III - Intelligibility, Meaning and Language

Attaining an habitual explanatory viewpoint or orientation does not occur quickly or easily. To do so most fruitfully it is necessary to understand the relations among intelligibility, meaning, language and reality. In our model, intelligibility is what is understood. Meaning is what is understood via signs. Language is meaningful in explanations because we mediate intelligibility via concepts using language. Reality for our purposes to this point, is factual.

Semiotics is the study of signs and linguistics the study of language. The two are inadequately distinguished since some, but not all, of the areas of linguistics pertain to all signs. Whether one encompasses the other is not our concern here. We are concerned though with the philosophical use of semiotics, linguistics, and, in Wittgenstein's case, grammar as primary tools or methods for philosophical thinking. While this has been extremely fruitful, it is limited, primarily because intelligibility extends beyond language and experience and our notion of reality extends beyond both. It also is limited because there is an excessive concern with the contents of operations rather than the operations themselves. Understanding the operations is the key to understanding the relationships among intelligibility, meaning, language and reality. Since our primary concern is not with phenomenology, intentionality analysis or self-appropriation, but with a generalized model of mind, we only will discuss the operations to the point where we can move on to other matters that presuppose some understanding of them.

This chapter is unabashedly complex. There is no way around it. Our first goal is to understand how language works. This will require an excursus through mathematics

so we can understand the notion of difference and the arbitrariness of language. It also will involve exploring three different understandings of concepts, all fruitful and pertinent. Along the way there are reflections on language acquisition that tie in to our conclusions in the last chapter and lead to an understanding of how language is structured, or, more accurately, how systematic language is. Within these discussions which include some reference to the notions of grammar for Saussure, Chomsky and Wittgenstein, a second notion of consciousness will surface which will help to situate both Chomsky's and Wittgenstein's notions of grammar within our model

To understand language explanatorily is to understand how and why language "works". There is a material element in the embodiment of meaning in signs, the psyche and the spiritual breath of speech, for example. An overview of insight will provide the core relations for understanding language and meaning as embodied. In conjunction with our discussion in the last chapter, this will enable us to understand to some degree how language is habitual, the power of language, and the fact that we think in language and understand reality to a large extent by using language and signs in our efforts to understand. But it is to the formal element that we must turn to understand the diacritical nature of language, the role of difference in understanding the meaning of signs. Saussure's notion that language can be understood primarily through difference is the key to understanding language as intentional. This nothingness of language is akin to the nothingness of consciousness which is a condition for consciousness being intentional, permitting the emergence of the other in itself, which is, materially and as potential, difference. We will discuss this later. Understanding understanding is critical to understanding language. It is the play of the formal and material elements via

understanding that constitutes the intelligent intelligibility of meaningful expression in conversation.

The Dynamism of Language: The example of conversations

Pedagogy is immanent in conversations. When talk is flowing, understanding can be immediate. With hesitations and pauses we may search for the right words, work out our line of thought and so on, but if the other person does not understand, we must find the expressions to economically assist them in understanding what we mean. This is a matter of our understanding what they do not understand. If we assume too much, we return to the same general position of incomprehension. If we do not assume enough, we can be insulting. With good friends we have a meaningful context to orient us and understanding typically occurs more readily. With others we still have a meaningful context but it is sparser, constituted perhaps only by cultural meanings complemented by mutual professional understanding. While we can reach common understanding we restrict what we say to the more respectable and safe expressions to avoid misunderstandings. An even more structured conversation may have an agenda specifying the sequence of topics.

Associations often sequence a free flowing conversation. As we skip from topic to topic we may need to retrace an associative chain to understand how we got to the current topic. The associative flow evinces the embodiment of understanding. The formal structure is constituted by meaning and the intelligent patterning of its expression. The play between the formal and the associative evokes Sausurre's structuralist understanding

of the dynamics of language use and development which we will consider in more detail later. Both the meaningful structure and the associative flow are conditioned by understanding.

The pedagogy of gaining a common understanding is distinct from that of gaining common agreement on what is real and what is not. In its immediate context, the latter is not a question of gaining common meaning but of facilitating the economic conjoining of the conditions for assent by the other person. There is a corresponding persuasive process in achieving the mutual recognition of values. Language plays a subsidiary role in these processes. The meaning of the conversation may be instrumental, but the meaning in the conversation, the expressed meaning, may not be. Likewise, the pragmatics of linguists, the contextual elements that lead to the understanding of expression, differ from the pragmatics of the conversation, for example what I need to do to get my point across. Getting my point across is a matter of my understanding what is needed to have another person understand me.

The pedagogical structure in conversations is analogous to conceptualization. At times conceptualization does occur in conversations. Understanding conceptualization will provide the key elements for understanding language and signs.

Understanding and Conceptualization

Understanding is insight. It is a matter of "catching on", "getting the point". It can occur readily and easily when it is habitual. Then it easily is overlooked. Meanings are clear. What is real is obvious. We know immediately what to do. When it is more

difficult, consciousness of the operations of understanding becomes heightened. The achievement, the 'aha' experience, is particularly noticeable. We also advert to the questions that repeatedly plague us, and the play of imagination, supposing, and considering. We can work on the problem in "the back of our mind" with it becoming the focus if we hit on a potentially fruitful clue or image. We can be trying to understand relationships between previously understood items. In this case we may think in words, perhaps think out loud. This sparse description indicates the richness and complexity of the process.

The achievement of understanding yields intelligibility. What did not make sense now does, the unclear is clear, what did not fit does, the unrelated becomes related. Intelligibility is not given, but achieved. In this sense it is always *a priori*. However, the intelligibility can be of experience or the imagined. In this sense it can be *a posteriori* with the formal sciences constituting the *a priori* in a stronger sense. For our purposes, we will focus on intelligibility as relational stressing it's *a priori* nature.

Though insight is a process of relating items (the relata) to one another, it does not follow that we know relations as such, that is, that we have a concept of relations, or that we have a concept at all. This is particularly the case in insights in concrete situations, including the development of skills. For example, the understanding of concrete motor operations can be understood as relational. The infant relates his movements in terms of his interests or goals to elements of his surroundings, be it toys, a mobile, or another person. In some of these cases we can see a type of understanding that we share with some animals, an insight into the concrete immediate situation that yields the achievement of a goal. Two examples come to mind, one a standard example and the

other personal. The first is the well known experiment by Kohler where a chimpanzee is placed in a room with a box, a stick and a banana hanging from the ceiling that she cannot reach. After a period of what appeared to Kohler to be deliberation, the chimpanzee picked up the stick, got on the box and knocked the banana down so she could eat it. Clearly, there was a relating of the box, stick and her actions to the banana. The other example is of my daughter's dog, Freckles, who does not like vacuum cleaners when they are on. One day while the front room was being vacuumed, Freckles went to the wall socket and pulled the plug. Assuming this was intelligent, Freckles had related plugging in the vacuum to its running, or the sound he disliked, and, like the chimpanzee, hit upon a tactic for meeting his desire by relating the plug and his actions to the cessation of the sound.

