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Islands and Syntactic Prototypes

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The notion of prototype, which has become familiar to linguists and psychologists probably most forcefully through the work of Eleanor Rosch and her associates, is, I would argue, essentially an outgrowth of the fundamental notion of markedness. From the work of Berlin and Kay, we know of the prototypical nature of basic colors, like red, yellow, green, blue, etc., and from many phonologists, we know of the prototypicality of oral vowels, as opposed to nasal ones; of plain stops, as opposed to glottalized or imploded ones, and so on. There has been a great deal of important work which makes use of the distinction between unmarked and marked elements in many areas of linguistics. In this paper, I hope to contribute to this body of work by making a few proposals about prototypicality in syntax.

I would like to suggest not only that there are certain types of sentences and constructions that are prototypical, but also that there are types of rules that are prototypical. I will start by giving one example of each. A prototypical type of sentence is exemplified by the very familiar *The farmer killed the duckling* – the form in question is shown in (1):

- (1) Agent Subject + Verb of Action + Patient (Direct) Object

In general, one way of recognizing prototypical elements is by the fact that they combine more freely and productively than do elements which are far removed from the prototypes. Thus one set of facts which suggest the prototypicality of sentences of the form (1) is the behavior of productive verbal prefixes such as *re*, *mis*, *over*, *under*, *co*, etc. These prefixes only like to combine with verbs in clauses of the form of (1), as we can see by inserting the prefix, and then comparing the results for an intentional predicate like *imitate*, as opposed to those for a stative one like *resemble*; or by changing a direct for an oblique object; or by lessening the agentivity of the subject. Some of the results of leaving the prototype are shown in (2).

- (2) a. Fred [misimitated/*misresembled] the kangaroo.
 b. Sheila rewalked (*along) the boundary.
 c. [You/?The wind] might rebend the guardrail.

Although much more could be said about the centrality of sentences of the form of (1), I will take it as tentatively established that the facts of prefixation point to such an assumption, and move on to a brief discussion of what we might see as a prototypical form of a particular rule. The rule that I will select has been studied a great deal in recent years – it is the rule of Reflexivization. The prototypical output of this process, I would argue, is that shown in (3).

- (3) Subject_i + Verb + Reflexive Direct Object_i

What makes me think that such a schematic form is central in the set of reflexive sentences in any language are a number of quite well-known facts:

- (4)
- a. Reflexive elements are prototypically anteceded by elements that are in the same clause; any language that allows cross-clause reflexivization (such as Japanese, Korean, Russian, Latin, etc., under varying conditions that need no detailed discussion in this context) will also allow clause-mate reflexivization, though not the converse.
 - b. Reflexive elements are prototypically anteceded by subjects – thus while *himself* is ambiguous in the English sentence *Tom told Bill about himself*, in the German equivalent *Thomas erzählte Willi über sich, sich* can only refer back to the subject *Thomas*. There is no language which has the opposite state of affairs: non-subject triggers for Reflexivization always imply the possibility of subject triggers.
 - c. Any language that allows reflexives as the objects of prepositions also allows them as direct objects, though not necessarily the converse. French and Portuguese are two languages that I know of in which there are limitations on the distribution of reflexive elements in prepositional phrases. Thus it would appear that reflexives are prototypically found in bare NP's.
 - d. Finally, reflexive morphology is prototypically for third persons. Any language that has a way of marking first and second persons as reflexives will also be able to make third-person reflexives, but not the converse. German, for example, has only one reflexive pronoun – *sich* – which can be used only for third persons.

While a good deal more could be said both about the prototypical sentence of (i) and about various aspects of prototypical reflexive constructions, I will take it that the basic idea that there can be prototypicality not only for constructions, but also for rules is clear enough for us to go on. The latter notion in particular will form the basis for the discussion to follow.

