

A PSYCHOLOGICAL ANALYSIS
OF
VERBAL BEHAVIOR

(Class notes made by R. Hefferline, Summer, 1947,
in a course at Columbia University, given by
B. F. Skinner)

Preface

B. F. Skinner began working on a behavioral interpretation of verbal behavior in 1934 in response to a casual challenge by Alfred North Whitehead. He was to work on it intermittently until the publication of his book, *Verbal Behavior*, in 1957. In 1946, E. G. Boring invited Skinner to give the William James lectures at Harvard University, and he chose to devote them to the topic of verbal behavior. In the summer of 1947, a few months before he was to deliver the lectures at Harvard, Skinner taught a six-week course on verbal behavior at Columbia University. According to his autobiography, he drew the material for the course from his notes in preparation for the William James lectures and from courses on the psychology of language and literature that he had taught previously at Clark, Minnesota, and Chicago. Ralph Hefferline, who had just earned his Ph.D. from Columbia, attended the class. He was a skilled stenographer and took detailed notes of Skinner's lectures in shorthand. He then reconstructed the lectures from his notes, typed them, and distributed mimeographed copies to friends and colleagues. Copies of these copies have been passed from hand to hand ever since. Perhaps because it was superseded by Skinner's book, and perhaps because it languished in unpublished obscurity, the document has rarely been discussed in the behavior analytic literature, and usually only as a curious historical anecdote. It is reproduced here with the two goals of making it more widely available to scholars and of permitting the electronic search for key words or phrases.

As the document in my possession was quite degraded and could not be decoded by optical character recognition software, I transcribed it by hand. I attempted to copy it faithfully, but the condition of the original required occasional interpretation. Was the word *those* or *these*? I could not tell, and presumably another reader would be no better able to do so. In such cases, I chose the reading that sounded best to my ear. It is apparent from the elliptical and staccato style of the text, from obvious lacunae in the presentation, and from the many references to Skinner in the third person that, however skilled a stenographer Hefferline may have been, the text is not a verbatim transcript of the lectures. The notes are valuable to the historian and as a source for those parts of Skinner's analysis that are presented nowhere else, but they have no literary value and do not justify exegesis, for we cannot evaluate the accuracy of the notes. In some cases, the notes are supported by parallel passages in the *William James Lectures* and in *Verbal Behavior* itself, but in such cases, the scholar will naturally prefer to cite the latter sources, for they were deliberately composed and edited. It is those passages that are found nowhere else that are the most tempting to cite, and it is just those whose accuracy is most uncertain. Because of such considerations, I could see no reason to refrain from offering my interpretation of ambiguous passages. My editorial decisions were guided by these rules: If the text could be decoded, I copied it verbatim but corrected typographical errors and misspellings. If words could not be decoded with certainty, but the alternative readings did not affect the sense of the passage, I simply chose the reading that I judged to be smoothest or most plausible. In such trivial cases, I made no comment, for the

reader would receive no compensation for the distraction. If the insertion affected the content of a passage, I offered my preferred reading and discussed it in the endnotes. Such passages are marked in the text by a dagger (†). Consequently, scholars can cite the text, except for marked passages, without fear that the present manuscript differs from the original except in the most superficial way. I have retained the pagination to the letter, but owing to slight differences in font and occasional editorial intrusions, the line numbers may differ somewhat over the course of a page. However, Hefferline numbered his paragraphs, so it is an easy matter for the scholar to identify passages unambiguously. I retained Hefferline's system of numbering, with the page numbers preceded by the running head *VB-* and alternating right and left. However, I took advantage of modern technology to place them in headers, apart from the text, so that words or phrases split across pages would still be picked up by search commands. I preserved all distinctive arrangements of words, phrases or paragraphs in the document in order to replicate the original manuscript as far as possible.

The preparation of this version of the Hefferline notes was mainly a labor of love, but the final proof-reading of the text was supported by a grant from Ed Anderson to the Cambridge Center for the Behavioral Sciences as part of a program to archive all of Skinner's works in a form that can be searched electronically.

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A Psychological Analysis of Verbal Behavior

I. The Traditional Dualistic Approach to the Problem of "Meaning"

1. We are told that we live in the atomic age. It may be known later as the age of words. Everywhere there is great concern with the problem of words, but very little has been done by way of direct analysis. Words, and the problem of their "meaning", constitute the last stronghold of mentalistic hypotheses with regard to behavior. Some psychologists have been troubled by this, but for the most part they have accepted the well-entrenched belief that words are symbols of non-verbal processes. Psychologists, like the lay person, have made free use of words like symbol, sign, meaning.
2. The explanatory fiction involved is most precisely set forth in the writings of John Locke. It was his view that man was given language so that he might use it as signs for his ideas and thus communicate his ideas to another person. An idea in A leads A to choose words. These are spoken through a medium (e.g., the air). The words are then heard by B and they lead to ideas in B.
3. The trouble with such a description is that when you look for the ideas they prove difficult to pin down. Sometimes, of course, you can appeal to imagery and say, for instance, that the idea of house is a composite of images of houses previously encountered. When you get away from pictureable objects you get into further trouble and may be led to invent a world in which ideas can exist by themselves.
4. You can use idea as a thing, as the what that is said. It comes to be a fact that you express. Where is the fact? Where is the fact of this table being made of wood? The logician talks about propositions as something separate from the things expressed. These things are called pre-verbal. Such usage extends to terms like belief, attitude, opinion.
5. All of us use such pre-verbal terms to account for behavior. Unfortunately, it has thrown the study of verbal behavior back into the non-observable field. The linguist has studied verbal forms only. Behavior then becomes the choosing of the proper signs. Modern logicians try to make idea respectable by getting it outside the mind and calling it meaning. The problem of where the meaning is and what it is made of is not settled.
6. There is a recent strong preoccupation with meaning. Ogden and Richards' "The Meaning of Meaning" (1923) followed the philosophical rather than the logical tradition, and not at all the scientific tradition. Various other writers have also been concerned with the problem that things don't mean what they seem to mean.
7. Dualism frames the problem in a difficult form. It makes the assumption that any sentence has meaning of some sort. There are various stuffs of which meaning can be made, but the assumption is made definitely that there is such a thing as meaning.
8. In terms of meaning, words are symbols which stand for, or correspond to ideas or things in the outside world. This formulation has made progress slow and difficult because it sets up logical structures which are very elegant and impressive, but completely away from the main issue. It has, for instance, sent the linguist off into the analysis of forms only, leaving the intent or psychology back of the use of language to the psychologists—and, unfortunately, left it to him in bad condition. There is a long history of the forms of speech. There is very little with respect to the intent of the speaker, which is supposed to be a psychological matter. We have had a logic which in various ways set up a system of correspondences between things on

the one hand and verbal forms on the other. If we can forget all that and start in afresh, taking our subject matter as we find it, without letting our own experience as speaking people enter into our data, we will find a different formulation ready for us and one which might make better progress. It is an heroic way out of the difficulty. It means starting away back and dropping the dualism. We do not need to invoke the correspondence school. We start at the very beginning and accept verbal behavior as we see it without presuppositions.

II. The Naturalistic Approach to the Study of Verbal Behavior.

9. Some have attempted to avoid dualism by putting meaning, not in the mind, but in the external situation itself. Gestaltists assume that the meaning can be seen in the act. A child manifests aggression, and, so they say, the aggression may be seen. The same argument is made with respect to verbal behavior, but if you watch a person speaking a language unknown to you you will be doubtful whether you can observe meaning.

10. Meaning can not be accepted as part of the datum. Ogden and Richards in "The Meaning of Meaning" describe the man standing at a fork in the road where a sign pointing one way says Grantchester. For them meaning is visible in the situation. But they are appealing to their own personal history, which is over and above the situation currently given. Suppose an Indian to be standing at a fork in the path looking at some pebbles which lie on the ground. Is meaning visible—to us?

11. People make motions, gestures, sounds, etc., and others react to them. Our job is to account for them as we would account for any other kind of behavior. Verbal behavior is distinguished from other behavior by the fact that it leads to results or consequences only because of the mediation of another organism. There is mediated reinforcement: R→ consequence. The arrow is the crux of the matter. You can not objectify verbal behavior in terms of its properties, but only by its consequences.

12. If I am nearsighted and walk up to a mannikin and ask it a question, is this verbal behavior? The manikin is not another organism which will reinforce my behavior by supplying the answer to my question. Nevertheless, my behavior in speaking to the mannikin is verbal, because it was built up by past conditioning in situations where such behavior did receive mediated reinforcement. Verbality is not to be determined by the single instance, but rather by the class of responses.

13. Had I spoken to a person instead of a mannikin, the case would have been the same had this person failed to understand my question. Again there would have been no mediated reinforcement. But my non-reinforced instance of verbal behavior would not have occurred had it not been for reinforcements actually obtained on similar occasions in my past history.

14. Verbal behavior occurs in small parts, or again it may be a twenty-volume encyclopedia. To begin with, all words consisted of sounds, marks, etc., and they can be traced back to the person who made them. The million or so copies of Dale Carnegie's book may be followed back through pressmen, typesetters, etc., to his personal behavior. A word exists in time. It occurs in the behavior of someone.

15. What are the variables of which verbal behavior is a function? If we were to say at the outset that every sentence has a meaning of its own, this would require making commitments about the maze of causes which underlies verbal behavior. It would presuppose some kind

of relationship which may not turn out to be right. Our job is to relate verbal behavior to all of its predetermining conditions. There are scores of interesting aspects of verbal behavior and some interesting combinations of variables. We will be concerned with typical cases. Our analysis will not give us a basis for specific predictions. We can get some insights into processes going on which will illuminate what our friend says, but which will not predict that particular instance.

16. After studying the conditions which have led to the emission of verbal behavior, we may then, perhaps, wish to re-introduce the term meaning. If you put together the conditions which lead to the emission of verbal behavior, you probably get what students of meaning are trying to get at.

III. Ways of Recording Verbal Behavior.

17. A difficulty in the description of verbal behavior is that it is hard to see just what the behavior is. When you ask someone to open the door, what is the status of your behavior? This is a tough problem. We can start by considering the various ways in which a remark might be recorded.

18. (1) Muscular contractions. Electrodes, hundreds of them, might be placed on muscles of tongue, larynx, pharynx, diaphragm, lips, etc. The record would be tremendous. We do not need to do this because we can pull the facts together that would be so obtainable by seeing what occurs in terms of acoustic effects.

19. (2) Acoustic effects. A device is being developed for the deaf which makes speech visible on a disc. Visible bands for sounds of different sorts—a sound spectrum. With practice the person can see what is being said. A moving picture record could be produced for showing what was said even in a language you did not understand.