A key point about these insights is that it is not necessary to posit language as required for them. Rather there was an understanding of elements in the immediate situation and possible actions that could be taken with respect to them. A second point is that no universality is connected with them. Though similar situations most likely would be understood similarly leading the participant to try behavior that worked in the past, it does not follow that it would work as it worked in the past. The most we may posit is a generalizing where the generalization is operational, or immanent in the tendency to understand similar situations in terms of past understanding or to try what worked before. Third, the actions worked. Thus, there is the possibility of having insights that are particular and concrete and may never be repeated in the same way, though variations are possible and which, minimally, are pragmatically realistic, or work. We will revisit these types of insights when we consider language competence.

Let us go to the opposite extreme, the insight into why a circle is round. The example is Lonergan's and is discussed in both Insight and Understanding and Being. Lonergan's goal is to have the reader gain insights into insight by understanding the interrelationships of the elements of insight concomitantly with understanding why a circle is round. That is not our goal. The need here is to focus on key relations he discovered which are relevant to explaining language. Our focus is on conceptualization which requires another set of insights to express economically what has been understood. It is the basis of pedagogy. The general elements of direct and conceptual insights are similar. It will be helpful to elucidate them by laying out the general structure of these insights. Lest I lose some readers at this point, let me stress that this is only one of three notions of concepts that we will discuss. This is not the whole story.

First, there is the question. In the case of the circle, it is "Why is the circle round?" In the case of conceptualization the question may not be expressed in words. It is illustrated in the notion of a gap between understanding and expression immanent in the question "What did I just understand?" which is the indication that there can be more to the process of pinning down the understanding than the initial 'aha'. We encounter a similar gap when we try to express our understanding to others. Its symptom is the pause we experience in conversation when we try to find the expression for what we are trying to say. In the direct insight into why a circle is round we may visualize or draw a circle with radii, each of which terminates at a point on the circumference. We also may understand that the circumference is composed of points each of which is equidistant from the center. When we get the insight we grasp the necessity of the circle being round because all the points on the circumference are equidistant from the center and

concomitantly, all the radii are equal. Lonergan makes the further point that in the insight into the direct insight into the circle we grasp necessity and its complement, impossibility. If all the points are equidistant from the center the circle must be round and it is impossible for it not to be round. Note that understanding the circle presupposed a prior understanding of what it means to be equal, a center, a point, a circumference, a plane, a line and a radius. All of these elements are related to one another in the understanding of the circle as round. Each of these, in this illustration, also are concepts.

The definition of a circle is formal. If we consider why points have no length, breadth or depth we can get a notion of formal. If they did, then in determining the distance from the center to the circumference we would need to pick a point within the point to determine the distance and it would need to be the same point within all the points. Then we enter an infinite regress. Thus, length, breadth and depth make no sense when thinking of mathematical points. This is an inverse insight into the lack of intelligibility of them for understanding points. Now what has neither length, breadth or depth cannot be imagined. The intelligibility of points transcends the imagination. Points in the purely mathematical sense are formal. Hence, there is no difficulty in there being an infinite number of points between any two points on a line. Similar reasoning holds for lines. They have length but no depth or breadth. Thus, the circle can have infinite radii.

Perhaps one would counter by saying that points are understood in terms of length, breadth and depth as what they lack. It is in terms of a point's difference from these that we understand what a point is. Though contrast is illuminating, difference alone cannot define or explain anything. Ideas also lack length, breadth and depth and are

not points. Points are positively understood in terms of their relationships as in the infinity of points between two points on a line.

The insight into the circle is a direct, explanatory insight which interrelates multiple relata. These interrelationships constitute the intelligibility grasped in the insight.

Regarding conception, Lonergan states:

> Conception, then, expresses generally what is essential to having the insight, and that is a matter of abstraction. One picks out from these particular radii and this particular case of perfect roundness everything that is necessary and nothing that is not necessary to have the same insight again. In other words, one selects what is essential and omits what is incidental; one selects what is significant and omits what is negligible. It can be seen that the word 'essential' has a very precise meaning. It means essential to having the insight. …(C)onception is the selection of what is essential to having the insight from the data, the empirical presentation, the image. There is also the inessential. It makes no difference if the background is green or white or black. It makes no difference what the color of the chalk is or how big the circle is. But there has to be a center, a perimeter, and radii of any size, in any position, and the center, the perimeter and the radii have to be in the same plane.[1]

[1] (p. 48) (Understanding and Being)

Language makes general expression possible. Nouns, adjectives, adverbs refer to similars. Pronouns have similar uses. Where there is dissimilarity or difference language is used differently, different words are used and similar words are combined in different ways. By conceptualizing the insight into the circle, the language used to express the insight assumes precise meanings. The notion of difference is useful in understanding in what ways things are distinct from one another, but it is not sufficient to explain why a thing is what it is or the way that it is. We could distinguish it from everything else and still not know what it is. In fact, we do this all the time when we encounter new things. In the wisdom of common sense they may be similar, but different, or totally different and so on. The clearest case is in understanding numbers. In this case, understanding also is a matter of relating.

Difference and Intelligibility

A basic understanding of numbers provides an apt analogy for understanding the role of difference, relations and intelligibility in language. Along the way, we can get to the heart of the matter regarding the ontological status of mathematical entities.

We speak of numbers as if they exist. For example, numbers can be understood in terms of the operations performed on them. We know 13 is a prime number because the only number by which it can be divided and yield a whole number is one. Likewise, we know that even positive integers can be divided by 2 and yield a whole number and odd numbers cannot. Thus, odd numbers will always have odd numbers as factors. There is a normativity to mathematics conferred by its operations. If one understands addition then

one can understand that 1+1=2. However, we cannot understand addition as operation unless we have some understanding of its operands, numbers. The relation of the operands 1 and 1 via + yields the relation to 2 as one of equality. We also can consider "=" as an operator. Thus, when we state that x = y, x and y are related to one another via =. This is perhaps more rarefied, but when addition of 1 and 1 yields its result, it is an "equaling" to 2. So the operation of adding 1 + 1 to get two is fairly sophisticated. There are three operands and two relations which need to be intelligently grasped, or understood, in terms of a single performance.

In teaching us how to add our teachers used objects to provide an illustrative definition of one and two with reference to objects. For example, "This apple is what I have one of". However, this nominal definition does not define what one is. One is defined via the relations in which we find it, and one goal of Number Theory is to discover the types of relations numbers can have. Thus, our understanding of 1 develops when we understand how to perform more operations that either use or yield 1 until we get the insight that there can be one of anything. Then the operation of counting to one is fully generalized. However, we may not understand that this is what we are doing. Thus, we can readily add 1 and 1, but we may be stumped when asked what 1 is, though partial answers would be that one is what you can add one to to get two or it is what you can divide any whole number by and yield that whole number.

We are defining number in terms of the relations in which numbers are a term. This may seem trivial. However, if we confine ourselves to arithmetic operations, then the answer would be that if you want to understand what numbers are, understand arithmetic. But it also means that to understand the operation you need to understand the

terms and that to understand the terms you need to understand the operation. They form an intelligible "whole" or "structure". What the teacher is trying to do is not to get us to understand how to add one book to one book, but the more general operation of adding numbers to one another, which enables us to sum things in general. This requires an insight which yields the operators and operands as interrelated. Likewise, we grasp the general form of the addition operation for whole numbers when we realize that any numbers can be added to any other numbers yielding a sum, though we may not know in all cases how to do it.

