
hard	O	.		
	B	.		
	S	7	1	←(tp)
	T	6	(cp)→ 1	
	A	5		
	C	.		
	L	.		
	E	2		
easy	S	1		
		. . .	John	. . .
			J U M P E R S	
		good		bad

Figure 4.

		.	
hard	O	.	
	B	.	
	S	7	
	T	6	0 ←(cp)
	A	5	(tp)→ 0
	C	.	
	L	.	
	E	2	
easy	S	1	
			. . . John . . .
			J U M P E R S
			good bad

In these examples we have considered the same jumper and two different heights, but the same effect is achieved if we take a given height and two different jumpers or two distinct heights and two distinct jumpers. Thus if Stretch is a better jumper than Dumpy, discourses (22) and (23) are well formed, as diagrammed in Figures 5 and 6 respectively.

(22) A: Can Stretch jump six feet?

B: Sure. **Dumpy** can even jump **seven** feet.

(23) A: Can Dumpy jump seven feet?

B: No. **Stretch** can't even jump **six** feet.

Figure 5.

		.	
hard	O	.	
	B	.	
	S	7	1 ←(tp)
	T	6	(cp)→ 1
	A	5	
	C	.	
	L	.	
	E	2	
easy	S	1	
			. . . Stretch . . . Dumpy . . .
			J U M P E R S
			good bad

Summarizing this section, we have defined **informativeness** as a relation holding between two propositions relative to a scalar model SM, in which the more informative one unilaterally entails the less informative one in SM. A scalar model has been defined formally as a certain kind of set-theoretical object. A scalar model is interpreted empirically as a set of background assumptions shared by speaker and addressee at the time of utterance (if

Figure 6.

		.		
hard	O	.		
	B	.		
	S	7		0 ←(cp)
	T	6	(tp)→ 0	
	A	5		
	C	.		
	L	.		
	E	2		
easy	S	1		
			. . . Stretch	. . . Dumpy . . .
			J U M P E R S	
			good	bad

communication is to be successful). *Even* is a scalar operator in that it relates two propositions in the same scalar model. More specifically it marks the proposition expressed by the clause or fragment in which it occurs as more informative than some other proposition. *Even* is possessed of direct pragmatic interpretation in that it denotes (or evokes) a relation (superior informativeness) between the proposition expressed (tp) and one taken to be already in the context (cp).

The kind of shared background assumptions which establish in context both the scalar model and the cp required by *even* are isolated by the linguist as requirements of certain linguistic objects, notably lexical items and non-lexically headed grammatical constructions. The matter of the concrete psycho-social status of such ‘shared assumptions’ in particular situated conversations or discourses is an important question for psycholinguistic and sociolinguistic study, but is not our central concern here. It is well known that speakers achieve a variety of rhetorical effects through employing linguistic forms with presuppositional requirements in situations in which there is no reason to believe that the addressee has in mind the required background (cf. Lambrecht 1986a: 140-147, following Stalnaker 1973 and Lewis 1979). We will see in the next section that some fairly complex processes of pragmatic accommodation come into play in the interpretation of certain *even* sentences in situations in which the scalar model background is less obvious than in the cases of jumpers and obstacles considered so far.

2. Uses of *even* requiring pragmatic accommodation

The examples we will consider in this section all involve the use of *even* in conjoined sentences. Among the interesting properties of these examples is that each of these sentences satisfies its own requirement for a context proposition. That is, these sentences are self-contained with respect to the cp requirement of *even*. In each case some subset of the conjuncts of the sentence S uttered provides the basis of the cp. In some cases, one conjunct of S provides the tp, while in others S itself provides the tp. The processes of pragmatic accommodation employed in deriving cp and tp from (elements of) S may include relations of entailment, implicature, negation and modalization. The content of the scalar model in terms of which S is interpreted, although evoked by the literal content of S, may be notionally quite distant from it.

2.1. Entailment

Fauconnier (1976: 261-2) presents examples such as the following.

(24) Georges a bu un peu de vin, un peu de cognac, un peu de rhum, un peu de calva et même un peu d'armagnac.

'George drank a little wine, a little brandy, a little rum, a little calvados, and even a little armagnac.'[5]

Fauconnier points out that there is no reason to suppose that drinking a little armagnac is in any sense further along some scale than drinking, say, a little brandy. In fact, with any rearrangement of the conjuncts the sentence remains good and intuitively has the same force. Thus

(25) Georges a bu un peu de rhum, un peu de vin, un peu d'armagnac un peu de calva et même un peu de cognac.

'George drank a little rum, a little wine, a little armagnac, a little calvados, and even a little brandy.'

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[5] Sentences of this type have a reading with which we are not concerned here, in which the fact that *even* occurs in the final conjunct plays no crucial role. In this reading S does not provide its own cp but depends in the ordinary way on the cp being already present in the context, thus yielding for (24) the same analysis as

(i) George even drank a little wine, a little brandy, a little rum, a little calvados, and a little armagnac.

Sentence (i) might be justified by a previously uttered cp such as (ii) or (iii), among innumerable other possibilities.

(ii) Jim drank a little wine, a little brandy, a little rum, a little calvados, and a little armagnac.

(iii) George ordered two hors d'oeuvres, a fish course, soup, beef Wellington, salad, cheeses, and floating island.

If (ii) were the cp, *George* would have to be focused by *even* in (i) and would need to bear primary stress to be thus interpreted with *even* following the subject (Anderson 1972: 899, Brugman 1986). A scalar model would be invoked in which Jim and George are rated on, say, the dimension 'heavy drinker' with Jim assumed in advance to be the heavier. (In this case a more likely sentence would be, "**George** even drank all that stuff," but if an air of pedantry were desired (i) would provide it.) If the cp were (iii), the focus stress in (i) would not be the same and a scalar model would be evoked in which, say, George's excesses in drinking are affirmed to exceed his excess in eating. In either case, (i) requires a separate cp (such as ii or iii) and does not provide its own cp as (24) does on the reading of interest here.

(Example (24) has yet another reading which is beside the present point. That is the reading that becomes prominent if we substitute *rat poison* for *armagnac*.)

has not only the same truth conditions, but also the same pragmatic effect as (24). As Fauconnier says, "This sentence [i.e., (24)] seems to be about the quantity and diversity of what Georges drank..."(1976: 262). He goes on to postulate an interpretation of the role of *même* ‘even’ in terms of a scale of subjective conditional probability.[6] The effect of attaching *même* to the final conjunct, according to Fauconnier, "seems to be to underline the increasing improbability of each proposition, given the presentation of the preceding one" (1976: 262). Fauconnier does not further discuss the notion of a scale of conditional probability, but it seems that his original intuition of the sentence’s being about the quantity and/or diversity of things drunk by Georges provides the basis of a straightforward explanation in terms of scalar informativeness and the tp-cp relation. If we take the cp to be

(26) Georges a bu un peu de vin, un peu de cognac, un peu de rhum, (et) un peu de calva.

and we take the tp to be the entirety of our initial sentence (24), the cp entails

(27) that George drank four different kinds of beverages

and the tp entails

(28) that George drank five different kinds of beverages

These entailed propositions then fit a scalar model in which one dimension is the number of kinds of beverages drunk and the other is members of the drinking party, or occasions on which George celebrated, or whatever makes most sense in the context. Of course, just as from looking at the sentence in isolation we can’t tell exactly what the semantic dimension represented by the abscissa of the interpretive scalar model will be in a particular context, so we can’t tell exactly what the ordinate will be either. As Fauconnier suggests, it could involve either the diversity or the quantity of George’s liquid intake. The precise conceptual content of an evoked scalar model always depends on interaction between the literal interpretation of the linguistic material uttered with background knowledge brought to the interpretation task by the addressee (and, in cases of successful communication, foreseen by the speaker.) The relative strength of the contributions of literal content and interpretive background will vary both with the sentence uttered and the context of utterance.[7]

In our analysis of (24), the cp was derived from the intersection of the subset of conjuncts of S that excluded the final conjunct, the one that contained *even* in its surface representation, and the tp was derived from the full set of conjuncts of S. Given the standard analysis of the ‘sentential conjunction’ use of *and*, this is unsurprising, as such a sentence entails each of its conjuncts. ‘John saw Mary, Sue and Harry’ has (at least) one reading that entails both ‘John saw Mary’ and ‘John saw Mary and Sue’. Thus the cp (27) for our original sentence (24) is an entailment of that sentence. We have also noted that the ‘self-contained’ reading of (24), the one on which we’ve focused, depends crucially on the occurrence of

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[6] French *même* and English *even* are not in all contexts appropriate translations of each other, but they seem clearly to be so in many contexts including the present and are so treated implicitly by Fauconnier (1976: 257 ff).

[7] A rather extreme attested case in which the literal content of the ‘utterance’ plays a minimal role in the creation of the appropriate scalar model is the following. On the low gates of the little parks that dot the city of Paris there is a sign showing a dog in a circle with crossed bars through it, indicating according to the well known convention, that dogs are not permitted. In addition there are displayed the words *même tenus en laisse* ‘even leashed’. The understanding is of course that dogs are not permitted, even on a leash. The example is notable for the minimal contribution of literal interpretation of the presented linguistic material to those aspects of the full interpretation that are required by the grammar of *even*. (The example is also noteworthy for an independent reason, which will be taken up in Section **2.6**).

even in the final conjunct.

The question arises whether, on the one hand, this last observation follows from the combination of the fact that (24) minus its final conjunct entails the cp (27) with a theory of sequential processing or whether, on the other hand, the grammar must contain information in the lexical entry for *even* to ensure this interpretation. I will not try to decide this issue here. It is perhaps worth recognizing, however, that to claim that the self-contained reading of (24) follows from the logical structure of the sentence and a theory of processing commits the claimant to the further position that any language with a word otherwise like *even* would have to contain such a construction. This strikes me as dubious. If a language required the *even*-like word to occur in, say, the initial conjunct, the construction might be little more difficult to process than otherwise, but we know that there are syntactic constructions which violate ease-of-processing generalizations. For example, the *let alone* construction directly violates the highly touted ease-of-processing generalization which requires new information to follow old information in the sentence.