20. (3) Phonetic description. A vocabulary of phonetic symbols is available for recording classes of spectral elements. There is no provision for differences in pitch or spelling.

21. (4) Direct quotation. This would be the actual words emitted. He said: "The roof is blue". In direct quotation the word is the name of the word being used.

22. (5) Propositions. This would not be a description of behavior as such, but would have usefulness. Indirect quotation cuts through actual behavior to what caused it. He said the roof was blue. Whoever said it may have said it in a variety of ways and still have given the basis for this indirect quotation. He may have nodded or said yes to a question. He may have said it in French or in sign language. Your proposition asserts that his behavior was influenced by a state of affairs, namely, the blueness of the roof.

23. Which of the above five levels shall we deal with? For special problems, such as phonetic drift in language, etc., we must go to the phonetic level, since this deals with the actual sounds. For most purposes we can use level 4: Direct Quotation, and use a unit called the verbal response or verbal operant.

IV. The Unit of Verbal Behavior.

24. We must work with an elastic unit, or perhaps use different units for different problems. There will be further discussion of this later. However, neither the word nor the sentence need be the unit. Nor what the linguist calls the morpheme: his unit of meaning. The unit must have some kind of functional integrity. It may include such things as affixes, which are less than words. Morphemes may be units, so may words, so may sentences—and perhaps even the phoneme. There is some evidence that every speech sound is a single verbal operant.

V. The Mand.

25. The mand is verbal behavior easily seen in the baby, but it occurs also with great frequency in adult verbal behavior, although there perhaps usually masked by other materials. The child makes some particular sound. (We will limit ourselves to the vocal case, although we could apply the analysis just as well to gestures.) The child says ummm and is given toast. The sound is followed by a reinforcing event. Later on this Rv (verbal response) will have the specific form toast, preceded perhaps by baby talk. It is the R which leads to the receipt of toast. It is made by the musculature of tongue, larynx, etc., but it is not different in any essential way from the R of reaching, or of going to the cupboard or place where something is kept. There is no reason to put anything else into the behavior at this point.

26. Rv1 → toast If alone in the kitchen the child could execute other
 Rv2 → milk responses for obtaining the same reinforcing states of
 Rv3 → orange juice affairs.

27. The Rv gets reinforced through the receiver of speech. The receiver is responsible for the connections indicated by the arrows. This type of Rv, the mand, refers to a type of R which in a given verbal community is characteristically followed by a substance or condition.

28 (A)[†]. If we want to control Rv toast, we must make the child hungry for toast. In the vocabulary of the child and grown-up there is a very large collection of mands. Some are more powerful than others, depending upon needs. We get the R out by creating the need. Need is used here as synonymous with drive. At this stage there is only one variable of which this R is a function: the need. (This is implied in certain projective techniques, as will be shown later).

28 (B). Traditional treatment of the mand, as exemplified by Jespersen: “In many countries it has been observed that very early a child uses a long ummmm as a sign that it wants something, but we can hardly be right in supposing that the sound was originally meant by the child in that sense; he uses it consciously only when he sees that grown-ups come up and find out what the child wants.”

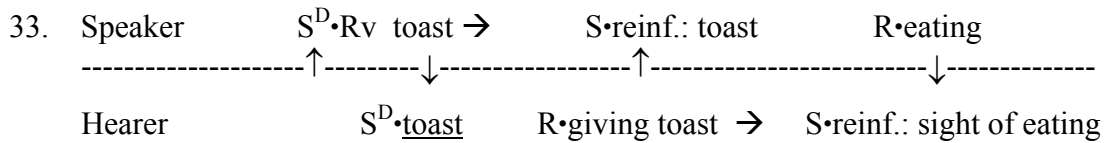
29. Critical comment on Jespersen’s statement: The development of mands probably would not occur without contact of the individual with a verbal community. Jespersen has objectified the sound ummm as a thing. Our formulation abolishes the split between “the state” and “his using the sign.” This is not hair-splitting, and if we keep the non-dualistic view it will save a lot of trouble later on. “Conscious use”: this could be the basis for a long discussion. The whole notion of being deliberate or taking voluntary action is handled by conditioning and will be dealt with, at least in a schematic way, later on. Jespersen is saying the same thing that we are, but with a lot of excess baggage.

30. In terms of the grammarian’s classification, the mand is in the imperative mood. It is a command, a request, an entreaty, etc.

31. There is no S^D appropriate to the emission of a mand, but S^Ds get in because mands occur ordinarily only in the presence of other organisms. The meaning of the mand is what follows its emission in a given speech community. A classification of mands is possible in terms of the behavior of the hearer. We can set up a paradigm which includes speaker and hearer. Whenever one influences the other we draw an arrow in the direction of the influence.

32. Take the situation of child and mother. The child needs toast. The child sees the mother and says toast. The child’s Rv is heard by

the mother and is an S^D. We assume that she is well-disposed and gets some satisfaction from giving the child food. (Maybe because it will keep the child from crying now or later on). The child reacts to toast by eating. The mother is reinforced by the sight of child eating. If the child says thanks, the thanks heard is reinforcing. The response to thanks may be not at all, etc. The exchange goes back and forth. Thanks is a basis for keeping motivation up for future occasions.



34. Can we distinguish between a request and a demand? A demand would be toast said with such strength that it would motivate even an unwilling hearer. “Your money or your life”: threat. A request depends upon motivation already established. Advice is a form of mand which implies a very generous reinforcement if the advice is followed: “Go to the ant, thou sluggard.”

35. Can we mand our own behavior? We do talk to ourselves. The case is not very important. The talking may help in making complicated motor acts because it is easier to learn a verbal formula than complicated kinesthetic sequences.

36. Prayer or entreaty is a form of mand. If you are in good enough contact with God and do get reinforcement, your prayer mands will be strengthened. The routine of praying, emitting mands with the deity as audience, encourages the emission of mands whenever in strong need.

37. We soften the mand for purposes of getting along socially. The mand is strong, but the reinforcing behavior is weak—master-servant arrangement. Therefore the attempt is often made to disguise the fact that we are manding, or we may suggest that there will be due reinforcement for action. If you state your need before manding, you can often get your way. Or you may say, “If you please”, and defer to the hearer. “Pass the salt, my good fellow”. Or you can give thanks in advance.

38. Most advertising has in it somewhere a mand. It isn’t enough to say, “Chesterfields satisfy”.

39. A mand need not be a sentence, nor need it be grammatically intact.

40. If you ask yourself how you can get a person to emit a particular verbal response, the solution is that you must create in him a need. It may be a need for food. It may be a child’s need for a particular toy. (There is no systematic treatment of need given here. We simply say that when food is found or the toy is found the need is eliminated.)

41. Magical mand. We have observations of verbal responses which could not possibly ever have been directly reinforced. Somebody crying for the moon does not do it because he has ever got a moon for this behavior. It is like calling out to the automobile sliding down a hill: Stop. It is not easy to account for all magical mands as extensions from situations where reinforcement was obtained, but possibly it can be done.

42. Literary magical mand. The literary person today does not come into direct contact with his audience. The troubadour talked to his listeners. In that case there was the possibility of getting results by direct manding. Today a writer sits down in an empty room and lets himself go. He is making some kind of magical extensions of his verbal behavior. It is not going to be effective here and now—and perhaps

most of it will not be effective at any time.

43. The writer can not make mands for remuneration. The troubadour did appeal for coins falling on the rug. Serial stories sometimes say “Look for the next installment”. We can forget about the writer’s need for remuneration and find out what his other needs are. A sizeable fraction of poems begin with mands concerned with the reader’s responses. “Listen my children and you shall hear—” There is the need to get somebody to pay attention. Or the reader may be mandated to react in a certain way. If the writer is going to describe something, he wants the reader to see it. “See where she sits upon the grass—“ Auditory: “Hark, hark, the lark—”

44. “Listen” and “see?” are put into lowbrow conversation because of some uneasiness that the attention of the hearer will slip away.

45. There is a basic mand: O. It turns up in poetry. What follows is a mand directly or by implication. The O seems to be the essence of the mand. Questions essentially are mands.† They arise when there is a need for information.

46. At least 40% of lyric poems begin with a mand. In any anthology you usually find an index of first lines. If you go down them you will find an enormous number of responses which seem to be mands. You can not so identify them by form alone, but most of these are mands.

47. About 15% of poems contain the word “let”. “Let me be wafted—” This is a direct kind of mand. Or a common behavior may be enjoined: “Let us sing—” Or it may demand verbal behavior in the form of a question: “Tell me, where is fancy bred?” It is perhaps a confession of weakness; the poet wants reactions in his readers and he must go after them and mand them. Apart from mands requiring sensory participation, the poet may mand the activity of the reader in various ways: “Come, let us kiss and part—” “Take, oh take those lips away—” “Stay, oh sweet, and do not rise—” “Go and catch a falling star—”

48. Emotional reactions from the reader can not be mandated in a practical way, only magically. If I want you to weep, I can’t get very far from saying “O weep—” The poet does this all the time. The novelist arouses emotion in a far different way. Dickens writes about the death of Little Nell and thousands weep. He describes all the pitiable aspects of the situation. You can get tears by verbal devices of this sort, but not by manding.

49. Literary people use a group of mands which specify the person to perform an action. “Say, crimson rose—” After we get people to do things, we get to a group which tells people to be here or not be here. “Let there be—” “Come away, come away—” It is much like the gambler’s “Come seven”. You have a need for a given configuration of dice, so you call for it. There is the opposite case where you get rid of things. “Hence—”

50. The lyric poet is a man who has some strong needs, often of a fanciful sort. He allows himself to indulge in uncritical, illogical extensions of manding. The more critical you become, the less likely you are to behave in this way. The poet by definition is not a sensible person. He lets verbal behavior come out. We are all potential poets in the sense that we want to tell the sun to shine, the rain to stop, etc. These are end-products of a large repertoire of mands, but we check such responses and hold them back. The poet practices not holding back. He finds these behaviors in himself and encourages their emission. The poet lets the bars down and out come needs in the form of verbal expression.

51. The written poem is an excuse to all of us to be poetic. Poems supply us with words to say what our own needs are. This accounts for

the success of certain popular songs. When the depression hit, people went around singing "Who's afraid of the big, bad wolf?" That tapped some of the behavior set up by the depression. Themes of popular songs show the feeling of the populace. Songs say what we have a tendency to say—and that helps us out. Some of us share with the poet some strength of behavior of this kind,[†] so we read poetry. We don't take responsibility for it. Just the poet was crazy, not we. Those who read poetry may do it to get out a lot of behavior which they wouldn't care to take responsibility for themselves.

