

CHAPTER I. FIELDS OF ATTENTION

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1. We consider a field of attention.

The purpose of this inquiry is to determine the ways in which English speakers express ideas which can perhaps be called pre-mathematical. Mathematics itself is an abstract, formal discipline, but it has its roots in experience, and in the way that experience is formalized and structured by language. To speak of 'a field of attention' is to speak in the most general way possible of our human experience.

1.01. The field of attention is that which is attended to, not something in itself and independent.

For instance, what might be to one person a box of books might be to another person old paper, to another person a library on a particular subject, to another person a load to be carried, and so forth.

1.02 That which is not a field of attention need not concern us, since if it concerns us, then it becomes a field of attention.

Thus the question of the thing in itself, as distinguished from the thing perceived, is really a useless question. The only thing we can know about what is not perceived is what it might be if we were to perceive it. It is at least true that 'to be is to be perceived', and whether there is anything more to being outside of being perceived, we do not and can by definition never know.

1.1 Initially we consider the field of attention without restricting the type of field in any way.

This section will necessarily be somewhat abstract and general, since it will be useful at the outset to set down the most general expressions, applicable to any and all experiences. However, an attempt will be made in the inset paragraphs to give examples as well as explanations. In a later section, certain restrictions will be put on the field of attention, so that terms applicable to these restricted experiences can be considered. It is true that an exploratory study of pre-mathematical expressions most profitably moves from the specific to the general, in synthetic fashion. However, the most economical way to report the results, and thus the way used in this paper, is to go from the general to the specific, recapitulating in reverse the process which must actually be used in inquiry. This is not intended to imply that the analytic method of presentation is any way superior to the synthetic method of inquiry. It is merely that each is useful in its own way, the one for study and the one for compact presentation.

1.111.1 The main object of a field of attention is the question of content.

The most natural question to ask concerning that which we attend to is "What is it"? It is possible for the answer to this question to be quite elaborate, including a great deal of information. But if a minimum answer can be given, this answer will usually in some way tell the content of what is under consideration. For example, the answer might be "two heavy boxes of books," but in that case the minimum answer would be "books". Even the answer "books" to this question gives some information concerning more than merely the content. To be specific, it shows that there is a certain uniformity, and it shows plurality. But from such an answer we feel that in some sense we know the "stuff" which makes up the field of attention.

1.111.2 Corresponding to the content of a field of attention a content-name can be given.

1.111.3 These content-names are determined only by usage, not by some more general method of classification.

At this level of generality, we can clearly only find the name of some content by asking it from an English speaker who would know it, and who acts as an informant.

1.111.4 It may be that a name may not already be given in the culture for the content of a field of attention.

For instance, the box of books clearly has a content-name "books", supplied by the culture. However, if the field of attention includes smoke, middle C, an egg and sadness, we have no name readily available in English by which to name this pot-pourri.

1.111.5 For our purposes, it is necessary only that the field of attention be nameable.

1.112 This we will say that the content of the field of attention is a nameable.

1.112.1 This is not a definition which moves from general to specific, but is rather the statement of a fact in English.

1.112.2 To say that a nameable is what is named in the culture is circular, yet productive.

1.112.3 To be productive in that an open sentence can be found by which the name for the content of a given field of attention can be determined.

What we want in this case is a procedure by which either the name which the culture recognises or the name which is coined for the occasion can be determined in such a way that the questioner does not supply the name to the informant. In this case, the procedure is relatively simple, but in other cases, the procedure will prove quite hard to find. In general, the principle to be followed is that the experiment must alter the environment as little as possible. As indicated in 1.01 it is impossible to attend to something without attending to it, and thus considering it from a point of view. The task of the investigator is to make that point of view as general and, indeed, as neutral as possible.