2.2. ‘Conventional implicature’ and the meaning of *even*

In the type of *even* sentence we have been discussing, *even* occurs in a final conjunct and provides a ‘self-contained’ reading for the sentence in the sense that S minus the final conjunct provides the cp and S itself provides the tp. The semantics of this type of sentence is similar to that of sentences employing the conjunction *plus*. Thus alongside (24), we might have, with similar effect,

(29) George drank a little wine, a little brandy, a little rum, a little calvados, plus a little armagnac.

The overall effect seems much the same as sentence (24) with *and even*: *plus* is justified (as against simple *and*) because the full conjunction including *armagnac* is interpretable as more informative (stronger) in a scalar model of the type described above than the entailed cp, the ‘sub-conjunction’ which lacks *armagnac*. The two examples in (30) are similar.

(30) Mary got a full fellowship from State U. and they’re even paying her way out to visit the Department.
Mary got a full fellowship from State U. plus they’re paying her way out to visit the Department.

In all the cases discussed so far the final conjunct is not interpreted as more extreme than the preceding one(s); rather the whole sentence is seen as more extreme than the initial conjunct(s).[8]

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[8] To be sure, *plus* is not identical in meaning to *and even*. Thus,

(i) ??We worked hard, plus the boss wasn’t there.

doesn’t successfully replace (ii) [= (34) below].

(ii) We worked hard and the boss wasn’t even there.

Similarly, while the clauses in (30) are readily reversible with *and even*, they are not with *plus*.

(iii-a) State U. is paying Mary’s way out to visit and they’re even offering her a full fellowship.

(iii-b) ?State U. is paying Mary’s way out to visit plus they’re offering her a full fellowship.

Plus appears to be more restricted in meaning than *and even*, though this is not the place to treat the question in greater detail. I am indebted to Larry Horn and George Lakoff for discussion of this point.

In the Gricean paradigm, we would say that since *and* and *plus* have (apparently) identical truth conditions the difference in the meanings of sentences employing these items must be one of conventional implicature. Having noted that *plus* differs from *and* in essentially the way that *and even* differs from *and*, it follows that the conventional implicature potential associated with *plus* is simply the semantic/pragmatic value of *even*. Thus from a Gricean point of view, *even* has no semantics, its entire contribution to interpretation being it's conventional implicature potential (Cf. Karttunen and Peters 1975). There seems nothing wrong with talking about things in this way so long as we bear in mind that 'conventional implicature' will not be restricted to random and arbitrary odds and ends of non-truth conditional meaning, but on the contrary will contain much that is systematic. When we consider the importance of scalar model interpretation in the examples we have considered so far and take into account the formal structure and direct pragmatic character of the scalarity phenomenon, we cannot but recognize that systematic areas of literal meaning are non-truth conditional. Truth conditional meaning takes in neither all meaning that may be treated explicitly nor all meaning that is literal.[9]

In the preceding discussion I have tacitly accepted the standard view of truth conditionality, according to which sentences like (31) and (32) are said to have the same truth conditions.

(31) John can do it.

(32) Even John can do it.

It should be remembered, however, that in developing the concept of scalar model, which in turn serves to explicate the difference in meaning between sentences like (31) and (32), we had recourse to the concept of truth. A scalar model includes crucially a set of propositions, which are defined in the standard way as functions from states of affairs to truth values. Thus 'truth' has served as an essential atomic concept in our analysis of the 'non-truth conditional' meaning of the operator *even*. This suggests that for the purpose of analyzing meaning in natural language we might wish to develop a concept of truth that is in some way relativized to conceptual systems, that is, to the contents of actual or potential minds. In setting up a scalar model as a set of background assumptions with a particular form, we took 'truth' as a primitive term in defining that form. Since the empirical interpretation of scalar models places them inside the minds of speakers and addressees, this use of the notion 'truth' placed it 'inside' one or more minds at some particular time. It would seem desirable that a concept of truth be developed within a cognitive semantics that could permit us to include the meaning of 'conventional implicature' operators like *even*, *plus* and *let alone* (and there are many others) under 'truth conditional meaning' so redefined. I will not attempt anything so ambitious here. Intuitions about 'truth' are, I believe, fundamental to our interpretation of sentences and texts of natural language. But if we take the operative notion of 'truth' in natural language to be something like 'faithful representation' and we bear in mind that representation is itself inherently a three place relation, involving not only the *signifiant* and *signifié* but also the sentient being in whose mind the former stands for the latter, we may find that the

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[9] I have argued a similar point elsewhere with regard to the inherently meta-linguistic literal meanings of the hedges *kinda* and *sorta* (Kay 1984). In (i), *sorta*, literally denotes a comment on the aptness of the choice of the word *classical*.

(i) Chomsky has a very sorta classical theory of syntax.

(The attested example is due to David Justice.)

most useful notion of truth in natural language semantics is one which is relativized to minds.[10]

2.3. Conversational implicature

The process of conversational implicature may be part of the construction of the scalar model required for interpreting an *even* sentence, as illustrated in the following two examples.

(33) He can't speak Spanish and he's even lived a year in Spain.

(34) We worked hard and the boss wasn't even there.[11]

The first clause of (33), 'he can't speak Spanish' can be taken to implicate

(35) that he is deserving of criticism

Example (33) itself can be taken to implicate

(36) that he is deserving of severe criticism

The latter implicature is taken as the stronger, tp, statement in a scalar model in which the former serves as the weaker, cp, statement.

Quite analogously, 'We worked hard' implicates

(37) that we deserve praise

while 'We worked hard and the boss wasn't even there' implicates

(38) that we deserve great praise

leading to an analysis exactly parallel to that of (33). Despite the parallelism of examples (33) and (34) just noted, there is a difference with regard to (our guesses about) the on-line processing of the two examples. In the case of example (34), we can imagine that as soon as the addressee hears 'We worked hard' the implicature (37) may spring actively to mind. In the other case, upon hearing 'He can't speak Spanish' it seems that in a wide variety of contexts this will not necessarily be heard as implicating a criticism of 'him'; rather, on hearing the continuation 'and he's even spent a year in Spain' we are able to (re)construct the implicature (35) in order to create the scalar model necessary to interpret the full *even* sentence. More generally, sometimes the addressee will have no idea of the cp until after he has constructed the tp. Or, perhaps more precisely, the real time process of constructing the scalar model interpretation, including both tp and cp, will sometimes not begin before the addressee has been presented with all the relevant linguistic material.

2.4. Renegotiation of the cp

The preceding discussion is intended to provide a strong caveat to our characterization of the cp as a proposition 'already in the context', precisely along the lines of the Stalnaker/Lewis/Lambrecht notion of pragmatic accommodation. Further illustration of this

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[10] This problem has been recognized and discussed from a variety of points of view by Putnam (1981), Jackendoff (1983), Fillmore (1986), and Lakoff (1987), among others.

Cognitive semantics needs, I believe, to construct a larger notion of 'truth', one which subsumes the standard achievements of truth conditional semantics and goes beyond them to include, for example, the role of 'truth' in the semantics of scalar operators. Intuitions about the truth or falsity of sentences and utterances against varying language external conditions seem to be fundamental and inescapable data with which any successful semantic theory will have to deal.

[11] This example is from Oswald Ducrot.

point is provided by an attested case of a sentence employing the conjunction *let alone*, which Fillmore, Kay and O'Connor (1987) have shown normally requires that the cp occur in the sentence itself as the second clause (or fragment). Thus, under usual discourse circumstances, one cannot say

(39) John didn't even make the finals, let alone win the tournament.

unless the proposition that John won the tournament has already been posed (e.g., by assertion or interrogation) in the speech context. (Note incidentally that the first, tp, clause of a *let alone* sentence, always welcomes, as predicted by the present analysis, the presence of *even*.) In a classic movie of the forties, *Adam's Rib*, the Kathryn Hepburn character says to the Spencer Tracy character in the midst of a marital squabble

(40) You're making a mountain out of something that isn't even an ant hill let alone a mole hill.

Of course, no one has said anything about mole hills preceding this utterance and so without a notion of pragmatic accommodation there would be no way to justify this utterance in terms of the analysis of *let alone* that requires the cp -- derived from the clause or fragment following *let alone* -- to be 'already' present in the context. So why is example (40) acceptable? Clearly because utterance of the words "You're making a mountain out of..." evokes the fixed expression *to make a mountain out of a mole hill*. In the observed context this in turn evokes the proposition (predicated of Tracy by Hepburn)

(41) that you're making a mountain out of a mole hill

The evoked proposition (41) thus serves, via pragmatic accommodation, as the cp for the *even/let alone* sentence (40).

Having noted that a context proposition can be put on the floor by utterance of part of a fixed expression from whose unspoken part the cp is derived, we now note that with regard to the cp-tp relation the general phenomenon of pragmatic accommodation can permit a speaker to renegotiate his intended cp in mid-utterance. The following attested example is due to Charles Fillmore.

(42) A: Have you read So-and-so's letter?
B: Listen I haven't even had time to stack my mail, let alone open it -- let alone read it!

Note that in order to say the part of (42 B) that comes before the dash, the speaker has to take 'that I haven't had time to open my mail' as the cp. But of course, in order to say (42 B) in its entirety the speaker must assume that the cp involves the reading (not stacking) of mail and in fact that the stacking of mail is part of the tp -- the new information that he is contributing to the conversation. Admittedly, utterances such as (42 B) are not common and I would not quarrel with the claim that such an utterance has the feel of a somewhat playful bending of the rules. Nonetheless, (42) further illustrates the multifarious nature of the pragmatic accommodation phenomenon and once again underscores the caution with which we should approach the idea that a cp is 'already' in the context in a literal, temporal sense of 'already'.