But still we may ask, what is it that we are adding together? Before we were adding apples, now we are adding numbers. What type of object is a number? Our inclination is to try to imagine a number and, perhaps, to try to understand number as we would understand a thing, such as an apple. However, to understand number we abstract from any particular object so number is not an object in the sense of a sensible thing. If we did not abstract, then each instance of the number one would differ. If the difference were meaningful, then 1 would not equal 1 in those cases. If the difference is not meaningful, then it does not need to be considered. We are in a situation similar to our consideration of lines having breadth as well as length. We determined that for geometrical purposes length would be abstracted from any other material consideration. However, this causes a problem. We can conceive of many ones. This becomes problematic because they are not material and there is no intelligible difference between them. So how is it that they differ? The same is true of points and lines. We can conceive of relata that differ, but between which there is no significant difference. In a sense, we are considering the most abstract difference, because there is nothing

significant by which we can point out the difference. This difference is generally considered to be material difference. But material difference is factual. Numbers are formal, not material, thus their difference cannot be material.

This means that numbers per se always will be formal, because there is nothing that exists which has no distinguishing characteristics other than its difference from other things of the same kind. This would simply be an empty object since difference is not a characteristic or quality. In a sense, we end up with nothing. In dealing with numbers then, we are dealing with relata that differ, where in the cases where the numbers are equal, the difference between them makes no difference. Hence we can say that 1=1. Thus, we could say that quantity results from the abstraction of material difference and that it can be manipulated formally because material difference makes no difference. Things and events, or, more generally, relata, can stand in mathematical relations to one another because they are materially different from one another. We also can say that numbers are actual when they are numbers of other relata that can be empirically verified. But numbers "in themselves" are formal and, as such, can not be empirically verified. Also, they can be in intelligible relationships with one another that may never have empirical application.

We understand numbers by using fully arbitrary signs for them. In the case of numbers, it is the material difference of the signifiers that makes it possible to use them as symbols (in a formal sense of symbol) and to manipulate them mathematically. The image as symbol mediates between the imagination and intelligibility. Note that I did not use the term "represent" to avoid any iconic or imaginal associations.

If we say that the various ones are defined by difference and nothing but difference, we overlook the relational meanings of one. The abstract expression for relations is "a R b" where a is related to b via relation R. In the broader sense, the whole expression is a relation with a and b as relata.

Following the lead of the French structuralists, relations embody difference and some element of the same. The relata would be totally the same if the relationship were one of strict identity. Insofar as it is not, there is some difference between them. With the relation of identity, the difference is in the expression of the relationship where there is minimally a material difference in the terms expressing the relata. This would occur in understanding words, for example, where we posit full equivalence of meaning.

Viewed as the relating of differences, relations are an intelligible whole, though not in the sense that a thing is a whole. Rather there is a synthesis or a bringing together of the relata in the relation. A thing can be grasped as one, without understanding the interrelationships of aspects of the thing in a systematic fashion.

Since the notion of difference is understood within a relational context, a case can be made for understanding as primarily an understanding of relations. This would include nominal insights into the use of words where they are related to objects or to other words and the understanding of a thing as a whole where all its parts or aspects or relata which compose it are related to it as a unity and an identity.

The Sign

For Saussure, what he calls the language mechanism, is the set of mental operations whereby two different orders are interrelated, syntagmas and associative groups. In the background is the relating of the signified, concepts, with the signifier, the material sound for example, via the sign. Without concepts speech is merely sound, or not speech at all; without language our ideas are not precise.

The sign has both a material and a formal element. For Saussure these cannot be separated concretely. The material element is the sound or the mark. Sound as such is not speech. To be speech, sound must signify and it cannot without reference to ideas or concepts. It is by understanding the significance of the sound that we can distinguish words, sentences, etc. He conceptually distinguishes the material and formal elements by distinguishing the signifier and the signified in signs. The signifier is speech, writing or other semiotic elements such as icons and gestures. In the cases of speech and writing, signifiers function via contrast or difference. As purely different they are unmotivated. That is, there is no reason to choose one sound or sequence over another to express a concept. In this sense, signifiers are conventional. If signifiers were not, at root, arbitrary, then some meaning would be imported and the signifier would not be a "pure" carrier of meaning **(find his quote**). Within the context of meaning signifiers can be more or less motivated. Thus, the spoken numbers one through twelve are unmotivated in English, but most other positive whole numbers are. The signifiers are composed of other meaningful units.

The relationship of signifier to signified is not a one to one relationship. An idea can be expressed in more than one way and sentences can be ambiguous. Single words rarely refer to concepts. If they did, language would be merely a lexicon. Rather signs, as

motivated, have value. That is, they can be exchanged for one another to a certain extent to express the same idea. A sign's value is understood in terms of its interrelationship with other signs. If a sign drops out of use, the values of other signs change to close any gaps. Value is not quite meaning. Meaning is actualized in speaking and writing. The meaning is not some combination of the values of the expressed signs. Rather it is a whole within which the signs are interrelated dynamically. Thus, the units of linguistics for Saussure are not signs, but syntagmas, or sequences of signs. There is a sense, then, in which syntagmas and inter-related syntagmas are an inter-related "whole".

For Saussure it is more precise to consider the sequencing of syntagmas rather than words, since, for him, syntagmas are the proper units of linguistics.[2] A syntagma is a sequential combination. It can be a single word (postman), multiple words (good luck), phrases (went for it), or sentences (You da man!). [3] In learning a language we do not simply learn a lexicon. Rather we learn the language through understanding the meaning of speech which is understood through understanding the meaning of syntagmas, many of which are cultural and pre-existent for the language learner. Some syntagmas are idioms, but others exhibit common structures. Prime examples are sentences and phrases using regular verb declensions with the proper pronouns.

Perhaps we are moving beyond Saussure to claim that it is this "whole" which is a sign of the concept. Just as relations form an intelligible "whole" and the concept of a circle is an interrelated set of relationships regarding the intelligibility of the circle, the expression of that intelligibility and its relation to the images that are most efficacious for

[2] Saussure p. 122
[3] Saussure p. 121

understanding the circle, so the language used references the interrelated set and is itself an interrelated set within the larger set.

The Mathematical Analogy Revisited

If we consider mathematical language we can understand some key linguistic concepts. With the formal use of symbols, there is reference, but the reference is not representative, but intelligible. This is possible because of the arbitrariness of the sign as signifier. This is typically understood as the conventionality of signs and glossed over in its obviousness. In mathematics, conventionality of signifiers, in this case notation, reaches its peak. In one sense, we only care that the signs differ from one another. Their utility stems from difference. If their difference were significant, then the signifier, qua material sign, would result in intelligibility in mathematical operations that, from a mathematical standpoint, should be excluded. The use of icons in graphical user interfaces in computers are designed to evoke the relevant insights regarding use or interpretation. Mathematics avoids these associations via use of non-iconic symbols. Thus, the signs get their significance via an understanding of mathematical operations, or relationships, rather than the signs determining what these relationships are.