I would like to focus on one quite simple point. To make it, I will need to introduce one technical notion – that of viability. The idea here is that it is possible for a sentence to deviate from a prototype, and yet not manifest any drop in acceptability. Losses in viability are cumulative, and only when there have been enough of them for a certain threshold value to be exceeded will the speakers of the language perceive that the sentence is less than perfect. I should point out that the drops in viability can occur either because the sentence which forms the input to the syntactic rules was less than prototypical (say, because its object was not a direct object, but rather preceded by a preposition), or because in its derivation, rules were used which were not the prototypical manifestations of the processes in question. Thus *Bobbie walked along the boundary* would be non-prototypical for the first of these reasons, and *I talked to Mr. Sanderson about himself* would deviate for the second reason.

Perhaps an example will make my point clearer. In what follows, I will write “A → B,” which is to be read as “A is more prototypical than B.” Let us take three fairly obvious prototypes about sentence types.

- (5) Affirmative → Negative

[That is, to negate a sentence is to reduce its viability. Moreover, within the broad class of negative sentences, those sentences in which not appears in the auxiliary are prototypical with respect to all others. If the concept of negation is manifested by any other words, such as *no* or *few*, the sentence will decrease in viability. Thus *I will not eat any Twinkies* → *I will eat no Twinkies*, and *I will not eat many Devil Dogs* → *I will eat few Devil Dogs*.]

- (6) Order of constituents: Subject + Auxiliary → Auxiliary + Subject
 (7) Declaratives → Questions

[Among the set of questions with a fronted *wh*-constituent, those sentences in which that constituent starts with a preposition are less viable than are those in which it is a bare NP that has been fronted.]

Now let us observe what happens when we try to combine the prototypes in (5) – (7) in various ways. In (8), we see that whatever decrease in viability is occasioned by the presence of negation is below the threshold of perceptibility: both variants are fine.

- (8) The students were(n't) looking at him.

However, when we blend in the processing load that comes with questioning and having inverted order, things begin to go awry, though not until a preposition has been fronted:

- (9) a. Who were(n't) they looking at?
 b. ? At whom were(??n't) they looking?

And when, finally, we impose one more drop in viability – that caused by using a non-prototypical negator like *few* in subject position – it is the last straw:

- (10) a. ? Who were few students looking at? →
 b. ?* At whom were few students looking?

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Assuming now that the basic outlines of what I would like to say have become clear, let me begin to sketch the few general prototypes that seem to underlie all processes, following which I will proceed to an examination of one exceedingly complicated and hoary-with-study construction – The Pseudo-Cleft.

To return to the prototype in (5), there are many processes which will only work over stretches of a tree that contain only affirmative clauses. One example is *Though Preposing*, the process that preposes constituents to the left of *though*, as in the conversion of (11a) into (11b).

- (11) a. Though [I/few people] think that Edna is(n't) brilliant, she is in a bind.
 b. Brilliant though [I/*few people] think that Edna is(*n't), she is in a bind.

One reason for thinking that affirmatives are prototypical is the fact that there are no processes that will only work over negative stretches of a tree (though there are of course negative polarity items, like *budge*, or *red cent*, which can only be used in "negative contexts" [no time to say this more carefully here]). As far as I know, all processes which are restricted to positive clauses, like is *Though Preposing*, make crucial use of variables; there are no rules that have this limitation that would, in relational grammar terms, be called "term-changing rules" – rules like *Passive*, *Raising*, *There Insertion*, *Tough Movement*, etc. If this generalization is in fact correct, then maybe we are justified in making the inference that term-changing rules are more robust than rules that make crucial use of variables, which I will call "ripping rules," for want of a better term. In the notation that I have suggested, (12) may be a correct law of universal grammar.

(12) Term-changing rules → Ripping rules

In those languages that allow tensed complements that begin with (complementizers "equivalent to") *that* to delete this element (for some reason, there appear to be very few languages which can zap *that*), it seems to be the case that some rules will only apply in *that*-less domains of syntactic structure; that *that* interferes with the operation of certain weak processes. Indeed, I have met people who require the deletion of *that* in all rippings: for them, (13) is unacceptable with *that*.

(13) What were the doctors afraid (that) I would ingest?

While *that* does not rule (13) out for me, or for most speakers whose idiolects I have studied, there are definitely processes which are improved, for me, by *that*-lessness. Two examples appear in (14) and (15).