1.11231. Such an open sentence might be "what we are attending to we call by the name _____."

This is a sophisticated way of rephrasing the question: "What is that?" The difficulty with the simple question is that the answer may supply too much information. The note to 1.11 indicated the range of possibilities for the answer to that question. If possible, we wish in this case to limit ourselves simply to the content. It is true, of course, that we can never attend only to that pure content. But we would like to have a name for what, relative to our point of view, can be considered the content of the field of attention.

1.11232 This open sentence simply shows what is in our usage a content-name.

1.1124 We can thus say that the name is the answer to the question: "How is the content of the field of attention named?"

This is once again a sophisticated way of asking the question: "what is it?" It focusses on the content relative to our point of view.

1.113 We have not in the foregoing defined the term "content".

Content is usually contrasted with form. In what follows we will make this contrast much sharper and more explicit. It would be premature to anticipate here what will be said more adequately at a later time. Suffice it to say for now that "content" refers to the stuff out of which the field of attention is composed.

1.1131 What is content from one point of view might not be from another.

From one point of view the content of a box of books is just that: books. But from another point of view the content is ideas, or perhaps paper, or perhaps chemical compounds.

1.1132 It is the word of the informant which is determinative in this matter.

We make the assumption that to every content there corresponds a content-word (1.111), and the implication of this assumption is that the informant is always right. If he says that the content of his field of attention is paper, and we had books in our mind, he is right for himself, and we are right for ourselves.

1.1133 Thus what is content is not a question of metaphysics, but a question of usage.

1.12 We ask next the question of the way the content of the field of attention is presented.

This is, roughly and loosely considered, what was meant by the question of form in traditional thought.

1.1201 This question must also be considered in relation to the point of view.

One person thinks of the books as coming in boxes, another things of the paper coming in books. Neither is wrong, and both are right—from their respective points of view. Aristotle himself knew that the distinction between form and content could only be relative to the point of view of

the observer, but he did not quite put it that way.

1.1202 What is clearly considered to be content by one person may be considered to be the way the content is organized by another person.

1.1203 Thus, once again, the word of the informant is final as to what is content, and what the way the content is presented.

1.121 Corresponding to the way the content of a field of attention is presented as a presentation-name, also called a form-name, can be given.

1.1211 The presentation-names are determined only ^{by} usage, not by some more general method of classification.

For instance, it is possible to speak of a box of books, or a room of paper, or a group of people, or a mound of dirt, or a pride of lions. The number of such presentation-names is very great, although most of them are of limited generality and thus not of great interest.

1.1212 The presentation-name depends on the content-name, as well as on the point of view from which the content is considered.

It is possible, for instance, to think of a grain of rice, or a pot of rice, or a bag of rice, or a field of rice. Each of these view-points determines a presentation-name.

1.1213 It may be that a presentation-name does not already exist in English for a specific field of attention, in such a way as to mark off this field of attention from some other field of attention.

1.12131 But in this case we can always find a general term for the way in which the content of the field of attention is presented.

1.12132. In particular, we can always simply refer to it as a presentation, which avoids the requirement of a specific name by the device of not specifying the mode of presentation of the content in any way.

For example, if the field of attention consisted simultaneously of the grain of rice, the pot of rice, the bag of rice, and the field of rice, it would be difficult to find any other way of speaking of the way in which the rice is presented except to say that it is presented.

1.12133 In this case, therefore, we would be wrong to say that there is no form to the field of attention, since the very fact that it is that to which we are attending gives it form.

1.1214 In order to determine the presentation-name for the content of a field of attention, we must find an open sentence into which the presentation-name can be fitted.

1.12141 Such an open sentence might be "here is a _____ of _____," where the second slot is filled by the content-name already determined for the field of attention.

Again, this is a precise way of asking the question: "how is it presented?" The difficulty with the simple question is that, as in the note to 1.1251, the answer may supply too much information. This open sentence requires that one word be put in the first space, and English usage requires that this one word be a presentation-word.