2.5. Alterations in polarity, modality, and mood

A further point, that was somewhat implicit in the previous example, should now be made explicit. The construction of a cp from explicitly presented linguistic material may include, not only the processes of drawing entailments and implicatures from the literal content, but also the arbitrary alteration of polarity, modality or mood. Another way to think about the same phenomenon is to note that the polarity, modality and mood of a sentence play no role -- are neutralized -- in the process that allows that sentence to serve as the basis of a context proposition. Thus, examples (43, 44 and 45) may each serve as the explicit source of the cp required by (46).

(43) You should carry it home.

(44) Should you carry it home?

(45) Carry it home!

(46) I can't even lift it.

None of (43-46) is negative, none contains an **ability** modal and only (43) has declarative mood. What (46) requires as a cp, however, is a negative affirmation with an ability modal, expressible as

(47) that [the person in question] can not carry it home.

In deriving a cp from an actual utterance, we may ignore or freely alter polarity, modality and mood.

2.6. Sloppy universal quantification

Returning now to the second property of the example in note (7), of which the discussion was postponed, it may be observed that this example is similar to sentences like

(48) No dogs are admitted, (not) even on a leash.

(49) The whole family showed up, even Aunt Irma.

The odd thing about sentences of this type is that, for example, the whole family's showing up unilaterally entails that Aunt Irma showed up, rather than the reverse! That is, Aunt Irma's showing up is treated as a stronger or more informative statement than the whole family's showing up despite the fact that the former is unilaterally entailed by the latter. The explanation appears to involve the well known but infrequently discussed[12] phenomenon of sloppy universal quantification. In a context in which a big party is being discussed a sentence like

(50) Everyone had a good time.

is not heard as a falsehood even by a listener who knows of someone who didn't have a good time, say, because she had a toothache. Of course the strict reading can be insisted upon, since a perfectly acceptable reply to (50) is

(51) That's not true; Joan didn't have a good time.

I will assume here without supporting argument (and *pace* Labov) that at the level of literal meaning expressions like *dogs* and *everyone* are univocally represented as universally quantified and that some process of pragmatic construal subsequently derives a loose understanding of the quantifier.[13]

Accordingly, our analysis of a sentence like (49) assigns to the first clause, 'The whole family showed up', a loose reading according to which if, say, Aunt Irma lives in Singapore

[12] An exception is Labov (1985).

it would not be expected that she count as a member of the family in the present context. The first clause of (49) thus furnishes the cp, which we might represent roughly as

(52) that those members of the family showed up who, loosely, might be taken to make up the 'whole' family in the present context.

The tp then is the content of the whole sentence (49), that is the conjunction of (52) and

(53) that Aunt Irma showed up

The tp-cp analysis of (49) thus displays two processes of pragmatic accommodation: (1) loose universal quantification and (2) the more particular process, introduced in connection with example (24), in which the non-final clause(s) of a conjoined sentence serves as cp while the full conjunction serves as tp.

2.6. Summary of section 2

In this section we have considered certain conjoined sentences that contain their own context propositions for *even*. We have seen that the analysis proposed initially for *even*, that it marks a clause or sentence construed to be more informative than another sentence interpreted in the same scalar model, works for these more complex cases as well, provided that certain processes of pragmatic accommodation are taken into account.

In all cases considered in this section some subset of the full set of conjuncts serves as the basis of the cp and either the final conjunct or the full sentence provides the tp.

The cp may be either an entailment or an implicature of the set of conjuncts on which it is based. If it is an implicature, that implicature may emerge only in the context that includes the full sentence (plus background of course), including the use of *even*. For example in (33), the initial clause 'He can't speak Spanish', doesn't suggest any relevant implicature by itself; only when the sentence continues 'and he's even lived a year in Spain', do we see the implicature that inability to speak Spanish is blameworthy.

We have noted that the substantive content of the scalar model evoked by entailment or implicature may be fairly far, intuitively speaking, from the literal content of the sentence: thus the list of drinks type of sentence (24) says nothing explicitly about the amount or diversity of drink.

The cp may differ arbitrarily from the actual sentence that gives rise to it in polarity, modality and mood.

Finally, the process that permits loose construal of universal quantifiers may also take part in the pragmatic accommodation processes employed in the construal of situated utterances of these sentences.

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[13] Labov says, "I do not see any general pragmatic approach that will avoid the recognition of two distinct meanings within the semantic interpretation of the sentence[s]" (1985:179). I cannot say that I see with absolute clarity the nature of such an approach either, but nevertheless I do not find in Labov or elsewhere any compelling reason to posit a semantic ambiguity. In a general way, the loose understanding of universal quantifiers appears to be part of a more general pragmatic phenomenon, which, for want of a more scientific-sounding name, we might call hyperbole. Thus some uses of superlatives, 'That's the best cake I ever ate,' and certain fixed expressions that are inherently hyperbolic, 'It's so hot out you could fry an egg on the sidewalk,' appear at least superficially to be on all fours pragmatically with the loose reading of universal quantifiers: 'People say things like these all the time.' (I am indebted to Michele Emanatian for these observations.)

3. Previous analyses of *even*

The semantics of *even* has received considerable attention in the literature. The present treatment has been especially influenced by those of Fillmore (1965), Horn (1969), Ducrot (1973), Fauconnier (1976), and Anscombre et Ducrot (1983). Much, probably most, of the intuitive content of the scalar model, tp-cp analysis of *even* is present in one or more of the works just cited. It would not be feasible to assign each component idea of the present analysis to its expressed or implied source(s) in these works. Consequently, in this section I will *contrast* the present approach with each of the previous ones, contenting myself to acknowledge globally here the many insights I have taken over from them.

Some concept of scalarity or gradience -- the idea of one thing's being more or less of something than another thing is -- is involved explicitly or implicitly in all the pre-existing analyses. Horn, Ducrot, Anscombre and Fauconnier employ the word scale (or *échelle*) explicitly, although a mathematical characterization of what constitutes a scale comparable to our definition of scalar model is not offered. Each of the previous analyses also contains some kind of 'presuppositional' notion -- a sentence containing *even* depends somehow on some **other** sentence, expressed or implied.

Fillmore says that *even* marks a sentence that depicts an event that violates some **expectation** (1965: 67f). The sentence

(54) She even reads Sanskrit.

conveys not only (55) but also (56).

(55) She reads Sanskrit.

(56) One would expect that she does not read Sanskrit.

In terms of the current tp-cp analysis it is easy to see why an *even* sentence like (54) will frequently be understood to convey something like (56). Normally a sentence such as (54) will be presented as representing a greater accomplishment on 'her' part than that previously represented in some cp, such as that she can read Latin. Now if (54) is presented as more informative, stronger, than some other expression of her accomplishments, then by the maximum of quantity (54) is taken to be highly newsworthy at this point in the conversation. But this implicature, that her ability to read Sanskrit is currently highly newsworthy, is in effect the same thing as an implicature that one would not expect her to be able to read Sanskrit, i.e. (56).

However, the controversion of a pre-existing expectation is neither a sufficient nor a necessary condition for the felicitous utterance of an *even* sentence. We consider first the sufficiency side. Recalling example (34) from the previous section (*We worked hard and the boss wasn't even there*), we find that if we interchange the conjuncts but retain *even* in the second conjunct ungrammaticality results.

(57) *The boss wasn't there and we even worked hard.[14]

This sentence with *even* fails because the first conjunct, *the boss wasn't there* does not warrant any cp (such as that we are deserving of praise) construable as less informative than the tp, the sentence itself or something it implicates (such as that we are deserving of high praise.) Compare now the otherwise identical sentence with *still* substituted for *even*.

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[14] This sentence becomes good with the entire second clause destressed: '**The boss wasn't THERE**, and we even worked hard.' But this stress pattern merely indicates that the proposition that we worked hard is already in the context and is just being repeated in this sentence. In this destressed version, it is the earlier positing of the idea that we worked hard

(58) The boss wasn’t there and we still worked hard.

The word *still* appears to function precisely to underline the idea that working hard when the boss isn’t there violates normal expectations. The affirmation of a sentence that portrays an event that violates expectations is thus shown not to be a sufficient condition for putting *even* in that sentence. It is also not a necessary condition, as evidenced by the fact that an *even* sentence may be explicitly marked as fulfilling expectations.

(59) Everyone is remarking on Mary’s improvement. Last week she beat the number ten player and this week, as everyone expected, she even beat the number three player.

In this case the greater achievement is explicitly in accord with all the relevant expectations; *even* is warranted by the greater achievement’s exceeding the lesser achievement previously asserted, not by its exceeding an expectation.

Perhaps the most detailed existing semantic analysis of *even* is that of Horn (1969). The key concept in this analysis is that of ‘presupposition’ as that term was taken at the time.[15] Horn’s analysis of *even* is based on his analysis of *only*, so I must briefly review the latter first. Horn presents two independent analyses for subject and non-subject *only*. The contrast may be illustrated by the sentences

(60) Only John can swim the backstroke.

(61) John can swim only the backstroke.

Subject *only* is analyzed by Horn as follows: a sentence of the form [*Only* NP VP] **presupposes** the sentence [NP VP] and **asserts** that for all NP’ distinct from NP, [NP’ VP] is false. Thus (62) presupposes (63) and asserts (64) (Horn 1969: 99).

(62) Only Muriel voted for Hubert

(63) Muriel voted for Hubert.

(64) No one other than Muriel voted for Hubert.

Horn’s analysis of subject *only* is thus non-scalar, and I believe correctly so.

(and are thus deserving of praise) that serves as the cp. In other words, the destressed version doesn’t work as a self-contained *even* sentence, just as the normally stressed version (57) doesn’t.

