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1. **INTRODUCTION**

The purpose of this essay is to establish the validity of the following four propositions.

1. The assumption that symbolic logic is valid *a priori* is false, as are the corollaries implicit in this assumption, namely, that symbolic logic is the one and only logic; that it is the logic of effective practical reasoning and action; and, that it is the logic that governs natural language.
2. Typological logic, such as that explored by C. S. Peirce, is the necessary and natural logic that governs natural language, and it is the logic that governs effective reasoning, and it is the logic that governs the dynamics of human interaction.
3. Following from the false premise in 1., it has been assumed that there is one and only one type of opposition; Contrary to this assumption, it follows from 2. that there are two logical types of opposition.
4. From typological logic a law can be deduced and stated in terms of the second type of opposition which predicts the phenomena of markedness in language.

The central focus of attention in this essay is on natural language and the primary point of view is that of the science of linguistics. What is at issue is the frame of reference in terms of which linguistics attempts to apprehend, analyze, and explain the phenomena of natural language. The first question that is being put is this: What is the position of symbolic logic in the theory of language? And, by implication, what is the position of symbolic logic in the structure and use of language, in the process of thinking and talking in general?

This question arises from the following conflict: Symbolic logic is commonly supposed to hold a position of dominant authority, *a priori* authority, in the thinking of our society, and consequently in linguistic theory as well. But, the authority and validity of symbolic logic, whether *a priori* or not, is contradicted in practical fact by the compelling force of empirical evidence - ubiquitous, systematic, overwhelming evidence - which has accumulated in the study of language over the past fifty years, proving beyond any shadow of doubt that symbolic logic is not in fact the logic that governs natural language, and that it is not the logic that governs normal, correct, or even reasonable reasoning. In actual behavior, in thinking, in talking, in acting, people do not obey the laws of symbolic logic, except superficially, on occasion, when being extremely self-conscious. But even then, even when attempting to be logical in accord with the laws of symbolic logic, it was proved by Russell and Whitehead that it is logically impossible to

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1 I intend the term "symbolic logic" to include not only the particular laws of symbolic logic itself, but also all of the other so-called *a priori* modes of reasoning which can be derived from symbolic logic, such as mathematics and geometry. It follows that whatever we conclude about symbolic logic will also hold true of the systems of thought which follow from symbolic logic.

2 I am addressing myself primarily to linguists about language from the point of view of linguistics with regard to the theory of linguistics and the arguments I will give are the normal kind of empirical arguments on which linguistics is based. But the issue, though abstract and technically narrow, has far-reaching implications which make it of much broader interest. Partly in accommodation to this broader audience, and partly in order to remain on as solid footing as possible, I have tried to make the style of argument as simple-minded as possible. Therefore, especially in the introduction, some of the argument is elementary linguistics and could possibly have been taken for granted in addressing linguists. However, due to the rampant dissension within linguistics, it is risky to take anything for granted.
be consistently logical in terms of the laws of symbolic logic, because of the inherent typological
inadequacy of symbolic logic.

For this reason, as a practical fact, all linguists ignore the principles of symbolic logic in
empirical matters, and most linguists no longer concern themselves at all with symbolic logic or
the uses which it might be thought to have in explaining the nature of language. In practice,
linguists have found that it does not pay off. Symbolic logic simply does not work.

So linguists try to ignore it in practice, as do all people most of the time, but it cannot be
removed from its position of dominant authority by simply rejecting it as a hypothesis of the
theory of syntax or by banishing it from consciousness. It remains under the surface as a deeply
embedded implicit premise, comprising the very skeleton of the linguistic frame of reference,
from which position it profoundly influences the perception of the facts of language, the analysis
and organization of those facts, and the theoretical principles which are hypothesized to explain
the facts. It remains under the surface in the thinking of linguists as a source of systematic
conflict between the theoretical point of view of language and the empirical point of view, the
source of systematic theoretical incoherence and theoretical dissension among linguists to the
point where the international linguistic society has come to be in a state of theoretical chaos.

The next question, then, given that we recognize symbolic logic as being in fundamental
conflict with the nature of language, is this: "How can you get rid of symbolic logic?" Notice that
this question is ambiguous: it is an indirect assertion that you cannot get rid of symbolic logic
and, at the same time, it asks about the method of getting rid of it. This is an ambiguity which
reflects precisely the ambiguous position and thus the conflict and the dilemma in which
linguistics finds itself. The dilemma is that there are powerful forces which compel us to
embrace and espouse symbolic logic and there are powerful forces which compel us to get rid of
it. We have already mentioned the empirical and practical forces against, let us briefly consider
the force in support of symbolic logic.

In the first place, the laws of symbolic logic seem to be self-evident, or at least intuitively
valid. On the basis of the authority of this intuitive feeling of correctness, it has been supposed
to hold a position of a priori validity. If it is valid a priori, then it not subject to question at all.
Second, even if we take the logically impossible, and thus audacious, step of bringing it in to
question, how is it possible to get at it on the merely empirical grounds of linguistics? (Again,
the ambiguity.) And, third, even if we could get at it empirically, the judgment which we can
arrive at, and the consequent behavioral options, are limited to two unsatisfactory possibilities:
Either it is valid or it is not valid; in the first case we keep it and in the second case we throw it
out, but neither possible course of action can resolve the conflict, because whatever we do there
will still be forces to the contrary.

I would like to point out, however, that these three barriers which box us in the dilemma
are all posed from the point of view of symbolic logic and not that of linguistics. If we consider
these obstacles from the linguistic point of view, one can see the possibility of a way out of the
dilemma. We will consider these issues at length below, but even in looking at them
superficially from the linguistic point of view the cracks in the wall are immediately obvious. In
regard to the first argument, it is the ordinary everyday business of linguistics to deal with
intuitive judgments of correctness which are taken as being self-evidently valid and
unquestionable, but which are actually nothing more than convention. As to the claim of a priori
validity, this authority in itself has no standing in linguistic theory at all; the very foundation of
linguistics is the demand that every theoretical principle be subject to the empirical test, and
there is no linguistically motivated ground for excluding symbolic logic from this demand.
Consequently, if one imports, explicitly or implicitly, the linguistically ungrounded laws of symbolic logic into the theory of language, one is in principle compromising and mitigating linguistic theory.

As to the last obstacle, notice that the sentence in which the dilemma is brought to a crux is structured in accord with the laws of symbolic logic, specifically the law of the excluded middle (p or -p).

Is symbolic logic valid or is symbolic logic not valid?

This sentence is not only structured in accord with symbolic logic, it also presupposes the validity of symbolic logic, which has the effect of positioning the validity of symbolic logic prior to the question of its validity. That is, the very form of the question implies the prior validity of symbolic logic, whatever one answers. Not only that, but it enacts symbolic logic as well, and it structures and guides our thinking and consequently our behavior in pursuit of the question of the validity of symbolic logic to accord with the laws of symbolic logic. To be precise, it has the typical effect of leading us into a logically impossible dilemma from which it is logically impossible to extricate ourselves, with the final result that the only logically possible course of action is to abandon the question and thus abandon the field of logic to symbolic logic. This is the course which most linguists have taken, but as one can see by the theoretical chaos which has resulted, this is not a satisfactory course of action, or rather non-action, either.

It is this circularity of argument which brings propositions into the orientation of mutually exclusive symmetrical opposition, which is the structure of dilemma, and thereby precipitates this particular dilemma, as well as the inherent antinomies of symbolic logic, as Russell and Whitehead have established, and the practical double-binds that pervade symbolic interaction in general, as Gregory Bateson and others have established.

Where the structure of dilemma is governed by symbolic logic itself, the particular dilemma at hand is engendered by the implicit presupposition that symbolic logic is the one and only logic. And it is important to recognize that this is not just a premise that is held by logicians of the school of logical positivism, nor just a premise of philosophers, nor of academicians, but it is a premise that is implicitly presupposed by virtually every member of our culture, and it has been incorporated into the conventional structure of our language and every other social institution in our culture.

In English it is the conventional practice to use the word "logic" without any determiner or other modifier. We say things like the following.

It is important to use logic.

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3 I intend "our" in a vague sense. I intend it to definitely include the society that speaks English, as well as the society of linguists, the society of academics, and the society of Western cultures. The vagueness which I want to preserve is in relation to what those societies would refer to as "other societies" and to society in general. I will clarify this vagueness as the argument evolves.

4 These three words are conventionally used as if they referred to different objects. In fact, they are just different facets of the same phenomenon, namely, the symbolic dimension in which man transacts, and of which language is the central component. Thus, I will conform to the conventional usage where it seems appropriate, but with the understanding that even when speaking of society or culture they are being considered as manifestations of language in the broadest sense, which has come to be called "semiotics" following C. S. Peirce.
Logic tells us that...

That is a violation of the laws of logic.

In grammatical terms, using the word "logic" in this way, without any qualification, presupposes that there is one and only one logic and that the addressee knows that logic. It follows from this presupposition, the nature of logic, and the position accorded to logic in typical statements such as those above, that logic is a kind of law, is correct law, is important law, and is law that should be obeyed. From this fact it can be seen that the premise that there is one and only one logic, as well as the implications that follow from this premise, are integrated into the conventional structure of our language. The presupposition of this premise is a convention of English.

In the process of maturation, as we become full-fledged members of our society, we incorporate the conventions of our language, culture, and society, along with our mother's milk. These conventions become the premises, the beliefs, the standards of value, and so on, which comprise the structure and content of our identity and our world-view, the frame of reference which tends to dominate and exert a great deal of control over our every activity. In this process of socialization, the foundations of which are already established by the age of three or four, being helpless and utterly dependent children, we swallow what is given to us more or less as given, more or less without choice, more or less completely, more or less uncritically, more or less undigested, more or less indigestible, more or less debilitating, and more or less destructive. And then, during the rest of our lives, as we play out the consequences of the conventional premises which we swallowed whole, we more or less continually encounter conflict and dilemma, and more or less deeply reassess our position, bringing into question one or another of the premises which comprise the frame of reference in terms of which we conduct our lives.