- 1.12142. This open sentence simply shows what is in our usage a presentation-name.
- 1.122 In some sense the presentation-name refers to the structure of that to which we are attending.
- 1.1221 The presentation-name tells how the content is organized, how it is framed, how it is packaged.
- 1.1222 However, this is only a way of interpreting the presentation-name, not the way of determining it.
- 1.13 We ask next the question of the aspect of the field of attention with which we are particularly concerned.

This is, roughly and loosely considered, what was meant by the question of property in traditional thought.

- 1.1301 It is possible to consider any given field of attention according to many aspects, depending on the attender's point of view.

To take up the example given in the note to 1.1201, two persons might both think of the books as coming in boxes, and yet one be concerned with their volume and another be concerned with their weight.

- 1.1302 This is not a question of having a different field of attention for any different aspect, as would be the case for a different presentation.

For instance, a bag of rice is clearly a different field of attention from 10,000 grains of rice, even though one might count the number of grains in the bag, and find that there were in fact 10,000. To look at it as rice is clearly different than to look at it as grains of rice. However, in either case, one can consider weight or volume or color without affecting the field of attention.

- 1.1303 In this way we can in practice distinguish aspect from presentation, since the latter is determined by and determinative of the field of attention, whereas the former is only a way of considering a given field of attention.
- 1.131 Corresponding to the aspect of the field of attention under consideration an aspect-name can be given.
- 1.1311 These aspect-names are determined only by usage, not by some more general method of classification.

For instance, we can speak of the usefulness of a box of books, or the volume of a ream of paper, or the number of a group of people, or the height of a mound of dirt, or the fierceness of a pride of lions.

- 1.1312 The aspect-name depends both on the presentation-name and the content-name, as well as on the aspect itself.

For instance, we could speak of the number of a class of students and the depth of a pool of water and the frequency of a sound, but we could not apply the aspects in a different order.

- 1.1313 The aspect-name can appear in either nominal or adjectival form in English.

For instance, we can speak of ^afierce pride of lions or the fierceness of the pride of lions.

- 1.13131 The aspect referred to does not vary, but the slot within the sentence where it is located may vary, and thus suggest the two alternative forms of the same aspects.

- 1.13132 Thus we must be alert in our investigation in order to find both forms of a given aspect-name.

- 1.1314 In order to determine the aspect-name for the way in which the given presentation of the content of the field of attention is considered, we must find an open sentence into which the aspect-name can be fitted.

- 1.13141 One such open sentence might be "I am thinking of the _____ of a _____ of _____," where the first blank names the aspect, the second blank, names the presentation, and the third blank names the content.

For example, I might say, "I am thinking of the height of a pile of books," or "I am thinking of the beauty of a pool of water."

- 1.13142 Another such open sentence might be "I am thinking of a _____ of _____," where the first blank names the aspect, the second blank names the presentation and the third names the content.

For example, I might say, "I am thinking of a high pile of books," or "I am thinking of a beautiful pool of water".

- 1.13143 The first open sentence gives the nominal form of the aspect-name, and the second open sentence gives the adjectival form of the aspect-name.

Height is a nominal aspect-name and high is an adjectival aspect-name, just as beauty is a nominal aspect-name and beautiful is a adjectival aspect-name.

- 1.131431 Every aspect must be nameable in both ways.

- 1.131432 If a name can fit in the open sentence in 1.13141 but does not have a parallel form to fit in the open sentence in 1.13142, then it is not an aspect-name.

For instance, I might say, "I am thinking of the bottom of the pile of the books," but I cannot find a parallel statement, "I am thinking of a _____ pile of books," where the blank must be filled by an adjectival form of the nominal form "bottom."

- 1.131433 It may be that there are names which can fit in the open sentence in 1.13142, but which do not have parallel forms to fit in the open sentence in 1.13141, but thus far the investigation has failed to show any such names.
- 1.131434 Thus the open sentence in 1.13142 must be considered the more basic of the two, and should be used in the initial investigation.
- 1.131435 The open sentence in 1.13141 can be used then to find the corresponding nominal form ~~mf~~ for the adjectival form of the aspect-name found from the open sentence in 1.13142.

