# THE GENERATIVE GARDEN GAME

# CHALLENGING CHOMSKY AT CONCEPTUAL COMBAT

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To Walter Winckler, Word Wizard

"This setting of human beings to kill one another
in public, for entertainment, is by far the nas-
tiest blood-sport ever invented."
                    Michael Grant, Gladiators, p. 8


"I was hoping that you, at least, would under-
stand the appeal of the thing, [i.e., the pit-
ting of man against man in a maze --- R.P.B.]'
he said at length. 'However ....' He paused
again. 'To be honest,' he went on slowly, 'I'm
not sure I wholly understand  --- myself ---
the deep attraction of the Game .... I suppose
the Game gives us the feeling of getting close
to the roots of our profession .... getting down
to the fundamentals ..."
     Jon Manchip White, The Garden Game, p. 102


".... the perceived need to outdo Chomsky has
led him to be the most attacked linguist in his-
tory."                        Newmeyer   1986:8


".... Chomsky has rarely been defeated in argu-
ment on his own ground ...."
                        Gardner  1985:214


"The first essay [in Rules and Representations
--- R.P.B.] and indeed much of the book provides
us with critical examples illustrating the subtly
controlled aggressive component of Chomsky's rhe-
toric and style ...."
                        Brame  1985:313


"Bloodsports, it is generally believed, are on
the wane.  But not so  The Generative Garden
Game."
                        Anonymous

**FOREWARNING**

So you have heard about The Garden, Dear Reader.  And you
wish to challenge The Master at his Game.  Boldly you aim
to stalk him in his sprawling maze of forking and inter-
secting conceptual lanes.  I say "boldly" because, as you
ought to know, the odds are against you.  For years The
Master has been playing The Game with superb --- some would
say, deadly --- skill.  Many of intellectual class have
come to do battle with The Master about his ideas on lan-
guage and mind.  With woeful consequences, alas!  Some
entered The Garden, never to reappear.  (May their minds
rest in peace!)  Others left The Garden in undignified
hurry --- hurt and, for the rest of their scholarly days,
humiliated.  Only a few were able to draw blood, to force
The Master to acknowledge a flaw here, to concede a defect
there in the foundations of his model of language and mind.

But, believing yourself to be intellectually fleet of foot
and strong of limb, you are not one to be deterred by the
more sinister details of Garden lore.  So, before setting out
to engage The Master, let me take you on a guided tour of the
maze of lanes and paths so cleverly laid out in dense New
England intellectual growth.  Come with me and get the feel
of the conceptual forks and intersections, the logical pit-
falls and perils, the methodological dead ends and drops
(plunging down into the River Charles).  Forearmed with this
experience, you will know better where to fight and where to
flee, when to lunge and when to parry in real action.  Per-
haps, even, you will learn how to avoid perishing at the
hands of The Master in his alluring but lethal linguistic
labyrinth.

Be warned:  there will be distractions in The Garden, other
Players with their own pursuits.  Of some you will catch a

fleeting glimpse; others you will hear in the distance only
--- roaring with rage, shrieking with fright or moaning in
agony. (I do not mean to scare you, but take care not to
trip over the odd bleached bone sticking out of shallow struc-
ture.)

There will be Fiery Fighters and Guileful Gladiators who, in
their prime, have come to prove their powers, to match The
Master. Then there will be various members of the Gored Old
Guard --- those constitutionally incurable cases of braw-
ling brains --- back to revenge the terrible traumas suffered
in past encounters with The Master. And you will become aware
of the presence of a number of Fickle Friends --- erstwhile
admirers who, for reasons of their own, have turned against
The Master and now stalk him with dour determination.

Also there will be a few Fanatic Followers who --- having
found The Game too tame, The Master too mellow --- clamour
for the radical reconstruction of The Garden. Oh, and do be
careful not to startle the Nosy Novices sent by tutors to The
Garden, not to provoke The Master, but to look, to listen and,
above all, to learn how to survive a future fight.

And you might bump into any of a number of Stray Souls who,
for ever losing their intellectual way, have stumbled into
The Garden by chance. A motley bunch --- including Phantom
Philosophers, Senile Psychologists, Asinine Anthropologists,
AI-idiots, Computer Cranks, and Wizened Whizz-kids of lin-
guistic lineage --- they would not know The Master from a
maple. If they are permitted to loiter in the lanes, it is
out of sheer charity. For reasons I need not mention, we
won't concern ourselves with the capers of these clownish
creatures. Before I forget, don't allow yourself to be dis-
tracted by the Flock of Frenzied Fans, metrically stamping
their feet while cheering on their champ with the chant of
"Chomsky, Chomsky!".

Ultimately, of course, there is The Master: for ever patrol-
ling the paths, modifying the maze --- always ready to reta-
liate.

Why I call him "The Master"?  Certainly not out of subser-
vience, servility or some other similarly silly sentiment.
Nor for the want of a proper name.  "Great Generator",
"Garden Guru", "Generative Genius" or ("Genie", some would
insist), "Machiavellian Mentalist", "Revengeful Rationalist"
are but a few of the many names (by which) he has been called.
"The Master", however, says it all:  it is he who has turned
The Garden into a model maze, who has masterminded all major
moves and manoeuvres, who has made The Garden the ground of
the most magnificent  matches in mentalist memory.  But if
the name touches a raw nerve or opens an old wound, please
feel free to read for "The Master" a name of your own choice.
Why not, for example, call him "The Past Master (of the Maze)"?

Learning from the blunders, often crippling in their conse-
quences, that have been committed by other Garden combatants
is a must.  To aid you in this, I will put up, as we move
through the labyrinth, some signs marking  places  where in
the past Plodding Players made moronic moves, selected
suicidal stratagems, wielded weird weapons, or tumbled into
treacherous traps.  The inscriptions on these signs  --- e.g.
"The Milner Maneuver", "Lemming Lane", "The Bicycle Bifurca-
tion", "The Luria Lunge", "Dennett's Decoy", and so on  ---
I have taken, without permission, from The Master's memoirs,
to be published at a distant date as The Life and Times of a
Gladiatorial Grammarian.

But such mnemonic means won't see you through.  Mobility of
mind and agility in action  --- that's what The Game is all
about.  To give you a feel of this action, I will be making
use of copious quotes from The Master's own writings and
those of his adversaries. In this way, I will let you sense
what it is like to be, now in the shoes of the attacker,
now in the shoes of the defender.

When playing for real, there is one thing never to forget:
The Master is a mercurial mover.  Don't rush a position

where you saw a shadow some time ago.  Chances are that you
would be sailing into empty space, only to be attacked from
an unexpected angle.  And I won't recommend shooting from
the hip:  leave this to the Wild Men from the (Mid-) West.
The Garden, after all, is in East Coast Country.

"So what are the rules of The Game?", I hear you ask.  What,
indeed, are the rules?  For survival there is just this one:
"Anything goes".  Ah, and do remember:  you will be no more
than a player;  you will not be a referee too.  So it won't
be for you to decide whether or not you have landed a cripp-
ling blow that set The Master reeling.  Nor will it be your
prerogative to say that a savage swipe by The Master left
you with only a surface scratch.  The Spectators, callously
calculating, will be both judge and jury.  This is the Raw
Reality of The Game.  If you would prefer not to face it,
there is still time to retreat to the challenge of Chinese
Checkers*.

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* If  you happen to be a Serious Scholar  --- did I hear
  someone say "Spoil Sport"?  --- who insists on a watered-
  down version of this Forewarning, Chinese Checkers is your
  fate.  Or, what about a quiet game of conceptual croquet
  with your curate?

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ORIENTATION

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## 1    THE LIE OF THE LAND

*Getting to The Garden is not as easy as it may seem, Pupil Player. Along the way,
you will come, rather unexpectedly, to some perilously concealed conceptual
forks. Make a wrong choice at any of these, and you are bound to end up, like
many before you, in some remote playground where, in your own opinion, you
may well be having lots of fun. But you won't be really playing The Game.*

*Incidentally, don't let the playful pitch of the parts in italics put you on the
wrong track: going after The Guru in The Garden is, most definitely, not child's
play of the kindergarten kind. Are you ready then, Impatient Pupil, for some
Preparatory Play?*

"Just where does Chomsky's linguistics fit into the bigger
domain of the scientific study of human language?" This is
one of the first worries of the newcomer or outsider. The
present section provides a clear answer to this question by
locating Chomsky's linguistics with reference to four other,
related but distinct, linguistic concerns: generative gram-
mar, Chomskyan linguistics, radical Chomsky-like linguistics
and transformational grammar. The necessary boundaries will
be drawn with the aid of five fundamental conceptual dis-
tinctions.

1.1    The first and most general distinction that has to be
       drawn in locating Chomsky's linguistics is that of
generative grammar vs. non-generative grammar. Chomsky's
linguistics represents a form of generative grammar. Any
approach to the study of human language is a form of gene-
rative grammar if it adopts the following requirement:  a
grammar, as a description of a particular human language,
has to be perfectly explicit. Thus Chomsky (1965:4) charac-
terizes a generative grammar as follows:

> "If the grammar is, furthermore, perfectly expli-
> cit --- in other words, if it does not rely on
> the intelligence of the understanding reader  but
> rather provides an explicit analysis of his con-
> tribution  --- we may (somewhat redundantly)
> call it a *generative grammar.*"[1]

For a grammar to meet the requirement of explicitness, Chomsky
initially proposed, it should take on the form of a system of
formalized rules and other related devices which mechanically
enumerate all and only the grammatical sentences of the lan-
guage, assigning to each of these sentences an appropriate
structural description.[2]  Approaches to the study of language
which do not subscribe to the requirement of explicitness are
by definition nongenerative.

The explicitness of a generative grammar is meant to enhance
its precision:  the more explicit a grammar or description
of a language, the easier it will be to check it for false
claims, internal inconsistencies, gaps or lacunae, unjusti-
fied hidden assumptions, etc.  Recently, Chomsky (1981b:336)
has reaffirmed his belief in formalization as a diagnostic
and heuristic tool:

> ".... formalization will not merely be a point-
> less technical exercise but may bring to light
> errors or gaps and hidden assumptions, and may
> yield new theoretical insights and suggest  new
> empirical problems for investigation."

Generative grammar, thus, differs from nongenerative grammar
not in regard to WHAT is claimed about natural language(s),
but rather in regard to HOW the claims are expressed.  That
is, the difference between a generative and nongenerative
grammar is not one of linguistic content;  the difference
is one of metascientific format.  This means that it is pos-
sible for two approaches to the study of language to differ
greatly in regard to what they claim about language (struc-

ture, etc.), but for both to be generative in virtue of the fact that they both adopt the criterion of explicitness for individual grammars.[3]

*In their frantic fervour to fling themselves at The Master, Prospective Players have from time immemorial floundered at the "generative vs. nongenerative" fork. In the beginning, when The Garden was still no more than a primaeval forest, a fundamental folly was to conflate, carelessly, "generate" with "produce" and to take a grammar to be a model of the speaker.[4] This mindless mistake, The Generative Gaffe, is being monotonously made to this very day. For a recent repetition, Dear Pupil, you may take a look at Schank's (1980:38) criticisms of The Master's account of how wh questions are formed, considering while you're at it also The Master's (1980b:53) repartee. Meanwhile, however, the second conceptual fork on the way to The Garden is waiting to be negotiated.*

1.2    The second conceptual distinction that is fundamen-
       tal to properly locating Chomsky's linguistics is
Chomskyan generative grammar vs. non-Chomskyan generative
grammar. That is, within generative grammar a distinction
has to be drawn between, on the one hand, the Chomskyan ap-
proach and, on the other hand, various non-Chomskyan ap-
proaches. This distinction reflects the fact that there
may be, and are, differing conceptions of the primary aim,
the guiding questions, and the fundamental problem in the
study of language. The primary aim of the Chomskyan
approach is mentalistic: to increase our understanding
of the nature and properties of the human mind. Chomsky
(1972:103) puts the point as follows:

> "There are any number of questions that might
> lead one to undertake a study of language.
> Personally, I am primarily intrigued by the
> possibility of learning something, from the
> study of language, that will bring to light
> inherent properties of the human mind."

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In their pursuit of this primary aim, Chomsky (1986:31) and
others are guided by questions about knowledge of language:
its nature, origin, and use. Among such questions the fol-
lowing are considered "basic" by Chomsky (1986:3):

(1)  (a)  What constitutes knowledge of language?
     (b)  How is knowledge of language acquired?
     (c)  How is knowledge of language put to use?

As to question (1)(a), Chomsky (1980a:166) considers a
speaker's knowledge of his native language to be a complex,
abstract system of rules.[5]  For many of the properties of
this system there is, in Chomsky's opinion, no evidence in
the speaker's childhood experience of the language.  This
gives rise to question (1)(b), which Chomsky (1981a:32)
also frames as follows:  "How does such knowledge [of
language --- R.P.B.] develop [in the individual ---
R.P.B.] ?"  This question is assigned by Chomsky (1986:7)
the status of "the fundamental problem" of his approach to
generative grammar.  To solve this problem, an explanation
has to be given of how children can come to know their
native language on the basis of what Chomsky considers to
be severely limited experience of or evidence about the lan-
guage.[6]

Chomsky's "abstract system" view of the nature of know-
ledge of language is also reflected by his general approach
to question (1)(c):  he (1986:4,  222) considers language
use  --- e.g. in the expression of thought or the under-
standing of specimens of language  ---  to be a case of
rule-following or rule-governed behaviour.  His approach to
the questions of (1) leads him to postulate that human
beings have a special innate mental faculty that makes lan-
guage acquisition and language use possible.  He refers to
this as the "language faculty".

In non-Chomskyan approaches to generative grammar, by con-
trast, the primary aim for the study of language is not
that of gaining insight into the properties of the human
mind. In particular, such approaches do not consider
question (1)(b) about language acquisition to be the fun-
damental problem to be solved by linguistic inquiry. That
is, these approaches are nonmentalistic, pursuing non-
psychological concerns about human language. Recently,
for example, Jerrold Katz (1981) has argued that a lin-
guistic theory has to provide a description of a nonmental,
abstract or Platonistic object "language", a point that
will be pursued in §2.5.14 below. Still other linguists,
e.g. Gerald Sanders (1980) and Michael Kac (1980), have
taken human language to be a cultural object; in so doing,
they have also assigned a nonmentalistic status/interpre-
tation to linguistic theories.[7]

The point, then, is that an approach to the study of lan-
guage may be at once generative and non-Chomskyan: gene-
rative in adopting the requirement that grammars, as
descriptions of languages, have to be perfectly explicit,
and non-Chomskyan in not having the aim of increasing
our understanding of the human mind by pursuing questions
such as (1)(a)-(c).[8]

*There has never been a time, Apprentice Player, when some Generative Gla-
diators did not attempt to change the character of The Game, contending
creatively that The Garden was in fact a nonmentalistic maze. Recently,
for example, Milner (1978) argued that one could do generative syntax in the
Chomskyan style without assigning mentalistic import to the resulting theories.
The Master (1982:31) countered with a subtle side-swipe:*

> *"I think a linguist can do perfectly good work in generative
> grammar without ever caring about questions of physical
> realism or what his work has to do with the structure of the
> mind. I do not think there is any question that that is possi-*

*ble. It just seems to me to indicate a certain lack of*
*curiosity as to why things are the way they are."*

*Only if a lack of curiosity had ceased to rate as a scholarly vice, would these*
*remarks have allowed Milner to get away unscathed. As for The Master, there*
*is no doubt that he has kept The Garden a mentalistic maze, unmoved by what*
*in his memoirs is called The Milner Maneuver.* [9] *Note, Dear Pupil, that, for*
*his counterstroke, The Master preferred a rapier to a club. Clearly, being*
*pierced with a rapier causes more permanent pain, particularly to a player's*
*pride, than being clobbered with a club. So, here is a first Principle of Play*
*that you might wish to commit to memory as The Rule of the Rapier:*

*The more refined the rapier,*
*the more painful the puncture it makes.*

1.3     But locating Chomsky's linguistics also requires a
        third conceptual distinction to be clearly under-
stood, namely Chomskyan linguistics vs. Chomsky's linguis-
tics. Within Chomskyan generative grammar, that is, a dis-
tinction has to be drawn between, on the one hand, Chomsky's
own conception of the structure of human language  ---  or
linguistic structure, for short  ---  and, on the other
hand, a variety of deviating conceptions of other Chomskyan
linguists. This distinction may be illustrated with refe-
rence to the status assigned by Chomsky to transformations

as rules of syntax. Chomsky has always believed that trans-
formations are fundamental to linguistic structure, though
over the years his views on the nature of these rules have
changed considerably. Various stages in the developmental
history of Chomskyan linguistics have seen linguists, how-
ever, who accepted the questions (1)(a)-(c) as representing
basic problems of linguistic inquiry, but who nevertheless
did not share Chomsky's view that transformations were fun-
damental to linguistic structure. In pursuing these ques-

tions such scholars --- e.g. Koster (1978a, 1979b) and
Freidin (1978), to mention just two --- were practising
Chomskyan linguistics or Chomskyan generative grammar.
In differing from Chomsky on the status of transformations,
however, they did not subscribe to Chomsky's linguistics
in a narrow sense.[10]

Chomsky's linguistics, then, represents the set of assump-
tions about linguistic structure held by himself at any
particular moment. From a developmental perspective,
Chomsky can be said to have been continuously revising
these assumptions, thus making his linguistics a relative-
ly volatile body of ideas. Chomskyan linguistics, by
contrast, has undergone far fewer changes over the years
--- a fact that will emerge more clearly as we proceed.

*The lesson, Pondering Pupil? You cannot play The Garden Game, unless your
adversary is The Master himself. Duelling with an adventurous understudy,
however committed, might serve to warm you up; it would never count as a
real contest. So, along the way, do not risk spilling your blood in a Number-
Two Tussle.*

1.4    And so we come to the fourth fundamental conceptual
       distinction that has to be mastered in order proper-
ly to locate Chomsky's linguistics: Chomsky's linguistics
vs. radical Chomsky-like linguistics. Over the years,
quite a number of variants of radical Chomsky-like linguis-
tics have been vigorously championed by erstwhile followers
of Chomsky's. What sets a variant of radical Chomsky-like

linguistics apart is the fact of adopting as a basic assump-
tion some very strong version of a view held by Chomsky
himself in a more nuanced form.  Or, such a variant of
Chomsky-like linguistics may retain as a basic assumption
a view once held by Chomsky but now no longer endorsed by
him.

In assuming that the deep structure of a sentence is iden-
tical to its semantic representation, generative semantics
initially constituted a classic variant of radical Chomsky-
like linguistics.[11]  And Katz's assumption that the semantic
interpretation of a sentence need not refer to any level of
syntactic structure other than deep structure represents a
related variant of radical Chomsky-like linguistics.[12]

It goes without saying that not all variants of Chomsky-like
linguistics are equally radical.  Some, moreover, are con-
ceptually better founded and empirically more adequate than
others.  From a socio-historical perspective it is striking
to see how many students and once ardent followers of Chom-
sky's have ended up practising some variant of radical
Chomsky-like linguistics.[13]

In many cases, Dear Pupil, the radical nature of variants of Chomsky-like lin-
guistics is reflected by a particular attitude of their proponents: they tend to
see their variant of Chomsky-like linguistics as the only "true" or "pure" represen-
tation of The Master's views, often using the term "generative grammar" in a
monopolistic fashion to denote this, and no other, variant.  "I am not the one to
fault", they often claim, "it is The Master himself who has deviated from the
straight and narrow road to linguistic salvation".  It would be most unwise, en
route to The Garden, to let yourself be taken on a Deceptive Detour by some
Old Boy who offers to show you  —  "It will only take a moment"  —  where
The Master "has made a mess".  Chances are that you won't ever reach The
Garden but will end up crazily confused in a corner of your detractor's own
pitiful little private property.

1.5   The fifth conceptual distinction that has to be
      understood in order properly to locate Chomsky's
linguistics is <u>generative grammar vs. transformational
grammar</u>. A linguist practises generative grammar if he
subscribes to a particular metascientific condition for
grammars, namely the condition of total explicitness.
A linguist practises transformational grammar if he holds
a particular substantive view of linguistic structure,
namely that transformational rules are fundamental to natu-
ral languages. "Generative vs. nongenerative" constitutes
a metascientific distinction, "transformational vs. nontrans-
formational", by contrast, represents a substantive linguis-
tic distinction. Thus, a generative grammar may or may not
use transformational rules. And, analogously, a transfor-
mational grammar may be either generative or nongenerative.
So in principle it is perfectly possible for a linguist to
practise any of the following four:  transformational-gene-
rative grammar, nontransformational-generative grammar,
transformational-nongenerative grammar or nontransforma-
tional-nongenerative grammar.  Chomsky's linguistics has
always been both transformational and generative.

*In the history of The Garden, Dear Pupil, many an aspirant player confused
"generative" with "transformational", thereby tumbling into The Transforma-
tional Trap. What you may take to be a simple slip-up was considered by some
a serious sin. In the primordial past, for example, there was a Keeper of the
Gates, a man called Dougherty, who showed no mercy to those who fell into
the Transformational Trap. Rather than helping them out and letting them in,
he passionately preached to them the part of Garden Gospel that is still re-
membered as Dougherty's Damnation.*[14]

In summary:  in locating Chomsky's linguistics within the
larger field of linguistics, we have found that his lin-
guistics is

1.   <u>generative</u>     :   it adopts the requirement that
                                grammars have to be perfectly
                                explicit;

2.  <u>Chomskyan</u>    :   it is guided by questions about
                             the nature, origin  and use of
                             knowledge of language, fundamen-
                             tal amongst which is the problem
                             of language acquisition (1)(b);

3.  <u>transformational</u>:   it accords syntactic transforma-
                             tions the status of fundamental
                             units of linguistic structure.

Although Chomsky-like linguistics and transformational gram-
mar are not included in it, the following diagram does pro-
vide some visual pointers as to where Chomsky's linguistics
fits  into the larger field of linguistics.

(2)



A = linguistics

B = generative ling-
    uistics

C = Chomskyan ling-
    uistics

D = Chomsky's ling-
    uistics
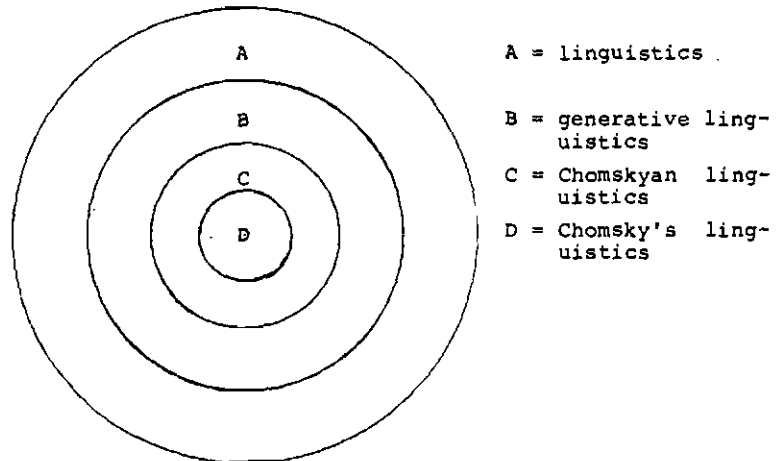
Many generative grammarians and Chomskyan linguists do not take
the trouble to ensure that their terminology reflects systema-
tically the conceptual distinctions represented in (2). Thus,
the term "generative grammar" is often used to denote Chom-

skyan (generative) grammar, even by Chomsky himself. Con-
sider in this connection the way in which he (1986:4-5)
has recently used the distinction <u>theory vs. topic</u> to clarify
the metascientific nature of his approach to the study of
language:

> "Generative grammar is sometimes referred to as a
> theory, advocated by this or that person. In fact,
> it is not a theory any more than chemistry is a
> theory. Generative grammar is a topic, which one may
> or may not choose to study. Of course, one can adopt
> a point of view from which chemistry disappears as
> a discipline (perhaps it is all done by angels
> with mirrors). In this sense, a decision to
> study chemistry does stake out a position on mat-
> ters of fact. Similarly, one may argue that the
> topic of generative grammar does not exist, al-
> though it is hard to see how to make this posi-
> tion minimally plausible."

From the context, it is clear that the phrases "generative
grammar" and "the topic of generative grammar" in these
remarks is intended by Chomsky to refer to (the nature, ori-
gin and use of) knowledge of language --- which of course,
strictly speaking, is "the topic" of Chomskyan linguistics.
In sum: newcomers to the field should take particular care
not to be thrown off the track by short-hand statements by
old hands of the nature, aims, concerns, etc. of "generative
grammar", "Chomskyan linguistics", "transformational gram-
mar", etc.

*So, thanks to expert guidance I dare say, you have been prevented from making*
*The Generative Gaffe, from being led astray by a Milner Maneuver, from be-*
*coming embroiled in a Number-Two Tussle, from being taken on a Deceptive*
*Detour, and from tumbling into The Transformational Trap. Happily, you find*
*yourself at the gates of The Garden. Are you ready then, Impatient Pupil, for*
*some Propaedeutic Play?*

## 2    THE MAZE OF MENTALISM

*Let us then start moving, Dear Pupil, into the heart of The Garden: The Maze of*
*Mentalism where matters of mind have been firing the fighting, fuelling the feuding.*
*As we push on purposefully, but with patience, I will reveal to you many of the mys-*
*teries and marvels of The Maze, marking out areas of maximum menace. And I*
*will introduce you to Possessed Players, past and present, along with the moves and*
*manoeuvres, ploys and passions, flops and follies for which they have gone down in*
*the Annals of The Game. Also, you will be told tales of terror and tumult about*
*nasty things that have been done in the name of The Game. And there will be more*
*than the occasional warning about strategies leading to self-destruction and about*
*recipes for ruin. Most important of all, I will give you ample opportunity to observe*
*the might of The Master, the power of his play, his ruthlessness in retaliation. You*
*will be allowed, as it were, to taste the meat of mentalism.*

What in essence, then, is the substance of Chomsky's answers
to the questions (1)(a)-(c) in §1.2 above? That is, what
is the core of his answers to the questions about the nature,
origin and use of language? These are the questions with
which the present section will be concerned. It will address
these questions by laying out seven constellations of con-
ceptual distinctions. These are the respective sets of dis-
tinctions that Chomsky has used to clarify the nature of the
following topics: the "fundamental" problem of language
acquisition, the nature of the linguistic experience in-
volved in language acquisition, the nature of the genetic
basis of knowledge of language, the nature of the process(es)
by means of which such knowledge is acquired, the nature of
the acquired knowledge itself, the nature of the rules and
the rule-following involved in the use of language, and the
nature of mind in general.

2.1    In §1.2  we saw that Chomsky considers question
        (1)(b), i.e.  "How is knowledge of language acquired?",
to represent the fundamental problem of his linguistics.
Obviously, his linguistics would make little sense to any-
one who failed to take a closer look at the nature of this

**problem of language acquisition.** So let us examine a con-
stellation of Chomskyan distinctions whose function it is
to elucidate and legitimate this problem.


2.1.1    A first conceptual distinction that bears on the
         nature of this problem is <u>the logical problem of</u>
<u>language acquisition vs. the psychological problem of lan-</u>
<u>guage acquisition</u>. To Chomsky, what he calls "the logical
problem of language acquisition" is represented by his
question (1)(b): How is it possible for children, on the
basis of insufficient evidence about or severely limited
experience of their language, to acquire the complex and
rich system that represents their knowledge of the lan-
guage? On Chomsky's view this system, as we noted in §1.2,
has many properties for which the speaker's linguistic
experience contains no evidence. As a stimulus for lan-
guage acquisition, this evidence is therefore considered
by Chomskyans to be too "impoverished". For this reason,
the logical problem of language acquisition has also been
referred to by Chomsky (1986:xxv) and others as "the pro-
blem of poverty or deficiency of the stimulus".[1]  In
what sense the stimulus is claimed to be "impoverished"
we shall consider in §2.2.1 below.


The psychological problem of language acquisition, by con-
trast, is the problem of "real-time acquisition": How does
a child acquire its language in stages over a period of time,
the earlier stages forming the basis of the later ones?
Chomskyan linguistics does not seek a solution to this pro-
blem. It addresses the psychological problem of language
acquisition only in so far as this problem presupposes an
understanding of the logical problem of language acquisi-
tion.[2] In the sixties Chomskyans introduced an idealiza-
tion, namely "instantaneous language acquisition", to say
that they were not concerned with the temporal intricacies
of real-time acquisition involved in the psychological pro-
blem of language acquisition. Chomsky and Halle (1968:331)
put the point as follows:

> "... there is another, much more crucial, idealiza-
> tion implicit in this account. We have been de-
> scribing acquisition of language as if it were an
> instantaneous process. Obviously, this is not true.
> A more realistic model of language acquisition
> would consider the order in which primary linguis-
> tic data are used by the child and the effects of
> preliminary 'hypotheses' developed in the earlier
> stages of learning on the interpretation of new,
> often more complex, data. To us it appears that
> this more realistic study is much too complex to
> be undertaken in any meaningful way today and that
> it will be far more fruitful to investigate in
> detail, as a first approximation, the idealized
> model outlined earlier, leaving refinements to a
> time when this idealization is better understood."

Over the years, moreover, Chomskyans have not changed these
views in any essential respect, as is clear from Chomsky's
(1981a:35) recent remark that his model of language acqui-
sition is "... an instantaneous model of language acquisi-
tion, ignoring the role of these intermediate states attained
between the initial and steady state ....". Specifically,
Chomsky (1986:54) still firmly believes that "... inter-
mediate states attained do not change the principles
available for interpretation of data at later states in a
way that affects the state attained".[3]

The conceptual fork considered above, Dear Player, has been the undoing of
many a player of The Generative Garden Game. Having misread it, players
have stormed up the logical path armed with psychological ammunition, bent
on blasting The Master into oblivion for his "failure" to shed sufficient light
on how "in real life" children "actually" acquire their language "in develop-
mental steps". But blasting can't be done with blanks, a Law of the Labyrinth
that McCawley (1980:27) recently rediscovered when he shot an empty shell
at the shadow of The Master:

"..... the programmatic accounts of language acquisition that appear
in Chomsky's works (e.g. 1965; 1975a) deal only with the end-product
of language acquisition and have nothing to say about the develop-
mental steps that would lead to that end-product ....."

There was no need for taking cover. The Master (1980b:47) merely had to "return
the compliment — indeed, generalize it", pointing out with respect to develop-
mental steps that

"..... insight awaits more comprehensive and systematic analyses of
stages attained prior to the relatively steady state that constitutes
mature knowledge — a difficult research task, but one that has
been addressed with some success ".

So much for McCawley's Stand on Steps.

2.1.2    To clarify the nature of the logical problem of
         language acquisition, that is question (1)(b),
from a historico-philosophical point of view, Chomsky (1986:
xxvii ff.) has invoked a further distinction, namely Plato's
problem vs. Orwell's problem:

          "Plato's problem  ....  is to explain how we know
          so much, given that the evidence available to us
          is so sparse.  Orwell's problem is to explain why
          we know and understand so little, even though the
          evidence available to us is so rich."

The logical problem of language acquisition (alternatively,
the problem of poverty of the stimulus) is a special case
of Plato's problem.  As noted by Chomsky (1986:xxv), Plato's
problem was also raised by Russell in the form of the ques-
tion "How comes it that human beings, whose contacts with
the world are brief and personal and limited, are neverthe-
less able to know as much as they do know?"

Orwell's problem, by contrast, arises in any society, total-

itarian or democratic, in which the dominant institutions
function on the principle that Ignorance is Strength. To
solve Orwell's problem, Chomsky (1986:xxvii) observes,
".... we must discover the institutional and other factors
that block insight and understanding in crucial areas of
our lives and ask why they are effective."[4] Plato's pro-
blem belongs to the sciences and is "deep and intellec-
tually exciting" to Chomsky (1986:xxix). Its solution
requires the discovery of explanatory principles that
would make sense of phenomena that appear chaotic on the
surface.

*So, Dear Player, should you get weary and worn down along the way or, worse,
hurt and humiliated in the hunt, then I'm afraid you cannot get out of The Game
simply by deriding it as a frivolous farce or a fracas for freaks. To do this would
be to show yourself a Philosophical Philistine, mixing your Philosophical P(lato)s
and Q(uine)s. Or, indeed, to make a Howler Most Unhistorical. For The Game,
as we have seen, has respectable roots going back to Ancient Athens of nearly
two and a half thousand years ago.*

2.1.3    Chomsky (1980a:65ff.;  1986:xxv-xxvi) presents a
         sharper formulation of the logical problem of lan-
guage acquisition by drawing the distinction a genetic or
innate component vs. an experiential component in language
acquisition. This distinction is based on his view that a
cognitive system such as a language results from the inter-
action between an organism's experience and the organism's
method of dealing with the experience. This method includes
what Chomsky (1986:xxv) calls "analytic mechanisms and the
intrinsic [i.e. genetic or innate  ---  R.P.B.] determi-
nants of maturation and cognitive growth". Given this dis-
tinction between experience and innate endowment, Chomsky
(1986:xxv-xxvi) is able to say that

      "The [fundamental --- R.P.B.] problem .... is to
      determine the innate endowment that serves to

bridge the gap between experience and knowledge
[of language  --- R.P.B.] attained .... ."

Let us consider Chomsky's conception of the two poles of the distinction "experience vs. innate endowment" a little more closely, thereby erecting some scaffolding for the remaining part of this section that deals with Chomsky's answers to questions (1)(a)-(c).

The innate or genetic component, on the one hand, accounts for those aspects of knowledge of language for which there is no evidence in the data available to the child acquiring the language. These are the aspects, then, that the child does not need to "learn" in any conventional sense of the term. Chomsky (1980a:31ff., 241, 245) takes these innate aspects of knowledge of language to be encoded in a genetic programme that is essentially the same in different members of the human species. This genetic language programme forms the "initial state" of a mental organ, called "the language faculty" by Chomsky, of which the "steady state" is the speaker's "full" knowledge of the language. In providing for an innate or genetic factor, Chomsky adopts a "nativist" position on language acquisition.

The experiential component of Chomsky's account of language acquisition provides for the role played by the data available to the child. This role, as we will see, is mainly (though not solely) that of a "trigger" that at various points in time activates the various parts of the genetic programme, thus guiding its unfolding. So Chomsky considers the development of the mental organ called "the language faculty" to be exactly parallel to that of a physical organ such as the heart or liver. This means that his solution to the logical problem of language acquisition boils down to the following: knowledge of language is on the whole not learned by a process of trial and error, conditioning, abstraction, association, etc.. Rather, such knowledge develops in the child by means of a process of biological

growth. Chomsky's views on the nature of the genetic/innate
and the experiential/evidential components of language
acquisition will be spelled out in §§ 2.2 and 2.3
in some detail by means of a whole range of further concep-
tual distinctions.

*Many a bloody battle has been fought, Prying Player, at the conceptual fork
signposted as "the innate/genetic vs. the environmental component".[19] The
neuropsychologist Luria (1975), for example, has charged that The Master's
assumption that certain principles of universal grammar are genetically
determined "makes a postulate out of a problem" and that "this means that
all further study in the area can lead us nowhere". In a counter-thrust, The
Master (1980a:210) has pointed out that these charges by Luria represent an
a priori argument which, if valid, would have to hold equally for the develop-
ment of physical organs:*

> *"that is, it would show that the hypothesis that the growth of
> arms rather than wings is genetically determined makes a
> postulate out of a problem and guarantees that further in-
> quiry will lead us nowhere. Since Luria would obviously not
> accept this conclusion, we are left with only one way of
> interpreting his argument: cognitive development must, on
> a priori grounds, be fundamentally different from physical
> development in that it has no genetic component."*

*This view The Master rejects as sheer dogmatism, and he twists the blade by
remarking:*

> *"One can imagine how comparable dogmatism would be regarded
> in the natural sciences". (p. 211)*

*The lesson, then: in attacking The Master for providing for a genetic component
in language acquisition, be careful not to use The Luria Lunge. That is, avoid the
use of a priori reasoning and dogmatic views to destroy a position which is inten-
ded to have empirical grounds. If you cannot show this position to be incorrect
or nonempirical, but still consider The Master's nativism to be misguided, there
must be more rewarding, less lethal things for you to do than trying to play The
Game.*

2.2    This brings us to the nature of the linguistic expe-
       rience or evidence available to the child that has to
acquire knowledge of its native language.  Recall that Chom-
sky's solution to the logical problem of language acquisi-
tion has to account for the poverty or deficiency of this
experience.  If the stimulus were not as poor as he makes it
out to be, Chomsky's nativism would obviously collapse.  So,
let us consider next a constellation of conceptual distinc-
tions used by Chomsky and others to clarify the nature of
this experience/evidence.


2.2.1   To flesh out his view that the child's linguistic
        experience constitutes an impoverished stimulus
for language acquisition, Chomsky draws the distinction the
poverty of the stimulus vs. the degeneracy of the stimulus.
He (1980b:42) considers the stimulus degenerate in that the
data-base for language acquisition contains expressions that
are not well-formed, including, for example, slips of the
tongue, incomplete utterances, utterances characterized by
pauses, false starts, endings that do not match their begin-
nings, etc.  The stimulus  is impoverished, however, in the
sense that it contains no evidence at all for certain pro-
perties and principles of (the grammars of) the languages
acquired by children.[5]  Chomsky's argument for the postu-
lation of a genetic component or innateness is based on
(his perception of) the poverty of the stimulus and not on
(his assessment of) the degeneracy of the stimulus.

An example, recently used by Chomsky (1986:7-8), may serve
to clarify further the notion of "poverty of the stimulus".
Consider the manner in which (1) and (2) are interpreted.

(1)    I wonder who [the men expected to see them].

(2)    [the men expected to see them]


Although both (1) and (2) include the clause "[the men ex-
pected to see  them]", these forms are interpreted quite

differently. In (1), the pronoun <u>them</u> may be interpreted
as referring to the people denoted by the (antecedent) ex-
pression <u>the men</u>; in (2) this pronoun cannot be understood
as referring to these people. (In (2) the referent of <u>them</u>
is determined by what Chomsky calls "the situational dis-
course or context".) Chomsky (1986:8) claims that these
facts about the interpretation of (1) and (2) "are known
without relevant experience to differentiate the cases".
On Chomsky's view, that is, the stimulus is impoverished in
the sense that it contains no evidence for the principle
--- currently formulated within binding theory ---
which the child has to "acquire" in order to be able to
interpret (1) and (2) correctly. Over the years Chomsky
and his followers have presented a variety of examples that
are taken to illustrate the poverty of the stimulus.[6]

The "degeneracy-poverty" fork, Dear Player, has been the cause of a number
of fatalities in The Game. Certain players of a psychological or psycholinguis-
tic bent have rather carelessly taken "poverty of the stimulus" as resulting
from the unacceptability of utterances with false starts, hesitations, slips of
the tongue, etc. These players have then — in the words of one of them,
Cromer (1980:16) — proceeded to

> "argue that data from mother-child interaction studies demon-
> strate that the input to the child is not a degenerate stimulus
> of this type. It is made up of short, well-formed structures
> and constitutes an ideal stimulus for inducing grammatical re-
> gularities (see, e.g., various contributions to Snow and Ferguson
> 1977). They conclude that since Chomsky's arguments for in-
> nateness are primarily based on the poverty of the input
> stimulus (in this sense of ill-formed utterances), his position
> has accordingly been falsified."

The moral of this story is that it is a waste of energy to attack The Master's
position on the poverty of the stimulus by appealing to data — such as those
furnished by, for example, Labov (1970:36-42) --- which indicate that the stimu-
lus is not as degenerate as he makes it out to be.

*Springing, as it does, from a conflation of poverty and degeneracy (of the stimulus), this line of attack — the Poveracy Ploy — has required no real evasive action by The Master.[7)]*

2.2.2    To clarify the nature of the experiential stimulus
         or evidence for language acquisition, a further
distinction has been drawn, namely <u>the simplified data of-
fered by mothers and caretakers to children vs. the actual
data-base for language acquisition</u>.   Chomsky's (1980b:42)
position is that there is no evidence that the simplified
data offered to children in the form of "motherese" consti-
tute the stimulus on the basis of which children actually
acquire their language.[8)]   And there is evidence, he claims,
which shows that such simplified data or motherese could
even make language harder for children to acquire and lan-
guage acquisition more of a mystery to linguists and psy-
chologists.   By avoiding apparently complex constructions,
motherese could impoverish the data-base for language
acquisition even further.   At the same time it would turn
the acquisition of such constructions into a greater
mystery.

*So it would be asinine, Pondering Player, to attack The Master by claiming that the stimulus for language acquisition is enriched by the contribution of "mother-ese" and, consequently, is not nearly as impoverished as he makes it out to be. Such Motherese Missiles, fired at The Master by Cromer (1980:16) and others, have consistently missed their mark. And, as we will see in §2.2.6 below, The Master has an even better form of defence against such long-range shots. What was intended to have the kick of a cannon turned out to have no more than the clap of a Cromer Cracker.*

2.2.3    There is another conceptual distinction that is
         relevant to the question of just how adequate
the stimulus for language acquisition is.   This is Chomsky's
(1986:31) distinction <u>the data available to the child learn-
ing a language vs. the data available to the linguist study-</u>

ing the language. Chomskyans have assumed that the data
available to the child studying a language are much more
limited than the data available to the linguist who
studies the language. The linguist, they assume, can sys-
tematically get to know that sentences are ambiguous, are
paraphrases of each other or are ungrammatical. The child,
by contrast, is believed not to have (systematic) access
to information about ambiguity, synonymy and ungrammatica-
lity.[9] Such information is considered to be "... not
available to preschool children and not part of their ver-
bal experience".[10]

On the standard view "... children have access only to
sentences and pseudo-sentences uttered in appropriate con-
text....".[11] These sentences and pseudosentences are
assigned the status of "primary linguistic data" and, with-
in the framework of the idealization of instantaneous
acquisition, are taken to constitute the "totality of data
available to the language learner" (Chomsky 1986:52). So
far as the availability of evidence about language is con-
cerned, a child is therefore in a worse position than a
linguist. In relation to the evidence about a language, a
child cannot be viewed as a "little linguist".

So *The Master's position on the impoverished nature of the stimulus cannot be
attacked by alluding to the extensive and varied range of data known to the
linguist studying the language. Nor, Apprentice Player, would it do to claim
that children, in being "constantly" corrected by parents, receive exten-
sive evidence about which sentences are ungrammatical and which are not. For,
as observed by Baker (1978:411),*

> "Recent studies of child language use tend to suggest that such
> negative information in the form of corrections is not available
> to children in very large quantities or on a very systematic
> basis.[1] They suggest a wide variation in the ability of indivi-
> dual parents to notice grammatical mistakes in their children's
> speech and a correspondingly large variation in their propensity
> for making corrections. They also suggest that children quite
> frequently either resist a correction when it is made, or else do

*not understand it. There is thus some room for doubt as to
whether such corrections as are made actually play a critical
role in leading a child toward the system of rules that he
eventually acquires."[12)*

*As regards the availability of data, then, there simply is no Little Linguist Loop-
hole. You would be well advised, Pensive Pupil, to accept this as a fact and to look
for an opening elsewhere.*

2.2.4    The notion of "the data available to the child
        learning a language" may be sharpened by means
of a further conceptual distinction,  namely primary lin-
guistic data vs. data about child grammars.  We have noted
in §2.2.4  above that the primary linguistic data (a) are
the data available to "preschool children", (b) include
"sentences and pseudo-sentences uttered in appropriate con-
text", and (c) do not include (sufficient) evidence about
such properties of sentences as ungrammaticality, synonymy,
etc.  "Data about child grammars"  ---  an expression used
by, for example, Hornstein and Lightfoot (1981c:30, n. 8)
---  denotes data about developmental stages/states that
interlink the initial and steady states.  Such data may be
gathered by observers  ---  e.g. linguists, parents, teach-
ers, etc.  ---  from the linguistic behaviour of children.

The effect, however, of the idealization of instantaneous
language acquisition is to exclude data about child gram-
mars from the corpus of primary linguistic data.  So much
is clear from Chomsky's (1981a:35) remark that to adopt
this idealization is to ignore "... the role of these
intermediate states in determining what constitutes lin-
guistic experience ....".

*What is the point of all this? Perhaps, Puzzled Player, you feel that The Mas-
ter has exaggerated the poverty of the stimulus. Perhaps you contemplate a
confrontation on the basis of his having forgotten that so-called data about
child grammars/acquisitional data may be available to the child too. The coun-*

*ter to your charge would be that you have yourself forgotten a thing or two: the
distinction between the logical and the psychological problem of language acqui-
sition and the associated idealization of instantaneous acquisition (cf.§2.1.1). And
it might be intimated that, in your eagerness to lump primary linguistic data and
data about child grammars together, you have invited a counter-charge of instan-
taneous idiocy.*

2.2.5    Even if the stimulus or data presented to a child
         were sufficiently rich, one still would have to
keep in mind Chomsky's (1983:262) distinction  the child's
being exposed to evidence about its language vs. the child's
learning the language.  This distinction  ---  for which
Chomsky credits Papert  ---  he illustrates in the following
way:

> ".... just to present evidence isn't enough;  you
> can sit a child in front of a television set, for
> example, and run well-formed sentences in front of
> him, and I'm sure he is not going to learn a thing.
> So that means that simply having the evidence pre-
> sented to you is not enough for learning.  Suppose
> that I tried to teach something to Premack's chim-
> panzee, Sarah;  I'm sure that I could give her all
> the evidence  ---  an apple, a triangle  ---  and
> she wouldn't learn anything because I am not doing
> whatever is necessary to get the system to func-
> tion.  I don't know how to do this;  he does.  We
> must discover what is necessary to get the system
> to function;  then, if we are interested in going
> a step further, we will ask what there is in that
> organism (obviously genetically determined, because
> there is nothing else) that brings it about that
> in presenting the evidence as I did, I didn't do
> what was necessary to make the system function."

The distinction under consideration is a special case of the
more general distinction between teaching and learning, as

is made clear by Bickerton (1981:139)  ---  in whose theory
of language acquisition, as in Chomsky's, a significant
role is assigned to an innate or genetic factor.  Bickerton
has pointed out that to equate the simplified  data of
motherese with the data on the basis of which children
actually acquire their language is likewise to commit a
logical fallacy:

> "If we accept that in the vast majority of cir-
> cumstances mothers do teach and children do learn,
> it by no means follows that children learn BECAUSE
> mothers teach.  It would be logically quite possi-
> ble to argue that there is no connection whatsoever
> between mothers'  teaching and children's learning,
> any more than there is between children's walking
> and uncles' dragging them around the room by their
> fingertips."

So, Dear Player, don't delude yourself: The Master won't be lured into a Trite
Teaching Trap. Thus, he (1980a:100) has observed:

> *'It is commonly argued that language is not only learned but
> taught by conditioning and training. Strawson and Quine, for
> example, have been insistent on this point.*[13] *Presumably
> this, at least, is a question of fact, and the facts seem to
> show pretty clearly that the assumption is incorrect."*

In note 13 of this quotation, The Master refers to his (1975a) discussion of Strawson's
(1970) pronouncement that

> ".... it is a fact about human beings that they simply would
> not acquire mastery [of a language] unless they were exposed,
> as children, to conditioning or training by adult members of
> a community."

The Master (1975a:237) has found "no reason to believe that these factual claims
are true". And, Dear Player, even if you could think of such a reason, various
other dangers lurk down Learning Lane, as I will let you see in §2.4  below.

2.3    What we now have to consider is the nature and role
       assigned by  Chomsky to the genetic component in the
acquisition of knowledge of language. We will do this by
considering one by one the members making up yet another con-
stellation of conceptual distinctions on which Chomskyan
linguistics is  based.  I will present these distinctions
as they are to be found in various writings by Chomsky,
warning the casual reader that some of them are partly over-
lapping in content and that others differ in formulation
only.


2.3.1    We saw in §2.1.3  above that Chomsky locates the
         genetic component of language acquisition in the
speaker by postulating "a distinct system of the mind/brain",
the language faculty.  With reference to this system he
(1980a:187);  1983:109;  1986:25-26) draws the fundamental
distinction initial state vs. (relatively) stable steady
state.  It is the initial state of the language faculty that
Chomsky takes to be "genetically determined".  Put another
way, the initial state of this faculty incorporates the
genetic language programme, or genetically encoded linguis-
tic principles, representing the child's innate linguistic
endowment.