The utility of the sign as conventional, then, is more than it being a carrier of meaning, to use the common metaphor. It permits the discussion of purely intelligible, or formal relationships.

If we turn to a rational reconstruction of insights required to learn how to count, we can understand a second meaning of the utility of signs. One does not count to 100 by

memorizing, but by getting insights into the decimal system so that counting is a recurrent general operation where counting from 40 to 50 is analogous to counting from 80 to 90. The basis for this generalized insight is knowing how to count from one to ten which includes an understanding of lower and higher numbers. The breakthrough involves an understanding that the ordering from one to ten corresponds to the ordering from 10 to 100 and that within this higher ordering (in the tens place) there is the recurrent operation of "counting to ten" (i.e. Counting from 31 to 40). Subsequent insights lead to understanding counting to 1000 using the analogy of counting to 100, etc. At some point, an insight into counting in general is had that permits one to start and stop anywhere in the positive integers.

The utility of signs in this case stems from their order. We can think of the single digits as completely arbitrary. When we get to double digits and beyond, their order is conditioned by the ordering of the single digits. Since we are dealing with mathematics, we can understand this ordering directly in terms of intelligibility. Thus, the use of the term "twenty-one" is, to use Saussure's term, motivated by the elements of which it is composed. In this case we can see that it is strongly motivated once the insights into counting are achieved.

Thus, signs can function as such due to their arbitrariness. There is the arbitrariness of the sign which enables it to be a sign and there is the relative arbitrariness related to use, which is the extent of its motivation.

Reference

The ambiguity of the notion of reference is the ambiguity of the notion of the signified. For example, for Saussure the signified is a concept while for others it is an object in the world. We have noted that there is not a one to one correspondence of language to the signified. Language is itself uniquely structured with terms such as 'and', 'or', 'of', 'the' which are functional with respect to the language, and are not part of the intelligibility of the signified unless it is a text, a language user and so on.

If reference is to the understood, then meaning and reference are one. There is a distinction between referents if we ask if the referent is real. Through understanding, we only know what things are, not that they are. The correlate to meaning is direct insight. The correlate to existence is judgment. In fiction, for example, there are referents as meant only. In a first hand account there are referents as meant and as factual.

If the referent can only be factual, then there is a major distinction between meaning and reference, because then there can be meaning which does not refer. But if this is the case, then there are no mathematical entities or fictional characters. We certainly talk about them and refer to them.

The issue is the most problematic in the simplest case, the proper noun, because here the link can be merely nominal and the word as arbitrary as the letters used to stand for variables in mathematics are. As nominal, that is insofar as it is a name only, it has instrumental meaning only, like 'or' or 'and'. However, the word does have a reference to an object, and it has no meaning except as a reference to a particular object. Hence, reference does not need to be meaningful and meaning and reference can be distinguished. The real distinction here is between the object as experienced and named and the object as understood. As named, the object becomes "something", it is just that

we do not know what it is. With nominal insights, objects or aspects of experience enter the world of meaning. So minimally, the object is the nameable. As nameable it achieves the standing of being capable of being understood as are the other correlates to the other names we know. As we learn what it is, we understand its intelligibility and the expression of the intelligibility is in reference to what the object is and, as such, is a reference to the object. Thus reference is immanent in meaning. The real issue is not the distinction between meaning and reference, but in determining if there is a factual referent. If there is not a factual referent, then the reference is formal as in pure mathematics or fictional as in literature.

Language Use

Language has both systematic and nonsystematic elements. The systematic is the set of relations that condition our sequencing of words. This is grammar, or, for Saussure, synchronic, or static linguistics. The object of grammar is "_language as a system of the means of expression."[4]

A second type of order is associative groups. There can be multiple associative groups related to a single syntagma. Associative groups can be imaginally linked, relationally, or more formally linked, or some combination of the two. Imaginal linkage is exemplified via the roots of verbs which can be common within tenses, or the use of 'ed' which associatively links several words which indicate the past tense. A relational

[4] Saussure p. 133

link would be the use of pronouns in English which are related via use with verbs, but which, for the most part, do not have imaginal links among themselves.

For Saussure, the language mechanism (his term) works via the relating of signifier and signified in the signs, or syntagmatic sequences that have conceptual reference, where the selecting of the sequence draws upon a range of signifiers evoked via the associative relations. As associative, these relations are neurologically based.

This account of the dynamic structure of expression works well assuming language competence. It displays the structure of insight in the work of the imagination and the intelligent achievement of meaningful expression. As language competent, we often think in words, sometimes thinking out loud in conversations. These can be instances for novel insights. Signs make our thoughts precise just as they enable us to distinguish sounds meaningfully. This provides a powerful inclination not only to understand thought in terms of signs, but to constrain it to signs. On one reading, this is the course Saussure took. However, for Saussure, much of thinking, including the language mechanism is unconscious, so it is difficult to determine what he thought thinking is. Though ideas may be separable from signs more than conceptually, it is probable that he did not think so, or that he thought we would get very far without language. In this sense he is linked to the Kantian tradition. However, while it would be fair to call Kant a conceptualist, Saussure introduces a more varied dynamism into the mix. Meaning is in the concrete expression (just as the true value of money is determined in the actual exchange). Prior to expression via signs we have only values. The values are a constraint on which concepts we can express, but their value as constraints is to be enablers, that is, to express virtually any concept. The notion of value is abstract. It does

not exist, except concretely in speech, but it is abstracted to make sense of the language mechanism. However, we can use it to indicate a psychological fact. The notion of value indicates that the meaning of words, syntagmas, sentences, etc is potential prior to expression. Yet, this potential is not radical. It is conditioned by prior use and understanding. Thus, when we are attempting to get the expressive insight, in writing, for example, linguistic elements as potential components can be assessed in terms of value to find the best expression of meaning. But that best expression is only realized in the creative expressive acts and those acts can transform the meaning of the elements..

While we can get a notion of creativity via the innovative use of signs, he does not really explain it. We know that we can distinguish X from Y via a series of contrasts just as I can point out a particular building in a city skyline by telling you which buildings it is not. Saussure certainly does not constrain understanding relations to an understanding of differences. Mere differences yield no relations. So the question becomes, how are new relationships understood? Combinations of attained syntagmas are not sufficient, since as interrelated, the individual meaning of syntagmas is transformed, even though hearing or imagining combinations may be the occasion for an insight.

The model presented here is that insight is creative. Every initial insight for a person is "original" for them. The difference from culturally original insights is that it is easier to learn from someone who understands the insight conceptually since they can economically present the elements required to have the insight. This is a primary benefit of culture. The dissemination of understanding can occur more quickly than its initial emergence. When we have insights without being taught, to express them we may need to invent language in addition to using previously learned words in new ways.