15 Of course a lot of theoretical water has flowed under the presuppositional bridge since then. The constructional approach to grammar taken here specifically countenances direct pragmatic import of linguistic *forms*, not necessarily mediated by a truth conditional level of semantics concerned only with the *content* of sentences. In Grice’s terms it is not only ‘what is said’ that has pragmatic import but also how it is said. The kind of theoretical work done for Horn by the concept of presupposition is done in the present framework by our treatment of scalar models as enforced on the interpretation of each utterance of a sentence containing a scalar operator such as *even* by the grammar of the scalar operator. That is, the grammar, which in the first instance might be thought to deal only with the form and interpretation of linguistic types, may in effect reach beyond types to specify general pragmatic constraints on the interpretation of each token of certain grammatical types. The general idea is well known and a particularly familiar special case is Kaplan’s (1977) use of the notion of a constant ‘character’ that causes, for example, each token of the type *I* to refer to the person who utters that token. The grammar of *even* as a linguistic **type** calls for a scalar model interpretation of the particular kind we have sketched for each utterance that contains a **token** of *even*.

Moreover, the particular constructional approach to grammar that I have in mind minimizes, rather than maximizes, the distinction between lexically headed constructions and those which involve no particular lexical items. Thus, like the *even* construction, the comparative construction also calls upon a scalar model interpretation. Although there are many differences in semantic/pragmatic detail between the two constructions, both involve the comparison of two propositions in the same scalar model.

Horn's analysis of non-subject *only* is scalar.[16] In a sentence like

(65) Muriel only **campaigned** for Hubert (she didn't vote for him.)

Horn postulates in effect a presupposed scale of predicates in which campaigning for someone is less extreme than voting for them. Thus (65) presupposes that Muriel campaigned for Hubert and asserts that there is no predicate V in some relevant ordered set such that V is more extreme than campaigning and Muriel V'd Hubert. Thus, schematically, a sentence of the form [NP *only* VP] presupposes [NP VP] and asserts for all VP' more extreme than VP, the negation of [NP VP'].[17]

Given these analyses for *only*, Horn's analysis of *even* follows the formula:

(66) "*even* ... asserts what *only* presupposes and presupposes the negation of what *only* asserts" (Horn 1969: 106).

This attractive, though I think erroneous, assertion of parallelism between *only* and *even* yields a non-scalar analysis for subject *even*. Thus for Horn (p. 108, formula 54) a sentence of the form [*Even* NP VP] asserts [NP VP] and presupposes, for some NP' distinct from NP, [NP' VP]. This, however, misses the scalar interpretation and context sensitivity of sentences with subject *even*. Thus, unless some special background information shared by speaker and addressee is available to be alluded to, a sentence like (67) cannot serve as a conversation opener while a sentence like (62) can.

(67) Even Muriel voted for Hubert.

Moreover, what is taken for granted by the speaker of (67) is not merely that someone other than Muriel voted for Hubert (Horn's claim) but in addition the idea that the affirmation of Muriel's voting for Hubert is more informative than the affirmation of the other person's voting for Hubert. Thus, given usual assumptions about marriages, the fact that Muriel was Hubert's wife would render (67) a sentence for which it would be hard to find a suitable context. (One such might, however, be the knowledge that they are on the point of divorce. This would in turn suggest that a great many people voted for Hubert: 'Scads of people voted for Hubert, even Muriel, his estranged wife.')

Horn's analysis of non-subject *even* retains the scalar character (correctly) because of the (partially correct) scalar analysis he gives for non-subject *only*, but his formula does not quite succeed in producing the desired result. According to (66) the presupposition of an *even* sentence is the negation of the assertion of the corresponding *only* sentence. The assertion, for Horn, of a sentence of the form [NP *only* VP] is, as we have seen, "for all VP' more extreme than VP, [NP VP'] is false." According to (66) the negation of this last will be the presupposition of a sentence of the form [NP *even* VP]. That is, the presupposition of [NP *even* VP] by Horn's formula is "for all VP' more extreme than VP [NP VP'] is true." What

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[16] Although I will not pursue the issue here, it seems that non-subject *only* is frequently, but not always, scalar. An example of a non-scalar use of non-subject *only* is a sentence like

(i) Mary only **fries** her chicken.

where the idea communicated is merely that Mary prepares chicken in no way other than frying it; there is no suggestion that something more extreme than frying chicken is excluded.

[17] Horn employs the term 'scale of degree of strength' as a primitive in defining the relation between predicates that I have characterized here as 'more extreme than,' offering no analysis of this notion. He also leaves open the empirical interpretation of 'more extreme than' in regard to the question of contextual dependency. These are two of the issues that the scalar model approach presented above is intended to clarify.

we need, however, is not quite this, but rather, "for all VP' **less** extreme than VP [NP VP'] is true." Translating Horn's analysis into the terms of our own, the problem here is that the formula expressing the alleged parallelism between *even* and *only* has the cp of a (non-subject) *even* sentence more informative than the tp, rather than less informative as we have seen it to be.

Horn's analysis thus insists on a strict parallelism between the semantics of *even* and *only*. Since he gives subject *only* a (correctly) non-scalar analysis, he gives subject *even* an (incorrectly) non-scalar analysis. Since he gives non-subject *only* a (partially correct) scalar analysis he gives non-subject *even* a scalar analysis -- which is correct in having the property of being scalar but which, in our terms, places the cp on the wrong side of the tp. Despite these technical quibbles, it should be recognized that Horn's 1969 analysis of *even* pointed out the fundamental presuppositional and scalar properties of this operator.

The analysis of Ducrot (1973) and Anscombre et Ducrot (1983) also recognizes the scalar character of *even* (*même*) and the dependence of the *even* sentence on another sentence or proposition from the same scale, expressed or implied. Scales, however, are seen by Ducrot and his associates to belong to a special argumentative dimension of language, and this dimension or aspect of language is held to represent a separate order of linguistic phenomenon from the 'logical order', only the latter being subject to truth conditional assessment (1973: 18). A typical example for Ducrot is

(68) Pierre et même Paul sont venus.
'Pierre, and even Paul, came.'

where the context might be one in which Paul's being a busier or more prestigious person than Pierre means that Paul's showing up is a stronger argument for some conclusion -- say, that the affair was a success -- than Pierre's showing up. This view of the matter makes it clear that what counts as a scale on a given occasion of utterance will depend on the context.

Working within the framework of argumentation, Ducrot was the first to point out several of the formal properties of scalar phenomena that are carried through the literature to the present treatment. Principal among these is Ducrot's *loi d'abaissement* (1973: 27ff), which holds that the asymmetric relation between two affirmative sentences in a scalar model (for him argumentative strength, for us informativeness or unilateral scalar entailment) is reversed for their negatives. Thus let us assume that (69) is a stronger argument than (70) for some conclusion, say (71).

(69) A ticket costs twenty francs.

(70) A ticket costs ten francs.

(71) We can't afford to go to the concert.

Then the negation of the first (72) will be a **weaker** argument than the negation of the second (73) for the conclusion (74), which is the negation of the original conclusion.

(72) A ticket doesn't cost twenty francs.

(73) A ticket doesn't cost ten francs.

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[17] It would not be appropriate here to attempt to review, much less evaluate, this complex and interesting theory. The reader wishing to pursue the matter further is directed to the references cited.

(74) We can afford to go to the concert.

Fauconnier (1976: 256ff) argues that the phenomena that lead Ducrot to postulate an independent argumentative dimension or order of language in fact follow from the general pragmatic and logical properties of scales and proposes a pragmatic account of a wide variety of scalar phenomena. He argues (1976: 261) that sentences of the type (24) cannot be seen as justifying *même* **argumentatively**, since what is at issue is the total amount (or variety) of stuff drunk, and drinking calvados is not a particularly stronger argument for anything than drinking, say, brandy.[18] Fauconnier generalizes the "scale reversing" property of negation, covered by Ducrot under the *loi d'abaissement* and its two associated principles (not discussed here), to include the full range of polarity triggers. Thus, *If it doesn't cost twenty francs we can afford to go* unilaterally entails (pragmatically) *If it doesn't cost ten francs we can afford to go.*

Fauconnier (1975a, 1975b, 1976) is especially concerned with the universal quantification understanding of sentences employing end-of-scale operators, for example superlatives. Thus (75) pragmatically entails (76).[19]

(75) Toto refuses to eat the most delicious food.

(76) Toto refuses to eat any food.

Fauconnier considers *even*, I think erroneously, to be among the set of end-of-scale markers. Thus he gives the example (1976: 31)

(77) Even Alceste came to the party.

and says that this example "implique que c'était Alceste qui avait le moins de chances de venir à la partie" [implies that Alceste was the person least likely to come to the party]. Fauconnier continues, "Il est donc possible d'interpréter la fonction sémantique de *even* dans [(77)] de la façon suivante: *even* signale l'existence d'une échelle pragmatique, dont Alceste est le point le plus bas..." [It is thus possible to interpret the semantic function of *even* in [(77)] in the following way: *even* indicates the existence of a pragmatic scale of which Alceste is the lowest point...] (p. 31). Generalizing, he summarizes as follows: "lorsqu'un contexte admet une échelle pragmatique, ... le point le plus bas sur cette échelle peut être modifié par *even*..."[when a context permits a pragmatic scale, ... the lowest point on this scale may be modified by *even*...] (Fauconnier 1976: 32).

I do not wish to contest the validity and interest of Fauconnier's observations regarding the quantificational interpretation produced by end-of-scale expressions, such as superlatives, but I believe he errs in including *even* in this group. In the following two examples, it seems clear that the focus marked by *even* is not end-of-scale.

(78) Not only did Mary win her first round match, she even made it to the semi-finals.

(79) The administration was so bewildered that they even had lieutenant colonels making major policy decisions.

Acceptability of (78) does not depend on the presence of some very special kind of context in which reaching the semi-finals, as against winning the tournament, is in some

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[18] I will not review Fauconnier's arguments that argumentative effects follow from the logical properties of pragmatic scales, nor the counter-arguments of Ducrot and his associates.