(14) a. I think (that) Jeb realizes that Dr. Pepper contains little protein. =====>
b. Dr. Pepper contains little protein, I think (?that) Jeb realizes.

(15) The bumpier the road gets, the slower I fear (?that) we'll have to drive.

I know of no process which requires *that*-fulness, so I will tentatively conclude that *that* is not prototypical:

(16) For tensed complements: $\emptyset \rightarrow that$

There is a well-known distinction between assertive and factive complements, and while I blush to pretend that matters are anywhere near this simple, still it remains sort of true that there are processes that work out of assertive, non-presupposed complements which refuse to rip things out of factive complements. Two quasi-examples of the kind of distinction that I have in mind are provided by the part of the rule of *Question Formation* that preposes *why* (cf. the contrasts in (17), where the underlined verbs are factives and block the rule),

(17) Why do you [think/believe/say/*know/*realize/*concede] that New Orleans was the birthplace of jazz? [Out on the reading in which why modifies was and not the highest verbs.]

and by the rule that preposes adverbs of various kinds out of tensed *that*-clauses: cf. the contrasts in (18).

- (18) a. Smithers [thinks/believes/says/knows/realizes/concedes] that we'll be in Fort Swill tomorrow. =====>
- b. Tomorrow Smithers [thinks/believes/says/?knows/?realizes/??concedes] that we'll be in Fort Swill.

While these examples may be weak reeds to rest such a conclusion on, nonetheless, I believe it to be the case that assertives are prototypical; that any ripping process that can enter a factive clause can also enter an assertive one, though not the opposite. Thus I think that (19) is also a valid part of the ripping prototype.

- (19) Assertive → Factive

Some processes are strong enough to enter a prepositional phrase and remove the object NP, leaving a stranded preposition; **Topicalization** is one such example.

- (20) a. I bequeath my old Harry James records to my first professor in Carburetor Design. =====> (20b) or (20c)
- b. To my first professor in Carburetor Design I bequeath my old Harry James records.
- c. My first professor in Carburetor Design I bequeath my old Harry James records to.

The rule of **Passive** is strong enough to strand prepositions: *These have been leaned on long enough*. But the rule that makes sentences with patient subjects (e.g., *This car steers easily* – this process is sometimes called **Middle**) must either obliterate the preposition in the course of its application (as in *One can write well with this pen* =====> *This pen writes (*with) well*) or fail to apply: **This telescope gazes (through) wonderfully*. The same is true for the process that forms words in **-able**: either the preposition that is associated with the subject when it appears in object position must be absorbed (as is the case with *dependable (*on)*), or the process must be blocked: **This problem is not yet talkable (about)*. There is no process that I know of that **only** strands prepositions – NP's are the prototypical rippees – i.e., travelers in ripping processes.

- (21) NP → PP

As far as I know, specific NP's are prototypical with respect to non-specific ones. That is, while I know of some processes that will operate on specific NP's and must be blocked from applying to non-specific NP's, I know of no cases where the opposite restriction would obtain. An example of a process that is restricted to apply only to specific NP's is Brazilian pronominalization. While English allows either specific (*a woman*) or non-specific indefinites (*nobody*) to antecede pronouns like *her* (E.g., [*A woman/ Nobody*]_i *knew that we were following her*_i), Brazilian does not tolerate any antecedent like *ninguém* "nobody" for pronouns like *ela* "she" or *ele* "he": **Ninguém_i sabia que a gente tava seguindo ela_i* fails to be a grammatical translation of the English example with *nobody*. Thus I conclude that specific indefinites are prototypical.

- (22) Specific indefinite NP's → Non-specific indefinite NP's

Finally, it is abundantly clear that rules which do not cross clause-boundaries are more prototypical than rules which do. Let us say that a clause whose subject has been deleted, leaving an infinitive or gerund, is less of a full clause than is one whose subject is audible in surface structure (that is, let us say that *She claims that she has memorized this poem* is fully biclausal, while the sentence *She claims to have memorized this poem* is less than fully biclausal, say, one-and-a-half-clausal). Then we will have an explanation for the fact that while there are processes, like *Tough Movement*, which will take NP's out of such infinitival "half-clauses", but not out of full *that*-clauses (Cf. (23)),

- (23) a. It will be tough for her to claim to have memorized this poem. =====>
 b. This poem will be tough for her to claim to have memorized.
 c. It will be tough for her to claim that she has memorized this poem.
 ===>
 d. *This poem will be tough for her to claim that she has memorized.

there are no processes with the opposite restriction. That is, no rule that will rip elements out of *that*-clauses will refuse to rip them out of (subjectless) infinitives or gerunds. Thus (24) seems to be a reasonable conclusion.