In as much as the first purpose of this essay is to bring into question one of the most fundamental premises of our society, it broaches and uncovers a deep and wide ranging source of conflict, which can be expected to induce a correspondingly fierce and protracted resistance. And, the further development of the argument sets in motion a chain of implications which come into conflict with many other premises which are more or less deeply embedded and firmly entrenched in our society. Therefore, it is necessary at the beginning to recognize that this investigation must necessarily be conducted in the atmosphere of conflict, as is true to a greater or lesser degree of the critical examination of any convention.

I suppose it would be expedient to address at once the inference which is almost certain to be made that the thrust of this argument is antisocial and destructive. In reply to such an accusation, I would assert that it is not antisocial nor destructive in any way, but rather, the contrary. The rigid strictures of symbolic logic can be seen to be the ultimate source of a great deal of social and personal ill, in addition to its being the source of theoretical problems in linguistics, and for exactly the same reason, namely, that it is the logic of the social dilemma, the logic that is embodied and manifest in the dilemma which constitutes the substance of the symbol, from which fact it derives its law and its force, and its name, symbolic logic.

What I am suggesting here is nothing more violent and substantive than a mere change of logical point of view. In itself, it is nothing but an effortless and intrinsically harmless mental maneuver. In spite of its low cost and its harmless nature, it is well known that the effort to change point of view is often met with obstinate resistance even in the most trivial of cases. The
motivation, explanation, or justification of such resistance is never well founded or reasonable, because it cannot possibly have any damaging consequences to take any point of view for a short time. One does not have to believe or adopt another point of view in order to look at the situation from that point of view. One cannot be trapped in a point of view. One does not have to act on what one sees from any particular point of view. Nevertheless, there is a deep-seated tendency to resist any change in point of view. We will not undertake an analysis of the source and dynamics of this resistance here, but there is no doubt that it is a function of the inertial and self-perpetuating tendency of symbolic structures which are established on the foundation of symbolic logic. Therefore, in the present case we must anticipate considerable resistance.

It is difficult, but not impossible, to overestimate the preeminence and power that has been afforded to the belief in question here. In its historical origins, in Western culture at least, the validity of symbolic logic was explicitly asserted to be grounded in the authority and intrinsic nature of God. Few today would want to acknowledge sacred underpinnings, but the premise is still held to this day, nevertheless, with a fervor and sanctity that ordinarily is reserved for that which is regarded as holy. This can be seen in the intensity of the emotional response with which violations of the laws of symbolic logic are met in our society. The response is of an intensity and character that can only be described as horror and dread, which, I will suggest, is more than coincidentally similar to the response to violations of the other primitive taboos of incest and cannibalism.

In modern times, at our sophisticated level of social development, primitive and mystical sources of power and motivation, such as God and taboos, are no longer considered to have any significant force. Therefore, in more modern times, instead of the authority of God, symbolic logic is said to be invested with the authority of what is somewhat obscurely referred to by the Latin expression, "a priori". If we were to translate it into English, it would be something like this: "that which there is nothing before", or, in short, "the first". To some extent, I would assume that the implications of this claimed authority are exposed by its very name, once it is translated into English. This theme of "the prior" and "the first" will recur throughout the pursuit of this issue, because this is the very point around which the entire issue turns.

As I said above, and it is worth repeating, it must be realized that the belief in symbolic logic and its a priori authority is not merely an abstract theoretical issue, of relevance only to a small group of philosophers or linguists. It is a belief that is held in the highest regard, albeit implicitly, by virtually every member of our society, and, of course, philosophers and linguists are members of society too, and it is not an insignificant fact that they are members of society prior to being philosophers and linguists.

From the high position in which symbolic logic is held, it is given authority to govern and structure every single mode of human behavior, including thinking and speaking. The institutions of law and government, of science and religion, of education, and all other institutions of our society, have explicitly or implicitly incorporated and struggle to conform in structure and behavior with the demands of symbolic logic.

Therefore, in view of the heavy investment in the belief of symbolic logic, regardless of the question of its correctness or the degree of its usefulness (or the opposite), we can expect that this present line of argument will meet with considerable resistance. There is one consideration, however, which will tend to mitigate the force of this resistance, and that is that the issue is so fundamental that its importance will probably not be appreciated at once.

Also in regard to the resistance which we anticipate, consider once again for a moment the example sentences which I cited above for the purpose of illustrating the fact that it is a
convention of English to presuppose that there is one and only one logic. There are a couple of points about the fact that it is presupposed which I want to clarify. First, it is important to be aware of the practical implications of the technical use of the term "presuppose". The logical position of a presupposition, as opposed to an assertion, is a privileged one, and in relation to our interest, and insidious one, in that it is intrinsically impossible in the nature of grammar to deny any presupposed proposition. Thus, if one negates any of the above cited sentences, the presupposition that there is one and only one logic still holds.

    It is not important to learn logic.

    Logic does not tell us that...

    That is not a violation of the laws of logic.

Nor can any of the other grammatically or pragmatically possible forms of negation or denial possibly cancel this presupposition, as can be seen in the following vain attempts.

    I deny that it is important to learn logic.

    It is unimportant to learn logic.

    It is important to forget logic.

    It is important to ignore logic.

    It is important to learn non-logic.

    I don't like logic.

    Logic is stupid.

None of these sentences manage to deny, negate, or have any force at all in relation to the proposition that there is one and only one logic, except that they all still presuppose that it is true that there is one and only one logic.

    Thus it is not only difficult to get at this belief because it is a convention, and is shrouded in the usual veil of confusion and resistance which attends all conventions, but it is doubly difficult because it is conventionally presupposed. It is not ordinary, nor conventionally possible, to assert either that there are two logics, or that there are good logics or bad logics. In fact, a you can see from the ungrammaticalness of the preceding phrases, it is actually necessary to violate the rules of grammar in order to make such assertions. Therefore, as a presupposition, this proposition is embedded in an elaborate structure of other independent grammatical conventions which reinforce and protect its privileged position by prohibiting the formulation of the very sentences which are necessary to get at it.

    In relation to this presupposition and its privileged position, it should also be made clear that the presupposition that there is one and only one logic does not necessarily imply that the one and only presupposed logic is the logic that is called symbolic logic. It is certainly taken to be the case in our society that symbolic logic is the one and only logic, but it is equally possible that as a fact of our language the logic that is presupposed by our language is a quite different
logic, and that symbolic logic has merely arrogated the privileged position of the one and only logic to itself during the course of the history of our society.

From this fact it follows that what is in question is not the presupposition that there is one and only one logic, but rather the question is, what is the nature of that one and only logic? Is symbolic logic the one and only logic? Is it valid \textit{a priori}, as its proponents claim? Is it useful, important, relevant? Is it the logic that governs effective reasoning and argument? Is it the logic that governs language? In sum, what is the relationship between symbolic logic and language, speaking, reasoning, and argument?

I will argue in Section 1. that the premise that symbolic logic is valid \textit{a priori} is either meaningless or false. I will also argue in Section 1., and the rest of this essay, that its implicit corollaries are false as well: It is false that it is the one and only logic; It is false that it is the logic of correct and effective reasoning; It is false that it is the logic that governs natural language.

All of the logical and practical dilemmas which are engendered by symbolic logic can be generally characterized as being a consequence of the typological inadequacy of symbolic logic. This conclusion is implicit in Russell and Whitehead's discovery of the inherent exposure of symbolic logic to typological contradictions, such as the now famous antinomy, known as Russell's antinomy.

The set of all sets that are not members of themselves,

is not a logically possible set, because if we assume that it is a member of itself, then it follows from the definition of the set that it is not a member of itself, and, if we assume that it is not a member of itself, then it qualifies to be a member of itself. But,

the set of all sets that are members of themselves

poses no logical problem at all. Thus some sets are logically possible and some sets are not logically possible, from the point of view of symbolic logic, but there is no intrinsic logical characteristic by which the logically impossible sets can be distinguished in principle from those which are logically possible. Therefore, it was found necessary to invent an arbitrary and entirely extrinsic system of logical principles to save symbolic logic from logical extinction. This \textit{ad hoc} prosthesis is known as the Theory of Types.

In view of the fact that symbolic logic has been proven logically by logicians to be itself inherently illogical, it would seem reasonable to draw the conclusion that it is incapable of performing the job which it purports to do, which is to be logical. If symbolic logic cannot be logical, how would it be possible for us to be logical? Therefore, given that we are questioning the premise that symbolic logic is the one and only logic, it is perfectly logical and eminently reasonable to provisionally abandon what has been proven logically to be an impossible logical position, in order to seek another, more organically whole and coherent logical position, preferably one which is not subject to self-immolation. And, the fact that the failure of symbolic logic has its roots in the lack of an inherent typology of sets suggests that the alternative we are looking for would have to inherently provide such a typology, in addition to naturally incorporating and accounting for the intuitive validity of the principles of symbolic logic.

I will suggest that the typological logic explored by C. S. Peirce, what he calls his "logical categories", is a very promising candidate for the position of the one and only logic. It is possible to deduce the principles of the Theory of Types from his logic and it is possible to
position symbolic logic in his typology in such a way as to correctly account for the intuitive validity of its laws and to account for the kind of force which they actually have. The laws of symbolic logic do not have any natural force at all, nor do they govern anything in the sense in which we say that the law of gravity, for example, governs the behavior of material objects. The laws of symbolic logic are freely, openly, and continuously violated, usually without any adverse consequence at all. In fact, in practice it is usually necessary to ignore them to get anything done. In this characteristic, they seem to be of the same ontological order as the laws of politeness or the laws of phonology or traffic laws, that is, they seem to be prescriptive conventional laws rather than explanatory laws. And, in Peirce’s typology, they would necessarily be located in the symbolic order of phenomena and correctly attributed with the force of that type of law.