Conceptualization of the insight also is creative in the use of language to express something new. In addition to the two types of orders Sausurre invokes to explain language use, there also is the intelligible order that is being expressed. Its meaning does not come from language. Rather language's meaning comes from its conceptualization. For Saussure, the signified, or concept is expressed via signs. This is true once the concept has been understood. But in a new insight, the concept is not yet formed. In that case, we have a minimum of three factors, a "stock" of syntagmas, the associative links among them that "bring them to mind" as possibilities, and the intelligibility of the prior insight. This indicates that the "language mechanism" can be creative because the expressions are the expressions of understanding in act.

Acquiring Language Competence (I)

Learning a language is a creative process. Earlier we indicated that counting is an intelligently engendered structuring of cognitive operations. If language finds its source in understanding, then it too is intelligently structured. In fact, we are still discovering what the structure of language is. So if it is intelligently structured, it is not the case that the structure is explicitly understood and chosen. Additionally, the grammatical structures that have been understood are extremely complex. Is it possible for children to understand grammar as they are learning language? They can understand counting, but this is after they have learned a language and many of the cognitive skills that go with it. The fact is, though, that children learn how to count, but they cannot express all the insights and generalizations that make it possible; rather, they simply count. They do not

need to understand number theory. Likewise, children learn language without understanding linguistics. Language is learned first similarly to learning concrete operations in immediate situations.

Once we have conceptualized we can think in the context of concepts. The pristine insights into language are preconceptual. If concepts rely on language for general expression, the initial insights must be preconceptual. The conceptualization of subsequent insights can be aided, just as the insights were, by prior concepts. That the pristine insights have occurred is evident in performance. The insights are operational in the sense that they yield, not concepts, but a type of performance in the context of a concrete situation that typically is pragmatic. That is, the baby uses speech to get things done — get attention, get food, etc. In this sense the initial insights are like those of the chimpanzee and the dog illustrated earlier. It is with the insight into the relation of words and things in the world and knowing how to ask the question "What's that?" in some form (i.e. Pointing) that language really takes off. Then the social environment becomes a source of knowledge in a new way and the development of language proceeds with the development of knowledge.

Now, if understanding is relating elements to one another, it should not be the case that when we learn our first word, we also gain a greater entry into the language community by having the insight that words are related to things, etc in this lexical or nominal manner. This is because the understanding into the relation between words and referents is a generalization based on relating more than one instance of relating words to referents. Once we do get the insight, however, learning language proceeds apace, though our ontology is primitive since knowing what something is called is conflated with

knowing what it is. When the child starts asking for names that is an indication they have understood the relation between language and objects, such that they are at least nominalists. When they start asking "why" you know there is some notion of relations, though the articulation of that notion may simply be the question "Why?"

An account of having the insight into the relation of words to their referent is given by Helen Keller in her autobiography. She describes both having the insight and the subsequent desire to know the names for everything.[5] She also gives an interesting account of her pre-linguistic intelligent experience.

If language is learned via insights, then the systemization of learning would proceed from the particular to the more general, from the simpler to the more complex, and from the preconceptual to the conceptual. We would learn to use words prior to discovering order in language or "rules", since discovery of rules requires insight into instances of use by ourselves or others. For example, verbs with an irregular past tense are learned at the same time as verbs with a regular past tense ("ed"). There is evidence for an insight into the use of the regular past tense ending as a rule when a child starts adding "ed" to verbs with irregular past tenses. This inappropriate use is later corrected. In this case it may appear that the child is going from the general to the more concrete, when it may be more appropriate to claim that they are moving from a simpler to a more nuanced understanding of the concrete by understanding the appropriate scope of a particular rule. It may take many insights to do so.

The Function of Grammar

[5] Keller, Helen The Story of My Life Random House, 2004, p.20

There are many notions of grammar. Earlier we noted Saussure's definition of the object of grammar as "_language as a system of the means of expression." [6] Of course his notion of system lead to structuralism. Analogous to Saussure's notion of synchronic grammar is Chomsky's idea of grammar as "…a description of the ideal speaker-hearer's intrinsic competence." Chomsky, also sees grammar as systematic. Most generally, it is "…a system of rules that in some explicit and well-defined way assigns structural descriptions to sentences.[7] For him it also is generative of sentence structure and, to some extent, meaning (difference in structure accounts for difference in meaning).[8] Wittgenstein also sees grammar as rules that structure language use as the rules structure the play of a game. He also characterizes words as having a grammar. He states, for example, "The use of a word in a language is its meaning." and, immediately following, "Grammar describes the use of a word in a language." [9]

For each, grammar is more or less determinative of language use and meaning. Chomsky notes that an adequate grammar needs to account for the fact that :_ a language can (in Humboldt's words) 'make infinite use of finite means'" [10] or "_that knowledge of a language involves the implicit ability to understand indefinitely many sentences." [11] His generative grammar is a system of rules that can be applied iteratively to generate an indefinite number of sentences. His stance is the most determinative of the three. For Saussure, grammar structures speech, but it is not determinative of all the uses of signs or

[6] Saussure p. 133
[7] Chomsky p. 8
[8] Chomsky p. 23
[9] Wittgenstein, Ludwig, Philosophical Grammar, (University of California Press, Berkeley California, 1978)p. 60

syntagmas. These uses are dependent on their value, for example, which is ever shifting within their interrelationships and which can be modified in creative usage. Since grammar for Wittgenstein describes the use of a word, it is tempting to consider it fully determinative. A key here is that Wittgenstein's notion is descriptive, not generative. Grammar is only explicit and precise when we choose it to be so, as in the use of technical terms. In general, "If we look at the actual use of a word, what we see is something constantly fluctuating" and "…it could be said that the use of the word 'good' (in an ethical sense) is a combination of a very large number of interrelated games, each of them as it were a facet of the use."[12]

I present these brief overviews not to dialogue in detail with these thinkers, but to address the basic issues they raise. There is a consensus that grammar is, in some sense, a set of rules which to some degree orders expression and conditions its meaning. The first question is to what degree does it do so. This also addresses the degree to which it is systematic. The second question regards attainment of grammatical competence, which we will explore in the next section. It is related to a third question of how we understand what grammar is, which is the technical pursuit of linguists. To answer the first question we need to understand in general how linguists understand grammar. We need to understand this not in terms of understanding their theories, but in understanding the process by which they arrive at systematic knowledge, or by some general reflections on method.

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[10] Chomsky, p. 8
[11] Chomsky p. 15
[12] Chomsky p. 77

It is commonly acknowledged that language competence differs from an explicit knowledge of language structures. There is the clear distinction between learning language in the concrete and spontaneous familial and social situation and the technical training that is required to develop systematic explanations regarding the development and structure of concrete and spontaneous intelligence and its achievements. The latter relies on technical language, a specialized community of scholars, a history of theoretical development, paradigms and models and so on. As explanatory it is both systematic, as in Saussure's notion of synchronic linguistics, and nonsystematic, as in diachronic linguistics which is both systematic and nonsystematic. The synchronic as the general formal structure and Chomsky's notion of understanding the competence of the ideal speaker aim towards explicit knowledge which is conceptual and general. We saw earlier that conceptualization relies on abstraction of what is essential for having an insight from the concrete situation or context of its discovery. It is also general. Series of insights are integrated via further insights into theoretical models, systems, and paradigms as a science or knowledge of a field develops. In these cases the emphasis on precision, generality, consistency and, depending on ones model of knowing, system is normative.