- (24) 1 clause → 2 clauses

Of course, the attentive Ordinary Working Grammarian reader will want to find some more satisfactory way of saying all these things than merely to list (12), (16), (19), and (24), for it will feel to her or him that there is a big fat generalization that is just waiting to be captured there, and the Extraordinary Working Grammarian may even want to fold (21), and who knows?, (22), even, into the recipe, but I am not going to pursue these interesting explorations here, for I want to say a few things about pseudocleft sentences, and then return to talk generally about prototype syntax.

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I think that we all know that while all of the sentences in (25) are grammatical pseudocleft sentences, somehow the type in (25a), in which the focused element is an NP, is more basic than is (25b), with its pseudoclefted PP, and that both of these are "better" than is (25c).

- (25) a. What Molly discovered was a Grand Unified Theory.
 b. Where Molly lived was in London.
 c. What Molly is now is brilliant.

What is necessary, in order to construct a theory of language in which such intuitions will find an adequate reflection, is a fully worked-out network of the prototypes involved in the pseudocleft construction. Let us start by noting this one as in (26), and go on to find what other prototypes will be necessary to home in on an accurate calculus of viability deficits.

- (26) Focused constituent in pseudoclefts: NP → PP → AP

One prototype that we have already made use of is the one in (6); when the loss in viability that is associated with inverted order is added to those underlying (26), we find that differences in acceptability begin to make themselves felt.

- (27) a. Was what Molly discovered a Grand Unified Theory?
 b. ?Was where Molly lived in London?
 c. ?*Is what Molly is now brilliant?

While it will take us too far afield to study this phenomenon in all its ramifications, it seems that the prototypical pseudocleft has no auxiliary verb modifying its main verb *be*. If we choose just to add to the sentences in (25) the modal *might*, we will see that this complexification of the auxiliary lowers all the viabilities by a bit: cf. (28).

- (28) a. What Molly discovered might be a Grand Unified Theory.
 b. ?Where Molly lived might be in London.
 c. ?*What Molly is now might be brilliant.

I am deliberately shying away from exploring the problems concerned with the choice of auxiliary verbs, because I can see that there is a huge bog lurking over there. For instance, I believe that *might have been* is in general a better auxiliary for pseudoclefts than is *might be*, and I suspect that discovering the full story about how auxiliaries influence viabilities is going to require a major research effort. Let us therefore content ourselves with the beginning of an auxiliary prototype: (29).

- (29) No auxiliary but Tense → Auxiliary = Tense + X

When we add the load of inverted order to the already short-handed sentences in (28), they slide a bit further out:

- (30) a. ?Might what Molly discovered be a Grand Unified Theory?
 b. ??Might where Molly lived be in London?
 c. *Might what Molly is now be brilliant?

An important prototype, which governs all sentences, not merely pseudoclefts, is that when sentences are embedded, the more closely the embedding context resembles a finite clause, the less the viability of the entire clause will be affected. However, when the embedding context gets more and more nouny, or less and less sentential, then the result of the embedding shows greater and greater drops in viability. In Ross (1973), I proposed that *that*-clauses should be seen as being more sentential than *for-to*-clauses, which in turn should be held to be more sentential than what I called "Acc Ing" complements – e.g., clauses like *him having been there*. If we accept this ordering as a preliminary hypothesis, formulated in part as in (31),

- (31) Finite → Non-finite

then we have the beginnings of a handle on why the acceptability orderings shown in (32) to (34) are arrayed as we find them.