In Section 2., I will present a brief outline of Peirce’s typological logic and illustrate its function in terms of phenomena of natural language. During the course of this discussion I will take the opportunity as the occasion offers to provide, by way of justification, some scattered examples of the gains that can be won by looking at language in terms of his logic as a frame of reference. While these examples are not by any means trivial, they are not intended to provide the main force of the argument. A systematic and comprehensive argument of great force will be developed on the foundation of typological logic.

It is well known that the concept of opposition figures prominently in the structure and function of language, and in the many and various uses to which language is put in speaking and writing, such as describing, arguing, persuading, etc. And, of course, it also figures prominently in every other activity in which people engage, up to and including war.

As I have stated, the premise that symbolic logic is the one and only logic underlies and profoundly influences everything in language, and everything that is influenced in turn by language, and this includes the word "opposition". The socially predominant conception of opposition is the one which is dictated by symbolic logic, and from the position of authority granted to symbolic logic, it is assumed to be correct, useful, and necessary. And, furthermore, it is implicitly assumed, following once again from the position that symbolic logic is granted as the one and only logic, that there is one and only one logically possible concept of opposition. Both of these premises concerning the concept of opposition are held by almost everyone who makes use of them in linguistics, in other disciplines of study, in business and government, in personal interaction, and even in the brute fighting of war, which is supposed to be unrestricted by rules of social nicety.

By the end of Section 2., it will already be obvious that both of these premises are false. In Section 3. I will show that it follows from typological logic that there are in fact two categorically distinct types of opposition and I will show that the properties of each of them follows necessarily from the typology. I will describe the exact nature of their difference in terms of their manifestation in the geometric figure of the circle and thus will distinguish them accordingly as "diametrical opposition" as opposed to "radial opposition".

In Section 4. I will show that a simple law can be deduced from typological logic, stated in terms of this "new" concept of radial opposition, which governs the use of marks in natural language. In that the structure and use of language is a function of marks, this law constitutes a primitive and comprehensive law governing the entire structural edifice of language. In support of this law, I will show that it predicts and explains a wide variety of language phenomena. Most of this evidence consists of well-known and completely uncontroversial empirical facts that have been gathered together over the years by linguists in the form of language universals.
Assuming, for the sake of argument, that this law is valid, it is of interest in itself. But, what is more, because this law is deduced from and can only be stated in terms of typological logic, it also constitutes an empirical argument of great force directed against the premise that symbolic logic is the one and only logic. And, at the same time, the premise that typological logic is the one and only logic which is presupposed in language is invested with a powerful force of authority and validity.

In the remainder of this introductory section, I will examine the linguistic point of view for the purpose of consolidating the position of linguistics and to establish that it provides a legitimate, coherent, and independent point of view from which to look at the question of logic. I will show that linguistics is established on a foundation that is independent of the question of the standing of symbolic logic. That is, linguistic theory is not established on the assumption that symbolic logic is the one and only logic, and it is not dependent on any other discipline or theory which is established on that assumption.
1.1 THE POSITION OF LINGUISTICS

Linguistics is the academic discipline of study which is devoted to the analysis and explanation of human language. In as much as human language is categorically distinct from every other kind of phenomenon, linguistics has traditionally taken a position of strict autonomy in relation to every other point of view.\(^5\)

And furthermore, as one might expect, the position which linguistics takes is considered within linguistics to be one of distinct advantage in regard to the analysis and explanation of language, as compared to that of any other point of view. If linguistics were not established on a foundation of autonomy and distinct advantage, there would be no possibility of a distinct and internally coherent discipline of linguistics. But there is a coherent discipline of linguistics, established on a solid foundation of empirical fact, and proven valid through nearly two hundred years in the analysis and explanation of language phenomena.

I must make it clear at once that the claim that linguistics holds a position of autonomy and advantage in relation to the study of human language is by no means the commonly voiced opinion even among linguists. A great many linguists explicitly claim that linguistics must be subordinated to the discipline of psychology and/or biology and/or physics and/or symbolic logic, etc. However, as I will discuss below, all linguists, and anyone else who undertakes the study of language, in practice implicitly do take the autonomous point of view of linguistics and must necessarily take that point of view, whether they recognize that they are doing so or not. Thus, although many linguists, and others, say that linguistic theory is subordinated to one or another extraneous point of view, when they do linguistics, they take the necessarily autonomous point of view of linguistics.

This position of autonomy and advantage is a position which linguistics has traditionally taken, as we will see in a moment. It is a position which linguistics is in principle obliged to take in order to pursue its objectives coherently. It is justified in taking this position. And, finally, it is the position which anyone who studies human language must take.

Before proceeding any further, we will parenthetically address the internal incoherence of the class of "other" points of view. We must differentiate and identify them, at least in so far as their relation with linguistics is significantly different. Of course, the fact that linguistics has different relationships with various of these "other" points of view, does not alter the autonomous position which linguistics takes, but some clarification of these differences would probably help to avoid unwanted misunderstanding. For this purpose I offer the following classification of other points of view.

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5 "Point of view" and "frame of reference" are ordinary language expressions, where they are used more or less interchangeably. The latter has become a technical term in linguistics, on the basis of the work of Bateson. See "A Theory of Play and Fantasy" (1971, p. 150-166), where "frame of reference" is defined as a premise. See also Goffman (1974). Strictly speaking, a point of view and a frame of reference are not equivalent; one looks from a point of view at an object which is situated in a frame of reference. One sees both the object and the frame of reference, but not the point of view, because it is first. The tendency in ordinary language, as well as in technical studies, such as Goffman’s, to confuse point of view and frame of reference, as well as frame of reference and object, is exactly what is at issue in this essay. Nevertheless, in order to avoid undue disorientation, and in order to exploit this conventional confusion for purposes of expository simplicity, I will follow ordinary usage in equating "point of view", "frame of reference", "premise", and "position".
First, we can distinguish the ordinary point of view, that of the linguistically
unsophisticated native language speaker, which linguistics conventionally refers to as the
"linguistically naive" point of view. This designation encompasses a wide range of variation, yet
by contrast with the point of view of linguistics, it will be seen to be a coherent classification in
Section 0.2, where we will define "linguistically naive".

Second, we can distinguish the point of view of science, which I will divide into two sub-
categories. The most prestigious and politically dominant class of sciences has come to be called
the "hard sciences." This name implies that the other class of sciences should be called the "soft
sciences", an implicit designation which I will accept and exploit for purposes of characterizing
the position of linguistics. The hard sciences includes physics, chemistry, biology, etc. The soft
sciences include psychology, sociology, linguistics, etc. I will discuss the epistemological basis
of this distinction in Section 0.2.

It must be mentioned that this hard/soft categorization is usually not found in the pure
state, though the mixture is asymmetrical. The confusion comes about in two ways. First, the
hard sciences like to think that their theories do not incorporate soft facts, but they do, as we will
see in Section 0.3. Second, there is a tendency among the soft sciences, motivated by the
prestige of the hard sciences, to aspire to be hard sciences, as exemplified in linguistics by those
linguists I mentioned above who want to make linguistics a sub-discipline of psychology, or
biology, etc. In the soft sciences, there is consequently an internal division theoretically and
socially between those who are content to be soft scientists and those who want to be hard soft
scientists. Behaviorism, for example, is a point of view within psychology which aspires to be
hard. All of the soft sciences are subject to this divisive tendency.

Because of the nature of language, it is obviously impossible to do linguistics in accord
with the hard methodology of the hard sciences, because there is no mechanical device or
theoretical algorithm by which one can apprehend any of the formal entities of language
objectively, such as a word or sentence, let alone transact in the intrinsically softness of meaning.
All attempts at using hard methodology in the study of natural language involve some sort of
obvious dubious conceptual maneuvering by which soft facts are illegitimately translated into
hard facts. Because it is relatively easy to see in linguistics that linguistics cannot possibly be a
hard science, in spite of the mentioned attempts to make it one, there has been relatively little
contamination of linguistic theory from the epistemological and methodological assumptions of
the hard sciences, as compared, for example, with psychology and sociology. Anthropology and
psychoanalysis, to mention two examples, are like linguistics in being obviously impossible as
hard sciences. It should be mentioned also that some subdivisions of these clearly soft sciences
do legitimately have one foot on the ground of the hard sciences, such as instrumental phonetics
and archeology, but even in those sub-disciplines, their motivation and theoretical foundation
remains on the soft side, which is evident in the fact that they are sub-disciplines of linguistics
and anthropology and not of physics or biology.

The third kind of "other" point of view we can call "art". This category also encompasses
a wide range of variants, such as poetry, literature, plastic arts, music, etc., yet it is distinct from
the linguistically naive point of view, on one hand, and also distinct from the scientific point of
view, on the other hand. There is also a mixture of hard and soft attitudes and practices toward

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6 I have previously discussed this distinction as seen from the linguistic point of view, and its terminological
implications, see Pyle (1976) and (1978). It is worth noting here that the naming of these categories presupposes the
superiority of the point of view of the hard sciences, but the implications of the semantics of the hard/soft opposition
suggest otherwise. I will discuss this distinction further in section ??
art within the various disciplines included in the gross category of art. However, in so far as the aesthetic sense is the grounding of art, it is in principle inconsistent with the hard point of view.

The fourth "other" point of view is philosophy, with which I will class mathematics and geometry, since they are among the disciplines of the a priori, as opposed to the sciences as the a posteriori. In regard to logic in particular, there has been a long-standing conflict within the philosophical study of logic along the hard/soft lines: The school of logical positivism is the hard point of view and the school of ordinary language philosophy is the soft point of view.

In terms of this classification of points of view, the boundaries with respect to which linguistics has struggled to maintain its autonomy, though with mixed success in both cases, can be reduced to two: the boundary between linguistics and the ordinary "linguistically naive" point of view and the boundary between linguistics and the hard point of view.