52. The "mares eat oats" sort of thing is a by-product, like the chips and sawdust given off in a mill. Singing it cleans out one's mill.

VI. The Tact.

53. Even in mands, the prior state of affairs becomes important. For example, mands will ordinarily not be emitted except in the presence of an audience which is capable of mediating reinforcement. If the need is exceptionally strong, mands will, of course, be emitted even in the absence of another organism, as when the man in the desert dying of thirst calls "Water".

54. If a person brings in candy and a child starts crying "Candy, candy", in what sense does candy control Rv candy? The physical presence of candy is a place where candy is likely to be reinforced with candy. A state of discrimination is set up in the child so that if the child is alone and no candy is present the Rv candy will be in a low state of strength. Increasing degrees of strength: nobody present, somebody present, somebody present with candy. The likelihood of the emission of candy varies in that order.

55. If we interpret this situation—somebody present with candy—as being for the child "a good time to ask for candy", we miss the point. If we will try to get a feeling for the functional relationships as they appear without preconceptions, then we can later, if we like, translate them into the usual verbiage.

56.[†] We can not specify the prior stimulus when we have this situation:

Alternative S^Ds } R → reinforcement

57.[†] We would like to have this:

S^D — R { Alternative reinforcements

58. In the second situation above, we generalize the reinforcement and make specific the connection with the prior stimulus. We use a derived reinforcement which is associated with a large number of primary reinforcements. We say "right" or "good" or we smile, etc. This reinforcement is based on a number of primary reinforcements. The commonest generalized reinforcement is money. It will get you a large number of things, even if the songster says you can't buy everything with money. You can pay a man for work done with money, and it doesn't matter much what he wants to obtain with the money. With a friend you give approval, promises or gratitude, which can be cashed in later.

59. Whether you can ever make a completely generalized reinforcement is a matter of importance. It guarantees objectivity of response. It is important that the scientist should not emit particular words because of consequences which will follow, rather than because of S^D. Suppose there is some theory in doubt among physicists. What does

the physicist actually find in his observations? He reports them in a paper. If it is a little more likely that a given conclusion will receive favor rather than another, he is likely to emit responses for the sake of the special reinforcements to follow. Complete objectivity—suppression of the personality of the speaker—comes about only if you find a reinforcement which is completely general.

60. The notion of generalized reinforcement is probably the most important single characteristic of verbal behavior. The one thing which a society can do in reinforcing behavior which a mechanical situation can not is to provide a generalized reinforcement; that is to say, a response leads to, on different occasions, different results, so that it becomes a response associated with a large variety of drives and motives, and leads, moreover, to something which we call a generalized reinforcement: thanks, good will, smiles, money, etc., which have in the past been associated with a variety of reinforcements, so that in the long run this response gets you almost anything within the power of the reinforcing community. When the reinforcement becomes generalized, this behavior will appear on many different occasions—and that is why society generalized it.

61. The hearer gains more from verbal behavior than the speaker. Of course, in the case of the mand, the speaker benefits, but in the case of the tact it is the hearer who gains, because the hearer can make use of the S^D correlations of the speaker. We get the benefit of the traveler's experiences, etc. It is important that the hearer not depend on a particular need being strong in the speaker. If I can depend on the child to watch for the postman only when the child needs to see the postman, the child will not be of much use to me; but if I can depend upon generalized reinforcement I can count on some need being strong and make use of his behavior. The tact is relatively disinterested behavior on the part of the speaker.

62. Eventually the child makes verbal responses which stand in some kind of relation to antecedent affairs. He gets nothing specific out of making these responses, but something general. Generalized reinforcement guarantees only that there is likely to be some motive going at the time that such verbal behavior is emitted.[†]

63. In the typical instance there is some multiplicity of effects. A verbal response may be considered a tact if there is no special need involved and if the form of the response is controlled by prior stimulation. It is the kind of thing logicians like most of all. It could be a simple announcement: Fire; Dinner; Naming an object. It may be a declarative sentence. In connection with the tact keep vividly in mind the functional importance of the S^D .

64. There are only special occasions on which this verbal behavior is reinforced. Of course, children go through phases where they name things to the limit of their vocabularies, and the parents lavish generalized reinforcement on that behavior and so keep it going.

65. Each stimulus in the environment tends to produce the emission of a verbal response. We might be able to show that if we have a person talking about electrocution, and if there are a lot of chairs around, he will use the expression: "The man is going to the chair". On the other hand, if he is, say, in the woods, he will use the expression "electrocution" and "chair" may not be mentioned. There is multiple causation involved. You are influenced by the objects in the environment in the selection of responses. It is the same principle as when a person says "What's that?" and you say "Chair". It reduces tension between questioner and hearer.

66. The hearer may not be in connection with the S^D of the speaker, but can use the heard reaction as the basis for action. A woman puts

her child at the front window and says, "Tell me when the postman comes." The child gets reinforcement from the mother when he announces, "Postman", and the woman is reinforced by getting letters from the postman or giving him one.

67. Stimulus generalization. The control of the S^D is subject, like all stimuli, to generalization. You can change features of the stimulus and get the same response. A child that has learned to say chair will say it to a picture of a chair or will say it to a curiously-shaped tree. There is thus generalization of response to a wide variety of stimuli.

68. We could make an analysis of the concept of chair. A child might sit on a large rubber ball and say chair. Chair, then, is something to sit on, not something with certain geometrical properties.

69. Later on you find someone receiving a Chair of Philosophy in some university. The generalization in the latter instance is historical, not a current one.

70. Horns are now made of silver or brass. Originally a horn was the horn of an animal. Today there is no generalization.

71. The verbal community's control of generalization. Generalization can be stopped or held back by the process of sharpening the reference. We may decide that only certain things are to be called chair. Other things are stools, benches, etc. We work against the stimulus generalization process. The child will call the park bench chair, but an adult won't. We base our reinforcement on certain ratios of height and length. We withhold reinforcement when the generalization goes too far. We can narrow the S^D down to very fine properties. We get a very fine discrimination made[†] between one S^D and neighboring S^D s.

72. Some S^D properties can be singled out only by verbal responses. The notion of abstraction is covered here. An abstraction is a response to a property isolated from a context. The current doctrine that abstractions are verbal in nature is essentially the view that only a verbal community[†] can make this kind of contingency—that is, reinforcement of a response to a property isolated from a context—effective.

73. Suppose you want to get a child to use the word red correctly. What is the stimulus for the responses red? First we have the single case. We show the child a red chair. When the child says red we reinforce. We then show him a blue chair. He says red. This is because at this point red is tied up with other properties than the color of the red chair. Now we give him a red book, and if he says red we reinforce. Eventually we extinguish all R's to properties other than color. We can then become very precise about color. We can exclude purple, etc., and take, perhaps, only vermilion red.

74. To repeat, if you have a stimulus range (dimension) and you arbitrarily take a segment of it as the range within which you will reinforce, you can narrow down the response. Mechanical reinforcement is unable to do this. Our intellectual analysis of the world is therefore completely a social product. One man on an island, no matter how much of a genius he might be, would not isolate color as an abstraction. He would learn that certain colored lobsters were edible and others not, but he would not have a relation which he would call color. It would more likely be something corresponding to edible. We get the name of a color only when society steps in and gives reinforcement on the basis of the contingency of color and response. In the development of languages you can see the gradual

growth of concepts. Intermediate colors are still called violet and orange—names of objects. The gradual squeezing out of abstract concepts about nature is a very slow process. The practical man has no reason to make these verbal distinctions.

75. You can get a comparison here between the literary and scientific type of man. The scientist tries to be impartial. He must get things narrowed down to specific referents. The literary person allows himself to talk loosely. The scientist, while more specific about what he is saying, can't talk about as much, because he must develop or explicate every relation. The literary person can borrow, distort and carry over terms from other areas—things for which the scientist has no names. He invents a vocabulary on the spur of the moment for what he wants to talk about.

76. Compare, for example, the scientist's and the literary person's ability to talk about personality types. The scientist spends a lot of time deciding whether it is possible to classify people into types. The poet, on the other hand, does classify personalities into types and talks about them through the development of metaphorical systems for representing personalities. In our everyday verbal behavior when we are not speaking scientifically, we all do the same. For example, Hercules cleaned out the Augean stables, which apparently was quite a job. If now we come upon a situation where somebody cleans up a big mess we say he is a Hercules. If the mayor of Chicago cleans up the city, we say he has performed a Herculean task. He is a modern Hercules, etc..[†]

77. Aesop's Fables enable us to talk about complex relationships between people and things which science has no way of talking about. Something, for instance, is like hunting for a needle in a haystack. To say that in other ways is very circumlocutory. Aesop's Fables put matters in a phrase by reference to a well-known situation. Literature has in this way developed a vocabulary for talking about complex states of affairs such as personalities.

VII. Extensions or Generalizations of S^D.

78. As indicated above, generalization of the S^D is the normal, natural thing, rather than vice versa. Human beings are much more sensitive to the various continua of stimuli and reach much more extreme generalizations than any other experimental animal, but in other animals too there will be various spreads of effect of an S^D.

79. (1) Generic extension. Having acquired the Rv: car for automobile, the child will use the word car in connection with other automobiles, and perhaps wagons, trains, etc., until we stop that extension. There will be an extension to new stimulus objects as a consequence of the simple property of generalization. This is called generic because the extension is justifiable from the standpoint of usage of the community. When a child says, "A car went by", we can be sure that a member of the stimulus class car did go by. This S^D has practical use.

80. (2) Metaphorical extension. Metaphor is not restricted to poets, but is very commonly used. Calling a rough box construction which no one could sit on a chair is metaphor. Calling the leg of a table a leg is not a metaphor now, but it once was. In a simile you may say, "This man is brave as a lion". If you are sure of your listener you simply say, "This man is a lion". The whole problem of metaphor reduces to showing the continua along which these R's generalize.

81. In the metaphor, some property of the stimulus, as in the generic extension, is still responsible for the spread—induction from S^D —but it has gone so far that the practical basis of the class of objects has been exceeded, and the hearer does not act in response as he would to the generic case. If you say, "This man is a fox", there is enough in common between the stimuli which have in the past led to the response fox and this man to lead to the statement. This is a kind of learned metaphor. We do not know enough about foxes in our everyday life to produce this metaphor. Nevertheless, although this is acceptable as a reference to some property of the man's behavior, we do not respond to him as if he were actually a fox.