[19] Fauconnier (1976: 2). By 'pragmatically entails' I mean 'entails in conjunction with a set of taken-for-granted background assumptions'.

appropriate sense end-of-scale. In (79) it is clear that having majors, captains, or sergeants making major policy decisions would provide the basis for a even more extreme assertions: *lieutenant colonel* is not an end-of-scale item here.[20] It is of course true that end-of-scale assertions will exceed any relevant cp, and it may well be true that any clearly end- of-scale assertion will automatically generate (by pragmatic accommodation) the cp needed for the clause expressing it to welcome *even*. Thus, if Alceste **is** the least likely person to come to the party, sentence (77), with *even*, will be perfectly fine. But if, say, Alceste were the **second** least likely person to come to the party, (77) would probably be fine too. The tp-cp analysis yields Fauconnier's observations about end-of-scale assertions as a special case.

Let us now reconsider examples like (24) with respect to the Ducrotian notion of argumentation. In our recasting of Fauconnier's analysis, a sentence like (24) **could** be quite naturally used to argue for a conclusion such as that Georges drank a great deal on some particular occasion or that Georges drinks too much habitually. More generally, we still need to explain the indubitable fact that the argumentative analysis fits the observed facts well in a vast majority of the cases, if not in all.[21] The explanation requires us to ask when it would be conversationally relevant to indicate that the assertion we have just made is more informative than some contextual proposition. To put it both teleologically and anthropomorphically, why would a language 'bother' to have a construction that marks the present assertion as more informative than another? The answer appears to be that the rhetorical use to which this linguistic device is most frequently put is that speakers use it to indicate that the present assertion is a still stronger argument for some general conclusion they wish to establish than some proposition already accepted into the context. On this analysis we are not required to postulate an independent argumentative dimension of language in order to explain that fact

[20] I think there is a basis to Fauconnier's intuition that a **kind** of 'end of scale' property is involved in the **use** of *even* sentences. If we say

(i) The test was so hard that even Charles failed it.

we do not necessarily, as some have thought, presuppose that Charles was the least likely person to fail the test of those who took it. But we do implicate that of the people who failed the test Charles was the least likely to do so. Similarly in an utterance of (ii), there is no presupposition that a United States Senator is the most important kind of person in the world or even in the relevant universe of discourse; but there is a generalized conversational (Quantity) implicature that a United States Senator is the most important kind of person who actually came to the party (so far as the speaker knows).

(ii) Boy, our party attracted some very important people, even a United States Senator.

There is a somewhat subtle difference between cases (i) and (ii). In the latter, but not the former, we have a ready-made background frame to remind us that the focused item is not end of scale. It has been pointed out me by Kiki Nikiforidou that it is with sentences like (i), where the contextually relevant scale corresponds to no ready-made frame, that we have the strongest feeling that, for example, *Charles* is at the end-point of some scale. With no ready-made background frame to dramatize the fact that (i) merely implicates that Charles was the least likely person to fail the test *who actually failed it*, it is apparently easy to imagine that Charles is also (in the speaker's mind) presupposed to be the least likely person to fail the test *who took it*.

To sum up, the item focused by *even* is not presupposed to be the most extreme item on the relevant scale but it is (normally) implicated to be the most extreme item *of which the asserted predication is true.* When the contextually relevant scale does not correspond to a ready-made frame (such as the structure of elimination tournaments), this distinction may be easy to overlook.

[21] The example discussed in footnote 7 regarding the sign on Parisian parks prohibiting dogs, even on leashes and its fully linguistic equivalent (48) seem absolutely resistant to an argumentative analysis. Could the city fathers be construed to be making an argument that they are not merely tyrannical enough to prohibit dogs but in fact so tyrannical as to prohibit them on leashes? A similar example: in Paris Metro cars there is a sign that says, in translation, "Passengers must be prepared to show tickets at all times, even in second class." Again, it is not plausible that the R.A.T.P. is trying to argue that its regulations are highly intrusive, constraining, etc.

that pragmatic operators such as *even* are often used in service of argumentative goals. The most frequent reason we have for marking a proposition p with *even*, thus signaling that it is more informative than a contextual proposition q, is when we view p as a stronger argument than q for some conclusion we wish to establish. If this line of reasoning is correct it explains, as a consequence of the tp-cp scalar model analysis and the independently motivated principle of conversational relevance, the very large number of examples, both made up and attested, which fit with an argumentative analysis.[22]

The contrasts between the present analysis of *even* and previous analyses that have been discussed in this section may be summarized as follows.

With regard to Fillmore's notion of expectation, we have seen that although departure from an expectation is frequently involved in the use of an *even* sentence, departure from an expectation is neither a necessary nor a sufficient condition for the use of *even*. On the other hand, the basic intuition behind Fillmore's use of 'expectation' in the case of *even* appears to be the same as that which is expressed in the present formulation as the cp with which the tp marked by *even* must contrast.

Horn's analysis emphasizes the scalarity of *even* as well as its 'presuppositional' character. It differs from the present analysis principally in exempting subject-focus *even* from the scalar analysis and in placing the cp of non-subject *even* on the wrong side of the tp.

Ducrot and Anscombre encompass in their analysis both the scalarity notion and that of a contrasting, weaker, sentence, expressed or implied. They attribute these effects, however, to an independent 'argumentative' domain of language, whose existence Fauconnier has called seriously into question. We have seen that the fact that *even* sentences often are used to indicate stronger arguments is explained by the interaction of the tp-cp analysis and the principle of relevance. (See Sperber and Wilson 1986 for a comprehensive examination of this principle.)

Fauconnier's analysis of *even* is in many respects parallel to that presented here, differing principally in the insistence that *even* functions to mark an assertion that is in some appropriate sense end-of-scale. In taking this line Fauconnier gives up what seems a correct insight of Fillmore, Horn, and Ducrot and Anscombre, namely that a (textual) sentence containing *even* always depends on a contextual sentence (expressed or implied) which is, intuitively speaking, less 'extreme,' that is, what we have called here the tp-cp relation. In the analysis presented here, the intuition of being more extreme is explicated as greater informativeness, in turn defined by unilateral entailment in a scalar model. I have argued that Fauconnier's result that end-of-scale assertions seem always to welcome *even* follows as a special case of the tp-cp scalar model analysis.

[22] I am indebted to Anna Szabolcsi for calling my attention to the question of the conversational relevance of marking one assertion as more informative than another.

4. Scope, focus, prosodic prominence and the multiple *even* problem

Although this paper is not concerned centrally with the syntax of *even*, certain aspects of the structure of sentences containing this word need to be reviewed in relation to our account of the tp-cp interpretation of these sentences. This discussion will prepare us to consider the hoary problem of sentences that contain more than one token of *even* in the same clause.

Following McCawley (1987, see also Brugman 1986) we may identify *even* as a member of the family of scopal operators. Other members of this family include *only* and *just*. Semantically, these operators always translate as expressing a relation between two propositions, one of which corresponds to a clause (or fragment) of the sentence uttered.[23] In the sentence

(80) John didn't get an A average, only a B+.

the fragment *only a B+* affirms the proposition

(81) that John got no more than a B+ average

In such a case we say that the portion of sentence (80) that is in the **scope** of *only* is the fragment *a B+*. More generally the scope of a scopal operator is that portion of the sentence which expresses one of the two propositions related by the semantic translation of the operator. The scope of a scopal operator may be a fragment as in (80) or a full clause as in

(82) John only got a B+ average.

Moreover, and distinctly, the scope of the operator may be either the entire sentence in which it appears, as in (82), or less than the entire sentence, as in (80) or

(83) Mary said that John only got a B+ average.

where *Mary said* is not in the scope of *only*.[24]

The two propositions related by the semantic translation of the operator will often, but need not necessarily, have certain semantic material in common. Thus in (82) the contrasting proposition is

(84) that John got higher than a B+ average

Roughly speaking propositions (82) and (84) share the semantic material

(85) that John got a ... average

The material in (82) corresponding to the three dots in (85) is *B+*. We say that in this example *B+* constitutes the **focus** of *only*. More generally the focus of a scalar operator is that portion of the surface sentence that expresses the part of the corresponding proposition that contrasts with the other proposition related to it by the semantic translation of the operator.[25]

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[23] It should be recalled that the relation between the two propositional terms of a scopal operator need not always involve interpretation in a scalar model. We have seen that while *even* is always scalar *only* is frequently non-scalar. For a discussion of *just* see Brugman (1986).

[24] Note that the clause or fragment in the scope of the operator may either be conjoined to or embedded within material that is not in the scope of the operator.

The term 'scope' is often employed with a systematic ambiguity between, on the one hand, the proposition that is one of the terms of the **semantic translation** of the operator, to wit the tp, and on the other hand the corresponding part of the morpho-syntactic sentence itself. As long as one is aware of this ambiguity it ordinarily causes no trouble, and I will adhere to the practice.

[25] Both Fraser (1970) and Anderson (1972) use the term *scope* essentially in the way I use the term *focus* here and do not present a distinct term for what I, following McCawley, have called the scope.

Ordinarily, as in the example we have been considering, the focus will be a proper sub-part of the scope of an operator, but the two may be coterminus. In the following example responses B1 and B2 both exemplify cases in which scope and focus are identical.

(86) A: How was the party? Did Jane do her sexy dance?

B1: No. John just played the piano.
B2: Yes. And there was even a gate-crasher who swallowed a live turtle.

In each response, the clause containing the scalar operator shares no overt semantic material with a contrasting proposition. Rather the entire clause is understood as representing or evoking a proposition in a scalar model indicating that the party was respectively less or more wild than the degree of wildness suggested by the idea that Jane did her sexy dance. This situation is analogous to that occurring in the type of comparative sentence that Bresnan (1975) has christened 'comparative sub-deletion', of which an attested example is

(87) Loosing hurts more than winning feels good.

The scalar model in which the comparison takes places has to be inferred pragmatically without utilizing **directly** the semantic translation of any of the material in either clause. In cases such as (86) we want to say that there is no distinction between the focused portion of the clause and the scope of the operator, or equivalently that everything in the scope of the operator is in focus. In this example, it is also the case that the focused portion not only exhausts the scope of the operator but is coterminus with the full sentence. This need not be the case, however, as we can see by considering the trivially different responses

(88) No. I heard that John just played the piano.