- (32) a. That what Molly discovered was a Grand Unified Theory is interesting.
 b. For what Molly discovered to have been a Grand Unified Theory is interesting.
 c. ?What Molly discovered having been a Grand Unified Theory is interesting.

- (33) a. That where Molly lived was in London is interesting.
 b. ?For where Molly lived to have been in London is interesting.
 c. ?*Where Molly lived having been in London is interesting.
- (34) a. ?That what Molly is now is brilliant is interesting.
 b. ?*For what Molly is now to be brilliant is interesting.
 c. *What Molly is now being brilliant is interesting.

Since to negate is to depart from the prototype (cf.(5)), we expect that if we negate the *be*'s in the complements of (32) – (34), we will produce further viability losses; that this is in fact the case can be verified by the interested reader. However, there is an initially puzzling question that might arise: there are two clauses in these sentences, after all, so either could be negated independently of the other. Would both negations have the same effects on viability?

Let us examine this question by trying both negations of (32c), a sentence with only slightly impaired acceptability. Negating the main clause *be* (namely, *is*) produces (35a); negating the embedded *be* (namely, *having been*) produces (35b).

- (35) a. ?What Molly discovered having been a Grand Unified Theory is not interesting.
 b. ?*What Molly discovered not having been a Grand Unified Theory is interesting.

I do not detect any great difference between (32c) and (35a): as we saw with (8), in normal circumstances, negating a main clause verb causes only a small drop in viability, one way below any perceptible drop in acceptability. However, if my intuitions are correct, there is definitely a drop in acceptability between (32c) and (35b). Why should this be?

I think that we can guess pretty well what is in this Pandora's Box without all the mess of actually opening it. One of the things that became apparent when I was working on nouniness (cf. Ross (op. cit.)) was that negation is a sentence-based phenomenon. That is, when the prototype limned vaguely in (31) is fleshed out fully, we find that the finite "end" of it looks like sentences, while the non-finite "end" looks like NP's. And I tried to demonstrate that the further away from the finite end that one got, the more difficulty one had in negating the predicate that formed the center of the construction. Negation, in other words, was tied to sententiality, as are tense and aspect. Therefore, since the subject of (32c) is more nouny than are those of (32b) or (32a), negating it will cause a greater drop in viability. The conclusion, therefore, of this peek into The Box is that it is not going to be possible to calculate the effects on viability of leaving a prototype (in this case, the affirmative prototype of (5)) in any context-independent way. If you are negating a highly sentential clause, the effect will be negligible, but if the clause is showing up in a nounier garb, the drop may be severe. Bad news – but we knew it, so we didn't have to open any wider than a crack.

Let us return to look at a few more ways of leaving the pseudocleft prototype. Connected to the prototype in (26) in ways that are at present opaque to me is the following one, which has to do with the nature of the *wh*-word that heads the subject clause.

- (36) what → where → how X → how → whose → which
 %who when

(37) Some examples which suggest the necessity of such a prototype are found in

- (37) a. i. What I saw was an ox.
 ii. %Who I saw was Mr. Berrywhistle. [Not everyone gets these, but I do]
 b. i. Where you should put it is into the disposal.
 ii. When you'll be leaving is in January.
 c. How long we waited was two years.
 d. ?How you have to peel these is [rapidly / ??fast].
 e. ?Whose course you really ought to take is Jim's.
 f. *Which course you really ought to take is Comparative Phlebotomy 909.

Again, one way to see more clearly how these differ among themselves is to drain off a bit of viability, say by looking at the corresponding questions.

- (38) a. i. Was what I saw an ox?
 ii. ?Was who I saw Mr. Berrywhistle?
 b. ??Is where you should put it into the disposal?
 c. ? Is when you'll be leaving in January?
 d. ??Was how long we waited two years?
 e. ?*Is how you have to peel these rapidly/*fast?
 f. ?* Is whose course you really ought to take Jim's?
 g. * Is which course you ought to take Comparative Phlebotomy 909?