82. (3) Redintegration. There is a class of metaphor called metonymical extension, where there is merely a common association between stimuli which results in the extension. If you say, "I have been reading James Joyce", I know what you mean. Joyce is dead and buried somewhere in Europe. You have been reading a book written by James Joyce. That man was associated with this book. You read the book and not the man. A further example is "a fleet of fifty sails". Here the important thing is the boats, not the sails. This still has some practical value.

83. (4) Mistakes. We have made a response to a state of affairs which is all out of joint. The hearer cannot possibly make any use of it, and there is no functional character between the state of affairs now responsible for the response and the original state of affairs in connection with which the response was built up. Solecisms, slips of all sorts, are included here. As we shall see later, slips are sometimes explainable on different grounds.

VIII. S^D Relationships with Verbal Responses.

84. (1) Tact. S^D : red \rightarrow Rv: red. The tact need not be a statement or a sentence, or an assertion, or anything else of a specific sort. If we step into an elevator and emit the tact, "Going up", we are simply making a response appropriate to getting into an elevator. We are not concerned now with meaning and knowledge, etc., but with the ingredients—how we get the words to use when we say something; just the tendencies to emit verbal forms.

85. The tact is not entirely unrelated to states of need in the speaker, because there is, of course, some reinforcement. In the optimal case, science or very honest statements, there is a strong tie-up between the response and the state of affairs with no warping or distortion coming about by particular differential reinforcement of responses. If there is a strong reason for reporting one thing rather than another which leads the speaker to make Rv in a given form, there will be distortion of the tact relationship.

86. Hypothetical example of a pure tact with a lower organism: Suppose a household where the master comes home about five o'clock. There is a cook and a dog. The cook would like to know when the master arrives, so that she can start dinner. If the dog barks upon the master's arrival, the cook might use this as S^D , but it would not be a verbal response by the dog addressed to the cook. Suppose that the master's arrival is S^D for the dog's bark and the cook reinforces his bark by feeding him. Then when the master appears, the dog barks and runs to the kitchen and gets fed. What happens now, though, is that the dog starts barking too soon. The cook feeds him, starts dinner, but by the time the master is ready the dinner is burned up. The dog has taken to exaggeration or invention. Then the cook wants to set up the dog's bark as a pure verbal response. When the dog

barks, she goes in and looks. If the master has come, she positively reinforces the dog. If not, she reinforces negatively.[†] After such differential reinforcement, the dog's bark "announces" the arrival of the master. By extension of this technique perhaps the dog could be taught to talk.

87. (2) Audience. S^D: audience → Rv: _____. If an audience were not present the lecturer would stop speaking. The audience controls his verbal behavior. There is no lexical connection between the audience and the response. The audience, rather, controls a large class of responses, not the specific response. Consider the audience-produced shifts in the bilingual speaker.

88. (3) Textual. S^D: text → Rv: _____. The verbal response made stands in a particular relation to the text. We have to show how a person learns to read to account for this. If a text is present the reader will tend to make certain kinds of verbal responses.

89. (4) Echoic. S^D: heard → Rv: _____. The sounds heard are repeated by the hearer.

90. (5) Intraverbal. S^D: Verbal behavior → Rv: _____. This is the word-association situation. I say light and you respond dark, etc..

91. The important thing about the above classes, which will be considered further separately, is the kind of correspondence between verbal behavior and the state of affairs antecedent to it. In all classes we must seek the unit.

IX. The Unit of Correspondence between the Situation and the Verbal Response.

92. One of the most difficult, but most important points, in the field of verbal behavior is the problem of the unit of correspondence between the state of affairs and the verbal response made to it. This problem is in great confusion, due to the philosophers, grammarians and linguists who went about solving it in the wrong way. It is, however, the kind of thing which a behavioral analysis can simplify.

93. Consider the echoic case. Someone says automobile. The speaker hears his own response and tends to say again automobile. When we are dealing with the acquisition of speech, the child may not be able to echo automobile. He may give back only a stressed pattern with some of the vowel sounds right. Or he may achieve auto, but stumble on the rest. Eventually he gets so that he can echo practically any complex verbal pattern. He does it through a kind of phonetic analysis.

94. It can be shown that there are not only reasons for echoic behavior in the acquisition of speech, but also in the maintenance of speech. This is kept up year in and year out, and we have basically a repertoire of echoic responses.

95. Skinner's view of echoic behavior in the parrot: A parrot apparently is reinforced if he makes a sound which approximates one heard. A train goes, "Hoo, hoo". The parrot will make the noise. Or it will imitate a cat in the house. One parrot imitated the noise of an afternoon bridge party. This does not mean that the responses are tied up with food or any other reinforcing stimuli. The echoing for the parrot might be regarded as a kind of artistic endeavor. When the parrot makes a sound which approximates the sound imitated, it comes out again. Of course if the owner says, "Polly

want a cracker?" and then gives the parrot a cracker when these sounds are approximated, this has a different reinforcement status, and is like echoing behavior in human behavior. When a child sits in his father's chair, this is reinforcing. Or when he says something that resembles his father's pet expression, this is reinforcing. An echoing response is one likely to be reinforced if it matches one previously made. It is based on secondary reinforcement. In the parrot there seems to be a special reinforcing effect when its vocal response approximates a sound heard.

95. There is a special vocabulary of imitation picked up by the child which enables him to imitate words heard the first time. It is only when we develop a large vocabulary of repetition that we talk about a unit. We don't teach a child to speak by saying, "Say ah", "Now say oh," etc., but by saying, "Say table," "Say highchair", etc.. When the child has a fairly large vocabulary we can abstract a functional vocabulary of corresponding sounds. With increasing facility a child can repeat any new pattern. He is acquiring something like a phonetic vocabulary of echoic behavior. The unit is an abstraction. We could, of course, teach this vocabulary as such. If we wanted the child to make very good phonetic copies we might train him to echo phonemes. Ordinarily the echoic vocabulary is built up from thousands of responses—the small unit being secreted, so to speak, from the large responses.

96. If there is only one verbal response in the repertoire of the organism, there is no problem. But as soon as you begin to acquire hundreds, or thousands, or hundreds of thousands of verbal responses, then you are confronted with what is the unit of correspondence between situations and verbal responses, or between things and words. This is what the logician loves to talk about and what the linguist must deal with when he talks about semantics, grammar, syntax, etc.

97. We have a list of things, on the one hand, and verbal responses descriptive of these things on the other. The verbal responses may be single words, but are likely to be sentences. What are the units? The philosophers got us off to a bad start here. The function of grammar, syntax and semantics is in part to account for such correspondence. What kinds of things go with what kinds of words, etc. Their work has led to the supposition of different kinds of correspondence.

98. If we take the thing as we observe it—what are the noises made by people in connection with situations?—then we can discover the functional relationships. This would lead to properties or dimensions of things represented by words. How do we analyze things? There will, for instance, be a class of things having the property of length and a class of verbal expressions having the word length. The property of there being a number of things in the situation leads to verbal responses like four, etc.. Plurality in the situation—a final s on the verbal response. The property of time of occurrence—then indicators like -ed, etc., on the verbal responses.

99. The notion of semantic correspondence is that you have something in the situation—for instance, a cat or the class cats—and the word as the verbal correspondent. Let's start in a different direction. Linguists have often asserted that in an ideal language one thing would be represented by one word and a different thing by a different word. That is impossible, because things have so many more dimensions than our words. For every property in nature there should be a corresponding property in the verbal response.

100. In a fashion this can be done by building a model and describing the situation by presenting the model. If I wanted to describe

a chair, I could make a model of it, put it down and say, “This is what I see over there”. There would then be complete correspondence. Model-building is the only kind of verbal behavior where there is complete correspondence between the thing described and the verbal response. In verbal behavior you talk about a verbal response by saying it, and when you do so you are naming it. This is a point often misunderstood. The logician calls the direct quotation a hieroglyphic.[†] It is a picture of the thing designated. When I am talking, if I say cat, the sounds cat are not the word I am talking about—they are the name of that word. When I say, “Jones said cat”, the word I use is not the word Jones used, but the name of that word. Direct quotation is a way of naming verbal behavior. This may sound queer, but it is important for the logician and is the way out of some paradoxes.

101. Instead of making a model one can point at the thing itself. Such a procedure has to be classified as verbal in the sense that it is mediated by other organisms. The ideal language would be model-building, pointing, or, for verbal behavior, direct quotation.

102. If we try to work out a system enabling us to picture all properties of nature in verbal terms, we must have as many verbal properties as there are properties in nature. What can we do by way of getting a correspondence between single properties on the situation side and on the verbal response side? If we have nothing at all, we have proper names for every conceivable state of affairs. Ordinarily there is no functional connection between proper names and the things described. That is why proper names are so hard to remember. They have no overlap with other proper names. It is different if you live in a community with strong family resemblances; there the name Jones may refer to picturable characteristics. Proper names is the worst language, just as model-building is the best.

103. By composition of words we can build up a string of properties on the verbal side for properties on the state of affairs side. “This is a black cat weighing so many pounds sitting in such and such a place at such and such a time, etc.” This would, to the best of our abilities, correspond to that cat.

104. It becomes more complex when we don’t compose that way. Two or three dogs on the situation side is handled on the verbal side by the word dog with a final s added. The s takes care of the two or three.

105. Languages at different times represent with common verbal elements common situation properties. So you get grammarians working out what they call the Theory of Forms (verbal response side) to correspond to what they call the Theory of Notions (properties of things talked about).

106. The morpheme is a case of that sort: Elements which are less than words which have common referents. For instance, affixes and suffixes. The linguists have never allowed themselves to include some obvious cases other than to deal with them in footnotes or short articles.

107. Take the large number of things which are spoken about with a large number of words beginning with sp. This would include the Greek ps. They deal with radiation from a center, with the mouth very probably the center. Clusters of words which have a common identifiable notion: spout, spew, speak, etc.. Similar ones in which the mouth is not the center of radiation: spatter, sparkle, etc.