(89) Yes. And I heard that there was even a gate-crasher who swallowed a live turtle.

In (88) and (89) the scope = focus portion of the response excludes the words *I heard*.[26]

It appears that in the scope = focus cases, that is, those analogous to comparative sub-deletion, *even* must appear between the subject and the VP. Thus to a sentence like (90) responses (91-a) and (91-b) are impossible, while response (91-c) is possible.

(90) Mrs. Katz slapped Mrs. Manx.

(91-a) *Even Mr. Katz slugged Mr. Manx.

(91-b) *Mr. Katz slugged even Mr. Manx.

(91-c) Mr. Katz even slugged Mr. Manx.

The position between subject and VP appears to be in this sense a neutral one for scopal operators in general.[27] This neutrality of the position is especially salient in the case of *even*,

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[26] Fraser (1970: 151) gives the example

(i) *Harvard will* even *hold a pep rally tonight.*

with the comment: "The entire sentence is the scope." It is clear in Fraser's accompanying examples that italics indicate what I call the focus, and Fraser's point is, in the present terms, that focus and scope can be the same.

[27] I am ignoring here 'Quantifier Float' facts, which appear to apply to sentence focus and subject focus *even* much as they do to quantifiers and certain adverbs.

(i-a) The spies even may have been being followed.

(i-b) The spies all may have been being followed.

(i-c) The spies possibly may have been being followed.

because it is possible for *even* in this position to focus not only the entire VP or any constituent within the VP, but also the subject. Compare

(92) **John** even won his match.

(93) ***John** only won his match.

(94) ***John** just won his match.[28]

4.1. Focus and prosodic prominence

If a sentence containing a scopal operator has a single major prosodic prominence that prominence will occur within the focus of the operator. (In this section we will confine our attention to sentences with a single major prominence. In a sentence like (91-c), however, both *Mr. Katz* and *Mr. Manx* will receive a major prominence.) When the operator appears in the neutral position, between subject and VP, variable placement of the major prominence can distinguish some, but not all, potential ambiguities of focus. Thus in a sentence like (95), where the main prominence falls where it would fall in a (non-contrastive) sentence without a scopal operator, such as (96), the focus may be *figurines*, *gold figurines* or *collects gold figurines*, as illustrated in examples (97), (98) and (99). (Boldface indicates strongest prominence, but not necessarily a "contrastive" prominence.)

(95) John even collects gold **figurines**.

(96) John collects gold **figurines**.

(97) John collects gold jewelry, he even collects gold **figurines**.

(98) John collects lots of expensive stuff, he even collects gold **figurines**.

(99) John has many of the eccentricities of the rich, he even collects gold **figurines**.

(ii-a) The spies may even have been being followed.

(ii-b) The spies may all have been being followed.

(ii-c) The spies may possibly have been being followed.

(iii-a) The spies may have even been being followed.

(iii-b) The spies may have all been being followed.

(iii-c) The spies may have possibly been being followed.

(iv-a) *The spies may have been even being followed.

(iv-b) *The spies may have been all being followed.

(iv-c) *The spies may have been possibly being followed.

In the light of facts such as these we should probably think of the ‘neutral’ position for *even* in more abstract terms, as including perhaps all of the possibilities shown in (i-iii). Moreover, for some speakers at least, neutral (subject or sentence focus) *even* sounds better at times located within the auxiliary sequence than preceding it. For example, as a response to *Mrs. Katz slapped Mrs. Manx* some speakers slightly disprefer (v-a) to (v-b) and (v-c).

(v-a) ?Mr. Katz even may have slugged Mr. Manx.

(v-b) Mr. Katz may even have slugged Mr. Manx.

(v-c) Mr. Katz may have even slugged Mr. Manx.

[28] The ability of post-subject *even* to focus the subject, when the latter is strongly stressed, was noted by Anderson (1972: 899) and is discussed at some length by Brugman (1986) as an exception to McCawley’s (1987) hypothesis that *even* occurs as left sister to the constituent that contains (or simply constitutes) its focus. Anderson considers this construction "somewhat awkward ..."

Our discussion of the scope, focus and prosodic prominence of scalar operators may be concluded as follows. The scope of an operator of this sort is the smallest clause or fragment in which it appears, that is, the ‘semantic clause,’ the smallest portion of the sentence that expresses a proposition. This portion may be the whole sentence or less than that. The focus of a scalar operator is that portion of the scope of the operator whose semantic translation contrasts with the other term of the semantic translation of the operator. In the case of *even* specifically, the focus is that part of the tp that contrasts with the cp, the tp and cp being the two terms of the semantic translation of *even*. Frequently the focused part of the scope of an operator is less than the entire scope, but in the comparative-subdeletion-like cases, e.g., (86), (88) and (89), scope and focus are coterminus. The focused portion of the sentence always contains a major prosodic prominence, **the** major prosodic prominence if there is only one. The part of the sentence receiving major prosodic prominence may be part or all of the focus of the operator. Thus the sentence contains (sometimes properly) the scope of the operator; the scope of the operator contains (usually properly) a major prosodic prominence.

4.2. Scope of *even* and negation

Horn (1969) notices that while (101) is straightforwardly the semantic negation of (100), (103) does not bear exactly that relation to (102) under his account, in terms of semantic presupposition.

(100) Only John flies.

(101) Not only John flies.

(102) Even John flies.

(103) Not even John flies.

For Horn, (100) presupposes that John flies and asserts that no one else does, while (101) negates the assertion of (100) that no one else flies and maintains, as it should, the presupposition that John flies. However, in the *even* examples, we see that while (103) does indeed negate the assertion of (102), that John flies, the presupposition of (102), that someone other than John flies, is not maintained in (103).

From these observations, Horn concludes that (103) is not the negation of (102). Whether (102) is a non-negatable sentence and what, if anything, (103) is the negation of remain unclear under the Horn analysis in terms of the notion of semantic presupposition prevalent at that time. From our present perspective, aided considerably I should add by Horn’s more recent work isolating true propositional negation from meta-linguistic negation (1985), we may look at these facts from another angle, which seems to clarify things. We may note first that *even* does not affect the truth conditions of a sentence in which it occurs -- having the effect merely of expressing the speaker’s opinion (or someone else’s, see Section **4.4** below) that the proposition expressed is more informative than another taken to be present in the context. Having noted this, we may further observe that the content of example (103) may be expressed, albeit more pedantically, as

(104) It is even the case that **John** doesn’t fly.

This phenomenon is general. Note that (105) is similarly paraphrased by (106) and (107) by (108).

(105) All the boys even passed **math**.

(106) It is even the case that all the boys passed **math**.

(107) There were a few students who got even question **seventeen** right.

(108) It's even the case that there were a few students who got question **seventeen** right.

The generalization appears to be that regardless of the position *even* finds itself in syntactically, it takes wide scope over all logical operators in the proposition that constitutes its tp, that is, in its scope. From our viewpoint this should not be surprising, as according to the tp-cp analysis, *even* is not itself a contributor to the truth conditional meaning of the sentence in which it occurs, but rather expresses a pragmatic relation -- that of greater informativeness -- between the clause in which it occurs and some actual or assumed cp.

4.3. *Even* under interrogation

We noted with regard to examples (14) and (21) (see also Figures 3 and 4) that a positive scalar sentence may be represented by a '1' entry in the diagram of the corresponding scalar model, while a negative scalar sentence is represented by a '0' entry. Recall that a positive sentence p entails every positive sentence closer to the origin than p, while a negative sentence n entails every negative sentence more distant from the origin than n. Thus (109) entails (110) and (111) entails (112).

(109) John can (even) jump six feet.

(110) that John can jump every height less than six feet.

(111) John can't (even) jump seven feet.

(112) that John can't jump any height over seven feet.

It is worthy of note, though perhaps not surprising, that when *even* appears in a question, thus forcing that question to be given a scalar interpretation, the question is ambiguous between a reading in which the corresponding positive scalar assertion is queried and one in which the corresponding negative scalar assertion is queried. Thus the following two examples

(113) Can he even speak French?

(114) Which of them can even speak French?

are each susceptible of two interpretations. In the 'positive' interpretation, we might be talking about the accomplishments of one or more gifted school-children, where the ability to speak French is taken to exceed some contextual supposition (the cp). In the 'negative' interpretation, we might be talking about candidates for a job as a Romance linguist or U.N. translator. Here, what is taken as cp is that *he* or *they* are **not** capable of some higher level of achievement.

In the latter case, a frequent reason for asking such a question is that it carries a certain contextual implication which in turn is based on the fact that it is the negative sentence in the scalar model that is being queried. Because of the directions of scalar entailments of positive and negative sentences in a scalar model, negative sentences require higher negative cps just as positive sentences require lower positive cps. Thus to ask (in a scalar interpretation) if it is the case that he can **not** even speak French is to pose as contextually given the proposition that he is not capable of some higher degree of achievement than speaking French. The scalar model analysis thus provides an explanation both for the nature of the ambiguity of questions with *even* and for the common type of contextual implication of the reading which questions the negative assertion.[29]

In negative questions generally, true propositional negation is not present semantically. Thus, (115) is not the interrogation of (116), as can be seen by the fact that (117) is a less accurate paraphrase of (115) than is (118).

(115) Isn't John at home?

(116) John isn't at home.

(117) Is it the case that John isn't at home?

(118) John's at home, isn't he?

Rather the negative question in English must be viewed as a construction on its own with properties (in this case semantic properties) not deducible from the independently given properties of negation and interrogation.[30]

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[29] Ordinary questions have a property reminiscent of, but not identical to, this ambiguity in scalar questions. It is, for example, a familiar fact that in many types of negative assertion *any*- forms appear readily but *some*- forms either with difficulty or not at all, while in the corresponding questions *some*- and *any*- forms appear with equal ease. (The following judgements presuppose that there is **no** special context supporting the *some*- forms.)

(i) I didn't do anything helpful.