Furthermore, the linguistically naive point of view and the hard point of view, whether in science, art, or philosophy, are virtually identical in their fundamental premises in regard to the nature of language, by contrast with the soft point of view, whether in science, art, or philosophy. In particular, they are alike in their epistemological premises and they are alike in subscribing to the premise that symbolic logic is the one and only logic. This goes a long way toward explaining why the hard point of view in both the sciences and in logic holds a socially dominant position. And, it permits us to reduce the boundary of the autonomy of linguistics and the locus of conflict to the single hard/soft boundary, whether manifest in logic, in science, in art, in linguistics, or in ordinary language itself.

The necessary autonomy of linguistics has not received very much attention explicit attention within linguistics itself. The issue has generally been ignored in two different ways, which we will discuss shortly. One of the few prominent linguists to have taken an explicit and coherent stand on this point is Roman Jakobson. He has continually asserted the autonomy of linguistics throughout his long and prolific career and he justified it at length in his discussion of "Linguistics in Relation to Other Sciences". He establishes the common ground of all social interaction as being exchange, whether exchange of mates, exchange of goods and service, exchange of money, or exchange of words. And in speaking of the relation between linguistics and economics, a discipline which is not usually thought of as being in any kind of relationship with linguistics, he observes the following:

I. Pososkov, the Russian economist of the early eighteenth century, coined the catch-phrase "a ruble is not silver, a ruble is the ruler's word", and John Law taught that money has only the wealth of a sign based on the prince's signature. At present, Talcott Parsons...systematically treats money as "a very highly specialized language", economic transactions as "certain types of conversations", the circulation of money as "the sending of messages", and the monetary system as a "code in the grammatical-syntactical sense." (p. 665)

He goes on to draw the obvious conclusion, that

*within the over-all network of human communication, it is language that takes the dominant place* (p. 673)

and that linguistics occupies the central position in all sciences which study human communication.
Also in many places he has discussed the fact that this position has explicitly been taken by many of the great founders of modern linguistics. He points out in one place that Boas, for example, who was originally trained in the hard sciences of physics and geography, asserted the autonomy of linguistics and even went so far as to speak of "the great advantage that linguistics offers" in regard to the study of the categories of human thought. (1971, p. 477-478).

As I mentioned, almost all linguists have ignored this issue in one of two ways. For this reason, it is by no means true that all, or even most, linguists would agree with the assertion that linguistics is an autonomous point of view. However, allow me to show that it is nevertheless a position which all linguists do in fact take implicitly in practice, by which practice, since actions speak louder than words, they voice their assertion of autonomy.

There are many linguists who, accepting the asserted validity of the point of view of some other discipline, say that linguistics should properly be subordinate to one or another discipline, such as psychology, or biology, or physics, or sociology, or information theory, or philosophy, etc., and in accord with these statements, they attempt to import concepts into linguistic theory which are grounded in those other disciplines in order to analyze or explain one or another kind of linguistic fact.

But notice that it is always a linguistic fact that they are trying to explain. If you consider the question of what exactly a linguistic fact is, it becomes clear that the status of these facts as facts is only valid as seen from the point of view of linguistics. It is a function of the implicit underlying epistemology that is unique to linguistics. As a result of this implicit and unique epistemology, what is a fact about language and human behavior as seen from the linguistic point of view is not a fact as seen from the point of view of any other discipline of study, and vice versa. This puts such a cross-discipline enterprise in a conceptually peculiar position: Can a theory that does not recognize a certain fact as a fact possibly explain that fact?

To put it another way, what such linguists say about the autonomy of linguistics when they are talking about linguistics theoretically is inconsistent with what they actually do in relation to the question of autonomy when it comes to dealing with the facts of language. What they do is to disregard the theoretical principles of those other disciplines and act as if linguistics functions independently.

This inconsistent behavior has been consistently true of this class of linguists throughout the history of linguistics. Consider the dilemma as Bloomfield wrestled with it in the 1930's. In his theoretical discussions, such as found in his book *Language*, having assumed the validity of the hard point of view, he was unable to resolve the resulting dilemma he found himself in with respect to establishing even the most elementary of facts, so he opted to ignore it, go ahead and assume the facts, practice linguistics as if the linguistic point of view were correct, and leave it to the future to resolve the problem. In so doing, he expressed his underlying, and obviously dominant conviction, that linguistic methodology is capable of apprehending the relevant and correct fact of language independently of the methodology of science.

Or consider the conflict that raged over the ontological and epistemological status of the phoneme in the 1940's. Is the phoneme real or is it a fiction of language? Is it physical or is it mental? Is it statistical in nature or is it categorial? Or is it nothing at all? These questions were not resolved to anyone's satisfaction at that time, and are still bones of contention to this day, but all linguists have proceeded to do linguistics, assuming the validity of the concept of the phoneme anyway, and simply ignored the dilemma created by the attempt to judge linguistic fact in terms of the epistemological premises of other disciplines. And in doing so, linguists express their underlying, and dominant, conviction that linguistics is an autonomous discipline.
There is no shortage of examples. A recent example is Noam Chomsky (1980), who wants to place himself in the natural sciences, right next to physics and biology, but when he gets around to citing a fact about language he says that such things as the sentence, "Who do you wanna meet?" (p. 159, just to choose one at random), is a fact of language that linguistic theory, or rather, the theory of the natural sciences, must explain. Where did he get the idea that this sentence is a fact? It is certainly not ascertainable as a fact in terms of the objectivist epistemology of physics or biology. Of course, what he does is to assume the traditional linguistic epistemology to arrive at this fact, but inconsistently discards that epistemology when he is theorizing.

The inconsistency between what these linguists say and what they do is a function of the inconsistency between the implicitly assumed epistemology of linguistics and the predominant epistemology which the hard points of view generally subscribe to. And this inconsistency also correlates with the fact that linguistics as a discipline of study is in a state of theoretical disarray and fragmentation. But in stark contrast to this theoretical fragmentation, there is a solid core of unanimity among all linguists as to what counts as a fact. And this unanimity is all the more remarkable and significant, in regard to the present question especially, in that linguists consistently and persistently, take this inconsistent and contrary stand while under continuous and vociferous attack from the hard point of view, both from inside and outside of linguistics. These considerations lead us to the conclusion that linguistics is fundamentally grounded in an implicit epistemology with which all linguists agree, including those who disagree.

The other class of linguists, those who do not attempt to subordinate linguistics to other disciplines, simply ignore the criticism that emanates from other points of view and implicitly dismiss those point of view as irrelevant. And, quite properly so. They begin with the linguistic facts, analyze those facts, and hypothecate whatever theoretical principles seem to be useful in explaining them. Once again, by dismissing potential dilemmas and inconsistencies that might be seen from other points of view, these linguists also assert the autonomy of the linguistic point of view. Thus one can fairly conclude that all linguists agree in asserting, whether by voice or by act, that the linguistic point of view is autonomous, and moreover, that it is a position of distinct advantage in relation to the study of natural language.

The autonomy of the linguistic point of view does not imply that there can be no fruitful relationship between linguistics and other disciplines. That is manifestly false, as there are many theoretical concepts which have been borrowed from other disciplines. For example, the impetus for the development of linguistic pragmatics came largely from the work of ordinary language philosophers, and consequently the concepts of performative verbs, force as opposed to meaning, felicity conditions, and so on, were borrowed. But, whether any hypothecated theoretical principle is borrowed from another discipline or not, wherever it might come from, linguists unanimously agree that every such principle must be validated on the ground of linguistic fact.

The practical consequence of this persistent declaration of independence is that linguistics holds a coherent theoretical position that is solidly grounded in a body of empirical data, linguistic data, to which it is responsible, and to that alone. The fact that the discipline currently finds itself in a state of theoretical fragmentation, has no bearing on this common core of empirical fact. In spite of the theoretical turmoil, there is virtually no dissent as to the facts to which linguistics is responsible. This body of fact is the empirical foundation on which linguistics takes its autonomous stand.
There is also universal unanimity among linguists that this body of fact constitutes its theoretical standard: All theoretical principles must stand or fall on the ground of empirical fact. This is intended to, and in practice does, include every sort of principle of organization, every assumption, premise, presupposition, or any other proposition about the nature of language. And there can be no justification from the linguistic point of view for excluding symbolic logic from the rigorous demands of this standard. From the linguistic point of view, the claim of \textit{a priori} standing has no force whatsoever.

This body of fact on which linguistics is established is represented and organized in terms of a core of theoretical concepts which have proved their validity over a long period of time and in regard to which there is also a universal unanimity among linguists. These range from atomic concepts, such as the phoneme and the word, to large scale principles of organization of a phylogenetic or typological character. These theoretical concepts are not merely drawers into which linguists shove facts to store them. They are predictive concepts which can and have been tested in many different dimensions, in history and phylogeny, in ontogeny and pathology, and in ordinary use, both within linguistics and in other disciplines.

On a grandiose scale, one can mention the historical laws developed during the Neogrammarian era of linguistics, such as Grimm's Law. This law, as well as others of the same kind, have a vast scope of explanatory adequacy rivaling those of any other discipline and the principles which underlie them have been proven over and over again in completely unrelated language systems in every part of the world. One of the most spectacular examples, rivaling Newton's prediction of the planet Neptune in every respect, is the prediction by Saussure of the Proto-Indoeuropean laryngeals, direct evidence for which was not discovered until many years later. Laws of this kind have faded from the central stage of linguistics, but they nevertheless remain as the foundation of linguistics, testifying to the lawfulness of language and the validity and force of the basic linguistic premises.

In more recent years, there has developed large collection of more or less specific statements of fact which appear to be generalizable to the level of universals of language, usually expressed in terms of the concept of markedness. To cite just one example, which we will return to later: If any language has a grammatical category of number, then it will have a distinction between one and many, called in grammatical terms, singular and plural, and the plural will bear a structural mark in contrast to the comparatively unmarked form of the singular. The ability to recognize and state such universal facts about language is in itself, even though not yet organized into a single coherent system of predictions, a significant mode of predictiveness, and one which further validates the autonomous premises of linguistics. It is primarily on the basis of this kind of fact that I will base the core of my argument here in Section 4.