This open sentence is a precise way of determining the answer to the question: "How is it considered?" Once again, this simple question may supply too much information, and thus must be restricted.

- 1.132 It may be that there will be no aspect-name in the language for a particular aspect being considered.
- 1.1321 Aspect is an abstract idea and aspect-names represent a level of sophistication which is often present in English but not always present in all languages.
- 1.1322 But it is often the case that it is possible to coin an aspect-name to correspond to a given aspect.
- 1.133 The aspect-name is not uniquely determined by the presentation-name and the content-name.

For instance, we can speak of the number of a group of persons, but we would also speak of the weight of a group of persons.
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- 1.1331 The aspect-name chosen is dependent upon the ~~XXXXXXXX~~ of the attending person.
- 1.1332 There are, of course, some presentation-names which strongly suggest certain aspect-names, even though they do not require them.

For instance, when we speak of a pair of shoes, we strongly suggest that we are considering it with respect to number, even though we may in fact consider it with respect to weight or color.

- 1.14. We ask next the question of the measure placed on the aspect of the field of attention.
- 1.1401. It is possible to consider any given field of attention according to many of its aspects, and it is possible also to consider each of these aspects according to various measures.

For instance, if we are concerned with the volume of a box of books, we might speak of that volume in cubic inches, or cubic feet, or gallons, or wheel-barrow loads. For another example, if we are thinking of a group of people, we are concerned about their number, we might think of it in individuals or couples or groups of ten.

1.1402 This is not a matter of having a different field of attention for each different measure placed upon an aspect, but is a matter of structuring the field of attention according to given unit sizes.

1.1403 In another sense, these measures imposed on the aspects of the field of attention are ways of comparing the given field of attention to a standard field of attention with respect to the given aspect.

We can think of a box of books with respect to its volume, by comparing it with a unit volume. We can think of a group of people with respect to its number by comparing it with a unit number.

1.141 Corresponding to the ^{measure} applied to the aspect of the field of attention a ^{measure-name} can be given, which in every case gives the standard measure a name.

Thus we can call a unit volume a cubic inch or a gallon or a truck-load. We can call a unit number simply a unit or else a pair or a foursome.

1.1411 These measure-names are determined only usage, not by some more general method of classification.

In every case we have insisted on this point, viz., 1.111, 1.211 and 1.311. It is a very important point, because it insists on the primacy of culturally conditioned behavior. Any logic must be a generalization after the fact of human activity, not a precondition for the study of that activity.

1.1412 The measure-name depends on the content-name, the presentation-name, the aspect-name, as well as on the measure itself.

1.14121 In particular, the measure-name is peculiarly connected to the aspect-name, and measure-names and aspect-names cannot be joined at random.

For instance, an inch is only a measure-word for length, and a degree for temperature (or angle), and these cannot be confused.

1.14122 The relation of the measure-name to the presentation-name and the content-name is less strict, and is mediated through the relation to the aspect-name.

1.1413 In order to determine the measure-name for the measure imposed on the given aspect of the given presentation of the field of attention, we must find an open sentence into which the measure-name can be fitted.

1.14131 One such open sentence might be "I will use the measure the _____ of a _____ of _____, where the first blank names the measure, the second names the aspect, the third the presentation and the fourth the content."

For instance, I might say "I will use the inch to measure the length of a piece of string," or "I will use the foursome to measure the number of a group of people," or "I will use the grade to measure the excellence of a student."

- 1.14132 This open sentence simple shows what is in our usage a measure-name.

This measure-name is an answer to the question: "how do I rate or value the given aspect?" The open sentence of 1.14131 makes this question more precise, since it limits the information to the exact measure-name desired.

- 1.14133 It may be that no measure-name is in common usage for a given aspect.

For instance, there is no word in common usage for measuring the beauty of a painting, or the goodness of a moral act, or the color of a house.

- 1.141331 In most of these cases, the aspect is subject to valuation, but these values have not been made precise and definite.