(ii) *I didn't do something helpful.

(iii) Did I do anything helpful?

(iv) Did I do something helpful?

(v) Who has any money?

(vi) Who has some money?

Nevertheless, a question like (iii) is not the query of a negative assertion, like the U.N. translator reading of (113). If it were, it would mean roughly, not the same thing as (iv), but rather

(vii) Did I do nothing helpful.

Note that if one replies 'Yes,' to (iii) it indicates that the person did do something helpful.

[30] See Fillmore, Kay and O'Connor (1987: 3).

Incidentally it seems quite likely that negative questions also have syntactic properties of an emergent, 'constructional' sort. Thus it might be thought, for example, that the privileges of occurrence of the contracted and non-contracted negatives in examples (i-iii) derive from a general rule that optionally cliticizes the negative morpheme onto the auxiliary 'before' inversion.

(i) Didn't she help him?

(ii) Did she not help him?

(iii) *Did not she help him?

But closer examination shows that these particular distributional facts do not carry over to inversion constructions in general. Thus, in the constructions illustrated in (iv) and (v) the pattern shown in (i) is bad, while in the construction shown in (vi) the pattern of (ii) is bad.

(iv-a) *Seldom didn't she help him when he needed her.

(iv-b) Seldom did she not help him when he needed her.

(v-a) *Hadn't we arrived in time, disaster would have occurred.

(v-b) Had we not arrived in time, disaster would have occurred.

(vi-a) Gosh, didn't he do a great job!

(vi-b) *Gosh, did he not do a great job!

Finally, in the construction illustrated in (vii), the pattern prohibited in true negative questions (iii) is permitted.

(vii) What's delaying the decision? Have not all the necessary forms been turned in?

Note that the second sentence in (vii) does not mean the same thing as *Haven't all the necessary forms been turned in?*

Rather than containing a propositional negation, the negative question construction adds to the normal question construction an additional pragmatic force more or less glossable as ‘affirmative answer expected’. Thus, as we have noted, (115) is more closely paraphrased by (118) than by (117).

This fact stands out in bolder relief in the scalar cases. So in (119), which is the negative question equivalent of (113), in the case where the positive assertion is queried (gifted school-child context) the lower cp understanding is maintained (affirmed achievement exceeds contextually supposed achievement), and similarly in the case where the negative assertion is queried (Romance linguist context) the higher cp understanding is maintained (affirmed non-achievement is exceeded by contextually supposed non-achievement).

(119) Can’t he even speak French?

In both case the only thing that differentiates the negative (scalar) question (119) from the positive (scalar) question (113) semantically is the addition of the pragmatic ‘positive answer expected’ gloss. So with the gifted child (119) anticipates the answer that he can speak French, while with the would-be Romance linguist (119) anticipates the answer that he can **not** speak French, reinforcing our hypothesis that in the latter case it is the negative assertion that is being questioned.

(120) Can’t he even speak French? (I hear he’s so gifted.)

(121) Can’t he even speak French? (How on earth can we hire this guy?)

4.4. Additional ambiguities of interpretation

Because of the kind of pragmatic operator *even* is, certain ambiguities may arise in the interpretation of an *even* sentence that stem neither from ambiguity of scope nor from ambiguity of focus. Consider

(122) The warden told the guard to let even Jones through the gate.

The focus of *even* here must be *Jones* and the scope of *even* must be the proposition

(123) that the guard let Jones through the gate

The following two contexts, in **both** of which the warden’s assumptions differ from the assumptions of the speaker of (123), bring out the kind of ambiguity of interpretation I have in mind.

(124) The warden mistakenly believes Jones to be the most dangerous prisoner.

(125) The warden mistakenly believes Jones, who is the most dangerous prisoner, not to be dangerous.

In Context (124), the warden might well have said, "Let even Jones through the gate." But it is only in the warden’s mind, not ours, that letting Jones through the gate is more extreme than some contextual supposition. In Context (125), not thinking Jones to be dangerous, the warden would not have said "Let even Jones through the gate." It is only we speaker-hearers, not the warden himself, who see the warden’s (speech) act as an extreme one, perhaps an act of extreme folly.[31]

There appears to be no uniform pattern for negative placement and contraction across the various constructions involving inversion of subject and tensed auxiliary.

[31] Fillmore, Kay and O’Connor make an analogous point with regard to (i) [their (136)]. They point out that the implicit scalar model evoked may exist only in General Shotwell’s mind and not in that of the speaker of the sentence.

It is important to realize that this ambiguity involves neither the focus nor the scope of *even* in (122). The focus must be *Jones* because *Jones* is not part of any larger constituent. As argued above, the scope of *even* cannot take in more than (123). One way to see this is to note that the same ambiguity arises in a simple, single-clause sentence like the following.

(126) Did the warden release even Jones?

In Context (124), releasing Jones is taken to be an extreme act in the warden's view but not ours. In Context (125), releasing Jones is taken to be an extreme act in our view but not the warden's. But in both interpretations the scope of *even* has obviously got to be (126) itself, and the focus can only be *Jones*.

We must therefore revise somewhat further our formulation regarding what is meant by the 'direct pragmatic interpretation' of operators like *even*. The scalar model evoked by such operators need not always be part of the shared background of speaker and hearer at the time of utterance, even as amended by various processes of pragmatic accommodation. This set of assumptions may be attributed to the mind (or world, or 'mental space' (Fauconnier 1985)) of someone whose thoughts or speech are reported in the sentence containing the operator.[32]

4.5. The multiple *even* problem

We have observed that *even* takes wide scope over all other operators as part of its pragmatic function. In particular, since the semantic arguments of *even* are the tp and cp propositions, clearly *even* could not be within the scope of some operator in the tp. This accounted for the seeming anomaly of (103), which, we noted, means the same as (104).

This semantic property of *even* suggests itself as providing a solution to a distributional property of *even* that has received some not entirely conclusive discussion in the literature. The distributional property is the (alleged) impossibility of more than one token of *even* occurring in a clause.[33] Of course, *if* it were true that only one token of *even* could occur per clause, then that fact could be straightforwardly explained by the fact that *even* must take wide scope: if there are two tokens of *even* each can't take wide scope over the other.

Unfortunately, ever since Kuroda's original claim (1965) that the grammar of English simply bars more than one *even* in a clause, the facts have been somewhat in doubt. Typical perhaps is Fraser's (1970: 163f) treatment of (127) [his (43)c.].

(i) 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.

[32] This kind of pragmatic ambiguity, if we may call it that, doubtless takes in much more than scalar operators in particular or scopal operators in general. Thus, under the constant assumptions that (a) we do not identify Hitler's good fortune with our own and (b) that we consider it a costly mistake on Hitler's part to have invaded the U.S.S.R., we can say either (i) or (ii).

(i) Unfortunately, Hitler decided to invade Russia.

(ii) Fortunately, Hitler decided to invade Russia.

[33] The situation is sometimes inaccurately characterized as a limitation of one token of *even* to a **sentence**, but there seems to be nothing questionable about sentences like the following (aside from a certain air of lawyerly pompousness).

(i) Even the prosecuting attorney has admitted that prior to the day on which the crime was committed my client had never spoken to the victim, nor even so much as heard his name.

(ii) Even Senator Kennedy has conceded, albeit grudgingly, the indisputable fact that President Reagan did not, with regard to Colonel North, even suspect, let alone order, illegal acts to be committed.

(127) Even *words* give trouble to even *linguists*.

Fraser offers (127) as one of several examples of "sentences in which at least two *even's* may occur" (p. 163). Fraser then cites McCawley's (1969) claim that "the occurrence of a single negative marker in the surface structure of a sentence is an output condition," and continues, "I would argue here that the same holds true for *even*" (Fraser 1970:164), suggesting that he considers sentences like (127) to be blocked by "an output condition" and thus presumably ungrammatical. Fraser goes on to cite a personal communication from William Watt: "This position -- that one *even* per sentence in surface structure was an output condition -- was first brought to my attention by W. Watt ... who pointed out that sentences with two *even's* appear to be perfectly acceptable semantically, albeit difficult to unravel. Thus a sentence such as (127) [Fraser's (43)c.] can be paraphrased as (128) [Fraser's (44)]" (p. 164).

(128) Many phenomena give trouble to people and, surprisingly, words give trouble: moreover, words, unexpectedly, trouble linguists.

We are left with Fraser's statement that (127) violates an output condition, is semantically acceptable, and is difficult to unravel. Fraser does not star the example. It seems that for Fraser example (127), and others like it that he gives, are neither simply and straightforwardly grammatical nor simply and straightforwardly ungrammatical.

Anderson (1972), acknowledging a personal communication from John R. Ross, concludes that clauses containing more than one token of *even* are grammatically well formed but tend to sound odd in most contexts. When rather special contexts are invented for them they become significantly more natural. I think this overall conclusion is correct, though I will argue that the details of the Ross-Anderson analysis are wrong and that the scalar model, tp-cp analysis of *even* presented here allows us to see more clearly what is at stake with multiple *even* sentences.

Although Anderson gives an analysis according to which his test example comes to sound much better when a special pragmatic context is offered for it, unlike Fraser, he stars the example [Anderson's (29)]:

(129) *Even Jones hates even Millard Fillmore.

The Ross-Anderson analysis of this example goes as follows. The sentence

(130) Even Jones hates Millard Fillmore.

Implies both (131-a) and (131-b).

(131-a) Jones is not a hater.

(131-b) Millard Fillmore is hateful.

While the sentence

(132) Jones hates even Millard Fillmore.

implies both (132-a) and (132-b).

(133-a) Jones is a hater.

(133-b) Millard Fillmore is not hateful.

It is the conflict in these suggested implications (the exact logical status of the 'implications' is not crucially at issue) which renders (129) unacceptable.

The context offered by Ross and Anderson in which (129) gets better is the following.