The position of linguistics, then, as seen and judged from the point of view of linguistics itself, is independent of every other discipline of study. And, in regard to the analysis and explanation of natural human language, and human behavior in so far as it is influenced by language, linguistics is in a position of distinct advantage.
1.2 LINGUISTIC EPISTEMOLOGY

In the last section, it was established that linguistics has traditionally taken an independent and autonomous position, claims to the contrary notwithstanding. A brief account was given of the internal justification for doing so: First, that language is a different kind of phenomenon from any other, and thus linguistics is obliged to take a position different from any other discipline of study; Second, that the position which linguistics holds has been justified by success in explaining the facts of language. In principle, nothing more is required to establish the validity of the position which linguistics has taken.

However, the fact that this position appears to be in conflict with that of some other points of view invites us to try to reconcile the linguistic point of view with those conflicting points of view. While it is not possible to dissolve the difference or to mitigate the position of linguistics, because that difference is a function of the phenomena of language itself, it is possible to explore and clarify the epistemological boundary in terms of which language, and thus linguistics, is separated from those other points of view. Therefore, I offer the following discussion of the epistemological foundation of linguistics for the purpose of avoiding unnecessary misunderstanding and conflict. But, it must be clear that whether my observations are considered to be satisfactory, either from the point of view of linguistics or from any other point of view, cannot be taken as grounds for conceding or mitigating the autonomy of linguistics. On the other hand, to the extent to which my observations might clarify the position of linguistics, that position would be correspondingly reinforced.

In discussing what I am calling "linguistic epistemology", I will, of course, continue to look at the problem from the linguistic point of view. Epistemology is usually considered to be in the territory of philosophy, but it certainly is a proper concern of linguistics, and in keeping with the position which linguistics takes, it is necessary as well as most advantageous to examine the question of epistemology on its home territory. This is so because unless one takes the point of view of linguistics, it would be impossible to apprehend the linguistic epistemology in the first place, and also because there are any number of thorny epistemological predicaments which we will be able to avoid by doing so.

One of the first difficulties we can avoid is the question of whether we should be talking about ontology instead of epistemology. That is, when we are speaking about a certain fact, the questions, "How do you know it is a fact?" and "Is it a real fact?" are in some ways equivalent. In ordinary language, when one says "How do you know?", what he usually really means is, "It is not so." I can justify my decision to speak of the issue as one of epistemology by observing that for all practical purposes, in linguistics, it does not make any difference, and it seems to be easier to approach the problem in terms of the question of knowledge.

Another preliminary point that should be made clear is that epistemology is not only a problem for linguistics. The fundamental issues have not been satisfactorily resolved in any other point of view or discipline of study either. To be specific, in reference to the conflict at hand, the epistemology of the hard sciences and that of hard philosophy, in particular the premise of the validity of symbolic logic, are far from being established on a solid epistemological foundation. Both of these frames of reference in practical fact base the authority of their claim to validity on the ground of intuitive reasonableness and explanatory ability, which is the same claim which linguistics puts forth in justification of its position. And, furthermore, neither of them has been able to make any significant progress in the analysis or explanation of natural
language, except in cases where they have abandoned their position, at least in part, to look at language phenomena on the basis of linguistic epistemology.

Having cleared the path with these preliminary observations, we will turn to examine linguistic epistemology. Let us begin by asking the question of what linguists mean when they say that someone is "doing linguistics."

Since linguistics is the study of language, one might suppose that anyone who studies language is doing linguistics. But that is not what linguists mean by "doing linguistics". Many people who study language in one capacity or another would not considered to be doing linguistics. In fact, everyone studies language for various purposes and with a greater or lesser degree of intensity, if only in trying to figure out what someone is saying or whether they are lying or not, etc. But most of the things which people do in their consideration of language is not doing linguistics, but simply using their language. In addition, looking up words in a dictionary, or learning new words, or even learning a foreign language is not doing linguistics. Nor is the study of artificial languages, such as logic, mathematics, or computer languages. The definition of linguistics as the study of language is not specific enough.

One might suggest that the idea of "doing linguistics" must include a specification about intense professional interest in natural language. But many kinds of professional activities which concentrate on natural language are not linguistics, such as creative writing, or literary criticism. One might suppose that the training of teachers of English or reading or writing would involve the study of linguistics, and it should, but normally it does not. Disciplines which deal with language pathologies, such as aphasia and psychopathology, also should look at language as linguists do, but with few exceptions they do not. Thus, this additional condition is not criterial.

One might try to pin it down by adding that to be doing linguistics one must have knowledge of and interest in foreign languages. But that does not work either. In the first place, all languages are foreign from someone’s point of view. In addition, there are linguists who have virtually no knowledge of nor interest in foreign languages, though it must be admitted that this is a marginal case. And, on the other hand, there are people who know many foreign languages who are not linguists. They are polyglots.

From several of the foregoing categories of non-linguists, it also is apparent that the amount of knowledge of language is not at all a criterial characteristic. There are many people with a great deal of knowledge, including knowledge of and about many languages, who do not know anything about the linguistic aspects of language.

I suggest that the criterial standard by which linguists intuitively decide who is and who is not doing linguistics is a certain quality of knowledge in which they transact. It is not a matter of quantity or breadth of knowledge about language or anything else, but rather a particular kind of deep knowledge about language. The criterial knowledge is an epistemologically very peculiar kind of hidden or secret level of language phenomena. Of course, linguists do not call it secret or hidden; they call it underlying forms, underlying representations, deep structure, and so on. And, in a very important sense it is not hidden or secret at all. But at the same time, in a very important sense it is hidden. To be precise, the kind of knowledge in which linguistics transacts is common and public knowledge of language known to every native speaker, for that knowledge constitutes the substance of language itself, and is therefore the very knowledge which qualifies one as a native speaker, but the ordinary "naive" native speaker of language does not know that he knows it. He is ordinarily unaware of and actually denies knowing it, and thus that underlying knowledge is hidden from the point of view of what linguists call the "naive" speaker.
In other words, a language consists of conventions, which are a particular kind of law, and the knowledge of those laws is what allows one to transact in that language. But the typical native speaker of language does not pay any attention to those laws, for he is focusing his attention on the transactions in which he is engaged. He is concerned with the outcome of the transaction, not the medium in which it is being played out. Thus, the ordinary native speaker knows those laws, but he has come to use them so automatically, they have become such a deeply integrated part of his sense of himself, that he is almost entirely unaware of them. And, to the extent that they have become automatic, it is correspondingly difficult for him to become aware of them, because to become aware of them, they must come to his attention, and in doing so cease to be automatic. So, not only is he unaware of them, but it is not easy for him to become aware of them, unless he is willing and able to expend a considerable amount of effort and attention on them. Thus, the knowledge of language is divided into two epistemological categories: That of which the "naive" speaker is aware and that of which he is unaware; that knowledge which he knows, and which he knows that he knows, on one hand, and that knowledge which he knows, but which he does not know that he knows, on the other hand; or, in short, known knowledge and unknown knowledge.

This unknown knowledge is the essence of linguistics. It is the transaction in this kind of knowledge which linguists look for in judging whether someone is "doing linguistics" or not. And the boundary between known knowledge of language and unknown knowledge of language is the boundary between linguistic epistemology and the more conventional kind of epistemology. And it is an all important boundary with regard to the understanding of language and phenomena which are influenced by language, because this dimension of underlying unknown knowledge constitutes the vast bulk of language and because it is dominant causally. It has been proven over and over again, at all levels of language, that the failure to be aware of the underlying unknown knowledge precludes coherent analysis, understanding, and explanation. Therefore, any epistemological frame of reference which either omits or prohibits this underlying unknown knowledge of language, thereby precludes itself from the possibility of being able to understand or explain what goes on in language.

It is crucial, then, in order to understand and justify the epistemology of linguistics, to understand the concept of the "naive" speaker and the distinction between known knowledge and unknown knowledge, or, as it is more commonly called in linguistic terminology, the surface/underlying distinction. Of course, every linguist is familiar with these concepts, but it is evident from the inconsistency within linguistics as to the epistemological position which many linguists take, which I discussed in Section 0.1, that a great many linguists are not aware of the implicit epistemology underlying these concepts or have not appreciated the implications of that epistemology in regard to the position in which it places linguistics.

Given this criterial distinction between the surface and the underlying layers of language, we can describe the position of the "naive" speaker in relation to language as follows. Most of the time, the language user is not aware of his language at all, either when he is speaking or thinking in his language, or when he is listening to someone else, because he is focusing his attention on what is being done in the medium of language instead of the medium itself. His interest is focused on making a deal, or making a point, or ascertaining whether he is being favorably regarded by his interlocutor, or whether he can believe what he is being told, etc. From time to time, for any number of different reasons, he may interrupt his transaction in language to focus his attention on language and become more aware of what he and others are doing, and what it means. And, under certain circumstances he might even study some aspect of
his language very intensely. But even when his attention is focused intently on language, it is very unlikely that he will ascertain more than a small part of the surface of his language or the surface of its meaning. There are entire realms of language phenomena of which the normal linguistically naive speaker, no matter how knowledgeable and sophisticated he might be in other modes of transaction, is almost entirely unaware, such as connotative associations, pragmatic force, syntactic structures, etc.

Let us consider the formal basis of language in sound as a relatively concrete example in terms of which we can examine the epistemology of linguistics. The smallest formal entity in language is the phoneme. It is often erroneously supposed that the phoneme consists of sound, but it does not. As I mentioned above, language consists of conventional laws, the most basic of which are the laws of phonology which stipulate the relationships between the conceptual element known as the phoneme and physical sound, between which there is a relation of reference. That is, phonemes refer to sound and sound refers to phonemes. Just as a pointing finger can refer to a particular duck, and yet the finger has no material relation to that duck, so sound can refer to a particular phoneme, and yet the sound has no material relation to that phoneme.