- 1.141332 In these cases the problem is one of finding new words in the language for the units of measure for these aspects, and then finding procedures by which to compare a given presentation with the presentation which has standard measure.

For instance, one of the most difficult problems at a beauty contest is to find an objective system of rating the contestants. On a more serious level, the comparison of two acts to find which is ethically better involves the implicit acceptance of a measure of goodness.

- 1.142 In some cases the measure-name refers to the sub-structure of that to which we are attending.

- 1.1421 This sub-structure depends on the aspect considered.

For instance, the inch as a unit of measure of length is itself a length which is either bigger or smaller than the piece of string to be measured. Thus the inch may be a part of the field of attention, or the field of attention may be a part of the inch.

- 1.1422 In every case, the sub-structure depends on the presentation as well as the aspect since certain presentations indicate certain types of sub-structure.

In particular, a presentation in the form of a set suggests a substructure in the form of separate units, whereas a presentation in the form of a continuous mass suggests a sub-structure in the form of units arbitrarily cut off from or found within the whole.

- 1.1423 This process of imposing a measure-name thus has to do with considering simultaneous two fields of attention, the relation between which gives rise to the sub-structure of the original field of attention.

- 1.1424 This comparison of the given field of attention with a standard field of attention is a step in increased complexity.

1.14341 The peculiar role of mathematics will be found to consist in the expression and elaboration of these comparisons.

1.14342 Thus a tentative definition of mathematics might be "mathematics is that discipline which deals with measures of aspects of presentations of contents".

1.15 Thus we must ask finally the question of the value of the measure of the aspect of the presentation of the field of attention with which we are particularly concerned.

1.1501 For a given measure, there are several types of values which can be imposed on that measure.

For instance, it is possible to say that the volume of a box is many cubic inches or is 250 cubic inches. For another example, we might say that a group of people is a lot of units of number, or exactly 135 in number or about 100 in number.

1.1502 These different types of values correspond to various degrees of precision or exactness.

1.1503 Each type of valuation for the measure is linear in character, and has a definite order.

For instance, we can make a scale of a very few, a few, some, many, and a great many, which is a linear, ordered scale of values. The valuation system composed of counting numbers is merely a more precise version of this.

1.15031 The lower limit of the scale of values is an important value.

This lower limit might be zero, as in the case of a group of people. The lower limit might be 560, as in the case of the number of kilocycles on the standard medium wave length for radio broadcasting. In any event it defines one end of the range of values.

1.15032 The upper limit of the scale of values is an important value.

This upper limit might befall, as in the case of people considered under certain aspects. Or it might be the speed of light for velocities. Or it might be the number 1 in the case of probabilities.

1.15033 There are cases where the upper and lower limits do not exist at all.

There is no theoretical lower limit for the amount by which a person may be in debt. There is no theoretical upper limit for the temperature of a gas.

1.151 Corresponding to the value given to the measure applied to the aspect of the given presentation of the field of attention a value-name can be given.

1.1511 These value-names are sometimes called numerals, since they correspond to numbers.

1.15111 The number is the concept itself.

1.15112 The number-name is the numeral, since it represents the number in speech and ordinary usage.

1.1512 The number-name or ~~value~~-name is determined only ^{by} usage, not by some more general method of classification.

In this case, we know that different cultures not only have different number-names, but even have different systems for forming number-names.

1.1513 The number-names do not, as in the other case, depend on the measure-names, the aspect-names, the presentation-names or the content-names.

1.15131 This allows for the development of an independent and powerful science of mathematics, as defined in 1.14342.

1.15132 We will see, therefore, that mathematics can be further explained as "that discipline which manipulates the number-names given to measures of aspects of presentations of contents."

1.1514 In order to determine the number-names for numbers which are possible for the measure imposed on the given aspect of the given presentation of the field of attention, we must find an open sentence into which the number-names can be fitted.

1.15141 One such open sentence might be "If I use the _____ to measure the _____ of a _____ of _____, it is _____ in value," where the blanks in order give the measure, aspect, presentation content and value-names.