A further way to put more stress on the construction, I believe, is to apply the rule called *Copula Switch*, which has the effect of placing the focused element of the pseudocleft first, and the *wh*-clause last. Thus the sentences in (37) become those of (39). [A quick argument that the sentences in (39) are copula-switched versions of more prototypical pseudo-clefts: the tag question for all sentences like those in (37) is *wasn't it?*; the same tag would follow (39a-ii), instead of an expected, but ungrammatical **wasn't he?*]

- (39) a. i. An ox was what I saw.
 ii. Mr. Berrywhistle was who I saw.
 b. Into the disposal is where you should put it.
 c. In January is when you'll be leaving.
 d. Two years was how long we waited.
 e. ? [Rapidly/Fast] is how you have to peel these.
 f. ? Jim's (course) is whose (course) you really ought to take.
 g. * Comparative Phlebotomy 909 is which course you really ought to take.

I am not sure that I am right in my supposition that the copula-switched versions of the sentences in (37) – namely, those of (39) – are really farther from the prototype. For when they are questioned, what results is (40):

- (40) a. i. Was an ox what I saw?
 ii. %Was Mr. Berrywhistle who I saw?
 b. ?? Is into the disposal where you should put it?
 c. ? Is in January when you'll be leaving?
 d. Is two years how long we waited?
 e. ?*[Is rapidly/*fast] how you have to peel these?
 f. ?* Is Jim's course whose course you really ought to take?
 g. * Is Comparative Phlebotomy 909 which course you really ought to

take?

To be sure, these questions are worse than the declaratives in (39), but their order of acceptability does not decrease monotonically. I think that the reason is that any sentence that starts with a constituent that doesn't look a lot like an NP will produce a very poor question, whether the sentence in question is a pseudocleft or not. For instance, the question form of (41a) is the dubious (41b).

- (41) a. Under the bathtub is still really filthy.
b. ?Is under the bathtub still really filthy?

This would seem to suggest that one of the features that will have to be specified in the formulation of Subject-Verb Inversion is a prototype with this effect, and it may be just this part of the inversion prototype that is causing the worsenings of (40). I see the question as still being an open one.

One final prototype concerns a particular subset of pseudoclefts: those where the focused element is the object of *do*. The ordering is given in (42), and the relevant examples appear in (43).

- (42) Forms of the verb *do*, when its object is what is clefted:

Tensed *do* → *be* + *doing* → *have* + *done*
Modal + *do*

- (43) a. i. What Sandy did then was (to) go home early.
ii. What Sandy can do now is (to) go home early.
b. What Sandy is doing these days is going home early.
c. What Sandy has done today is gone home early.

Though all of these sentences are grammatical as they stand, it is easy to show that their vitality has been seriously zapped. Look what happens when we make the auxiliaries more complex:

- (44) a. i. What Sandy did then might have been ?(to) go home early.
ii. What Sandy can do now might be ?(to) go home early.
b. ?? What Sandy is doing these days might be going home early.
c. *What Sandy has done today must be gone home early.

I leave it as an exercise for the industrious reader to try embedding the sentences of (43) in progressively more nouny contexts, or to question them, or to try them against yet other prototypes. Myself, I will leave the pseudoclefts here, shrouded in mystery, as they have always remained during the about two decades that I have been poking away at them (possibly even a bit more in mystery now?). What I hope to have made plausible, in the course of looking at the prototypes that go into the description of just this one rule of English, is the assumption that when we look carefully at any rule, we will find the same network of more and less central cases of the rule, with the centrality sometimes being a factor of highly general factors [like (5)], or of others operative throughout all of English grammar, if not everywhere [like (31)], or of still others that may pertain to just one particular rule [(29) may be a case in point here, though I suspect that it, too, will prove to constrain other processes in English.].

What have I convinced you of? I am hopeful that both of the major points that I have been concerned with giving some details of will be as easily incorporable in your framework of grammar as in any other, for they are as theory-neutral as any I know of (and I also know that there are no theory-neutral facts...). The points were these: first, that constructions and rules are arranged around prototypes; and second, that there are important differences for the study of language that fall below the threshold of perceptibility. The two points are logically independent, as far as I can see. Certainly it would be possible to imagine a network of prototypes in a language which was so constituted that any departure from any prototype resulted in an immediate distinction in grammaticality/acceptability (take your pick of whichever of those two notions you like the best). And it would also be possible to envision a world in which languages were spoken whose description required some such calculus of viability decrements as I have continually hinted at in the course of this paper, but where there was no possibility of setting up construction or rule prototypes. In such a world, Reflexivization, for example, when possible from a non-subject trigger in some language, would not imply the possibility of subject-triggered reflexives.