The language faculty is in its initial state in a child
that has not had any linguistic experience.  Under the "sti-
mulating" or "triggering" influence of such experience, the
initial state  ---  also called "universal grammar" (UG) or
"the language acquisition device" by Chomsky (1981a:34-35)
---  develops, through a number of intermediate states, into
the (relatively) stable steady state, also referred to as
"the attained state".  This stable steady state of the lan-
guage faculty is what Chomsky has characterized as "know-
ledge of language"[13]   or "the (speaker's) mental grammar".
Accordingly, the initial state  ---  universal grammar or
the language acquisition device  ---  is regarded by Chom-
sky (1980a:65, 187;  1981a:34) as "a function that maps a

course of experience into" the steady state, (the system
of) knowledge of language or the mental grammar. The ini-
tial state of the language faculty, on Chomsky's (1980a:65)
view, constitutes an element of the (child's) genotype;
the stable steady state being an element of the (mature
speaker's) phenotype.[14]

The fundamental distinction drawn by Chomsky with reference
to the two states of the language faculty are terminologi-
cally reflected by the following pairs of expressions:

(3)    °the initial state of                the (relatively) stable
       the language faculty    vs.          steady state of the
                                            language faculty

       °the genetically en-                 the attained knowledge
       coded linguistic        vs.          of language
       principles

       °the universal gram-                 a (particular) mental
       mar/the language        vs.          grammar
       acquisition device

       °the innate linguis-                 the acquired/attained
       tic endowment           vs.          knowledge/grammar

       °the (linguistic)                    the (linguistic) phe-
       genotype                vs.          notype

Since Chomsky is concerned with locating the genetic compo-
nent of language acquisition in the real world, the left-hand
members of the terminological pairs of (3) are intended to
have the same referent. And, in this context, all the right-
hand members should denote the same object too.  There are
contexts within which, as we shall see in §2.5  below, a
conceptual distinction has to be drawn between "language" and
"grammar"  ---  even though in the right-hand column above
they have been lumped together.[15]

*From The Garden point of view, what we have here is Treacherous Terminologi-*
*cal Terrain. At first glance, Perplexed Player, it has the appearance of an*
*intricate network of criss-crossing paths. "But this is a Mentalistic Mirage mas-*
*terfully created by means of terminological mirrors to confuse Players of Poor*
*Perception", some Stray Souls would charge. Some well-meaning spirits have*
*tried to lighten up The Game by issuing special directions. Thus, at an away*
*game played in a formal garden in France, one of the organizers suggested that*
*"steady state" might be conceptually distinguished from "stable state":*

> *"Steady states are typical of dynamic equilibria, whereas*
> *stable states are typical of static equilibria."* [16]

*But in The Garden, there is neither a "steady" lane nor a "stable" lane leading*
*from any of the forks that really matter. If I were you, Puffing Pupil, I would*
*learn the following Lesson of the Labyrinth:*

> *Don't see shapes where only shadows lurk.*

2.3.2     Chomsky uses various further conceptual distinc-
          tions to clarify his conception of the (initial
state of the) languge faculty, the first being innateness
vs. specificity. Thus, consider the following remark made
by him (1983:179) in the Royaumont debate:

> "On this point I agree with Premack.  I think
> he is right in talking about two different
> problems that enter into this whole innate-
> ness controversy.  The first is the question
> of the genetic determination of structures
> .... The second problem concerns specificity."

Innateness, then, concerns the genetic basis of language
acquisition as this is embodied in the initial state of the
language faculty.  Specificity represents a distinct pro-
perty of a mental faculty, as is clear from the following
two questions that arise about the specificity of the lan-
guage faculty:  "Is this faculty specific to the human
species only?" and  "Is this faculty specific to the acqui-

sition of language only?" Note that a distinction has to be drawn between species-specificity (the first question) and language-specificity (the second question).

As regards the question of species-specificity, Chomsky (1983) does indeed consider the (initial state of the language faculty) to be species-specific: a species characteristic, common to all humans and restricted to humans only. The language faculty, in other words, is taken by him to be "a property of the mind/brain that differentiates humans from rocks, birds, or apes". We will see below in §2.5.16 that this view cannot be falsified by citing the existence of a couple of clever, "talking" chimpanzees.

As regards language-specificity, the (initial state of the) language faculty represents a distinct faculty for the acquisition of language alone. It does not instantiate general/generalized learning mechanisms, a point which we will examine in §2.3.3 below. Nor have the constitutive principles of the language faculty been found to characterize other cognitive faculties, a point to be pursued further in §2.7.3 below. In sum: innateness implies neither species-specificity nor language-specificity. And innateness is not implied by either of these forms of specificity.[17]

*Playing The Game at Royaumont, Piaget (1983:31) attacked The Master's postulation of innate structures or mechanisms from the angle of species-specificity. He charged that in being peculiar to the human species the mutations that might have given rise to these innate structures "would be biologically inexplicable". This thrust has been parried by The Master's (1983:36) response that*

> *"Although it is quite true that we have no idea how or why random mutations have endowed humans with the specific capacity to learn a human language, it is also true that we have no better idea how or why random mutations have led*

to the development of the particular structures of the mamma-
lian eye or the cerebral cortex."

A response on which, in a different context, he (1980a:207) elaborates as follows:

".... he [i.e., Piaget — R.P.B.] offers no argument at all
that the postulated mechanisms are any more 'inexplicable'
than mechanisms postulated to account for physical deve-
lopment; indeed, even the most radical 'innatists' have sug-
gested mechanisms that would add only a small increment
to what any rational biologist would assume must be gene-
tically determined."

And, as if this was not enough, The Master (1983:36) has turned defense into
counter-attack:

"Little is known concerning evolutionary development, but
from ignorance, it is impossible to draw any conclusions.
In particular, it is rash to conclude either (A) that known
physical laws do not suffice in principle to account for the
development of particular structures, or (B) that physical
laws, known or unknown, do not suffice in principle.
Either (A) or (B) would seem to be entailed by the conten-
tion that evolutionary development is literally 'inexplicable'
on biological grounds. But there seems to be no present
justification for taking (B) seriously, and (A), though con-
ceivably true, is mere speculation."

Rubbing salt into the wound, The Master (1980a:207) remarks that:

"Piaget's complaint would be correct if he had said 'bio-
logically unexplained' instead of 'biologically inexplicable',
but then the same might be said about current ideas con-
cerning development of physical organs of the body."

So if ever you should attempt, Dear Player, to succeed where Piaget failed, then
do be careful to observe the distinction biologically inexplicable vs. biologically
unexplained. But to get to the essence of the matter: I have recounted

*Piaget's Plight to draw your attention to a particular Canon of the East Coast Code of Combat:*

*Rashness will bring rapid ruin.*

*And, in passing, you might also note that innateness cannot easily be attacked from the angle of (species-)specificity, and vice versa.*

2.3.3    Fundamental to Chomsky's (1983:320ff.; 1986:4, 150) conception of language acquisition is the distinction <u>distinct language faculty vs. general(ized) learning mechanisms</u>. A child, it has commonly been assumed, acquires its language with the aid of the same general/generalized learning mechanism --- also referred to as "general intelligence", "multi-purpose learning strategies", etc. --- that it uses in the learning of nonlinguistic materials --- say, physics, history, the rules of chess, etc. Chomsky, however, has rejected this view of language acquisition, claiming that there is a distinct mental faculty specifically for the acquisition of language. This view he (1983:320) bases on considerations such as the following:

> "There are, in fact, striking and obvious diffe-
> rences between language learning and the learning
> (or discovery) of physics. In the first case, a
> rich and complex system of rules and principles
> is attained in a uniform way, rapidly, effortless-
> ly, on the basis of limited and rather degenerate
> evidence. In the second case, we are forced to
> proceed on the basis of consciously articulated
> principles subjected to careful verification with
> the intervention of individual insight and often
> genius. It is clear enough that the cognitive
> domains in question are quite different. Humans
> are designed to learn language, which is nothing
> other than what their minds construct when placed

in appropriate conditions; they are not designed
in anything like the same way to learn physics.
Gross observations suffice to suggest that very
different principles of 'learning' are involved."

Chomsky (1983:110) does not deny that the language faculty, on
the one hand, and, on the other hand, the learning mechanisms
operative in nonlinguistic cognitive domains will turn out to
"have some properties in common". Nor does he deny that there
are forms of language acquisition --- e.g. the acquisition of
vocabulary items, or the acquisition of a second language by
an adult --- in which learning mechanisms other than the lan-
guage faculty play a role. His skepticism is directed at the
status of general/generalized learning mechanisms, or of what
he (1983:110) also calls "a general learning theory":

"The common assumption .... that a general
learning theory does exist, seems to me
dubious, unargued, and without any empi-
rical support or plausibility at the moment."

To many a Player of Power — such as Putnam and Piaget — The Master's
postulation of a faculty peculiar to language acquisition has offered an irresis-
tible target. Putnam (1983a:295), for example, has contended that "our cogni-
tive repertoire .... must include multipurpose learning strategies, heuristics, and
so forth". He (1983a:296) has remarked, moreover, that "Once it is granted that
such multipurpose learning strategies exist, the claim that they cannot account
for language becomes highly dubious ...."[18] Putnum's Probing has failed, how-
ever, to force The Master to retreat, as is clear from the following counter-
attack:

"All that Putnam has so far assumed is that $S_o^L$ [the genetically
determined initial state for language learning --- R.P.B.],
whatever it may be, contains only the general mechanisms for
learning. Recall that he gives no hint as to what these are. To
invoke an unspecified 'general intelligence' or unspecified 'multi-
purpose learning strategies' is no more illuminating than his refe-
rence, at one point, to divine intervention. We have no way of

> knowing what, if anything, Putnam has assumed. The point is
> worth stressing, since it illustrates a common fallacy in discus-
> sions of this sort. The use of words such as 'general intelligence'
> does not constitute an empirical assumption unless these notions
> are somehow clarified." (Chomsky 1983:320)

If you had in mind, Dear Player, using a form of offensive similar to the Putnam
Probe, then do please think again. Think, specifically, about two questions. First,
when challenged on the matter, what would you have to say for yourself about
the general nature and specific properties of "general/generalized learning mecha-
nisms", "general intelligence" or "multipurpose learning strategies"? If the sub-
stance of your answer were to be "Nothing of a detailed sort", then why not opt
for "divine intervention" to begin with? Second, could you show that the child
acquires linguistic principles such as those involved in, say, Subjacency or Binding
in essentially the same way as, for example, laws of physics, rules of chess, etc.?[19]
If you couldn't, why bother at all? So, when playing on your own, do keep in mind
the following Moral of The Maze:

> The Master's conception of a distinct faculty for language
> acquisition must be respected as a truly taunting target,
> simple to see, difficult to dent.

As we will observe in §2.4.6 below, the same experience befell the Piagetian
Players who contended that language acquisition was made possible not by a
distinct, specific language faculty, but rather by a more general "sensorimotor
intelligence".[20]

●

2.3.4    Returning now to the species character of the
         (initial state of the) language faculty, we need
to note a further distinction  that bears on it, namely
(idealized) uniformity vs. (real) variation in the species.
As is the case with other species characteristics, one
would expect fo find among humans some variation in the
initial state of the language faculty.    Chomsky (1986:
18), however, contends that

> "It is plausible to suppose that apart from
> pathology (potentially an important area of in-
> quiry), such variation as there may be is mar-
> ginal and can be safely ignored across a broad
> range of linguistic investigation".

Thus, Chomsky's view of the initial state of the language
faculty embodies an idealization:   uniformity in the species.

*The uniformity idealization, Dear Player, has been built into The Game for the
purpose of protecting The Master from Petty Pestering. No amount of juggling
with data about linguistic deficiencies of, for example, children with congenital
brain defects would make The Master drop his guard. Such conjuring would be no
less silly, in fact, than the dumb deictic deed of pointing at an ape to ridicule
The Master for his species-specificity stand, as we will come to see.* [21]


2.3.5     In making a critical assessment of the contents
          assigned by Chomsky to the genetically determined
initial state of the language faculty, a basic distinction
has to be observed, namely <u>genetically determined factors
vs. factors operative at birth</u>.  Chomsky (1986:54) draws
this distinction to accommodate the assumption that the lan-
guage faculty undergoes a maturation whose course (ordering
and timing) is genetically determined.  This provides for
the possibility, noted by Chomsky (1986:204, n. 3), "that
certain principles of UG are not available at early stages
of language growth", obviously including the initial state. [22]

*How, then, does the conceptual fork signalled above affect The Game? Let us
suppose, probably counter-factually I dare say, that you were to hit on a method
of "looking into" the mind of a newborn child. Suppose, moreover, that you
failed "to see" Subjacency, a genetically based principle on The Master's view,
in the initial state of the language faculty. What, then, Pupil Player, would be
the prudent move? I suggest: take a deep breath and refrain from hitting out
at The Master for making a fallacious claim about the initial state of the lan-
guage faculty. Such action would be based on a fallacy of your own, the Neonate*

*Non Sequitur. What you should have "looked into" is the fully matured initial state of the language faculty. The general moral of the story: Players cannot be too careful in drawing conclusions about the initial state of the language faculty from data about the properties of "child grammars", — that is, descriptions of the knowledge that linguistically nonmature speakers have about their language.*

2.3.6    The distinction genetic vs. epigenetic might also
         appear to be relevant to an appraisal of Chomsky's
claims about the initial state of the language faculty.
This distinction relates to two different ways of approach-
ing innate structures.  On the genetic or preformationist
approach, innate structures or properties are in some
sense fully formed at the beginning of development.  That
is, these structures or properties are in some sense
directly encoded in the genes.  On the epigenetic approach,
innate structures arise in the development of the embryo
but are not directly encoded in the genes.  Factors or
constraints of a mechanical and a chemical sort are held
to play an important role in such epigenetic development
of innate structures or properties.[23]

*The question, then, is whether The Master considers the innate principles and properties of the initial state of the language faculty to be genetic or epigenetic. Catlin (1978) contended that The Master's view of universal grammar incorporated the genetic approach.[24] This, however, has been denied by both Cromer (1980: 18) and The Master (1980b:43) himself since, in the latter's words,*

> *".... I take no stand (here or elsewhere), agreeing [with Cromer — R.P.B.] that there seems no current possibility of distinguishing them [the genetic vs. the epigenetic approach — R.P.B.] empirically".*

*So, "genetic vs. epigenetic" represents a conceptual fork for future construction:
at present all we have at this point in The Garden is Catlin's Cul-de-sac.*

2.3.7     Various conceptual distinctions drawn by Chomsky
          are meant to clarify the nature of the components
that make up the initial state of the language faculty.
Here we will consider one of those distinctions, namely
the distinction fundamental principles vs. open parameters,
in order to clear the ground for dealing with the nature of
the acquisition process in §2.4  below.  Viewing the make-
up of the initial state of the language faculty at an
abstract, mental  level, Chomsky (1981a:38 ff., 1981b:3 ff.,
1986:146, 150) portrays it as a highly structured system of
fundamental principles many of which have open parameters
associated with them.[25]

A typical example of these fundamental principles is pro-
vided by Subjacency.  Subjacency, as we have seen, implies,
roughly speaking, that a phrase cannot be moved "too far"
within a sentence, where "too far" means "out of two boun-
ding categories".  As a fundamental principle, Subjacency
on Chomsky's view is genetically encoded, i.e., not acquired
on the basis of linguistic experience.  A fundamental prin-
ciple such as Subjacency may, however, have one or more
open parameters whose values are fixed by the child's
linguistic experience.  In the case of Subjacency, Chomsky
(1981a:55) takes the choice of the bounding category to be
an open parameter. Whereas $\bar{S}$ and NP represent bounding
categories that hold good generally, S represents an op-
tional bounding category.[26]  On the basis of their lin-
guistic experience children will select S as an additional
bounding category if they happen to be acquiring English,
for example, but not if they happen to be acquiring Ita-
lian.  That is to say, English and Italian both use Sub-
jacency as a fundamental principle, but they differ in
regard to the way in which the open parameter of choice of
bounding category is fixed.  French moreover, on  Chomsky's

(1981a:55-56) view, differs from both English and Italian in regard to the fixing of this parameter. Unlike English (and like Italian), it does not select S as a bounding category for infinitival clauses. But, unlike Italian (though like English), it does select S as a bounding category for finite clauses.[27]

Let us, for a moment, consider the distinction between fundamental principles and open parameters in relation to the logical problem of language acquisition. As noted by Chomsky (1981b:3), this distinction provides the basis for an account of how it is possible for the initial state of the language faculty to satisfy two apparently conflicting conditions. On the one hand, this state of the language faculty must make it possible in principle for the child to acquire any one of a wide diversity of possible human languages (or, more accurately, "grammars" --- as we will see below). On the other hand, this state must be sufficiently restrictive so as to make it possible for the child to acquire, on the basis of limited evidence, the specific language of the speech community to which it belongs. The genetically determined fundamental principles provide for the "plasticity" to acquire any one of a wide diversity of languages; the open parameters make it possible to acquire a specific language on the basis of limited linguistic experience.

*Both the distinction "fundamental principles" vs. "open parameters", and the associated notion of "the selection of values for fixing parameters", represent important features of the layout of The Garden. Failure, Dear Player, to recognize these features for what they are, may trick you into doing something superlatively stupid : charging that, say, Subjacency could not be part of an innate, genetic component of the language faculty since it did not show up in the same form in (even closely related) languages. A charge of this sort would be the result of an Errant Equation, namely the claim that "innate" equalled "invariable".*

2.4     Having considered Chomsky's view of the genetically
        determined initial state of the language faculty, we
can now look at his conception of the nature of the process.
of language acquisition. Generally speaking, this is the
process by means of which the steady state of the language
faculty, representing knowledge of language, is attained
on the basis of the genetically determined initial state.[28]
Over the years, Chomsky has drawn various conceptual dis-
tinctions to clarify the nature of this process.  As we
look at these, it will become clear that his ideas about
the nature of the process of language acquisition have under-
gone subtle but significant changes.


2.4.1    A fundamental distinction drawn by Chomsky (1980a:
         134-135; 1980b:47) in an attempt to clarify the
nature of language acquisition is that of growth/maturation
vs. learning.  He observes that when the heart, visual
system or other organs of the body develop to their mature
form, we speak of growth rather than learning.  Growth,
then, is a process in which an organ develops (or, alter-
natively, by which the final structure of an organ is
attained) along a course largely predetermined by our genet-
ic programme.  Chomsky takes this programme to provide

        "a highly restrictive schematism that is
        fleshed out and articulated through inter-
        action with the environment ....".

The developmental process of learning, however, takes place
by means of association, induction, conditioning, hypothe-
sis-formation, confirmation, abstraction, generalization,
and so on.  These processes, Chomsky believes, play no sig-
nificant role in the acquisition of language.  He (1980a:
139) does provide for some role for "mechanisms of associa-
tion (etc.) .... in the acquisition of idiosyncracies (e.g.,
specific inflectional patterns and choice of vocabulary
items),...".

But knowledge of language (or grammar), on Chomsky's view,
"develops in the child through the interplay of geneti-
cally determined principles and a course of experience".
To him (1983:73) language acquisition represents growth,
therefore, rather than learning:

> "..... development of specialized hardware
> or of a specialized system that comes into ope-
> ration, perhaps in the way in which sexual matu-
> ration takes place at a certain age for reasons
> that are probably deeply rooted in genetics,
> though naturally external conditions have to be
> appropriate."

The conceptual fork "learning vs. growth" has proved to be a hazard and, indeed,
the undoing of many — including a Passionate Player such as McCawley (1980:
27), who argued:

> "Chomsky wonders whether we can 'distinguish learning from
> growth in terms of the state attained'. We can, since learning
> and growth individuate differently. If one is given appropriate
> exposure to French, Flemish, and German, one develops command
> of all three languages but does not develop three larynxes or
> three pairs of ears. Your genes fix in advance the number of
> organs of each type that you'll develop, but they don't fix in ad-
> vance the number of bodies of knowledge (e.g. languages) that
> you'll acquire through the use of each 'mental organ'. The possi-
> bility of acquiring several bodies of knowledge of a given type
> is the clearest evidence that I know of for the proposition that
> the mind involves some sort of slate."

Unruffled, unrattled, The Master (1980b:47-48) responded:

> "McCawley has missed the point of my remarks on distinguish-
> ing learning from growth in terms of properties of the state
> attained. As I noted (p. 13), we might do so by speaking of
> 'learning' in the case where the state attained is a system of
> belief or knowledge, but 'if we do, then it is not clear that any

*coherent notion of learning will remain,' for reasons given there.*
*McCawley takes the criterial property of 'learning' to be indivi-*
*duation; since our mind can acquire knowledge of several lan-*
*guages, acquisition of language is 'learning' (so that if it turned*
*out that 'coordinate bilingualism' is impossible, rather only 'com-*
*pound bilingualism', in which knowledge of one language is built*
*on knowledge of another, then first-language acquisition would*
*not be 'learning'). Clearly, this does not respond to the point I*
*discussed."* [29]

*And, having blunted McCawley's attack, The Master (1980b:48) went on the offen-*
*sive:*

> *"In fact, McCawley's proposal raises the problem discussed in a*
> *more severe form than mine did. The body can become accus-*
> *tomed to a certain style of food (say, highly spiced). But it can*
> *accommodate to several such styles. When I receive eyeglasses*
> *with a stronger correction, I slowly come to accommodate and*
> *to see without distortion, but I continue to see without distortion*
> *when the glasses are removed, so that my visual system is in 'two*
> *states' in McCawley's sense. If such examples constitute 'learn-*
> *ing', in accordance with McCawley's criterion, then the prospects*
> *for a coherent notion of 'learning' seem even dimmer than if we*
> *identify 'learning' in the terms I suggested."*

*As regards language acquisition, then, it wouldn't do you any good to attack*
*along a Learning Line if you were not equipped to counter The Growth Gambit.*

2.4.2    To say that language acquisition represents a form
         of growth appears to imply yet another distinction,
namely (language) growth vs. hypothesis-formation or abduc-
tive learning too.  As noted by Chomsky (1980a:136 ff.;
1980b:13-14), abduction, in Peirce's sense, is a process in
which the  mind forms hypotheses according to some rule and
selects the most highly valued one among them on the basis
of evidence and (probably) other factors as well.  Language
acquisition might be construed as a process of abductive

learning.  In Chomsky's (1980b:14) formulation:

> "It is convenient sometimes to think of language
> acquisition in these terms, as if a mind equipped
> with universal grammar generates alternative
> grammars that are tested against the data of
> experience, with the most highly valued one se-
> lected."

Chomsky (1980b:14) does not intend this abduction "metaphor"
to be taken too seriously, however, since he judges the dis-
tinction between the alternatives to which it gives rise to
be "far beyond conceivable research".[30]  To him, conse-
quently, the question whether knowledge (of language) is
the result of abductive learning or of growth is "hardly
worth considering".  On Chomsky's more recent formulations
the distinction "growth vs. hypothesis-formation", there-
fore, has no empirical basis at present.  It should be
noted, however, that there was a time when he (1972) used
the notion of "hypothesis-formation" quite systematically
when attempting to characterize the nature of the process
of language acquisition.  The "growth/maturation" idiom
represents an innovation, at least at the level of ter-
minology.

*In a gruelling game, conserving one's energy is all-important, Panting Player.
It would be futile to get The Master to give up his Growth Game for a bit of
Abductive Action. This has been discovered, the hard way alas, by players
such as Dennett (1978) and Cromer (1980). Dennett (1978:84), presented an
abductive theory of (language) learning central to which was a notion of "self-
design" that reflected Simon's (1970:74) view of "the design process as involving
first the generation of alternatives and then the testing of these alternatives
against a whole array of requirements and constraints". Dennett views*

> *".... learning as ultimately a process of self-design. That pro-
> cess is for the purposes of this argument defined only by its
> product, and the product is a new design. That is, as a result*

> *of the process something comes to have a design it previously*
> *did not have"*.

*For the reasons mentioned above, The Master (1980a:136) doesn't think that*
*the self-design/abduction "metaphor .... should be taken too seriously". So let*
*us remember the use of the notion of "self-design" as Dennett's Decoy, a futile*
*form of fighting.* [31]

2.4.3   To sharpen his notion of "language acquisition"
further, Chomsky (1980a:136-137;  1980b:14) in-
vokes a distinction drawn by the immunologist Jerne, namely
<u>instructive theories of learning vs. selective theories of</u>
<u>learning</u>. On an instructive theory, change of a system
takes place because a signal from outside "imparts its
character to the system that receives it".  On a selective
theory, "change of the system takes place when some already
present character is identified and amplified by the in-
truding stimulus".  Jerne argues that from a historical
point of view "it appears that wherever a phenomenon resem-
bles learning, an instructive theory was first proposed to
account for the underlying mechanisms.  In every case,
this was later replaced by a selective theory".[32]

Chomsky's (1980a:138-139) appraisal of the distinction
between instructive and selective theories of learning ---
and of the derived distinction between instructive and
selective processes of learning --- is neatly summarized
by the following remarks:

> "I don't think that the notion of selection from
> preexisting materials is rich enough to provide
> an analysis  for the large-scale interactions
> that are loosely called 'learning', but it may
> be a step along the way.  It is possible that
> the notion 'learning' may go the way of the
> rising and setting of the sun."

Applied to language acquisition, Chomsky's view of the dis-
tinction between instructive and selective learning boils
down to the following:  language acquisition represents a
further instance of those phenomena that resemble learn-
ing but whose underlying mechanisms can be accounted for
more adequately by a selective theory than by an instruc-
tive theory.  To put it bluntly:  language acquisition is
essentially a matter of selection, not instruction.

*All of this has a simple lesson for those who play The Game: you cannot score
by naively invoking Learning Lore. For the term "learning", as a rigid designa-
tor, is, in the phraseology of The Master himself (Chomsky 1980a:138), "com-
monly misapplied", being "analogous to such terms as 'witch', commonly applied
at one time but always misapplied". You could do worse, Dear Player, than to
reflect for a while on the following Fact of Play:*

> *The Garden's sticks and stones*
> *may break a Player's bones,*
> *but Witch Words will not help him.*

2.4.4    The nature of selective growth or maturation,
         which is what Chomsky considers language acquisi-
tion to be, is clarified by him (1986:151) at an abstract,
mental level by means of the distinction <u>parameter fixing</u>
<u>vs. rule acquisition</u>.  In §2.3.7 above we saw that Chomsky
characterizes the genetically determined, initial state of
the language faculty as a system of fundamental principles,
many of which have open parameters associated with them.
On the basis of their experience of language, children
fix the values of the open parameters to attain the (men-
tal) grammar of their language.  This brings Chomsky
(1986:150-151) to characterize the process of language
acquisition as "parameter fixing":

> "What we learn are the values of the parameters
> and the elements of the periphery (along with the
> lexicon, to which similar considerations apply)."[33]

He has come to see the problem of language acquisition
(1)(b) in §1.2 "not as a problem of acquiring rules but
one of fixing parameters in a largely determined sys-
tem". Children have to "learn" or "fix" the value of the
open parameter, for example, of choice of bounding cate-
gory in the fundamental principle of Subjacency. As pointed
out by Chomsky (1986:151), the characterization of language
acquisition as parameter fixing rather than rule acquisi-
tion forms part of the second fundamental conceptual revi-
sion or shift embodied in present-day "generative" linguis-
tics. Earlier, Chomsky considered language acquisition to
be in essence a process of rule acquisition --- in keep-
ing with his characterization of knowledge of language as
a rule system. We return to this conceptual shift in §2.5.21
below.

To make the idea of language acquisition as parameter fix-
ing a little easier to grasp, Chomsky (1986:146) borrows an
image of Higginbotham's (1983). The latter suggested that
(the initial state of) the language faculty might be thought
of as an intricately structured system that is only "par-
tially 'wired up'". "The system", on Chomsky's (1986:146)
rendition of Higginbotham's image,

> "is associated with a finite set of switches,
> each of which has a finite number of positions
> (perhaps two). Experience is required to set
> the switches. When they are set, the system
> functions.[8] The transition from the initial
> state $S_o$ to the steady state $S_s$ is a matter
> of setting the switches."

*The portrayal of language acquisition as being essentially a process of parameter
fixing (or, metaphorically, switch setting), rather than rule acquisition, is a rela-
tively new feature of The Garden. No direct attack on The Master has yet been
made at this conceptual fork. Of course, the distinction "parameter fixing vs.
rule acquisition" cannot be easily attacked or defended in isolation. It features
in a more general conceptual change in which the entire status of rules --- in
language acquisition, in knowledge of language, in language use --- has been*

*revised by The Master. This implies that the characterization of language acqui-
sition as parameter fixing could be open to indirect attack: by questioning the
bases of the general conceptual change. Alternatively, the more enterprising
player could attempt the more direct approach of Tactical Taunting, challenging
The Master to present evidence of a more specific sort which will indicate that
parameter fixing and rule acquisition, as alternative characterizations of the
nature of language acquisition, are empirically distinguishable. But, Dear
Player, my role is that of Guide, not of Fifth Columnist.*

2.4.5    At this stage of the discussion it might be useful
         to set Chomsky's ideas about language acquisition
in a historical perspective.  So let us consider them in
the context of the distinction rationalism vs. empiricism.
In Chomsky's (1965:47 ff.;  1980a:234 ff.) terminology,
rationalism and empiricism represent "general approaches"
or "general lines of approach to the problem of acquisi-
tion of knowledge of which the problem of acquisition of
language is a special and particularly informative case".
The rationalist approach is based on some version of the
assumption that a significant aspect of knowledge is not
derived by the senses but is, as Chomsky (1965:51) puts it,
"fixed in advance as a disposition of the mind".  On Chom-
sky's (1965:48) characterization, the rationalist approach

> "holds that beyond the peripheral processing
> mechanisms, there are innate ideas and principles
> of various kinds that determine the form of the
> acquired knowledge in what may be a rather re-
> stricted and highly organized way.  A condition
> for innate mechanisms to become activated is that
> appropriate stimulation be presented." [34]

Rationalism (or innatism) in the Chomskyan mould, we saw
above, provides for a distinct language faculty which has,
genetically encoded in it, fundamental principles of lan-
guage that grow or mature into knowledge of language
under the stimulating and shaping influence of linguis-
tic experience.  As regards the intellectual tradition of

rationalism, on Chomsky's (1965:48 ff.) account it includes
ideas and speculations of scholars as illustrious as Des-
cartes, Lord Herbert, Cudworth, Leibnitz, Locke, Arnauld,
Wilhelm von Humboldt, and Plato.

In contrast, the empiricist approach is based on the view
that ".... all knowledge derives solely from the senses by
elementary operations of association and 'generalization'",
as Chomsky (1965:58-59) puts it.  As to language acquisi-
tion, the empiricist approach holds that

> ".... language is essentially an adventitious con-
> struct, taught by 'conditioning' (as would be
> maintained, for example, by Skinner or Quine) or
> by drill and explicit explanation (as was claimed
> by Wittgenstein), or built up by elementary "data-
> processing" procedures (as modern linguistics
> typically maintains), but, in any event, rela-
> tively independent in its structure of any innate
> mental faculties".

So, on the empiricist approach, operations such as generali-
zation, conditioning, induction, etc., constitute the proce-
dures or mechanisms by means of which language, as a system
of habits or skills, is acquired.  And only these procedures
or mechanisms, on this approach, constitute an innate pro-
perty of mind, as noted by Chomsky (1965:51).

Chomsky, of course, has rejected a variety of empiricist ap-
proaches to language acquisition.  The essence of his criti-
cism of such approaches has been that, as a matter of prin-
ciple, they are at odds with the poverty of the stimulus.
Such approaches cannot give an account of how children can
acquire abstract principles of language, e.g. Subjacency,
for which the stimulus contains no evidence at all.  The
poverty of the stimulus has likewise provided the basis for
Chomsky's motivation  --- motivation considered empirical
by him  --- of his alternative, rationalist, approach to
language acquisition.

In considering Chomsky's appraisal of empiricist approaches
it is of some importance to note what he has not criticized
empiricism for.  First, he has not criticized empiricist ap-
proaches for failing to attribute any innate structure to an
organism, as Putnam (1983a) has charged.  Chomsky (1983:310)
rejects this charge as "utterly false", pointing out that he
has

> ".... repeatedly, consistently, and clearly
> insisted that all rational approaches to the
> problems of learning, including 'associationism'
> and many others .... attribute innate structure
> to the organism .... The question is not whether
> innate structure is a prerequisite for learning,
> but rather what it is."

Thus, in critically considering Chomsky's appraisal of empi-
ricism there is an important distinction to be kept in mind,
namely the question whether innate structure is a prerequi-
site for learning vs. the question what innate structure is.
It was noted above that in Chomsky's (1965:51) view empiri-
cists consider learning mechanisms or procedures such as
generalization, association, induction, etc. to be innate
properties of an organism.

Second, in rejecting empiricist approaches to language acqui-
sition Chomsky (1980a:139) does not wish "to demean the con-
tent of what is learned" by means of trial-and-error, condi-
tioning, abstraction, induction, and so on.  These means of
learning will play a role in "domains in which the mind is
equipped with no special structure to deal with proper-
ties of the task situation", i.e. in performing tasks "for
which we have no special design".  This however, according
to Chomsky (1980a:139), implies that studying these means
will "tell us very little about the nature of the organism".
Nevertheless, this is no criticism of the means in question,
since he emphasizes the point that "what is significant for
human life is not necessarily significant for the person

inquiring into human nature". So in this quotation we find yet a further distinction, namely something significant for human life vs. something significant for the person inquiring into human nature, that has to be kept in mind when considering Chomsky's appraisal of empiricist approaches to the acquisition of knowledge (of language).

So, Pugnacious Player, you would like, would you, to corner The Master on the question of his reasons for taking a rationalist approach to the phenomenon of language acquisition? Others have attempted this before, including Putnam (1983a), and have found it heavy going. One line of attack has proved particularly un-rewarding, namely that of accusing The Master of being committed to rational-ism as a point of doctrine. In his countermove you could expect The Master (1983:310-311) to proceed along more or less the following lines:

> "As a general principle, I am committed only to the 'open-minded hypothesis' with regard to the genetically determined initial state for language learning (call it $S_o^L$), and I am com-mitted to particular explanatory hypotheses about $S_o^L$ to the extent that they seem credible and empirically supported."

To this, Putnam (1983b:336) had only the following lame response:

> "After twenty years of vigorously espousing this point of view in print and in conversation, it is a little unfair of Chomsky to say that he is only advocating the 'Open-minded-ness hypothesis' with respect to our genetic makeup. Who could be against open-mindedness?"

Should you yourself not be able to think of some dodge less flat-footed than this, there is nothing to be gained by engaging in Doctrinaire Duelling.

2.4.6    The historical perspective on Chomsky's ideas about language acquisition may be broadened somewhat by considering in conclusion the distinction rationalism vs. constructivism. Constructivism (or interactionism) repre-sents Piaget's (1983) theory of how knowledge, including

knowledge of language, is acquired. Piaget (1983:26) con-
siders both empiricist and rationalist (or, in his termino-
logy, "preformationist") theories of the genesis of knowledge
to be "devoid of concrete truth". As an alternative, "only con-
structivism is acceptable" to him. On Chomsky's (1980a:
235) reading, Piagetian constructivism (also called "vital-
ism" by some) boils down to the claim that

> ".... through interaction with the environment
> the child develops sensorimotor constructions
> which provide the basis for language, and as
> understanding and knowledge grow, new construc-
> tions are developed in some more or less uniform
> way. Thus, it is claimed, language at any stage
> merely reflects independent mental constructions
> that arise in the course of dealing with the en-
> vironment, and at each stage the child develops
> new systems that reorganize his experience."

So, whereas Chomskyan rationalism invokes a genetically based
language faculty to account for language acquisition, Piage-
tian constructivism places the explanatory burden on a "gene-
ral sensorimotor intelligence", a capacity not specific to
language acquisition.

At Royaumont, Piaget (1983:31) challenged The Master's postulation of innate
structures or mechanisms from a second, a comparative, angle as well.[35] The
gist of this challenge is that, given the alternative offered by constructivism,
"the hypothesis of innateness is not mandatory in order to secure the coherence
of Chomsky's beautiful [sic] system". This expresses Piaget's (1983:31) claim that

> ".... the 'innate fixed nucleus' would retain all its properties
> of a 'fixed nucleus' if it were not innate but constituted the
> 'necessary' result of the constructions of sensorimotor intel-
> ligence, which is prior to language and results from those
> joint organic and behavioral autoregulations that determine
> this epigenesis".[36]

That is, Piaget claims that what can be explained on the assumption of fixed innate structures can be equally well explained as the "necessary" result of constructions of sensorimotor intelligence. This challenge has been brushed aside by The Master (1983:36) rather briskly in the following terms — which strike even me (an observer of some experience) as being on the brusque side:

> "There are, to my knowledge, no substantive proposals involving 'constructions of sensorimotor intelligence' that offer any hope of accounting for the phenomena of language that demand explanation. Nor is there any initial plausibility to the suggestion, as far as I can see."

And:

> ".... the literature contains no evidence or argument to support this remarkable factual claim [about the relative explanatory power of constructivism — R.P.B.], nor even any explanation of what sense it might have. Again, we see here an instance of the unfortunate but rather common insistence on dogmatic and unsupported factual doctrines in the human sciences."          (Chomsky 1980a:207)

What may we learn from all this about The Game? Basically three Facts of Play:

A.   Dogmatism will be denounced.
B.   Bluster will be blasted.
C.   Punches won't be pulled.

As for A, we will be returning to it in §4.3.1 below. As for B, Boastful Bluster will bring you zero benefit. Before claiming explanatory equality — let alone superiority — for your own constructions, make sure that they are able to account for specifics. For example, could they account for the acquisition of structure-dependent rules, for the acquisition of the Specified Subject Condition, and so on? [37] As for C, if you happen to be one who is easily wounded, you may be sure that all the way further along will see you smarting and anticipatorily starting.

Perhaps, before venturing deeper into The Garden, you should pause to reconsider your participation in The Game, asking yourself how you would have blocked the following bare-fisted blows , dispensed to those of the Piagetian Persuasion:

> *"Another factor that impedes the study of language and more gene-*
> *rally cognitive development, in my view, is the persistence of cer-*
> *tain curious doctrines that entirely lack empirical support or*
> *inherent plausibility, for example, the Piagetian dogma that lan-*
> *guage must reflect sensorimotor constructions, and the refusal to*
> *consider the properties of the initial state that enter into the pos-*
> *tulated interstate transitions."*

*Fortunately for you, you're no Piagetian? Reckless rationalization, but do carry on!* [38]

2.5    Next, we may take a closer look at Chomsky's concep-
       tion of the nature of knowledge of language. In
§2.3.1 we saw that on Chomsky's view such knowledge exists
in the form of a specific mental state: the steady state
of the language faculty: "To know a language", Chomsky
(1980a : 48) assumes, "is to be in a certain mental state,
which persists as a relatively steady component of transi-
tory mental states". But what does it mean to say that to
know a language "is to be in a certain mental state"? The
answer to this question is to be found in yet another con-
stellation of conceptual distinctions drawn by Chomsky.
These distinction are intended to shed light on questions
such as the following: "In what sense is knowledge of lan-
guage something mental?", "To what kind of knowledge does
knowledge of language belong?", "What is language?", "What
is the scope and make-up of knowledge of language?". Let
us consider these distinctions with due care, taking them
each in turn.

2.5.1    A basic distinction invoked by Chomsky (1980a:52;
         1986:9-10) to clarify the mental character of know-
ledge of language is that of knowledge of language vs. the
capacity to use a language. The latter capacity he refers
to also as "the practical ability to speak and understand".
Chomsky (1986:9) sees the distinction under consideration
as reflecting a "common-sense assumption" and grounds it in

a variety of common-sense considerations. Thus, he (1986:9) observes that, although two people may share exactly the same knowledge of language, they may differ markedly in their ability to put this knowledge to use. And he notes that a person's ability to use language may improve or de-cline without the knowledge itself improving or declining. Moreover, Chomsky contends, the ability to use language may be impaired without a deterioration in the knowledge itself. He (1980a:51) illustrates the latter point with the imagi-nary case of a person recovering from temporary brain injury:

> "Imagine a person who knows English and suffers cerebral damage that does not affect the language centers at all but prevents their use in speech, comprehension, or let us suppose, even in thought.[5] Suppose that the effects of the injury recede and with no further experience or exposure the person recovers the original capacity to use the lan-guage. In the intervening period, he had no capa-city to speak or understand English, even in thought, though the mental (ultimately physical) structures that underlie that capacity were undamages. Did the person know English during the intervening period?"

If one insisted on identifying knowledge of language with the capacity or practical ability to use language, one would have to believe that when someone like the above-mentioned aphasic lacks the ability to speak and understand, he does not know his language --- a belief that seems "perverse" to Chomsky. And one would, on Chomsky's (1980a:52) view, be committed to the further

> "belief that full knowledge of English [assuming English to be the language of this aphasic --- R.P.B.] can arise in a mind totally lacking this knowledge without any relevant experience what-

soever, as the case of the recovery shows, some-
thing that is plainly not true of the child's
mind and seems an exotic claim".

There is no need, however, to hold such "perverse" beliefs
or to make such "exotic" claims if a distinction is drawn
between knowledge of language and the capacity or ability
to use language.  This distinction allows Chomsky to say
that in the period when the aphasic lacked the capacity or
ability to speak his language, he still knew this language.
On Chomsky's view, during the period of impairment the
aphasic's behaviour simply provided no evidence for his
having knowledge of his language.  Chomsky considers beha-
viour to be only one of the sources of evidence for know-
ledge.  Data about electrical activity of the brain and
data from autopsy are mentioned by Chomsky (1980a:52) as
other possible sources of such evidence. [39)]

In The Garden, the knowledge-capacity/ability fork has been the scene of some
remarkably aggressive action, Dear Player. It was here that Rachlin (1980:31),
for example — all steamed up because of The Master's remark that "Two
people might share exactly the same knowledge but differ greatly in their capa-
city to use it" — threw caution to the winds and let rip from the hip:

> "Here he [i.e., Chomsky — R.P.B.] takes what is essentially
> a temporal difference and makes it into a structural (really, in the
> absence of physiological content, a spiritual) difference. Knowl-
> edge of English obviously involves use of English over an extended
> time period, whereas impaired capacity to use English involves
> disability over a smaller time period. To identify such dispositions
> with structures, like personification of the deity, may serve a
> psychological purpose but not a logical one."

The retaliation was rough, The Master (1980b: 49) responding as follows:

> "Since I fail to see in what sense they are 'difficulties', I cannot
> respond, except to remark that his [i.e., Rachlin's — R.P.B.]

> *discussion of differences between capacity and knowledge in*
> *terms of 'temporal difference' is completely incoherent."*

*This was, however, just one of Rachlin's hip shots in a whole trigger-happy salvo,*
*which provoked The Master (1980b:50) to continue:*

> *".... his [ i.e., Rachlin's — R.P.B.] refusal to undertake the*
> *study of inner mechanisms (and his further objection to anyone*
> *undertaking it) simply amounts to a principled refusal to try to*
> *understand the behavior of organisms. I think this is an appro-*
> *priate epitaph for a certain style of 'behaviorism'."*

*Lone Ranger Action in the Rachlin Register of Hip and Miss evidently doesn't*
*pay. Such Mindless Moves, Dear Player, would land you where I suspect you*
*wouldn't particularly care to be: this ditch under the tree bearing the inscrip-*
*tion "Behaviorists, R.I.P.". (Though , between you and me, the idea of a behavior-*
*ist soul resting in peace leaves me strangely ill at ease.)*

2.5.2   Let us digress for a moment to note that Chomsky's
        distinction between knowledge of language and capa-
city/ability to use language is based on a more fundamental
distinction, namely behaviour as evidence vs. behaviour as a
criterion.   Chomsky (1980a:48, 52-53) considers (linguistic)
behaviour to be only one of the sources of evidence for the
possession of knowledge of language.   Data about electrical
activity of the brain and clinical data from autopsy are
mentioned by him (1980a:48, 52) as examples of other possi-
ble sources of such evidence.   And he (1980a:53) stresses
the point that linguists cannot enumerate a priori the kinds
of evidence that might bear on the hypothesis that a particu-
lar person has knowledge of language.

A limitation of this nature is not, however, unique to lin-
guistics.   On Chomsky's view, the a priori enumeration of
kinds of relevant evidence is never possible where the
investigation being conducted is one into the internal ele-

ments and working of a complex system. Taking (linguistic)
behaviour to be just one of the possible sources of evidence
for having knowledge of language clearly does not warrant
the equation "no behaviour == no knowledge". This would be
a valid equation only if, by contrast, behaviour were taken
as a criterion for having knowledge of language. To con-
sider behaviour a criterion for knowledge is tantamount to
assigning it the status of the sole kind of evidence for
knowledge.

*The purpose of this short detour, Dear Player, is to show just how cautious you
should be in using evidence from behaviour as the basis of moves against The
Master. Consider in this connection Dummett's (1981) declaring by decree that
we identify knowledge "solely by its* [ *behavioral* — R.P.B.] *manifestations".
The Dummett Decree was depicted by The Master (1986:259) as displaying a
certain degree of daftness:*

> *"To say that we identify knowledge (or the structure of knowl-
> edge, or the internal state of knowledge, or the system of rules
> constituting knowledge, etc.) 'solely by its manifestations' is true
> only in the sense that the nineteenth-century chemist identified
> the structure of benzene 'solely by its manifestations.' In fact,
> we identify the system of knowledge of language that accounts
> for facts concerning (2)* [= who was persuaded to like him —
> *R.P.B.], (3)* [= John is too stubborn to talk — *R.P.B.], and so
> forth by such manifestations of this knowledge as the judgments
> concerning referential dependence, by judgments concerning other
> expressions, by behavior of speakers of other languages, and in
> principle in many other ways as discussed earlier."*

*The link between knowledge and behaviour is neither direct nor simple, and it is
not behaviour that is basic. So Behaviour-Based Biases may backfire when they
provide one with such easy equations as "no behaviour = no knowledge". But
enough; it is time we returned to the main lane.*

2.5.3    Closely related to the distinction between knowl-
         edge of language and the capacity/ability to use
language is the distinction knowledge of language vs. the
creative aspect of language (use). This latter phrase
("the creative aspect of language"), as Chomsky (1980a:76)
is at pains to point out, refers to "the ability of normal
persons to produce speech that is appropriate to situa-
tions though perhaps quite novel, and to understand when
others do so". He (1975a:138) has moreover called this
ability of speakers "a mystery": a question to which
there seems to be no solution within existing approaches
to the study of language. Mysteries, to Chomsky, are
questions in the investigation of which no progress seems
to be made. And he is of the opinion that the "creative
aspect of language use" is just as much of a mystery today
as it was in the heyday of the Cartesians some three cen-
turies ago. In short, "How do people succeed in acting ap-
propriately and creatively in linguistic behaviour or
performance?" is a question which Chomsky expressly ex-
cludes from the set of fundamental questions --- cf.
(1)(a)-(c) in §1.2  ---  to be solved by his approach to
linguistic inquiry.

At this junction in The Garden, I have to recount a rather sad tale, Hunter's
History. Missing the "knowledge-creative use" fork altogether, Hunter (1973)
flung himself at The Master, throwing punches as he hurtled through the air.
There was a left swing, packed with power but devoid of direction: the Mas-
ter's theories failed to explain "how we talk". This was followed by a right
sweep (delivered with both eyes shut): since the Master's theories failed to
explain "how we talk", they explained nothing at all and could in principle
have no psychological import. Piqued by this unprovoked onslaught, The Mas-
ter threw back a quick combination. He led with a blow to the body — hit-
ting above the belt, I hasten to add in fairness to The Master (1980a:76-77):

> ".... his [i.e., Hunter's — R.P.B.] argument is directed
> against proposed explanations for how we talk, that is, for
> what I have called 'the creative aspect of language' .... "

*"It has been emphasized ad nauseam in the literature that a gene-*
*rative grammar is not a 'talking machine', in Hunter's sense.*
*Virtually the whole of his argument is directed against input-*
*output theories that purport to explain how we talk."*

*This, The Master (1980a:77-78) followed with a hook to the head, hitting out at*
*Hunter's lack of imagination:*

> *"This part of the argument is in part reasonable enough but*
> *offers no support at all for his* [*i.e., Hunter's — R.P.B.*] *con-*
> *clusions, unless we accept his tacit premise that there are only*
> *two possibilities for linguistic theory: either it explains how we*
> *talk, that is, explains the creative aspect of language use, or it*
> *explains nothing, even in principle. But this dilemma merely*
> *reflects a serious failure of imagination."[40)]*

*If, My Dear Fellow, you have been planning some pugilistic play, do keep in mind*
*that this particular Game demands precision punching; Hunter Haymaking will*
*pose a hazard to no one's health but your own. Or, to quote a great Pugilistic*
*Prophet of the Past, "in this game you have to float like a butterfly and sting*
*like a bee"!*

2.5.4    If to know a language is to be in a mental state,
         the obvious question is:  "What kind of mental
state?"  In answer to this question, Chomsky (1980a:48 ff.)
invokes the distinction having a mental structure vs. lack-
king a mental structure.  This allows him to reply as fol-
lows to the question under consideration:

> "I assume .... that to be in such a mental state is
> to have a certain mental structure consisting of a
> system of rules and principles that generate and
> relate mental representations of various types."[41)]

Opposed to the idea that to be in a certain mental state is
having a certain mental structure is, according to Chomsky
(1980a:49), the traditional "concept of mental capacities

as lacking structured vehicles". One of the better known
versions of this "concept" is Wittgenstein's view that
there are no processes in the brain "correlated with asso-
ciating or with thinking". On this view, Chomsky (1980a:
50) notes ".... there can be no theory of mental struc-
tures and processes that attempts to formulate the proper-
ties of the nonexistent physiological mechanisms and their
operation". This, in Chomsky's opinion, leaves us with a
purely descriptive study of behaviour, potential behaviour,
dispositions to behave, and so on.

The choice between the "structured" and the "nonstructured"
view is, to Chomsky (1980a:50), not "a straightforward empi-
rical one". It nevertheless has an "empirical component"
according to him (1980a:50-51):

> "In particular, success in developing a structural
> theory of mind, knowledge and belief would count
> against the picture of cognition in terms of
> capacities without structured vehicles, and
> would indicate that the prevailing concern with
> organization of and potential for behavior mis-
> conceives a certain category of evidence as cri-
> terial."

On Chomsky's view, considerable success has been achieved in
developing a structural theory of mind, specifically in re-
gard to knowledge of language.

*Bloody battles have been fought at the "structured"-"unstructured" fork, some of
them involving famous fighters such as Quine and Putnam, who have adopted a
Wittgensteinian stance. Often these battles have seemed to be about peripheral
positions — for example, about the nature of meaning. On closer inspection,
however, they have often turned out to be fights about the essence of the matter,
namely about the very existence of internal mental structures in general. Thus,
harnessing Wittgenstein and Quine in support, Lear (1978:177-178) appeared to
launch an attack on the position that the meaning of words are mental objects:*

"Positing interior mental objects that are named by words only
gets in the way of an explanation, for it merely papers over the
gaps in our understanding of how language-mastery is acquired."