For instance, I might say "If I use the inch to measure the length of a piece of string, it is 5 in number." Or I might say, "If I use the grade to measure the excellence of a student, it is A in value."

1.15142 Another such open sentence might be "This _____ of _____ is _____ ('s) in _____," where the blanks represent presentation, content, number, measure and aspect names in that order.

For instance, I might say, "This piece of string is 5 inches in length," or "This set of students is A grade in value".

1.15143 Either of these open sentences simply shows that is in our usage a value-name or a number-name.

1.15144 If there is a measure-name for a given aspect of a given presentation of a given content, there will always be type of a number-name or perhaps more than one type of number-name, and each number-name will have many values.

1.151441 It is always possible to use the terms "all", "some" or "none" as a range of values.

1.151442 It is usually possible to use the counting numbers, at least as an approximation for the value-name.

1.151443 There are many complex systems of number-names or value-names.

For instance, we know of the natural numbers, the integers, the rational numbers, the real numbers and the complex numbers.

1.152 Some terms are apparently combinations of measure-words and value-words.

For instance I can say "this piece of string is long in length."
For another example I can say "this group of people is numerous in number."

1.1521 In these cases the term not only suggests an aspect, but also suggests a particular value for the given measure of that aspect.

1.1522 This fact indicates that the present analysis is content-centered rather than structure-centered.

1.15221 A different analysis would be needed to determine the structure of ways of referring to fields of attention if it were to be done in a way which depended purely on the patterns encountered in examples description on the linguistic.

1.15222. Such an analysis would be useful and interesting, but is not possible or desirable for the present investigation.

1.1523 Such terms can usually be replaced in transformational way by a pair of terms, one of which is a measure-word and the other of which is a value-word.

For instance, I can replace "numerous" by "many in units" or I can replace "long" by "many in inches".

1.153 The value-names express quantitatively the relation of the aspect of the given presentation of the given content to the aspect of the standard presentation of the same content.

For instance, to say that a piece of string is five inches long is to establish a quantitative relation between the given piece of string and a standard inch-length of string. Likewise, and in a more obvious way, to say that a group of people is five in number is to establish a quantitative relation between the given group of people and a standard group of one person.

1.1531 Thus the value-names express quantitatively the sub-structure which is imposed on the presentation in terms of a given aspect.

In the above examples, we see the string divided into one-inch lengths and the group of people divided into one-person groups. Of course, there may be as we have seen in other examples cases where the given presentation is only a portion of the standard presentation.

1.1532 Thus we see that value-names express quantitatively certain facts that we can expect to be the case in the future for certain measures of certain aspects of given presentations of given contents.

1.15321 In this way mathematics is predictive in character, since manipulations on the number-names can be expected to produce results which apply to physical situations.

1.15321 Thus, in conclusion, we can define mathematics as "the deductive manipulation, with predictive consequences, of the number-names imposed on measures of aspects of presentations of contents," and its power comes from the universality of the number-names.

1.2 We now consider the field of attention restricted so that our discussion is at the second level of generality.

1.201 Thus far we have considered fields of attention of absolute generality, and we have given a thorough analysis of linguistic behavior for each of five content-centered features which arise in describing these fields of attention.

1.202 There are two possible restrictions at this second level of generality: countable fields of attention, and uncountable fields of attention.

For instance, oranges are countable and rice is uncountable. Again, animals are countable and meat is uncountable.

1.2021 That this split between countable fields and uncountable fields is the most fundamental split in describing fields of attention cannot be proved.

1.2022 This this split is most fundamental can only be justified by the totality of this discussion of linguistic behavior.

1.20221 The validation of such a statement depends on the way the statement helps to organize and coordinate the data.

1.20222 Thus we will attempt to show that many features of language behavior are best understood in terms of this split.

1.20223 If there is language behavior which does not show this split, we will see that it is applicable to all possible fields of attention.