However, on Earth, it seems relatively uncontroversial to assert that there are the types of implicational laws that I have been giving examples of (in (4) – (7), (12), (16), (19), (21), (22), (24),...). Grammarians may well disagree about which of this set are correct implications, but ever since the pioneering phonological studies of Jakobson and Trubetzkoy in Prague, and increasingly since the expansion of the domains of markedness in the last twenty-five years under the impetus of Greenberg's research, I think that most linguists have agreed that their field of study was implicationally ordered in important ways.

Thus the most novel aspect of my paper is the suggestion that we need some concept such as that of viability; that there are subliminal differences in linguistic structure. Despite this novelty, however, I am hopeful that you will come to feel, as I do, that adopting such an assumption in your own work will in no way cramp your style. Whether or not you have a derivational view of syntax, no matter how many levels of representation you find it necessary to postulate, whether there are things like rules or processes in your thinking about syntax or not, I am hopeful that the recognition of degrees of viability will give you more elbow room in which to search for revealing analyses of language within whatever theoretical framework you find most congenial.

In looking for an analogy for the way we have all done syntactic work in the absence of any notion like that of viability, I came up with the following one. Wouldn't we view as strange someone who had to buy 100 cars and who had made the decision to stand at the end of a bridge and buy the first hundred that crossed over? And yet in a sense, that is what we have been doing in our goal to construct grammars that account for just the set of sentences that are all judged to be grammatical. Each sentence may involve dozens, or thousands, of factors which influence our judgements about its usefulness in contexts of an in-principle unlimited number of types. What gives us the right to assume that the scales of preference that interact in the formation of each sentence are made up of sharp, and radical, distinctions? This is not the way that we classify in the areas of music, or politics, or personal character, or anywhere obvious. Why should we believe ourselves to be so underlyingly discrete in our construction of language, that vehicle for the concretization of our thoughts? To be sure, we might think discretely, in some or even in many areas. I try to stay open to thinking now categorically, now squishily, as the occasion demands. I find that the fundamental question with which to approach any new area of study is the one that Lloyd Anderson gave to me, and to us

all, one for which I remain permanently grateful: how squishy (or: how discrete) is the area to be understood?

To assert that there is some calculus of viability decrements with the help of which everything will come out right in the end is of course to issue a colossal I.O.U. I don't think that this paper has given anything more than a plausibility argument, one which may induce some of us to go ahead with the immense project of actually making some concrete proposals, of trying to find some numbers (or maybe only partial orderings?), and some way of combining them in such a way as to model the interactions of all the subtle (and not so subtle) factors which go into the shaping of the contours of a language. While I quail inwardly at the immensity of this task, I can see no way around it. I think that it is as much a fact about Earthling languages that there are imperceptible differences between sentences that all seem equally grammatical in isolation as it is true that there are implicational universals linking all levels of these languages.

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I will close with one fond dream. I hope that as we approach the goal of providing a tight calculus of viability, the subtlety of our theories of the phenomenon of language will increase to a point where the achievements of those with the deepest knowledge of, and subtlety in the sculpting of, our languages – the greatest of the world's poets – will come closer to being within the range of scientific understanding.

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I would like to thank so very many friends for helping me think like this. Many from my wonderful visit to Berkeley in 1981: George, Eleanor, Chuck, Paul, Eve, Len, Nancy, Charlotte. And the Michiganders (and Michigoose?): Pete, Chaz, John, Rich, Ann. And, for providing countless paradigms of great analyses – hard acts to follow, all – thanks go to Paul, Jim, Ed, Dave, Ken, Bruce, and Jake. And the discourse crowd – Sandy, Paul, Jack. And ocê Rosália – amiga do peito.

I would like to dedicate the paper to Dwight Bolinger, on whose shoulders we all of us stand.

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