108 (A). Just as a case could be made for a meaning of sp, there are words beginning with sn referring to the nose: snooze, snout, snore, etc. The sound ngle is included in words connoting triviality:

- dingle, dangle, jingle, etc. These are instances in which a common identifiable element in a group of responses is shown to correspond to an identifiable property of nature.
- 108 (B). Different languages indicate tenses in different ways and attach greater or lesser importance to tenses. What seems important in our language may be neglected in another. The German language finds it important to name gender. Grammarians are fascinated by these things which have no sense. Different languages have developed historically and show different preferences for singling out aspects of nature in the resulting verbal behavior.
109. Historical development is not the same as functional relationships as they prevail today. English came from a tremendously wide range of sources and is especially useful because of the multitude of roots. It makes the language today a very powerful tool. But the history of its development is irrelevant to its modern use.
110. There is a tendency to form words analogically. Trade-names containing air and its variations are popular today because of the popularity of air-conditioning. If the product is called something containing air it has a flavor of modernity, such as having been designed within the past two or three years.
111. If you make up two-syllable nonsense words and make up cards with patterns, the cards may be described by the nonsense words in a way not obvious to the subject. By appropriate reinforcement you bring him to the point where, if confronted by a new card he has not seen before, he can make up a two-syllable nonsense word for it out of the elements previously acquired.
112. The final a in Latin words is indicative of the feminine nature of what is talked about. A theory is that a prominent female with a final a in her name came to the attention of the public. Something of this sort can be shown to have happened in some cases like trade-names, etc. A conspicuous state of affairs combined with a conspicuous name can give rise to a cluster of new words corresponding to a range of things, and thus give rise to a new item in the verbal repertoire.
113. We have perhaps twenty-five words referring to groups of animals. We speak of a herd of cows, a flock of sheep, a covey of quail, etc.. Our hunting ancestors apparently found it convenient to have separate words. Why do we continue this when all we mean is “a group of—”?
114. What happens when we are confronted with a new situation is that all of the little verbal items which are strengthened by elements in the situation become likely to be emitted. Many of the slips which occur will turn out to be nothing more than our struggles to get in these various learned elements. If someone is tired, but forced to go on speaking, he produces Spoonerisms, inversions, etc.. A given state of affairs does not have correspondence with a given phrase. Various items among things strengthen various items among verbal responses.
115. Types of correspondence between states of affairs and verbal responses:
- (1). Same state of affairs represented by same verbal response. Example: list of passengers on a ship (unless you have more than one individual with the same name).
 - (2) Same state of affairs represented by different verbal responses. The case of synonymy.
 - (3) Different states of affairs represented by same verbal response. The case of homonymy.

(4) Similar states of affairs represented by the same verbal response. This is the case of metaphorical extension (any kind of generalization or spread).

(5) Same state of affairs represented by similar verbal responses. A unit may be found among these words.

X. Distortions of the tact relationship.

116. A completely generalized reinforcement is indeed rare, if it does occur. There is usually some reason why responses of one form are stronger than those of another. We do not need round-about statements such as are resorted to in linguistic and logical analysis, because when we assert that a motive is behind a particular form that is all we need to say.

117. Distortions under differential generalized reinforcement. Different forms of response may yield different amounts of reinforcement (e.g., approval of hearer, or his interest in the verbal responses).

(1) Special subject matters. You do not discuss the same things with Aunt Susie that you do with a baseball player.

(2) Exaggeration or understatement. This involves selecting or stretching terms in a particular subject matter along a continuum. This is for the sake of the result on the hearer.

(3). Invention. You get behavior which looks like an account of the state of affairs, but is actually nothing but behavior which produces a certain amount of approval from the audience for which it is intended. Any kind of tall stories, for instance.

(4) Contrary to fact. This is the case of lying. "Were you in the cookie jar?" "Yes" corresponds to the state of affairs, but does not lead to approval. It leads to negative reinforcement. "No" gets approval and positive reinforcement. Of course, the situation may change after someone looks into the cookie jar.

118. All human societies insist upon a certain amount of correspondence, but different societies insist upon different amounts. You may have misunderstandings between cultures based upon how much society insists on this. Forster in "Passage to India", recounts that an Indian doctor was showing an Englishwoman the local points of interest. He led her through a number of caves until this began to be boring. He said, "Now I am going to show you some caves with interesting wall carvings." Actually, there weren't any such carvings. His meaning was, "I wish I could show you, etc.", but he included no phrase to indicate that this was contrary to fact. This was a social gesture. On another occasion he said, "My wife will be delighted to have you call for tea." His wife actually had been dead for a year. In our culture we might conceivably say, "If my wife were still alive, etc." The Oriental is not so concerned about the correspondence.†

119. Distortions under special differential reinforcement.

(1). Crying wolf. Here you say something which purports to be correspondence for the sake of special effects. Shaw, in "The Black Girl and Her Search for God", has something like this: The black girl, in her voyages, comes upon a prophet who looks like Pavlov. The girl has been frightened by a roaring lion. She stops running. Pavlov: What is the matter? Girl: I have been frightened by a lion. Pavlov: Nonsense, it was merely a conditioned reflex (and he goes into an analysis of her behavior). Girl: Do you know what you're sitting on? Pavlov: Of course. It's a most uncomfortably hard, black log. Girl: No, it isn't. It's an alligator. (Pavlov is instantly off the log and up a tree). Girl: Come down.

It isn't an alligator. I was just trying an experiment. Pavlov: But I can't get down. I don't know how. Girl: Well, you'd better learn quickly, because there's a tree snake sniffing at the back of your neck. (Instantly Pavlov is down out of the tree). Girl: There wasn't any snake. I was just trying an experiment.

(2). Tear-jerking or getting laughs. The response is an emotional one. We can't get it with a mand. We get emotions with descriptions of things and we describe them in such a way as to get the effects. There are special correlations between emotionally toned words and the effects obtained. You choose words which have mood effects. Or you can find a situation which, when described, leads to tears, but this gets you into the category of special subject matters. The insurance salesman scares his prospective customer into buying a policy.

XI. The Audience.

120. The audience exerts control over verbal behavior which is different from that exerted by the state of affairs. We are talking now merely about the way in which the presence or absence of a particular audience changes your likelihood of speaking. Our analysis of audiences will reduce to an analysis of the kinds of classes of responses that can be pushed up or down by the presence or absence of different audiences.

121. Think of the audience simply as a device for getting behavior out or holding it back. It does not have much control of particular forms of response. Of course, a special kind of audience is the telephone operator who has control of just one of your responses when she says "Number, please".

122. Having learned to talk because reinforced by one audience, you will tend to talk in the presences of other audiences. The child talks to strangers. We talk to a different audience about something that was successful with a first audience somewhere else (induction). Also, some people talk to nobody. When terribly thirsty you cry "Water". There is also the phenomenon of talking to oneself. The self as audience becomes very important. This is by extension. When you have become a responsive hearer to the speech of someone else, then you may like to recite poems or say things to yourself when nobody else is around. Silent speech is an important part of our thinking. We can short-circuit the vocal-audible stage.

123. We can get back to muscle contractions and perhaps further. In deaf mutes the speech musculature is the hands and fingers. We escape to the vocal level when we can, especially when something depends on self-stimulation, as in solving difficult mathematical problems. There is a tradition among beauty operators that women under hair driers will often start talking aloud. They are hearing a noise in the dome over their heads which masks their speech very successfully from themselves. It is readily audible, however, to others in the room.

124. Perhaps our taboos about talking aloud to ourselves are bad. Maybe as scientists we should work in sound-proof rooms and talk to ourselves. Our use of notebooks and pads is, of course, a way of getting speech out into the open in objective form for self-stimulation.

125. Talking aloud is associated in most people's minds with advanced age or psychosis, and failure to keep contact with society. The quieting down of speech in a child is definitely done because of social pressure. In the schoolroom especially there is the problem

of keeping the child quiet, not only in talking to others but in talking to himself.

126. Different kinds of audiences have different fields of verbal behavior. This has to be broken up in several ways. Different audiences will reinforce different themes or subject matters. We find what to talk about with certain people. In the case of a stranger, the good hostess will tip you off. "So-and-so has just returned from a hunting trip in Africa". Then, if you are seated by So-and-so you know that remarks about hunting or about Africa will have a good chance of getting responses. We learn such things about our friends, and are told them about others. We are thus able to bring forth verbal behavior which is satisfactory.

127. Certain material is taboo with certain audiences. There are different subject matters suitable at tea, over the week-end, etc. You acquire verbal behavior among your friends which never comes out in the presence of, say, your parents. This is a large part of the control of most verbal behavior. In the case of the self, he is a nice person to talk to, since he is always interested in what you are interested in and speaks the same patois. He makes an ideal audience.

128. One thing involved in the process of psychoanalysis is undoubtedly that the analyst establishes himself as an audience which responds to all thematic materials and has no taboos. After the analyst convinces you that he will not moralize, you become able to talk about things which previously you could not talk about, perhaps even to yourself. Each individual picks up a "super-ego" and shares the taboos of society. When, in analysis, we become able to talk about emotionally charged experiences, perhaps dating back to early childhood, and say, "I can remember now for the first time", it may mean "I can now talk about it for the first time because for the first time an appropriate audience has been found."

129. In guiding the analysis most analysts will differentially reinforce different themes. When the analyst gets his theory about the patient and his troubles, he will encourage certain kinds of material. The Carl Rogers technique of "non-directive counseling" provides an audience that accepts everything as offered with a certain amount of approval, and indicates it by making a kind of echoic response.

130. A practical experiment would be to determine how much the course of conversation could be guided by a nod or some facial indication of interest or approval. Suppose you take ten patients—if you are unethical enough to be able to pretend that you are curing them—and set up something like a game of twenty questions. You want to get the patient talking about, say, a week-end at the seashore, this other patient about his most harrowing experience, etc. You will do nothing more than to point up slightly what he says. Your job is to narrow down the classes of verbal behavior. In the case of the seashore week-end patient, you would reinforce rather more strongly all happenings out of doors, things referring to water, and all things referring to excursions, trips, etc. If this reinforcement is right, and you prove to be the audience that is better for him for this particular subject, you should eventually get from him the description of his week-end at the seashore.

131. Such results could be checked statistically against the recorded interviews with another patient whom you wanted to talk about the time he got locked in the closet, etc.. (Intersecting circles can be used to show overlapping thematic material). This would provide part of an explanatory scheme for what happens in Freudian or Rogerian technique. You get the person to say things. The critical problem of

the interview is to establish yourself as an optimal audience for certain kinds of material.

132. Differential audiences:

- (1) Language.
- (2) Cant. Trade language of one sort or another. You talk to the butcher in his own cant.
- (3) Slang: Degenerate form of parent language appropriate to certain situations.
- (4) Social levels. We pretend that we don't have them here. Still there are things of that kind. If you go to see an official, you certainly call the judge "Your Honor", and make certain changes in your vocabulary. In other languages this is much more important than in English. Japanese and Russian are full of special vocabularies for special relationships. We have them only vestigially.
- (5) Little languages. For example, nursery languages. Parents react to the invented words of the child and they become fixed for long periods of time. Swift in "Letters to Stella" uses special terms of endearment that undoubtedly don't sound the same to a third party.
- (6) Intensity levels. You speak loudly to a deaf person. In writing a note to someone else you write differently from the way you write when scribbling a note to yourself.