For instance, we can speak of some oranges as well as some rice, in general we can speak of some _____, where the blank represents the content-name for any field of attention.

1.2023 In particular, we will find that there is a fundamental split between countable and uncountable in content-names, presentation-names, aspect-names and measure-names.

For instance, we can speak of books, but water; a set of books, but a pool of water; the number of a set of books, but the depth of a pool of water; the number of a set of books measured in units, but the depth of a pool of water measured in inches.

- 1.2024 Only in the area of value-words will we find that the common words transcend the countable-uncountable distinction.

We can speak of the number of a group of persons being 100 units, just as we can speak of the weight of a bag of cement being 100 pounds.

- 1.203 It may be that a given field of attention will include both countable and uncountable subfields.

For example, I might be attending to plate of rice, with two spoons, where the rice is uncountable and the spoons are countable.

- 1.2031 If that is the case, the analysis under 1.1 will apply to the whole field and the analysis under 1.2 will apply to each of the subfields.

- 1.2032 An analysis valid under 1.1 will automatically be valid of any field which can also be analyzed under either major subdivision of 1.2.

- 1.2033 However, an analysis valid under 1.2 will not necessarily be valid of any field which might be analyzed under 1.1

The analysis of a bag of oranges will yield linguistic behavior which would not be valid of a bottle of water, because oranges are countable and water is not.

- 1.21 We consider first countable fields of attention.

- 1.211 We ask first of a countable field of attention the question of content.

- 1.2111 The basic fact about a countable fields of attention is plurality in that the content-word can be expressed in either singular or plural form.

Oranges and people are countable, whereas rice and water are not countable in the same way. To speak of rices and waters is to consider the contents in an entirely different way, namely as types of rice or as types of water, and types are countable.

- 1.21111 Thus we will find that the content-name for the content of the countable field of attention shows a singular and plural form.

- 1.21112 We can find these content-names by using the same frame as under 1.11.

- 1.2112 A term which will cover all content-names for countable fields of attention is "members".

If I attend to a countable field of attention, I can consider whatever I find in it, whether oranges or people or airplanes, all as members.

- 1.21121 Members are isolable individuals within the field of attention.

- 1.21122 Thus members are discontinuous one from the other.

- 1.211221 This is discontinuity need not be physical, spatial discontinuity, but can be some type of discontinuity.
- 1.211222 The discontinuity is a question of the way in which the field of attention is considered, since in one way the field of attention may be countable, but in another way it may not.

A group of people is countable with respect to number, but not countable with respect to weight, since we do not ordinarily think of weight as made up of discontinuous units.

- 1.211223 This is true, since the field of attention is not barely the content, but rather is the contents within a presentation, considered from an aspect, measured by a measure, and numbered by a value.
- 1.211224 This discontinuity is what will allow members to be counted, and thus will justify the use of the term "countable" for members.
- 1.21123 Thus the test for members is a frame of the type "_____ are members of the field of attention.
- 1.211231 This test will succeed for countables within the field of attention.
- 1.211232 This test will not succeed for uncountable fields of attention.
- 1.212 We ask next of a countable field of attention the question of presentation, the way the content is presented.
- 1.2121 Set is a general presentation-word for the way the content of a countable field of attention is formed.
- We can speak of a set of oranges, or a set of people, or a set of ideas, but we cannot speak of a set of rice, or a set of milk, or a set of yellow.
- 1.21211 Thus we can define a set as a presentation of members.
- 1.212111 This is a definition in terms of previously defined terms, and proceeds from the more general to the more specific.
- 1.212112 The term set is the most general presentation-name for a presentation of countables, and is applicable to any presentation of countables.
- 1.212113 The term is not applicable to any non-countable field of attention, since such a field does not consist of members.
- 1.21212 We can also see that the set is a presentation of isolated, discontinuous individuals.
- 1.212121 This is a question of the way the field of attention is viewed.

From one point of view a ruler can be viewed as a set of one-inch lengths put end to end, but from another point of view