The Master (1980a:12-13) was quick, however, to spot the danger that lurked behind
Lear's Leap:

"The fact that the interior mental objects in question are 'named
by words' adds no special force to the argument. If positing
such interior mental objects 'merely papers over gaps in our
understanding' because language-mastery must be 'explained
.... on the basis of our experience', then the same should be true
of interior mental objects quite generally, whether or not they
are named by words. Hence if the argument has any force it
should apply as well to all types of rules and representations
for language, not simply to meanings; and in fact to psycho-
logical theory quite generally. So it seems that we are presen-
ted with an argument against mental representations quite
generally ...."

With a seemingly simple sidestep The Master (1980a:13) moved clear of the leap-
ing Lear:

"But does the argument establish anything at all? Not until
something is added to explain why positing interior mental
objects gets in the way of explanation and papers over gaps
in our understanding of the acquisition of language-mastery,
and furthermore why this must be the case. In the absence
of such additional steps, what we have is a pseudo-argument
against theoretical entities."

What you have witnessed here, Dear Player, is more than meets the eye. What
appears to be a struggle about structure is in fact a match about method, ma-
noeuvres in a metascientific mode.So, even if it seemed to you the fashionable
thing to do, you'd better decline to take the Wittgenstein Line until such time
as we have had a closer look at the method of the matter in §4 below. Mean-
while, if you feel you need food for thought, here is a little something you might

*like to chew on: like physicists, The Master (1980a:104) adopts "the standard 'realist' assumptions of the natural sciences in studying language, and cognition more generally". These assumptions allow him to say that rules, principles and representations are real entities at a level, the level of mind, at which an abstract characterization is given of the properties of physical mechanisms in our brains. And so? And so, Dear Puzzled Player, you have been granted a glimpse of some of the hazards that The Garden still holds in store.*

2.5.5    Turning next to the question of the kind of the
         knowledge that a speaker is said to have of his
language, we find that the first distinction to be drawn
is that of <u>conscious knowledge vs. unconscious knowledge</u>.
On Chomsky's (1980a:69 ff., 241 ff.;  1986:270 ff.) view
knowledge of language is unconscious, tacit or implicit
knowledge.  A speaker of English, for example, knows in
the case of the expressions "the candidates wanted each
other to win" and "the candidates wanted me to vote for
each other" that the former means that each wanted the
other to win, and that the latter is not well-formed with
the meaning that each wanted me to vote for the other.
And on Chomsky's view (1980a:69) the speaker also knows
the rules of the mental grammar of his language, the prin-
ciples governing the operation of the rules, and the
"innate schematism" of the language.  But, he contends,
the speaker cannot become aware by introspection of what
he knows specifically of the latter rules, principles and
"innate schematism".  These are "inaccessible to con-
sciousness".  Conscious knowledge, by contrast, is access-
ible, non-implicit knowledge.

To avoid terminological confusion, Chomsky (1980a:70) in-
troduced the term "cognizing" to refer to tacit knowledge,
reserving the term "knowing" for conscious knowledge:

        "Thus, 'cognizing' is tacit or implicit knowledge
        .... [and] .... has the structure and character

of knowledge, but may be and in the interest-
ing cases is inaccessible to consciousness."

Cognizing, thus, appears to Chomsky (1986:269) "to have all
the properties of knowledge in the ordinary sense of the
term, apart, perhaps, from accessibility to consciousness."
And he would like to say that "'cognization' is unconscious
or tacit or implicit knowledge".

In this terminology, rules, principles governing rules, and
the above-mentioned "innate schematism" are "cognized" by
the speakers of the language. Note, however, that Chomsky
(1980a:99), apparently paradoxically, ".... will continue
to use the term 'know' in the sense of 'cognize' ....".
Thus, wherever Chomsky uses the terms "know" and "knowing"
to denote a relation between speakers and their language
these terms should be read as "cognize" and "cognizing"
respectively, except of course where he explicitly indi-
cates otherwise. [42]

*A fount of fatal fascination, Dear Player, that's what the fork "conscious vs.
unconscious knowledge" has been. Players have come from far and wide to
attack this seemingly soft target, often railing with abusive arrogance. "Out-
rageous", for example, is what McGinn (1981:290) called The Master's view
that a speaker has unconscious knowledge of his language. Many of the attacks
have been launched from the assumption that one cannot attribute knowledge
(of rules) to a person unless this knowledge is accessible to consciousness.
Thus, Searle (1976), a Player by Profession, charged:*

> *"It is in general characteristic of attributions of unconscious
> mental states that the attribution presupposes that the state
> can become conscious ...."*

*And Davis (1976:78) declared that:*

> *"a necessary condition for someone to know the rules which
> govern some activity is that he must be able to say or show
> us what the rules are .... we can say that someone follows a
> rule only if he knows what the rule is and can tell us what it
> is."*

*The Master chose to defend himself with a double-barreled gun. Firing one bar-*
*rel, he (1980a:130) shot back that he had shown that innumerable linguistic facts*
*(concerning judgements and behaviour) were in accordance with certain rules.*
*Even more assertively, he (1980a:130) proceeded:*

> *"The critic's task is to show some fundamental flaw in principle*
> *or defect in execution or to provide a different and preferable*
> *account of how it is that what speakers do is in accordance*
> *with certain rules or is described by these rules, an account*
> *that does not attribute to them mental representation of a sys-*
> *tem of rules (rules which in fact appear to be beyond the level*
> *of consciousness). If someone can offer such an account of*
> *how it is that we know what we do know, e.g., about recipro-*
> *cals, or judge as we do judge, etc., there will be something to*
> *discuss. Since no such account has been forthcoming, even in*
> *the most primitive or rudimentary form, there really is*
> *nothing to discuss."*

*Aiming at Searle, The Master (1980a:131) discharged the other barrel:*

> *"Searle .... offers no argument at all. He merely stipulates that*
> *mental states must be accessible to consciousness, claiming*
> *without argument that otherwise attribution of mental states*
> *loses 'much of its explanatory power'.... This* [*i.e., Searle's*
> *condition that a person must be aware of the rules that enter*
> *into his behaviour --- R.P.B.*] *remains sheer dogmatism, sup-*
> *ported by no hint of argument."*[43]

*At the end of a critical survey of the history of the principles of accessibility,*
*i.e. the belief that the contents of mind are in principle open to reflection, The*
*Master (1980a:244) concluded that "there is no reason to suppose that we have any*
*privileged access to the principles that enter into our knowledge and use of lan-*
*guage ....". Here, Dear Player, we have something not to forget: in the absence*
*of such a reason --- and a strong one it would have to be --- Accessibility As-*
*saults inspire no awe.*

2.5.6    To clarify further his notion of "cognizing" or
         unconscious knowledge, Chomsky (1980a:101-102)
has drawn the  distinction  <u>knowing a language vs. knowing</u>
<u>how to ride a bicycle</u>.  Unlike knowing a language, knowing
how to ride a bicycle is a skill in these terms  ---  speci-
fically, a skill based on certain reflex systems.  Chomsky
(1980a:102) contends moreover that, in the case of knowing
how to ride a bicycle, there is no factual reason to attri-
bute a certain cognitive structure to the person who exer-
cises the skill.[44)]

It was a charge by Donellan (1977:720) that initially promp-
ted Chomsky to distinguish explicitly between knowing a
language and knowing how to ride a bicycle.  Donellan con-
tended that Chomsky's concept of cognizing did not provide
a basis for this distinction.  Consequently, Donellan (1977:
720) argued, it could be said that a bicycle rider "cog-
nizes"

          "both the rules he can articulate  ---  push with
          the feet on the pedals  ---  and those that he
          cannot, even though his practice is in accord
          with them  ---  e.g. lean into a curve."

Chomsky (1980a:102) conceded that there would be little
point in having a concept of unconscious knowledge that
could not distinguish between "cognizing the rules of gram-
mar" and "knowing how to ride a bicycle".  He argued, how-
ever, that the appropriate distinction was easy enough to
make:

          "In the case of riding a bicycle, there is no
          reason to suppose that the rules in question
          are represented in a cognitive structure of any-
          thing like the sort I have described.  Rather, we
          take bicycle riding to be a skill, whereas know-
          ledge of language and its concomitants, for

example, knowledge that reciprocal expressions
have the properties I mentioned, is not a skill
at all."

*On the face of it, this exchange between Donelian and The Master represents an
utterly unexciting episode in the generally tumultuous history of The Game. But,
as I have warned before, Displeased Player, there is more in The Garden than
meets the eye. The Bicycle Bifurcation is an example of a particularly perilous
property of The Garden: a fork invisible to the naked eye. That is, when The
Master built the Garden, he did not at the outset construct the fork "knowing a
language vs. knowing how to ride a bicycle" for everyone to see. But this fork
is an automatic byproduct as it were — hidden and hence so hazardous — of
the general geometry of The Garden. The moral, Dear Player, is that for survival
sensory shrewdness is simply not sufficient. Deduction and divination are part
and parcel of the play.*

2.5.7    In an attempt to clarify further the character
         of knowledge of language (or, rather, grammar),
Chomsky (1980a:94-95) invokes the distinction grounded/
justified knowledge vs. a priori knowledge vs. caused
knowledge. He (1980a:93) argues that knowledge of gram-
mar involves not only propositional knowledge but also
belief:

        "A person who knows English knows that 'the can-
        didates want me to vote for each other' is not a
        well-formed sentence meaning that each wants me
        to vote for the other, and also believes this."[45]

Thus, Chomsky considers knowledge of language/grammar to
represent a case of what he calls "knowing/knowledge-that",
to be distinguished from "knowing-how". He does not, how-
ever, consider such knowledge to be knowledge that is
"grounded" or "justified" in the conventional sense. It
cannot be said that speakers "have reasons" for the beliefs
involved. But Chomsky (1980a:94) would not want to say

that knowledge of language represents a priori knowledge.
Some evidence or triggering experience and innate principles
are required for the development of knowledge of language in
the mind, a point he illustrates with reference to the En-
glish speaker's knowledge of the meaning of "the candidates
want me to vote for each other".

> "....presented with evidence that the phrase
> 'each other' is a reciprocal expression (a cate-
> gory presumably belonging to universal grammar,
> (i.e., innately given), the mind develops a gram-
> mar that uses the innate principle of opacity to
> yield this particular case of knowledge."[46]

With reference to its genesis, then, Chomsky considers know-
ledge of language neither to be "grounded or justified or
supportable by good reasons" nor to be a priori: "rather
it is, in significant respects, caused".[47] He (1980a:
94-95) proceeds to argue that the concepts of "grounding",
"justification" and "reasons" may be inappropriate in many
instances to an analysis of the nature and origin of know-
ledge, citing the knowledge that enters into our "common
sense understanding" as a case in point.[48]

*Stich (1980:39), a Polished Player of good repute, probed The Master's idea that
knowledge of language shared the fundamental properties of other unproblematic
cases of knowledge. He suggested that, whereas these unproblematic cases
formed a highly integrated inferential system, knowledge of the rules of the
grammar, as material internally represented in some other way, involved princi-
ples inferentially insulated from factual belief. The difference between infe-
rential integration and inferential insulation would accordingly, on Stich's view,
represent a significant difference between knowledge of grammar and unpro-
blematic cases of knowledge. This gives him reason to suspect that factual
beliefs and (unconscious and "unbelieved") knowledge of grammar are "sub-
served" by distinct "mental organs".*

The Master (1980b:57) cautiously responded that there were problems with Stich's distinction:

> "Take our shared knowledge of the sample facts: e.g., that 'the men expected each other will win' is not well-formed, with the meaning that each expected the other will win. This seems to me a relatively unproblematic case of propositional knowledge — knowledge that so-and-so. But this case forms part of a system containing inferentially insulated principles, according to Stich's account. Or suppose that our knowledge that an object on a parabolic course passing behind a screen will emerge at such-and-such a point is based on an innate principle P. For present purposes it is enough that this might be true, that there is nothing incoherent in assuming it to be true. This case of knowledge-that also seems unproblematic, indeed rather typical of much of the discussion in the literature. But if matters are as just suggested, then both of these unproblematic cases form part of a highly integrated system (though perhaps not strictly an 'inferential' system) including principles (opacity, P) that are unconscious, innate, and perhaps inferentially insulated ......... The integrated systems may not have the properties that Stich requires. Furthermore, the elements of this sytem, even the unproblematic cases, might very well lack what are generally taken to be crucial features of knowledge: specifically, grounding and warrant. Thus it does not seem to me clear that the allegedly unproblematic cases have what are often regarded as typical properties of knowledge."

If I have devoted some space to representing The Master's response to Stich's Strictures, I have done so in order to illustrate two general features of The Game:

A.   The Game needn't be a brutal brawl.

B.   Exchanges can be inconclusive.

As regards A, there is a category of Professional Players, cool, competent and careful, who have been playing the game with flair and finesse, forcing The Master to measure his moves and even to modify The Maze. As for B, the situation often

*is that outright victory can be claimed by neither party, the only real result being a setting of the scene for a future fixture.*

2.5.8    Implicit in Chomsky's distinction between "justi-
         fied knowledge" and "caused knowledge" is the
further distinction "<u>supplying good reasons" vs. "constitu-
ting triggering experience</u>". The latter distinction he
(1980a:96) clarifies in the context of discussing Edgley's
(1970:28 ff.) presentation of the standard argument against
"innate knowledge". On this argument, a person's belief
will qualify as knowledge only if it is justified by his
having good reasons for it. Innate knowledge would obvious-
ly fail this condition. On Chomsky's view of language
acquisition, as presented in §2.1.3 above, the data avail-
able to the child acquiring a language cannot be evidence
supplying good reasons; rather, such data, on Chomsky's
view, constitute triggering experience. As noted in
§2.1.3, Chomsky takes this experience as activating the
genetic *programme* whose unfolding results in what he has
called "caused knowledge". Chomsky, we saw in §2.5.7, is
not willing to concede that "caused knowledge" is not pro-
positional knowledge. Rather, he has rejected the idea
that justification or grounding in reasons constitutes an
appropriate basis for a condition for what have been con-
sidered paradigm cases of propositional knowledge. Thus
he (1980b:51) contends that

> "Warrant and justification are not necessary con-
> ditions for much of what we call 'knowledge' ---
> specifically, factual *knowledge* --- and if the
> concept is narrowed to exclude these cases, then
> central areas of what has been called 'knowledge'
> will be excluded. In some respects, traditional
> analysis of *knowledge* in terms of warranted true
> belief may well be appropriate (apart from Gettier
> problems and the like); namely, instances of

knowledge that do not derive from the structure
of our fundamental cognitive capacities as they
grow; for example, knowledge of scientific fact,
which must be acquired through careful experiment
and theory construction (in which, I assume, in-
nate factors must also enter crucially, for
reasons I will not discuss here). In these cases,
we must have adequate grounds for our knowledge
claims, or they are worthless. Knowledge comes
in many varieties, and for crucial elements of
our knowledge, the traditional empiricist para-
digm seems to me quite inadequate. How extensive
these elements are remains to be discovered. Lan-
guage seems to be one case, and if the remarks
just briefly outlined prove to be somewhere near
accurate, then the same is true of what are
regarded as more 'typical' cases of knowledge".

Edgley (1970:28 ff.), Dear Player, argued that there is a construal on which (in-
nate) knowledge of language could meet the condition of justification considered
above. If the child learing a language were a scientist, he contended, it could
cite the evidence to which it had been exposed in justification of its claim to
knowledge. But The Master (1980a:96) did not fall for this move, countering that
the relation between the child's evidence and the acquired knowledge is "a purely
contingent one":

"Suppose that evidence that 'each other' is a reciprocal expres-
sion suffices (by virtue of the opacity principle) for the child to
know that 'the candidates wanted me to vote for each other' is
not a well-formed sentence meaning that each wanted me to vote
for the other. To say that this case of knowledge that is lite-
rally 'justified' by the observation that 'each other' is a recipro-
cal would undermine the concept of justification entirely; for
a Martian lacking the principle of opacity, we would have to say
that the same evidence justifies his contrary knowledge that the
sentence in question is well-formed with the meaning that each
wanted me to vote for the other. But then the concept of
'justification' has disappeared."

*So, if you ever felt yourself menaced by the Master's Martian Move or none too comfortable in the presence of Prescient Preschoolers promulgated by Edgleyan Edict, then this certainly is not a fork for facing The Master. Why not move on and forget the idea of justification or grounding as a condition for "knowing that"?*

2.5.9    A final conceptual distinction that throws light
         on the character of knowledge of language is the
distinction knowledge of language vs. knowledge of arith-
metic. As we saw above, Chomsky considers knowledge of
language to exist in the form of a mental state with a
structural basis. Others, notably Katz (1981) and Bever
(1982), have suggested that knowledge of language should be
understood on the analogy of knowledge of arithmetic. They
have taken arithmetic to be an abstract Platonic entity
that does not exist in the form of a mental structure. The
claim is not that there is no such thing as Chomsky's inter-
nalized language but rather that, in addition to this
internalized language, there is something else:    truths
about language independent of facts of individual psycholo-
gy. An ordinary speaker could in principle know his lan-
guage in Chomsky's sense, without knowing the Platonic
entity called "language" by Katz and Bever.

Chomsky (1986:33), however, has strongly resisted the at-
tempts to disembody knowledge of language:

> "The analogy to arithmetic is, however, quite
> unpersuasive. In the case of arithmetic, there
> is at least a certain initial plausibility to a
> Platonistic view insofar as the truths of arith-
> metic are what they are, independent of any
> facts of individual psychology, and we seem to
> discover these truths somewhat in the way that
> we discover facts about the physical world. In
> the case of language, however, the corresponding
> position is wholly without merit."

And:

> "Knowing everything about the mind/brain, a Pla-
> tonist would argue, we still have no basis for
> determining the truths of arithmetic or set
> theory, but there is not the slightest reason
> to suppose that there are truths of language
> that would still escape our grasp."

This means that knowledge of language cannot on Chomsky's view
be profitably thought of as knowledge of an abstract, Plato-
nistic object.

*Thus, Dear Player, The Master (1986:33-34) considers play on a Platonist Plane
puerile:*

> *"Of course, one can construct abstract entities at will, and we
> can decide to call some of them 'English' or 'Japanese' and to define
> 'linguistics' as the study of these abstract objects .... But there
> seems little point to such moves."*

*So it is right down here in The Garden, Dear Player, that The Game will be played
— in a Mundane Mentalist Mode.*

2.5.10    We have reached a natural point for taking a
          closer look at Chomsky's notion of language:    the
first conceptual distinction that bears on it is  the intui-
tive/pretheoretic notion of language vs. the technical con-
cept of language .  On Chomsky's (1986:15 ff.) account the
intuitive, pretheoretic or common-sense notion of language
departs in several ways from the technical concept of lan-
guage.  First, the common-sense notion of language has "a
crucial sociopolitical dimension".  Thus, he observes,
Chinese is spoken of as "a language" despite the fact that
the various "Chinese dialects" are as diverse as the various
Romance languages.  Chomsky is doubtful that any coherent

account of language can be given in such sociopolitical
terms. Rather, he (1986:15) remarks,

> "all scientific approaches have simply
> abandoned these elements [i.e. sociopoliti-
> cal elements --- R.P.B.] of what is called
> 'language' in common usage."[49]

Second, Chomsky (1986:16) notes that the common-sense notion
of language has "a normative-teleological element" which is
also absent from "scientific" notions of language. This
normative-teleological element is not to be identified with
prescriptive grammar. Rather, the "normative-teleological"
element is present in judgements of the progress made by a
foreigner or child learning English:

> "We have no way of referring directly to what
> that person knows: It is not English, nor is
> it some other language that resembles English.
> We do not, for example, say that the person has
> a perfect knowledge of some language L, similar
> to English but still different from it. What
> we say is that the child or foreigner has a
> 'partial knowledge of English', or is 'on his
> or her way' toward acquiring knowledge of Eng-
> lish, and if they reach the goal, they will
> then know English."

Again, Chomsky doubts whether it is possible to give a cohe-
rent account of this aspect of the common-sense notion of
language. In sum: unlike the "intuitive/pretheoretic/com-
mon-sense" notion of language, Chomsky's "technical/scien-
tific" concept of language has no sociopolitical and no
normative-teleological dimension.

*Jerrold Katz (1981:79-80), a Former Friend turned Fierce Foe, has attacked The
Master on, amongst other things, his view of the sociopolitical dimension of "lan-*

*guage". Thus, Katz (1981:79) contended, maintaining that the common-sense*
*notions of language and dialect involved a sociopolitical dimension was*

> *".... like claiming that the concept of number is not a concept*
> *of mathematics but a socio-political one (or that the concept*
> *of implication is not a logical concept but a socio-political one)".* [50]

*The Master's (1986:47, n. 1) response to this piece of play in The Katzian Key was*
*brief, and meant to bruise:*

> *"There is no reason to accept this curious conclusion."*

2.5.11    To exclude sociopolitical, normative-teleological
          and other inessential elements from his notion of
language, Chomsky (1986:16) invokes the conceptual distinc-
tion    the ideal speaker-listener vs. an ordinary speaker-
listener.  The ideal speaker-listener is "ideal" in the
sense that he (a) is a member of a completely homogeneous
speech community, (b) knows his language perfectly.[51]  The
notion of an ideal speaker-listener is an instance of what
has been called "a methodologically expedient counterfactual
idealization".[52]  Of course Chomsky knows as well as the
next linguist that in the real world there are no ideal
speakers with perfect knowledge of language and that speech
communities in the real world are heterogeneous.  Indeed he
(1986:16-17) has recently said so, once again, in so many
words:

> "Of course, it is understood that speech communi-
> ties in the Bloomfieldian sense  ---  that is,
> collections of individuals with the same speech
> behavior[3]  ---  do not exist in the real world.
> Each individual has acquired a language in the
> course of complex social interactions with
> people who vary in the ways in which they speak
> and interpret what they hear and in the internal
> representations that underlie their use of lan-

guage. Structural linguistics abstracted from
these facts in its attempts at theory construc-
tion; we also abstract from these facts in
posing questions (1) of Chapter 1 [our questions
(1)(a)-(c) in §1.2 above --- R.P.B.] , con-
sidering only the case of a person presented
with uniform experience in an ideal Bloomfiel-
dian speech community with no dialect diversity
and no variation among speakers."

Chomsky sees the idealization under consideration as a metho-
dological tool: a means of disregarding common-sense assump-
tions that stand in the way of assigning a coherent content
to the notion "language". In employing this idealization he
does not mean to say that the facts and considerations from
which the technical notion of language abstracts away are un-
interesting or do not deserve serious study. He is merely
saying that progress in answering the questions (1)(a)-(c)
in §1.2 above would be impossible if these facts and con-
siderations were included initially in the characterization
of the notion "language". Chomsky (1986:16) notes that in
making the simplifying idealization under consideration he
is perpetuating a tradition of modern linguistics and,
moreover, is doing something that is normal in other scien-
ces:

> "In other scientific approaches, the same
> assumption [e.g. about homogeneity --- R.P.B.],
> enters in one or another form, explicitly or
> tacitly, in identification of the object
> of inquiry."[53]

In sum: Chomsky's notion of language is an idealized one.

*The idealization of the ideal speaker-listener has exerted a magnetic pull on Prospective Players. Agitated, aggressive, abusive, they have flocked to this fork to do The Master in. Consider a couple of the Crasser Cracks taken at The Master here:*[54]

*conception of knowledge of language. Wondering will do nobody any harm, of
course; but instantly and blindly to latch on to this phenomenon as a source of
embarrassment to The Master would be to honour the Monkey's Maxim. Plainly,
there won't be weapons lying around in The Garden for ready use against The
Master. If perhaps you thought that you were the "first" to stumble across some
such fire-arm, chances are that you have really only been falling over your own
feet. But let us move on to consider a different kind of fork.*

2.5.13    Chomsky (1986) has recently introduced a new set
            of terms for presenting a distinction fundamental
to his conception of language:  E(xternalized) language vs.
I(nternalized) language.  A technical concept of language
represents an instance of externalized language/E-language,
according to Chomsky (1986:20), ".... in the sense that the
construct is understood independently of the properties of
the mind/brain".  In simple terms, an E-language is an ob-
ject that exists outside the mind of a speaker-listener.

Chomsky (1986:19) mentions, for example, structural and de-
scriptive linguistics as well as behavioural psychology as
having operated with concepts of E-language.  These ap-
proaches viewed language as a collection of instances of
some kind of entity  ---  for example, actions, utterances,
words, sentences, etc.  ---  or as some kind of system  ---
of, for example, forms or events.[57]  A grammar, on this
approach is, in Chomsky's (1986:20) terminology, "a col-
lection of descriptive statements concerning the E-language,
the actual or potential speech events".  A grammar may be
selected in any way as long as it correctly identifies the
E-language.  If two grammars both correctly identify the
E-language, that is if the two grammars are extensionally
equivalent, it is senseless to argue that one is "true" and
the other "false".

A technical concept of language represents an instance of
internalized language/I-language, on Chomsky's characteri-
zation, if it depicts a language as ".... some element of
the mind of the person who knows the language, acquired by

the learner, and used by the speaker-hearer". An I-language
is therefore a mental object, a part of the speaker-listener's
mind. Chomsky (1986:21-22) presents Otto Jespersen's view of
language as a typical instance of the concept of I-language.
On this view, there is some "notion of structure" in the
mind of the speaker "which is definite enough to guide him
in framing sentences of his own", in particular, "free ex-
pressions that may be new to the speaker and to others". If
language is taken to be I-language, a grammar would be a
theory of the I-language and as such might be true or false.[58]

The study of "generative grammar", on Chomsky's view (1986:
24), shifted the focus from the study of E-language to the
study of I-language, "from the study of language regarded as
an externalized object to the study of the system of knowl-
edge of language attained and internally represented in the
mind/brain". A grammar, on this view, is not a set of state-
ments about externalized objects but rather a description of
exactly what one knows when one knows a language. It is
because of this shift in focus --- Chomsky calls it the
"first conceptual shift" associated with generative grammar
--- that linguists are once again being required to face
such questions about the nature, development, and use of
language as those represented as (1)(a)-(c) in §1.2 above.

The conceptual fork "E-language vs. I-language", Progressing Player, is in more
than one sense a fascinating feature of The Garden. So let us dwell here a little
longer. On the one hand, it has been a focus of fierce confrontation. Thus Lewis
(1975) once expressed the belief that it was easier to "make sense" of the E-
language notion "language L is used by population P" than of the I-language
notion "language L is determined by internally represented grammar G". The
Master (1980a:85) rejected this belief of Lewis's as "quite wrong" and "fundamen-
tally flawed", stating that

"... he [i.e., Lewis — R.P.B.] presents no way to make sense
of his notion, and I can imagine no reasonable way except deriva-
tively, in terms of shared internal representation. His problem
is to explain how a person can use an infinite language, or have

> an infinite set of expectations about sound-meaning pairings and
> much else, without any internal representation of that infinite
> object, and further, how that infinite object — a language —
> can be 'shared' by a population without any internal representa-
> tions in the minds of members of this population".

And as part of a more general response to such Sans-Sense-Subtleties, The Master
(1986:31) resorted to his Radical Reversal Routine:

> "The account presented by Quine, Lewis, and others has the
> story backwards: E-languages are not given, but are derivative,
> more remote from data and from mechanisms than I-languages
> and the grammars that are theories of I-languages; the choice
> of E-language therefore raises a host of new and additional
> problems beyond those connected with grammar and I-language.
> Whether it is worthwhile addressing or attempting to solve
> these problems is not at all clear, because the concept of E-
> language, however construed, appears to have no significance.
> The belief that E-language is a fairly clear notion whereas I-
> language or grammar raises serious, perhaps intractable philo-
> sophical problems, is quite mistaken. Just the opposite is true."

On the other hand, the "E-language vs. I-language" fork has arresting antecedents,
including the tragic tale of Hintikka's Harakiri. Hintikka (1977), a Player packing
a powerful punch, thought he could provide "a clear-cut counterexample to gene-
rative grammar" by showing that languages are not recursively enumerable.[59]
The Master (1980a:124 ff.) found the argument wanting for reasons that need not
concern us here.

More important, he (p.126) pointed out that

> "If the argument were valid, it might be a counter-example to the
> belief that a generative grammar, represented in the mind, deter-
> mines the set of well-formed sentences.[54] It in no way impugns
> the belief that a generative grammar is represented in the mind,
> but rather implies that this grammar does not in itself determine
> the class of what we might choose to call 'grammatical sentences';
> rather, these sentences are the ones that meet both some condi-

> tion that involves the grammar and a condition lacking a decision
> procedure. Again, that would be interesting to know if true, but
> the consequences seem slight. It would be on a par with other
> versions of a parametrized autonomy thesis, which might well
> lead to various forms of ill-definedness of language, as already
> noted. I see no consequences, striking or otherwise, for the
> methodology of linguistics or psychology, once we recognize
> that the fundamental concepts are <u>grammar</u> and <u>knowing a gram-</u>
> <u>mar</u>, and that <u>language</u> and <u>knowing a language</u> are derivative."

We will deal presently with the distinction between a language and a grammar.
For now, it is sufficient to note that Hintikka's attack on The Master was based
on the assumption that The Master could be outmaneuvered by damaging his con-
cept of language as an instance of E-language. That is, Hintikka, having com-
pletely missed the fork "E-language vs. I-language", went for The Master down
the E-Language Lane, only to come to his own untimely end as a Player of The Game.

The question, of course, is how a seemingly competent combatant of the likes of
Hintikka could make such a costly miscalculation. The answer to this question
might lie in the history of The Garden, for it could perhaps be contended that The
Garden did not contain the "E-language vs. I-language" fork right from the beginning.
This possibility, it could be argued, is suggested by the fact that in earlier works
by The Master the notion "a language" was given an E-language characterization,
i.e., a characterization in terms of which a language was not portrayed as part
of a speaker's mind. Consider, as an example, the following "classic" character-
ization (Chomsky 1957:13):

> "From now on I will consider a <u>language</u> to be a set (finite or
> infinite) of sentences, each finite in length and constructed
> out of a finite set of elements."

Mindful of formulations such as this, various Provoked Players have hit
out at The Master, claiming that he did not adopt a mentalistic or I-language con-
cept of language at the outset. And they contended further that The Garden was not
originally planned to be a mentalistic maze. Steinberg (1975:220-221), for example,
charged:

> "His original conception regarding the nature of the relationship
> between a theoretical grammar and a speaker was actually a
> formalistic, not a mentalistic one. During this formalistic phase,
> Chomsky did not regard the rules of his theoretical grammar as
> representing knowledge held by speakers. Only certain aspects
> of the output of the theoretical grammar were regarded as psycho-
> logically significant. This formalistic type of theory was held by
> Chomsky until about 1959, at which time his views began to
> change."

The Master (1986:28-29) has been far from happy with such Historical Heresy, contending that the picture of The Garden as a nonmentalistic maze is a fake, reflecting ignorance about the circumstances under which it was constructed:

> "The conceptual shift from E-language to I-language, from beha-
> vior and its products to the system of knowledge that enters
> into behavior, was in part obscured by accidents of publishing
> history, and expository passages taken out of context have given
> rise to occasional misunderstanding.[17] Some questionable ter-
> minological decisions also contributed to misunderstanding. In
> the literature of generative grammar, the term 'language' has ·
> regularly been used for E-language in the sense of a set of well-
> formed sentences, more or less along the lines of Bloomfield's
> definition of 'language' as a 'totality of utterances'. The term
> 'grammar' was then used with systematic ambiguity, to refer to
> what we have here called 'I-language' and also to the linguist's
> theory of the I-language; the same was true of the term UG,
> introduced later with the same systematic ambiguity, referring
> to $S_0$ and the theory of $S_0$."

What we have here, Dear Player, is an important Moral of the Maze:

> The early history of The Garden is a seductive story that could
> easily arouse your interest, work you up and, in the end, cause
> your downfall.

No doubt, the problem in part has to do with the mechanics of mind — as time muddles our memories, tales tend to grow taller.[60] And anyway, purely as a matter

81

*of pragmatic fact, there's no way that the present-day maze can be modified by*
*players' scoring meticulous points about its earliest period, long since paled into*
*irrelevance. The Genesis of The Garden, really, is a topic for relaxed raillery*
*late at night among friends who have all had one, or more, too many.*

2.5.14    A related distinction was alluded to in §2.5.9
            above, namely the distinction I(nternalized)
language vs. P(latonic) language. Katz (1981:6-9, 237) and
Bever (1982) have argued that apart from I-languages, in the
sense characterized above, there are also P-languages.

Whereas an I-language is a mental entity, a P-language has
the general nature of "a sentence-sense correlation with un-
limited expressiveness", sentences being abstract objects
like numbers. Abstract objects on the Platonist conception
are, in Katz's (1981:12) words, "objects whose existence is
independent of mind and matter but which must count as real
along with mental and material objects". Such objects, being
timeless and spaceless, are not ideal objects or, as Katz
(1981:56) puts it,

> "abstract objects are not idealizations at all.
> They do not represent anything physical or psycho-
> logical. They are not a means of simplifying the
> laws of a discipline. Rather, abstract objects
> are  another ontological kind from the physical
> and psychological objects that are represented in
> ideal objects. Like the actual objects of empi-
> rical science, they are the things of which the
> statements in a science are true".

Linguistics in a Katzian Platonist mould is not a branch or
form of psychology, but an "independent" discipline.

*As indicated in §2.5.9, Dear Player, the "I-language vs. P-language" fork is*
*nothing but a Shifting Shadow in The Garden. The Master (1986:33) doesn't give*
*a fig for P-languages as abstract entities "existing in a Platonic heaven along-*

*side of arithmetic and (perhaps) set theory". And we have already noted that he sees
"little point" in "moves" by which such abstract entities as P-English, P-Japanese,
etc. are "constructed at will". For him (1986:33)*

> *"There is no initial plausibility to the idea that apart from the
> truths of grammar concerning the I-language and the truths of
> UG [i.e., universal grammar — R.P.B.] concerning $S_0$ [i.e.,
> the initial state of the language faculty — R.P.B.] there is
> an additional domain of facts about P-language, independent
> of any psychological states of individuals".*

*But this, Dear Player, is also to say that The Game is not played in a "Platonic
heaven" — which, I cannot fail to note, is a pity from the point of view of all
those Plodders who have had to pay the ultimate penalty for pedestrian play.*


2.5.15     We come now to the first of the cluster of dis-
           tinctions bearing on the make-up and scope of
knowledge of language, namely grammatical competence vs.
pragmatic competence. This distinction is drawn by Chomsky
(1980a:59, 224) "for purposes of inquiry and exposition".
In a nutshell, a speaker's grammatical competence is a
knowledge of form  and meaning;  his pragmatic competence
is a knowledge of conditions of appropriate use.  More fully,
grammatical competence is characterized by Chomsky (1980a:
59) as

> "....  the cognitive state that encompasses all
> those aspects of form and meaning and their rela-
> tion, including underlying structures that enter
> into that relation, which are properly assigned
> to the specific subsystem of the human mind that
> relates representations of form and meaning.  A
> bit misleadingly perhaps, I will continue to call
> this subsystem 'the language faculty'".

Grammatical competence has also been referred to by Chomsky
as "knowledge of grammar".

Pragmatic competence, in contradistinction, is characterized
by Chomsky (1980a:224-225) as a

> "system of rules and principles [that] ....
> determines how the tool [of language --- R.P.B.]
> can effectively be put to use.  Pragmatic compe-
> tence may include what Paul Grice has called 'a
> logic of conversation'.  We might say that prag-
> matic competence places language in the institu-
> tional setting of its use, relating intentions
> and purposes to the linguistic means at hand.[8]".

Grammatical competence and pragmatic competence constitute
two of the components or modules of knowledge of language;
there is also a third component, to which we will turn in
§2.5.16  below.  It is important to note that in Chomsky's
linguistics a mental grammar or I-language represents a
speaker's grammatical competence or knowledge.

*As a feature of The Garden, the notion of "grammatical competence" has been
considered by many players to represent too narrow and straight a path. These
players have clamoured for its replacement by a broad road: a more general
notion of "competence" that includes a wider range of so-called linguistic abili-
ties. Hymes (1971:16), for example, has coined the expression "communicative
competence" as "the most general term for the speaking and hearing abilities of
a person". Numerous players have joined The Communicative Competence Cam-
paign to trample grammatical competence, the Heart of The Garden,  to
dust.[81]*

*The Master's reaction to the Communicative Competence Campaign shows why
Myopic Movers won't survive The Maze. Those who can't see beyond the fork
facing them would say that he had done nothing. They might even conclude that
he was helpless, defenceless, at a loss what to do. This would be a costly conclu-
sion, a deadly deduction. For, although The Master has refrained from dealing
directly with the crusaders for communicative competence, he ruined their
campaign by making measured moves at a deeper level of The Garden.[62] But
this is a tale to be told in §4.2.6 below, where it will become clear how one may
perish in the play without, apparently, having been hit by a direct delivery.*

2.5.16    The make-up and scope of knowledge of language is
          further clarified by Chomsky's distinction the
computational system vs. the conceptual system/the system
of conceptual structure(s).  Taking grammatical competence
to represent the "computational system" of the language
faculty, Chomsky (1980a:54 ff.;  1982:20 distinguishes
it from our "conceptual capacity" or "conceptual system
which '.... permits us to perceive, and categorize, and
symbolize, maybe even to reason in an elementary way ....'".
The conceptual system, considered by Chomsky (1980a:57-58)
to be "more primitive" than the computational system, "in-
volves object reference with all of its subtleties and
complexities, thematic structures, aitiational factors, and
the like ....".[63]

Whereas Chomsky (1980a:57;  1982:19) considers the computa-
tional system, i.e. grammatical competence, to be unique to
humans, he believes that other species, for example chimpan-
zees, may have conceptual capacities:

> "One might speculate that higher apes, which ap-
> parently lack the capacity to develop even the
> rudiments of the computational structure of human
> language, nevertheless may command parts of the
> conceptual structure just discussed and thus be
> capable of elementary forms of symbolic function
> or symbolic communication[14] while entirely lack-
> ing the human language faculty.  Possible support
> for such a view derives from work indicating that
> humans with severe language deficit  --- perhaps
> literal destruction of the language faculty  ---
> can acquire systems similar to those that have
> been taught to apes,[15] as if, to put it very
> loosely, apes were in this regard like humans
> without the language faculty."(Chomsky 1980a:57)

With reference to Premack's work, Chomsky (1982:19-20) observes

that great apes lack not only the computational ability of
the language capacity but also the ability of humans to
compute with numbers. This observation leads him to a
series of interesting conclusions about what it is that
uniquely differentiates humans from other species:

> "What is involved is some kind of capacity to
> deal with discrete infinities through recursive
> rules which from one point of view give you the
> number faculty and from another point of view,
> together with different principles, give you the
> capacity to construct an unbounded range of expres-
> sions. And when that is linked to the conceptual
> system, which could be more primitive, then you
> get crucial elements of the capacity to have free
> thought. That could be what enters into the
> uniqueness of human life."

"The great step in human evolution", on Chomsky's (1982:20)
view, was the linking up of the conceptual capacity and the
computational capacity: "it is only when linked to the com-
putational capacity that the [conceptual --- R.P.B.] system
really becomes powerful".

*Recall, Dear Player, that at a conceptual fork that we considered in §2.3.4 above,
it was noted that certain players have preached the doctrine that it is possible
to hurt, if not humble, The Master by pointing at particular apes: apes of the
likes of Sarah and Washoe that have been taught "to talk". Thus, Putnam (1983:
198), peppery as ever, has proclaimed that it would be "surely perverse" for The
Master "to deny that Washoe's performance is continuous with language learning,
and to deny that it has any interest for the study of language learning".*

*The option offered to The Master here is dismal: a choice between perversity
and suicide. For, to do the nonperverse thing The Master, by Putnam's logic,
would have to concede that there existed a "general intelligence" which allowed
the acquisition of language. But the option is a fiction, given the distinction
between the computational capacity of the language faculty and the conceptual
system. On The Master's (1982:20-21) own view, the conceptual system allows
both for symbolic behaviour and for its acquisition:*

*"Some of the ape studies seem to indicate at least some rudi-*
*mentary ability for some kind of symbolization. But what*
*appears to be totally lacking is anything analogous to the com-*
*putational facilities, which means that the conceptual capaci-*
*ties are more or less mute."*

So, given the conceptual fork "the computational capacity vs. the conceptual
system", "talking" does not equal talking. If, Dear Player, my gladiatorial glory
depended on a couple of Chimeric Chimpanzees, my instinct for simple survival
would have seen me taking to the trees.

Let us try, in summary, to schematize Chomsky's view of the
composition of knowledge of language. Recall that knowledge
of language has grammatical competence, pragmatic competence
and the conceptual system as its three components.

(4)    KNOWLEDGE OF LANGUAGE
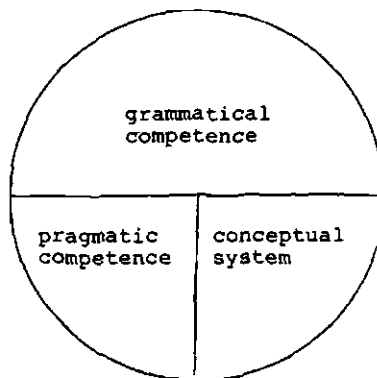


Grammatical competence, we have seen, is also referred to as
"knowledge of grammar" or "the computational system of the

language faculty". The overarching distinction between
knowledge of language and knowledge of grammar represents
a crucial conceptual component of Chomskyan linguistics,
not a minor terminological trait. Notice, however, that
Chomsky often uses the expression "knowledge of language"
to denote knowledge of grammar/grammatical competence. (In
fact, that is just the way in which this expression has been
used in the preceding sections of the present account.)


2.5.17    Implicit in the discussion of the significance of
          "ape talk" is a further conceptual distinction to
take note of, namely human language vs. symbolic systems
taught to apes. Chomsky (1980a:239-240) has argued that
there are fundamental differences "at the most elementary
level" between human language and "the systems taught to apes"
or, as he also calls them, "the symbolic systems artificially
induced under laboratory conditions". The first difference
is a functional one:

> "From a functional point of view, human language
> is a system for free expression of thought, essen-
> tially independent of stimulus control, need-
> satisfaction, or instrumental purpose, hence,
> qualitatively different from the symbolic sys-
> tems taught to apes." (p. 239)

The second difference is structural:

> "Structurally, human language is a system with
> recursive structure-dependent rules, operating
> on sequences organized in a hierarchy of phrases
> to generate a countable infinity of sentences."
>                                      (pp. 239-240)

The third difference pertains to physical basis:

"As far as the physical basis of human language
is concerned, the very little that is known in-
dicates that a crucial role is played by speci-
fic language centers in the dominant hemisphere
that seem to have no direct analogue in other
mammals." (p. 240)

The fourth difference involves acquisition by or development
in the individual:

"As for development, language grows in the child
through mere exposure to an unorganized linguis-
tic environment, without training or even any
particular language-specific care." (p. 240).

And the fifth or final difference concerns evolution or devel-
opment in the species:

"Turning finally to the evolutionary level,
though little is known, it seems clear that lan-
guage is a fairly ancient human possession that
developed long after the separation of humans
from other primates." (p. 240)

Along "each dimension of inquiry", Chomsky (1980a:240) thus
finds "fundamental properties" that "radically distinguish"
human language from the symbolic systems taught to apes.

*The foundations of the conceptual fork "human language vs. systems taught to
apes" have been a source of acrimony in the playing of The Game. Thus, the
pugnacious Putnam (1983a:293) argued amongst other things that Washoe was
able to learn structure-dependent rules "without benefit of an innate template
for language". The Master (1983:318-320) found the argument to be without
force, "..... vitiated by an equivocation with respect to the notion 'structure-
dependent'".*

*In support of this, The Master contended that the rules --- a conjunction rule
and a rule of question formation --- that figured in Putnam's argument were*

in fact neither structure-dependent nor structure-independent since they did not
modify the internal structure of a sentence. And he (1983:315-316) concluded
that to his knowledge

> "..... There is .... no evidence that chimpanzees use structure-
> dependent (or structure-independent) rules, in the sense of my
> discussion. Clearly, Putnam's account involves no rules of
> either sort. Therefore, we can put aside the discussion of
> Washoe, which has no more relevance to the problem under
> consideration than the discussion of propositional calculus."

The Washoe Wash-out recounted above should be instructive to players without
much past exposure to linguistics. Unless handled with expert care, technical
notions such as "structure-dependent" should not be used as weapons against The
Master. Wielded in a ham-handed manner, such notions tend to pose a greater
hazard to the wielder than to the adversary. So, unless suicide is what you have
in mind, don't try to trump The Master on his own Technical Turf.

2.5.18    Turning next to the make-up of grammatical compe-
          tence or knowledge of grammar, we first consider
the general distinction the component specific to the lan-
guage vs. the component contributed by the initial state.
Chomsky (1986:26) characterizes this distinction --- which
is a function of his conception of language acquisition ---
as follows:

> "The steady state [or I-language or grammatical
> competence --- R.P.B.] has two components that
> can be distinguished analytically, however they
> may be merged and intertwined: a component that
> is specific to the language in question and the
> contribution of the initial state. The former
> constitutes what is 'learned' [and the latter
> 'what is inherited' --- R.P.B.] ...."

The distinction drawn in this quotation is also commonly
known as the distinction language-specific vs. language-

independent or "universal". In terms of the distinction
considered in §2.3.7 above, the component of a language con-
tributed by the initial state includes fundamental principles
such as Subjacency, whereas the component specific to the
language reflects, amongst other things, the unique ways
in which the open parameters of such principles have been
set or fixed for the language.

Not all players have recognized the fork in question for what it is – a misjudgement
that has caused some futile fist-shaking at The Master. Putnam (1983a:290, 292),
for example, rejects the view, attributed by him to The Master, that "the grammar
of a language is a property of the brain of Homo Sapiens". He suggests a different
approach "that says, in quite traditional fashion, that the grammar of a language
is a property of the language".

The Master (1983:313) finds that "Putnam's counterproposal suggests that he [,
i.e., Putnam — R.P.B.] has something different in mind, and that his objection
is just misstated". Specifically, on The Master's reading, Putnam's formulation

> "refers to the grammar of a particular language, say English,
> not to the innate constraints on possible languages and grammars.
> Apparently, Putnam is confusing the grammars of particular
> languages (the topic of his counterproposal) with 'universal
> grammar', his notion of 'what a grammar is' (the topic of his
> objection)."

Mix-ups at the "language-specific vs. language-independent" fork are not uncommon
in the history of The Garden. The classic case, of course, was the astonishing attri-
bution to The Master of the idea that all languages have the same deep structure
or base rules. Thus, referring to critics such as Jacob, Monod, Luria and Stent,
The Master (1982:7) recently remarked:

> "When you read their comments, it is worth knowing that there
> is a systematic misinterpretation of the use of the phrase 'deep
> structure'. By and large they use the phrase 'deep structure'
> the way we use 'universal grammar'."

Confusing (claims about) the component specific to a language with (claims about)

*the initial state surely constitutes what has been described as the Basic Bungle.*

2.5.19     As regards the make-up of grammatical competence,
          Chomsky (1986:147, 221) draws the distinction
(the) core vs. (the) periphery.  This distinction must be
understood against the background of Chomsky's view of lan-
guage acquisition as parameter setting, a view considered in
§2.4.4 above.  The core of grammatical competence  --- also
referred to as "a core grammar" or "core language"[64]  ---
Chomsky (1986:147) holds to be a system determined by fix-
ing values for the parameters of UG or the initial state of
the language faculty. Or, to use an equivalent characteriza-
tion by Chomsky (1986:221),

> "The core .... consists of the set of values
> selected for parameters of the core system of
> $S_0$ [*i.e.*, the initial state of the language
> faculty  --- R.P.B.] : this is the essential
> part of what is 'learned', if that is the cor-
> rect term for this process of fixing knowledge
> of a particular language".

In less *formal* terms, Chomsky (1978a:12-13) has characterized
the core (or, a core grammar) as including "structures and
rules of great simplicity" and as having

> ".... a rigid structure which is limited in ex-
> pressive devices.  It incorporates *principles*
> *of mental computation* which interact to provide
> the basic skeleton on which the language is
> constructed, yielding in fact the basic system
> of constructions and the great variety in
> interpreted expressions, though not the full
> wealth of the language."

The periphery, on Chomsky's view (1986:147), contains "marked

exceptions" added to the core on the basis of specific expe-
rience. In the periphery one will find, for example, irreg-
ular morphology, idioms, more complex rules, borrowings,
and historical relics of earlier stages of the language.

Chomsky (1981a:39; 1986:147) points out that the core (or
a core grammar/language) is an idealized construct in rela-
tion to the system actually represented in the mind/brain
of a speaker-hearer. Specifically, he (1981a:39) observes:

> "A core grammar is what the language faculty
> would develop, as a component of the steady
> state, under empirical conditions that depart
> in certain respects from those of normal life,
> specifically, under conditions of homogeneity
> of linguistic experience."

Here we have a *further respect in which* Chomsky's technical
notion of language departs from the common-sense notion of
language. The latter notion does not involve the distinc-
tion between core and periphery.