While the expression of the concepts is precise, general and consistent, the reality may not be. In fact, if it is empirical, it is not. Rather it is particular and nonsystematic. Mediating between the general model and the particular experience requires a series of insights into the concrete which supplement the general knowledge. These insights do not form another system. Rather they are akin to common sense understanding by which we respond to what is required in series of unique situations. This means that though we can distinguish the synchronic and diachronic, in understanding language development

concretely, they need to be "merged". There are systematic elements that are realized nonsystematically in individual, group and social histories of language development and use.

We have returned to Saussure's notion that the meaning of signs is realized in the individual acts of expression. In language use we can be referring to the particular, concrete situation requiring a series of mediating insights regarding the particular use of general terms. Thus, one cannot say that meaning is both use and confined to rules. The rules are general requiring particular insights for their application. Their application varies situationally. If their application is their use, then it must be their meaning. Since there are no rules for applying rules, meaning goes beyond rules. If one thinks that meaning can only be expressed via rule-like formulations, then in these instances there always would be an unspecifiable meaning in play. There may be unspecified or unacknowledged meanings in play, but this is a different matter. The way out of the paradox is that insights mediating between the general and the concrete are specifiable, but not fully systematically.

In turn, this tempers Saussure's notion of language as a system actualized in the functioning of a "language mechanism". It also tempers Chomsky's cybernetic notion of generative grammar determining meaning. But it still leaves us with the question of the function of grammar.

To claim that grammar is not a system is not to claim that it is not systematic. The reality is that grammar is both systematic and nonsystematic. A lack of system is evidenced by the existence of both regular and irregular verbs. Moreover, regular verbs can fall into different categories. While the declensions are the same in each category,

there is no fully systematic link across the types. As systematic, syntax, for example, lends regular and recurrent order to expressions. The order is general.

To claim that grammar is not determinative of meaning doe not mean that it has no semantic impact. A regular verb declension is a systematic set of relations across a set of verbs, but it does not determine what the verbs mean. The semantics are open. But they are not completely open since tense can regard past, present or future, for example. Likewise, there is a primitive ontology suggested by language. We may not know what someone means by "it" in a sentence, but we do know it is a person, place or thing, to use the common definition of a noun. So grammar as systematic has a semantic element, but it is incomplete. This suggests, then, that grammar, once learned, is an enabler of understanding, but is not determinative. Likewise, it is an enabler of our expressing our understanding in a manner that others can understand.

Earlier we focused on motivation in the context of meaning, or, more precisely for Saussure, value. Signs can have motivated and unmotivated value. But there is a different type of motivation in terms of ease of use, ease of understanding. Signs are imaginal, and we have seen that there are imaginal associations among them. The facility of these imaginal associations is manifest when we are reflectively conscious of imaginally linked possibilities for expression, such as the proper verb tense of a regular verb where the tenses are variations on the same root. If every sign were totally different, or unmotivated both significantly and imaginally, for every possible tense and number, it would be much more difficult to learn language. Both structural, or relational, and imaginal redundancy make it easier to understand and use language. This ease of use permits speech and writing to become skills. Linguistic operations become subsidiary so

we do not need to focus on them except in those cases where questions of expression arise. This means that language is able to assume it's richest role, which is the enablement of the understanding and communication of meaning.

Acquiring Language Competence (II)

Learning grammar is part of learning a language. The fact that grammar is not fully systematic nor fully determinative of the ordering of expression or its meaning provides a context in which understanding the acquisition of grammar is easier than if it were fully systematic and rule-driven. We do not need to learn a set of rules and all their interrelationships. Rather, we can learn rules individually via insights into ours and others language use. Our use of words becomes more differentiated and complex concomitantly with the development of sentence structure until we attain adult grammatical usage around the age of 10. The sentence structure also becomes more differentiated and complex. Both these developments are associated with the development of cognitive operations, such as the ability to discuss hypotheticals via use of the subjunctive or the use of pronouns that enable us to speak from another person's point of view.

What an analysis of grammatical structure would help us understand is the order in which learning occurs. As we noted, in general we would expect the less complex to be understood prior to the more complex, particularly where the more complex is the

integration of previously understood intelligibility. Of course, this is not an *a priori* investigation since any hypotheses need to be empirically verified. This precludes the need for a preexistent language "faculty" as Chomsky has hypothesized where the most general rules, or deep grammatical structure, are biologically based and then further differentiated culturally in language development.

This does not preclude language acquisition having a biological basis, but that basis is similar to that for other insights in the reliance on the imagination. The neurological differences probably regard the types of images that can be manipulated and, perhaps, the primary processes conditioning their associations, condensations, juxtapositions etc. which facilitate insights into symbolic forms. Likewise, everyone has some mathematical talent, but is differs from verbal talent. One can be gifted verbally, but not mathematically and vice versa. Mathematical talent probably has a biological basis also related to manipulation of "abstract" images. The difference between math and language is that mathematical understanding is primarily explicit and highly conceptual while much of language development is preconceptual. Also, the order of learning in mathematics is conditioned by sequencing of insights in terms of the progressive complexity of operations where understanding of later operations relies on understanding earlier operations. While this type of sequencing occurs also in language, there also are specific behaviors, such as babbling, that appear to be biologically timed and sequenced for language development. Since language development conditions much of our intellectual development, there probably were the same type of evolutionary pressures for the brain to evolve to better support language acquisition and use as there were for the

evolution of intelligence in general. This would include both behaviors and types of insights and their sequencing.

A second factor in the sequencing of insights into language use and grammar is that language permits us to live in a world mediated by meaning. One consequence is that we live in a reality which is not immediately present. We can refer to the past or future, for example. The initial insights into language and the initial referents of the child are in the immediate situation. It would seem that understanding the past and future would involve further insights dependent on the symbolic order attained in understanding the immediate situation. The evidence that past and future tenses are learned after the present tense supports this hypothesis.

A third factor is the goals of the child. It has been proposed that they tend to focus more on learning words they can use to meet their desires. (Steinberg, p. 13) While there may be this type of "pragmatic" bias it coexists with the desire to know evidenced in the incessant what questions oriented to learning names and the subsequent why questions.

Insight as the understanding of the intelligibility of the imagined or experienced involves neurological transformations that facilitate the re-emergence of the insight in similar contexts. These transformations can involve the associating of images, including images as signs, with feelings and actions such that the understanding, as constituting the situation, leads to the evocation of feelings and propensities for action, if not the actions themselves. This tie of intelligibility, feelings, images and memories underlies the notion of emotionally deep or intense experiences as more meaningful. The evocation of feeling via recognition underlies the notion of feelings as intentional responses to value. It also

provides some explanation of why people regularly confuse thoughts with feelings (i.e. " I feel like he does not like me."). It also means that we can think relatively automatically.