133. Whether you remain silent or burst into speech depends very much on the audience before you. Stage people feel that very keenly even when they are only repeating the lines of a play. They speak of a "warm audience", "a cold house", etc..

134. There is such a thing as having very strong speech and no audience; also, having a strong audience and no speech. The first case occurs when you have just seen something very interesting, perhaps, and simply must tell somebody, even if it is just your janitor. At the other pole you have a gap to fill, for instance. You must say something. That is when you say the most stupid things—speech at any price.

135. Changes of mood during the day are interesting phenomena. Sometimes children are just dying to talk. If you are moody and unhappy you will not be very verbal, with exceptions. When you are joyful, you are likely to make almost any response in your repertoire, verbal or otherwise.

136. The audience is largely tied up with what we might mistake for a change in mood. Feeling garrulous or feeling dumb is likely to depend upon the audience.

XII. The Textual Verbal Response.

137. If there is a sign up in front of you saying something, there is a demonstrable tendency to say it. Along the road your conversation picks up words from billboards, without the conversation being talk about billboards. You could modify some psychophysical judgments by putting up a sign: "Louder".

138. Skinner reports he can't stop his pathological reading of car-cards and billboards, or even the detailed instructions on a tube of shaving cream.

XIII. The Echoic Verbal Response.

139. When somebody has just said something, there is a demonstrable tendency for you to repeat it. The reinforcements will be multiple. It is safest to repeat words which have just been used, as they are sure of being understood by the audience, etc.. Certain words get going in a conversation and are held in the air by this echoic process. This process is also involved when we learn other languages.

140. Palilalia: tendency to say the same thing over and over again. You echo yourself. The echoic response is too powerful to resist. A classic case is that of the man who went to the movies and read aloud the subtitles. Once he got going on one and repeated: "Came the dawn, came the dawn, came the dawn—" When his wife ordered him to stop he changed to: "I can't stop, I can't stop, I can't stop—"

141. The echoic response will be treated more extensively later in connection with listener behavior.

XIV. Intraverbal Responses.

142. Intraverbal responses are verbal responses about verbal responses. Practically everything said by historians is of this sort. No one today talks about Cleopatra. What we do is to talk about talk about talk about talk about Cleopatra.

143. The development of true-false, completion tests, etc. is the final confession that our universities are concerned only with the development of intraverbal connections. A large part of human knowledge is intraverbal without any reference whatsoever to states of affairs.

144. All memorized poems, passages, rules of conduct, mathematical tables, books which give definitions, etc., are simply collections of intraverbal connections.

145. In casual conversation you learn grammatical sequences, etc., which are intraverbal. If I say "skin of your—", you say "teeth". If I say "in the nick of—" you say "time".

146. Bad grammar is natural. When you learn grammar you merely learn sequences. In the sentence "None of the dogs are hungry", the "dogs" has more control than "none" and a grammatical mistake occurs.[†]

147. Syllogisms are ways of behaving intraverbally and coming out right.

148. Word association tables give percentage frequencies of various responses to stimulus words. If their log rank is plotted against log frequency, as Zipf has done, a straight line relationship is revealed. Skinner thought at one time that this might disclose some fundamental verbal mechanism. If you could argue that it was not only the mechanism of the community but also of the individual, you might work out something systematic about the quantitative structure of the intraverbal system. However, any large population of words will give this relationship—every tenth word on the page of a textbook, for instance.

149. Literary "borrowings" are intraverbal. You might set up criteria on the basis of probabilities to prove borrowing.

150. Flight of ideas. In this pathological verbal behavior the intraverbal connections take over completely and produce long strings of gibberish. There may be some controlling cluster of words beyond what the intraverbal connections will account for.

XV. Multiple Causation of Verbal Operants.

151. We have not as yet dealt with full verbal behavior, which comes in large bundles or packages. For the present we will consider interactions between variables below the sentence level.

152. A verbal operant has contributing strengths of various sorts. One of the commonest results is the appearance of words in prose passages which have a slightly humorous twist because of what semanticists call multiple meaning. This has been developed considerably by I. A. Richards, but was apparently treated first by Prescott in "The Poetic Mind", a book which was an early psychologizing of literature. Examples:

153. A long time ago LIFE published a picture of the kitchen at #10 Downing Street. The range was prominent in the picture. The caption was: "A bad meal cooked here can derange British history." Perhaps range influenced the choice of derange.
154. When the meals in Skinner's dormitory got bad he suggested: "We must call a diet to deal with the matter." Diet is an unusual choice from the group of words such as caucus, meeting, etc. Perhaps he was thinking of the Diet of Worms.
155. When Amelia Earhart disappeared her husband wrote an article in which he said, "The world flight was to have been her last grave undertaking". Grave comes from a group of words such as serious, momentous, etc., and undertaking from a group such as enterprise, mission, etc. Both words are also included in the group dealing with death.
156. "The trouble with birth control is the whole conception of—"
157. "The parachute has the jump on—"
158. "The trespassing signs are very forbidding."
159. "Dental legislation was keeping up, and laws were passed with teeth in them".
160. "One night, when a barge was loaded with dynamite, a terrific storm blew up".
161. "This, the borers from within feel, augurs well for them."
162. "Those candy Easter eggs will lay you out flat".
163. You can cull hundreds of such cases in a very short time. They involve two clusters of words with the immediate form overlapping and belonging to both groups. Most of these are examples from intraverbal behavior. These things get back to tact relationships in the end.
164. "I can make a pun on any subject." "Make one on the king." "The king is not a subject."
165. Dean Briggs, of Harvard, was to speak at a commencement ceremony. The chairs had been varnished shortly before and were still sticky. When Briggs was introduced and started to rise, he had difficulty breaking loose from his chair. He began, "I had intended to bring you an unvarnished tale."
166. Literary critics have been very much interested in these relationships. Empson, in "Seven Types of Ambiguity", shows that a single literary passage could have eight or ten different meanings.
167. T. S. Eliot's poetry has a lot of multiple thematic strengthening. James Joyce has made a special art of the multiple meaning, his technique being fairly deliberate. Editors and commentators have pointed out his techniques for keeping various thematic groups going.
168. We are inferring the sources of multiple strength rather than producing them experimentally. Perhaps it could be done experimentally by using situations offering opportunity for alternative words.
169. Formal strengthening. Small child: "I have a prettier doll in the citier." You get something of the same thing in singsong speech. Whatever was responsible for the first response still has some power and may distort a later response.
170. A student said: "I know a store where you can get discs at a discount". Discs, from the group records, platters, etc., was strengthened by the group bargain, cheap, etc.. It is not that something which comes later has an effect on an antecedent response, but rather that the specific forms emitted feed up from strengthened groups.
171. For our own self-protection we have hardened ourselves against slips, mistakes, etc., because they interfere with our understanding, since usually illogical. We learn to discount them.

172. The crossword puzzle is like some suggestion games where you give part of the answer—acrostics, etc. There was a verbal game about ten years ago where you were to find a rhyming pair of words synonymous with a noun and adjective given you.

"Mountain woman—hilly filly". "Smelly tramp—fragrant vagrant".

173. Various kinds of word tricks share in this process. "Able was I ere I saw Elba." "Madam, I'm Adam." This reads the same forward or backward.

174. "Sator arepo tenet opera rotas". This is bad Latin. It is not only the same forward or backward, but, furthermore, the first letters of the words read forward give the first word, read backward the last. Likewise, the second letters give the second word, etc.

175. Rhyme, alliteration, rhythm, assonance—all these involve formal strengthening.

176. If you get a rhythm pattern going, this determines responses that will come later. After considerable practice you can speak correctly and fluently in iambic pentameter. Also, by practice you can learn to rhyme.

177. There is a lot of satisfaction obtained from reading a rhyming couplet. You have done what the poet has done. You are about to supply, or think you are about to supply, the rhyming word, when he does it for you.

178. Society taboos repetition. Skinner started to say, "I know that person personally". He suppressed the last word and started to say deeply, but came out with peepally.[†]

179. You can prove that many cases of what appear to be alliteration could arise by chance. Swinburne, however, was above chance expectation, Wordsworth below chance. Shakespeare's alliteration was almost precisely what could have been expected by chance.

180. The problem of dealing with multiple grouping is that we shift back and forth among different kinds of subject matter. If you deal with a passage which somebody has written, and all you know is what you can get from the passage, you have one problem: you can cull and classify certain patterns among these words—and they will in general be, on the one hand, thematic similarities, or, on the other, formal similarities. Thus in analyzing passages about which we know nothing except what the passage says, we get thematic groups and formal groups.

181. Thematic group example previously given: "Dental legislation was keeping up and laws with teeth in them were passed." The evidence for the operation of an external process would be statistical in nature. "With teeth in them" is not a very unusual phrase.

182. Formal groups are the same kind of thing except that the similarity we point out excludes the case of thematic similarity; that is, it is the repetition of form.

183. Example: "Her brother had been over to China and he shot a giant panda. He tried to get a job in the museum, but it didn't pan out." Some formal process has been at work to push out that specific form.

184. A football coach said, "The new rules for lateral passes will provide greater latitude for new plays."

185. "Wordsworth is the last word—"

186. The news reels at one time got an interview with a member of the Antisaloon League. He said, "Our old slogan was 'The saloon must go'. Our new saloogan—" Here the statistical probability is high.[†]

187. It is impossible to emit a completely random series of numbers. If you ask somebody to write down 1 to 9 in random order, it will be

far from random when statistical tests are applied. This is because of strong intraverbal connections, such as 2-4-6-8, which, in trying to avoid, will distort randomness.

188. Some historical linguistic process can be attributed to these forces. The appearance, for instance, of little groups, such as hem and haw, part and parcel, etc. These tend to survive because of a tendency toward formalism. Good as gold, fit as a fiddle, haste makes waste, etc.

189. What is the interpretation? How do these principles work and how many processes are involved? We may use the logical device of intersecting circles to show two sources of strength for a specific form—two sets of circumstances which give rise to a multiple response. If there is a common member for two groups of synonymous expressions, then it is strengthened more than the rest and is likely to find a place in the speech resulting. This is below the level of sentences. We are not for the present dealing with verbal forms having much significance—assertions, propositions, etc.—but merely using verbal elements fed up to the surface. In long sustained passages, such as a lecture, you soon become completely at the mercy of the strengths built up in the previous five minutes. The form belonging to preceding contexts is the stronger form. The intersecting circle is, of course, only a graphic device and does not tell us what the process is.