*As part of The Garden, Dear Player, the distinction "core vs. periphery" is an in-
stance of a special kind of fork, a Fluid Fork. Such a fork is not finished, its
features not fully fixed. For example, it is unclear at this stage exactly where
the boundary between core and periphery runs, whether the distinction carries across
over the boundaries of grammatical competence into other areas of knowledge
of language, and so on. So, this fork is not an ideal spot for sparring with The
Master. It is simply not possible to pick up points here by precision punching.*

2.5.20    Closely linked to the distinction between core
          and periphery is the further distinction marked
(rules/structures) vs. unmarked (rules/structures). Un-
marked rules and structures are in some sense more sim-
ple, more highly constrained, more regular or more basic
than marked structures and rules. Chomsky (1986:147),

in fact, provides for three notions of markedness: "core versus periphery, internal to the core, and internal to the periphery". In terms of the first notion, the constituents of the core are unmarked, those of the periphery marked. The second notion of markedness "has to do with the way parameters are set in the absence of evidence", a "way" about which Chomsky does not have much to say. He (1978a:13) mentions the possibility that "the options of core grammar too, e.g. ordering options, may be layered in accordance with some theory of markedness". That is, not all options of the core are, as it were, equally close to the centre of the core. The third notion of markedness bears on the internal organization of the rules and structures making up the periphery:

> ".... there are, no doubt, significant regularities
> even in departures from the core principles (for
> example, in irregular verb morphology in English),
> and it may be that peripheral constructions are
> related to the core in systematic ways, say, by
> relaxing certain conditions of core grammar."

Chomsky (1979a:4) expects that the less marked/more "core-like" structures (and the systems they form) may be related to the more marked/less "core-like" structures (and the systems they form)

> ".... by such devices as relaxing certain con-
> ditions of core grammar, processes of analogy in
> some sense to be made precise, and so on, though
> there will presumably be independent structure
> as well: hierarchies of accessibility, etc."

He (1979a:20-22) illustrates this view with reference to reciprocals occurring inside Noun Phrases in English, for example:

(5)  (a)  they read $\begin{bmatrix}_{NP}$ each other's books$\end{bmatrix}$

(b)  they heard $\begin{bmatrix}_{NP}$ stories about each other$\end{bmatrix}$

(c)  they heard $\begin{bmatrix}_{NP}$ the stories about each other$\end{bmatrix}$

(that had  been published last year)

In terms of an earlier version of Chomsky's GB (= Government
Binding) theory, (5)(a)-(c) must be ungrammatical:  the reci-
procal each other is an anaphor and has to be bound inside
the NP governing it.  The fact that (a)-(c) are actually
grammatical indicates that they are marked structures accor-
ding to Chomsky (1979a:23ff.).  That is, he (1979a:25) holds
that these structures fall

> ".... under a principle that is derivable from
> the more general theory and applied in a case
> where the general theory is relaxed, to yield
> marked constructions."

Claims about the marked/unmarked status of specific rules or
structures must, in Chomsky's (1979a) view, be empirical in
principle and justified in practice.[65]  Thus, commenting on
the three notions of markedness mentioned above, Chomsky
(1986:147) observes that

> "The problem of formulating these notions pre-
> cisely is an empirical one throughout, although
> not a simple one, and many kinds of evidence
> might be relevant to determining them.  For ex-
> ample, we would expect phenomena that belong to
> the periphery to be supported by specific evi-
> dence of sufficient 'density', to be variable
> among languages and dialects, and so forth."

*The "marked vs. unmarked" fork is located in the same murky morass as the "core
vs. periphery" bifurcation with which we dealt earlier. As anyone at all familiar
with the history of The Garden would confirm, the obscurity of this further fork
has often been commented on in less than laudatory language.*

Even two Faithful Friends, Huybregts and Van Riemsdijk, have ventured
to remark respectfully that

> "Reading the literature, one cannot escape the conclusion that
> notions such as markedness and periphery are being used as
> euphemistic terms to refer to phenomena that are not under-
> stood or do not fit into the core."          (Chomsky 1982:108)

To this The Master (1982:108) has responded that all indeed is not well with the
foundations of this part of The Garden:

> "The distinction is in part theory-internal, but that is unavoid-
> able and quite reasonable. I am sure that the periphems [sic]
> and the theory of markedness have structure, but I just do not
> have any good ideas about what it should be. I suggested some-
> thing in the Pisa paper$^2$ which I do not think is correct, viz.
> relaxing some of the conditions of core grammar. Maybe that
> is somewhat the right idea, but I do not really feel that there
> is any evidence. I do not even think it is clear whether we
> should make a sharp distinction between core and periphery."

For the purpose of The Game, however, The Master has turned this weakness of
the "marked vs. unmarked" fork into a score-building virtue. He has actually
contrived to exploit it as a defensive decoy: a decoy for diverting alarming at-
tacks away from certain areas in which he would not be able to beat off the
aggressors quite so easily. Delightedly dabbing at the decoy, Pressing Players
are led up the garden path that branches into the "marked vs. unmarked" fork,
there to be sidetracked by a gambit to which we will presently turn our atten-
tion. First, however, we need to get a clearer idea of how the Markedness Mean-
der, a labyrinthine loop in the River Charles, is put to use. To this end, let us
consider an incident in the recent history of The Garden.

The incident involves the prediction by The Master's GB theory that structures
such as (5)(a)-(c) — i.e., structures incorporating what are known as picture
noun phrases — must be ungrammatical. Contrary to the prediction, these
and other similar structures are quite acceptable to native speakers. This fact
indicated predictive failure on the part of the GB theory, an embarrassing state
of affairs for The Master. The more so since an older theory (the "OB" theory),

rejected by him, had correctly predicted the grammaticalness of such construc-
tions.[66] Rather than conceding the predictive failure of the GB theory, The
Master (1979a : 20)    deftly channeled the threat into The Markedness Meander,
stating "in summary" that "in accordance with the GB system", structures such as
(5)(a)-(c) are "marked" and that

> ".... it seems to me reasonable to conclude that the predic-
> tions of the GB system are in fact correct as contrasted with
> those of the OB system".

Thus, what went into the Markedness Meander as a predictive failure of a linguis-
tic theory came out of it as a "marked feature" — a "failure", as it were — of
a human language. Now, the target having been suitably softened, the time was
ripe for using the gambit referred to above.

In accordance with the requirement we have noted, The Master had to produce
empirical evidence justifying the claim that the constructions under consideration
were in fact marked. But he would have none of this. He coolly claimed that
structures such as (5)(a)-(c) "appear to be rare" in the languages of the world, a
claim without empirical substance.[67]    And because of the murkiness of the mud
that forms the basis of the "marked vs. unmarked" fork, the rhetorical nature of
this claim was difficult to detect. Resorting to refined rhetoric where empirical
evidence or conceptual considerations are required — such is the essence of
the Galilean Gambit, a move named after the sixteenth-century past master at
"propagandistic machinations".[68]

The Master (1982:110), to his credit I must add, subsequently admitted to having
resorted to the rhetorical ploy described above:

> "In the paper [i.e., Chomsky 1979a — R.P.B.] I took the most
> extreme view with regard to their being marked, at least in
> anything I've written. I've always assumed they're a little odd
> in their behavior, but they really just didn't fall into the theory
> I outlined there at all, so I just had to say they're totally marked.
> I gave a half-baked argument about that, and there was some
> bad conscience, I must concede."

But, Dear Player, this admission, candid as it may be, is a statement about the
past, and holds no promise for the future. So, be ready for rhetorical play, refined

*and "reasonable", that may come your way. Do I hear you breathe the words "Foul play"? Swallow them! And take to heart the following Facts of Play:*

     *A.    The Game doesn't provide for penalties, disqualifica-*
           *tions, yellow or red cards, and such trivialities.*
     *B.    The Game isn't about playing fair or foul.*

*Surviving or succumbing, that's what it's all about.*

Before we proceed, it should be noted that the distinctions "core vs. periphery" and "marked vs. unmarked" do not bear on the make-up of grammatical competence, or on the steady state of the language faculty, only. These distinctions equally reflect the existence of distinct structural compo- nents of the initial state of the language faculty. Thus, referring to the language faculty, Chomsky (1986:221) claims that

> "There is a fixed initial state $S_0$ of the lan-
> guage faculty consisting of a system of principles
> associated with certain parameters of variation
> and a markedness system with several components
> of its own."

So, when considering the make-up of the initial state of the language faculty, one also has to take into account the con- ceptual distinction <u>a system of principles and parameters vs. a composite markedness system</u>. It was purely for expository reasons --- avoidance of duplication --- that we did not do so in an earlier paragraph.

2.5.21    To conclude our survey of conceptual distinctions
           bearing on Chomsky's conception of the nature of
knowledge of language, we have now to consider one more,
namely <u>an abstract rule system vs. a system of fixed para-
meters</u>. In earlier work Chomsky (1986:46) depicted know-

ledge of the grammar of a language as an abstract rule sys-
tem that

> "assigns to each expression a structure, which
> we may take to be a set of representations, one
> on each linguistic level, where a linguistic
> level is a particular system of mental represen-
> tation. This structure must provide whatever
> information about an expression is available to
> the person who knows the language, insofar as
> this information derives from the language facul-
> ty; its representations must specify just what
> the language faculty contributes to determining
> how the expression is produced, used, and under-
> stood."

Recently, however, a conceptual shift  ---  the second in the
history of Chomskyan linguistics[69]  ---  has radically
changed this picture of knowledge of grammar. Specifically,
Chomsky (1986:146, 150) has come to think of knowledge of
the grammar of a language as a system of principles with fixed
parameters. Thus, he (1986:150-151) states that

> ".... what we 'know innately' are the principles
> of the various subsystems of $S_0$ and the manner
> of their interaction, and the parameters associa-
> ted with these principles. What we learn are the
> values of the parameters and the elements of the
> periphery (along with the lexicon, to which
> similar considerations apply). The language that
> we then know is a system of principles with para-
> meters fixed, along with a periphery of marked
> exceptions. What we know is not a rule system
> in the conventional sense. In fact, it might be
> that the notion of rule in this sense, like the
> notion of E-language (so it seems), has no status
> in linguistic theory. One can formulate algo-
> rithms that project rule systems from a choice of

values for the parameters of UG, but it is not
obvious that this is a significant move or that
it matters how it is done."

The considerations which have triggered the conceptual shift
from a rule-system model to a principles-and-parameters
theory are of a technical linguistic sort and cannot be
treated in detail here. It is sufficient to note that these
considerations can be reduced to Chomsky's concern with find-
ing a solution to Plato's problem, i.e., the logical problem
of language acquisition. To solve this problem, Chomsky
(1986:83) explains, it is necessary to reduce the variety
of possible rule systems and also the options the various
kinds of rule systems permit. This point he (1986:83) il-
lustrates with reference to phrase structure rules and trans-
formations:

"Both types of rules allow a wide range of options
that are never realized and are presumably unrea-
lizable, and the availability of these options
makes it extremely difficult to account for the
fact that a specific language is fixed by the
available evidence. The device of phrase struc-
ture rules is particularly suspect, because these
rules so closely reflect lexical properties.
Statement of the lexical properties is inelimina-
ble from the grammar: For example, the grammar
cannot avoid stating that claim takes a proposi-
tional complement as part of its lexical entry.
Therefore, it is to be expected that the phrase
structure rules should be eliminable insofar as
they merely restate, in another form, the essen-
tial content of lexical entries. In fact, it
seems that such rules are eliminable more gene-
rally, that there are no rules of this type in
language. In the case of transformational rules,
we have no comparable reason for skepticism con-
cerning their existence, but it seems that the

> variety of these rules can be significantly re-
> duced, perhaps to Move-$\alpha$ or Affect-$\alpha$ ,
> with some parametric variation. These steps
> sharply restrict the class of possible languages
> [available to the child --- R.P.B.] ..... "

Rather than a system in which rules generate the elements of
well-formed structures, it is better to have a system in which
these elements have to be "licensed", in Chomsky's (1986:
93) terminology, in one of a small number of possible ways.
The conditions required for such licensing belong to compo-
nents of universal grammar.

*Whatever else you may do, Dear Player, be sure you do not think of the concep-
tual fork "an abstract rule system vs. a system of fixed parameters" as just one
more addition to or modification of The Garden. It does not simply extend The
Maze in a dimension known to you. By shifting to a principles-and-parameters
theory, The Master has, in fact, embarked on a Radical Reconstruction of The
Maze. The topography of The Garden is, in fact, being remoulded under your
very feet.*

*As noted by The Master (1986:151-152), this conceptual revision suggests a
change in the way we view the fundamental problem of language acquisition. It
"opens .... new empirical questions for investigation" — e.g., questions of
universal and comparative grammar. And it requires "substantial rethinking" of
fundamental questions — e.g., that aspect of the question of the use of know-
ledge of grammar known as the "parsing problem".*

*At the level of individual lanes and forks, The Garden has entered a transitional
phase of considerable uncertainty. That is, given the conceptual shift, there are
a variety of lanes and forks that can no longer be retained as they are. But exactly
how they will be modified is still unclear. Even as myriad-minded a mazemaker
as The Master cannot rebuild the affected stretches all at once. Which means,
Dear Player, that for the foreseeable future players will need acute agility, along
with a sixth sense, simply to survive. Closed-down lanes, rebuilt forks, new bifur-
cations — thanks to these and similar surprises — the menace of the Maze
will be markedly augmented.*

*What's that? Would not I, too, care for a break to rest and recover? Unfortunately,*

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*Poor Player, this simply cannot be done. In The Game, Players don't "take drinks",
"go to tea", "leave the field for lunch". Need I remind you that The Game isn't
cricket?*

2.6    We have come to the third of Chomsky's basic ques-
       tions, the question of language use listed as (1)(c)
in §2.1 :  How is knowledge of language put to use?  In ad-
dressing this question Chomsky has on the whole been con-
cerned with three aspects of language use:  production of
utterances (by the speaker), processing/interpretation of
utterances (by the hearer), and making of intuitive judge-
ments about the properties of utterances (by the speaker-
hearer).  All three these kinds of linguistic performance
or behaviour Chomsky has considered to be "rule-guided".
He (1986:222) recently reiterated this view with reference
to production:

        ".... use of language is rule-guided behaviour:
        We have (generally tacit) knowledge of the
        rules of language and we use them in construc-
        ting 'free expressions' .... "

Most of the conceptual distinctions  drawn by Chomsky in
order to elucidate his conception of linguistic behaviour
as being rule-governed apply to the production of utterances.
On the other two aspects   ---   namely, processing/interpre-
tation and  making intuitive linguistic judgements  ---  he
has had much less to say.  The conceptual distinctions to
be presented below accordingly bear primarily on production.
Before dealing with these, however, we first have to consider
a more fundamental distinction:  a distinction presupposed
by the idea that language use is a matter of following rules.[70]

2.6.1    The fundamental distinction presupposed by the idea
         of language use as rule following  ---  and also
underlying Chomsky's basic questions (1)(a) and (1)(c) in
§2.1 above  ---  is that of (linguistic) competence vs. (lin-
guistic) performance.  Whereas competence represents "knowl-
edge of language" (narrowed down to "grammar"), Chomsky
(1965:4; 1980a:205) takes performance to be "behaviour",
"the use of knowledge of language" or "the actual use of lan-
guage in concrete situations".  Though competence is presup-
posed by every instance of performance, he provides for many
other factors that also contribute to performance.  As noted
by Chomsky (1965:3; 1980a:225), these include the speaker-
hearer's memory structure, his mode of organizing experience,
his perceptual mechanisms, attention span, etc.  Thus, per-
formance, on Chomsky's (1965:3) classical formulation, is
also affected "by such grammatically irrelevant conditions
as memory limitations, distractions, shifts of attention
and interest, and errors (random and characteristic)" in a
speaker's application of his knowledge of language.  It is
because of the operation of factors such as these that, as
Chomsky (1965:4) notes, "A record of natural speech will
show numerous false starts, deviations from rules, changes
of plan in mid-course, and so on".  Performance, therefore,
does not directly reflect competence.

Nevertheless the linguist, on Chomsky's (1980a:225) view,
has no other way of studying competence than through per-
formance:

>    "Actual investigation of language necessarily
>    deals with performance, with what someone does
>    under specific circumstances. We often attempt to
>    devise modes of inquiry that will reduce to a
>    minimum factors that appear irrelevant to intrin-
>    sic competence, so that the data of performance
>    will bear directly on competence, as the object of
>    our inquiry. To the extent that we have an explicit
>    theory of competence, we can attempt to devise
>    performance models to show how this knowledge is
>    put to use."

Let us return for a moment to Chomsky's idealization of an
ideal speaker-hearer. In §2.5.11 above, a first function
of this idealization was noted: to arrive at a "pure",
technical notion of language by abstracting away from ines-
sential considerations relating to language variation. Here,
now, we have a second, similar, function of this idealiza-
tion: to distinguish between those aspects of performance
that do and those that don't bear directly on competence or
the rules followed in performance.

So, at last, we find ourselves in Lemming Lane, the lane leading to what some
take to be the focal fork of The Garden, namely the "competence vs. performance"
bifurcation. About this fork a career chronicler of the history of the East Coast
Court has observed:

> "Probably no notion within grammatical theory has aroused more
> controversy than the competence/performance distinction." [71]

This, Dear Player, is but a deliberately bloodless way of saying that over the
years fuming fighters have flocked down the lane to wipe out this offensive fork
and, along with it, The Master. As noted by the chronicler I have just quoted,
the fork has been attacked from nearly every conceivable angle: some found
the distinction in question "incoherent", others judged it "too confining", a third
group charged that there was no clear criterion for deciding which aspects of
any particular phenomenon should fall under competence and which under per-
formance. [72] In their hapless haste, however, hordes have misread the fork,
in their frenzy flinging themselves over the edge, and so taking the Performance
Plunge into the Charles.

You desire some concrete evidence? The case of Kintsch and Company is as
good as any. Arguing against The Master's "strict separation" of compe-
tence and performance, Kintsch (1974) charged that this distinction

> "permits the linguist to deal with convenient abstractions, unin-
> hibited by psychological reality, and it provides the psychologist
> with the facetious argument that linguistic theories have nothing
> to do with processes anyway. As long as linguistic theory is
> strictly a competence theory, it is of no interest to the psychol-

*ogist. Indeed I doubt that it should be of much interest to lin-
guists either, but that is for them to decide."*

The Master (1980a:203) took these remarks to be *"not untypical"*, reflecting
*"deep-seated confusions"*. He (1980a:203-204) dismissed Kintsch's charges for
two basic reasons. On the one hand,

> *"Kintsch asserts that study of the abstracted competence system
> is 'uninhibited by psychological reality'; only processes have
> 'reality'. But plainly we can have no special insight into what is
> real apart from normal scientific practice. Adhering to these
> reasonable norms, we impute existence, subject to verification
> and test, to whatever structures and processes are postulated in
> the effort to explain significant facts. The enterprise is not
> 'uninhibited by psychological reality', but is rather concerned
> with specific aspects of psychological reality. Kintsch's psycho-
> logist has 'no interest' in explanatory theories, no matter how
> far-reaching and well-confirmed, dealing with these aspects of
> knowledge of language and the basis for its acquisition (particu-
> lar and universal grammar). In short, fundamental questions of
> cognitive psychology are to be excluded from the concern of the
> psychologist (or for Kintsch, the concern of anyone). Note that
> these positions are taken on purely a priori grounds, not on the
> basis of alleged empirical or conceptual inadequacies of the ap-
> proach he rejects as compared with some alternative. It is
> difficult to imagine comparable dogmatism in the natural
> sciences."*

In The Master's (1980a:205) view, such a dogmatic approach *"is simply a reflec-
tion of the irrationality that has hampered investigation in the human sciences
for many, many years."*

On the other hand, The Master (1980a:205) has pointed out that Kintsch in his
own work is himself concerned with the study of a certain aspect of competence.
Specifically:

> "Kintsch simply presupposes some system of rules that generates
> the representations he postulates, in particular cases. And like
> everyone else, Kintsch tries to gain some understanding of this
> 'level of representation' through the study of performance and
> tries to show how it figures in process models. In short, while
> Kintsch believes that his approach 'has no use at all for the com-
> petence-performance distinction', in fact, he invokes it in pretty
> much the conventional way. This is not surprising, given that no
> coherent alternative framework of concepts has been proposed in
> this domain, to my knowledge."

You don't really care to share the watery woes of Kintsch and Company? Why
not then turn an eye inwards and consider the possibility that you yourself may
all along have been operating with some implicit "competence vs. performance"
distinction? You're not one hundred per cent sure? Well, then you're bound to
become just another Linguist Lemming, unless, of course, you leave the lane lead-
ing to the lethal leap.

2.6.2    The "common-sense" view that using language to
         produce utterances is a matter of rule following
runs into two sorts of problems, according to Chomsky (1986:
222-223), namely Cartesian problems vs. Wittgensteinian
problems. Cartesian problems, on Chomsky's (1986:222)
reconstruction, are results of a particular conflict:

> "In the Cartesian view, the 'beast-machine' is
> 'compelled' to act in a certain way when its
> parts are arranged in a particular manner, but
> a creature with a mind is only 'incited or in-
> clined' to do so because 'the Soul, despite the
> disposition of the body, can prevent these move-
> ments when it has the ability to reflect on its
> actions and when the body is able to obey' (La
> Forge). Human action, including the use of rules
> of language, is free and indeterminate."

Though, in his opinion, various aspects of the formulation

of such Cartesian problems may be questioned, Chomsky (1986:
223) tends to agree with Descartes that "serious problems
are touched on here, perhaps impenetrable mysteries for the
human mind".

As regards Wittgensteinian problems, these arise  from Witt-
genstein's skeptical paradox as reconstructed by Chomsky
(1986:225) on the basis of Kripke's exegesis:

> "Given a rule R, there is no fact about my past
> experience (including my conscious mental states)
> that justifies my belief that the next applica-
> tion of R does or does not conform to my inten-
> tions.  There is, Wittgenstein argues, no fact
> about me that tells me whether I am following R
> or R´, which coincides with R in past cases but
> not future ones.  Specifically, there is no way
> for me to know whether I am following the rule
> of addition or another rule (involving 'quus',
> not 'plus') which gives the answer 5 for all
> pairs beyond the numbers for which I have pre-
> viously given sums;  'there was no *fact* about me
> that constituted my having meant plus rather
> than quus', and more generally, 'there can be
> no such thing as meaning anything by any word'.
> Each application of a rule is 'a leap in the
> dark'."

Chomsky, allowing for the existence of ungrounded knowledge,
is not troubled by Wittgenstein's point that "if I follow R,
I do so without reasons".

There is, however, a Wittgensteinian question that does cause
Chomsky (1986:225) some trouble:

> "How can I tell whether you are following R or R´?
> Under what circumstances does it make sense for me
> to attribute rule following to you?  When is this
> attribution correct or justified?"

The problem which these questions pose for Chomsky's account springs, in fact, from the answer (as analyzed by Kripke) which Wittgenstein gave to these questions. Chomsky (1986: 235-236) summarizes Wittgenstein's answer as follows:

(6)    "   (I)    'To judge whether an individual is indeed
                   following a given rule in particular ap-
                   plications' is to determine 'whether his
                   responses agree with their own.'

       (II)    We therefore reject the '"private model"
               of rule following,' according to which
               'the notion of a person following a given
               rule is to be analyzed simply in terms
               of facts about the rule follower and the
               rule follower alone, without reference
               to his membership in a wider community'.

       (III)   'Our community can assert of any indivi-
               dual that he follows a rule if he passes
               the tests for rule following applied to
               any member of the community.' "

As Chomsky (1986:226) sees it, the heart of the problem gene-rated by this analysis of rule following is that in terms of (II)

            "There is no substance or sense to the idea of
            a person following a rule privately. It seems
            that the 'individual psychology' framework of
            generative grammar is undermined."

*The latter avenue of thought deserves further exploration. But, Dear Player, you would be wise to take note of your surroundings. For we have now entered a sin-gularly strange section of The Garden: a part populated by players pretty pecu-liar in appearance.This is the supernatural section, where spooks and spectres stalk The Master. Here, Paling Player, he is haunted by such Cartesian Creatures as Beast-Machines, Wittgensteinian Weirdies and by sundry Dramatis Personae of plays of long ago.*

*Game as ever, The Master has shown himself to be more than a match for Garden Ghouls and Ghosts. As a case in point, consider his reaction, cited above, to the threat that the "Classical" Cartesian problems pose for his conception of language use as rule following. But what would be the point of having a garden, you might wonder, if part of it were for ever covered by impenetrable mists, shrouded in mystery?*

*Take care! Do not think for a moment that you will ever have The Master at your mercy by the mere mention of matters he deems mysterious. If challenged on the issue of "impenetrable mysteries of the human mind" — which you might take as representing The Cartesian Crunch — The Master (1986:223) would simply respond that*

> *"There is no more reason to suppose humans to be capable of solving every problem they can formulate than to expect rats to be able to solve any maze".*

*"Then forget about Cartesian Creatures", you say. "It is the Wittgensteinian Weirdies undermining The Master's 'individual psychology' framework that really matter". If you actually believe this, Dear Player, then you're bound to be caught off your guard at the fork that next confronts us.*

2.6.3    To deal with the Wittgensteinian problem of how
         the attribution of rules to others could be justi-
fied, Chomsky (1986:225-226) draws a distinction between
two cases of rule attribution, namely ascription-of-rule-
following by a person in ordinary life vs. ascription-of-
rule-following by a scientist.

> "Here we may distinguish two cases:  my doing so
> as a person in ordinary life, and my doing so as
> a scientist seeking to discover the truth about
> the language faculty.  The first case raises a
> question of description:  When do I, in fact,
> attribute to you a particular instance of rule
> following?  Both cases raise questions of justi-

fication : When am I entitled, as a person in
ordinary life or as a scientist, to say that
you are following a rule?"

Chomsky's (1986:226ff.) discussion of these two cases of the
Wittgensteinian problem of rule ascription cannot be repre-
sented in detail here. The major points will have to suf-
fice.

As regards the case of rule ascription by a person in ordi-
nary life, the essence of Chomsky's (1986:227) position is
that Wittgenstein's objective --- that of describing lan-
guage as opposed to reforming it --- requires that his own
solution (6) should be descriptively adequate.

> "But this account is very far from descriptively
> adequate; it simply does not work for standard
> cases of attribution of rule following. Possi-
> bly, the discussion is obscured by concentra-
> ting on cases that are felt to be deep in their
> character and implications, and that certainly
> are deeply embedded in the philosophical tradi-
> tion, specifically, attribution of concepts.
> These are, furthermore, cases where there is
> understood to be some normative standard of
> correctness."

On the basis of an analysis of "typical cases of attribution
of rule following that are less 'loaded' in this sense", Chom-
sky (1986:236) argues that the Wittgensteinian assumption
(6)(I) is not true in standard cases: "We regularly judge
that people are following rules when their responses differ
from our own". As regards (6)(III) Chomsky (1986:236) argues
that

> "it is tenable if we understand it to mean that
> whether or not an individual's 'responses agree
> with [our] own', we may assert that he or she
> follows rules if he or she passes the tests for

> rule following, not with respect to particular
> rules or with reference to any particular com-
> munity of rule users, but more generally:  He
> or she acts as a person, passing the tests for
> 'other minds' in roughly the Cartesian sense
> (with the provisos noted)".

And contrary to (6)(II), Chomsky argues that there seems to
be nothing objectionable about the "private model" of rule
following.  And he notes that no serious alternative to this
model has been proposed that is relevant to the explanations
and concepts involving "competence" or "knowledge of lan-
guage" in generative grammar.

As regards the other case of the ascription of rule follow-
ing  --- that is, ascription by a scientist  --- the
essence of Chomsky's position is that such ascription cannot
be objectionable if it is done within the framework of an
explanatory theory satisfying the usual empirical criteria
of adequacy.  Thus Chomsky (1986:236-237) holds that scien-
tists should adopt the following general approach:

> "We amass evidence about Jones [the person to
> whom rule following is ascribed  --- R.P.B.] ,
> his behavior, his judgements, his history, his
> physiology, or whatever else may bear on the
> matter.  We also consider comparable evidence
> about others, which is relevant on the plausible
> empirical assumption that their genetic endow-
> ment is in relevant respects the same as his,
> just as we regard a particular sample of water
> as water, and a particular fruit fly as a fruit
> fly.  We then try (in principle) to construct
> a complete theory, the best one we can, of
> relevant aspects of how Jones is constructed
> --- of the kind of 'machine' he is, if one
> likes."

Given that this theory meets the required empirical con-
straints, it may legitimately be concluded that the person
(Jones) is following the rules of the particular language.
This approach, in Chomsky's opinion (1986:237),

> "is not immune to general skeptical arguments
> --- inductive uncertainty, Hilary Putnam's
> antirealist arguments, and others. But these
> are not relevant here, because they bear on
> science more generally. It is not clear that
> there are any further skeptical arguments
> that apply."

So, neither case of the Wittgensteinian problem of rule as-
cription to others leaves Chomsky with what he judges to be
an embarrassing problem.

*The Master's moves against Wittgenstein (and Kripke) reveal a new dimension of*
*The Game, namely Retroactive Retaliation. Neither Wittgenstein (1953) nor*
*Kripke (1982) had an axe to grind with The Master. Wittgenstein posed the ques-*
*tions as part of his own game at a time when the Garden would have been at*
*most a gleam in The Master's eye. Kripke, some thirty years later, was merely*
*playing a further round in the never-ending Wittgensteinian game, taking note of*
*The Master in passing but doing so without perceptible passion.*[73] *The Master,*
*however, guards The Garden jealously. No one --- whether in the spirit or in*
*the flesh —— is allowed to steal his show. And so Wittgenstein and Kripke*
*had to be brought to book in The Maze. The meting out of punishment, even*
*posthumously, for incidental incivilities is not paradoxical in the play. The gene-*
*ral point, Dear Player, may be formulated as the Law of Garden Gravity:*

> *Nor time or distance, nor intent, will keep at bay*
> *the Maze's magnetism, the pull of Garden play.*

*No one, but no one, in the business of making sense of mind or language can count*
*on escaping the consequences of the conflict on the banks of the Charles.*

2.6.4    Elaborating on observations by Kripke, Chomsky
         (1986:238), with reference to the scientist's
account of rule following, draws the distinction disposi-
tional vs. causal vs. descriptive vs. normative.  In Kripke's
(1982:36-37) sense, an account of rule following would be
dispositional if it said what a person would be disposed to
do under particular circumstances.  Such an account would
be causal if it were either neurophysiological or functiona-
list.  A functionalist account would regard psychology as
given by a set of causal connections, analogous to the
causal operation of a machine.  Kripke argued against a
dispositional account of rule following.  He argued, more-
over, that such an account was causal in neither the neuro-
physiological nor the functionalist sense.  Such an account,
on his view, should be normative and not descriptive.  To
this Chomsky (1986:238) has responded:

> "But the account of 'competence' is descriptive:
> It deals with the configuration and structure of
> the mind/brain and takes one element of it, the
> component L, to be an instantiation of a certain
> general system that is one part of the human bio-
> logical endowment.  We could regard this instan-
> tiation as a particular program (machine), although
> guarding against implications that it determines
> behavior.  Thus, an account can be descriptive
> although it is neither dispositional nor causal
> (neurophysiological or functional), in Kripke's
> sense."

A descriptive account given by a scientist must, in Chomsky's
(1986:238) view, be "answerable to a wide range of empirical
evidence, including evidence concerning the person's history
and concerning speakers of other languages, and in principle
much else:  physiology, psychological experiment, brain
damage, biochemistry, and so forth".

The Master (1986:240), Progressing Player, has predicted that Kripke will be dissatisfied even with the kind of descriptive account just outlined. For instance, Kripke has noted that there might be a neurophysiological theory that would explain a person's behaviour. Kripke would consider such a theory irrelevant, however, because it would lack the necessary prescriptive force. As The Master (1986:240) reads Kripke's argument, such a neurophysiological theory

> "does not provide justification and, thus, does not answer the skeptic; and furthermore, such theories would not be relevant to ascription of rule following by others who know nothing of these matters but do ascribe rule following".

But The Master (1986:240) knows all the steps and sidesteps in this sort of Sceptical Scuffle. To begin with, he notes that from Kripke's qualms as quoted

> "It does not follow that we must accept the skeptical conclusion that there is no fact as to whether Jones .... follows the rules of binding theory, or the rule that merges tense and lax /i/ before /g/. The [empirical, descriptive — R.P.B.] approach just outlined leads to confirmable theories as to whether indeed Jones follows these rules".

And, pushing Kripke to the edge of a deadly drop into the Charles, The Master goes on to observe that "the standard outlook of modern science" is that of "constructive scepticism", which recognizes "that absolutely certain grounds could not be given for our knowledge, and yet that we possess standards for evaluating the reliability and applicability of what we have found out about the world ..."[74] In other words, the Wittgensteinian/Kripkean kind of skepticism produces the wrong kind of ammunition for firing at scientists who are engaged in setting up empirical theories of rule ascription. So, Dear Player, should you wish to launch an attack along skeptical lines against The Master's conception of language use as rule following, be ready to beat off a countermove that exploits the distinction Wittgensteinian/Kripkean skepticism vs. constructive skepticism . Your chances of avoiding the Charles? Pretty poor, I would predict.

2.6.5    A final distinction bearing on the idea that lan-
         guage use is rule following[75]  is Chomsky's (1986:
151) distinction the rule-system theory vs. the principles-
and-parameters theory of language use.  This distinction re-
flects a consequence of what Chomsky presents as the second
conceptual shift in generative grammar.  We have already
noted that, prior to this shift, the notion of a "rule" was
central to Chomsky's thinking about language:  coming to
know a language (or, rather, a grammar) was seen as the
acquisition of a rule system, and using a language was
viewed as the following of rules.  Subsequent to the second
conceptual shift, knowledge of language is taken to be knowl-
edge of a system of principles  with parameters fixed, and
acquisition of a language is characterized as the fixing of
these parameters.  In the wake of the second conceptual
shift, the idea of language use as rule following will have
to undergo a similarly substantial change.  Thus, Chomsky
(1986:151) observes that

> "It [i.e., the second conceptual shift --- R.P.B.]
> also suggests a rethinking of the parsing problem,
> one aspect of the problem (liii).   Parsing pro-
> grams are typically rule-based;  the parser, in
> effect, mirrors a rule system and asks how these
> rules can assign a structure to a string that is
> analyzed word-by-word.  The examples discussed
> above, and many others, suggest that a different
> approach might be in order.  Given a lexicon,
> structures can be projected from heads by virtue
> of the projection principle, X-bar theory, and
> other subsystems of UG that are involved in licen-
> sing elements, which are associated with one
> another by these principles in the manner already
> illustrated.  Perhaps, parsers should not be
> based on rules at all but should rather be based
> on lexical properties and principles of UG that
> determine structures from them.  Rule-based par-
> sers are in some respects implausible.  For one

> thing, complexity of parsing increases rapidly
> as rules proliferate; for another, since lan-
> guages appear to differ substantially if viewed
> from the perspective of rule systems, they will
> require quite different parsers if the latter
> are rule-based --- an unlikely consequence.
> The entire question merits substantial rethink-
> ing, so it appears".

On the extent of the rethinking mentioned in this quotation
and on its consequences for the Chomskyan conception of
language use, Chomsky has had little more to offer than
the speculative remarks quoted above. Observations such as
the following by Chomsky (1986:243) do not add much of sub-
stance to the principles-and-parameters theory of language
use:

> "Under this [i.e., the principles-and-parameters]
> reformulation, we would not say, as scientists,
> that a person follows the rule of phrase struc-
> ture (1) and the rules of passive and question-
> formation to yield (2):
>
> VP ——> V NP C (1)
>
> who was persuaded to like them (2)
>
> Rather, the person uses the lexical properties
> of *persuade* under the projection principle, and
> the principles of Case adjacency, Move- $\infty$ ,
> binding theory, and so on, with values of the
> parameters fixed in a particular way."

*As you couldn't possibly have failed to observe, Dear Player, we are still in that*
*area of The Garden where Cataclysmic Change is taking place. Well-known*
*landmarks disappear under your very nose. Old forks fade away, whilst new ones*
*appear in unexpected places. Unknown pitfalls and traps pose additional perils.*
*Dead ends and dreadful drops, never dreamt of, are being readied in defiant dis-*
*regard of your presence. But this is part of The Challenge of The Game: to stay*
*on your feet when, in The Garden, gravity seems to have lost its grip and dimen-*
*sions appear dismantled.*

*If, Panting Player, you could live only in a world where east was guaranteed to be
always east and west always west, running The Maze is sure to scar your mind.
What's that? Oh, you're asking yourself if radically changing The Garden without
warning isn't rather like the petulant ploy of the child that tilts the chess-board
to cover up its imminent defeat? No, that — I fear — is too shallow a reading
of my story: so far, every major alteration has made The Garden more of a mar-
vel, The Game more of a menace.*

2.7     Underlying the conceptual distinctions used by Chom-
        sky in articulating his conception of language
acquisition, knowledge of language/grammar and language
use are a number of more fundamental distinctions concerning
the nature of mind in general.  It is with these distinctions
that we will concern ourselves in the present section.  They
are drawn by Chomsky in his attempts to shed light on two
topics in particular:  the "mental" character of mind, and
the modularity of mind.  . Let us start with the former
topic.

2.7.1   The first distinction relevant to Chomsky's con-
        ception of the nature of mind is that of mind vs.
body.  It has traditionally been assumed that mind and body
represent two different kinds of entities:  the former a
"nonphysical" or "nonmaterial" entity, the latter a "physical"
or "material" entity.  Chomsky, however, does not operate
with this traditional distinction between mind and body.
Thus, he (1980a:5) states that

            "When I use such terms as 'mind', 'mental repre-
            sentation', 'mental computation', and the like,
            I am keeping to the level of abstract characteri-
            zation of the properties of certain physical mech-
            anisms, as yet almost entirely unknown.  There is
            no further ontological import in such references
            to mind and mental representations and acts".

Chomsky, thus, uses "mind" and other derivative expressions
to talk at a certain level about properties of a physical
entity, identified by himself (1980a:31) as the brain:

> ".... we may think of the study of mental facul-
> ties as actually being a study of the body ---
> specifically the brain --- conducted at a
> certain level of abstraction."

These expressions are not intended to denote, directly or
indirectly, properties or parts of something nonphysical.
In fact, by using these expressions, Chomsky (1982:34) claims
not to commit himself to either dualism or monism:

> ".... I think that there is nothing that we are
> doing that leads you to dualism, but there is
> nothing that disproves it either. We can simply
> understand all this talk about the mind as talk
> at an appropriate level of abstraction about
> properties of some physical systems of the brain.
> So it seems to me that mental talk is not inhe-
> rently dualistic any more than talk about pro-
> grams and computers is dualistic. I am really
> using that phrase to head off the assumption
> that since we are talking about the mind we are
> committed to dualism. We are not committed to
> its negation either; we are not committed to
> monism."

That Chomsky does not operate with the traditional distinc-
tion between mind and body is clear also from the way in
which he (1980a:39) extends the use of the expression "organ"
to apply to mental faculties as well:

> "We may usefully think of the language faculty,
> the number faculty, and others, as 'mental organs',
> analogous to the heart or the visual system or
> the system of motor coordination and planning.

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> There appears to be no clear demarcation line
> between physical organs, perceptual and motor
> systems, and cognitive faculties in the respects
> in question."

As regards the language faculty, Chomsky (1983:76) considers
it to be a "mental organ", hastening to warn that "of course
it is not an organ in the sense that we can delimit it physi-
cally". "But", he thinks, "the growth of this capacity has
the general characteristics of the growth of [physical ---
R.P.B.] organs".

So, the traditional "mind vs. body" fork is absent from The Garden, a fact not
noticed by certain Piqued Players. Hahn (1978:136), for example, has claimed that

> "Like Descartes, as [Donald Griffen] says, Chomsky implies,
> if he doesn't assert outright, that animals are machines."

The Master (1980a:256) was "surprised" by this Animalist Action, but did not expe-
rience it as a Body Blow:

> "Since the inadequacies of Cartesian mechanism have been
> familiar for centuries, it is difficult to see why anyone should
> assume that animals are Cartesian automata. Surely I do not."

By postulating mental faculties, The Master (1980a:6) does not indicate that he
believes "that physics has come to an end". In fact, he thinks:

> "It may be that contemporary natural science already provides
> principles adequate for the understanding of mind. Or perhaps
> principles now unknown enter into the functioning of the
> human or animal minds, in which case the notion of 'physical
> body' must be extended, as has often happened in the past, to
> incorporate entities and principles of hitherto unrecognized
> character."

If the notion of "physical body" could be extended in this way, the

*"mind-body problem"* would, on *The Master's (1980a:6)* view,

> *".... be solved in something like the way in which the problem*
> *of the motion of the heavenly bodies was solved, by invoking*
> *principles that seemed incomprehensible or even abhorrent to*
> *the scientific imagination of an earlier generation."* [76]

*If, Dear Player, at the "mind vs. body" fork you can suggest no other move than*
*automatistically hanging out the beast, it would be wise to proceed to the next*
*bifurcation.*


2.7.2    To clarify his conception·of mind and mental facul-
          ties, Chomsky draws the distinction physical struc-
tures of the brain vs. abstract structures of the mind.
According to him (1980b :46; 1983 :81-82,   124-125;
1986:38, 221), knowledge of language (or grammar) can in
principle be characterized at either a concrete or an ab-
stract level.  At the concrete level, the initial and attained
states can ultimately be characterized in a "nonintentional
idiom" by the brain sciences in terms of physical structures.
These structures have a neurophysiological/neurological or
genetic  character, depending on the state of the language
faculty that is being characterized.  Since little is known
about the physical structure of the brain, linguists, on
Chomsky's (1983:82) view, "can only speak of the conditions
that the physical structures must meet".  This they do at
the second, abstract, level  --- where mentalistic (lin-
guistic) theories, using an "intentional idiom", attempt to
describe the initial and attained states of the language
faculty in terms of abstract, mental, structures.

Chomsky characterizes the relationship between the concrete,
physical, structures of the brain and the abstract, mental,
structures of the mind from two complementary points of view.
On the one hand, he (1980b:47) says that "mental structures
can be regarded as characterizations of certain physical
systems....".  On the other hand, he (1980b:55) says that

neurophysiological/physical mechanisms/systems "realize" ab-
stract, mental, structures. As noted by Chomsky (1983:82),
however, at present

> "We simply don't have the kind of evidence to
> tell us how the abstract structures might be re-
> presented in the concrete physical system. How-
> ever, that doesn't mean we should stop working
> on the problem. I think we can go rather far in
> terms of the limited sorts of evidence available
> to impose some fairly narrow and specific condi-
> tions on what this physical system must be doing".

Synoptically, the mutual interrelatedness of the two levels
of abstract, mental, structures and physical mechanisms has
recently been characterized by Chomsky (1986:38-39) in the
following way:

> "We observed that it is a task for the brain
> sciences to explain the properties and principles
> discovered in the study of mind. More accurate-
> ly, the interdependency of the brain sciences and
> the study of mind is reciprocal. The theory of
> mind aims to determine the properties of the
> initial state $S_0$ and each attainable state $S_L$ of
> the language faculty, and the brain sciences
> seek to discover the mechanisms of the brain
> that are the physical realizations of these
> states. There is a common enterprise: to dis-
> cover the correct characterization of the lan-
> guage faculty in its initial and attained states,
> to discover the truth about the language faculty.
> This enterprise is conducted at several levels:
> an abstract characterization in the theory of
> mind, and an inquiry into mechanisms in the brain
> sciences."

*Recall, Dear Player, that at the fork "conscious vs. unconscious knowledge" (§2.5.5)*

we came across the blood-trail of a number of players who had launched a series of abortive Accessibility Assaults on The Master. One of them, a player of some persistence, we now find back in action at the "mental structure vs. physical mechanism" fork. It is Searle (1980:38), of course, laying yet another Accessibility Ambush, deftly disguised this time as a Causation Challenge:

> "Now, Chomsky's claim is that there is another level of rules beyond all possible introspection — but not neurophysiological, either. My claim is simply that any evidence for such a level would have to show its reality by showing its causal efficacy, and Chomsky has not said anything to show this — or, in this article, even indicated any awareness of the problem."

The Master, however, not exactly being Searle's sucker, was quick to spot the hidden hazard. Asked where the disagreement between Searle and himself was located, he (1980b:56) commented as follows:

> "We can disentangle it from Searle's statement that 'Chomsky's claim is that there is another level of rules _beyond all possible introspection_ but not neurophysiological either' (my emphasis); that is, a level of rules that is neither mental nor physiological in the sense just described. True, the rules of grammar and of UG that I postulate are not 'neurophysiological', but rather neurophysiologically realized, in the sense that both he and I agree to be legitimate. Why then are these rules not at Searle's 'mental level'? Precisely because they are 'beyond all possible introspection'; that is the only relevant property that they lack. Once again, as in his original article, Searle has been trapped by his completely unwarranted assumption that rules can be attributed at the 'mental level of characterization' only if they are open to introspection."

If I were a betting man, Dear Player, I wouldn't put my money on your slipping an accessibility thrust past The Master's guard. And why would anyone wish to believe that by repeated use a blunt foil develops a piercing point? Blood-sport, I think you will agree, is not about being at the wrong end of the blood-spoor.

2.7.3    Central to Chomsky's general conception of mind
         and language is the conceptual distinction modu-
larity vs. uniformity. We will first consider the general
import of this distinction and then proceed to a number of
more specific distinctions that derive from it. Chomsky
(1980a:41-47, 89-91; 1981b:7) assumes that the human mind
is modular:

> "I am tentatively assuming the mind to be
> modular in structure, a system of interacting
> subsystems that have their own special proper-
> ties." (1980a:89)

The modularity of the mind is manifested in a variety of
distinct individual modules  ---  "mental capacities",
"mental structures", "cognitive faculties", in Chomsky's
terminology. On Chomsky's view, the mind thus is not a
single uniform, homogeneous system characterized by a
single set of general principles/properties. Rather, the
mind is a whole of interacting subsystems  ---  mental
faculties, capacities  and structures  ---  each with its
own specific properties/principles that do not generalize
to other mental modules. Taken as a whole, the mind on
this view is characterized by a diversity of heterogeneous
module-specific properties/principles. Uniformity (together
with the associated homogeneity) represents the opposite
view. For the mind to be modular in structure is, on Chom-
sky's view (1980a:41), for it to be much like the body  ---
which, after all, is a whole of distinct but interacting
subsystems (e.g., the eye and the heart).

Now, in terms of Chomsky's conception of modularity as it
applies to language, the mind is modular in various states
or at various levels  ---  a view reflected by some of the
conceptual distinctions presented in earlier paragraphs.

First, as we saw in §2.3.3 above, so far as language acqui-
sition is concerned, Chomsky claims that the initial state

of the mind is modular in that he (1980a:47) provides for
the existence of a distinct language faculty within the
mind.  In so doing, he expressly rejects the view that there
are

>"uniform principles of learning, accommodation,
>assimilation, abstraction, induction, strategy,
>or whatever that simply apply to different sti-
>mulus materials to provide our knowledge of
>the behavior of objects in physical space, our
>knowledge that certain strings of words do or
>do not have certain meanings, and so on".

Putting it another way, he (1980a:245) rejects the "doctrine
of uniformity of mind" which claims that

>".... the various cognitive structures develop
>in a uniform way  ---  that is, there are gene-
>ral principles of learning that underlie all of
>these systems, accounting for their development:
>'multipurpose  learning strategies', as they
>are sometimes called, that apply 'across the
>board'".

What, then, is the view he endorses?  Here, positively
speaking, is the gist of Chomsky's (1980a:245) conception
of the modularity of the mind's initial state:

>"... various 'mental organs' develop in specific
>ways, each in accordance with the genetic pro-
>gram, much as bodily organs develop;  and that
>multipurpose learning strategies are no more
>likely to exist than general principles of
>'growth of organs' that account for the shape,
>structure, and function of the kidney, the
>liver, the heart, the visual system, and so
>forth.  Such principles may exist at the level

> of cellular biology, but there is no reason to
> anticipate a 'higher level' theory of general
> organ growth.  Rather, specific subcomponents
> of the genetic program, coming into operation
> as the organism matures, determine the speci-
> fic properties of these systems.  The same may
> well be true of the basic structures involved
> in our mental life."

Second, as observed in §§2.5.15 and 2.5.16 above, so far as
language is concerned, Chomsky claims that the mind is modu-
lar also in its relatively stable, steady state.  In a ten-
tative early formulation Chomsky (1980a:58) adumbrated this
claim as follows:

> ".... we should not exclude the possibility
> that what we normally think of as knowledge of
> language might consist of quite disparate cog-
> nitive systems that interweave in normal
> cognitive development."

The "cognitive systems" or modules making up knowledge of
language include, as we noted above, grammatical competence,
pragmatic competence and aspects of the conceptual system.

Third, on Chomsky's view both universal grammar (the lan-
guage faculty in its initial state) and grammatical compe-
tence (the steady state of the language faculty) exhibit an
internal structure that is modular.  As for universal gram-
mar, Chomsky (1981b:5) distinguishes, on the one hand, a
variety of interacting subsystems within (the core grammar
part of) the initial state of the language faculty or uni-
versal grammar.  These modules include "subcomponents of
the rule system of grammar":  the lexicon, the syntax
(further divided into the categorial and transformational
subcomponents), the PF (phonetic form)-component and the
LF (logical form)-component.  On the other hand, universal

grammar also includes a further class of modules, namely "subsystems of principles": bounding theory, government theory, θ-theory, binding theory, Case theory, and control theory.[77] As for the steady state of the language faculty, the rules of grammatical competence exhibit a modular structure in that various subsets of them belong to the various subcomponents listed above.

A last general point that needs to be mentioned here concerns the metascientific status of Chomsky's conception of modularity. He (1980a:47) takes the question of modularity to represent a "relatively straightforward empirical question". And on his judgement "the available evidence seems to .... favor a modular approach".

*Perhaps, Dear Player, it is time to remind you again that not all aggressive action in The Game is of the rough-and-tumble type. The Garden has also witnessed pieces of prudent play. For example, Rosenthal (1980:32 ff.) recently made a couple of mindful moves at the "modularity vs. uniformity" fork. He noted that a distinction may be drawn between "initial modularity" (i.e., modularity of the initial state of the language faculty) and "attained modularity" (i.e., modularity of the steady state). He, moreover, drew attention to "a striking pattern of inference" in The Master's work, "namely, the passage from 'diversity in fundamental principles of capacities and mental structures attained' to some corresponding diversity in initial and innate mental structures".*

*Rosenthal did not reject the use of this pattern of inference in the case of the language faculty. The inference from the principles governing mature mental capacities and structures to those governing initial mental structures was, however, he (1980:33) considered,*

> *".... far less credible in the case of the other 'mental faculties' that Chomsky touches on, such as 'knowledge of .... music, of mathematics, of the behavior of objects, of social structure, of human characteristics, and so on'".*

*Rosenthal (1980:33) aimed his skepticism specifically at The Master's treatment of the "number faculty":*

"For he [i.e., Chomsky — R.P.B.] claims that '(t)he capacity to
deal with the number system .... is surely unlearned in its essen-
tials'. If Chomsky has in mind, here, either the 'second-order
sense of "capacity" ' that he isolates at the outset or the sense of
'capacity' as a mental faculty, his claim that our capacity to
deal with the number system is unlearned will be trivial and unin-
formative; for it is a matter of meaning that, in these senses,
capacities are unlearned. So Chomsky must have in mind the more
interesting but surprising claim that our mature capacity to deal
with the number system, though in many respects the product of
training, is, 'in its essentials', innate. Without some idea of what
the 'essentials' of this capacity are, however, even this claim would
lack significant import. But Chomsky tells us that '(t)he very es-
sence of the number system is the concept of adding one, indefinite-
ly', presumably inviting us to infer from the 'very essence of the
number system' to an understanding of what the 'capacity to deal
with the number system .... (is) in its essentials'. Chomsky is of course
right that 'the concept of adding one, indefinitely' is sufficient to
distinguish our number system from the rudimentary numerical abili-
ties of other terrestrial species. But it is far from clear that under-
standing the essence of our number system can, by itself, help us
to understand our capacity to deal with that system."

Despite considering these and other comments by Rosenthal to be "thought-provo-
king", The Master (1980b:52) stood his ground, apparently giving as good as he had
received:

"With regard to the number faculty, we [Chomsky and Rosenthal
— R.P.B.] agree that the concept of adding one, indefinitely,
distinguishes our number system from abilities of other known
species, but Rosenthal adds that understanding this does not 'by
itself, help us to understand our capacity to deal with [the
number] system.' I think it does help but does not exhaust the
matter. It does not seem to me a 'surprising claim' that our
mature capacity to deal   with the number system is, in its essen-
tials, innate. On the contrary, it is difficult to imagine by what
inductive, associative, or other 'learning process' this capacity
might have derived from experience (though, as I noted, it may

*be triggered by experience). I've heard reports that aborigines
lacking any relevant experience master the number system very
easily when they enter a market economy, which would suggest,
if true, that the capacities are latent, ready to be put to use.
The lack of diversity, which Rosenthal notes, does not seem to
me to be a crucial factor; identification of common properties
of a variety of diverse systems is not a necessary condition for
attribution of innate structure."*

*But who was the one to draw blood? Did The Master deflect Rosenthal's main
thrust as expressed in the latter's "It is far from clear that ...." remark? Or did
The Master merely sidetrack his attacker, deftly dealing with a different point
raised by Rosenthal about innateness?* [78] *To be able to judge the reach of Rosen-
thal's Rapier, we shall have to move on to the next fork.*

2.7.4     What we have to consider next is Chomsky's dis-
          tinction modularity vs. innateness. From preceding
sections it has become clear that modularity and innateness,
on Chomsky's view, represent distinct aspects of mental
faculties.  The arguments for modularity and innateness dif-
fer accordingly, as observed by Chomsky (1980a:41; 1980b:3).
Linguists arrive at the conclusion that "intrinsic" or
innate structure is rich by the argument from poverty of
the stimulus.[79]    By contrast, the conclusion that innate
structure is "diverse" or modular is based on an argument
from the apparent diversity of fundamental principles of
capacities and mental structures attained.  But how exactly
are the various positions on innateness and modularity inter
linked? To this question, Chomsky (1980b:3) provides the
following answer:

          "One might hold that there is rich innate struc-
          ture but little or no modularity.  But there is
          a relation between the views, in part conceptual.
          Insofar as there is little in the way of innate
          structure, what develops in the mind of an indi-

vidual will be a homogeneous system derived by
the application to experience of common princi-
ples that constitute the innate endowment. Such
differentiation as there may be will reflect
differentiation in the environment. Correspon-
dingly, the belief that various systems of mind
are organized along quite different principles
leads to the natural conclusion that these sys-
tems are intrinsically determined, not simply
the result of common mechanisms of learning and
growth. It is not surprising, then, to find
that opinions 'cluster'. Those who tend toward
the assumption of modularity tend also to assume
rich innate structure, while those who assume
general multipurpose learning mechanisms tend to
deny modularity."

Whereas rationalists such as Chomsky belong to the former of
these two categories, empiricists such as Skinner and con-
structivists such as Piaget represent the latter category.[80]

Having studied the layout of *The Garden* with considerable care, Rosenthal (1980:
33) accused *The Master* of mapping the "modularity vs. innateness" fork in a
less than accurate way. Specifically, Rosenthal contended that *The Master's* con-
ception of this conceptual distinction had more substance to it than suggested by
*The Master's* "clustering" formulation quoted above:

> "Chomsky evidently uses 'intrinsic' in a way that implies innate-
> ness; for richness of 'intrinsic structures' amounts to the rich-
> ness of initial structures. But then it is these initial structures
> that, on the thesis of modularity, are said to be diverse; the
> 'diversity in fundamental principles of capacities and mental
> structures attained' is offered as evidence for the diversity of
> rich initial structures. So it is not simply that 'opinions [about
> modularity and rich initial structures] cluster'; modularity
> actually includes the assumption of rich initial structures."

To challenge *The Master*, as Rosenthal did, on the accuracy of his own map of

*The Garden is a daring deed. Few have got away with this kind of thing in the history of the hunt. And, judged on face value, the following response by The Master (1980b:51-52) seems to indicate that Rosenthal has joined those who have fallen along the way:*

> *"Suppose we reject initial modularity and accept attained modularity. Then we are assuming that 'such differentiation as there may be [in the state attained] will reflect differentiation in the environment' (p. 3 of the target article); that is, that attained modularity reflects environmental modularity. I find this implausible in the cases mentioned, because of the argument from poverty of the stimulus. Thus, if it is true that the environment does not yield the postulated principles of UG (say, locality and opacity) or the rigidity principle and others involved in our knowledge about objects ....., then attained modularity reflects initial modularity in these respects. While these remarks do not establish my conclusion that attained modularity in these respects reflects initial modularity, they do at least indicate how one could proceed to verify this conclusion. It is this line of reasoning that underlies the 'striking pattern of inference' to which Rosenthal calls attention, namely, from attained to initial modularity."*

*This manoeuvre by The Master, however, did not meet Rosenthal's challenge, namely that The Master's map of the "modularity vs. innateness" fork misrepresents reality. The Master's manoeuvre makes sense only if we accept that, without saying so, he conceded the point challenged by Rosenthal. (The Master, of course, would be less than happy if in the Annals of The Game the fork under consideration were to be derisively described as The Modulateness Marshmallow.) The objective of the manoeuvre, in fact, is to defend the stronger link, established by himself, between modularity and innateness. But it is not the nature of this stronger link that was challenged by Rosenthal: he actually had no objection to its being established in the case of language. And he said so.*

*Why have I recounted this "meaningless manoeuvring", this "pointless play" by The Master? I have done so, Puzzled Player, to set you a tiny teaser: to see how good you have become at reading The Game. And, frankly, your misdiagnosis,*

signalled by the clanger "meaningless manoeuvring", leaves me feeling rather
less than encouraged. You appear to be unaware, unfortunately not "blissfully",
of the following Facts of Play:

A.    "Meaningless manoeuvring" may mask what the beaten
would bitterly brand as "Machiavellian Machinations".

B.    If you can't be defeated at what you are good at, you
will be beaten at what you are bad at or can be made
out to look bad at.

C.    Victory must be visible.

Want me to spell it out even more? Really, now ...... Well, you see, Rosen-
thal had gained the upper hand, albeit on a modest scale, on a minor point
concerning the accuracy of The Master's mapping of The Garden. The Master,
however, "manoeuvred" in such a way as to make it seem as if Rosenthal had
challenged him on a different point, a major one, and moreover, a point which
The Master could be seen to be "winning". Never forget that The Game is very
much a Spectator Sport, played in accordance with the Principle of Perceptibi-
lity:

Victories unseen are victories unwon.


2.7.5    Returning now to Chomsky's view that the mind may
be modular in more than one respect, let us con-
sider this further by taking up the distinction external
autonomy vs. internal autonomy, a distinction used in the
discussion between Chomsky (1982:115) and Huybregts/Van
Riemsdijk. External autonomy represents Chomsky's view that
formal grammar is autonomous from other human systems and
capacities. Formal grammar, in this context, includes syn-
tax, the abstract part of phonology, and those aspects of
meaning determined by syntactic configuration. Chomsky
(1982:114) has also used the term "syntax" in a special way
to refer inclusively to formal grammar. He has moreover
suggested that a better term for this system might be
"the computational component of the language faculty". Within
this framework Chomsky (1982:114) has formulated the "thesis

of [external --- R.P.B.] autonomy of syntax" as follows:

> "It says that there exists a faculty of the
> mind which corresponds to the computational
> aspects of language, meaning the system of
> rules that give certain representations and
> derivations."

The parts of this autonomous system would, on Chomsky's
(1982:114) view, include:

> "Presumably the base rules, the transformational
> rules, the rules that map S-structures onto phono-
> logical representation, and onto logical forms
> .... "

The thesis of (external) autonomy has, especially on earlier
formulations,[81] been stated also in terms of a notion of
primitive terms: formal grammar is autonomous or forms an
autonomous system in the sense that its primitive terms can-
not be derived from any more fundamental or inclusive system
such as one that encompassed not only language but also other
human systems, capacities or faculties.

In both its earlier and the later formulation, the autonomy
thesis is intended to bear on the initial and the steady
state of the language faculty. Thus, having considered the
question of the autonomy of the steady state, Chomsky (1982:
115) notes that "there is an analogous question about the
autonomy of the language acquisition device". And in §2.3.3
above, we saw that on Chomsky's view, this device --- or
the initial state of the language faculty --- does not
represent a special case of some general, non-language-spe-
cific learning strategy, device or faculty.

Among the things not implied by Chomsky's autonomy thesis,
two need special mention. On the one hand, by depicting
"syntax" (in the special sense) or formal grammar as a "self-

contained", "autonomous" system, Chomsky (1982:115) does
not mean to say that as a system it is *isolated* from all other
systems:

> "Undoubtedly, the system interacts with other
> systems, but the interaction is more or less
> at the periphery."

On the other hand, by calling formal grammar an autonomous
system, Chomsky does not mean to say that it is without any
physical basis.  As noted by Newmeyer (1983:4),

> ".... the autonomy hypothesis does not preclude
> the possibility that formal grammar is rooted
> in neurology;  far from it:  generative grammar-
> ians   look with pleasure on the growing evi-
> dence that there are neurological structures
> specific to grammar ....".

This brings us to the opposite conception, i.e., the non-
(external) autonomy conception, which also has a variety of
articulations.  Each of these, however, attributes to the
non-autonomy conception what Newmeyer (1983:96 ff.) describes
as "the hypothesis that grammatical facts can, in large part
or in totality, be reduced to facts derivable from the pro-
perties of some *general* human attribute (i.e., an attribute
not specific to language)".  In the more recent Chomskyan
idiom, the non-autonomy conception would deny the existence
of a self-contained computational faculty of mind.  The
categories and principles attributed to such a faculty by
Chomsky would on this non-autonomy view be artifacts that
may be reduced to or derived from "extragrammatical" or non-
language-specific principles or attributes such as general
principles of communication, cognitive functioning (inclu-
ding those involved in "perceptual processing"), discourse,
and so on.[82)]  Thus, a principle such as Subjacency would
on a non-autonomy view be claimed to derive from, say, one
or more general principles of perceptual processing not
specific to language.

The majority of present-day linguists and psychologists
would probably hold one or another version of the non-
autonomy conception of grammar. With reference to the
field of developmental psychology Chomsky (1982:115) puts
this point in the following way:

> "I'm sure that if you counted noses, people in
> developmental psychology would overwhelmingly
> doubt this autonomy thesis. I don't think they
> have a coherent argument, or a coherent alter-
> native, but I don't doubt that they'd vote
> against it if asked to vote."

Let us next consider Chomsky's thesis of internal autonomy.
This thesis states, on a recent general formulation of
Chomsky's (1982:114), that the rules of the autonomous com-
putational faculty have an internal autonomy in that they
have their own properties and in that, as they function,
they refer just to the representations they themselves con-
struct and not to elements outside the  subcomponent of the
computational faculty of which they form part.  For example,
Chomsky (1982:116) considers it a good "working hypothesis"
that "the rules mapping S-structure onto phonetic represen-
tation ought to be completely autonomous from the rules
mapping S-structure onto logical form".

The thesis of internal autonomy has a special case, put
forward by Chomsky (e.g., 1957:92 ff.) as a working hypothe-
sis more than two decades ago.  In regard to content it
claimed that syntax was independent of meaning.  This claim
--- referred to simply as "the autonomy thesis" --- has
been put forward in two distinct versions, as pointed out by
Chomsky (1975b:178):

> "We can distinguish, then, two versions of an
> autonomy thesis:  an absolute thesis, which
> holds that the theory of linguistic form, in-
> cluding the concept 'formal grammar' and all

> levels apart from semantic representation,
> can be fully defined in terms of formal prim-
> itives, and a weaker version, which holds
> that this is true only conditionally, with
> certain parameters, perhaps localized in the
> dictionary."

The latter version of the autonomy thesis Chomsky (1975b:
180) has called "the parameterized autonomy thesis". And
"the problem" with it, he (1975b:178) observes, "will be to
determine the specific ways in which semantic information
enters into the determination of a formal grammar". Chom-
sky (1975b:178) has found the parameterized autonomy thesis
more plausible than the absolute autonomy thesis. In regard
to the problem of whether semantic parameters and questions of
fact and belief enter into the choice of formal grammar he
noted, for example,

> "..... that the significant question with regard
> to the autonomy thesis may not be a question of
> 'yes' or 'no', but rather of 'more' or 'less', or
> more correctly, 'where' and 'how much'".

When considering Chomsky's "autonomy thesis", it is thus of
some importance to keep in mind his distinction the absolute
autonomy thesis vs. the parameterized autonomy thesis.[83]

*The autonomy fork, Dear Player, presents an opportunity to place The Game in
a wider historical context. Perhaps you have already wondered how The Game is
related to the hostilities that marked earlier periods in the history of generative
grammar in general and Chomskyan linguistics in particular. Two such periods
immediately come to mind: what have been dubbed the Linguistic Wars and the
Chomskyan Revolution.*

*Chomsky's autonomy thesis was one of the issues over which the Linguistic Wars
were fought in the late sixties and early seventies between what Newmeyer has
called the Good Guys and the Bad Guys.[84] The Linguistic Wars represent what New-
meyer (1980:132) has characterized as "the state of hostility which existed between*

*the two rival camps of theoreticians" both of which considered themselves "gene-*
*rative grammarians". Here, we can't go either into the issues that fuelled the*
*fighting, or into the reasons why the Good Guys, led by The Master, got the better*
*of the Bad Guys.* [85] *For our purpose, it is sufficient to note that the Linguistic*
*Wars represented a form of faction fighting between bands of brothers bound by*
*blood if not brains. Although these Wars did see a number of notable duels*
*between individuals, in essence they involved collective crusading by mobilized*
*masses.* [86]

*The Chomskyan Revolution, likewise, was a collective campaign — fought in*
*the late fifties and early sixties by the first generation of generativists, the*
*Rationalist Revolutionaries, against a structuralist-empiricist Greying Old Guard.* [87]
*What The Master has called "the first conceptual shift" (cf. § 2.5.13 above) was a*
*result of the Revolution. If the Linguistic Wars represented a period of intra-*
*tribal trauma, the Chomskyan Revolution was one of inter-tribal turbulence.*
*Like the former, the latter, of course, had its leaders who were not averse to*
*man-to-man combat, but both, in essence, were manifestations of mass mili-*
*tancy.* [88]

*This is where The Game has been different: a form of private prowling, a sort*
*of solitary stalking, of The Master and by The Master. The Game, as you should*
*know by now, is a matter of mind against mind in a maze. It demands more in*
*the way of skill and steel, craft and cool. And because its consequences are not*
*cushioned by any collectivity, The Game is incomparably more dangerous and,*
*indeed, more deadly than either a war or a revolution.* [89]

2.7.6    Underlying Chomsky's position on modularity and
         autonomy is the fundamental distinction the form/
structure of a mental faculty/entity vs. the function of a
mental faculty/entity. [90]   In regard to this distinction
Chomsky holds the view that structure does not reflect
function in any direct way, or, in other words, function
does not directly determine structure.   One of the contexts
that provides a good illustration of Chomsky's use of this
distinction is his (1980a:246) discussion of the belief
in the "simplicity" of mental structures.   On Chomsky's

interpretation, this belief --- which is related to the doc-
trine that mental structure is uniform, i.e. non-modular ---
is commonly expressed by those linguists who claim that
the principles of grammar cannot be "too complex" or "too
abstract". Such linguists take the position that these
principles must directly reflect properties of sound or
meaning or, significantly, that these principles must be
determined in some (essentially simple) manner by "func-
tional considerations".

Chomsky, however, rejects this position and along with it
the belief in the "simplicity" of mental structures. On
the one hand, he notes, the matter of (non-)simplicity can-
not be decided by a priori arguments. On the other hand,
it seems to him (1980a:246)

> ".... that recent work tends to support a rather
> different view: that rules of syntax and phono-
> logy, at least, are organized in terms of 'auto-
> nomous' principles of mental computation and do
> not reflect in any simple way the properties of
> the phonetic or semantic 'substance' or contin-
> gencies of language use".

The "form vs. function" fork has for years been the focus of ferocious fighting in
The Garden. In reviewing some of the episodes at this fork, a certain chronicler
of the (pre-)history of The Game has been prompted to proclaim that

> "The publication of _Syntactic Structures_, besides ushering in a new
> era of linguistic research, also engendered a new era of belligerent
> polemics. Both generativists and their opponents indulged in rhe-
> torical excesses; certainly no one would deny that some of the
> more vigorous defenses of generative grammar exceeded the nor-
> mal bounds of partisan scholarship. But it seems fair to say that
> the reactive literature has not in general balanced its belligerence
> with positive content". [91]

The way in which Searle (1972) stormed The Master at the "form vs. function"

*fork should give you some idea, Dear Player, of the verbal violence that the fork has seen. The springboard for Searle's (1972) assault was the assumption that the following represented "the common-sense picture of human language":*

> *"The purpose of language is communciation in much the same sense that the purpose of the heart is to pump blood. In both cases it is possible to study the structure independently of function but pointless and perverse to do so, since structure and function so obviously interact. We communicate prima- rily with other people, but also with ourselves, as when we talk or think in words to ourselves."*

*Searle not only labelled The Master "perverse" for believing in the autonomy thesis — which "runs counter" to this "ordinary, plausible and common-sense picture of human language". Searle not only depicted The Master as being "pecu- liar and eccentric" in insisting that the structure of language should be studied apart from its communicative function. Searle not only lashed out at The Master for having "arbitrarily assumed" that "use and structure .... [do not].... influence each other". He damningly proclaimed the greatest "defect of the Chomskyan theory" to be The Master's "failure to see the essential connection between language and communication, between meaning and speech acts".*

*The Master's (1975a:56 ff.) response was clinical, its consequences crushing — and far too comprehensive to be recounted here in their full complexity. A glimpse at two of the major moves made by The Master should suffice to convince you, Dear Player, of the counterproductivity of this kind of Communication Commo- tion. On the one hand, The Master (1975a:56-57) challenged Searle's view that the "essential purpose" of language was communication, pointing out that*

> *"There is, in fact, a very respectable tradition, which I have reviewed elsewhere,[30] that regards as a vulgar distortion the 'instrumental view' of language as 'essentially' a means of communication, or a means to achieve given ends. -Language, it is argued, is 'essentially' a system for expression of thought".*

*The Master observed, in addition, that the notion of "communication" had, in Searle's scope-enlarging hands, been "deprived of its essential and interesting character", since its scope now included "communication with oneself", or "think- ing in words", as well as "communication with others". [92)*

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On the other hand, The Master (1975:57 ff.) argued that there was no way in
which certain general properties — e.g. structure-dependence [93] — of "an
interesting class of linguistic rules" could be accounted for in terms of "communi-
cative purpose":

> ".... let us try to account for it [i.e., "structure-dependence —
> R.P.B.] in terms of communication. I see no way of doing so.
> Surely this principle enters into the function of language: we
> might well study the ways in which it does. But a language
> could function for communication (or otherwise) just as well
> with structure-independent rules, so it would seem. For a
> mind differently constituted, structure-independent rules
> would be far superior, in that they require no abstract analy-
> sis of a sentence beyond words . I think that the example is
> typical. Where it can be shown that structures serve a parti-
> cular function, that is a valuable discovery. To account for
> or somehow explain the structure of UG, or of particular
> grammars, on the basis of functional considerations is a
> pretty hopeless prospect, I would think; it is, perhaps, even
> 'perverse' to assume otherwise. Perhaps Searle has some-
> thing else in mind, but I frankly see no issue here, no counter-
> proposal that has any plausibility to the picture Searle rejects."

Searle, of course, is by no means the only player whose curious commitment to
"communication" has caused the kind of commotion considered above. On the
contrary, this is a ploy to whose attractions — fatal, I must admit — a great
many players have fallen prey. Their fate, Dear Player, carries a warning
carved out by The Master on a collective tombstone:

> Sigh here, where some Comrades of Communication lie,
> as this true stone engraves what they now signify:
> commitment triggered them to join the Garden Game,
> imperfect competence wrote "finis" to their fame. [94]

With this, Dear Player, we have completed the first lap of our trial run through
The Garden. Not without expertise, I make bold to say, you have been led along
labyrinthine lanes, through fortified forks, past piked pitfalls, and around deep
drops. But, overwhelmed as well you might be, this is still not enough. What you

have heard and seen does not yet suffice to secure survival, should you go solo. The Master's is a garden where every shadow has its surprise — its power to shock, to shake and, above all, to shatter the Presumptuous Player. So gird up your loins for a further work-out in The Garden's winding ways.

3    THE TERRAIN OF THEORY

*Gardens, it is naively believed, are not designed in different dimensions. So the discovery that the Garden has a steeply sloping structure comes to some as a sobering surprise, but strikes into the hearts of others a dread of their own inevitable and imminent demise. Laid out with forks and lanes at not just one, but at several levels, the Garden is seen at last for what it is — a layered labyrinth. The lanes through which you have been led up to now, Pupil Player, all link forks at the same level: language. Let us think of this as the middle level, the Mentalistic Maze, and move one level up to the Terrain of Theory, the lofty level of superstructure from which The Master minds the maze.*

*In taking you through the Terrain of Theory — or the Theatre of Theory, as it is called by some — I will have to be a little less lenient. You see, in proper play, Pampered Pupils tend to be turned into Pulverized Players. So, from now on I will more often insist upon your own reading of a fork, your own proposal for a piece of probing play. There is a consoling consideration, however: the penalty for committing a folly in the Theatre of Theory is less lethal than that for a making a mess in the Maze of Mentalism. In the Maze the price is paid in intellectual guts and gore; in the Theatre it is paid in pride and prestige. But in the end, of course, the question of which is worse — a maiming of the mind or a pounding of the personality — is entirely 'academic'.*

To answer the questions about the nature of knowledge of language ((1)(a) in §1.2), about the acquisition of language ((1)(b) in §1.2), and about the use of language ((1)(c) in §1.2), Chomskyan linguists resort to theory construction. In the present section we will consider the conceptual distinctions that define the various types of theory which these linguists formulate, and we will consider the nature of the types of statements which they make in so doing. A first cluster of distinctions will bear on what are known as theories of grammar, a second on linguistic universals, and a third on descriptive generative grammars.

3.1     Central amongst the theories constructed by Chom-
        skyan linguists is the theory of grammar or the
theory of language or the general-linguistic theory. This
is the theory that has to provide an answer to question
(1)(b) of §1.2:  *How is knowledge of language acquired?* So
let us consider the cluster of distinctions that elucidate
the nature and the aims of theories of grammar/general lin-
guistic theories.


3.1.1   Let us begin with the fundamental conceptual dis-
        tinction a theory of grammar vs. a generative gram-
mar of a particular language. The function of a theory of
grammar  ---  referred to also as "a general linguistic
theory", "a theory of language", "a theory of linguistic
structure", "a universal grammar"  ---  is to provide an
answer to the question "How is knowledge of language (or,
rather, grammar) acquired?". To construct a theory of gram-
mar is, therefore, to propose a solution to what has been
called in §2.1.1 above "the logical problem of language
acquisition". The theory of grammar pursues this aim by
using various kinds of linguistic universals to character-
ize  or describe the initial, innate state of the language
faculty. Recently, Chomsky (1986:3) has formulated this
point in the following terms:

> "The nature of this faculty, [*i.e. the language
> faculty  ---  R.P.B.*] is the subject matter of
> a general theory of linguistic structure that
> aims to discover the framework of principles
> and elements common to attainable human lan-
> guages; this theory is now often called "uni-
> versal grammar" (UG), adapting a traditional
> term to a new context of inquiry. UG may be
> regarded as a characterization of the genetical-
> ly determined language faculty."

A generative grammar of a given particular language ---
alternatively "a descriptive grammar" --- is a theory
that has to present an answer to the question "What does
knowledge of this language consist of?" A particular gene-
rative grammar --- another formulation used by Chomsky
(1986:3) --- attempts to answer this question by charac-
terizing or describing the stable state of the language
faculty of the (idealized) person who knows this language.
In conventional terms, a particular generative grammar
uses rules (which generate representations) for giving
this description or characterization. Speaking in the
"rules" idiom, Chomsky (1980a:65) has portrayed a parti-
cular generative grammar as

> ".... a system of rules that provides repre-
> sentations of sound and meaning .....".

This conventional characterization, of course, has to be
modified in accordance with Chomsky's second conceptual
shift. Recall, as we saw in §2.5.21 above, that this shift
involves the replacement of the rules-system model by the prin-
ciples-and-parameters theory. Within the framework of the
new theory a particular generative grammar for a language L
has to give an explicit description of how the open para-
meters have been set for L.

*"A no-funk fork, child's play to negotiate". This, Placid Pupil, is a judgement that
has been made before. For more than one impetuous player, however, it has in
fact been a faux pas fork. May I remind you, for example, of those who misread
The Master's (grammatical) base rules of English as (general linguistic) hypotheses
postulating linguistic universals. So at this "no-sweat" fork a couple of careless
combatants committed the First Folly in the Theatre of Theory: bungling the
distinction between (the claims expressed by) a theory of grammar and (the claims
expressed by) a generative grammar of a particular language.*

3.1.2    A second basic distinction at the level of theory
         is <u>a theory of grammar vs. a theory of language use</u>.

A theory of grammar, we have seen, presents a tentative
answer to the logical question of language acquisition.
(And a particular generative grammar, in turn, is a theory
about the knowledge of grammar or grammatical competence of
an ideal speaker of an individual language.) A theory of
language use, however, presents a tentative answer to (a
subpart of) the question represented as (1)(c) in §1.2
above: How is knowledge of language put to use? Theories
of language use, then, referred to also as "models of per-
formance", are theories about speech production, speech
perception, the structure of memory, etc. Such theories
are not theories of knowledge, whether innate or acquired
knowledge.

Theories of knowledge or competence and theories of use or
performance are, nevertheless, clearly interlinked --- as
is plain from the following remarks by Chomsky (1980a:225):

> "Theories of grammatical and pragmatic competence
> must find their place in a theory of performance
> that takes into account the structure of memory,
> our mode of organizing experience, and so on.
> Actual investigation of language necessarily
> deals with performance, with what someone does
> under specific circumstances. We often attempt
> to devise modes of inquiry that will reduce to a
> minimum factors that appear irrelevant to intrin-
> sic competence, so that the data of performance
> will bear directly on competence, as the object
> of our inquiry. To the extent that we have an
> explicit theory of competence, we can attempt to
> devise performance models to show how this knowl-
> edge is put to use."

Chomsky (1980a:226) is at pains to stress the fact that
study of competence and study of performance are mutually

supportive:

> "Study of performance relies essentially on ad-
> vances in understanding of competence. But
> since a competence theory must be incorporated
> in a performance model, evidence about the
> actual organization of behavior may prove cru-
> cial to advancing the theory of underlying
> competence. Study of performance and study of
> competence are mutually supportive."

*"Why should one put up with such a proliferation of theories — theories of
grammar, particular generative grammars, theories of use, production, percep-
tion and what have you? Why could we not simply have a single general system
embracing every aspect of 'language' — and communication to boot?" Are you
implicitly suggesting, Protesting Player, that theoretical superstructure, as a
separate layer of lanes and forks, should be "cut down to size", "reduced to sen-
sible proportions"? If so, hold your hatchet! What you suggest will be shown in
§4.2.6 below to be rather more taxing than the simple hacking job you seem to
have in mind.*

3.1.3    There is a third basic distinction that is rele-
         vant to the characterization of what a theory of
grammar is, namely that of <u>linguistic theory vs. the field
of linguistics</u>. We saw in §2.5.11 above that Chomsky
(1965:3) introduced the idealizations of "an ideal speaker-
listener" and "a completely homogeneous speech-community"
by stating that

> "Linguistic theory is concerned primarily with
> an ideal speaker-listener, in a completely homo-
> geneous speech-community ....".

"Linguistic theory", in this statement,  refers to theories
of grammar, i.e. theories of competence or theories of
knowledge of grammar.  "Linguistic theory" in this statement

is not being used as a synonym for "the field of linguistics". Thus, Newmeyer (1983:75) observes that

> "the opening words of the paragraph are 'Linguistic theory is concerned,' not 'The field of linguistics is concerned'. Chomsky has consistently used the term 'linguistic theory' to refer to theories of grammar (i.e., theories of competence) rather than to refer to any work (theoretical or nontheoretical) involving language study".[1]

*"Just another simple, straightforward fork", I hear you mutter beneath your breath at the bifurcation "linguistic theory vs. the field of linguistics". But perhaps it might be rewarding not to forget that simplicity, like beauty, is in the mind of the beholder. Many a Patronizing Player, you see, has suffered from voids of vision, a disabling if not deadly defect. This is the reason why Confident Combatants have so often overlooked this fork in its "splendid simplicity" — an oversight that has caused them to equate "linguistic theory" with "the field of linguistics".*

*And having "confidently" conflated "linguistic theory" with "the field of linguistics", such players have interpreted The Master's statement that "Linguistic theory is concerned with ...." in a wacky way. On their reading it would indicate The Master's ignorance or even dismissal of studies of language variation. Incensed by their own disastrous deduction, they have slung terrible taunts at The Master: "Idealizing Ignoramus", "Homogeneity Hun" — others, I cannot move myself to mention. As noted by Newmeyer (1983:75), there is no substance to such charges — they ruinously reflect no more than the erroneous equation "linguistic theory = field of linguistics". Evasive action on the part of The Master was not necessary: he (1980a:25) signalled to everyone with the proper powers of perception that he considers the fact "that real speech communities are not homogeneous" to be "obvious" but "irrelevant" as an objection to the idealization in question.*

*Incidentally, in the system of scoring, the missing of a fork altogether is about as bad a blunder as there could be. In the Mentalistic Maze it means irreversible ruin; in the Terrain of Theory, haunting humiliation. The spectators, Paling Player, you should not forget, make up a callous crowd.*

3.2     This brings us to the basic components or building
        blocks of the theory of grammar, statements called
linguistic universals. We will attempt to get a clearer
idea of what such statements are by considering five dis-
tinctions that bear on the substance of the claims expressed
by them.


3.2.1    In coming to grips with Chomsky's notion of lin-
         guistic universal, a first and fundamental dis-
tinction is <u>linguistic universals vs. statements postula-
ting a property common to all languages</u>. The theory of
grammar incorporates linguistic universals such as the thesis
of structure-preservingness, Subjacency, the conditions of
binding theory, and so on. A linguistic universal in Chom-
skyan linguistics is a statement that attributes a property
to the initial state of the language faculty. That is, as
noted by Chomsky (1980a:69), such a statement expresses a
claim about the innate basis on which knowledge of language
develops. A linguistic universal, in this sense, does not
express a claim about a feature that is (expected to be)
common to all languages. Specifically, the property postu-
lated by a linguistic universal is not being attributed to
the grown or acquired grammars of all human languages.

*In arguing that no evidence at all has been provided for such specific theories
of language universals as those advanced by The Master, Stich (1978) seems to
have stumbled at the fork of "linguistic universal vs. statement postulating a
feature common to all human languages". Given this player's generally sure-footed
style of play, the following response by The Master (1980a:69) must have caused
Stich some pain.*

> "*A second point has to do with his* [*i.e., Stich's   --→  R.P.B.*] *inter-
> pretation of the term 'linguistic universals', which is quite diffe-
> rent from the usage of the work he criticizes, in which 'universal
> grammar' is taken to be the set of properties, conditions, or what-
> ever that constitute the 'initial state' of the language learner, hence
> the basis on which knowledge of language develops. It by no means*

*follows from such an account that there must be specific elements
or rules common to all languages, or what he calls 'features' com-
mon to all languages, unless we take these 'features' in a suitably
abstract manner, in which case, the controversy dissolves."*

*Over the years, many a player has fallen flat on his face at the fork "linguistic
universals vs. statements about properties common to all languages". And
prostration, Dear Player, often puts one on the path of permanent paralysis. So,
if I were you, I would try not to forget that "linguistic universals = statements
about properties common to all languages" is an Emasculating Equation.*

3.2.2    The substance of the claims expressed by linguistic
         universals may be further elucidated with the aid
         of Chomsky's (1980a:28-29) distinction <u>claims</u>
<u>about biologically necessary properties of language vs.</u>
<u>claims about logically/conceptually necessary properties of</u>
<u>language</u>.  Chomsky (1980a:29) takes universal grammar to be
"a study of the biologically necessary properties of human
language".  These are the genetically determined proper-
ties that are, in Chomsky's (1980a:28) words, "characteris-
tic of the human species".  As the basic statements making
up the theory of grammar or universal grammar, Chomskyan
linguistic universals thus express claims about biologically
necessary properties of human language.  The principle of
Subjacency --- roughly formulated as (1) below --- is
an example of a linguistic universal that attempts to cap-
ture a biologically necessary property of human language:

(1)        Nothing can be removed from more than
           a single binding category.

Chomskyan linguistic universals, by implication, do not
express claims about so-called logically or conceptually
necessary properties that "language as such" must have.  Pro-
perties of language are, on Chomsky's (1980a:28-29) formula-

".... that research on language universals requires
a wide range of languages as its data base, [that
--- R.P.B.] believes that a number of language
universals can be stated in terms of concrete
levels of analysis, and [that --- R.P.B.] has
an open mind on possible explanations for language
universals, considering in particular psychologi-
cal and functional (including pragmatic) factors".[3]

(3)(a)-(b) represents typical cases of such cross-linguistic
(Greenbergian) universals.

(3)    (a)    In declarative sentences with nominal sub-
              ject and object, the dominant order is
              almost always one in which the subject
              precedes the object.

       (b)    In languages with prepositions, the geni-
              tive almost always follows the governor
              noun, while in languages with postpositions
              it almost always precedes.

Although the point is half-obscured by their formulation,
cross-linguistic universals such as (3)(a)-(b) are in
essence generalizations that express statistical tendencies
of a typological sort.

*You fail to see why, in regard to linguistic universals, one would prefer The
Master's Biological Bent to the Statistical Stance of, say, Greenberg? In support
of your "open-mindedness" you quote Li (1976:x-xi), who asserted that*

> *".... one of the most productive directions of research lies in
> the collection of valuable facts from a diverse cross-section
> of languages and the discovering of generalizations based on
> them."*

*The Master (1957:17) has made no secret of his skepticism about the potential
insightfulness of statistical studies and probabilistic models of linguistic struc-
ture. Thus, in considering possible explications of the notion of grammatical-*

*ness, he argued that*

> *"statistical studies of language .... appear to have no direct*
> *relevance to the problem of determining or characterizing*
> *the set of grammatical utterances".*

*And, in his view, "we are forced to conclude that probabilistic models give no*
*particular insight into some basic problems of syntactic structure". With this*
*Anti-statistics Stance, The Master long ago pre-empted the probing play planned*
*by you and others at Probability Prong. And indeed, more recently, Newmeyer*
*(1983:71), adaptively amplifying The Master's stand, has cautioned combatants*
*capable of comprehension that the "directions of research" lauded by Li are*
*likely not to lead them to what they would like to learn:*

> *"But there is no evidence that 'the collection of valuable facts'*
> *has ever led or could ever lead to the discovery of any genera-*
> *lizations other than the most superficial sort. For example,*
> *the seven-year-long Stanford University Language Universals*
> *Project (whose results are now published as Greenberg, Fergu-*
> *son, and Moravcsik 1978) carried out Li's program to perfec-*
> *tion yet has not led, as far as I know, to any substantial theo-*
> *retical revisions. The problem is that the fairly shallow gene-*
> *ralizations and statistical correlations described in the project's*
> *reports were far too sketchily presented to be of much use in*
> *ascertaining even the grammatical structure of the individual*
> *languages treated, much less shed any light on universal gram-*
> *mar.*[9][4]*"*

*What you have identified as the Li Line, Dear Aspirant Player, appears to me to*
*be indistinguishable from the Limbo Line.*

3.2.4    As statements of the theory of grammar, individual
         linguistic universals form clusters that Chomsky
(1981b:5, 135) characterizes with the aid of the distinc-
tion subcomponents of rule systems vs. subsystems of prin-
ciples.  As statements of the theory of grammar, some lin-
guistic universals characterize those modules or subcompo-

nents of rule systems that make up core grammar. Within
Chomsky's (1981b:5) Lectures model these subcomponents in-
clude the following:

(4)   (i)   lexicon
      (ii)  syntax
            (a)   categorial component
            (b)   transformational component
     (iii)  PF-component
      (iv)  LF-component

The following is Chomsky's (1981b:5) brief characterization
of these subcomponents:

> "The lexicon specifies the abstract morpho-phono-
> logical structure of each lexical item and its
> syntactic features, including its categorial
> features and its contextual features.  The rules
> of the categorial component meet some variety of
> X-bar theory.  Systems (i) and (iia) constitute
> the base.  Base rules generate D-structures
> (deep structures) through insertion of lexical
> items into structures generated by (iia), in
> accordance with their feature structure.  These
> are mapped to S-structure by the rule Move- $\alpha$ ,
> leaving traces coindexed with their antecedents;
> this rule constitutes the transformational com-
> ponent (iib), and may also appear in the PF- and
> LF-components.  Thus the syntax generates S-
> structures which are assigned PF- and LF-repre-
> sentations by components (iii) and (iv) of (1),
> respectively." [5)]

Chomsky (1981b:17) uses the following diagram to represent
schematically the way in which the "three fundamental compo-
nents" of universal grammar are organized:

(5)                                     syntax
                                          ↓
                                    S-structure
                                      ╱      ╲
                                   PF          LF
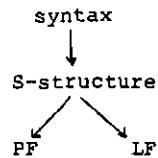
Other linguistic universals characterize the subsystems of
principles provided for by Chomsky. Calling these subsys-
tems of principles "theories", Chomsky (1981b:5) provides
for the following:

(6)    (i)     bounding theory
       (ii)    government theory
      (iii)    θ-theory
       (iv)    binding theory
        (v)    Case theory
       (vi)    control theory

The following remarks by Chomsky (1981b:5-6) give some indi-
cation of the claims expressed in these theories:

>"Bounding theory poses locality conditions on
>certain processes and related items. The cen-
>tral notion of government theory is the rela-
>tion between the head of a construction and
>categories depending on it. θ-theory is con-
>cerned with the assignment of thematic roles
>such as agent-of-action, etc. (henceforth: θ-
>roles). Binding theory is concerned with
>relations of anaphors, pronouns, names and
>variables to possible antecedents. Case
>theory deals with assignment of abstract Case
>and its morphological realization. Control
>theory determines the potential for reference
>of the abstract pronominal element PRO." [6]

*As for "subcomponents of rule systems vs. subsystems of principles", it has all
the appearances of a basic bifurcation in The Garden. But only Nervous Novices*

*would allow themselves to be cajolled into combat at this conceptual cleft. Why? The reasons, really, are simple: it is not clear at all that The Master could be embarrassed at this bifurcation. And it is even less clear how such embarrassment could be caused. That is, Impolitic Pupil, take note of the following Principles Underpinning the Pragmatics of Prudent Play:*

A.      *No prospect of profit, no point in play.*

B.      *No plan of play, no point in pugnacious posturing.*

*Without the guidance of principles such as these, I fear, your involvement in The Game is bound to bring you no more than a series of close encounters of the nerd kind.*

3.3     We turn next to a series of distinctions that bear on the nature and properties of (generative) grammars as theories of particular human languages. It was noted in §3.1.1 above that a generative grammar of a particular language is a theory that has to give an answer to the question "What does knowledge of this language consist of?" At this point of our survey, the useful distinctions are those that will give us a clearer idea of what such grammars are not.

3.3.1    Basic among the distinctions in question is that of a descriptive/linguistic grammar vs. a mental/ internalized grammar. A descriptive grammar, on a recent formulation by Chomsky (1986:3), is

".... a theory concerned with the state of the mind/brain of the person who knows a particular language".

Such a theory has to present a certain type of description or characterization of the relatively stable state of the language faculty of the person who knows the particular language.[7] A descriptive grammar, therefore, is a theory about an object that --- in the terminology of §2.5.13 ---

may be called a specific I-language. Returning to the essential point: a descriptive grammar of a language is a meta-scientific object of the linguist's own making: a theory that has to have the attribute of "being scientific". What "being scientific" means to Chomsky will become clear in §4 below.

A mental grammar, by contrast, is a property of the (ideal) speaker-listener's mind/brain: the state of the language faculty described or characterized by a descriptive grammar. That is, the mental grammar of a language constitutes the relatively stable steady state of the ideal speaker-listener. A mental grammar therefore, on Chomsky's view, is not a meta-scientific object created by the linguist, but a physically based cognitive system "out there in the real world". In his earlier writings, Chomsky (e.g. 1965) often used the expression "linguistic grammar" as an alternative to "descriptive grammar" and "internalized grammar" as alternative to "mental grammar".

To sum up, we consider Chomsky's (1980a:220) characterization of the distinction between a descriptive/linguistic grammar on the one hand and a mental/internalized grammar on the other hand:

> "We must be careful to distinguish the grammar,
> regarded as a structure postulated in the mind,
> from the linguist's grammar, which is an explicit
> articulated theory that attempts to express pre-
> cisely the rules and principles of the grammar
> in the mind of the ideal speaker-hearer. The
> linguist's grammar is a scientific theory, cor-
> rect insofar as it corresponds to the internally
> represented grammar."

*"As easy as pie , a piece of cake"? Is this, Optimistic Player, your considered judgement of the fork in question? But, then, how would a novice know about The Master's cultivated capacity to complicate, his astonishing ability to make the frivolous fighter choke on even a piece of cake. The Master — in his wilful*

*and wily way, some would say --- has created a confusing complication: he (e.g.
1980a:220; 1980b:54) has --- and a deft touch it is, one has to admit --- with
"systematic ambiguity" used the expression "a grammar (of a language)" to denote
both the metascientific object and the mental state.*

> *"It is standard practice to use the term 'grammar' ambiguously,
> referring to the linguist's theory or the system of rules attri-
> buted to the   mind in this theory (similarly, 'universal grammar').*[8]

*And  he proceeds to warn:*

> *"But one must be careful not to be misled by the practice."*

*This warning, alas, has come too late for many an unwary warrior. In fact, it
forms part of The Master's beating off of yet another sally by Searle who, The
Master intimates, committed the Grand Grammar Goof by failing to distinguish
between metascientific object and mental capacity.*

3.3.2    The nature of particular grammars as theories may
         be further elucidated by considering Chomsky's
(1986:6-7) distinction a generative grammar vs. a tradition-
al/pedagogical grammar. A particular generative grammar has
to give a fully explicit and complete characterization of a
mental capacity, a speaker-hearer's tacit knowledge of his
language. A traditional or pedagogical grammar, on Chomsky's
(1986:6) view, has a complementary concern:

> ".... a good traditional or pedagogical grammar
> provides a full list of exceptions (irregular
> verbs, etc.), paradigms and examples of regular
> constructions, and observations at various
> levels of detail and generality about the form
> and meaning of expressions."

A traditional or pedagogical grammar, however,

".... does not examine the question of how the
reader of the grammar uses such information to
attain the knowledge that is used to form and
interpret new expressions, or the question of
the nature and elements of this knowledge ...".

This is to say, according to Chomsky, that a traditional or
pedagogical grammar does not attempt to provide an answer
to the question "What constitutes knowledge of the speci-
fic language with which it is concerned?". Chomsky (1986:
6-7) would, "without too much exaggeration", rather describe
a traditional or pedagogical grammar as

".... a structured and organized version of the
data presented to a child learning a language,
with some general commentary and often insigtful
observations".

Such a grammar, unlike a generative grammar, does not aim to
specify the speaker-listener's "full knowledge" of the lan-
guage.

*In days gone by, when The Garden was still young, the lane leading to the "genera-
tive vs. pedagogical grammar" fork had a strangely slippery surface. Actually it
was the scene of the sort of sliding and slithering that resulted, most unfortu-
nately, in flat-footed fighters taking the Pedagogical Pitch by uncomprehendingly
criticizing The Master for constructing generative grammars that stated the ob-
vious, unproblematical things which learners/speakers already knew about their
language.*

3.3.3    As regards the nature of generative grammars  ---
         specifically as this was seen by Chomsky before the
second conceptual shift  ---  a technical distinction has
to be drawn, namely the generation of sentences vs. the
production and interpretation of sentences. This distinc-
tion ties in with Chomsky's (1980a:220) earlier E-language

view that

> "The grammar of the language determines the prop-
> erties of each of the sentences of the language.
> For each sentence, the grammar determines aspects
> of its phonetic form, its meaning, and perhaps
> more. The language is the set of sentences that
> are described by the grammar".

Against this background Chomsky (1980a:220) introduces the
technical term "to generate" to say that

> ".... the grammar 'generates' the sentences it
> describes and their structural descriptions;
> the grammar is said to 'weakly generate' the
> sentences of the language and to 'strongly
> generate' the structural descriptions of these
> sentences. When we speak of the linguist's
> grammar as a 'generative grammar', we mean
> only that it is sufficiently explicit to deter-
> mine how sentences of the language are in fact
> characterized by the grammar".

Note, in passing, that the quoted remarks by Chomsky clarify
a further, secondary distinction bearing on the properties
of generative grammars, namely weakly generate/weak genera-
tive capacity vs. strongly generate/strong generative capac-
ity. 9)

From the very beginning of his work on generative grammar, Chom-
sky has been at pains to make it clear that a sharp dis-
tinction has to be drawn between the generation of senten-
ces by a grammar, in the technical sense elucidated above,
and the production and interpretation of sentences by
speakers of the language. Recently, he (1980a:222) has
once more stated that

> "It is important to bear in mind the fundamental
> conceptual distinction between generation of sen-

tences by the grammar, on the one hand, and pro-
duction and interpretation of sentences by the
speaker, making use of the resources of the gram-
mar and much else, on the other. The grammar, in
whatever form its principles are represented in
the mind and brain, simply characterizes the
properties of sentences, much as the principles
of arithmetic determine the properties of numbers.

We have some understanding of the principles of
grammar, but there is no promising approach to the
normal creative use of language, or to other rule-
governed human acts that are freely undertaken.
The study of grammar raises problems that we have
some hope of solving; the creative use of language
is a mystery that eludes our intellectual grasp".

A generative grammar, then, is not a device modelling or cha-
racterizing the speaker's ability to produce and/or inter-
pret sentences.

For those concerned about the quality of the combat, "generation vs. production/
interpretation" is a fork with a rather sad history. The blunders, bloomers and
boners committed over the years at this bifurcation by aggressors from all over
the gaming globe add up to a number causing despondency, if not dismay, about
the keenness of the contest.     A recent episode --- involving a member of a
certain AI clan --- should show you what I have in mind. Schank (1980: 35-36) ---
who purported to speak for "those of us who work in artificial intelligence" ---
declared by decree that

> "A theory of language must explain how people can comprehend
> sentences that they read or hear, and how they respond appro-
> priately. In my view, a theory of language must embody a theory
> of comprehension, a theory of production, a theory of memory, a
> theory of motivation and behavior, and much more".

From this platform Schank showered The Master's position with all sorts of shells,
setting his sights on, among other things, the latter's informal account of how
questions such as Whom did John see? may be generated by a grammar.[10] Care-

lessly taking "generated by the grammar" to be the same as "formed by people",
Schank (1980:36) hurled conceptual cocktails such as the following in the general
direction of the Garden Guru:

> "Chomsky postulates an important 'general property of language'
> from the fact that people do not actually attempt to transform
> this sentence into an interrogative that questions 'the class'.
> Actually, he does think that people are silly enough to try it,
> but he allows that they are also smart enough to realize that
> such a question would be more than cumbersome, and thus some-
> how they are able to 'block' that question!"