Insights, judgements and the corresponding inner talk can assume relatively automatic patterns which lead to the prevalence of moods, for example, though the pattern is not known by the person. The pattern is constituted via the regular occurrence of similar insights and judgements, though there is no single insight or set of insights into the pattern. Thus, the pattern is not motivated via a prior comprehensive understanding. A comprehensive understanding of the pattern requires insight at the level of a professional psychologist or a personal understanding guided by a psychologist (this is not to imply that all such patterns are dysfunctional). This is one aspect of the power of language. It also illustrates that language use relies on operations that have become habitual and subsidiary to language performance. Most importantly, it illustrates how one can have a series of insights that are patterned, though the pattern as operational is not understood as a pattern. Rather one is living in a situation, not focusing on the interrelationships one's insights and judgements have to one another, but rather the situation itself, in which the person can be totally confused. Likewise, learning language is a process of getting many insights into word usage, rules, etc. One acquires an operational knowledge evident in correct usage of increasingly complex structures. But one is using them to understand the world, to communicate and so on. The object is not to understand the structure of language, which would be to understand the interrelationships of the contents of the key insights into rules. Thus, the structuring of language use in language development is *de facto.* Structure is learned because it is pre-existent in the language community and the insights are into language use by ourselves

and others. These structures can co-exist without being interrelated. Elements from the structures are interrelated in sentence structure, but this is not the interrelation of the structures themselves. They are interrelated in the performance. Likewise, we learn numerous rules and exceptions. Which are selected is conditioned by what we want to express and how we want to express it.

To summarize, language acquisition proceeds initially via insights into the concrete situation which are preconceptual. These insights are relational, but particular. Rules, as relations that hold in all similar instances, are discovered later. Discovering the rules are not culturally original insights, rather they are insights into systematic language behavior displayed by ourselves and others around us. Usually we have a language community eager to teach us proper usage. The discovery of the rule is evidenced in changes in linguistic behavior. For the child, the rule does not need to be conceptualized. It is sufficient for performance to follow it. There are multiple insights that lead to learning a rule and there are subsequent insights into its proper application and corresponding exceptions to it. Learning grammar is a process of learning rules. Because all the rules are not interrelated, grammar is both systematic and nonsystematic. The rules enable ordered performance, but do not fully determine it. There can be order across human performances that is *de facto,* as were the "automatic" thoughts mentioned earlier. As *de facto,* it can be simply operational. Thus, the child does not need to learn a fully interrelated set of rules. It is the task of the linguist to determine how systematic they are and to make them explicit.

Conclusion

Our thesis has been that the key component in language development and use is insight. Each of the linguistic elements and structures we have discussed are abstracted from concrete expression. They have meaning in relation to non-explicit elements, primarily much of the intelligibility we express in, what are for us, creative moments. It is their innovative use in these situations that transforms prior use and meanings or leads to the invention of new terminology. Linguistic structures enable the expression of the meaning of other symbolic orders by which we understand our concrete reality. If true, these symbolic orders mediate the intelligibility of reality utilizing signs. Language, then, has a dual role of mediating the expression of meaning and being the condition for creative understanding. In the process, we typically are not focusing on expression, so much as getting the insight pinned down and communicated. Our focus is intelligibility. Even when we are focusing on expression, it is in a context that is broader than language within which we select the appropriate language. We take into account multiple intelligibilities mediated via multiple symbolic orders of which grammar, word use, etc are some but are rarely the main concern. We also take into account multiple intelligibilities that have not been expressed, or that are pre-conceptual. Interpersonal relations provide a rich field of examples.

There is no order that determines all other orders. Even if there were, human development is nonsystematic in that we are at different stages in different areas at the same time. Rather understanding is the key mediator in interrelating the nonsystematic in the concrete situation to provide what order there is for us. As we have mentioned, the pause in expression is symptomatic of this. It is emblematic of the larger pause we have

when we have had a key insight and work to refine and express it in such a way that others can understand..

Appendix 1: Chomsky and the Psychological Fallacy

Our thesis is that language is learned intelligently. There are physiological, neural, psychic, intersubjective and social enablers for learning language but the key events are the series of children's insights into their own and other's language use. Since some insights require prior insights, language competence develops. The developmental stages are distinguished by the relations discovered in them. The verification of discovery is had through both the successful and the unsuccessful use of them. Thus, the fact that children generalize rules to all instances, even those which are exceptions and had been dealt with correctly in the past is strong evidence that they have grasped a rule. The interesting point is that one can be speaking correctly prior to understanding the rule. If we assume that understanding moves from the specific to the general, this makes perfect sense, for the instances of correct use function as images from which the rule is abstracted or understood, just as multiplication can be understood using multiple acts of adding the same number as "image".

Another key point is that one does not have to understand how all the rules are related to one another to speak grammatically, just as one can behave economically without knowing how the economy works. Following the rules singly is sufficient. If it was not, there would be some rule linking two or more previously understood rules that we had not yet discovered. In short, the understanding of language is practical, not

theoretical, common sensical, not systematic. This is demonstrated in the fact that children's sentence structure develops. In other words, though they do not have the cognitive skill at a young age to understand theory, they still form structures without all the rules. As rules are discovered, the structure changes. In learning language, then we do not need to posit a biologically based grammatical structure (deep structure) that becomes specified in development, a la Chomsky. Instead we have structures that emerge and develop. Intelligence is manifest in all human activities and some physiological conditions are necessary for it, be it doing mathematics or playing baseball. Being gifted in an area means having a better biological endowment than others for developing skill in an area. In this sense, language as a skill is no different from any other skill, and the skillful operations can be mapped to neural and physical activity which to some extent comprises it. Insights, then, are manifestations of the neural development that occurs as we learn.

Chomsky's error in concluding that grammar as structured is not merely biologically conditioned but innate, rests on not distinguishing the systematic, explanatory understanding of grammar from the practical. This rests in turn on an inadequate understanding of the distinction between the practical and the intellectual patterns of experience, or between the practical and the scientific differentiations of consciousness and the role the pre-conceptual plays in the practical development and application of skills. This error is akin to what Lonergan terms the psychological fallacy.

> The fallacy is this: if the psychologist is using concepts and judgements, then what he is talking about is a matter of concepts and judgements. But that does

not follow, for one has to use concepts and judgements to discuss anything, but everything is not simply concepts and judgements. [13]

The following passage from Chomsky is telling.

Clearly, a child who has learned a language has developed an internal representation of a system of rules that determine how sentences are to be formed, used, and understood.[14]

I am suggesting that Chomsky is projecting his own understanding here. As I have noted, language can be systematic without having the rules related to one another. Additionally, the term "representation" is unfortunate here. It implies that there is something that is being represented. Rather than representing language, the understanding of language is operative in the use of language. It is language in act, not a representation of it. A better term would be "understanding". Then we could distinguish Chomsky's systematic understanding from the child's practical understanding. A systematic understanding would not represent the child's understanding. It would explain it.

Prior to the statement above, Chomsky gives a series of examples where he tries to make our tacit understanding of grammar explicit, or to make it "conscious", in his

[13] Understanding and Being, p. 46
[14] Chomsky, Aspects of a Theory of Syntax, p. 25

sense of the term. This will reinforce our discussion above, but also allow us to pivot to another notion of consciousness and immediacy.