190. In the previously given example, "I can get discs at a discount", it is not the formal heard response of discount which produces echoically disc. Although discount has eventually to take its place in the passage, it was active earlier in the sentence. The analysis is the same as for overlapping thematic groups.

191. If you could have a profile of your latent speech, the various responses would be represented as at various strengths. One group of them might be concerned with war. If then, something is said about war, the strength of all these latent responses is immediately strengthened.

192. If we accept the genuineness of alliteration—and Swinburne's alliteration is statistically significant—then we must assume that there is merely the initial letter which has some individual strength of its own as the result of strengthening of a thematic group. "When the hounds of spring—the mother of months in meadow". You must assume that whatever thematic groups operated in Swinburne, the ms are caused in part by the thematic group associated with mother. An extreme statement of possibilities is that, when a given response becomes associated with a variable—especially in a large vocabulary—what is strengthened is a sequence of separate, single sound elements. If you see somebody's mother and that leads you to say mother, what is strengthened is at least the initial letter, m, and the remainder, -other. You will then use m-words and rhymes like brother. Whether the phoneme is the unit has not been fully worked out. Certainly we get below the morpheme if we accept the notion of related thematic groups bringing out synonym possibilities. That would be the ultimate in the analysis of verbal behavior.

193. There is not much evidence that initial m's lead to richer occurrence of final m's. We will get a little more evidence on the elements, but probably not enough to clinch it at this point. As stated, it is not a functional unit from our point of view, but it may be that we will be led back to a basic repertoire of sound units. We must go partly in that direction to give an interpretation of the thematic and formal groups.

194. The fact that verbal behavior can go wrong and be distorted is a way of getting around the atomic theory, but if you turn it around and say that verbal responses consist in part of putting the units into proper order, then you have support for the atomic theory. Perhaps the true situation is somewhere in between.

XVI. Prompting and Probing.

195. The crossword puzzle presents the situation of part of the formal word being there, and the definition giving a thematic prompt. There is probably a sense of power when the appropriate word comes which accounts for the popularity of crossword puzzles.

196. You can analyze the techniques of verbal wit from this point of view. The critical part is often: what does it do to the hearer? Why does he laugh?

197. Basic formulation of various ways in which we can push out the behavior of someone else (push in the sense of set the occasion for):

Where we know the word or expression we want to get, we talk about prompting.

Where we are trying to find out what verbal behavior exists, we talk about probing.

In each case we add strength to the verbal response. The whole field may be called supplementary evocation of verbal behavior.

198. If we give a person a whole word and he echoes it, we are prompting, but the strength from the supplementary source is so great that we don't get much summation. On a quiz program the master of ceremonies makes use of supplementing tricks. He may ask, "Who was the father of his country?" The person quizzed may say, "That's a hard one." The M. C. may say, "Do you use Rinso White when you do your washing?"

199. The stage prompter by giving you a word or two gets you going.

200. Verbal summator: When the original notion for this came to Skinner he was working in a sound-proof room with an apparatus making repetitious sounds. Finally he heard himself saying, "You'll never get out, you'll never get out."

201. Thematic hint: "Who was the father of his country?" Hint: "Have you been chopping down any cherry trees lately?" This is our old friend, the Rorschach or TAT.

202. Responses made by a girl graduate student to the verbal summator records. (A few responses in French are not included). Barley...have hold on that... do not do that... have you juggled him ... good night...you know a part...cracker...have you anything?...2418...call station...sour pickles...calm down...keep out of it...hobo...do it again...you are mine...I knew her...get over main jump...you tried them...he has you...he never hurts you...I knew her...won over...I have you...if I were you...are you old enough?...have you forgotten?...who are you?...I couldn't imagine... could I get on with you?...are you coming back?...don't go there...watch my margin...after all, my dear...fly like a bee...what will you do now?...can you part?...you got in my boat...how is it?...you are to wait...go down with it...you said it...from A to Z...no one of four...blow that fuse out...I believe it...will you please?...where are you going?...home as usual...you are a peanut...you wouldn't allow it...are you part of it?...roll up your hose...you have a part in it...you go up...you know of us...what are you doing?...are you out of it?...I do see that...

do not say your part—...take leave of it...so are you...are you going?...knows of it...dreams of it...do it again...how do you amaze her?...have you two cents?...think of you... none of that...I don't know...a great deal of it tomorrow...do you ask him?...do you have use of them?...do I know of it?...are you, too?...are you doing that?...are you well?...you are a peacock...are you a nut?...who else do I know?...are you there?...I would rather have you...will have tea...I will ring the bell.

203. The sample gives an impression of personal problems. Someone who wants to create a name for himself could go to town clinically with the verbal summator.

204. Some responses occur practically as statements. "You tire me." "Hard to repeat". There is evidence for unawareness of the source of the verbal response.

205. Bilingual subjects tend to revert to their childhood language in listening to the verbal summator; e.g., Croatian.

206(A). If you wish to establish certain themes, you start off with four or five items which are real verbal sequences. Children in this situation show a great deal of perseveration. A boy of seven heard the real words, "I am Buddha". Skinner couldn't get him later to stop giving Buddha responses. After about twenty responses concerned in one way or another with Buddha, Skinner said, "Now there's no more about Buddha". But the child wouldn't change.

206(B). Comments on responses selected from the long sample given above:

Elle n'est partie.	Here there is a lot of formal interlocking.
Do not say your part.	<u>Partie</u> and <u>part</u> . <u>Partie</u> and <u>take leave</u> .
Take leave of it.	<u>P-p-p-partie</u> suggests that there was a review
Oh, are you?	of the case and some concern with the <u>pas</u>
Got your visa.	left out in the first line. <u>Not say</u> in the
Elle ne sait pas.	second line changes to <u>ne sait</u> in the third
P-p-p-partie.	from the last. It shows perseveration going
Are you going?	on from one sample to the next. Forms and
	themes are strengthened.

207. The verbal summator has literary significance. Several authentic poets have been much interested in it. It talks to them very readily. For most people, after they know that it isn't saying anything, there is a kind of Freudian censoring, but the poet is practiced in not censoring himself. Skinner let the records play when he was doing something else and found himself saying a variety of things that he might otherwise have censored.

208. A case from Skinner's personal experience seems related to Freud's theory of recall. He was working in the basement and went off leaving an electric soldering iron plugged in. He didn't go back for a day or so. Thirty-six hours later he was reading something and came to the word solder. He immediately jumped up and ran down to the basement and turned off the iron. The read word brought out a response which was too weak to be emitted without the probe.

209. Such instances do not happen very often dramatically, but they happen often enough to show the process of supplementary evocation due to a separate source. When the psychoanalyst tries to get you to recall childhood memories he may use formal tricks, but ordinarily he uses thematic ones.

210. Consider the possible use of the verbal summator as a lie detector. A man is in jail. You know the name of only one of his confederates in crime. The phonograph may play aloud statements like, "I killed a man", "I robbed a bank". It then gives the name of the confederate you know about. Then you turn the phonograph down and say, "Give me right away everything you hear". You also have a psychogalvanometer on him. You can check on galvanic rise when he doesn't

report his response. He will have to tell you or suffer the consequences. This is essentially a mind reading technique in the sense that he says to himself something he thinks you said. When he thinks you said it he has no reason to keep it secret any longer.

211. Skinner tried to work out an objective technique for determining thematic connectedness. If he could get from one response to another without using more than three categories of Roget's Thesaurus, he considered the connectedness as probable.

212. In neurosis or everyday complexes you have a condition characterized by the fact that certain themes are strong—food, sex, etc.. It takes imagination and willingness to proceed below the level of logical rigor to apply this to personality analysis. Something might come out later from thematic analysis which would be susceptible of rigorous formulation.

213. A subject full of compulsions (as diagnosed by a psychoanalyst) heard the summator giving him all sorts of commands. Some subjects are likely to hear many of the sequences as questions.

214. Literature is a gigantic projective device. There is a tremendous amount of self-stimulation of an intraverbal sort which leads to pouring out of appropriate verbal behavior.

XVII. Distortions, Displacements and Intrusions of Verbal Responses.

215. Verbal responses are distorted in many ways, and involve many sizes of unit. When a word pops out in the wrong place, it might be called a displacement or intrusion of the wrong word.

216. A society woman managed to get the elder J. P. Morgan to come for dinner. She warned her little girl not to stare at Mr. Morgan's conspicuous nose. Throughout dinner, however, the child's eyes were fastened on the nose. Finally the mother sent the child from the table. To cover her confusion the mother quickly offered Mr. Morgan the cream, saying, "Will you have some cream on your nose?"

217. Lewis Carroll's portmanteau words are blends of two meanings. If a person has the responses furious and fuming at equal strength he is likely to say frumious.

218. The first line in a play by Lewis Carroll: "Ladies and gentlemen seem stiff and cold." The manuscript read: "—stiffened cold". Skinner thinks there is a possibility of a "death wish". Carroll was a vicious fellow.

219. Skinner was traveling north through Maine along the coast. He drove around a turn and was almost smashed into by another car. Skinner was upset and, as he went on, he was under the stimulus of this emotion. He was surprised to see a sign along the road: "One Mile to Death". When he looked again "Death" changed to "Bath". The startled misreading was due to strong emotional predisposition.

220. In one of his books the psychoanalyst A. A. Brill reports that a woman patient said to him, "Don't give me any big bills. I can't swallow them." Brill interpreted this as a slip on the patient's part. But he was a German and probably had the usual trouble with p and b. Skinner thinks it just as likely that he might have mis-heard the patient's "pills" for "bills".

221. Skinner saw a road sign out of the corner of his eye: SAHARA COAL. He read this as: SCARLETT O'HARA.

222. "Abyssinia"—feeble wit for "I'll be seeing you".

223. The portmanteau word, or word blend, is the highest development of modern verbal wit. We don't allow ourselves to do very much punning now. Several former ages did. It went in and out several times. The use now of the blend is definitely up, especially the haplological blend, when one word runs together with another with an

intervening syllable left out.† Example by Freud: alcoholidays.

224. Freud thought we all rejoice in saving words and that these blends save some energy. Why they are amusing is probably adequately dealt with when we come later to the behavior of the hearer.

225. What is the process of blending? TIME uses the term smog for a combination of fog and smoke. What is going on underneath? To assume that there is some way that two verbal responses can fight it out is to appeal to a special mechanism which we haven't seen before. The existence of such blends supports our original contention that it is the separable elements of verbal responses which are ultimately under the control of stimuli. The person has a tendency to say sm oke and f og.