The phoneme is not a material phenomenon but an idea, a concept, in terms of which the continuous stream of spoken sound is evaluated. When people speak in the medium of language, they produce sound, but intend that sound to refer to a sequence of phonemes, and when they listen to language, they hear sound, but apprehend that sound as a sequence of phonemes. In terms of perception, Jakobson described the relation thus:

The perception of sounds is dependent on uniquely those laws which convert the acoustic-motor raw material into elements with semiotic (sign-function) value, and therefore on the structural laws of the phonemic system, and not on the acoustic characteristics of the sound in relation to pitch and noise. Every speech sound represents a complex of distinctive features...(1968, p. 39).

The naive does hear sound, but he is unaware of the "raw" percepts, for what he is interested in is what that sound means, so he automatically and unthinkingly "cooks" those physical percepts to get at their "sign-function" value as referents to phonemes, and thus what a naive speaker grasps is not sounds at all, but rather symbolic, language mediated, and language defined value. Sound is merely the physical carrier, the package or envelope, the donkey by which the symbolic language value is conveyed. And, of course, the physical medium could have been in Morse code or in writing or in the visual medium of the sign language of the deaf. The physical embodiment of the signal is technically incidental to its language function. Jakobson observed that "It is easily possible to use chessmen for checkers" in support of this point, and quotes Husserl to this effect.

What constitutes them phenomenally and physically is completely inconsequential and can change arbitrarily. They become tokens of the game in question rather through the game rules, which give them their fixed game meaning. (p. 39)

In so far as language is concerned, it is not the sound as sound that is important, but the phonemes as represented by sound, according to the game-like laws of language, in exactly the same sense as we can say that it is not money as paper that is important, but the value which that paper represents under the game-like laws of a particular society's currency regulations. And for this reason, when people handle money they are not normally aware of it as paper, nor are they
aware of the marks on it which validate it as legitimate currency, except perhaps for the numbers which represent its value.

However, when the authenticity of money comes into question, when its purchasing power is in doubt, people might begin to look at those marks, to try to ascertain whether it is real and valuable money or not. But for the ordinary person, he would have no idea where to look or how to evaluate the quality of the paper or the complex markings, images, signatures, etc. It is the same with language.

In the system of language, as in the system of economic exchange, there are layers of representation in transaction, and the character and order of the various layers are very similar, economic exchange being modeled after language. From the point of view of language, the surface of the sound system consists of phonemes, just as the surface of our economy consists of money. However, one of the differences is that in language the ordinary "naive" speaker is not even aware of the surface. In our society, if an ordinary "naive" speaker should try to look at the sound surface of language at all, which is uncommon, it is normal for him to equate the phenomenological standing and value of letters, phonemes, and sounds, in one entangled mass of confusion. This confusion leads his investigation in a hopelessly confused direction from the start. It would be as if he were to equate the ideas of a check, money, and paper, and being unaware of the existence of money entirely, to set off to try to make sense of economic transactions. Thus the ordinary "naive" speaker of language is not even aware of the existence of the phoneme as the surface elements of the sound system of his own language.

The surface of the sound system is just the beginning. There are several other dimensions of sound related phenomena which lie behind and contribute to the formation and structure of this surface. To take a trivial example, consider the phoneme /t/. As I said above, a phoneme is an idea, a concept to which sound refers. It is a common error among the linguistically "naive", having got to the idea of the phoneme, to suppose that a particular sound is used to refer to a particular phoneme. But this use of the idea of "particular" is incoherent, because a particular sound can occur only once. Thus it could not possibly be a particular sound which is used to refer to a phoneme, but a class of sounds. One can thing of a phoneme as a game-like law or standard in terms of which a language classifies end evaluates sound. And, it has been discovered that a phonemic class of sounds consists of subclasses, which are called "allophones", and that the relations between the classes and subclasses and actual sound is very complex.

In terms of the phoneme /t/ in English, there are several categorically and structurally distinct subclasses, that is, allophones. As a simple example, one allophone is strongly aspirated, which we can represent as [t'] as opposed to one that is not aspirated [t]. The former is found at the beginning of a word, such as "tone", and the latter, after an /s/ at the beginning of a word, such as "stone". One can easily feel the difference in the aspiration as a puff of air after the [t'] in the word "tone" by holding one's hand over the mouth while alternatively pronouncing these two words. This is a general law which holds for all words in English.

Another way of describing this fact, is that the difference between, say /t/ and /d/, is not predictable, and thus can be used to signal different words, "time" and "dime". But the difference between [t'] and [t] is entirely predictable, cannot be used to distinguish words, and can thus be called redundant in terms of information (though it is not actually devoid of information).

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7 The slanted lines are used to mark this as a representation of a phoneme, to avoid confusion with letters {t} or allophones [t].
Of course, as I said in beginning of this discussion, this is a trivial fact. But its epistemological implications are not trivial. What is particularly useful about this kind of fact is that it can easily be verified, and has been verified, from the point of view of physics by the mechanical analysis of the physical acoustic characteristics of the sound of such words. This is a fact that enjoys the status of a fact in both the epistemology of linguistics and that of the hard sciences, and not just any of the hard sciences, but the dominant hard science of physics. It is thus an undeniable fact from any point of view.

Now that we have established that this is a fact from the point of view of both linguistic epistemology and the hardest of the hard epistemology, that of physics, it can serve as common ground on which to play out the conflict between the two epistemologies. In order to bring the issue into direct conflict, we must recall that the ordinary "naive" speaker of English is not aware of this fact about English. In other words, he does not know that he predictably uses the subclass [t′] in one context and predictably uses the subclass [t] in another context. And yet he does it without fail. Now the questions which precipitate the epistemological conflict are these: First, why are there two allophones of /t/ which differ in aspiration and have just the distribution which they do? In other words, how can we explain the fact that these two classes of sound are differentiated, when the make no difference in meaning? And, second, how can we explain the fact that the ordinary speaker of English does not know that he regularly and predictably makes this distinction?

In terms of the frame of reference of the hard sciences, one would have to explain these facts as being a function of physical cause. One would probably try to explain the fact that the classes of sound are different on the basis of some physiological characteristic of the human vocal apparatus. Thus, since there is a difference in the environment, namely, the presence of a preceding /s/ in one case and its absence in the other, the difference in the sounds must be caused by the presence vs. absence of the preceding /s/. As to the question of why the ordinary speaker is not aware of the difference, one might suggest that it is, like one's heart beating or one's hormonal activities, an automatic physiological process. And, one might suggest that the difference between these sounds is perceptually so small that it is below the threshold of human perception; that whereas a machine could detect the difference, the average person could not.

There are many ordinary and simple facts about this particular phenomenon in language, well-known to all linguists, and provable by physical acoustic analysis, which prove that these explanations do not work, and what is more, prove that it is in principle not possible to explain either of these facts in terms of any physical cause.

First, we can point to several facts which prove that the difference between these classes of sound is not below the threshold of perception. This difference was noticed by linguists long before there were any machines to verify it, and there is no reason to believe that the physiology of linguists is different from that of the ordinary speaker of language. Second, linguistics students are unable to perceive the difference at the beginning of their studies, but when it is brought to their attention in a linguistics course, they readily become able to hear and feel the difference correctly. In fact, once the difference is pointed out to anyone, it is easy for anyone to detect the difference.

Second, we can also point to several facts which prove that the difference could not possibly be caused by any physiological properties of the human vocal apparatus. For one thing, the particular distribution of the difference between the aspirated and unaspirated sound as found in English is only a fact about English. The distribution of this sound difference is completely
different in other languages. The difference between aspiration and non-aspiration is not physiologically contingent on being at the beginning of words or in any relation at all to /s/.

In many languages, such as Thai, this same difference in sound, the difference between an aspirated and unaspirated [t] functions as a phonemic difference, which means that in those languages this difference in sound is evaluated as being significant in the same degree as the difference between /t/ and /d/ in English. In such languages either aspirated or unaspirated [t] can occur at the beginning of words, and the difference represents different words.

As a result of the difference in the value given to these sound differences in English as opposed to Thai, a "naive" speaker of Thai would incorrectly evaluate the difference between the [t'] in "tone" and the [t] in "stone"; he would think that they were different phonemes. And, conversely, in Thai there are sets of three words, such as, /t'ai/, /tai/, and /dai/, which an English speaker would not be able to hear the difference between that last two words; He would think that the first is one word, and the second two are another word. In short, the Thai would incorrectly hear and evaluate as a meaningful sound difference what the English speaker does not even notice, and the English speaker would incorrectly not notice what the Thai considers to be a significant phonemic difference.

In addition, it is quite possible for English speakers to learn to pronounce [t'] and [t] in the wrong places. With very little concentration, the average English speaker can pronounce the /t/ of "stone" incorrectly as [t'], with aspiration and, though more difficult, he can with some effort learn to pronounce the /t/ of "tone" without aspiration.

On the basis of facts like these, linguists have concluded that whatever is going on here, it cannot possibly be a function of physical causation. The structural facts which we have considered are properties of the English and Thai languages, not of the physiology of the vocal apparatus, nor of the physiology of hearing, nor of the physical acoustics of sound. Unless one wants to claim that the physiological capabilities of speakers of different languages, as well as the physiological capabilities of one person from one moment to the next, are materially different, it is not possible to explain these phenomena by material causation.

This is not, of course, to say that language phenomena are completely unrelated to the physical parameters of the human body and the physical parameters of sound itself, but rather that language laws and language behavior cannot be explained in any direct way or to any significant degree by those physical parameters. The relationship between sound and its function in language is exactly the same as the relation between paper and its function in the economic system of exchange. It would be impossible to have money as we know it without paper, but it would be absurd to suppose that the structure and function of money is determined to any significant degree by the fact that it is made of paper, or by the fact that it is used to transact in the exchange of physical objects such as eggs.

How then would linguistics explain the facts which we have adduced? As to the differentiation of categories of sound, the phonological system of a language does not consist of sounds, but of conventional game-like laws which categorize and evaluate sound. These laws are not unrelated to the physical characteristics of sound, but they are not governed by sound, rather the contrary. In language, it is form which serves function. Sound is used and evaluated according to the exchange value which it is stipulated to have in the exchange system of a language. Therefore, it is quite reasonable to expect that different languages will cut up and allocate the exchange value of sound in quite different ways. The structure of language is to
some extent arbitrary from a physical point of view and thus is unpredictable from that point of view. That is why one must learn a language.

As to the fact that a "naive" speaker is unaware of his different uses of sound, this also follows from the fact that language must be learned. In learning a language, one not only learns the positive laws of classification and evaluation, but at the same time, he learns to automatize the process of classification and evaluation, and to ignore both those processes and the laws by which they function. This latter part, learning to ignore the evaluation and classification of phenomena within the system of linguistic exchange, is crucial to the process of exchange.

It is necessary in any system of exchange that the items being exchanged must be of equivalent value. If they were not of equivalent value, the exchange could not take place. The power and effect of language rests on the foundation of this unconscious confusion of identity of value under the laws of language. Those laws are precisely laws of commutability or substitutability in regard to phenomena which are not naturally of the same value. The function of those laws is to define what counts as the same in the exchange system of language. Language is a system of exchange in which the unconscious confusion of a sound, which represents a phoneme, with the phoneme itself, permits them to be exchanged. And, in the same way, the unconscious confusion of the word "dog" with a dog is what permits one to transact in dogs by means of the word "dog". And, the unconscious confusion of the inherent natural value and force of the sounds used in pronouncing the statement, "You are a dog", with the actual being of a dog, is what permits mere sounds to be used to insult someone, providing he knows the language you are speaking. To the extent that one does not accept or does not know the laws of commutability which define the identity of the two, the substitution will not work, and the exchange will not go through. Thus the power and effect of language rests on the foundation of this unconscious confusion governed by the laws of language, and it is these laws which comprise the substance of language.

If we were to try to examine language from the point of view of an epistemology which conforms to the conventional epistemology of language, we would be precluded from making any penetrating analysis of language, just as the "naive" speaker is precluded from making any penetrating analysis, and for the same reason. The necessity for having a different epistemological frame of reference in linguistics, as opposed to the hard sciences, can be summarily stated in a single phrase: People lie, whereas rocks, for example, do not. People deceive others and themselves, and language is a structure which is fabricated of the processes of deception, confusion, disorientation, evasion, and pretense. It is in this sense that one who observes language from the point of view of the ordinary epistemology is correctly characterized as "naive".

It should be made clear that this use of the word "naive" is an inversion of its ordinary meaning. This kind of "naive" is not the original naiveté of the child who simply does not know. The child really is innocent, a word which has the underlying meaning of "not know." The ordinary "naive" speaker knows, but he acts as if he does not know.

I would like to point out that the claim that linguistic epistemology is based on unconscious knowledge is not an idea that I am introducing to linguistics. Many of the most prominent figures in the history of linguistics recognized the fact that for the ordinary speaker of language most of his knowledge of language is unconscious, they accepted the necessity of this concept, and they explicitly incorporated this idea into their thinking about language. In his
classic Handbook of American Indian Languages, published in 1911, Boas said that linguistics has a great advantage in regard to the study of the human mind because of

the fact that, on the whole, the categories which are formed (in language) always remain unconscious and that for this reason the process which leads to their formation can be followed without the misleading and disturbing factors of secondary explanations. (insert mine)

And, it is in regard to this characteristic of language and other human institutions that Boas wrote of "the great advantage that linguistics offers."

One can add Ferdinand de Saussure, who said: "Individuals are in a great degree unconscious of the language laws." And many papers of Boas's student, Edward Sapir, who is still considered to be one of the most insightful linguistics in the history of linguistics, are explicitly established on the premise of the unconscious character of linguistic knowledge. More recent is the following from Lakoff (1987).

Most categorization is automatic and unconscious... (p. 6)

...certain concepts are not merely understood intellectually: rather, they are used automatically, unconsciously...Concepts used in this way have a different, and more important, psychological status than those that are only thought about consciously. (p. 12, his emphasis)

And, finally, I would like to cite a quote from Roman Jakobson, which seems particularly appropriate in this present context.

it is just this unconscious character of linguistic phenomena which has made and still makes so many difficulties for the theoreticians of language. (1971, p. 478)

In summary, the fact that linguistics is devoted to the study of language leads linguistics to the inescapable necessity of taking an independent epistemological position. This epistemological position cannot be compromised, without at the same time compromising the ability to analyze and explain the phenomena of language. It is in principle impossible, due to the very nature of language, to penetrate beneath the surface of language from the point of view of conventional epistemology.

This epistemological position is in conflict with the ordinary conventional epistemology and with the epistemology of the hard sciences. And it is also in conflict with the principles of symbolic logic, which could not possibly tolerate such a logical monstrosity as "unknown knowledge". And yet that logical monstrosity is the very essence of the linguistic enterprise; To do linguistics is to transact in the currency of this "unknown knowledge".

If linguistics is going to attain and sustain a coherent position from which to pursue its endeavors, it will be necessary to directly face this conflict and try to resolve it by rectifying the conflict in terms of linguistic theory. This will not, however, make the conflict go away, for the conflict, and the accompanying resistance to the analysis and understanding of language is inherent in language itself.
1.3 THE HARD SCIENCES

As we have been discussing in the last two sections, linguistics occupies a position of autonomy in relation to other points of view with respect to the phenomena of natural language. It is sometimes supposed that the position of linguistics is necessarily in conflict with that of the hard sciences, but it is not intrinsically so, because that point of view does not bear directly on the phenomena of natural language.

The potential for conflict arises from a misunderstanding of the phenomenological nature of language and from the consequent erroneous belief that language must necessarily be analyzed and explained in terms of the methods and theoretical premises of the hard sciences. If one were to suppose that language is a physical phenomenon and governed by physical causation, then the study of language would properly belong to the hard sciences. However, as I tried to demonstrate in the last section, and as we will argue at great length throughout the rest of this essay, language is not a physical phenomenon, but rather a phenomenon of the type of game-like law, and therefore, does not come within the purview of the hard sciences. Therefore, there is no conflict between the point of view of linguistics and that of the hard sciences in regard to the phenomena of language.

Furthermore, on other grounds, one can argue that it would be a serious methodological error for linguistics to adopt the hard science point of view, or to adopt any of the principles of the hard sciences, without subjecting them to critical scrutiny. The problem with the point of view of the hard sciences in regard to the analysis of language is due to the fact that the unconscious laws of language have unrecognized and unacknowledged effects on the activities of every human being. To assume that those effects are minimal or to deny that they exist, does not address the distinct possibility of methodological circularity to which the unknown effect of the unconscious influence of language can give rise.

The essential defining characteristic of human language which sets it apart from every other category of phenomena is the symbol. It is the ability, indeed the virtually inescapable necessity, of man to invest his being and transact his business in the realm of the symbol which sets man off from every other order of being: On one hand, there is no other being which is capable of transacting in the symbolic dimension and, on the other hand, there is virtually nothing that man does which is not materially influenced by the mediation the symbolic. For this reason, it must be taken as the most fundamental premise, the default starting position, in the evaluation of any human enterprise that all activities of man are subject to the mediating and mitigating influence of the symbolic, unless and until and to the extent that it can be established otherwise.

This is obviously true of such concrete activities as eating. People eat, just as animals eat. But human eating is profoundly influenced by the symbolic value of what or who they eat, or don't eat, where they eat, when they eat, and who they eat with. And moreover, there is a uniquely human propensity to cook what they eat, that is, to symbolically transform what comes from nature, in its natural form as living brute substance, into a symbolically acceptable form by means of fire.\(^8\) Therefore, it would be a gross error to try to make sense of human eating on the basis of the same principles which govern the eating of other animals.

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\(^8\) See Levi-Strauss, 1969. Of course, not everything that man eats is always cooked. But eating uncooked food, especially living things, especially animals, and especially bloody ones, is considered to be uncivilized and beastly.
It is said, for example, in trying to make sense of human eating behavior from the point of view of the hard sciences, that people cook their food in order to kill the germs, or to make it more palatable, or to aid in its digestion. And, in trying to explain food taboos such as those in the Bible, all kinds of nonsensical explanations have been offered from the hard science point of view. But as we saw above in the attempt to explain the function of sound in language, such attempts are doomed to failure, being irrelevant in principle, because it is not the material character of transaction which governs human behavior. Such explanations are woefully inadequate: They are only relevant in the most general and superficial way and they cannot begin to account for the facts. Some people eat things that are forbidden to other people, and some people eat things raw which other people cook, and some people allow dead animals to "ripen" naturally before they eat them. Nor can physical cause explain the feelings of intense disgust which result from violations of food taboos, nor the obvious relationship between those food taboos and concepts of identity, nor their obvious relationship with marriage taboos and laws of incest. Such attempted explanations as those offered from the hard science point of view are precisely what Boas was referring to in the quote cited at the end of Section 0.2 as "secondary explanations".

Thus the sciences of biology and chemistry are almost entirely irrelevant to the analysis and explanation of human eating behavior, and the same argument can be made, mutatis mutandis, for other disciplines which approach the analysis of human eating in terms of the laws of merely physical phenomena, and in general for such attempts to make sense of the influence of language on human behavior. There is something extraneous going on in human eating which has nothing whatever to do with the physiology or chemistry of life. This extraneous influence is the function of the symbolic and it has its roots in language. If this is true of such concrete, physiological activities such as eating, how much more is it true of more abstract activities such as developing world-views or modes of explanation or theories? Is there any reason to suppose that the unconscious symbolic thinking of language has a more profound influence on primitive peoples than on the more sophisticated and highly civilized peoples, such as ourselves? Every consideration suggests the contrary: The more sophisticated and civilized, the more symbols, from which it would follow that, if there is any significant degree of difference, it would be in the greater profundity of the effect of the symbolic on the more sophisticated and civilized activities of man.

We are obliged then to ask the question: To what extent is the method of explanation and manipulation which is so highly regarded in our society, the scientific method of the hard sciences, influenced by language? This much is perfectly obvious: the scientific method is based on the process of representing phenomena symbolically and then manipulating symbols to extract predictions. This fact in itself suggests that there is likely to be some extraneous contamination from conventional symbolic functions in the scientific conceptualization of the world and on the attempts to devise explanations. The extent of such influence and its consequences are impossible to judge without making an investigation of this question. One cannot simply discount such influences out of hand. And there are sufficient grounds for believing that the influence goes much deeper.

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This principle, as well as the exceptions, and the emotional response to its violation, suggest that it is motivated by the prohibition against cannibalism. Also, food can not only be cooked by fire, but also dried in sun. But then the sun is equated with fire.

Any introductory textbook in psychology describes the influence of the symbolic on the very processes of perception. What we see and hear is not merely a function of what is there. It is the outcome of an intricate dialogical relationship between what is there, what we expect, what we hope for, what we dread, etc. There are myriad hard scientific experiments which prove that these and other symbolic preconditions play a larger determining role in what we perceive than what is out there to be perceived. The process of perception is a mainly unconscious process of classifying, weighing, and evaluating raw precepts, and of selectively bringing them to our conscious attention as a function of the values which they are given. The classification and evaluation process makes use of the classes and values which are given by language.

Even our description of our own sensations, so dear as a starting point for knowledge to generations of epistemologists, is heavily affected (as are the sensations themselves for that matter) by a host of conceptual choices. The very inputs upon which our knowledge is based are conceptually contaminated. (Putnam, p. 54)

Thus when the hard science method tries to make sense of the world or of language on the basis of what is presumed without question to be raw fact, the question must be asked, whether it is really raw, or has it been cooked, or possibly pickled?

To take another area of the hard sciences that must be questioned from the linguistic point of view, what is the status of the premise of "objectivity"? Is it related to the grammatical distinction between subject and object? For example, one of the differences between subject and object is that the former is presupposed and the latter asserted. Is it not the case that the hard science approach is characterized by a focus of attention on assertion at the expense of presupposition? Does it not consist precisely in looking at every thing as an object? There is no dialogue between subject and object in hard investigation: It is supposed that there an object only; it can say only what it is permitted to say by the experimental paradigm in which it is placed; It is not allowed to speak itself; It is allowed only to answer, "Yes" or "No", like a hostile witness on trial. But, can there be an object without a subject? It is certainly not possible in natural language. Isn't this why the literary style of the hard sciences strives to be as passive as possible, removing the subject from any overt position in the discourse, and elevating the object to subject position?

And, speaking of discourse, what effect does it have on scientific discourse that it is couched in language and reasoned in language? And what are the implications of the fact that there is the well-known conventionalized expression "to cook the data"? How did it come to be, if it does not describe something that goes on in scientific activities? And if it does, then doesn't it stand to reason that there must be a sense in which this scientific "cooking" is the same as the cooking of food?

These, and other potentially embarrassing questions, are supposed to be obviated by the concrete practical grounding of this method in the final test - "Does it work?" If it works, then how it works does not matter. But is this really a concrete grounding? Is this a standard that is independent of the symbolic or is it also influenced by the symbolic? Why choose "work" as the standard? Is it in some sense to be opposed to "play"? Or, does it mean "to go" or "to function"? And, if it means these things, does it matter where it goes or what it does? Does "work" mean "to make money"? And, if so, what of the fact that money is itself a symbol?

Furthermore, underlying and governing the scientific method is the deeply rooted premise that the key to understanding everything, that the very law upon which the universe is constructed, is the law of symbolic logic, usually in the overt guise of mathematics or geometry.
The thread of this premise is traced through the history of the development of the scientific method very clearly by E. A. Burtt. This premise in its raw form is perhaps most naively and, therefore, clearly stated by Galileo, who believed, according to Burtt, quoting Galileo, that the rigorous necessity in nature results from her fundamentally mathematical character - nature is the domain of mathematics.

In other words, the fundamental premise is that the force driving and guiding the planets on their course through the heavens is the same as the force driving and guiding addition, subtraction, and multiplication. When stated clearly, in its uncooked form, it can be seen not only that the premise is wrong, but also that it is wrong in precisely the same way as all humans, under the influence of language, tend to erroneously equate the force of language with the force of nature. Thus the very meaning of a word, such as "dog" is a function of a confusion between the word and the thing it represents.

The influence of the symbolic function is completely overt in the following quote from Galileo, given by Burtt (p. 75).

*Philosophy is written in that great book which ever lies before our eyes - I mean the universe - but we cannot understand it if we do not first learn the language and grasp the symbols, in which it is written. This book is written in the mathematical language, and the symbols are triangles, circles, and other geometrical figures, without whose help it is impossible to comprehend a single word of it; without which one wanders in vain through a dark labyrinth.*

If taken in its literal sense, such a statement cannot be regarded as anything but starry-eyed mysticism. There are no triangles or circles in nature. Or at least they are very rare and certainly not the essential elements in the language of nature. Nor can these be dismissed as mere metaphors: The universe is a book; It is written in a language which one must learn; Its symbols are triangles and circles; It consists of words; It must be read. They may be metaphors, but as such, they are metaphors which equate nature with language. Nature speaks and writes just as you and I do. Obviously this is more than coincidentally correlated with the basic symbolic function, which is achieved by erroneously projecting conventional symbolic values onto nature.

Frankly, I personally do not find this proposition all that far fetched, except that I do not think nature speaks in the language of triangles and circles. People do. Nature speaks in the language of a different kind of sign.

But I would suppose that modern scientists would like to distance themselves as far as possible from the implications of such linguistically naive statements as those of Galileo, but surprisingly enough, his conception of the scientific enterprise is overtly embraced by many modern scientists. Even more surprising, for me at least, it is a position which is espoused by some linguists. For example, Chomsky (1980) says that "we have no alternative to pursuing the 'Galilean' style in the natural sciences at least." And he locates himself, as I said above, firmly within the natural sciences.10

These various kinds of unconscious symbolic influences which have contaminated the scientific enterprise raise a number of thorny questions, but fortunately it is not an issue which we are obliged to untangle here. The issue that we are concerned with in the present context is this: Is the frame of reference and the methodological position of the hard sciences influenced by language? Is it in any way to any degree contaminated by the unconscious importation of symbolic functions? I personally think the scientific method is not distinct in any categorical way from the symbolic function of language. In my view, the scientific method is nothing more than the playing out of the method of language in the symbolic mode of transaction with nature.

10 This quote is from page 9. He asserts the same thing on p. 24.
But agreement with this view is not required for the argument. If it is conceded that the scientific method is influenced in any way by the unconscious adoption of principles of language, then it would be a methodological error for linguistics to incorporate anything from the hard sciences without carefully examining it from the linguistic point of view.

This concession would not, of course, in any way vitiate the utility of the scientific method in principle or in practice, in as much as in the end its value is a question of whether it works or not. However, it does imply that linguistics cannot adopt the premises or the methods or any of the conclusions that have been arrived at by the scientific method, unless and until and to the extent that those premises, methods, or conclusions have been cleared of any extraneous symbolic influences with which they may have been contaminated. To adopt any of those principles in the foundation of linguistics would be to vitiate the linguistic point of view, to expose its argumentation about language to indeterminable kinds and degrees of extrinsic symbolic influence, and hence render them circular in unknowable ways and to an unknowable degree.

In conclusion, linguistics has taken and must take an autonomous position in relation to the hard science point of view. And, from the point of view of linguistics, the hard science point of view is seen to be at a distinct disadvantage in regard to the study of language for the following reasons.

First, it has only an indirect bearing on the analysis and explanation of language and language related phenomena. This can be seen in the futility of trying to explain the symbolic dimensions of even such concrete human behavior as speaking and eating: The structure of such behavior cannot be apprehended as fact from the hard point of view, and if it were taken as fact anyway, those facts could not be explained as a function of material cause.

Second, there is every reason to believe, without the necessity of examining any specific propositions, that all propositions held by the hard point of view are subject to largely unrecognized symbolic contamination of an unconscious origin. Thus the presumption must be made that any particular proposition is of questionable validity as a foundation for the analysis of language, until its symbolic distortion has been evaluated and it has been properly oriented as seen from the linguistic point of view.

Finally, I would like to mention a small, but significant point, the implications of which will become more clear in Section 2. The hard point of view is only capable of transacting in terms of phenomena which are repetitive. Contemplation of this property of the hard point of view reveals its greatest weaknesses in regard to the analysis of language, but that is not my purpose just now. I mention this here, because this property alone proves the validity of both of the claims I just made.

In regard to the first: In the realm of language and related phenomena, there are unrepeatable first-time events as well as second-time events, known also as spontaneous and coincidental events respectively. For example, a joke cannot be repeated with the same force which it had the first time. If one is to get a joke, it must be apprehended the first time. But, it is only when it comes to the third time that one can begin to speak of fact or law in the hard science sense. From the hard point of view, it is impossible to get a joke. What is most important to note, the vitality and creativity of language is in spontaneous and coincidental phenomena, and thus it is there that we must look for the genetic determinants which govern its structure and the dynamic forces which determine its function. From the hard point of view, one is in principle precluded from either grasping or manipulating such phenomena, let alone trying to make sense of it.
In regard to the second: Strictly speaking there is no such thing as repetition. The characterization on one event as a repetition of another is a classification of them as being equivalent in relation to some third previously established standard of judgement. Strictly speaking, a repetition is a class of events, and a class of events is not an event. As we saw in the last section, classification of phenomena is one of the essential functions of language. There can be little doubt that very concept of repetition has its origin in the classificatory processes of ordinary language and that it has been simply taken along unthinkingly by the scientist when he shifts from his ordinary persona to his scientific persona. And when he comes to apply this process of classification, can there be any doubt that the classifications which he begins with are those which he brought with him from language? If this most fundamental scientific concept is a function of the symbolic process, then it is not merely possible that the hard science position is contaminated by unconscious symbolic premises, it is a certainty.