Suppose that for the general population, Millard Fillmore is

> generally beloved. Suppose in addition that there exists a hard-core band of anti-American radicals, who hold nothing sacred: these fanatics hate even Millard Fillmore. Now suppose further that Jones is basically a level-headed sort, whom one would not expect to be mixed up with nonsense like this, but that the group has been spreading particularly poisonous propaganda in some quarters, and seducing a number of innocents. We could then report the perniciousness of their tactics with sentence (129) [Anderson's (29)], implying that they had finally managed to get to Jones, the last man one would expect (Anderson 1972: 904).

I agree that example (129) sounds significantly better in this context, but not for the reasons that Anderson gives, which are the following. According to Anderson, the pragmatic mechanism at work is that we imagine two groups of people, the population at large and the fanatics. For the population at large Millard Fillmore is beloved, while for the fanatics he is hateful; thus the conflict between (131-b) and (133-b) is eliminated, as they are posited with reference to two distinct groups of people. Similarly, with respect to the population at large Jones remains a non-hater, but "it is only in connection with the fanatics that he could become a hater as in (133-a) [Anderson's (28)b]." But a moment's reflection reveals that the phrase "in connection with" is covering a confusion. It is not part of our interpretation of this sentence that Jones has become a big hater among the fanatics. We get the idea that Jones has been won over to the fanatic camp, but not that he is an extreme hater among the fanatics. This explanation is simply not in keeping with our interpretation of the example.[34] I conclude that the general contention of the Ross-Anderson proposal -- that a double *even* sentence can vastly improve in acceptability in a special context -- is correct but that the specific pragmatic analysis of this example is incorrect. I will return to example (129) shortly, after illustrating an analysis of multiple *even* sentences based on the scalar model, tp-cp theory of *even* with an example that strikes me as a paradigm case of an acceptable double *even* sentence.

Consider the following brief conversation.

(134) A: How did your class do on the quiz?

B: Fantastic, even my **slowest** student even got the **hardest** problem.[35]

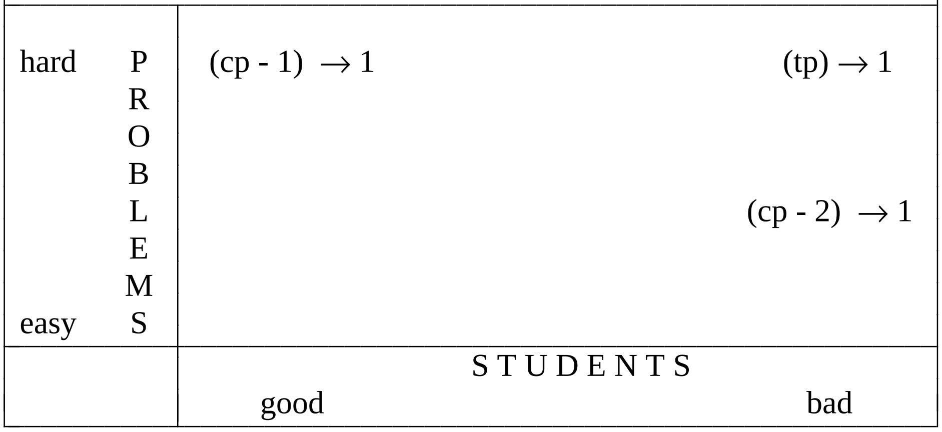
In a brief and unsystematic survey I have found a lot of variation and hesitation among speakers regarding the acceptability of all double *even* sentences, but I find that sentences like (134) are generally the most acceptable for a given informant. That is, whatever the maximum level of enthusiasm an informant will produce for any double *even* sentence will be produced for a sentence like (134). The property to which I refer when I say 'a sentence like (134)' is that in (134) the two foci occupy extreme points on their dimensions of the scalar model, maximally distant from the origin. This has an immediate and salient entailment **outside of** the scalar model in which (134) is initially interpreted, which latter has

[34] Moreover, we will see other examples that submit to the analysis I shall give for (129) that do not admit of any interpretation involving two groups to which different, conflicting statements can be relativized.

[35] The example is due to Charles Fillmore.

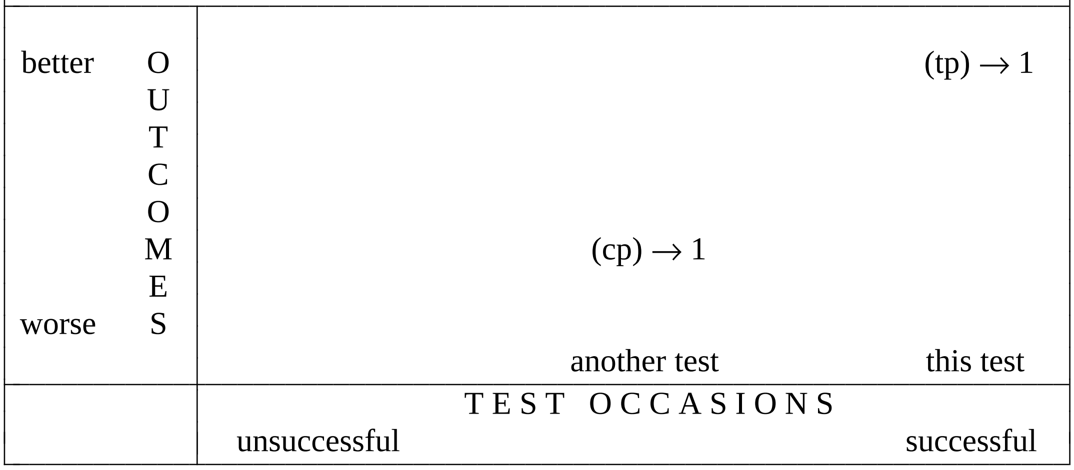
students on one axis and problems on another. The wider entailment involves on one axis **outcomes for the whole class** and on the other, say, occasions of testing. That is, a sentence like (134) conveys two distinct scalar assertions, one regarding the performance of a particular student on a particular test and another regarding the performance of the entire class on a particular occasion of testing. The former may be represented as in Figure 7.

Figure 7.



In this figure two hypothetical cp’s are shown: (cp-1) corresponds to some other student’s getting the hardest problem; (cp-2) corresponds to the best student’s getting some non-hardest problem. Figure 8 represents the unusual, secondary assertion conveyed by (134).

Figure 8.



In this case the tp is that the class as a whole did perfectly on this occasion; this tp can be construed against a presumed cp, achieved by pragmatic accommodation, that either this class did less well on other occasions, or other classes didn’t do this well when given this test, or that this class was not expected to do this well on this test, and so on. (In Figure 8 the specific cp assumed is that this class did less well on a different test.)

The secondary assertion, represented in Figure 8, arises as follows. Given the scalar model assumptions for the first level interpretation of (134), it follows from the assertion that the slowest student got the hardest problem that every student got every problem and hence that the outcome for the class as a whole was the highest it could possibly be, thus necessarily exceeding any distinct level of contextually supposed overall class performance. Hence, when the tp affirms the proposition represented by the unique point in the scalar model most distant from the origin, it entails a proposition in a scalar model in which the original scalar model is one of the cells. In the present instance we have at the first level a tp regarding a certain student and a certain problem and at the wider level a tp regarding the performance of the whole class.

I conclude that double *even* clauses generally are naturally interpretable to the extent that the focused elements can be taken in context to represent the points on their corresponding dimensions most distant from the origin of the scalar model, thus entailing (contextually) a further proposition in a distinct scalar model in which classes of states of affairs in the first scalar model constitute one of the dimensions.[36] If the slowest student got the hardest problem (and he really is the slowest student and this really is the hardest problem) then we know something at a different level, namely that the class as a whole performed perfectly -- and thus quite probably beyond the expected level. The second token of *even* is justified by this second level of scalar inference. We note that the tp-cp relation operates at both levels. Thus, to the extent that this account of multiple *even* sentences is correct, it provides further support for the semantic analysis of *even* in terms of scalar models and the tp-cp pragmatic relation.

Let us return now to the Watt-Fraser and Ross-Anderson examples. The Watt-Fraser example (127) does not sound very good to me without special context but improves dramatically if embedded in a context such as the following.

(135) A: Language is really hard to deal with at the technical level. There are certain syntactic constructions that make problems for even the most experienced copy editors.

B: Listen, it's worse than you think. Even words give trouble even to linguists.[37]

I suggest that the extent to which the reader finds B's response acceptable in (135) is the extent to which he or she is able to imagine that words are the simplest of linguistic objects and linguists are the people least likely to have technical problems with language.

Reconsidering now the Ross-Anderson example (129) in the context they propose for it, we see that it can be construed as quite similar in structure to the others. If even Jones, who we take to be the most tolerant of folks, has been moved by the fanatics to hate Millard Fillmore, the most beloved of public figures, then the whole populace has been moved by the fanatics: all citizens must hate all public figures. I suggest that it is to the extent that the reader can put this construal on example (129) that he or she will find that example

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[36] And *mutatis mutandis* with negative double *even* sentences and the argument point precisely at the origin:

(i) Even my best student didn't get even the easiest problem.

Note that this analysis provides for exactly two tokens of *even* but not more than that.

[37] Note that I have moved the second token of *even* so that it is sister to the PP containing the NP focus *linguists* because the sentence sounds better to me that way. This change is incidental to the argument.

acceptable. Note that Anderson characterizes the use of (129) in the suggested context as follows: "We could then report the perniciousness of their tactics with sentence (129) [his (29)], implying that they had finally managed to get to Jones, the last man one would expect." Observe the implicit reliance on the idea that Jones is the minimal hater. Observe also the recognition that the principal message conveyed is not about Jones and Millard Fillmore *per se* but about the population-wide effectiveness of the dastardly tactics of the fanatics: that they have brought about a change of attitude in the entire population which can be directly inferred from the report regarding the change they have brought about in the attitude of Jones, who used to hate no one, toward Millard Fillmore, whom no one used to hate. The scalar model analysis of *even* presented here appears to clarify the problem of the variable acceptability and peculiar interpretation of clauses with multiple tokens of *even*.

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