226. Sometimes blends are cases in which a pair of words is used in succession. The white rat in the maze comes out as The white raze—. You correct yourself almost immediately. On the other hand, where there is a simultaneous tendency to say two different words, the blend may be missed unless you are on the lookout for such errors. The hearer can respond to smog but not to white raze.

227. Other examples of blends: Slatter, for slightly fatter; blush for brush the flies; precord for previous record.

228. An impartial collection of blends would probably give useful information, but you notice the ones that have a ridiculous effect or are revealing rather than those which are simply mildly annoying. One is sure to notice and repeat the blend made by a young woman taken to dinner by a young man, when she said, "I am simply ravished." This was a blend of ravenous and famished.

229. Sometimes the word which is blended occurs first and later produces some blending. This kind of thing is responsible for some of the wit of the radio jokes that go something like this: "Are you fond of Debussy?" "Of De Whoosy?"

230. Ogden Nash has made almost a work of art out of unnatural formal changes of the blend type; e.g., Havenue, for haven't you.

231. When English wasn't quite as fixed as now you got a pseudo-Ogden Nash effect coming out in what we would now call misspelling. If one line ended might, the next line might be ended despight.

232. Blends don't always need to be between two verbal responses. The whine in children is a blend of crying and talking. That is also responsible for some features of classical and other poetry. In Greek poetry there is emphasis on I-sounding words because I-I-I was the wail of anguish. In English we don't have as many basic emotional noises. "Ouch" is relatively culturized as an expression.

233. Onomatopoeia: The sound shares some properties with the thing described. Ba-ba, murmur, etc. It is a stressing of the sound pattern due to an imitative, echoic response.

234. All these points could be supported with facts from historical linguistics in its study of folk etymology. A New York apple called Reine Claude was modified into Rain Cloud. Sparrow-grass was originally asparagus. The value of historical changes is that they enable us to see slight effects going on cumulatively over a long period of time.

235. There are phrase-blends. They show again the independent force or strength of parts. Some of these enter into wit and are amusing. Others are not. "For that matter of fact" is a blend of "for that matter" and "as a matter of fact". Further example: "Hemming and hawing about the bush".

236. Skinner was describing an experience on the Maine coast to a friend. Skinner had come out of the woods and was standing on a large rock. "And I stood there like stout Cortez silent on a peak in Darien", etc. Suddenly he realized the rock was moving. He

leaped to safety and the rock went rolling into the sea. The friend exclaimed, "Imagine your wild surprise".

237. There are such things as blending styles. Stevenson adjured the would-be writer to "play the sedulous ape" to established writers as a means of learning composition. If you read a great deal of a particular author you pick up certain cadences, turns of expression, and connectives. You can, if you choose, talk in his style. You are blending the intraverbal connections picked up from your reading with what you have to say.

238. There is a whole school of literary theoreticians who may be represented by a man now in contempt and also in a state institution: Ezra Pound. He thought literature always built on its past. This approach is now carried on by T. S. Eliot. If this theory is correct, each new writer picks up something from the past. In the writer's literary behavior there are intraverbal patterns which give him preferences for certain sequences of words, stress patterns, etc., identifiable by a critic as picked up somewhere. For the critic the writer's work is a product with a history.

239. Some book titles are borrowed from the contents of other books. "Tomorrow and tomorrow", "Tale Told by an Idiot", etc.. Why is this better than what the author could make up? These titles have the advantage over new titles of seeming to belong, of being appropriate, or of having an ancient heritage or right to be there. This is because they are blends of old and new.

240. Parodies and travesties are ways of saying something new while bringing along some of the forms and intraverbal connections of something old.

241. The phenomena of blending are well established. The best example that we have of the overlap and interlocking of responses is the blend. Only in some laboratory responses can we get as good a record of the interactions of separate responses.

242. Verbal behavior has the advantage of being readily recorded. If somebody starts to doff his hat and shake hands at the same time, it is hard to get a record. If somebody says, "That is heritage"—blend of heresy and sacrilege—we have ideal notation for the recording of the interaction. Interaction of responses can be set up experimentally, but in verbal behavior we have it readily presented.

243. The functional unit is a collapsible affair depending upon the amount of verbal behavior we have acquired. Joyce was tremendously verbal. Such a person has units very small and independently functional. A person who speaks English badly—say an educated foreigner who knows only the vocabulary of Basic English—is not going to make elaborate blends. He doesn't have small units.

244. Spoonerisms: "Waised rages"; "Hoobert Herver".

245. You can say a thing over and over until it loses meaning. Then all kinds of things can happen to it as formal patterns shift about.

246. Displacements would be classifiable as phrase blends. They may sometimes be a result of negative reinforcement. This comes in especially in explaining some displacements which are revealing in the Freudian sense; for example, euphemisms for death; bowel remembered as vowel, etc.

247. There was a woman who had never taken part in public life who was connected with a political party and had been asked to speak in Washington at a banquet which was advocating repeal of the prohibition amendment. The party wanted her family name on the program more than anything else. She had never made a speech in her life. As she was introduced somebody shoved a microphone in front of her with

the call letters of a radio station on it. Already very nervous, this was the last straw. She said: "This is the first time I have ever faced a speakeasy". She had no knowledge she was going to say this. She was concerned with speaking, with abolishment of the speakeasy, and with the microphone which made speaking easy, etc.

248. Wit is often a case where a person sees soon enough what he is going to say to take credit for it.

XVIII. The Speaker's "Knowledge" of What He is Saying.

249. All that has been supposed so far is that we have a group of verbal responses—many thousands of them—existing in certain states of strength. Some are easily evoked, others scarcely ever in this particular individual, and, although we can show how some become strong temporarily under the influence of variables, and how the threshold thus changes, we still have forgotten all about the speaker. Is he nothing but the locus of this behavior? Does he just sit by and let this talk come out? Does he observe himself as we observe him, as the source of the noises? Such a phenomenon has often led to the belief of an individual being used as a mouthpiece for some supernatural agent.

250. This isn't the full story. When we come to deal with the full story, we find it must take into account something that would correspond to the Self, or Ego, something that would involve the speaker's intentions in what he is saying, and also his awareness of what he is saying. To what extent do we know what we are saying? That would certainly come into a complete discussion. All these problems, then, are next on our schedule in order to move on from mere treatment of verbal responses to the apparent integrity of the whole organism.[†] The kind of order or structure to be observed in large samples of verbal behavior—the extreme case would be that in which we analyze a large important literary work—indicates that we certainly have more than the mere emission of verbal responses. There are big organizations, big patterns, which must be taken into account.

251. Let us take the question of awareness. To what extent do we know what we are saying? There are two ways of interpreting that:

1. Does the speaker know the form of the verbal behavior that he has emitted?

The case where this would not be true would be when one has made a slip and not known it. Also, it is true in talking in your sleep, in automatic speech of the somnambulistic type. It isn't always true that we are aware of the form of the responses we emit. Ordinarily, though, when you say to a man, "What did you say?" he can repeat it word for word.

2. Is the speaker aware of the variables operating? This is the much more important case. It is the case in which you know why you emit a particular set of verbal responses. The answer to the question is again yes and no. Ordinarily we know why we say things if they are in the form of mands. "Well, I'm thirsty, that's why I ask for a drink of water". Or, if you ask a person, "Why are you telling me all this?" he may reply, "Well, I just saw it happen", and he continues to the effect that he is describing something. Or you may say, "That reminds me—", warning the hearer that an intraverbal response is coming.[†] The curious thing again is that the awareness of variables may often be lacking, in which case you are not aware of why you are saying something.

252. Trollope was rather interested in this problem and has many instances in his novels in which a person says something while obviously unaware of why he says it. For instance, Mrs. Proudie[†] dies suddenly in the middle of one of his novels. Why she dies is explained by the fact that when Trollope was stopping at an inn he heard two people

discussing his work, which was appearing serially every week. One of them said, "I'm getting awfully sick of Mrs. Proudie". So Trollope went home and killed her. She dies very suddenly to the surprise of everyone.

253(A). Bishop Proudie has been a henpecked husband through six or eight novels. He goes to his study a few days after his wife has died. He feels lonely because she has been constantly busy about him in the past. He begins to look about and sees his mail bag. Usually Mrs. Proudie had gone through it. Proudie now could have the letter bag when he pleased either in his bedroom or left untouched on the breakfast table. As he thought of these things [writes Trollope] he said, "Blessed be the name of the Lord," but he didn't analyze what he was saying."

253(B). Anticipation of Freudian interpretation by Trollope: A young lady who came from a low, mean family has been proposed to by a Major Somebody, but her family is under a cloud. Her father is being accused of a petty theft. She feels she must refuse the major. She writes a note in which she says that a gentleman ought not to marry any girl who would do himself or his family injury even though she "loved him ever so dearly with all my heart". These last words she had underscored. When she read the note over, she recognized this unconscious expression of her own feelings and had to rewrite the note.

254. Any person sensitive to verbal behavior observes instances in which one is really unaware of the operation of variables. In the case of slips, distortions, blends, etc., you ordinarily don't see them coming. You may, however, or you may not, see the significance afterward. Nowadays, after reading Freud, we watch ourselves like hawks. If any variable becomes suspicious we change what we are saying. Still, according to Freudian analysis, we can not come out on top and we will always be talking from variables that we aren't aware of or don't wish to reveal.

255. The verbal summator often evokes what are statements about facts in the environment. A large number of such responses are reported in which something happening in the street or experimental room is described by the person as what the phonograph is saying. The phonograph is a disguised variable. In this case you think you know that you are only echoing. Actually it is proved that you are doing a lot in addition.

256. Unconscious wit has always been evident and talked about. That is another case here. A person makes a witty remark without knowing it. Skinner was making up an examination for an introductory course in psychology and was tracing some diagrams on a mimeograph stencil. He had some space left and decided to write the names of early psychologists and ask the students to draw a line to show their order of succession. He wrote at the bottom: Who followed whom? Later he heard himself saying, "Who followed Hume?" He went back to the stencil intending to include this witticism, only to find that was what he had written originally.

257. When somebody gets our meaning wrong and we say, "No, what I meant was—" we are making statements about the variables behind our speech. "The variable that brought that response out in me is not what you thought, but the following."

258. Much research has been done on automatic writing. The ouija board, or planchette, for instance, seems to be moving of itself. The person who pushes it is not aware that he is pushing and isn't aware of why he is pushing. But it is a kind of speech.

259. Automatic writing with a pencil can be done. Just get your arm into an easy, comfortable position—sometimes a sling hung from a chandelier is a good idea—and a table of the right height. You need some way to change paper and to keep you from running off the edge.

Make some random motions while reading a book or talking, etc. