Two Approaches to

Agrammatic Underrepresentation

Daniel Silverman

0.    INTRODUCTION


     The two approaches to agrammatism to be presented herein differ
considerably from previous efforts to characterize the disorder.
One approach, that of Kean (1977), states the agrammatic deficit
in terms of phonological theory, while the other, that of Grodzinsky
(1984, 1986, 1990) exploits a theory of syntax to account for the
deficit.  These approaches assume a predominantly intact grammar
which suffers minimal representational damage.

     Other characterizations of Broca's aphasia have been seemingly
content with providing, impressionistic, descriptive
generalizations regarding the surface manifestation of the deficit,
having been glaringly remiss in couching their descriptive
generalizations within the confines of a theoretical framework.
Even when highly articulated theories of language structure have
been available, aphasiologists have still resorted to vague, at best
quasi-linguistic characterizations of the disorder (Caplan,
Schwartzetc.XXX), others preferring processing/flow-chart models
such as those Edgar Zurif (p.c.) has referred to as "boxological"
in nature.  While these researchers might be loathe to admit it,
such characterizations are ultimately far more radical and abstract
than the approaches to be presented herein.  Certainly, it is
uncontroversial to state that Broca's aphasics retain a high degree

of linguistic prowess, as anyone who has examined the agrammatic corpus of data will attest.  Therefore, assuming that these patients rely solely on non-linguistic (or quasi-linguistic) strategies for production/comprehension, one is at a loss to explain the suspicious similarity between agrammatic language and normal language:  how and why would a non-linguistic strategy of lexical interpretation be so successful in generating structures akin to those generated by an intact grammar?  And even if an answer to this question were forthcoming, it would remain to motivate the gross redundancy involved in such a system.

The main thrust of the present characterizations of agrammatism hinges on the lexical/non-lexical distinction.  This is as yet nothing new.  Traditional aphasiologists have often noted this distinction as crucial in their descriptions of agrammatic speech, employing such terms as "contentives/functors", or "open class/closed class" to cut words into two -- albeit poorly defined -- classes.  The descriptive generalization has been that agrammatics have far more trouble with non-lexical material than with lexical.  However descriptively adequate, traditional theorists have been unable to achieve a reasonable degree of explanatory adequacy.  That is, just as theories of language structure are said to possess explanatory adequacy to the extent to which they correlate with the building up of structure by the linguistically developing child, so should these theories correlate

with the structure of language that has broken down.  Traditional approaches to agrammatism, unanchored in theories of structure, make no attempt at attaining explanatory adequacy.  Relatedly, traditional theories of agrammatism have been unsuccessful in providing compelling evidence for either the specific domain (i.e. representation, processing, production, conduction) or the specific level (i.e. lexical, phonological, morphological, syntactic, semantic) of linguistic breakdown.

And thus the present approaches take a giant step forward from traditional analyses, as they limit the domain of damage to the representational component of language, which is, not coincidently, the area in which theoretical research has proven most successful in gaining an understanding of language structure (as opposed to say, theories of language production, conduction, or processing). Indeed, implicit in an emphasis on language representation is the instantiation of a theoretical model of language structure.  Also a major step forward in the present approaches to underrepresentation is their direct relationship to full, normal representation.  As already noted, agrammatic structures indicate that the grammar is largely intact.  Thus Occam's Razor would have us view agrammatic language in terms of normal language that has only partially broken down.  By instantiating a theory of normal grammar on agrammatic structures, the present approaches succeed where others have failed: they present fully articulated theories of representation, retreating minimally to attain explanatory adequacy of agrammatic

deficits.

Finally, as the present approaches attempt to provide neurolingustic evidence for particular theories of linguistic representation, they forge a link between neurolinguistics and theoretical linguistics that, as intuitively obvious as such a link might be, has not been attempted in other approaches to agrammatism. Thus the notion of Breakdown Compatibility (a term introduced by introduced by Grodzinsky, though the concept must be attributed to Kean) -- that a theory of language structure should be able to explain, and consequently predict, what types of deficits exist, and what types are possible -- requires both the investigation of neurolinguistic data by theoretical linguists as a partial proving ground for their theories, and requires neurolinguists to express their findings in terms of a given theory of structure, in order both to constrain their explanations, and to make potential contributions to theoretical linguistics.

1.    THE APPROACH OF KEAN

The analysis of Kean (1977, 1979, 1980) was perhaps the first to instantiate a generative linguistic model onto agrammatic data. Kean employs phonological theory as advanced in Chomsky and Halle (1968) in her attempt to characterize the agrammatic deficit in a Breakdown Compatible fashion.  She states that "Items which are not phonological words tend to be omitted in the language of Broca's aphasics", that "A Broca's aphasic tends to reduce the structure

4

of a sentence to the minimal string of elements which can be lexically construed as phonological words in his language"(Kean 1977, p.25).

This approach to the agrammatic deficit has been criticized on both theoretical and empirical grounds (Klosek 19  , Kolk 19 , Grodzinsky 1984, 1990, inter alia).  I will not reiterate these criticisms here.  Instead, I will provide three additional arguments against this phonologically-based approach, one empirical, another theory-internal, and a third which results from terminological vagueness.

First, imagine what Kean's approach would predict for the manifestation of agrammatism in a language like Mandarin Chinese. In this language virtually every morpheme, aspectual, inflectional, or otherwise, consists of a single syllable and a lexical tone. While certain morphemes may be "reduced" in that they do not bear surface tones, this reduction is not limited to "non-lexical" material (whatever that may be in Mandarin), but certainly occurs in lexically-conditioned lexical forms as well.  Kean's analysis would consequently predict that agrammatism should not exist among Mandarin speakers, as the morpho-phonological structure of the language is such that the deficit would never be superficially manifested.  In fact, agrammatism is indeed attested in Mandarin speakers, targeting, among other morphological domains, the classifier system (Tseng, Chen, and Hung 1991), which, contra Kean, is phonologically indistinguishable from less- or un-affected morphological material.

Second, Kean insightfully observes that previous pre-theoretical accounts of agrammatism have not stated the domain of deficit in terms of posited linguistic primitives. For example, to say that "major lexical categories" (N,A,V) are retained in agrammatic representation while minor categories are lost, we require a theory of morphology, syntax, or the lexicon that can isolate the primitive or primitives necessary to delineate the relevant natural class. Kean notes that no then-current theory of syntax (or, presumably, morphology or the lexicon) permits one to state the deficit in such a fashion. The question now is, does Kean's analysis express the domain of deficit in terms of phonological primitives which define a natural class?

The answer is no. Kean discusses superficial morphological omissions not in terms of phonological primitives (i.e., features), but in terms of segments: "in general, consonantal morphemes, such as the -s of the plural of English, are least likely to be deleted in the speech of Broca's aphasics after the most sonorant segments (vowels), and most likely to be deleted after the least sonorant segments (fricatives and stops)"(Kean 1977, p.17).

There is, in fact, a degree of external phonological evidence that language learners *do* attend to segments (Fromkin 19--, Silverman 1993). This being the case, Kean establishes an unnecessary principle on her theory which she need not have violated.

Kean goes on to posit a hierarchy of morphological adhesion in which non-phonological words fall, thus further vitiating her

6

appeal to phonological primitives in order to define the domain of deficit.

Finally, I would like to consider a terminological aspect of Kean's analysis, for which a formal definition is not provided. This lack of specificity causes potential theoretical problems. Kean's notion of "lexical construal", which is apparently crucial in her analysis, is never formally defined, nor has it ever played a formal role in phonological theory. This fact, along with the non-linguistic cognitive connotations of the term, leads one to assume that the term refers to some late analytical (i.e. non-grammatical) strategy. If this is the case, i.e., if "lexical construal" is some sort of post-grammatical parsing strategy, then an ordering paradox clearly results. Assuming that morphemes -- stem-level or word-level (Chomsky and Halle 1968) -- are added cyclically to a stem, most (though not all) stratal theories of phonology (Kiparsky 1982, but Aronoff 1989) assume some variant of Bracket Erasure to apply at the end of each cycle (e.g. "Tier Conflation", or more precisely "Plane Conflation" (Younes 1983, McCarthy 1986)). This being the case, at the point where "lexical construal" takes place, internal morphological structure has been obliterated from the representation, and thus no information regarding the underlying word/non-word status of a given morpheme is available. In fact, as Kean's "lexical construal" applies to the analysis of cliticizable elements as well as single-word morphological complexes, the process must indeed be a late-ordered

phonological (or pseudo-phonological) operation (or performance).
Thus, at the point in a derivation (or after the completion of a
derivation) where "lexical construal" is performed, word-internal
bracketing is indeed assumed erased.

If however some other interpretation of "lexical construal"
is intended by Kean, then it is her as yet unperformed task to state
explicitly what she means.

From these arguments, and those expressed elsewhere, I conclude
that Kean's approach to agrammatic underrepresentation fails on both
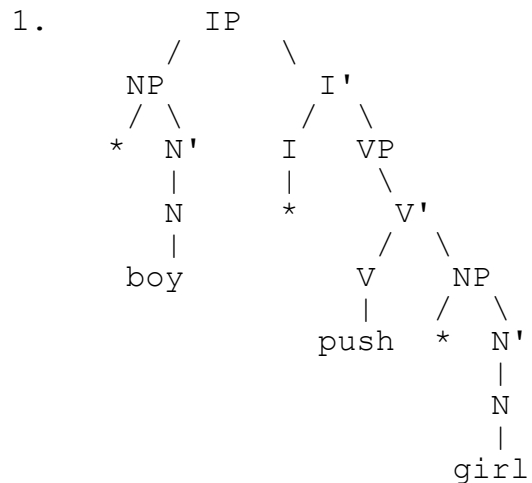theoretical and empirical grounds.


2.    THE APPROACH OF GRODZINSKY

Employing the Principles and Parameters approach to syntax of
Chomsky (1981) (better known as Government-Binding Theory (GB)),
Grodzinsky hypothesizes that agrammatics do not represent the
terminal nodes of non-lexical categories at S-structure (for
pre-Pollockian (1989) theories, I and C, and perhaps D); that
inflectional morphology surfaces at random, and only to the extent
that language-specific morphological well-formedness conditions
require its presence (Grodzinsky 1990).

Grodzinsky argues that his approach is capable of characterizing
a wide range of syntactic deficits while positing a highly constrained
domain of damage to agrammatic representation.  As will be seen,
the seemingly minute deficit of the deletion of non-lexical $X^0$s at
S-structure may be capable of explaining a wide range of phenomena

found in agrammatic language.  However, upon further scrutiny, it

will be shown that, due to the high level of structural

interdependence of the various theoretical modules of universal

grammar as posited in Chomsky (1981), positing such a deficit will

have far-reaching consequences that will force a retreat from this

theory of minimal underrepresentation.

English-speaking agrammatics do not in general employ

inflectional morphology.  Verbs tend to surface in their bare form.

 Determiners are by and large absent from agrammatic speech, and

only certain prepositions -- ungoverned ones -- surface with any

regularity.  Thus, a sentence such as "The boy pushed the girl" might

be uttered by the agrammatic as "Boy push girl".  The S-structure

tree in (1), in which the terminal nodes of the non-lexical categories

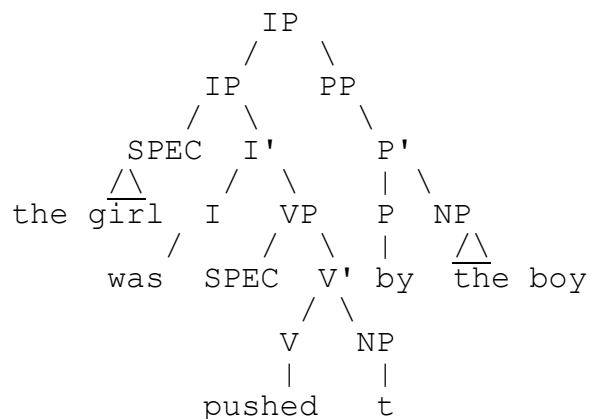have been deleted (indicated by "*"), displays this surface form.

```
1.          IP
         /      \
      NP          I'
      / \        /  \
     *  N'      I    VP
        |       |      \
        N       *       V'
        |              /  \
       boy            V    NP
                      |   /  \
                    push  *   N'
                              |
                              N
                              |
                             girl
```