> …consider such a sentence as
>
> (5) I had a book Stolen
>
> Few hearers may be aware of the fact that their internalized grammar in fact provides at least three structural descriptions for this sentence. Nevertheless, this fact can be brought to consciousness by consideration of slight elaboration's of sentence (5), for example (I)…"someone stole a book from my car", (ii)… "I had someone steal a book", (iii)…"I had almost succeeded in stealing a book". In bringing to consciousness the triple ambiguity of (5) in this way, we present no new information to the hearer and teach him nothing new about his language but simply arrange matters in such a way that his linguistic intuition, previously obscured, becomes evident to him.[15]

There are a number of points to make here. First, there is a notion of an obscured intuition. That metaphor, like the term "representation", implies that we already have an understanding that we just need to bring to consciousness which is what Chomsky tries to do. By "unobscuring" the intuition, it becomes evident. But

[15] (p. 21-22, Aspects of the Theory of Syntax)

what if it was not there to begin with? Rather than having an obscured intuition, we had a question: for example, "What do you mean?" Then there would be an elaboration by the other person akin to Chomsky's "clarifications". Rather than no new information being provided as Chomsky claims, enough new information is provided so we can determine what the person meant. In determining what they meant, we have insights. It is the insight which is the "making evident of the linguistic intuition". Except it does not make something pre-existent evident. It is the coming to be for us of the intended meaning of the speaker. What did not exist before, our understanding of what they meant, now exists. But it only exists for us operationally, that is, when understanding is occurring. On the operational model the understanding is not stored some place and "made evident" in some fashion as needed. Rather a neural transformation occurs which makes the next understanding of the same or a similar sentence easier. It can become habitual. When we are understanding, then, there is a sense in which consciousness is meaning and in which becoming conscious differs from merely being aware. This is intelligent consciousness. Our experience is intelligently patterned in terms of meaning. Yet this is not always chosen. When the patterning is spontaneous it may take additional insights to understand the pattern. So in that sense, there is a pre-existent intelligibility which has yet to be conceptualized, but we do not need to posit an *a priori* biologically based structure (Chomsky's deep structure) nor an internal representation of rules to explain it.

Appendix 2: A Note on Semiotics

Our analysis shows that language use is a type of understanding where images, symbols and signs facilitate and express insights. Understanding language is primarily an understanding of the signified and secondarily an understanding of the signifier. The mediation of understanding by images is mediation of conscious intelligence via biologically conditioned processes. A strong case is made by Freud and elaborated by Lacan and Barthes, among others, for the occurrence of primary process operations such as condensation, etc. Dream images are interpreted. As interpreted, they are assumed to have meaning relating beyond dreaming consciousness to fully awake consciousness. As having referential meaning, they are signs. Since semiotics is the science of signs, dream interpretation can benefit from knowledge of semiotics, and vice versa. In understanding our dreams we can understand ourselves, our meaning.

Given Lonergan's account of understanding, it is not difficult to see how images become semiotic. The degree to which they do is an open issue. Understanding as the grasp of the intelligibility in images or elements of experience is the patterning of the imagination (with appropriate neural transformations) as well as the emergence of intelligibility for us. It is the recurrence of the images that evokes the insight. In the image/intelligibility relationship we have a more general case of the signifier/signified relationship of the sign. Returning, then, to the differences in verb tenses, there is a similar efficaciousness in having a common root, with regular variations on a theme in the different endings, as an aid to understanding meaning. Immanent in the structures of

language are clues to meaning. For example, we may not know what someone is talking about when they use a particular term, but from the grammar of the sentence we can understand that it is a noun or verb or adjective and so on which provides some indication of the referent. Similarly, there are numerous pragmatic or contextual clues. Finally, there is our prior knowledge where we may find rules of meaning, relationships and so on which yield direct insight into the discussion.

Now, if semiotics is the science of signs, then the limits of semiotics are reached when images and aspects of our experience function simply as images without significance for us. We have pointed out the facilitative role of the imagination in understanding. A similar role is played by displays in nature that are evocative of animal behavior. The question is whether understanding occurs. There may be a recognition, that evokes complex behavior, such as the stickleback's recognition of a red object, but this recognition may not be relational and hence, not intelligible to the stickleback. In fact, any sufficiently large red object evokes aggressive behavior by the stickleback, even though it is not another male stickleback threatening the eggs being guarded. This may similar to the function of pheromones which condition sexual behavior in humans. They are operational before we know what they mean. They may "prime" us to imagine the other as a potential sexual partner, but they are not used instrumentally to convey meaning. They appear to play more of a role in conditioning behavior and secondarily in conditioning the understanding that would lead to it.

When we understand them and their role, that understanding is the understanding of the meaning of a fact versus the meaning of an expression. To understand the actual

limits of semiotics, we need further development in ethnology and neurology in terms of understanding the understanding of animals and its relation to behavior.

The difference between events and behaviors as biologically evocative and as significant is seen in the difference between a baby's crying at the immediate and surprising loss of the mother and crying at the prospect of loss and the mother's differing reactions in both instances. In the first instance the child does not expect the mother to leave and the crying occurs as an event over which the child has little or no control. In the second instance, the child has learned that certain behaviors by the mother are associated with her subsequent disappearance. Crying may be immediately invoked as before. But with the development of knowledge and self control, the child can use crying to solicit different desired actions from the mother. Once the significance is recognized various schemes can be developed to keep the loss from occurring or to mitigate its effect. Likewise, in the first instance the mother may hear the baby from the next room and rush in to comfort it, just as she would if it had fallen and hurt itself. In the latter case, the mother most likely is developing her own tactics for countering the more intelligent attempts to keep her around when she wants to leave. Is the crying a sign for the mother in the first case? Has the crying become a sign for the child in the latter case? Likewise, there is a sense that the mother's behavior prior to leaving is a sign that she is leaving. Is it a sign in the semiotic sense? Answering these questions satisfactorily takes more reasoning than will be provided in this short note. But here is one way we can sort it out.

The sign as signifier requires an insight behind it. The insight is into the reference of the sign to the signified. It is on the basis of the insight that the sign is created or used.

The sign mediates meaning. Thus, we know that if dark clouds are overhead, it is likely to rain. But the dark clouds are not a sign of rain in the semiotic sense because they are not used to mediate meaning, or, more precisely, to invoke particular insights. Rather, we have an insight into the relation of dark clouds to the likelihood of rain and express it as clouds being a sign of rain, just as the sun setting in the west is a sign that it will become dark soon. Thus, in the first instance the baby's crying is not a sign, though it is a type of expression. In the second instance, the crying can be a sign if used to communicate displeasure. It also can be a sign if used to evoke insights and a desired response from the mother. In this sense, it may not be "real crying". The mother recognizes that it has become a sign in that sense and engages in her own signifying behavior to counter the child's attempts. Of course crying is replaced by words and a variety of facial expressions and so on, and family life enters whole new horizons of complexity.

Thus, dream images are rarely signs unless signs are in our dreams, such as when people talk. But the significance of the talk in the dream is not necessarily what is said. It may have a relation to something that is not even in the dream. But this relationship is one of significance only, not of signifier to signified. It is this significance that interests the dream interpreter.