Neither shocked nor shaken by Schank's Shelling, The Master, distinctly dismissive-
ly, shot back:

> "Shank misunderstood my account of these facts [i.e., that the
> question (1) Which class did the teacher think his assistant had
> told to study the lesson? is well-formed but that the question
> (2) Which class was the lesson harder than the teacher had told
> that it would be? is not well-formed — R.P.B.], but that is
> unimportant."

And, as if this were not sufficiently shattering, The Master went on to take Schank
to task for an attitude that would reap riotous ridicule in the natural sciences:

> "Consider, rather, his own reaction to them. He does not pro-
> pose an explanation for such facts. Rather, he denies that an
> explanation should be sought, since 'we do not form questions
> apart from our desire to know something.' Such facts as these
> are not worth considering (or perhaps are not facts) because
> people are not 'silly enough' to produce such sentences as (1)
> and (2). It is therefore of no interest to him that such sample
> facts about our knowledge provide evidence bearing on the
> structure of comparatives, on general principles of locality,
> and so on, in English and other languages. His attitude is like
> that of someone who objects to physics on the grounds that in
> normal life one doesn't find balls rolling down smooth inclined
> planes, let alone more exotic facts." (Chomsky 1980b:53)

*So, Dear Player, if you have to rely on intelligence of an artificial sort, brilliance
of a brainless brand, cleverness of cloddish class, then making mincemeat of
The Master is most likely not your métier.*

3.3.4    The second conceptual shift in Chomskyan linguis-
         tics has made it necessary to draw the distinction
sentence generation vs. parameter fixing and element licen-
sing. Before the second conceptual shift in Chomskyan lin-
guistics, a generative grammar was technically characterized
as a device for generating sentences in the sense considered
in §3.3.4 above.   Following this shift, however, we saw in
§2.5.2.1 above, Chomsky's (1986:150-151) conception of know-
ledge of grammar has changed in an essential way. He
no longer sees such knowledge as being represented in a rule
system:

> "What we know is not a rule system in the conven-
> tional sense.  In fact, it might be that the
> notion of rule in this sense, like the notion of
> E-language (so it seems), has no status in lin-
> guistic theory."

Chomsky now believes that

> "The language that we .... know is a system of
> principles with parameters fixed, along with a
> periphery of marked exceptions".

And in regard to the setting up of rule systems  --- after
all, the linguist's conventional activity in pre-shift
days   --- he contends that

> "One can formulate algorithms that project rule
> systems from a choice of values for the para-
> meters of UG, but it is not obvious that this

> is a significant move or that it matters how
> it is done".

In line with this contention, as we have noted, Chomsky (1986:83) argues for the elimination of phrase structure rules, the status of transformations being less clear. Following the second conceptual shift, consequently, grammars are no longer formal systems of explicitly formulated rules for the generation of sentences. Grammars of the post-shift sort must contain devices specifying how the values of open parameters are fixed in the language. In doing this, such devices, in terms of a recent statement by Chomsky (1986: 93), are to perform a sort of "licensing", the assumption being that

> "Every element that appears in well-formed struc-
> ture must be licensed in one of a small number of
> available ways".

It is not clear in what format (maximally explicit, of course) such "parameter-fixing" or "licensing" devices are to be represented.

*We have moved again into an area of The Garden where purposeful play is not possible. You feel strongly, do you, that you would like to lodge a complaint about the absence of proper paths and fully formed forks? But with whom? The Master? Complaining to The Master about being unable to foil him at a fantom fork?! Appealing to The Spectators? Derision, ridicule, even raspberries perhaps — that's all that you would get for your trouble. And, of course, angry admonitions to get on with The Game at one of the places --- and there are plenty! --- where proper play is possible. No, there is no canon in the East Coast Code of Combat to call on in this case. There is only the Garden Guru's Court with its rough jungle justice.*

*And so we have traversed the relatively tame Terrain of Theory, that level of elevated lanes from which The Master manages his Mentalistic Maze. Compared with the tumultuous tussles and fierce fracas we saw in The Maze, the dustups in the Theatre of Theory have been rather dull, you will agree. This is as good a reason as any to move on to that awesome area of The Garden where fights are fought to the finish.*

## 4     THE MARSHES OF METHOD

*So we are approaching, in pursuit of more passionate play, the arena where old
scores are settled — where running battles are brought to a bitter end. You
have the sickening sensation of dropping down into depths, dark and dank? So
you should. But how is this possible in a garden, of all places? Well, as I have
said before, it is not the garden variety of garden that one is playing in. It is a
sloping structure, a multi-levelled labyrinth. And we are descending from the
level of theoretical superstructure through the middle level of language/mind,
down into the Marshes of Method, the lowest level of the labyrinth. We are
moving into the bowels of the garden, a philosophical substructure of slippery
paths and poorly lit prongs, crisscrossed by maelstroms of (mentalistic) method.
It is here, in this web of winding ways of doing (linguistic) science, that many an
interchange which starts out as a "linguistic" game is decided as a metascienti-
fic match. It is at this level of philosophically fluid forks that The Master is at
his barely beatable best.*

In §2 we considered the essence of Chomsky's answers to the
three basic questions represented as (1)(a)-(c) in §1.2,
i.e., the questions: "What constitutes knowledge of lan-
guage?", "How is knowledge of language acquired?", and
"How is knowledge of language put to use?" Subsequently,
in §3, we looked at the various kinds of theories within
the framework of which these answers are proposed by Chomsky.
In the present section we come to the philosophical princi-
ples and methodological practices that appear to govern the
ways in which Chomsky sets about answering the questions
(1)(a)-(c), and also the ways in which he sets about justi-
fying the theories that express these answers. In short,
we come to the metascientific assumptions of Chomskyan lin-
guistics. Specifically, we will consider some of the more
fundamental conceptual distinctions on which these assump-
tions are based. The distinctions that will be elucidated
below cluster around Chomsky's conception of a number of

matters: the aims of inquiry, the relation between linguis-
tic theories and reality, the kinds of descriptions and
explanations given by such theories, the empirical status
and testing of linguistic theories, the role(s) (not)
played by simplicity and other conceptual considerations
in the justification of such theories, the nature and weight
of the empirical evidence used in the justification of lin-
guistic theories, and the major sources of linguistic evi-
dence.

4.1    To start off with, let us consider a cluster of con-
       ceptual distinctions that underlie Chomsky's views
of the sort of **problems, aims and idealizations** that should
guide (linguistic) inquiry.

4.1.1    Fundamental to Chomsky's scientific concerns is
         his distinction problems vs. mysteries. Linguis-
tic inquiry in the Chomskyan mould is initiated and guided
by the desire to find answers to questions of a sort called
"problems" by Chomsky. Problems, in Chomsky's (1980a:6)
sense,

>     ".... lie within these limits  [ i.e.,
>     the limits and scope of human minds as fixed
>     biological systems  --- R.P.B.] and can be
>     approached by human science with some hope of
>     success ....".

Thus problems concern unknown "operative principles" that
are not, because of limitations on human intellectual capa-
cities, "humanly unknowable". Mysteries, by constrast, ac-
cording to Chomsky (1980a:6), are questions that

>     ".... simply lie beyond the reach of our minds,
>     structured and organized as they are, either

absolutely beyond those limits or at so far a
remove from anything that we can comprehend
with requisite facility that they will never
be incorporated within explanatory theories
· intelligible to humans".

Questions about the nature and acquisition of knowledge of
language (or grammar) are considered by Chomsky to repre-
sent "problems" in the sense considered above. Questions
about "the normal creative use of language", the "creative
aspect of language", he (1980a:76, 222) takes to be "myste-
ries": questions in the investigation of which no progress
seems to be made. As we noted in §2.5.3 above, it is for
this reason that the question "How do people succeed in
acting appropriately and creatively in linguistic behaviour
or performance?" is a question which Chomsky expressly
excludes from the set of fundamental questions to be ad-
dressed by his approach to linguistic inquiry.

*At the point where the "question" passage splits into the "problems vs. mysteries"
prong you may find it profitable to pause, Dear Peripatetic Player. Yes, let us
make a halt here as you think back: try to recall the History of one Hapless
Hunter, recounted in §2.5.3 above. That Pitiable Player, as we saw, committed a
faux pas at the fork "knowledge vs. creative use" when he hit out at The Master
because the latter's theories failed to explain "how we talk".*

*Observe now that what The Master did in retaliation highlights a fundamental
feature of The Game: the switching of the action from one level to another,
whereby a seemingly simple scrap is turned into a multi-levelled battle. Thus
in the Mentalistic Maze, if you will recall, The Master let Hunter have it for
missing the fork "knowledge vs. creative use" altogether. But there was more
to The Master's retaliative move: with devastating deftness he drew Hunter
down into a metascientific maelstrom foaming in the Guts of the Garden. Here
The Master promptly further faulted Hunter for being so blinded by the ques-
tion "how we talk" that he had, at this deeper level, overshot the "problems vs.
mysteries" fork as well.*

*Now, carrying on about someone's inability to explain "how we talk" instantiates
a special kind of exercise, namely making much of mystery. This may well win*

*the day in the field of fiction, but in the Garden other principles obtain:*

A. *By Mystery-Mongering that misses both muscle and menace, you will neither score nor scare.*

B. *Play proceeds from problems.*

*And problems have to be probes into principles, as we will see below.*

4.1.2    Chomsky's conception of the aims of (linguistic) science are based, ultimately, on the distinction <u>depth of insight vs. gross coverage of data</u>. He (e.g., 1978a:9 ff.; 1980a:9 ff.; 1980b:49; 1982:82-83) has repeatedly stated the aim of his form of linguistic inquiry to be the attainment of depth of insight or understanding in (restricted areas) of human mind in general and man's language capacity in particular. Depth of insight is pursued through the construction of theories that attempt to explain observations about problematic phenomena in terms of underlying principles. Chomsky (e.g. 1982:82-83) regards gross coverage of data that fails to go further than arbitrary classification or inventorization as being of restricted intellectual significance, not an aim to be pursued in serious inquiry.

> ".... I certainly feel that explanation is much more important than gross coverage of data. The reason is, very simply, that gross coverage of data is much too easily obtained, in too many different ways. There are a million ways in which you can give a kind of rough characterization or a lot of data, and therefore you don't learn anything about the principles at all."

And he (1980b:49) considers observation useful

> ".... only insofar as it provides evidence for

an explanatory theory, and [he has] therefore no
interest in catalogues of observations, which
can easily be constructed on a massive scale".

Chomsky's (1982:83) pursuit of depth of insight rather than
gross coverage of data also forms the basis of his judgement
that whereas certain problematic (linguistic) phenomena are
"interesting" as "good probes", other phenomena are not:

"There are certain phenomena, like anaphora,
which have just been extremely good probes;
they've raised questions that have to be
answered, and there are other things that
also do, but I haven't seen many. Most pheno-
mena simply do not make good probes. They are
really jsut puzzles which are unexplained. It
seems to me to make good sense to work inten-
sively in those subareas where sharp questions
seem to arise that can be answered in ways
that have an explanatory character."

For the linguist who lacks the inclination to bring observa-
tions and data to bear on the construction of explanatory
theories, there is in Chomsky's (1978a:10) opinion only one,
not particularly attractive, alternative:

".... a kind of butterfly collecting or ela-
borate taxonomies of sensations and observa-
tions."

*Over the years, The Master has often been attacked at the "insight vs. coverage
of data" fork for his pursuit of insight and his concern with explanatory theories.
Recently Rachlin (1980:30-31) — stung by The Master's "contempt for the other
side" — again raised the question why it is "necessary" to develop explanatory
theories — of the sort proposed by The Master — as true of the mind/brain.
And matching "contempt" with contempt, he fired a couple of metaphorical mis-
siles at The Master:*

> "Why is it necessary to (so to speak) hold a behavioral function
> hostage in the body? Where does this get us? Do we need to
> fear that this imprisoned function (in the case of language) will
> escape and lodge itself in a dolphin or a chimp or even, God
> forbid, a pigeon?"

Rough stuff, you would agree, Perturbed Player. Predictably The Master readily
resisted Rachlin's Rush (of blood to the head), repulsing it by refined ridicule:

> "The answer [to Rachlin's 'necessary' question — R.P.B.] is
> that it is not necessary. One need not be concerned to under-
> stand or explain observations of behavior, just as some person
> might be interested in collecting insects or rocks with no further
> concern in mind; or one can conceive of an uncurious engineer
> who might simply be concerned to predict what some mechanism
> will do without caring how or why it does it. A child is diffe-
> rent from a pigeon or a chimpanzee in that, presented with cer-
> tain data, it will come to know the sample facts and myriad
> others like them. Presumably this is because the internal struc-
> ture of the child is somehow different from that of the pigeon or
> chimpanzee, surely not merely at the level of sensory mechanisms,
> since the same results hold if the language input is recoded for a
> different system. It is not 'necessary' to be interested in these
> properties of the child — that is, in psychology and biology —
> or to try to discover and understand them. But someone who is
> interested in these questions will proceed to construct theories
> of hypothetical inner mechanisms and will find observations
> 'useful' insofar as they contribute to these theories." (Chomsky 1980b:49)

Thereby we have uncovered a Garden Truth

> To take up arms about aims is to risk the
> performance of an asinine act.

Unless the attacker has firm philosophical footholds, that is. Why? Because,
lacking firm philosophical footholds, it is all too easy, Puzzled Player, to be swept
from one's feet by ridicule, whether reasoned or merely rhetorical.

4.1.3    In the pursuit of insight and explanation it is,
        on Chomsky's (1978a:16) view, essential to draw
the distinction (deep) explanatory principles vs. (superfi-
cial) empirical generalizations. To arrive at the required
insight  ---  which would make it possible to answer the
questions (1)(a)-(c) of §1.2 insightfully  ---  it is neces-
sary to discover unifying principles (of language/mind) of
considerable deductive depth. A proposed principle has the
property of being unified  if it governs a wide range of
phenomena;  it has the property of deductive depth if it
does not follow from other "deeper" principles but if less
"deep" generalizations and other kinds of claims may be
reduced to it.[1]    (Superficial) empirical generalizations,
though "covering" a certain range of data, neither unify
(or govern) a wide range of phenomena nor exhibit the re-
quired deductive depth.

Chomsky (1978a:17) illustrates the distinction between
(deep) explanatory principles  and (superficial) empirical
generalizations with reference to the ways in which Subja-
cency  ---  repeated as (1) below  ---  differs from the
"island" conditions/constraints known as the Complex Noun
Phrase Constraint (2), the WH-Island Constraint (3), the
Sentential Subject Constraint (4), the Phrasal Subject Con-
straint (5), and the Upward Boundedness Constraint (6).

(1)    Nothing can be removed from more than a single
       binding category.
(2)    No element can be removed from an appositional
       clause.[2]
(3)    No element can be removed from a clause intro-
       duced by a (wh) question word.[3]
(4)    No element can be removed from a sentential
       subject.[4]
(5)    No element can be removed from a nominal sub-
       ject.[5]
(6)    No element can be removed to the right from the
       minimal sentence containing it.[6]

Chomsky (1978a:17) considers Subjacency to be "a genuine
unifying principle ..., that is, a number of island con-
straints can be deduced from it". These island constraints,
according to him (1978a:16), "express empirical generaliza-
tions over observed linguistic structures". The status he
assigns them is, moreover, that of "descriptive catalogues".
Clearly the data covered by these empirical generalizations
are related to the principle of Subjacency only by means of
a complex inferential chain. That makes this principle
'abstract' in relation to these data. Note the unifying
nature of this principle: by means of the fundamental
notion of "binding category" it expresses the deeper regu-
larity which underlies a variety of island constraints for-
mulated in terms of a set of apparently disparate notions.[7]

So: to have explanatory power, principles (and the
theories incorporating them) must have both unifying power
and deductive depth. On Chomsky's (1981b:7) view, it is
highly desirable for such principles (and theories) to
have another metascientific property, namely a certain kind
of simplicity. What this involves, we will see in §4.5
below where we consider a number of distinctions under-
lying the various notions of "simplicity" and "complexity"
distinguished by Chomsky.

*I know of no recent clash at or about the bifurcation "(deep) explanatory princi-
ples vs. (superficial) empirical generalizations". However, Disappointed Player,
as you will see in §4.2.6 below, a number of pitched battles were fought on topo-
graphically closely related terrain in the Linguistic Wars mentioned in §2.7.5
above.*

4.1.4　　In order to make progress in the search for uni-
　　　　fying explanatory principles it is vital, on
Chomsky's (1980a:9, 11, 218) view, to observe the distinc-
tion idealization vs. inventorization. Specifically, to
uncover the kind of principles under consideration, the
linguist must be willing to make radical idealizations, idea-

lizations such as that of an ideal speaker-listener, that
of a completely homogeneous speech community, that of
instantaneous language acquisition, that of core grammar
and so on.[8]   As a source of problematic phenomena and
data, therefore, linguistic performance/language behaviour
constitutes a highly complex phenomenon with a variety of
facets or features that are determined by a diversity of
internal systems interacting under poorly understood con-
ditions.  Knowledge of language/grammatical competence
represents just one of these systems.

To find the principles [of core grammar] that jointly con-
stitute grammatical competence it is necessary, on Chomsky's
view, to abstract away from the contribution made by the
other, "non-competence", systems to linguistic performance.
This the Chomskyan linguist does by making radical ideali-
zations such as those of the ideal speaker-listener and a
completely homogeneous speech community.  In other words,
he/she looks upon idealization as a means of *initially* simpli-
fying the complex linguistic reality of problematic phenom-
ena  in order to gain a first grip on a world of sensations
and observations that appears to be chaotic and overwhelm-
ingly complex.

Not every idealization, however, is a good one.  There are
clear conditions of adequacy that idealizations have to
meet in Chomsky's (1980a:224) opinion:

> "The discovery of such principles, and that
> alone, will justify the idealizations adopted
> and indicate that we have captured an important
> element of the real structure of the organism."

Moreover, as progress is made in the uncovering of deep
explanatory principles, specific idealizations lose their
initial usefulness.  Chomsky (1980a:224) makes it quite
clear that, ultimately, his aim is to try to understand
linguistic reality in its full complexity:

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> "To account for the confused and disorderly
> phenomena of the 'ordinary world of sensation',
> we will, in general, have to move from the
> idealizations to systems of greater complexity,
> considering variation of languages and gram-
> mars, the interaction of cognitive systems,
> and the use of language under specific condi-
> tions of human life."

As was noted above in §4.1.2, Chomsky (1978a:10) sees only one alternative to idealization, namely inventorization: "a kind of butterfly collecting or elaborate taxonomies of sensations and observations". Inventorization, obviously, is not geared to uncovering the "deep, unifying principles" that Chomskyan linguists are after in their pursuit of insight.

*As we moved through the Mentalistic Maze, Patient Player, I drew your attention to quite a few pieces of provocative play that involved The Master's idealization. There was the Master's eruptive encounter with McCawley triggered by the notion of "instantaneous language acquisition" (§2.1.1); there were the dismal dealings with Dummett about the idea of a "completely homogeneous speech community" (§2.5.11); there was the comprehensive clobbering of Kintsch and Company about the "strict separation between competence and performance" (§2.6.1).*

*On the surface, confrontations such as these appear to be about individual idealizations; they appear, as it were, to be incidental incivilities. But deep down, The Master (1982:12-13) has sensed them to be about the way in which science ought to be done:*

> *"There are people who are worried about abstraction and want to keep close to the data. It is like doing descriptive phonetics or descriptive semantics, I think. If you look at intellectual activity in the humanities and the natural sciences, with very rare exceptions, it is highly data-bound. There are only a few areas of intellectual endeavor where people have really gone beyond to develop theoretical work which is not a kind of data arrangement, in the humanities as well as in the natural sciences."*

Why, then, are so many players of The Game — including scholars of some
standing — so deeply attached to data-bound description, so aggressively averse
to studying systems in abstraction, so incurably intolerant of idealization? The
Master (1982:70) has given these questions some thought, Dear Player, and has
suggested certain reasons for the use of Anti-Idealization Invective, reasons
that make one think. These are the reasons, he intimates, that do not have
rational roots. The Master was struck by the fact, for example, that a certain
book about language acquisition was lauded by so respected a scholar as Jerome
Bruner.

> "It was a book about the growth of the mind of a child, or
> something like that. It was very critical of language acquisi-
> tion device (LAD) type approaches to language acquisition
> because it said that they dealt with the child as if it was an
> abstract entity, there was no blood flowing through its veins,
> as if it was just a mechanism, so it was very heartless. That
> represents an extreme form of anti-intellectualism that
> holds that if you try to a abstract to a system with certain
> properties, and you do not look at the whole complexity of
> reality, there is something fundamentally wrong with what
> you are doing, and that it is just the phenomena of the world
> that we ought to be studying and that it is wrong or immoral
> to look for explanatory theories and systems, abstract sys-
> tems that enter into them somehow."

These observations, Dear Player, if correct, say something about the metascien-
tific motives that make certain players attempt The Maze. But even if these
remarks were false, they would still be instructive for what they tell you about
The Master and his multifarious modes of play: he is in The Game not merely as
an agent of aggressive action, but also as an acute analyst of the philosophi-
cal prejudices that propel people into play. So, if you are concerned about your
fighting future, it would be foolish not to note that:

A.   Major Movers are put under a microscope, both their manoeuvres and
     their motives being meticulously monitored by The Master.

B.   If The Master judges your motives malignant (or merely murky, for
     that matter), your prejudices perverse, there will be a proportionate
     penalty for you to pay.

*You are incensed by what you call The Master's Anti-Intellectualist Insult? I urge you to keep your cool: agitated action has not proved to be particularly profitable in putting pressure on The Master.*

Before we move to the following cluster of conceptual dis-
tinctions, note that the distinctions  bearing on Chomsky's
conception of the aim(s) of  (linguistic) science reflect
his commitment to the more fundamental and comprehensive
philosophical position known as "rationalism".  This point
will be taken up again when we come to the distinction
"rationalism vs. empiricism".

4.2    We consider next a cluster of distinctions that forms
       the basis of Chomsky's conception of the relationship
between linguistic theories  ---  both particular grammars
and the general theory of language/grammar ---  and those
parts of linguistic reality of which they are theories.
That is, we will take a closer look at the notions  ---
description and explanation  ---  used by Chomsky to charac-
terize the ways in which his theories bear on linguistic
reality.  As our point of departure we will take Chomsky's
view  ---  mentioned in § 3.1.1 above  ---  that, whereas
the general theory of language provides a characterization
or description of the initial state of the language faculty,
a particular grammar gives a characterization or descrip-
tion of the relatively stable steady state of the language
faculty.  So, on the one hand, we will be concerned with
the metascientific distinctions  that underlie the relation-
ship referred to as "characterization" or "description".
On the other hand, we will consider the field-specific
notion of "explanation" that Chomsky has introduced into
the discussion of the "tasks" and "conditions of adequacy"
of linguistic theories.

4.2.1   Chomsky's position on the relation holding between
        a (linguistic) theory T and the objects/phenomena
of which T is a theory may be clarified with reference to
the philosophical distinction realism vs. non-realism. Chom-
sky (1980a:15, 18, 104;  1982:31;  1986:252) has repeatedly
stated that he judges it to be

> ".... legitimate to adopt the standard 'realist'
> assumptions of the natural sciences in studying
> language, and cognition more generally". (1980a:
> 104)

That is, Chomsky (1986:252) proceeds

> ".... in practice by taking a realist stance
> toward theoretical discourse".

The essence of the "standard 'realist' assumptions" or the
"realist stance", as seen by Chomsky, is:

(a)   that the questions (e.g., (1)(a)-(c) in §1.2)
      to be answered by a theory are questions of
      fact;

(b)   that in trying to answer these questions the
      theory postulates and tries to describe "real"
      entities or mechanisms at a deeper, not direct-
      ly observable, level of reality;

(c)   that the claims made by the theory about
      these entities can in principle be true.

As regards the truth of a theory, however, Chomsky (1980a:
104) cautions that

> "Of course, we expect that the theory is pro-
> bably false, and even if on the road to truth,
> that it does no more than describe at some
> appropriate level of abstraction properties

> alleged to be true of whatever the real elements
> of the world may be when considered at this
> level of description; ....".

To show what the realist position on the ontological status
of linguistic theories involves, Chomsky (1980a:191) has
compared his investigation of the language faculty to the
investigation of the thermonuclear reactions that take place
inside the sun:

> "Our investigation of the apparatus of the lan-
> guage faculty, whether in its initial or final
> steady state, bears some similarity to the inves-
> tigation of thermonuclear reactions in the solar
> interior that is limited to evidence provided by
> light emitted at the periphery. We observe what
> people say and do, how they react and respond,
> often in situations contrived so that this behav-
> ior will provide some evidence (we hope) conc-
> erning the operative mechanisms. We then try,
> as best we can, to devise a theory of some depth
> and significance with regard to these mechanisms,
> testing our theory by its success in providing
> explanations for selected phenomena. Challenged
> to show that the constructions postulated in
> that theory have 'psychological reality', we
> can do no more than repeat the evidence and the
> proposed explanations that involve these con-
> structions. Or, like the astronomer dissatis-
> fied with study of light emissions from the
> periphery of the sun, we can search for more
> conclusive evidence, always aware that in empi-
> rical inquiry we can, at best, support a theory
> against substantive alternatives and empirical
> challenge; we cannot prove it to be true." [9]

Non-realist "stances toward theoretical discourse" --- such
as those known as "nominalism" or "instrumentalism" --- deny some

version of) the assumptions (7)(a)-(c).[10]     As noted in
§ 2.5.14 above, Katz (1981) has proposed a Platonist onto-
logical interpretation of linguistic theories as an alter-
native to Chomsky's realist (called "conceptualist" by
Katz) and Harris's nominalist positions. On Katz's (1981:
12) view "it is preferable, on scientific grounds, to
interpret theories of natural language and theories of
language Platonistically (as theories of abstract objects)
rather than nominalistically (as theories of disturbances
in the air) or conceptualistically [i.e. "realistically"
--- R.P.B.] (as theories about the human mind or brain)
....".

The "realist vs. non-realist" bifurcation has for many years been the scene of serious strife. We have, in fact, already seen some mêlées — in the multi-levelled mode — that involved The Master's realist position, e.g. The Master contra Lear (§2.5.4) and Katz (§2.5.14). But the major battle at this bifurcation has been a war of attrition waged by Quine — and the fraternity of philoso-phers following him — against The Master. In essence, Quine's Quarrel with The Master springs from the question of how one could choose between two extensionally equivalent grammars — i.e., grammars generating the same sentences — the one which "guides" and not merely "fits" the behaviour of the speakers of the language.

Quine (1972:442) queries the Master's "doctrine" that extensionally equivalent systems of grammatical rules need not be equally correct. He contends that, since the two grammars are both underdetermined by the evidence, it is not possible to determine which rules are "the right rules", "the right rules" being those that native speakers have "somehow implicitly in mind". And Quine's more general conclusion — derived in part from his thesis of the indetermi-nacy of translation[11] — is that there is "no fact of the matter", "no ques-tion of right choice". On Quine's view, that is, because of what he calls the "indeterminacy" of linguistic theories their truth cannot be determined. Of course, this conclusion strikes a blow at the very heart of The Master's realist position, represented in (7)(a)-(c) above.

No attack at the base of one's beliefs, Dear Player, can be brushed off as a

*bagatelle. So, whenever Quine has aired his qualms — and he has done so with some monotony --- he has found The Master raring to respond. Giving tit for tat, The Master (1975a:183) on one occasion, for example, retorted as follows:*

> *".... when Quine asserts that there is no fact of the matter, no question of right choice, he is once again merely reiterating an unargued claim which does not become more persuasive on repetition. If the underdetermination of physical theory by evidence does not lead us to abandon the 'realistic point of view' with regard to physical theory, then the comparable underdetermination of grammatical theory by evidence does not support Quine's claim that there is no fact of the matter in this domain to be right or wrong about."*

*And not being one to play for a draw, The Master (1975a:183-184) went all out to see Quine's qualms well and truly quelled:*

> *"Neither here nor elsewhere has Quine given any argument whatsoever to justify his assertion that statements about language that go beyond his notion of 'ordinary induction' (with its uncertainties) are subject to some methodological doubts that do not hold (in principle) in any nontrivial empirical study. His thesis of 'indeterminacy' thus has no support beyond the truism that theory is underdetermined by evidence in empirical research."*

*So, Dear Fellow, if you really feel that you have made some headway towards more Perceptive Play, here is a test for you. How do you read The Master's repartee? The punch, I trust you appreciate, is in the way the Quinian rejection of Realist Religion is portrayed as a slightly silly denial of the self-evidently reasonable.*

4.2.2    A certain distinction, namely <u>psychological reality</u>
          <u>vs. truth</u>, has played an important role in the
discussion of the ontological status of linguistic theories.
In terms of this distinction the evidence for linguistic
theories falls into two epistemological categories.  On the
one hand, there is "linguistic evidence".  This simply makes
the theory on which it bears a "good (or better) theory".
On the other hand, there is "psychological evidence".  This
allows a (good) theory on which it bears to claim "psycho-
logical reality", a "higher" epistemological attribute.
This kind of evidence is called "evidence for psychological
reality".  Over the years it has been contended that Chom-
skyans have failed to adduce the proper kind of (psycholog-
ical)  evidence for the psychological reality of their
theories.

Chomsky (1980a:189 ff;  1980b:12), however, has rejected
all three distinctions mentioned above, i.e. "truth vs.
psychological reality", "evidence for truth vs. evidence
for psychological reality" and "linguistic evidence vs.
psychological evidence".  The following, for example, are
his (1980b:12) remarks about the distinction "truth vs.
psychological reality":

>           "As has been evident throughout, I am not con-
>           vinced that there is any such distinction.  I
>           see no reason not to take our theories tenta-
>           tively to be true at the level of description,
>           at which we are working, then proceeding to
>           refine and evaluate them and to relate them
>           to other levels of description, hoping ulti-
>           mately to find neural and biochemical systems
>           with the properties expressed in these theories."

And, having posed the question "What is psychological reality?",
he (1980b:12) contends that

"Presumably, it is to be understood on the model
of 'physical reality'. But in the natural
sciences one is not accustomed to ask whether
the best theory we can devise in some idealized
domain has the property of 'physical reality',
apart from the context of metaphysics and epis-
temology, which I have here put aside, since I
am interested in some new and special problem
that is held to arise in the domain of psychol-
ogy".

As for the distinction between linguistic and psychological
evidence as two kinds of evidence, Chomsky (1980b:12) has
observed that

"What we should say, in all these cases, is that
any theory of language, grammar, or whatever,
carries a truth claim if it is serious ---
though the supporting argument is, and must be,
inconclusive. We will always search for more
evidence and for deeper understanding of given
evidence, which also may lead to change of theory.
What the best evidence is depends on the state
of the field. The best evidence may be provided
by as yet unexplained facts drawn from the lan-
guage being studied, or from similar facts about
other languages, or from psycholinguistic exper-
iment, or from clinical studies of language dis-
ability, or from neurology, or from innumerable
other sources. We should always be on the lookout
for new kinds of evidence, and we cannot know in
advance what they will be. But there is no dis-
tinction of epistemological category. In each
case we have evidence --- good or bad, convin-
cing or not --- as to the truth of the theories
we are constructing; or, if one prefers, as to
their 'psychological reality', though this term
is best abandoned, as seriously misleading".

In essence, then, what Chomsky (1986:253) rejects is the distinction "the best theory vs. a theory better than the best theory":

> ".... we cannot obtain more evidence than all
> the evidence [which would make a particular
> theory 'the best theory' --- R.P.B.] , or
> find better theories than the best theory."

So, although the distinction "truth vs. psychological reality" may be useful as a tool for gaining a better under-standing of Chomsky's view of the ontological status of lin-guistic theories, it is a distinction held by him to be fal-lacious.

Despite The Master's having declared it a fabricated fork, the "truth vs. psycho-logical reality" bifurcation has been the scene of some surprisingly pulsating play. In the ways winding through this poorly charted part of The Garden, The Master has had to summon all his strength, use his every skill, simply to survive and fight another day.    You want proof of this, Dear Player? Well, you shall have it. Have you ever heard the name of Harman, a craftsman known for his cool and class? No? Then, let me give you an account of one of the most memorable matches in the metascientific morass at the base of The Maze.

With deceptive self-depreciation, Harman (1980:21) approached The Master with "a quibble about psychological reality". His "quibble" turned out to be, both quantity- and quality-wise, something of substance:

> "Chomsky claims that it is pointless to distinguish the question
> of psychological reality from that of truth, and he asserts that
> no similar distinction is made in the natural sciences. But,
> given any theory we take to be true, we can always ask what
> aspects of the theory correspond to reality and what aspects
> are mere artifacts of our notation. Geography contains true
> statements locating mountains and rivers in terms of longitude
> and latitude without implying that the equator has the sort of
> physical reality the Mississippi River does. Similarly, we can
> describe some part of the universe, given a choice of spatio-

> temporal coordinates, recognizing that the special role of that
> choice of coordinates in our description is an artifact of our
> notation. And we might present a theory in axiomatic form
> without assigning any physical significance to the distinction
> between axioms and theorems.
>
> Sometimes we are not sure about the physical reality of some
> aspect of a theory, even given strong evidence for the truth of
> the theory. A different sort of evidence may be needed. The
> postulation of quarks gives a structure to the proliferation of
> subatomic particles, but physicists demand a different sort of
> evidence in order to establish the physical reality of quarks."

And moving in, he (1980:21-22) manoeuvred The Master into a corner where there
was no room for retraction, no space for sidestepping:

> "Chomsky implicitly recognizes the point as it applies to lin-
> guistics when he acknowledges that one linguistic theory may
> be a 'notational variant' of another. Aspects of a true theory
> not shared by its notational variants are not taken to have
> psychological reality. The 'linguistic evidence' for a given
> linguistic theory is like the evidence that led to quark theory
> — namely that the theory brings order to a given domain.
> That by itself may not indicate what aspects of the theory
> correspond to reality and what aspects are artifacts of nota-
> tion. We might wonder, for example, whether the grammat-
> ical structures of sentences have psychological reality or
> are mere artifacts of our notation, so that a notational
> variant of our theory could assign different structures to
> sentences."

Recognizing the hacking power of Harman's Hatchet — honed to be handled like
Occam's Razor or Einstein's Chopper [12] --- The Master (1980b:45) made the fol-
lowing candid concession:

> "The points that Harman makes are well-taken .... With regard
> to psychological reality, my main point is that no new problems
> of principle arise in the study of language that are not familiar

in the 'hard sciences, and that evidence does not come in two epis-
temological categories: 'linguistic evidence' bearing on 'good
theories', and 'psychological evidence' bearing on 'psychological
reality'. Harman and I agree, I believe, on these points. As for
the first, as I noted, there are serious questions about what is
meant when we take a theory to be true: 'what is the status of
its theoretical entities, its principles, its idealizations', and so
on. Harman points out some of these questions, quite appro-
priately —- though, I think, as his final example shows, it is
misleading to say that 'linguistic evidence' merely shows that
'the theory brings order to a given domain' in any sense that does
not hold as well for a theory of click experiments and the like.
He is also right to emphasize that we may ask about the physi-
cal reality of elements of a theory that we take to be true, and
that psychological reality is on a par with physical reality in this
respect. In this connection, he correctly points out an error in
my formulation: there is a question of physical (or psychologi-
cal) reality apart from truth in a certain domain, as Harman
explains."

I hear you cry out in admiration "Game, set and match to Harman!" Hold your
horses! The Game, you still have not fully understood, represents a curious kind
of contest in which The Master is never wholly whipped, never comprehensively
clobbered, never completely crushed. And his powers of regeneration and
recovery are remarkable, so remarkable that recently he (1986:274, n. 19) was
able once again to renounce "psychological reality":

"On some confusions about the nature and force of the evidence,
and the belief that only some categories of evidence serve to
confer a mysterious property called 'psychological reality', see
Chomsky (1980b). See also Gilbert Harman's comments in the
reference of note 14."

Had I not told you so, Perplexed Player, I bet you wouldn't have guessed that in
the quotation above The Master is referring to the match in which Harman seemed
clearly to have had the upper hand. "What happened in between?", you wonder. Was
there by any chance a rematch in which The Master turned the tables on Harman?

*Nothing of the sort, Dear Player. You will have to learn to live — the alter-*
*native is so utterly unattractive — with yet another Fact of Play:*

> *However trenchant the trauma, The Master*
> *has remarkable powers of recuperation.*

*And I am sad to say, the operation of The Master's Mechanism of Miraculous*
*Mending is aided in no small way by the memory capacity, modest as it is, of*
*the standard sort of spectator.* [13]

**4.2.3**    There is yet another dubious distinction that has
featured prominently in discussions of the ontolog-
ical status of the rules postulated in Chomskyan linguis-
tic theories: the distinction <u>hypotheses describing behav-</u>
<u>iour vs. rules constituting part of the structure of AS</u>
(i.e., "the attained state of the language faculty)".
This is a distinction that has been used by Searle (1980)
and others to criticize Chomsky's position on the ontolog-
ical status of linguistic theories.  In terms of this
distinction, the rules postulated by Chomskyan linguistic
theories remain "mere hypotheses describing behaviour"
unless a particular condition of independent evidence is
met.  On this condition, a particular sort of evidence has
to be adduced in support of the rules in order to be able
to claim that they do not merely have explanatory power
but are also in fact followed by speakers of the language.
If such evidence were available, the rules could, in
Chomsky's terminology, be attributed to the structure of
the attained or steady state of the language faculty.  In
this event the rules could be claimed to have psychological
reality.

The "independent evidence" that Searle seems to have in
mind may be derived from speakers' intuitions or introspec-
tive judgements about the rules that they in fact follow.
Chomsky (1980b:55) rejected Searle's line of argument:

"To Searle, none of the evidence that I have
provided is evidence that the person is follow-
ing the postulated rules. Something else is
required in principle, some 'independent'
evidence over and above the explanatory power
of the hypotheses. What else? Suppose that
the rules could miraculously be made accessible
to consciousness, as in the case of the rules
that Searle has in mind, which are part of
what Moravcsik calls a 'shallow theory' of the
mind (and which, of course, do not bear on the
kinds of empirical problems that I have been
discussing, as I take it Searle would agree).
Then Searle would agree that we have evidence
that the rules are being followed; in his
paper, which I discussed in my target article,
he went further, but now he states, more reason-
ably, that such introspective judgment would
simply provide inconclusive evidence for the
hypothesis that the postulated rules are part
of the state attained. But why is this parti-
cular kind of evidence of such significance?
Why would the speaker's obviously fallible and
uncertain intuitions and judgments about the
rules he allegedly follows provide evidence
that the rules are being followed, whereas the
kinds of evidence I discuss (namely, explanation
of the sample facts on the basis of the hypothe-
sis that the rules are being followed) in prin-
ciple is not evidence at all? To this question
Searle still offers no response, perhaps because
of the confusion with regard to the status of the
rules: not hypotheses describing behavior, but
rather attributed to AS as part of its struc-
ture in hypotheses that purport to explain behav-
ior on the assumption that the rules attributed
to AS are followed in behavior ('cause' behavior)."

*If your memory is better than that of the standard sort of spectator — and if you are to stand a chance of surviving in The Garden, it has to be, Dear Player — the thrust of Searle's attack will seem familiar. What we have here, in fact, is a watery version of the types of Accessibility Assaults seen at the fork explored in §2.5.5 above. Having survived the Mentalistic Maze, you should be able to see that no amount of watering down or, for that matter, souping up could turn a Searle Sally of the Accessibility Sort into a profitable procedure of play.*

4.2.4 At this juncture, it is necessary to consider the distinction abstract description/characterization vs. concrete description/characterization. By doing so, we will gain a better understanding of, on the one hand, the nature of the descriptions provided by Chomskyan linguistic theories of the language faculty and, on the other hand, the nature of the entities or mechanisms postulated by such theories. Chomsky (1980a:5; 1982:32; 1983:82, 124-125; 1986:38) has argued that the language faculty, in both the initial and the attained state, may be studied and characterized at several levels, two of which are of special significance. At one level abstract characterizations may be given of it. The theory of language or grammar, characterizing the initial state, and particular grammars characterizing the various attained states, constitute such abstract characterizations. Such characterizations are abstract in the sense that they do not describe the language faculty "in terms of physical mechanisms or properties of the brain" because, as Chomsky (1983:82) puts it:

> ".... we cannot speak of the physical structure
> of the brain because of our ignorance, and
> therefore we can only speak of some of the con-
> ditions that the physical structures must meet,
> however they meet them. We simply don't have
> the kind of evidence to tell us how the abstract
> structures might be represented in the concrete
> physical system."

To give an abstract characterization of the language faculty, in positive terms, is to

> "impose some fairly narrow and specific condi-
> tions on what this physical system must be doing."

For example, in formulating the syntactic rule "Move alpha", Chomsky (1982:32) does not think there is a particular neuron corresponding to the rule.[14] Rather, he (1982:32) is

> "talking somehow about general structural proper-
> ties of the brain, and there are real nontrivial
> questions about what it means to say that the
> brain, or any system, has general properties. It
> is like saying, what do we exactly mean when we
> say this computer is programmed to do arithmetic?
> We say that, and we understand it --- it cer-
> tainly has some meaning. But we do not mean
> there is a neuron in there that says 'Add 1' or
> a diode or something that says 'Add 1'".

At the level of concrete characterization, by contrast, linguistic theories would (have to) describe the language faculty by attributing physical mechanisms to the brain. Thus, Chomsky (1983:124) doesn't see why someone couldn't, in principle, "spell out" the genetic program for human lan-guage --- i.e. give a description of the initial state of the language faculty --- "in terms of nucleotides". That this can't be done at present does not indicate to Chomsky (1983:125) that it is impossible in principle:

> "We can say what the genetic program must look
> like (of course this a scientific and not a
> mathematical 'must' --- we are dealing with a
> hypothesis about reality) but we cannot yet say
> what the genetic program is --- which does not mean

4.2.5    The distinction <u>descriptive adequacy/descriptively</u>
<u>adequate</u> vs. explanatory <u>adequacy/explanatorily</u>
<u>adequate</u> is at the root of what Chomsky (1986:51) takes to
be "the central task" of his linguistics --- namely, the
task of "finding the basic elements of I-language".  This
distinction he (1986:53) draws as follows:

> "Continuing to think of a grammar as a theory of
> a language [i.e., an I-language --- R.P.B.] ,
> we may say that a grammar is *descriptively adequate*
> for a particular language to the extent that it
> correctly describes this language.  A theory of
> UG meets the condition of *explanatory adequacy* to
> the extent that it provides descriptively ade-
> quate grammars under the boundary conditions
> set by experience.  A theory of UG that meets
> this condition will, then, permit relevant
> facts about linguistic expressions to be de-
> rived from the grammars it selects, thus pro-
> viding an explanation for the facts."[18]

In order to claim descriptive adequacy (for a grammar), one
has to show that the descriptive devices provided for by the
(associated) theory of UG are rich enough to account both
for what Chomsky (1986:51) calls "the attested variety of
languages" and for what he calls "their possible variety".
To claim explanatory adequacy (for the associated theory
of UG), one has to show that "these devices are meager
enough so that very few languages are made available to
the language-learner, given data that, in fact, suffice
for language acquisition".

It is in order to meet this condition of "meagerness" that
Chomsky and other generative grammarians have over the
years made strenuous attempts to restrict the formal power
of, especially, syntactic transformations.  The more power-
ful such devices are, the larger is the class of possible
grammars provided for by UG, and the less likely the lan-

guage-learner is to be able to arrive at the grammar of his
language on the basis of insufficient primary linguistic
data. As Chomsky (e.g. 1986:52) has noted again and again,
there is a certain tension or conflict between the "task"
of attaining descriptive adequacy and that of attaining
explanatory adequacy:

> "To achieve descriptive adequacy, it often seems
> necessary to enrich the system of available
> devices, whereas to solve our case of Plato's
> problem we must restrict the system of avail-
> able devices so that only a few languages, or
> just one, are determined by the given data.  It
> is the tension between the two tasks that makes
> the field an intellectually interesting one, in
> my view."

To conclude:  as pointed out by Chomsky (1986:83), the
"problem of (attaining) explanatory adequacy" is a variant
of Plato's problem (cf. §2.1.2 above).  And it is his con-
cern for this problem which has ".... led to efforts to
reduce the variety of rule systems of this format [i.e.,
the phrase structure rule and transformational rule format
---  R.P.B.] ".

*To some extent, "descriptive adequacy vs. explanatory adequacy" merely reflects
a more basic fork — a bifurcation in the philosophical foundations of The Gar-
den.  The action that has taken place at the "upper" of these two forks can
therefore best be viewed from the vantage point of the "lower" one, to which
we turn next.*

4.2.6    Chomsky's pursuit of depth of insight, his defence
         of idealization, his concern with explanatory ade-
quacy, his efforts to restrict the formal power of the
theory of grammar, and his thesis of modularity have been
placed in a more general philosophical perspective with
reference to the distinction rationalism vs. empiricism.
For a convenient nutshell characterization of this distinc-
tion, we may turn to Katz and Bever (1977:23):

>            "'Empiricism' is the name of a metatheory.  It
>            is a theory about theories of how knowledge is
>            acquired.  It claims that the proper theory of
>            how knowledge is acquired says that it comes
>            from sensory experience by means of inductive
>            principles.  On empiricist theories, innate
>            mental mechanisms are restricted to procedures
>            for inductive generalization, and therefore
>            contribute nothing to the content of our know-
>            ledge.  'Rationalism' is the name of the oppo-
>            sing metatheory.  It claims that the general
>            form of our knowledge comes not from experience
>            but from innate schemata.  On rationalist
>            theories, much of the content of our knowledge
>            is fixed as a biological disposition of our
>            mind;  the function of experience is simply to
>            activate this disposition and thereby cause the
>            innate schemata to be realized and differen-
>            tiated."

Chomskyan linguistic theory, as Katz and Bever (1977:12) see
it, is rationalist

>            ".... because it allows for unobservable gramma-
>            tical properties (which in the taxonomic model
>            have no linguistic reality) to be stated as part
>            of the rules of the linguist's theory about the
>            speaker's internalized linguistic competence.
>            Thus, the shift from a conception of grammar as

cataloguing the data of a corpus to a conception
of grammar as explicating the internalized rules
underlying the speaker's ability to produce and
understand sentences introduces 'deep structure'
levels of grammar, which provide the linguistic
reality that unobservable features otherwise
lack".

Rationalism is further characterized by Bever (1974:178) as
the philosophical position that makes, amongst other things,
the following assumptions:

(7)  (a)   Specific factual phenomena are often the
           result of interactions among different
           (physical, psychological, biological)
           systems.

     (b)   The formal theory of each of these systems
           should be as limited as possible in order
           to be as testable as possible.·

     (c)   When a new fact can be described by the
           existing formal theories of both of two
           systems, but its description would require
           elaboration of one of these theories and
           not of the other, the fact is interpreted
           as due to the system whose formal theory
           requires no such elaboration.

These assumptions are made in order to provide explanations
for the factual phenomena mentioned in (7)(a).  If the phe-
nomena or "facts" or data to be accounted for by particular
grammars are taken to include the linguistic judgements
which native speakers make about expressions of their lan-
guage, the essence of the rationalist position may be formu-
lated as follows:

(8)     Intuitive linguistic judgements result from the
        operation of a number of factors.  Only those
        intuitive linguistic judgements which result from
        the linguistic factor of grammatical competence
        fall within the domain of grammatical inquiry.[19]

Empiricism, as a general metascientific position, does not
have the explanatory concerns of rationalism and, consequent-
ly, does not make the assumptions of (7)(a)-(c).  The empiri-
cist view of the data to be accounted for by particular
grammars may be characterized as follows:

(9)     *All* intuitive linguistic judgements which can be
        studied systematically fall within the domain of
        grammatical inquiry.

The consequences of this view for the domain of "linguistic
inquiry" have been spelled out by Lakoff (1974:151):

> "I take linguistics to be the study of natural
> language in *all* of its manifestations.  This is
> a broad conception of the field, and I think it
> is an appropriately broad one.  It includes not
> just syntax-semantics, phonetics-phonology,
> historical linguistics, anthropological linguis-
> tics, etc., which form the core of most academic
> programs in this country, but also the role of
> language in social interaction, in literature,
> in ritual, and in propaganda, and as well the
> study of the relationship between language and
> thought, speech production and perception, lin-
> guistic disorders, etc."

An empiricist grammarian is required, therefore, to be able
to give an account of all intuitive judgements which the
native speaker is capable of systematically making about the
utterances of his language.  Within the empiricist approach

to linguistic inquiry a single theory, namely a grammar, is
assigned the whole of the function which, within the ration-
alist approach, is assigned to the interaction of several
theories, including a grammar, a theory of speech percep-
tion, a pragmatic theory of context and speech acts, a
theory of dialectal variation, a theory of social variation,
and possibly other theories as well.

The final battles in the Linguistic Wars, mentioned in §2.7.5 above, were fought at
the rationalist-empiricist front. [20] Fighting under the banner of interpretive
semantics, the Chomskyan army got the upper hand by severely pounding the
generative semanticist, empiricist enemy for its lack of explanatory concerns
— for its urge to establish a New Taxonomy. To establish their New Taxonomy,
it was challenged, the empiricists needed such powerful descriptive devices that
it became impossible to solve the logical problem of language acquisition. The
power of these devices made possible the construction of infinitely many gram-
mars compatible with the primary linguistic data. Hence it would remain a
mystery how children learning any particular language could be "driven" to a
unique grammar by the impoverished data.

Recently, The Garden saw a further piece of rationalist-versus-empiricist action.
Trying his hand at The Game, a Wars-scarred George Lakoff (1980:23) ventured
into The Garden, questioning The Master's motives for reducing the class of pos-
sible syntactic transformations. It was his perception that The Master was redu-
cing this class in order to uphold modularity, specifically to shore up his belief in
an autonomous syntactic component. On Lakoff's own linguistic view, considera-
tions of meaning and use "affected virtually every rule of syntax". In these terms
it followed that, in order to preserve modularity, and specifically to preserve the
autonomy of formal grammar, it was necessary for The Master to redefine and
narrow the domain of syntax. This The Master did, as Lakoff saw it, by getting
rid of scores of troublesome transformations.

As earlier in The Wars so now in The Game, however, The Master was unmoved
by Lakoff's Lament:

"His [i.e., Chomsky's --- R.P.B.] views on modularity are
extreme and, I think, fundamentally mistaken."
(Lakoff 1980:23)

*Pulling Lakoff up for "completely misunderstanding" the developments in question,*
*The Master (1980b:46) rather disdainfully declared:*

> *".... Lakoff seems completely unaware of the actual character*
> *of the technical work to which he refers. Furthermore, where*
> *I have proposed restrictions on the scope (rather than the*
> *variety) of transformations — e.g., with regard to nomina-*
> *lization — the motivation was completely different from*
> *what Lakoff suggests, and in fact was internal to the language*
> *faculty, largely syntactic."*

*Of course a major consideration, reflected here in the phrase "internal to the lan-*
*guage faculty", was to restrict the class of possible transformations — an aim*
*wholly consonant with the rationalist pursuit of explanatory adequacy as articu-*
*lated in the logical problem of language acquisition.*

4.3     Having considered the ontological status of Chom-
        skyan linguistic theories, we turn next to their
epistemological nature.  In particular we will consider a
number of distinctions that shed some light on the **empirical**
**status** of these theories.

4.3.1     The fundamental distinction in this context, re-
          peatedly invoked by Chomsky, is <u>empirical vs. a</u>
<u>priori</u>.  Chomsky (e.g. 1978a:9; 1980a:3, 48, 185 ff.) has
always maintained that mentalistic linguistic theories must
be empirical.  This is to say that he 1978a:9 ) requires both
particular grammars and the theory of grammar to be "falsi-
fiable in principle".  Commenting on Lenneberg's work,
Chomsky (1980a:211) has stated the basic point as follows
with reference to the theory of grammar:

> "Lenneberg was quite right to take the trouble
> to emphasize that 'the discovery and descrip-
> tion of innate mechanisms is a thoroughly empi-

rical procedure and is an integral part of
modern scientific inquiry' and to insist that
there is no room here for dogmatism or *a priori*
doctrine."

To undertake the study of innate mechanisms in an empirical
manner is, on Chomsky's (1983:65) view, to proceed

".... not by philosophical discussion, but by
looking at specific properties of the fixed
nucleus [i.e., universal grammar --- R.P.B.]
and asking how they might arise ....".

And Chomsky (1983:80) insists that the claims made about the
"fixed nucleus" have been refutable hypotheses:

"An innatist hypothesis is a refutable hypothe-
sis. Any hypothesis which says that such and
such a property of language is genetically
determined is subject to the most immediate
refutation of the strongest kind. Such hypothe-
ses have been refuted over and over again in the
past by just looking at the next phenomenon in
the same language or the next language. That
is why it has been so hard to formulate specific
hypotheses about genetically determined struc-
tures."

A precondition for adopting such an empirical approach,
Chomsky (e.g. 1983:65, 310-311) has stated, is an attitude
of non-dogmatic open-mindedness.

*In our tour of The Maze, we came across quite a few forks --- e.g. in §§2.4.5 and
2.4.6 --- where the fighting had broken out as a struggle about the nature of mind,
but had ended as a clash about the empirical nature of mentalistic inquiry. Let us
consider a further case in point.*

*As champions of Piagetian constructivism, Inhelder, Sinclair and Bovet (1974:10)*

rejected the neonativist approach attributed by them to The Master because it

"...... does not help to solve any problem; all it does is to
transfer the question from the psychological to the biologi-
cal level by formulating it in terms of biological development".

The Master (1980a:208-209) countered that no one would take such an argument
seriously if Inhelder and Associates advanced it in the case of physical develop-
ment, say that of the general structure of binocular vision. Moreover, he argued,
if extensive evidence were found that the principles underlying, say, the wh-
island constraint are acquired by the learner in the absence of relevant expe-
rience, it would be rational, not only to suppose that these principles are geneti-
cally determined, but to search for a further account in terms of biological deve-
lopment. Going for the kill, The Master (1980a:209) continued:

"The Geneva school doctrine seems to be that no matter how sub-
stantial the evidence in favor of such a thesis may be, and no
matter how weak the argument for ontogenetic development,
nevertheless we must maintain the thesis that the principles in
question are derived by 'regulatory or autoregulatory mechanisms'
in accordance with the hypothesis of 'developmental constructi-
vism'. At least, I see no other way to read their proposals, since
the arguments they put forth are in no way empirical but rather
purely a priori. All of this again simply constitutes another chap-
ter in the history of dogmatism."

So, Dear Player, The Master is not one to be won over by mere dogma, however
winsome or worldly wise its presentation, not even by dogma generated in the genre
of a Geneva Gospel.

4.3.2    Chomsky's conception of the empirical nature of
         linguistic theories may be clarified further with
reference to the distinction naïve falsificationism vs.
sophisticated falsificationism. Suppose that a grammatical
analysis of a certain language presented data that appeared
to conflict with a relatively deep, simple and unifying ex-

planatory principle such as Subjacency. In such a case
naïve falsification would insist that the principle in
question is to be rejected as falsified. However, accord-
ing to Chomsky (1978a:10) a linguist subscribing to a (more)
sophisticated falsificationism would be willing to retain
this principle, rather setting aside the "falsifying" data
as incorrect or irrelevant.

Chomsky (1978a:10; 1978b:14; 1980a:10) furnishes two con-
siderations in support of the attitude of epistemological
tolerance adopted by sophisticated falsificationists towards
threatened theories. The first is historical: this atti-
tude has paid off in the case of the natural sciences, Galileo
being a notable exponent of it. Consider the following cha-
racterization by Chomsky (1978b:14) of Galileo's epistemolo-
gical tolerance:

> "If you go back to the time of Galileo, and you
> looked at the array of phenomena that had to be
> accounted for, it was prima facie obvious that
> the Galilean theory, the Copernican theory could
> not be supported. That is, there were just
> masses of refuting data. And, Galileo sort of
> plowed his way through this, putting much of
> the data aside, redefining what was relevant,
> and what was not relevant, formulating ques-
> tions in such a way that what appeared to be
> refuting data were no longer so, and in fact,
> very often just disregarding data that should
> have refuted the system, and did this, not
> simply with reckless abandon, but because of a
> recognition that explanatory principles were
> being discovered that gave insight into at
> least some of the phenomena."

The second consideration adduced by Chomsky (1978a:10) in jus-
tification of the attitude of epistemological tolerance, he
derives from the current state of development of linguistic

theory. Linguistic theory, in Chomsky's opinion, is so
underdeveloped that it is often not clear which data are
relevant to the appraisal of individual theories and which
are not. Often, moreover, the apparently negative evidence
is not fully understood by linguists. For instance, Chom-
sky (1980a:10) contends as follows:

> "As for the matter of unexplained apparent
> counter evidence, if someone were to descend
> from heaven with the absolute truth about lan-
> guage or some other cognitive faculty, this
> theory would doubtless be confronted at once
> with all sorts of problems and 'counterexam-
> ples', if only because we do not yet under-
> stand the natural bounds of these particular
> faculties and because partially understood
> data are so easily misconstrued."

In the case of a conflict between a relatively deep unifying
principle and some poorly understood negative data Chomsky,
in a spirit of sophisticated falsificationism, is willing to
practise epistemological tolerance, giving the principle the
benefit of the doubt.[21] To pursue depth of insight by
making radical idealizations and by practising epistemolog-
ical tolerance is, according to Chomsky (1980a:8, 218), to
operate in the "Galilean style" of inquiry.[22]

*The Master has been vehemently attacked, more than once, for preaching and
practising an attitude of epistemological tolerance. Recently, Brame (1985) has
intolerantly suggested that the adoption of this attitude by The Master amounts
to the "immunization" of The Master's "idealizations" against refutation. This
attitude, on Brame's analysis, creates "escape hatches" which make it impossible
to hold The Master "responsible" for misanalyses and to refute his theories "on
any grounds". Not yet scraping the bottom of his barrel of barbed brusquerie,
Brame (1985:346) branded The Master's epistemological tolerance as part of "a
last ditch stand to defend transformational grammar before it falls of its own
weight". Then, dipping still deeper, Brame (1985:346) denounced The Master's
(1980a:10) defence of epistemological tolerance as ".... designed to impress upon*

*us that counterevidence must be tolerated for the very reason that the theory to which these counterexamples are being posed is on the verge of collapse". So, to Brame, The Master's tolerant position on the impact of counterevidence implies the message that "the ordinary canons of rationality" are to be "kissed goodbye". Strong stuff, you would agree, Dear Player.*

*As for The Master's reaction to this Brame Brand Brusqueness, we will have to wait for it a little while longer. In the meantime, why not contemplate the following Playful Poser:*

> *If you could command conviction by invoking*
> *clinically cool considerations, why brew your*
> *rhetoric to some red-hot recipe?* [23]

4.3.3    The distinction empirical vs. notational provides
         additional aid in determining the sense in which
Chomskyan linguistic theories could be considered "empiri-
cal". This distinction is implicit in Harman's (1980)
attempt to distinguish between the truth of a linguistic
theory and the psychological reality of such a theory. From
the discussion in §4.2.2 it seems clear that not only Harman,
but also Chomsky himself, finds it necessary to draw a dis-
tinction between aspects of a theory that "correspond to
reality" and aspects of a theory that don't. The former
aspects express refutable claims about reality and may con-
sequently be characterized as "empirical". The latter
aspects are "mere artifacts of our notation", to use an ex-
pression of Harman's, and consequently are non-empirical
or notational.

Chomsky (1980b:45-46) appears to have accepted the correct-
ness of Harman's basic distinction. He has even extended
the distinction "empirical vs. notational" to a class of more
interesting cases:

> "There are interesting examples that go beyond
> notational variants in a narrow sense. Thus,

suppose we assume the trace theory of movement
rules (cf. Chomsky 1975; 1977). Consider two
theories: (1) generate base structures, which
are mapped to abstract S-structures including
trace by transformations, with S-structures
mapped to phonetic representations by the rules
$R_1$ and to 'logical form' representations (LF) by
the rules $R_2$; (2) base-generate S-structures
directly, mapping them to phonetic representa-
tion by $R_1$ and to LF by rules $R_2$ and $R_3$, where
$R_3$ have the properties of the transformational
movement rules (properties distinct from $R_2$, I
believe). These two theories are not notational
variants in a narrow sense, but it is not entirely
clear whether they have different empirical con-
tent within the domain of 'linguistic evidence',
and it might be argued that on such evidence
one should not attempt to choose between these
theories but only to aim at a more abstract
theory of which these are two specific realiza-
tions .... ."

*The fork "empirical vs. notational" has not lately been the scene of serious strife;
yet it is very much part of The Garden. Indeed, in The Linguistic Wars, The Mas-
ter's men made clever use of this very fork to ambush the generative semanti-
cist guard. But all that is ancient history now.*[24]

4.4     This brings us to Chomsky's view of what is involved
        in furnishing justification for linguistic theories.
This view may be explored by considering some basic dis-
tinctions relating to the notions "evidence", "data", "demon-
stration", "proof", "plausibility" and so on.

4.4.1    Fundamental to Chomsky's view of what is involved
         in the justification of linguistic theories is
the distinction evidence vs. demonstration.  Because he
considers linguistics an empirical science, Chomsky (1983:
80) notes that one cannot "prove" or "demonstrate" that a
particular linguistic property is innate:

> "In science [as opposed to mathematics  ---
> R.P.B.] you don't have demonstrative inferen-
> ces;  in science you can accumulate evidence
> that makes certain hypotheses seem reasonable,
> and that is all you can do  ---  otherwise you
> are doing mathematics."

The linguist, like the astronomer, must on Chomsky's (1980a:
191) view be

> ".... always aware that in empirical inquiry
> we can, at best, support a theory against sub-
> stantive alternatives and empirical challenge;
> we cannot prove it to be true".

Chomsky (1983:80) thinks it possible, nevertheless, to "find
a lot of evidence that is convincing", even though he (1980a:
198) sees the conditions on evidence as being themselves
"subject to doubt and revision".  Nor, in his (1980a:198)
opinion, is there any ground of certainty when it comes to
assessing the import of evidence:

> "Even if we were to grant that there is some
> set of observation  sentences that constitute
> the bedrock of inquiry and are immune to chal-
> lenge, it nevertheless remains true that theory
> must be invoked to determine to what, if any-
> thing, these pure and perfect observations
> attest, and here there is no Cartesian ground
> of certainty."

Chomsky's (1980a:18; 1986:13, n. 5) view of the justifica-
tion of empirical (mentalistic) theories is, in essence, that
such theories are "underdetermined by the evidence". This
view he considers to be that of a "moderately sophisticated
realist".

Recall, Dear Player, that at the fork "realism vs. non-realism" we found lots of
evidence — not to say "proof"! — of a protracted battle between The Master
and Quine about the ontological status of (linguistic) theories. This battle, in
fact, has spilled over to the "evidence vs. demonstration" fork. Thus, Quine (1972),
and Putnam (1981) in his wake, have charged, in The Master's (1986:13, n. 5) words,
that

> ".... there is a very severe, in fact, insuperable problem of
> underdetermination affecting all aspects of language and
> grammar, and much of psychology more generally ....".

The "severe problem" is the alleged lack of evidence on the basis of which a choice
could be made between (extensionally) equivalent theories. The Master (1986:13,
n. 5) has stood his ground, however:

> "I do not think that he [i.e., Quine — R.P.B.] succeeded in
> showing that some novel form of indeterminacy affects the
> study of language beyond the normal underdetermination of
> theory by evidence; his own formulations of the thesis further-
> more involve internal inconsistency .... ."[25]

The Master (1975a:181) was unable to find in Quine's problem "anything enigmatic
.... apart from the inescapable problems of empirical uncertainty". And, demon-
strating his dexterity, The Master (1975a:181-182) depreciatingly deflated Quine's
Quandary:

> "Quine's sole point reduces to the observation that there
> will always be distinct theories that are compatible with
> all the evidence at hand."

This observation by Quine does not distinguish linguistics and psychology in prin-
ciple from the natural sciences, as we will see in §5.5 below.

4.4.2    To understand the way in which Chomskyans proceed
         to justify claims about the genetic basis of the
language faculty  ---  what are termed "nativist claims"
---  we have to consider the distinction direct methods/
tests vs. indirect argumentation.  The evidence needed for
the justification of nativist claims cannot be obtained by
direct methods for, as noted by Chomsky (1983:80), ".... we
[cannot] deal with humans the way we deal with fruit flies",
a point that he (1980a:197) elaborates on as follows:

> "If we were able to investigate humans as we
> study other, defenseless organisms, we might
> very well proceed to inquire into the opera-
> tive mechanisms by intrusive experimentation,
> by constructing controlled conditions for lan-
> guage growth, and so on, thus perhaps narrowing
> the gap between the language example and the
> astronomical example.  The barriers to this
> direct investigation are ethical." [26]

Chomskyans, therefore, "must be satisfied with quite indirect
evidence" (1980a:197).  According to Chomsky (1983:80-81) they

> ".... are forced to have arguments that are much
> more indirect and complex, inferences that are
> only partially supported, open questions that
> we know how to investigate in principle but are
> barred from investigating ....".

To find arguments of the indirect sort is certainly possible
on Chomsky's (1983:113) view:

> "The natural way to proceed, if we are trying
> to determine the nature of $S_0$, is to try to
> find some property of the steady state that is
> minimally affected by experience, a property
> for which E (experience) is reduced as close
> to zero as possible."

This type of indirect argument is what Chomsky (1980a:34)
has referred to as the "argument from poverty of the stimu-
lus". It is, in his own words (1980a:36), the argument
proceeding from the assumption "that what the stimulus lacks
is produced by the organism from its inner [genetically en-
dowed ---R.P.B.] resources".[27]

*The fork "direct methods/tests vs. indirect argumentation" — I predict, Dear*
*Player — is going to witness progressively Pugnacious Play. A couple of prepar-*
*atory moves have already been made. Thus, appraising Lightfoot's (1982:51 ff.)*
*map of this area of The Garden, Botha (1985:110-111) has contended that, as used*
*by certain followers of The Master's, the so-called argument from poverty of the*
*stimulus may be more aptly characterized as "the argument from ignorance of*
*the stimulus". These are fellow fighters of The Master's who fail to furnish any*
*specific facts about the poverty of the stimulus, i.e., about the primary linguis-*
*tic data to which children did or did not have access in their acquisition of certain*
*universal elements of grammar.*

*Showing an acute sense of anticipation of possible action to come, The Master*
*(1983:113) has hinted at one line of defence that could be tried in response to the*
*Ignorance Incursion:*

> *"Of course, in order to demonstrate that there is no relevant*
> *experience with respect to some property of language, we*
> *really would have to have a complete record of a person's expe-*
> *rience — a job that would be totally boring; there is no empi-*
> *rical problem in getting this information, but nobody in his*
> *right mind would try to do it. So what we can try to do is to*
> *find properties for which it is very implausible to assume that*
> *everyone has had relevant experience."*

*These remarks, Duly Impressed Pupil, reveal the existence of yet another weapon*
*in The Master's already awesome arsenal of means of aggressive action aimed at*
*adversaries: Rhetorical Riposte Doing Deterrent Duty. Do you, by any*
*chance, know a self-respecting scholar who would stick out his neck to defend the*
*notion of doing "a job that [is] totally boring" or of toiling at a task "nobody in*
*his right mind would try to do"?.*

4.4.3    The nature of the evidence used in the justifica-
         tion of Chomskyan theories may be considered further
with reference to the distinction internal (linguistic)
evidence vs. external (linguistic) evidence. On one characte-
rization, internal (linguistic) evidence consists of data
about the objects internal to the linguistic reality of the
Chomskyan linguist as this reality is delimited by means of
the abstractions and idealizations used by him.  The primary
source of internal evidence is the linguistic intuitions
which native speakers of a language are claimed to have
about the properties of utterances of the language.

External (linguistic) evidence, by contrast, consists of
data about objects and phenomena outside the idealized lin-
guistic reality of which Chomskyan linguistic theories have
to provide an account.[28]  External evidence may include,
for example, data about the physical basis of the language
capacity, data about the actual use of grammatical compe-
tence in performance, data about linguistic change, data
about language variation, data about speech pathology, and
so on.  External evidence may also be denoted by means of
Chomsky's (1986:34) expression "extralinguistic data". While
we are dealing with terminology, note also that the termi-
nological pairs "introspective-nonintrospective", "intuitive-
nonintuitive" and "judgemental-nonjudgemental" have been
widely used as sloppy synonyms for "internal-external".

Over the years it has been often contended that the dis-
tinction "internal evidence vs. external evidence" is
essential to the justification of the claims of Chomskyan
linguistic theories if these are to have mentalistic import.
Specifically, it has been argued that neither mentalistic
claims about the structure of the language faculty nor
markedness claims about the distinction between core and
periphery can be adequately justified without recourse to
external linguistic evidence.[29]

Chomsky's position on the epistemological status of external
evidence is not entirely perspicuous.  On the one hand, he

(1981b:9) has clearly recognized the need for external evidence in the justification of markedness claims:

> "How do we delimit the domain of core grammar
> as distinct from marked periphery? In princi-
> ple, one would hope that evidence from [real-
> time --- R.P.B.]language acquisition would be
> useful with regard to determining the nature
> of the boundary or the propriety of the dis-
> tinction in the first place, since it is
> predicted that the systems develop in quite
> different ways. Similarly, such evidence,
> along with evidence derived from psycholin-
> guistic experimentation, the study of language
> use (e.g., processing), language deficit, and
> other sources should be relevant, in principle,
> to determining the properties of UG and of par-
> ticular grammars."

And, invoking the notion of "I-language", Chomsky (1986: 36-37) has observed that

> "In principle, evidence concerning the charac-
> ter of the I-language and initial state could
> come from many different sources apart from
> judgments concerning the form and meaning of
> expressions: perceptual experiments, the
> study of acquisition and deficit or of par-
> tially invented languages such as creoles,[25] or
> of literary usage or language change, neurology,
> biochemistry, and so on".

On the other hand, Chomsky (1980b:45) has repeatedly rejected the idea that, for establishing the psychological reality of (an aspect of) a theory, a distinction has to be drawn between "two epistemological categories: 'linguistic evidence' bearing on 'good theories', and 'psychological evidence' bearing on 'psychological reality'".

Recall, however, that in §4.2.2 above  we saw that Chomsky
did agree with Harman's (1980:21) contention that the evi-
dence required for the (physical) reality of some aspect
of a theory may be different from the evidence required
for the truth of the theory:

> "Sometimes we are not sure about the physical
> reality of some aspect of a theory, even given
> strong evidence for the truth of the theory.
> A different sort of evidence may be needed.
> The postulation of quarks gives a structure to
> the proliferation of subatomic particles, but
> physicists demand a different sort of evidence
> in order to establish the physical reality of
> quarks."

Chomsky (1980b:45) has emphatically noted that he and
Harman "agree" on there not being two categories of evi-
dence, namely "linguistic evidence" and "psychological
evidence". But, italicizing the word "experiments", Harman
(1980:22) in fact was saying something different  ---  name-
ly, that he "completely agree[s] with Chomsky that this
does not mean we have to appeal to psychological experi-
ments to provide evidence for psychological reality".
Chomsky, moreover, has not brought his epistemological
stance in line with his concession that the evidence needed
for psychological reality may be different from that needed
for truth.

*So, quite frankly, Dear Player, the "internal vs. external" fork, immersed as it
is in the mists of a Metascientific Marshland, forms a somewhat indefinable
feature of The Garden. Unfortunately, that is, The Master's style in striving
to sustain his stand on this soggy and unstable  terrain leaves us with a patently
murky perception of the problem. And so it would be prudent, Peering Player,
to take notice of the Marksman's Maxim:*

> *A mote of methodological mud in the marksman's eye
> makes the mark all the easier to miss.*

4.4.4    A further distinction bearing on the nature of lin-
         guistic evidence is <u>evidence from a single lan-</u>
<u>guage vs. evidence from a diversity of languages</u>.  Tradi-
tionally, it has been believed that in order to test or
justify claims about linguistic universals a large number
of languages, preferably genetically unrelated, must be
analyzed in order to obtain what is termed "cross-linguis-
tic evidence".  This view ties in with the idea  ---
examined in §3.2.1 above  ---  that linguistic universals
are statements about properties common to all languages.
On the Chomskyan view, however, linguistic universals are
claims about biologically necessary properties of language.
For this reason, Chomskyans have chosen  ---  to use the
words of Newmeyer (1983:69)  ---  to concentrate on a single
language,

> ".... their native languages (which, again, has
> typically meant English) because they believe
> that the *intensive* study of one language will
> yield far more insights into the basic nature
> of linguistic processes than the *superficial* study
> of many".

The form of argument within which "intensive" analyses of
single languages are used to furnish evidence for (geneti-
cally based) linguistic universals is, of course, that of
poverty of the stimulus.  A biologically necessary property
of language, we have seen, is one that cannot be acquired
on the basis of the impoverished stimulus.  And as we have
also seen, in order to justify a hypothesis postulating
such a universal, it is sufficient to provide evidence
from a single language showing that the stimulus is impove-
rished in the appropriate sense.  There is, furthermore, a
general methodological problem with analyzing a diversity of
non-native languages, as noted by Newmeyer (1983:69):

> ".... the principles found to constrain gram-
> mars [i.e., linguistic universals in the bio-

logical sense   ---   R.P.B.] are in general
too complex and abstract to be discovered by
a superficial look at a nonnative language."

*Hiż (1967) is one of the Past Players who tried to lock The Master in a strangle-*
*hold at the "single language vs. diverse languages" fork.  He (1967:71) observed*
*that The Master's proposals concerning linguistic universals were not based on an*
*"examination of many cases" but rather on an analysis of a few languages:*

> *"Chomsky presents no more than English and an isolated*
> *property of Mohawk to substantiate some grammatical*
> *universals."*

*The Master (1972:188) had no difficulty in breaking Hiż's Hold, however, agreeing*
*that one should study as many languages as possible but entering a "caveat":*

> *"It would be quite easy to present enormous masses of data*
> *from varied languages that are compatible with all concep-*
> *tions of universal grammar that have so far been formulated.*
> *There is no point in doing so.  If one is concerned with the*
> *principles of universal grammar, he will try to discover those*
> *properties of particular grammars that bear on these princi-*
> *ples, putting aside large  amounts of material that, so far as*
> *he can determine, do not.  It is only through intensive studies*
> *of particular languages that one can hope to find crucial evi-*
> *dence for the study of universal grammar."*

*The history of Hiż — who was hauled up for other howlers too — contains a*
*lesson that you would be wise to heed:  never put your trust in a hold that has been*
*tried but that failed to hurt.*

4.4.5   Chomsky's position on the usefulness of evidence
        from a diversity of languages can be further elu-
cidated with reference to the distinction <u>evidence from</u>
<u>genetically related languages vs. evidence from genetically</u>
<u>unrelated languages</u>.  This distinction ties in with the more
basic one between fundamental principles and open parameters
considered in §2.3.7 above.

Evidence derived from genetically unrelated languages pro-
vides an additional, independent basis for appraising claims
that postulate fundamental universal principles.  Such
claims, we have seen, are initially justified with refer-
ence  to the poverty of the stimulus.  In his Lectures on
Government and Binding Chomsky in fact uses evidence from
a variety of genetically unrelated languages to test claims
postulated initially on the basis of an analysis of English
(and a few other genetically related languages).  For exam-
ple, on the basis of an analysis of English, Chomsky (1981b:
210) at first believed that opacity could result from the
occurrence of tense in a particular domain.  In time, how-
ever, he abandoned this idea because it had failed to be
borne out by evidence from genetically unrelated languages:

> "But this is not true in certain other lan-
> guages.  George and Kornfilt show that in
> Turkish, where tense and agreement are dis-
> sociated, it is agreement rather than tense
> that determines opacity.  The same is true
> in Portuguese, as observed by Rouveret ...."

Turning to the import of evidence from genetically related
languages, Chomsky (1981b:6) considers the study of lan-
guages that differ in regard to their clustering of proper-
ties most useful.  The comparative study of genetically
related languages makes it possible to identify open param-
eters  of fundamental principles and, moreover, to determine
the possible range of variation in these principles.  Chom-
sky (1981b:6) puts his position as follows:

> ".... study of closely related languages that
> differ in some clustering of properties is
> particularly valuable for the opportunities
> it affords to identify and clarify parameters
> of UG that permit a range of variation in the
> proposed principles.  Work of the past several
> years on the Romance languages, some of which

will be discussed below, has exploited these
possibilities quite effectively."

As indicated in §2.5.21 above, the study of genetically
related languages has, for example, led to an increase in
our understanding of the parametric variation in Subjacency.

*No, Protesting Player, there is no inconsistency here between The Master's earlier
handling of Hit and his subsequent use of evidence from a diversity of languages.
The Inconsistency Injunction, that is, is not decisive in itself. The Master has in-
variably insisted that a crucial condition governs the analyses of fragment gram-
mars which provide the evidence for or against general linguistic claims about
universal grammar. This is the condition of descriptive adequacy, formulated
below in terms of a notion of "convincingness":*

> *"To find evidence to support or to refute a proposed condition
> on rules, it does not suffice to list unexplained phenomena;
> rather it is necessary to present rules, i.e. to present a frag-
> ment of grammar. The confirmation or refutation will be as
> convincing as the fragment of grammar presented."*
> *(Chomsky 1977:74)*

4.5     In Chomskyan linguistics, more than one notion of
        **simplicity** plays a role in theory appraisal.  Since
it is of some importance to keep the various Chomskyan
notions of "simplicity" apart, we turn next to a network of
distinctions in which they are involved.  The discussion
will be brief, setting up signposts rather than drawing a
detailed map.

4.5.1    To begin with, there is Chomsky's distinction
         <u>conceptual simplicity vs. messy systems</u>.  In pur-
suing depth of insight, Chomsky (1982:30-31) values theories
that are conceptually simple in the sense that they do not
incorporate redundancies.  This kind of simplicity  ---  also

called "(conceptual) elegance" or "beauty" --- is the prod-
uct of conceptual unification. The reason why scientists
value such attributes of theories, Chomsky (1982:30) specu-
lates, is

> ".... an almost mystical belief that there is
> something about our concept of elegance that
> relates to truth ....".

Chomsky (1982:30) also notes, however, that this linking of
elegance and truth

> ".... is certainly not logically necessary. Our
> brains might have been devised in such a way
> that what looks elegant to them is totally off
> base. But you really have no choice but to try
> to use the resources of your mind to find concep-
> tual unification and explanation and elegance,
> hoping that by some miracle that is the way the
> world works".

Up to a point, Chomsky (1982:30) further observes, the pur-
suit of truth via conceptual simplicity or elegance has been
successful in the study both of biological systems and of
language. But at the same time he (1982:30) seriously con-
siders the position that the world might be messy:

> ".... it might be a fundamental error to search
> for too much elegance in the theory of language,
> because maybe those parts of the brain devel-
> oped  the way they did in part accidentally.
> For example, what has been so far a very pro-
> ductive leading idea, trying to eliminate redun-
> dancy, could be argued to be the wrong move,
> because in fact we know that biological systems
> tend to be highly redundant for good reasons.
> Suppose it does turn out that biological systems
> are messy, either because of historical accident

> or maybe because they work better when they're
> messy. They may provide many different ways
> of doing the same thing. If something fails,
> something else will work. To the extent that
> that is true. [sic] The theory of these sys-
> tems is going to be messy too."

If this turned out to be the case, it might in Chomsky's
(1982:31) opinion "be a really fundamental error to be guided
too much by an effort to eliminate redundancy in developing
explanatory theories".

*You find that "Pupil" has become a misnomer, a paternalistic apellative? Having
practised hard, you present yourself as a candidate for the predicate of "Proper
Player"? To assist you in appraising your playing powers, I will set you a couple of
posers at some of the "simplicity vs. complexity" forks in this part of The Garden.
Your test is to tell how good my questions/statements will be as probes in profit-
able play.*

### Poser Number One

*Finding (conceptually) elegant theories to
account for the apparent messiness of systems
— isn't that what science is really about?*

OR

*Saying that the system is messy is just a
roundabout way of conceding that your theory
is flawed.*

4.5.2    In outlining his view of simplicity, Chomsky (1981b:
7) invokes, moreover, the distinction simplicity of
principles and rules vs. (apparent) complexity of phenomena
and structures. Chomsky's modular conception of the human
mind in general and language in particular --- cf. §2.7.3
above --- makes it possible to formulate simple principles
for the explanation of apparently complex phenomena. The
apparent complexity of a given problematic phenomenon may on

deeper analysis reflect the interaction of several essen-
tially simple principles belonging to various modules of
core grammar.  In Chomsky's (1981b:7) words:

> "The full range of properties of some con-
> struction may often result from inter-
> action of several components, its apparent
> complexity reducible to simple principles
> of separate subsystems."

And with reference to mental representations at the level of
sound structure, Chomsky (1986:43) has recently observed tha

> "The systems of rules and principles that form
> and modify them [i.e., the mental representa-
> tions --- R.P.B.] are fairly simple and
> natural, although they interact to yield struc-
> tures of considerable complexity and to deter-
> mine their properties in quite a precise
> fashion."

In <u>Lectures on Government and Binding</u>, Chomsky illustrates
this "modular character of grammar" with a variety of typica
cases, a classic one being his analysis of sentences such as
<u>John is certain to be here</u>,  <u>John seems to be here</u>, etc.
(p. 79).  Recall that  ---  as explained in §4.2.6 above
---  Chomsky's modular approach reflects the fundamental
philosophical position of rationalism.

### Poser Number Two

*Measured in terms of the messiness of the system(s)
described, what would be the cost of having a
variety of mental modules, each with its own make-up
and mode of organization?*

4.5.3    A further distinction involving conceptual or
         theoretical simplicity is that of simplicity of
principles and theories vs. complexity of argument. This
distinction is mentioned by Chomsky (1986:145) when he draws
attention to "a characteristic and important feature of the
shift from the earlier conception of UG in terms of rule
systems to a principles-and-parameters model":

> "Argument is much more complex, the reason
> being that the theory is much simpler;  it is
> based on a fairly small number of general
> principles that must suffice to derive the
> consequences of elaborate and language-
> specific rule systems."

Chomsky (1981b:15) considers this form of complexity, more-
over, to be a "positive merit":

> "Insofar as we succeed in finding unifying prin-
> ciples that are deeper, simpler and more natural,
> we can expect that the complexity of argument
> explaining why the facts are such-and-such will
> increase, as valid (or, in the real world, par-
> tially valid) generalizations and observations
> are reduced to more abstract principles.  But
> this form of complexity is a positive merit of
> an explanatory theory, one to be valued and not
> to be regarded as a defect in it.  It is a con-
> comitant of what Moravcsik (1980) calls 'deep'
> as opposed to 'shallow' theories of mind, and
> is an indication of success in developing such
> theories.  It is important to distinguish clearly
> between complexity of theory and complexity of
> argument, the latter tending to increase as
> theory becomes less complex in the intuitive
> sense."

Note that these remarks by Chomsky reflect his acceptance

of another metascientific distinction, Moravcsik's (1980:28) distinction <u>deep theories (of mind) vs. shallow theories (of mind)</u>:

> "I shall label as 'deep' (without implying any depth in a normative sense) the theories that refer to many layers of unobservables in their explanations, and I shall regard even some of the fundamental facts to be accounted for as lying beneath the level of observability. Such theories are guided by the intuition that the observable appearances can be explained adequately only by the examination of the underlying unobservable aspects of nature. ('Nature does not wear its essence on its sleeves.') What I label 'shallow' theories are those that try to stick as close to the observable as possible, aim mostly at correlations between observables, and posit something unobservable only when this seems unavoidable --- even then, such theories demand some direct relationships between the observable and the unobservable."

We have isolated, then, two further metascientific consequences of Chomsky's second conceptual shift:  an increase in the depth of theories and a concomitant increase in the complexity of argument.

> ### Poser Number Three
>
> *Welcoming inferential complexity that arises from theoretical simplicity --- isn't this a little like both eating one's cake and having it?*
>
> ### OR
>
> *Complexity of argument that is not a sign of deductive depth is metascientifically neither a virtue nor a vice.*

4.5.4    Crucial to an understanding of the Chomskyan
         conception of theory appraisal is the distinction
conceptual simplicity vs. notational simplicity.  The
nature of conceptual simplicity has received some measure
of clarification in the paragraphs immediately preceding.
Conceptual simplicity represents a general metascientific
notion;  however, notational simplicity is a technical
notion specific to generative grammar.  Specifically, nota-
tional simplicity was embodied in the "simplicity measures"
or "evaluation metrics" which Chomsky (1965:37 ff.) (at one
time) looked upon as the devices by which a particular gram-
mar within the set of possible grammars compatible with the
data would be selected as the "most highly valued" one.
This kind of simplicity was "notational" in the sense that
it was taken by some generative grammarians to be reflected
by the simplicity of the notation used in the formulation
of fragments of grammar.  Thus, Newmeyer (1983:41) observes
that

         ".... the idea of a 'simplicity measure' is
         often implicit in the choice of notational
         conventions.  The parentheses notation for
         collapsing rules is a good example.  This
         notation was devised so that, given two ana-
         lyses  ---  one employing parentheses and
         one not  ---  the former would be more
         directly reflective of linguistic generali-
         zations and also be shorter".

Ultimately, the choice of the best simplicity measure or
evaluation metric was, on Chomsky's view (1965:37 ff.), an
empirical matter.  The correct measure or metric would be
the one that accurately characterized the way in which the
child in acquiring its language "selected" the grammar of
its language on the basis of impoverished data.  Chomsky's
principles-and-parameters approach, however, makes no
explicit provision for a form of simplicity that is "nota-
tional" in the above sense.  In place of a simplicity
metric, this approach incorporates a concept of "markedness"

that has to provide a basis for drawing a distinction between more highly valued (or less marked) and less highly valued (or more marked) grammars (cf.§2.5.20 above for this equation).

*You're pained by my posers, playful or otherwise, and concede that Practising Pupils and Practising Professionals are related by homonymy and not much more. At your request, then, I am of course willing to let you have some more of the lore of the labyrinth. If ever, Fledgling Fighter, you should wish to analyze the anatomy of Barren Bellicosity, the "conceptual simplicity vs. notational simplicity" bifurcation would be an excellent place to start. It is a fork that has seen much in the way of profitless play by opponents of The Master's who failed to keep the two kinds of simplicity apart. Consider in this connection Baron's (1981: 84) rejection of the "Chomskian cost-benefit analysis of language":*

> *"The Chomskian school, developing an economic metaphor, has implied that exceptions to grammatical rules should be very 'costly', and therefore, rules should be constructed so as to yield the smallest number of exceptions possible. Like latter-day counterparts of Karl Verner, transformational grammarians have implied that actual language can be wholly generated by rules; our task is to find them. There have, however, been many schools of linguistics which have [correctly] rejected the Chomskian cost-benefit analysis of language."*

*Baron's Broadside, as correctly noted by Newmeyer (1983:84), was triggered by a confusion of the Chomskyan technical simplicity metric with a field-independent general notion of simplicity that is an essential building block of the metascientific foundations of "scientific linguistics". Thus, Newmeyer (1983:42) observes that:*

> *"Baron's phraseology suggests that she is opposed to some particular evaluation metric internal to grammatical theory. But consider the content of the rejection of the idea that 'rules should be constructed so as to yield the smallest number of exceptions possible'. It is no less than the rejection of the goal of finding as much systematicity as exists in language."*

*And Newmeyer proceeds to point out that the rejection of this goal entails "the abandonment of a scientific perspective on language".*

*So in the simplicity sector of The Garden, Dear Player, you will need to watch your step no less warily than elsewhere. It is a minefield of apparent contradictions, I can tell you, which — when prodded in imprudent play — could blast you into oblivion.[30] Having picked our way through the pitfalls of this perilous part of The Garden, we have come to the end of our march through the Marshlands of Method. To have survived at all is a philosophical feat of formidable format, which you will appreciate when you return to fight on your own.*

## 5    LOCUS IN THE LANDSCAPE OF LEARNING

*Where in the wider World of Wisdom is The Garden to be found? What Site in Science does it occupy?*

*Yes, indeed, Pondering Player, these questions now press for a proper reply. If you couldn't locate The Garden in the Landscape of Learning, how would you ever be able to return there — propelled by your appetite for perilous play in the Mind-Mapper's Marvellous Maze? Or, how could you be sure that you were hot on the heels of the Generative Genius and not pottering around in some other Arboreal Area of Academe, far removed from the channels of the Charles?*

*So, what I will give you, as a parting gift, are a couple of coordinates for locating Noam's Land on the Globe of Ologies and Isms. And for an encore, I will tell you the tempestuous tale of a holy war that was fought between the Lord of the Labyrinth and a Phylum of Philosophers at a purportedly basic bifurcation in The Garden.*

We have considered Chomskyan linguistics from the point of view of its basic questions, guiding aims, fundamental ideas, types of theory and metascientific means. We come now to a final question:  How does Chomskyan linguistics relate to what have been considered to be adjacent but separate fields of study?  The sections that follow provide the outlines of an answer to this question.  These outlines are drawn with the aid of a set of distinctions linking Chomskyan linguistics to philosophy, mathematics, psychology, the brain sciences and biology on the one hand, and to the harder natural sciences on the other hand.

5.1    With reference to the distinction linguistics vs.
       philosophy, Chomsky (1982:5) has observed that

       ".... the interactions with philosophy are
       very tight and many-layered.  They occur in
       all sorts of places".

The "levels" or "points of contact" between linguistics and
philosophy singled out by Chomsky (1982:5-6) include:
(a) the work by "people" such as Vendler "who have looked
to linguistics to try to answer philosophical questions"[1];
(b) the work of ordinary-language philosophers such as
Austin who "are really just doing linguistics", or, more
accurately, "philology"[2];    (c) the work that certain
philosophers have done on semantics  ---  for example,
"model theoretic semantics of a natural language"; (d) the
"philosophical work"  that has been done by certain philos-
ophers  on the methodological problems of the sciences,
e.g. the question of what explanation is in linguistics;
(e) the work by philosophers who have explored "what the
study of language has to say about questions of epistemol-
ogy".

As regards work of the latter sort, Chomsky (1982:6) is of
the opinion that

       ".... one can conceive of the study of language
       as being one possible paradigm for the investi-
       gation of the nature of knowledge, the nature
       of human knowledge, and the problems of a
       priori knowledge.[6] In my view, here is where
       the most interesting connections lie, but only
       a very small number of philosophers are interest-
       ed in these questions".

The "points of contact" mentioned above, however, should not
obscure the fundamental methodological difference between
Chomskyan linguistics and philosophical analysis proper. The

former is claimed by Chomsky to be an empirical enterprise
--- cf. §4.3 below. The latter is not. And Chomsky has
insisted that to conduct his kind of inquiry into the nature
and properties of the language faculty is to engage *neither*
in "conceptual analysis" (1980a:28-29) nor in "philosophical
discussion" (1983:65).

*Something suitable to stimulate your memory, Dear Player? What about a maxim
or two?*

        *Maxim Number One*

        *To do linguistics in the Chomskyan style, forget your philo-*
        *sophical flair once and for all, lay all a priori argument*
        *aside for good.*

5.2    Turning to the distinction <u>linguistics vs. mathe-</u>
       <u>matics</u>, Chomsky (1982:14) is of the opinion that

       ".... there was a period of fairly fruitful
       contact between automata theory and linguistics
       in the late fifties and early sixties".

This contact, which "mostly had to do with the properties
of context-free grammars", turned up, in Chomsky's (1982:
15) opinion,

       ".... one result[18] which had linguistic interest,
       namely the fact you can think of a context-free
       grammar as a certain kind of automaton that
       takes symbols from left to right and prints out
       tree structures for them".

Chomsky (1982:16) also finds it useful to compare the study
of language to the study of arithmetic considered from an
intuitionist point of view. Commenting on this point of
view, Chomsky (1982:16) speculates that

> "One could perhaps take the intuitionist view
> of mathematics as being not unlike the lin-
> guistic view of grammar. That is, grammar
> does not have an independent existence apart
> from the functions of the human mind, but they
> are in fact precisely systems of principles
> that the human mind is capable of construct-
> ing, given the primary linguistic data".

As noted in §2.5.9 above, however, Chomsky (1986:33) has
rejected the suggestion that knowledge of language should
be understood on the analogy of knowledge of arithmetic,
arithmetic being taken to be an abstract 'Platonic' entity
that exists apart from mental structures.

He (1986:33) has found this analogy to arithmetic "quite
unpersuasive" since

> "In the case of arithmetic, there is at least
> a certain initial plausibility to a Platonis-
> tic view insofar as the truths of arithmetic
> are what they are, independent of any facts
> of individual psychology, and we seem to dis-
> cover these truths somewhat in the way that
> we discover facts about the physical world.
> In the case of language, however, the corresp-
> onding position is wholly without merit".

As an intellectual enterprise, moreover, Chomskyan linguis-
tics differs from mathematics in a fundamental metascienti-
fic respect. Because it is a form of empirical science,
Chomskyan linguistics cannot demonstratively prove its
claims about the language faculty. In Chomsky's (1983:80)
words:

> "You can't demonstratively prove it is innate
> --- that is because we are dealing with science

> and not mathematics; even if you looked at
> genes you couldn't prove that. In science
> you don't have demonstrative inferences; in
> science you can accumulate evidence that
> makes certain hypotheses seem reasonable, and
> that is all you can do  ---  otherwise you
> are doing mathematics."

*To guide you on your way, Dear Player, here is*

*Maxim Number Two*

*When doing linguistics, a desire for demonstration, a pas-
sion for proof cannot be appeased in the Chomskyan style.*

5.3     As regards the distinction <u>linguistics vs. psycho-
       logy</u>, Chomsky (1986:34) rejects it if it implies
       that

       ".... there is any reason to establish a disci-
       *pline* of 'linguistics' that restricts itself on
       *a priori* grounds to some particular data [so-called
       'purely linguistic' or 'non-psychological'
       data  ---  R.P.B.] and constructs a concept of
       'language' that can be studied within this choice
       of relevant data".

In fact, Chomsky (1980a:201-202) has never been willing to

       "draw a line separating the two disciplines, lin-
       guistics and psychology, in terms of the kinds of
       evidence they prefer to use and the specific
       focus of their attention".

Accordingly, he has resisted attempts to define linguistics
as the field "that relies on informant judgments  in order
to study competence" *vis-à-vis* psychology as the field "that is

concerned with performance rather than competence". "This distinction has always seemed quite senseless" to Chomsky.[3]

Rather, of course, Chomsky (1972:1) has characterized his form of linguistics as "a psychological science", "a particular branch of cognitive psychology". The following formulation (1980a:4) is representative of this perspective:

> "I would like to think of linguistics as that
> part of psychology that focuses its attention
> on one specific cognitive domain and one faculty
> of mind, the language faculty. Psychology, in
> the sense of this discussion, is concerned, at
> the very least, with human capacities to act
> and to interpret experience, and with the
> mental structures that underlie these capaci-
> ties and their exercise; and more deeply,
> with the second-order capacity to construct
> these mental structures, and the structures
> that underlie these second-order capacities.[2]"

And, as is well known, Chomsky rightly deserves the credit for establishing this view of linguistics/psychology as an intellectually respectable and heuristically fruitful alternative to behaviourist psychology.[4]

*This, Dear Player, brings us to*

### *Maxim Number Three*

*When doing linguistics in the Chomskyan style, traditional boundaries between ologies get abolished as a matter of course.*

5.4    The distinction <u>linguistics vs. the brain sciences</u>
          is useful in further locating Chomskyan generative
grammar within a wider disciplinary context.  Recall that
the distinction between mind and brain has been seen  ---
e.g.  §§2.7.1, 4.2.4  ---  as crucial in understanding the
aims of the Chomskyan enterprise.  What Chomsky (1986:38)
is after, on the one hand, is a theory of mind that "aims
to determine the properties of the initial state $S_0$ [of
the language faculty  ---  R.P.B.] ".  On the other hand,
".... the brain sciences seek to discover the mechanisms
of the brain that are the physical realization of these
states".  Nevertheless, on Chomsky's (1986:38) view,

>      "There is a common enterprise:  to discover
>      the correct characterization of the language
>      faculty in its initial and attained states, to
>      discover the truth about the language faculty.
>      This enterprise is conducted at several levels:
>      an abstract characterization in the theory of
>      mind, and an inquiry into mechanisms in the
>      brain sciences.  In principle, discoveries
>      about the brain should influence the theory of
>      mind, and at the same time the abstract study
>      of states of the language faculty should form-
>      ulate properties to be explained by the theory
>      of the brain and is likely to be indispensable
>      in the search for mechanisms.  To the extent
>      that such connections can be established, the
>      study of the mind  ---  in particular, of I-
>      language  ---  will be assimilated to the
>      mainstream of the natural sciences".

From these remarks it is clear that Chomskyan linguistics
is not concerned with reality at the same level of abstrac-
tion as the brain sciences.  Yet, as Chomsky (1986:38)
notes  ".... the interdependency of the brain sciences and
the study of mind is reciprocal".  Chomskyan linguistics
may be characterized as "abstract biology" analogous to the

kind of work that has been done by Marr and Nishihara on
vision. These scholars, as Chomsky (1982:10) puts it, are

> ".... interested in developing systems of
> representation and levels of representation
> which will on the one hand have a basis in
> physiology, if they can find it, and on the
> other hand will account for important percep-
> tual phenomena".[5]

*A golden rule to go by? Consider, Dear Player,*

### Maxim Number Four

*Since as a linguist you loathe a laboratory,*
*intrusively locating mind's mechanisms isn't your territory.*

5.5     Let us then consider the distinction <u>linguistics vs.</u>
        <u>the natural sciences</u>. From the remarks quoted above
in §5.4 it is clear that Chomsky holds out some hope that
his form of linguistics "will be assimilated to the main
stream of the natural sciences". If such a process of sub-
stantive assimilation did take place, it would go via the
biological sciences. As has been pointed out by Chomsky
(1980a:241), he pursues the study of mind "much as we in-
vestigate the body", i.e., "on the model of a bodily organ"
(p. 229). Adopting this model implies to Chomsky that the
inquiry is organized by taking as "basic questions" those
about the function, structure, physical basis, development
in the individual, and evolutionary development of the
"language organ" (p. 227).[6]

As regards the assimilation of linguistics to the natural
sciences, Chomsky, in fact, has gone one important step
further. He has not only argued for an assimilation in
terms of substance via the biological sciences. He has
also presented a case for the metascientific or methodolog-
ical assimilation of linguistics to the natural sciences.
Thus, as we saw in Chapter 4, Chomsky has consistently stressed

the point that there are fundamental similarities at a
metascientific level between his linguistics and the natural
sciences. The former and the latter adopt the same basic
aim (pursuing depth of insight), the same ontological posi-
tion ("sophisticated" realism), the same epistemological
stance ("tolerant" falsificationism) and the same methodo-
logical means (e.g. idealization).

Recently, as we noted in §4.3.2, Chomsky has stressed these
similarities by contending that generative grammarians, like
physicists, have adopted the "Galilean style" of inquiry.
He (1980a:197) has argued, in fact, that the metascientific
differences between his form of linguistics and the natural
sciences --- e.g. those concerning "intrusive experimenta-
tion" --- are not "differences of principle". Thus, so
far as method is concerned, Chomsky sees generative grammar
as a natural science.

Given that Chomskyan linguistics is similar to the natural
sciences both in substance and in method, the question
arises why it should be considered a distinct discipline.
Chomsky's (1986:37) reply is informative:

> "The study of language structure as currently
> practiced should eventually disappear as a
> discipline as new types of evidence become
> available, remaining distinct only insofar
> as its concern is a particular faculty of the
> mind, ultimately the brain: its initial
> state and its various attainable mature states."

*Would you believe, Dear Player, that a battle to the death — with undertones
of a holy war — was fought about the fork "linguistics vs. natural science"?
As we saw in §4.2.1 above, Quine, Putnam and other philosophers of the same
intellectual phylum have contended that linguistics and psychology are affected
by an insuperable form of indeterminacy.* [7] *They have claimed that linguistic
and psychological theories are incorrigibly underdetermined by the available
evidence: given two or more extensionally equivalent theories in linguistics or*

psychology, it is impossible to determine which one correctly characterizes the mechanisms underlying the data. They have insisted, moreover, that linguistics and psychology are in this respect distinct from physics, hence that there is a "linguistics/psychology vs. physics" fork.

The Master fought off the fellows of this phylum with verve, shooting straight from the shoulder. On the one hand, he (1980a:16 ff.; 1986:13) shot back, Quinian indeterminacy amounts to nothing more than the normal underdetermination of theory by the evidence:

> "I do not think that he succeeded in showing that some novel
> form of indeterminacy affects the study of language beyond
> the normal underdetermination of theory by evidence; his own
> formulations of the thesis furthermore involve internal incon-
> sistency."                                              (Chomsky 1986:13)

On the other hand, he (1980a:22) flayed the Philosophers of the Phylum for having confronted linguistics and psychology with questions of indeterminacy that have been dismissed in the case of the natural sciences:

> "I think it is worth remarking on the fact that these issues have
> been so much debated in the past twenty years in the domain of
> psychology and language, while the comparable questions con-
> cerning inderterminacy in the natural sciences have received
> far less attention; and where they have been investigated, in
> connection with the question of realism, the framework and
> conclusions have been entirely different. What has happened,
> in fact, is that psychology has been asked to confront ques-
> tions that are simply dismissed in the case of the natural
> sciences, where no one is much concerned with the fact that
> two samples might in principle be differently constituted,
> that theories are undetermined by evidence, and so on. This
> seems a strange state of affairs. Questions of a fundamental
> nature should be raised where the hope of gaining illumination
> is highest; in this case in physics, not psychology."

And taking his revenge, The Master (1980a:23) riddled the Quinian position from end tot end with his own brand of resounding rhetoric:

> "It is a fair rule of thumb that questions should not be raised
> concerning the foundations of psychology if they cannot be
> answered in some measure at least in the case of physics.
> This reasonable principle  has been drastically violated, with
> the obvious consequence that nothing much comes of the
> discussion, even when confusions are eliminated."

The Quinian proposal to distinguish linguistics and psychology in principle from
the natural sciences comes down to nothing more than the arbitrary acceptance
of a Bifurcation Thesis — a point which The Master has taken over from Hockney.
And it is this very thesis which The Master (1980a:16) has made into a missile,
guiding it with awesome accuracy to blow up the phylum's fortress:

> "What is really at stake is only what Donald Hockney has called
> 'the bifurcation thesis', that is, the thesis that theories of mean-
> ing, language and much of psychology are faced with a problem
> of indeterminacy that is qualitatively different in some way
> form the underdetermination of theory by evidence in the
> natural sciences.[28] For this conclusion, no argument at all has
> been presented; and as Hockney shows, the bifurcation thesis
> leads to contradiction within Quine's system."

Let us then, in honour of one Hockney, try to remember the "linguistics/psychology
vs. the natural sciences" fork as the Bifurcation Bifurcation. Your Fifth and Final
Maxim, Dear Player, must take, I fear, the form of an epitaph:

Here lie the Philosophers of the Fake-Fork Phylum

*          *

How frightful is the self-inflicted fate
of learned men who cleverly create
strange forks that, prongless, fail to bifurcate.

Let us, in conclusion, return to the general questions ad-
dressed in this section:  How is Chomskyan linguistics
related to what have been considered to be adjacent but
.separate fields of study?  Where does Chomskyan linguistics

fit into science in general?  A synoptic answer to these
questions, necessarily simplified, is presented in the dia-
gram below:

```
+-----------------------------------------------------------------+
|  +-----------------------------------------------------+        |
|  |  +------------------------------------+             |        |
|  |  |  +-------------+                    |            |        |
|  |  |  | CHOMSKYAN   |  COGNITIVE  | BIOLOGICAL | NATURAL   |
|  |  |  | LINGUISTICS | · SCIENCES  | SCIENCES   | SCIENCES  |
|  |  |  +-------------+                    |            |        |
|  |  |                                    |            |        |
|  |  +------------------------------------+             |        |
|  +-----------------------------------------------------+        |
+-----------------------------------------------------------------+
```
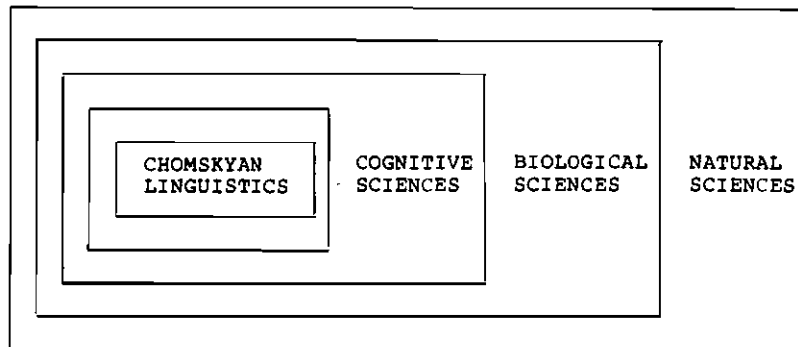
This diagram is complemented by and should be considered in
conjunction with diagram (2) of §1.5, the diagram that shows
where Chomskyan linguistics fits into the larger field of
linguistics.

**AFTERTHOUGHTS**

*So here at last we are back, Dear Reader, at the gates of The Garden, having completed a guided tour of considerable conceptual mileage. Perhaps, you feel a sense of relief as you reflect that The Garden is not one of remembrance so far as you are concerned. But before you leave for pastures less perilous — but more prosaic, I hasten to warn — let us pause for a moment's further reflection.*

*Reflection, not on what you have been shown of the limbs of linguistics, the meat of mentalism, the thews of theory, the muscle of method or the sinews of science. Not on what you have seen of players with more courage than cool, more heart than head, more pretence than sober sense. Not on what you now know about The Master's fortitude under fire, power in play or ruthlessness in retaliation.*

*No, let us think back about the quality of the guidance that you have been given. Having survived trials and tribulations, tense times and tight turns, do you not graciously concede that your Guide has been a credit to his trade? But not every-one would agree.*

*Take certain Past Players. They would complain (if indeed the grave is a place from which one can grumble) that they more than matched The Master — but that, in the yarns I spin, I give the credit to him. Or take certain Present Players. They would protest that they have been taking The Garden by storm — but that, in my story of the Game, I make no mention of their glorious name.*

*And don't forget the Serious Scholars who, against my advice, have grimly "worked" their way through all that I have had to say. Untiring, unyielding, unsmiling, they keep carping away about forks that have been fogged, corners that have been cut, incidents that have been inflated, and encounters that have been exaggerated in my Grammar of The Game.*

*Always in attendance, of course, is the Lord of the Labyrinth himself. The Master Maze Maker and Minder, how could he ever rest content? My map of his maze is sure to fall short of his standards of surveying. And another certain bone of contention will be that I portray (at least) some ploys and principles of*

*play in a way that is less than laudatory to him.*

*Generously granting me the last word, Dear Reader, you would like to hear my defence? But then, do I really need to say much? It seems to me that two or three questions and observations should do. For example, take all those dozens of conceptual distinctions — devilish in their delicacy and diversity. How do you suppose they would taste, were they to be served straight or sec to Novices and Neophytes? Or, again, what quicker way is there for an Out-of-form Fighter to upgrade his game — to secure survival in a land of lethal lanes, deadly drops and frightening forks? And what better to whet the appetite for action of Visiting Scholars lured from distant domains by the name of The Game?*

*Ultimately, then, I have been addressing myself to those who have a taste and a talent for conceptual combat — whether these attributes are in the bud only or have already begun to bloom. The manual patiently presented here, the verbal maps diligently drawn, and the many memory aids freshly minted will be instrumental, I hope, in producing a new generation of Players equipped to challenge The Generative Gladiator in his Garden with greater competence and credibility. But in essence my aims have been simple and my efforts quite modest. I have tried to assist in populating The Garden with people of "the right stuff". And I have tried to contribute to raising the general level of The Game. In a phrase: more contenders of calibre, more play of the proper proficiency. That's what it has been all about, Dear Reader.*

**NOTES**


CHAPTER 1


1.   Chomsky (1986:3) recently reiterated the point that
     "'generative' means nothing more than 'explicit'".
     Note, incidentally, that in Chomsky's linguistics a
     grammar is not a description of a language in the
     conventional sense, as will be explained in §§2.5.10
     and 2.5.13 below.  At this stage, however, this con-
     ventional view of the object described by a grammar,
     won't do much harm.

2.   Formalized rules are stated in terms of unambiguous
     symbols which have been specially chosen for the pur-
     pose.  Formalization may be carried a step further by
     axiomatizing the rules constituting a grammar.  For
     the distinction between formalization and axiomatiza-
     tion  cf.  Botha 1981:168-169.          .

3.   This is why recently Derek Bickerton (1981:104-105) was
     able to claim that both his "dynamic" model of language
     and Chomsky's "static" model were "generative".  For a
     recent version of Bickerton's views cf. Bickerton 1984.

4.   This was such a common misconception that Bach (1974:
     27), in his widely used textbook,  found it necessary
     to point out with respect to the notion "generate" that
     "No connotations about actual production are intended".

5.   We will see in §2.5.21 below that Chomsky has lately
     come to believe that knowledge of language should not
     be viewed as a rule system in the conventional sense.
     At this point of the discussion, however, the conven-
     tional Chomskyan view of language as a system of rules
     will do.

6. Hornstein and Lightfoot (1981c:7) formulate this pro-
blem as follows: "The goal of our research program
is to explain how children come to know what they know
in the linguistic domain". Or, as formulated by Light-
foot (1982:15): "The central problem is to character-
ize how children can master their native languages".

7. A number of the different ontological interpretations
that may be assigned to recent linguistic theories in
the domain of syntax are discussed insightfully by
Stockwell (1980:354). Katz (1981:18) argues that Bresnan
(1978) and Fodor and Garrett (1975) also hold a view
of the ontological status of linguistic theories that
differs from Chomsky's mentalistic conception. Sober
(1980:38-39) holds the view that certain linguistic
regularities have the status of "social regularities".
In §4.2.1 below, we return to the question of the onto-
logical status of Chomskyan linguistic theories. For
a discussion of the possibility of assigning more than
one alternative ontological interpretation to a single
linguistic theory cf. also Botha 1980:26-28.

8. A historical note may be informative at this juncture:
in assigning the questions (1)(a)-(c) the status of
"basic questions" --- thereby making central concerns
of the nature $[(1)(a)]$, origin $[(1)(b)]$ and use
$[(1)(c)]$ of language --- Chomskyan generative gram-
mar, on Chomsky's (1986:3) view, represents "a signi-
ficant shift of focus in the approach to problems of
language. Put in the simplest terms, to be elaborated
below, the shift of focus was from behavior or the pro-
ducts of behavior to states of the mind/brain that
enter into behavior". Chomskyan linguistics, thus, is
the result of a fundamental conceptual shift away from
the concerns of traditional and structural grammar which
--- on Chomsky's (1986:6) analysis --- did not deal
with the questions of (1). To a second fundamental
conceptual shift, one that has taken place within Chom-

skyan linguistics, we return in §§2.4.4, 2.5.21 and 2.6.5 below.

9.    Soames (1984) has made a similar move by drawing a distinction between "C(ognitive) linguistics" which studies language as represented in the minds/brains of the members of a speech community vs. "A(bstract) linguistics" which studies language in abstraction from its mental/biological basis. For a critical discussion of this distinction cf. Chomsky 1986:34-36.

10.    The need for transformations has been questioned by, e.g., Brame (1978) and Gazdar (1981), linguists who oppose Chomsky on other major points as well. Many, more recent examples illustrating this distinction are to be found in Chomsky's Lectures on government and binding (1981b), specifically in the notes. Consider, as an illustrative case, note 67 (p. 143) in which Chomsky briefly mentions a number of disagreements between himself on the one hand and on the other hand Chomskyan linguists such as Wilkins (1977, 1979), Koster (1978b, 1978c, 1980) and Kayne (1980b). These disagreements concern the structural aspects of language accounted for with the aid of theoretical notions such as "subjacency", "binding", "bounding", "government", etc. Other examples that clearly illustrate the distinction between Chomskyan linguistics and Chomsky's linguistics may be found in anthologies such as Levels of syntactic representation (edited by Koster and May, 1981) and Theory of markedness in generative grammar (edited by Beletti, Brandi and Rizzi, 1981).

11.    Cf. Newmeyer 1980:chap. 5 for a discussion of the main variants of generative semantics.

12.    Cf. Katz 1980 for some discussion of this point.

13. For some discussion of the way in which Chomsky
    lost followers and the ensuing paradigm fragmentation
    cf., e.g., Botha 1981:429-430; Newmeyer 1980:
    249-250; and Chomsky, Huybregts and Van Riemsdijk
    1982:42 ff.

14. Cf., e.g., Dougherty 1975 and Botha 1977:74 ff. for
    some discussion of this point.


CHAPTER 2


1. Lightfoot (1982:15), for example, states that "The
   problem is one of the deficiency of the stimulus:
   people come to have a very rich, complex and varied
   capacity that goes far beyond what they can derive
   only from their childhood experience ....".

2. For some observations by Chomskyans on the psychol-
   ogical problem of language acquisition cf., e.g.,
   Chomsky 1981a:34, Dresher 1981:114-115, Kean 1981:
   196-199, Hornstein and Lightfoot 1981c:26, and White
   1981:252 ff.

3. Cf. §2.3.1 below for more particulars about Chomsky's
   distinction between the initial and the steady state of
   the language faculty.

4. Chomsky (1986:xxviii) considers the study of Orwell's
   problem to be "primarily a matter of accumulating
   evidence and examples to illustrate what should be
   fairly obvious to a rational observer even on super-
   ficial inspection, to establish the conclusion that
   power and privilege function much as any rational mind
   would expect, and to exhibit the mechanisms that
   operate to yield the results that we observe".

5.  As noted by Chomsky (1986:7) this view of the poverty
    of the stimulus differs sharply from the standard
    structuralist belief of thirty years ago that language,
    as a habit system, is "much overdetermined by
    available evidence".

6.  Cf., e.g., Lightfoot 1982:17-18 for such an illustra-
    tion.

7.  Specific claims about the poverty of the stimulus may
    be challenged on factual grounds. For further obser-
    vations on this point cf. §4.4.2 below.

8.  "Motherese", alternatively referred to as "caretaker
    speech" or "baby talk" is defined by Richards, Platt
    and Weber (1985:34) as "the simple speech used by
    mothers, fathers, babysitters, etc. when they talk to
    young children who are learning to talk. Caretaker
    speech usually has: (a) shorter utterances than speech
    to other adults (b) grammatically simple utterances
    (c) few abstract or difficult words, with a lot of
    repetition (d) clearer pronunciation, sometimes with
    exaggerated INTONATION patterns". For further discus-
    sion of the properties of motherese and its alleged role
    in language acquisition cf., e.g., Ferguson and DeBose
    1977 and Snow and Ferguson 1977. For critical appraisals
    of the role of such so-called simplified data in
    language acquisition cf., e.g., Bickerton 1981:139 ff.,
    Gleitman and Wanner 1982:39 ff., Newmeyer 1983:22 and
    Romaine 1985:261.

9.  Cf., e.g., Baker 1978:411-413, Hornstein and Lightfoot
    1981c:20, and Lightfoot 1982:17 for this view.

10. Cf. Lightfoot 1982:17.

11. Cf. Hornstein and Lightfoot 1981c:20.

12. The studies referred to by Baker are Braine 1971 and Brown and Hanlon 1970.

13. Or, rather, "knowledge of grammar", as we will see below in §2.5.15.

14. The genotype is the inherited set of genes that "determines the organism's potential for adapting to its environment; it sets the boundaries of an organism's performance by determining what its cells can do" (Lightfoot 1982:5). An organism's phenotype is "the set of acquired characteristics, like having axial flowers or being tall, dark, and handsome; it is the mature expression of the genotype within a given environmental setting" (Lightfoot 1982:6).

15. (3) does not represent an exhaustive list of the terminological pairs that may be used synonymously to denote the initial and steady states of the language faculty. Thus, in note 39 below, we will see that Chomsky (1980a:4) has also used the expression "first order capacity" to denote the steady state, and the converse expression "second order capacity" in referring to the initial state.

16. This distinction was drawn by Piattelli-Palmarini (ed.) (1983:18), an organizer of the debate between Chomsky and Piaget at the Abbaye de Royaumont near Paris. Piattelli-Palmarini illustrates the distinction steady state vs. stable state as follows: "A billiard ball coming to rest at the bottom of a basin, or crystals being formed under progressive saturation of a solution, constitute canonical examples of·stable equilibrium states. In dynamic processes, whenever a constant turnover of matter is geared to a uniform flow of transformable energy, steady states may appear. The canonical example is the flame of a candle in an environment devoid of turbulence".

17. What is called "language-specificity" here has also been

referred to as "domain-specificity", e.g. in Caplan
1981:60.

18. Putnam takes the fact that a chimpanzee such as Washoe
    can "learn language" successfully to provide evidence
    for his own theory of language acquisition and against
    Chomsky's. We return to this point in §2.5.17 below.

19. Subjacency is a general condition "which states that a
    transformation cannot move a phrase 'too far' in a
    well-defined sense...." (Chomsky 1986:72). In an
    informal, relatively early formulation, Subjacency
    stated that a phrasal constituent cannot be moved out
    of two bounding categories (cf., e.g., Chomsky 1978a:
    16 and Radford 1981:227 for such a formulation). The
    ill-formedness of the wh-question in (a) may be
    explained by invoking, amongst other things, Sub-
    jacency: to derive (a) the constituent in whom has
    to be moved out of two bounding categories --- the
    circled NP and S --- in (b) (cf. Chomsky 1978a:16).

    (a)    *in whom did your interest surprise me
    (b)    *$[_{\bar{S}}$ COMP $[_{\text{Ⓢ}}$ $[_{\text{ⓃP}}$ your interest $[_{\text{WH}}$in whom$]]$

           surprised me$]]$

    As for binding theory, it contains the principles that
    govern the relations between various kinds of (pro)nom-
    inal elements and their possible antecedents. Cf.
    Chomsky 1986:77, 164 ff.

20. We will consider Piaget's theory of language acquisition
    in §2.4.6 below.

21. The function that idealizations such as that of uniform-
    ity in the species have in Chomskyan linguistics will
    be considered from a metascientific point of view in
    §4.1.4 below.

22.    Chomsky (1986:204, n. 3) refers to Borer and Wexler
       (1984) for an illustration of how this assumption may
       be used in explaining phenomena of child language.

23.    For the distinction "genetic vs. epigenetic" cf, e.g.,
       Catlin 1978:276-277, Cromer 1980:18, and Lightfoot
       1982:12.

24.    On Catlin's view, Lenneberg's (1976) approach is of
       the epigenetic sort.

25.    This characterization presupposes a distinction between,
       on the one hand, characterizing the language faculty at
       a concrete, neurophysiological, level and, on the other
       hand, characterizing this faculty at an abstract,
       mental, level.  We will go into this and related dist-
       inctions in some·detail in §§3.7.2 and 4.2.4 below.

26.    NP stand for Noun Phrase (e.g., the boy, the bright boy,
       the boy who is bright, etc.), S for Sentence (e.g., The
       boy is bright, etc.), and S̄ for a structure consisting
       of a sentence (S) introduced by a complementizer (COMP) ·
       (e.g., (He claims) that the boy is bright, etc.).

27.    English, Italian and French, thus, differ in their use
       of Subjacency in only a relatively minor respect.
       This relatively small difference, however, lies at the
       basis of what superficially appear to be substantial
       differences in phrase structure.  The latter differ-
       ences are reflected by the fact that, whereas certain
       structures would be ungrammatical in English, parallel
       structures would be grammatical in French and Italian.
       For an illustration of this point cf. Chomsky 1981a:
       55-56.

28.    Throughout the discussion it has to be kept in mind
       that Chomsky is concerned with the process by which a

child acquires its native language and not processes
specific to the acquisition of a second or third lang-
uage.

29. Chomsky (1980b:47-48) proceeds:  "McCawley takes the
criterial property of 'learning' to be individuation;
since our mind can acquire knowledge of several lang-
uages,  acquisition of language is 'learning' (so that
if it turned out that 'coordinate bilingualism' is
impossible, rather only 'compound bilingualism', in which
knowledge of one language is built on knowledge of
another, then first-language acquisition would not be
'learning').  Clearly, this does not respond to the
point I discussed.  In fact, McCawley's proposal raises
the problem discussed in a more severe form than mine
did.  The body can become accustomed to a certain style
of food (say, highly spiced).  But it can accommodate
to several such styles.  When I receive eyeglasses with
a stronger correction, I slowly come to accommodate and
to see without distortion, but I continue to see with-
out distortion when the glasses are removed, so that my
visual system is in 'two states' in McCawley's sense.
If such examples constitute 'learning', in accordance
with McCawley's criterion, then the prospects for a
coherent notion of 'learning' seem even dimmer than if
we identify 'learning' in the terms I suggested."

30. Thus, Chomsky (1980b:14) argues that if one wished to
take the abduction metaphor "partially seriously, then
under this concept of learning as 'abduction' or 'self-
design' [a notion to which we will turn below  ---
R.P.B.] , the question whether language is learned or
grows will depend on whether the mind equipped with
universal grammar presents a set of grammars as hypo-
theses to be selected on the basis of data and an
evaluation metric, or whether the steady-state grammar
arises in another way  ---  for example, by virtue of

> a hierarchy of accessibility (stated, perhaps, in terms
> of the very same evaluation metric) and a process of
> selection of the most accessible grammar compatible
> with given data. The distinction between such alterna-
> tives lies so far beyond conceivable research that the
> question whether knowledge is the result of learning
> or growth is hardly worth considering, if learning is
> characterized in these terms."

31.   Chomsky (1983:73) has also rejected Cellérier's (1983:
      70) portrayal of language learning as analogous to
      "hill climbing" in artificial intelligence, in which it
      represents an "'adaptive' or 'self-optimizing' servo-
      mechanism". Cellérier takes over Minsky's (1963:410)
      characterization of "hill climbing" as a way of getting
      to the top of a hill in a dense fog: "....the obvious
      approach is to explore locally about a point, finding
      the direction of steepest ascent. One moves a certain
      distance in that direction and repeats the process
      until improvement ceases". Chomsky, however, contends
      that "hill climbing is one technique that is very
      special and possibly correct (though I am rather
      skeptical) for gaining cognitive structures sometimes;
      but whether it is *the* method here, I'm rather skeptical.
      In fact it seems to me possibly more likely in this
      case to be a *matter of successive maturation of specialized hardware*
      (to use one of Cellérier's expressions)".

32.   Jerne's prime  example of such replacement involves
      theories dealing with the development of antibodies to
      the immune system (cf. Chomsky 1980a:137). At first
      it was assumed to be a learning process in which the
      antigen played an instructive role. In view of the huge
      number of antigens, no other account seemed conceivable.
      This instructive theory, however, was abandoned, and
      antibody formation has been portrayed as a selective
      process in which the  antigen plays a selective and

amplifying role. It has been argued that an animal "cannot be stimulated to make specific antibodies, unless it has already made antibodies of this specificity before the antigen arrives".

33. To the nature of the periphery alluded to in this quotation we return in §2.5.19 below.

34. The "peripheral processing mechanisms" alluded to in this quotation are located in "the receptor system" and "lower cortical centers" on Chomsky's (1965:205, n. 27) view.

35. The first, that of the species-specificity of these structures, was considered in §2.3.2 above.

36. Piaget (1983:30) characterizes "autoregulation" as "a mechanism which is as general as heredity and which even, in a sense, controls it ....".

37. For a characterization of these linguistic entities and their relevance to the appraisal of theories of language acquisition cf.,e.g., Chomsky 1983:39 ff.

38. In §4.3.1 we will take a closer metascientific look at the "Piagetian dogma".

39. Note that in his discussion of knowledge of language Chomsky has drawn a number of secondary distinctions. First, with reference to the nature of capacities, Chomsky (1980a:4-5; 1980b:1) draws a distinction between first-order and second-order capacities: a person's capacity to use his language represents a first-order capacity; a human's capacity to construct the mental structures that underlie first-order capacities represents a second-order capacity. Chomsky (1980a:5) notes in addition that the term "capacity" is also

".... used more loosely, as when we speak of 'capacities'
in the sense of 'mental faculties'".

Second, Chomsky (1980a:4) also distinguishes between
"having the capacity to do so-and-so" and "knowing how
to do so-and-so". In "knowing how", there is for
Chomsky "a crucial intellectual component" which is
absent from "having a capacity".

Third, Chomsky (1980a:4) draws a distinction between
"what one is able to do at will and what falls within
one's capacity, though we cannot do it at will".
Chomsky's example is that of a baseball player who
".... had the capacity to hit a home run, but not at
will, whereas he had the capacity to lift a bat at will".

40. In justification of this claim Chomsky (1980a:74-75)
presents typical examples of a set of facts --- facts
about knowledge of language --- that call for explan-
ation by linguistic theories:

> "Consider again a specific set of facts, say, those
> already used for illustration: the sentence 'the
> candidates wanted each other to win' has roughly
> the meaning that each wanted the other to win,
> whereas 'the candidates wanted me to vote for each
> other' is not a well-formed sentence meaning that each
> wanted me to vote for the other. These are things
> that we know, in anyone's sense of 'know'. These
> instances of our knowledge are on a par with some
> fact about the light emitted by the sun. The facts
> don't have to come out this way on any logical
> grounds; these are empirical facts, if anything is.
> It is difficult to see any reason, then, for deny-
> ing that it makes sense to seek an explanation as
> to why the facts come out this way rather than some
> other way."

41. The rules mentioned in this quotation include, for
    example, phrase structure rules such as (A):

    (A)  S   $\longrightarrow$  NP  VP
         VP  $\longrightarrow$  V   NP
         NP  $\longrightarrow$  DET  N'
         N'  $\longrightarrow$  N  S

    Constrained by principles (cf. the quote) such as B (a
    rough, informal approximation of a principle of $\overline{X}$-theory)
    these rules generate (syntactic) representations such
    as (C).

    (B)  A Noun Phrase consists of a Specifier ---
         e.g., a Determiner (Det) --- and a Noun or
         Noun Phrase.

    (C)  $\left[ _S \left[ _{NP} \left[ _{N'} \text{John} \right] \right] \left[ _{VP} \left[ _V \text{hit} \right] \left[ _{NP} \left[ _{DET} \text{the} \right] \left[ _{N'} \text{boy} \right] \right] \right] \right]$

    For a recent introductory account of such rules, prin-
    ciples and representations cf. Chomsky 1986:chap. 3.

42. Unconscious knowledge should be distinguished from
    "conscious but unverbalized knowledge". Chomsky (1986:
    271) considers "our knowledge of properties of percept-
    ual space and the behavior of objects in it" to repre-
    sent an example of the latter kind of knowledge. He
    does not agree, however, with Dummett that a speaker's
    knowledge of meaning represents such "conscious but
    unverbalized knowledge".

43. Over the years Chomsky and Searle have been involved
    in a series of disagreements over this issue. We
    return to this point in §4.2.3 below. -

44. It is not clear to me how Chomsky would draw a distinct-
    ion, in general terms, between a skill and an ability.

45. In similar vein Chomsky (1986:265-266) states

   "Knowledge of language involves (perhaps
   entails) standard examples of propositional
   knowledge: knowledge that in the word *pin*,
   /p/ is aspirated, whereas in *spin* it is not;
   that the pronoun may be referentially depen-
   dent on *the men* in (9i), but not in the
   identical phrase in (9ii), and so forth:

   (i)   I wonder who [the men expected to
         see them] (9)
   (ii)  [the men expected to see  them]

   If these are not instances of knowledge, it
   is hard to see what is."

46. The opacity principle, informally, governs the choice
    of antecedents:  variable-like elements can't be free
    in opaque domains (cf. Chomsky 1980a:91).

47. These remarks Chomsky (1980a:94) believes to "carry
    over .... to other kinds of knowledge and belief, for
    example, our knowledge of the properties and behavior
    of objects".  This view was challenged in an interest-
    ing way by Rollin (1980:31-32) and was defended in
    some detail by Chomsky (1980b:50-51).

48. We return to this point in §2.5.8 below.

49. As will be shown below, this view of Chomsky's has
    been challenged by Katz (1981:79-80).

50. The remaining part of this passage of Katz's (1981:
    79-80) reads as follows:  "One can appreciate that,
    in connection with these notions as with  many
    others, adjustments of the ordinary notion may be
    required in their scientific, formal explication.
    But nothing warrants the astounding claim that

from a point of view related to interests of these
students). Specifically linguistic work, such as
Chomsky (1975a), was not publishable at the time. In
the latter, considerations of weak generative capa-
city (i.e., characterizability of E-languages),
finite automata and the like were completely absent,
and emphasis was on I-language, although the term
was not used." Cf. also Chomsky 1982:62-63 for
remarks in the same vein.

61.    Cf. Newmeyer 1983:37-38 for some discussion of attempts
       to use "communicative competence" as a basic notion in
       linguistic theorizing.

62.    Chomsky (1986:48, n. 10) has indicated his awareness
       of the use by other linguists of the notion  "com-
       municative competence" but, has, to my knowledge, not
       commented directly on its merits/limitations.

63.    The thematic structure of a sentence is characterized
       in terms of notions such as "Agent",  "Instrument",
       "Goal", "Location", etc. which represent "semantic
       roles" of NPs. As regards "aitiational factors",
       Chomsky (1980a:55) adopts Moravcsik's idea that con-
       cepts have an "aitiational structure" that can be
       characterized in terms of such "generative factors"
       as "origin", "function", "material constitution",
       and so on.

64.    Cf. Chomsky 1981a:38-39.

65.    We return to the empirical nature of markedness claims
       in §4.4.3 below.  Cf. also Lightfoot '1979:76 ff.  for
       some discussion of this point.

66.    Cf. Chomsky's paper "Markedness and core grammar" that
       circulated for a long time in mimeographed form
       (= Chomsky 1979a) and that was only published formally
       in 1981  in A. Beletti, L. Brandi, and L. Rizzi (eds.)

Theory of Markedness in Generative Grammar (= Proceedings of the 1979 GLOW Conference), Pisa: Schuola Normale Superiore.

67.   For an analysis of the rhetorical nature of this claim and others related to it cf. Botha 1982a:29 ff.

68.   For this point about Galileo cf. Feyerabend 1979:30 and the references in note 37 of Botha 1982a:46. The latter study presents a fuller discussion of Chomsky's "Galilean style" of inquiry.

69.   The first conceptual shift, we saw in §2.5.13 above, was the shift in focus from the study of E-language to the study of I-language.

70.   For a schematic representation of Chomsky's "pre-shift" views of production, interpretation, processing and intuitive judgement as three basic aspects of linguistic behaviour/performance cf. Botha 1981: 30 ff.

71.   Cf. Newmeyer 1983:35.

72.   For a discussion of concrete cases of these general criticisms cf. Newmeyer 1983:35 ff.

73.   Kripke (1982) only refers to Chomsky in three footnotes (pp. 30, 72, 97).

74.   Chomsky (1986:240) attributes the term "constructive skepticism" to Richard Popkin. This form of skepticism was "developed by Mersenne and Gassendi in response to the skeptical crisis of the seventeenth century, their 'new outlook, .... doubting our abilities to find grounds for our knowledge' and recognizing that 'the secrets of nature, of things-in-themselves, are

forever hidden from us', while 'accepting and increasing the knowledge itself'".

75.    In §4.2.3 we will consider a further, metascientific, distinction that is relevant to the idea that language use is rule-following.

76.    For further discussion of the status of the notion of "body" cf. Chomsky 1982:34 ff.

77.    To the distinction between "subcomponents of the rule system" and "subsystems of principles" we return in §3.2.4 below where a brief, nontechnical characterization of the various subcomponents and subsystems will be presented as well.

78.    Consider again the following remark by Chomsky quoted above: "On the contrary, it is difficult to imagine by what inductive, associative, or other 'learning process' this [i.e., number --- R.P.B.] capacity might have derived from experience (though, as I noted, it may be triggered by experience." This remark may be construed as an argument from ignorance --- a construal which, if correct, would cause Chomsky some embarrassment. A few lines higher up in the same passage Chomsky takes others to task for using this kind of argument: "There is, of course, a traditional view that 'higher-level' processes are uniform even if sensory and perceptual systems are modular; perhaps so, but it seems to me a dubious argument from ignorance".

79.    For the notion of "poverty of the stimulus" cf. §2.2.1 above.

80.    For the distinction between rationalists, empiricists and constructivists cf. §§2.4.5 and 2.4.6 above.

81.    Cf. Chomsky 1975b:176 ff. and Newmeyer 1983:2-4.

82.    For some discussion of the nature of such "extragram-
       matical" (systems of) principles cf. Newmeyer 1983:
       96 ff.

83.    Newmeyer (1983:2-4), incidentally, holds the view that
       Chomsky's thesis of the autonomy of formal grammar and
       his conception of modularity represent the two
       characteristics that "distinguish 'transformational
       generative grammar' from other current theories of
       language ....".

84.    "Guys" has no sexist connotation  ---  cf., e.g.,
       Barbara Hall Partee's (1975) attack of Chomsky's
       autonomy thesis.  The "Good Guys" were those defending
       interpretive semanticist  positions, the "Bad Guys"
       those championing generative semanticist beliefs.

85.    For some discussion of these issues and reasons cf.,
       e.g., Botha 1973:chaps. 5 and 6, and Newmeyer 1980:
       chap. 5.

86.    Some of these duels are described in the works referred
       to in note 85  above.

87.    For some discussion of this "so-called" revolution cf.,
       e.g., Katz and Bever 1977, Botha 1981:424 ff., New-
       meyer 1980:chap. 2.    Not everyone agrees that gener-
       ative grammar was born in a revolutionary manner  ---
       hence the qualification "so-called".

88.    For typical examples of man-to-man confrontations that
       took place in the "Chomskyan Revolution" cf., e.g.,
       Hill 1962 (ed.), and Woodworth and DiPietro 1962 (eds.).

89.  The sociological structure of linguistic (in-)fight-
     ing  is complex:  some linguists who had been flag
     bearers of Chomsky's in the "Revolution" fiercely
     fought him in the "Wars";  others who battled on Chom-
     sky's side in the "Wars" have lately been challenging
     him in "The Game".

90.  Cf. Newmeyer 1983:119.

91.  Cf. Newmeyer 1983:119.  Syntactic Structures (1957)
     represents Chomsky's first  major publication.

92.  Recently, Chomsky (1980a:230) once again asked the
     question "What does it mean to say that language has
     an 'essential purpose'"?  And he went on to observe:

        "Suppose that in the quiet of my study I think
        about a problem, using language, and even write
        down what I think.  Suppose that someone speaks
        honestly, merely out of a sense of integrity,
        fully aware that his audience will refuse to
        comprehend or even consider what he is saying.
        Consider informal conversation conducted for
        the sole purpose of maintaining casual friendly
        relations, with no particular concern as to its
        content.  Are these examples of 'communication'?
        If so, what do we mean by 'communication' in
        the absence of an audience, or with an audience
        assumed to be completely unresponsive, or with
        no intention to convey information or modify
        belief or attitude?"

     Given these questions and observations, Chomsky (1980a:
     230) came to the conclusion that

        "either we must deprive the notion 'communication'
        of all significance, or else we must reject the
        view that the purpose of language is communication."

And he proceeded to argue that

> "While it is quite commonly argued that the purpose
> of language is communication and that it is pointless
> to study language apart from its communicative func-
> tion, there is no formulation of this belief, to my
> knowledge, from which any substantive proposals fol-
> low. The same may be said of the idea that the
> essential purpose of language is to achieve certain
> instrumental ends, to satisfy needs, and so on.
> Surely language can be used for such purposes ---
> or for others. It is difficult to say what 'the
> purpose' of language is, except, perhaps, the expres-
> sion of thought, a rather empty formulation. The
> functions of language are various. It is unclear
> what might be meant by the statement that some of
> them are 'central' or 'essential'".

93.    In terms of an informal characterization of Chomsky's
       (1983:39) a rule is structure-independent if it
       requires (in its structural description) that a linguis-
       tic form (e.g., a declarative) be analyzed into succes-
       sive words only.  A rule is structure-dependent if it
       requires that such a form be analyzed into successive
       words and also abstract phrases such as "noun phrase ".

94.    For a representative sample of linguists who have this
       kind of commitment to some or other  notion of "commu-
       nication" cf. Newmeyer 1983:100 ff.  The "Comrades of
       Communication" are those linguists, philosophers, etc.
       who have claimed on a priori grounds that the "essential
       purpose" of language is "communication" and that the
       "structure" of language reflects this ."purpose".
       Linguists who have argued on empirical grounds for a limited
       measure of iconicity in restricted domains between form
       and meaning, clearly, are not related in any essential
       way to these "Comrades".  For perceptive empirical
       observations about such iconicity cf., e.g., Bolinger
       1980:19-21, 28.

CHAPTER   3


1.   Newmeyer (1983:75) proceeds to point out that

     ".... the equation of 'linguistic theory' (or an
     equivalent term) with 'theory of grammar' was not
     Chomsky's innovation.  Saussure explicitly dis-
     tinguished the 'science of language' (theorizing
     about grammar) from linguistics as a whole".


2.   The distinction under consideration goes back at
     least to The Sound Pattern of English (1968:4) in
     which Chomsky and Halle drew a distinction between
     "essential" and "accidental" universals.  They illus-
     trated this distinction by sketching an imaginary
     situation in which only the inhabitants of Tasmania
     survive a future war.  Every principle of the Tasma-
     nian grammar would then apply to all human languages,
     since there would be only one.  Every principle of
     Tasmanian would have become an accidental universal.


3.   Comrie (1981:26) characterizes Chomsky's approach to
     linguistic universals as one that ".... argues that
     the best way of studying language universals is by
     detailed, abstract study of an individual language,
     the main explanationn for language universals being
     that they are innate properties of the human".  In
     §4.4.4 below we will consider from a metascientific
     point of view the distinction "evidence from a single
     language vs. evidence from a diversity of languages".


4.   Cf. Lightfoot (1982:64) for some discussion of the
     problems involved in attempts to interpret the
     "typologist's percentages" within the framework of
     Chomsky's theory of grammar.

5. For a relatively nontechnical and more informative
   characterization of the various subcomponents of rule
   systems cf. Chomsky 1986:56 ff.

6. A not overly technical account of the various sub-
   components of rules and subsystems of principles is
   given in Chomsky 1986:56 ff.

7. We will consider the type to which a description or
   characterization of this sort belongs in §4.2.4 below.

8. Referring to the distinction "E-language vs. I-language",
   Chomsky (1986:29) recently presented the gist of this
   point as follows:

   > "The term 'grammar' was then used with systematic
   > ambiguity, to refer to what we have here called
   > 'I-language' and also to the linguist's theory
   > of the I-language; the same was true of the term
   > UG, introduced later with the same systematic
   > ambiguity, referring to $S_0$ [i.e., the initial
   > state of the language faculty --- R.P.B.] and
   > the theory of $S_0$."

9. Cf. Chomsky 1965:60-62 for an early explication of
   this distinction.

10. Chomsky's (1980b:4) account runs as follows:

    > "Consider, for example, the process of forming
    > questions. We select some noun phrase in a sen-
    > tence, replace it by an appropriate question word,
    > place the latter at the beginning of the sentence,
    > and with other mechanical operations, form a
    > question. Thus, on the model of the sentence,
    > 'John saw a man', we can form 'Whom did John see?'
    > Or, to take a more complex case, on the model of
    > the sentence, 'The teacher thought that his assist-
    > ant had told the class to study the lesson', we

> can question 'the class' and ask:   'Which class
> did the teacher think that his assistant had told
> to study the lesson?'"

## CHAPTER   4

1.   For a critical explication of Chomsky's notions "uni-
     fying" and "deductive depth", cf. Botha 1982a:6 ff. and
     Sinclair 1985:§§4.2,   7.2.2.2.

2.   In contrast to (i), (ii) violates the Complex Noun
     Phrase Constraint:   in (ii), an element realized as
     *who* in sentence-initial position has been removed
     from the italicized appositional clause (complex NP):
     (i)   who do you think that Ed claimed that Joan
           married?
     (ii)  *who do you think that Ed made *the claim that
           Joan married?*

3.   In contrast to (i), (ii) violates the WH-Island Con-
     straint:   in (ii), an element realized as *what* in
     sentence-initial position has been removed from the
     italicized clause introduced by *who:*

     (i)   what did he notice (that) the CIA discovered
           (that) Joan had read?
     (ii)  *what did he notice (that) the CIA discovered
           *who had read?*

4.   In contrast to (i), (ii) violates the.Sentential Sub-
     ject Condition:   in (ii), an element realized as *what*
     in sentence-initial position has been removed from
     the italicized sentential subject, which also occurs
     in (iii):

    (i)    what was it expected that Joan would read?
    (ii)  *what was *that Joan would read* expected?
    (iii)  *that Joan would read this* was expected

5.    In contrast to (i), (ii) violates the Phrasal Subject
    Constraint: in (ii), an element realized as *who* in
    sentence-initial position has been removed from the
    italicized complex nominal subject:

        (i)    who did you find a picture of?
        (ii)  *who did *a picture of* frighten Joan?

6.    In contrast to (ii), (iii) violates the Upward Bounded-
    ness Constraint: in (iii), an element, the senten-
    tial subject *that the moon is a piece of green cheese,* has been moved
    rightwards out of the clause containing it:

        (i)    that [that the moon is a piece of green
                cheese] is obvious is not clear
        (ii)    that it is obvious [that the moon is a
                piece of green cheese] is not clear
        (iii)  *that it is obvious is not clear [that the
                moon is a piece of green cheese]

7.    Chomsky's (1978a:16) informal characterization of the
    notion 'binding category' reads as follows: "....
    we identify a class of what is called binding cate-
    gories, including NP and S which are alike in many
    respects, that is, each of them involves the basic
    grammatical relations of subject etc., each serves
    as the domain of transformational rules and so on".

8.    These idealizations were considered individually in
    Chapter 2 above.

9.    For a critical analysis of Chomsky's astrophysical
    analogy cf. Botha 1980:12 ff.

10. The characterization given above of the "various
    stances" on theoretical discourse is quite crude.
    For a more careful discussion cf. Botha 1968:87 ff.

11. The thesis of the indeterminacy of translation applies
    to translation between languages, claims expressed by
    linguistic theories --- e.g., claims about the boun-
    daries between phrases and the categories to which
    phrases belong --- and so on. The thesis,
    as characterized by Chomsky (1980a:15) says that

    > "there is no fact of the matter in such cases as
    > these [i.e., cases involving the postulation of
    > phrase boundaries and categories --- R.P.B.] ,
    > and therefore no sense to the construction of a
    > theory of language and mind that tries to esta-
    > blish that the rules of grammar assign phrases
    > in one or another way in mental representations[22]".

12. *Occam's Razor*, on *Harré's* (1961:16) *characterization*,
    embodies the criterion "Don't invent any more entities
    than you really need for an explanation". Einstein's
    Chopper gives substance to a related criterion: "The
    simpler a theory the more acceptable it is, provided
    that it accounts for all the facts; that is, don't
    invent more processes than you really need in an expla-
    nation". Continuing in this vein, Harman's Hatchet
    may be characterized as expressing the criterion
    "Mental entities may be postulated only if there is
    evidence different in sort to the evidence that bears
    on the ability of a theory to bring order to the
    domain of linguistic phenomena". Harman's Hatchet is
    an instrument for cutting away those aspects of a
    theory that represent "artifacts of notation".

13. If one wished to operate with a notion of "psycholog-
    ical reality", a (further) distinction has to be drawn
    on Chomsky's (1980b:56) view: viz. between the psychological

reality of a theory and its hypotheses on the one
hand, and the psychological reality of the entities
attributed by the theory to the mind/brain on the
other hand.

14.  "Move alpha" is a general movement transformation
     that plays a role in deriving a variety of construc-
     tions including wh-questions, passives, and so on.
     Cf. Chomsky 1986:73 ff. for more details on this rule.

15.  It was in reply to criticisms by Piaget that Chomsky
     (1983:125) argued that a distinction should be drawn
     between what was biologically unexplained (for acci-
     dental reasons) and what was biologically inexplicable.

16.  The basic idea was that a type of (theoretically post-
     ulated) entity was not uniquely identifiable if an
     arbitrary specimen could not be identified by a
     scientist as an instance of the type.  Unique identif-
     iability presupposes neither direct observability nor
     logical proof of the existence of the entity.  For
     some discussion of these points cf. Botha 1980 : 22-23.

17.  For a reply to Slezak 1981,cf. Botha 1982b.

18.  The distinction between descriptive and explanatory
     adequacy goes back at least to the early sixties when
     it formed part of the tripartite distinction that
     included observational adequacy too.  At that junc -
     ture,  Chomsky explicated the distinction as fol-
     lows:

         A grammar is observationally adequate if it
         "presents the observed primary data correctly."
                                        (Chomsky 1964:28)

> A grammar is descriptively adequate to the
> extent that it is psychologically real, i.e. "to
> the extent that it correctly describes the
> intrinsic competence of the idealized native
> speaker."                    (Chomsky 1965:24)

> A general linguistic theory is explanatorily
> adequate if it "provides a general basis for
> selecting a grammar that achieves .... success
> over other grammars consistent with the rele-
> vant observed data", i.e. the descriptively
> adequate grammar for that language.
>                              (Chomsky 1964:28)

19.  For further explication of this point cf. Botha
     1981:235.

20.  For a discussion of this aspect of the Linguistic Wars
     cf. Botha 1973:286 ff., 1981:318;  Newmeyer 1980:chap. 5.

21.  Cf. Lightfoot 1982:93 ff. for remarks on the status
     of falsificationism in Chomskyan linguistics.

22.  For a metascientific analysis of this style of inquiry
     cf. Botha 1982a and for an illustration of its use in
     morphological and semantic analysis cf. Botha 1984.

23.  Cf. Botha and Sinclair to appear for a critical dis-
     cussion of Brame's analysis of what Chomsky's epistem-
     ological tolerance entails.

24.  Cf. Botha 1973:283-284 for some discussion of the way
     in which the distinction under consideration was used
     by interpretive semanticists against generative seman-
     ticists.

25.  For Quine's thesis of the indeterminacy of translation
     cf. note 11 above.

26. For Chomsky's astrophysical analogy cf. §4.2.1 above
    and Botha 1980:12 ff.

27. Lightfoot (1982:15) has characterized the argument
    from poverty of the stimulus, as the "basic line of
    reasoning" adopted by Chomskyans, in the following
    terms:

    > "Since our perspective is a biological one, we
    > shall tease out hereditary and environmental con-
    > tributions to people's use of language. Prop-
    > erties of the phenotype will be identified which
    > cannot arise through the shaping effect of the
    > environment but which are due to genetic inheri-
    > tance. As is usual amongst biologists, arguments
    > from the deficiency of the stimulus will be rele-
    > vant as a means to pin down the genetic contribu-
    > tion to somebody's eventual language capacity."

28. For the distinction "internal (linguistic) evidence
    vs. external (linguistic) evidence" cf., e.g., Botha
    1980:36-37; 1981:302, 323.

29. Cf., e.g., Botha 1980:77 ff.; 1981:323; Lightfoot
    1979:76-77; Stich 1980:40.

30. For some discussion of controversial aspects of the
    various notions of "simplicity" that have played a
    role in generative grammar cf., e.g., Botha 1973:
    291-292; Sober 1975; White 1982:91 ff., and
    Newmeyer 1983:41-42.

CHAPTER 5

1. Chomsky (1982:5) considers "The chance of extracting
   answers to those [i.e., philosophical --- R.P.B.]

questions from linguistics .... very slight. I cannot imagine why linguistics would offer any particular insight into the specific topics that happen to interest people like Zeno Vendler".

2. Chomsky (1982:56) is of the opinion that this kind of philological work by ordinary language philosophers and "other work that comes out of it on speech acts and performatives" could be thought of as "a type of linguistics".

3. For some discussion cf., e.g., Chomsky 1982:17 ff.

4. For some discussion of this point cf. Leiber 1975: 140 ff.; Lyons 1970:83 ff.; 1981:230-231.

5. For more details on the work of Marr and his group cf. Chomsky 1982:9-11.

6. In addition to "organ" Chomsky has also adopted the biological notions of "growth" and "maturation" in his theory of language acquisition. For this point cf. §2.4.1 above.

7. Cf. note 11 of Chapter 3 for the Quinian notion of "indeterminacy".

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