Comprehension is assumed similarly deficited, first shown

experimentally by Zurif and Caramazza (1976).  For a simple active

sentence such as "The boy pushed the girl", agrammatics appear to
have little trouble correctly interpreting the meaning, as their
S-structure representation is hypothesized to be "* boy push * *
girl" (again, where "*" represents the S-structure absence of
non-lexical $X^0$s) .  However, if such a sentence is passivized,
agrammatics correctly interpret the sentence only 50% of the time.
 Grodzinsky notes that this chance performance occurs only in
reversible passives (sentences such as "The apple was eaten by the
boy", in which the NPs could not switch position and result in a
semantically acceptable sentence, are usually interpreted
correctly).  This leads to the notion that in addition to the
S-structure underrepresentation of non-lexical $X^0$s, traces are also
not represented.  The argument goes like this:  In (2), "the girl"
has moved from its deep position to SPEC IP for Case-theoretic
reasons.

```
2.
              IP
            /    \
         IP       PP
        /  \        \
     SPEC   I'       P'
     /\      /  \     | \
the girl   I    VP   P   NP
          /    /  \  |    /\
        was  SPEC  V' by the boy
                  /  \
                 V    NP
                 |    |
              pushed   t
```

If the agrammatic cannot represent traces, s/he will not be able

to represent the resulting A-chain.  As thematic roles are assigned to chains, the raised object will not receive its thematic role, nor will its D-structure origins be recoverable.  The agrammatic consequently interprets the raised NP as a deep subject lacking a thematic role.  Grodzinsky theorizes that in such contexts agrammatics employ a heuristic, statistically derived strategy in theta-role assignment:  subjects of agentive verbs that have not been assigned thematic roles by the grammar are assigned AGENT by default.  Meanwhile, the object of the optional by-phrase will also be assigned AGENT, in this case by the grammar itself, as by-phrases have agentive objects when surfacing with agentive verbs.  The agrammatic is thus confronted with a sentence that seemingly possesses two agents, and no patient.  The agrammatic can now only guess as to the correct interpretation of the sentence, and thus performs at only chance level.

Finally, Grodzinsky (1990) additionally proposes that agrammatics delete governed prepositions, but retain ungoverned ones (where government is defined as the following structural relation: α governs ß iff α m-commands ß and every barrier for ß dominates α.  α c-commands ß iff α does not dominate ß and every τ that dominates α dominates ß, and where τ is restricted to maximal projections, α m-commands ß).

2.1  THE PROBLEMS

Despite the great conceptual advances Grodzinsky has made in

clarifying the theoretical issues germane to neurolinguistic research (presented most cogently in Grodzinsky 1987, and liberally alluded to in the introductory section of this paper), it will now be argued that he has yet to apply these concepts in a truly compelling fashion.

There are several lines of reasoning suggesting that Grodzinsky's approach, at least in its strongest form, cannot be correct.  The argumentation against Grodzinsky's approach to agrammatic underrepresentation is three-pronged:

1)  Due to the structural interdependence of the various modules of universal grammar, the assumed deficit will be shown to result in a disruption of far more than the representation of S-structure non-lexical $X^0$s.  It will be argued that there is little empirical support for these consequent grammatical disruptions in the agrammatic representation.

2)  As Grodzinsky is positing structural and derivational deficits as opposed to a modular deficit, he is ultimately abandoning the GB Principles and Parameters approach in which he claims to be working.

3)  Despite his attempts to work within the strict structural limits imposed by a highly constrained theory of representation, Grodzinsky ultimately abandons his goal of providing neurolinguistic support for a theoretical model of language structure:  as Grodzinsky's implementation of the   Principles and Parameters theory will be shown not to successfully characterize agrammatic deficits,

12

this would argue against adopting such a theoretical characterization
of syntactic structures, as Breakdown Compatibility is not achieved.

2.2  The Default Principle

The first question I would like to consider is the following:
why is Grodzinsky's default rule of theta-assignment necessary?
If agrammatics do not have access to inflectional terminal nodes
a S-structure, elements in $I^0$ will be absent from this representation.
In the passive construction, the passive morphology is realized
in $I^0$ -- "was" -- and, in certain lexically-determined instances,
as a verbal "-en" suffix.  If the agrammatic cannot represent this
I node, nor the "-en" suffix, he should assign AGENT to the subject
position not by default, but by the grammar itself:  the verb will
be represented in its uninflected active form, and active agentive
verbs assign AGENT to SPEC IP.

Also, assuming that the "-en" suffix is the realization of the
obligatory AGENT theta-role (motivated by the theta-Criterion), we
might expect the agrammatic to perform asymmetrically on passive
constructions that employ the "-en" morpheme (e.g. "was beaten")
versus constructions that do not employ it (e.g. "was hit").  Given
the current analysis, the crucial questions, of course, concern the
lexical status of this passive morpheme, and whether it surfaces
in its deep position.  If it is lexical, and if it does surface in
its deep position, we would expect performance asymmetries, as
sufficient passive morphology is presumed present in the agrammatic

13

representation to trigger PATIENT assignment to SPEC IP. Thus when "-en" is present, agrammatics should perform better on theta-role assignment than when "-en" is not present. If however, the morpheme is a non-lexical terminal node, and/or if it has moved from its deep position to V-adjoin, we would not expect performance asymmetries, as the patient is assumed unable to represent the morpheme, or its chain, or both, and thus cannot distinguish such structures from those in which the morpheme is not superficially present. Baker, Johnson, and Roberts (1989) in fact argue for a variation on this latter approach to passive agentive morphology, suggesting that indeed, AGENT should be assigned to SPEC IP by the grammar, and not by Grodzinsky's default mechanism. As far as I know, no experimental work has been done investigating what effects the presence versus absence of overt passive agentive morphology has on agrammatic comprehension.

2.3 The Consequences for Various Principles

In this section, I will consider the far-reaching effects lacking S-structure non-lexical terminal nodes has on the various hypothesized modules within GB.

A major problem with Grodzinsky's analysis arises when considering Case Theory. Consider an experimental procedure in which an agrammatic patient is shown a picture of a dead man with a gunshot wound through his heart. As no agent is present, the expected description of the scene might be stated in the passive.

14

Fully realized by normals, the statement might be, "The man was shot":

3.   Case:                Nom
                           |
                 [[the man]$_i$ was shot t$_i$]
                           |
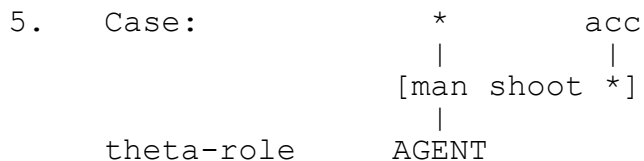         theta role:       PATIENT


Here [the man] has moved from its deep object position in order to receive (nominative) Case from I, as passive verbs, under some accounts, "absorb" Case-assigning properties.  Its PATIENT theta-role is transmitted via coindexation with its trace.

Assuming Grodzinsky's analysis,  if agrammatics lack the ability to form chains, and if they lack I$^0$, there would be no motivation for the NP to raise, apart from the Extended Projection Principle (EPP), which stipulates that an element must occupy [SPEC IP] at S-structure.  In the agrammatic representation, the deep object would receive accusative Case from the bare verb.  Meanwhile, as I$^0$ deletes at S-structure -- the level at which Case is assigned -- the SPEC IP position will remain Case-less.  The agrammatic description of the scene should thus be "shoot man", in which "man" stays in its deep position.


4.   Case:                acc
                           |
               [e shoot man]
                           |
         theta role:       PATIENT

Thus despite the superficial ill-formedness of such a structure, the NP has received both its correct Case (within the context of the structure), and its correct theta-role. Nonetheless, the EPP has been violated (as no element occupies SPEC IP at S-structure) and thus the structure is in violation of a principle assumed to be intact in agrammatic representation.

Alternatively, if the NP does raise from its deep, potentially Case-receiving position, it will surface without Case, as there is no Case-assigning element in I. And so raising this NP would entail moving from a potentially Case-assigned position to a position lacking Case.

```
5.   Case:             *        acc
                       |         |
                   [man shoot *]
                       |
     theta-role     AGENT
```

Additionally it will receive the incorrect AGENT role from the verb. Thus despite the superficial near-grammaticality of such an utterance, the sentence violates the Case filter, as well as violating the theta-grid of the verb, resulting in a Theta Criterion violation. Consequently, the sentence is both syntactically and semantically ill-formed. Employing Grodzinsky's approach, would the experimenter be forced to consider such a superficially better-formed structure more ill-formed than the structure arising from non-raising?

Data indicate that agrammatics *do* conditionally comprehend

passive sentences with NPs in SPEC IP (refs.XXX), in seeming violation of both the Case Filter and the Theta Criterion, and seemingly do not produce passives without derived subjects.  And so if Grodzinsky's theory is to correctly characterize aphasic deficits, it must retreat from its maximally simple, minimally underspecified characterization of agrammatism, by adding the following deficits to agrammatic representation:  the agrammatic grammar contains neither the Case Filter nor the theta-Criterion.

I will now further investigate agrammatic violations of the theta-Criterion.  If traces are deleted from agrammatic representation, this entails that theta-role assignment be disrupted.  The reasoning is as follows:  if agrammatics cannot represent traces, they cannot represent chains.  Since theta-roles are assigned to chains, agrammatics can never assign theta-roles to arguments that have undergone A'-movement, since such movement involves chain formation, and agrammatics cannot represent chains. Grodzinsky in fact extends his Default theta-role assignment strategy to apply to A'-moved elements as well as A-moved elements. However, given that we have argued against the necessity of the Default Principle, we now must consider the consequences of theta-role assignment to A'-moved elements.  Unfortunately, the defining characteristic of an A'-position is that it may receive a theta-role only via a chain, and never directly.  Therefore, any structure which involves an A'-moved element surfaces without

receiving a theta-role within the agrammatic grammar, in further violation of the theta-Criterion, a major principle of the normal grammar, and hence presumably a major component of the aphasic grammar. Furthermore, an A'-moved element, which is argued to be an operator binding a variable (a trace), serves no such function in the agrammatic grammar, as there is no trace for this operator to bind. Consequently, the agrammatic grammar, which includes A'-moved elements (in, for example, relatives), violates the ban on vacuous quantification; a principled constraint of the normal grammar, and consequently erroneously assumed by Grodzinsky to be a principle of the agrammatic grammar.

Assuming the VP-internal subject hypothesis (Koopman and Sportiche (1988) inter alia)), even simple active sentences require chain formation, as the subject NP must raise to SPEC IP, presumably for Case. Of course, the agrammatic representation has been shown to lack both the Case filter and the theta-Criterion. It would thus be of interest to analyze the performance of agrammatics who speak a language like Gaelic, in which matrix subjects remain in their deep, VP-internal position. English/Gaelic asymmetries in interpreting various constructions may shed light upon a number of obscure areas regarding chain formation, A- versus A'-movement, theta assignment, and Case assignment.

Finally, I would like to address Grodzinsky's assumptions regarding prepositions. As already noted, he states that prepositions are not treated in a unified way by agrammatics. They

represent ungoverned Ps ("John was hit by Bill"), but not governed ones ("John looked (for) Bill").  In other words, agrammatics are able to represent Ps of adjunct PPs, but unable to represent Ps of subcategorized PPs.  While the issue is an empirical one, it is telling that the representation of subcategorized material -- demanded by so many components of the grammar -- is more readily disrupted than the representation of adjuncts -- by definition never demanded by the grammar.  Agrammatics thus appear to be able to violate subcategorization frames, and, again, the Projection Principle.

We have thus been forced to add the following deficits to agrammatic representation:  The agrammatic grammar does not possess the Case Filter, the theta-Criterion (or the Projection Principle), the ban on vacuous quantification, or subcategorization frames. The inevitable conclusion to draw is that if the agrammatic indeed possesses all the deficits shown to follow from Grodzinsky's theory, his grammar would be far less constrained than data indicate it to be, generating wild structures resulting in utter uninterpretability by the experimenter.  In addition, his comprehension ability would surely be greatly reduced, as his grammar would have so few principles to instantiate onto incoming utterances.  Moreover, agrammatic grammatically judgments should be extremely inaccurate. Experimental evidence does not support such predictions (refs XXX).


2.4  Against Principles and Parameters

It might be argued that violations within the above-mentioned modules are permitted in the agrammatic grammar only when such violations are unavoidable. In other words, in the canonical case, all principles of UG obtain. However, in those structures in which violations are unavoidable due to representational deficits, the principles are relaxed. As Grodzinsky (1986) approaches the issue, "That the grammar of aphasic sentences differs from normal has been our starting point. In fact, it is the difference between it and the normal grammar that one seeks to characterize precisely. Hence, if it follows from the characterization that grammatical principles are violated in aphasia, it should come as no surprise: this is what one might expect. (p.153)" Yet such an analysis is diametrically opposed to the motivation behind the Principles and Parameters approach to grammar. This approach is based on the idea that strict universal principles constrain syntactic well-formedness without regard to either specific grammars or specific lexical properties. All linguistic variation is accounted for within the strict limits imposed by these universal and independent principles. In essence, if Grodzinsky still wants to retain his theory in its original form, his argumentation reduces the application of these supposedly universal and invariant principles to an idiosyncratic, case-by-case basis, thus ridding GB of all its explanatory power, at least within the context of agrammatism. Given this state of affairs, Grodzinsky's approach must fall back on assuming some

radically different strategy for sentential interpretation by agrammatics.  Yet surely, as Grodzinsky himself so eloquently argues, such a situation is both theoretically undesirable, and empirically unmotivated.

Furthermore, Grodzinsky's characterization of aphasic grammar takes syntactic configuration as its starting point, suggesting that the principles and parameters which determine well-formedness are merely invoked to describe generated structures:  as his theory hypothesizes a structural deficit, and not a modular deficit, it is as if the modules are employed only to achieve descriptive adequacy of underlying configurations.  Yet surely, the principles and parameters approach to grammar operates in the opposite fashion: it is the principles and parameters themselves which determine structure, employed structures falling out as a consequence of these innate universals.  In effect, Grodzinsky is appealing to derivational (i.e., chain-forming) deficits as opposed to representational deficits, thus embracing the largely abandoned transformational theories of the 1960s and 70s, and opposing the Principles and Parameters approach in which he claims to be operating.

One might yet argue that Grodzinsky's theory may still be saved in its original form.  The crucial information is patient judgments regarding their own production.  If patients are asked to judge the grammaticality of their own sentences, insight might be gained as to which components of the grammar are retained, and which are lost.  However, one must proceed very carefully, for even accurate

reporting by the patient is not sufficient to conclude that deficits
are limited to the underrepresentaion of non-lexical terminal nodes
at S-structure.  As we have seen, production may be superficially
near-correct, but nonetheless, given the patient's
structurally-deficited grammar, his judgments should still regard
his utterance ungrammatical, in fact in some instances more
ungrammatical than superficially more-poorly-formed structures.
Consider A'-movement sentences again.  Even if the patient correctly
produces the sentence "What (did) John buy t?", if all components
of representation except non-lexical terminal nodes are intact, he
should still report his production as ungrammatical, as the
theta-Criterion, the Case Filter, and the ban on vacuous
quantification have all been violated.  If these components of his
grammar remain unaffected (i.e. are intact) he should be aware that
his utterance, despite its superficial near-grammaticality, is in
violation of innate principles of sentence well-formedness.

   This is certainly not to say that the agrammatic has *conscious*
awareness of these principles.  Normals produce only grammatical
sentences without awareness of the theta-Criterion.  Such principles
are merely theoretical characterizations of the human ability to
generate (grammatical) sentences.  However, if an ungrammatical
structure is presented them, they can normally describe the nature
of the violation (for example, if given the sentence *John kissed*
any speaker would be able to explain in pre-theoretical terms the
nature of the ungrammaticality, i.e., that John has to kiss somebody).

If the agrammatic grammar is minimally impaired as Grodzinsky hypothesizes, then the agrammatic, too, should still retain his ability to make grammaticality judgments, even on his own sentences. The question is:  would we expect this to obtain?  Would we expect the agrammatic to report a superficially well-formed sentence ungrammatical because an underlying principle has been violated?

As Grodzinsky (1984) theorizes, agrammatics should consistently judge their utterances as well-formed, as he hypothesizes that agrammatics possess an "extended" notion of grammaticality, i.e., their structures, generated by a malfunctioning system, nonetheless retains a degree of internal consistency, and thus all self-generated structures should be regarded as grammatical.  Such a hypothesis is surely inconsistent with present argumentation.


2.5  Against The Principles and Parameters Theory


As Grodzinsky's approach to the corpus of agrammatic data has been shown to be incompatible with Chomsky's (1981) Principles and Parameters theory of grammar, by Grodzinsky's own Breakdown Compatibility criterion, it should be concluded that this theory of syntactic structure is in fact not supported by neurolinguistic evidence.


2.6  The Final Appraisal

As a final appraisal of Grodzinsky's theory of agrammatism,

I am forced to conclude that it fails in three major areas.

First, it fails to consider the repercussions that the hypothesized structural deficit has on the various modules of the Principles and Parameters theory of grammar: the seemingly minute deficit of the underrepresentation of non-lexical $X^0$s at S-structure should cause a devastating blow to the grammar which is not empirically supported.

Second, while Grodzinky claims to be working within the constraints imposed by particular theoretical assumptions regarding the universal properties of representation, his account of agrammatic data does not sufficiently conform to the theory to be considered supporting evidence, seemingly supporting a earlier, context-sensitive transformational approach over a Principles and Parameters approach.

Finally, as the Principles and Parameters theory of syntax has been shown to be incompatible with the agrammatic corpus of data, it violates Grodzinksy's own criterion of Breakdown Compatibility, and thus its status as a viable theory of syntax should be re-evaluated.

3. CONCLUSION.

As a final appraisal of the theories of agrammatic representation discussed in this paper, I am forced to concluded that there is an unfortunately wide gap between the current state of representational theories of language and the current state of

accounts of underrepresentation.  While theorists claim to work

within the constraints imposed by theoretical assumptions regarding

the universal properties of representation, their accounts of the

agrammatic data do not sufficiently conform to the chosen theory

to be considered supporting evidence.  In addition, when considering

the complex and idiosyncratic interactions between the "pure" grammar

and available pragmatics (in the case of syntax), the task of

instantiating a theory of grammar on deficited representation must

incorporate variables which have not yet been properly isolated or

characterized.  Whether it is the theory itself which requires

redressing, or the analysis of the data in question remains to be

seen.  Certainly, the possibility that the theoretical model

requires redressing in order to better conform to observed phenomena

should not be dismissed completely.

## References

Caplan, D.  "Syntactic Competence in Agrammatism:  A Lexical
     Hypothesis," in Studdert-Kennedy, ed., Psychobiology of
     Language.  MIT Press, 1983.

Chomsky, N. (1981).  Lectures on Government and Binding.  Foris.

Chomsky, N. (1986).  Barriers.  MIT Press.

Grodzinsky, Yosef (1984).  "The Syntactic Characterization of
     Agrammatism."  Cognition 16.

Grodzinsky, Yosef (1986).  "Language Deficits and the Theory of
     Syntax," Brain and Language 27.

Grodzinsky, Yosef (1990).  Theoretical Perspectives On Language
     Deficits.  MIT Press.

Grodzinsky, Yosef, and Amy Pierce (1987).  "Neurolinguistic

Evidence for Syntactic Passive."  ms.

Kean (1979).  "Agrammatism:  A Phonological Deficit."  Cognition
    7.

Kolk,

Koopman, H., and D. Sportiche (1988), "Subjects."  ms.

Lapointe, Steven G. (1983).  "Some Issues in the Linguistic
    Description of Agrammatism."  Cognition 14.

Radford, Andrew (19--).  "Small Children's Small Clauses." Bangor
    Research Papers in Linguistics, ms.


Zurif, Edgar, and Alfonso Caramazza. "Psycholinguistic Structures

    in Aphasia," in Whitaker and Whitaker, eds., Studies in

    Neurolinguistics v.1.  New York Academic Press, 1976.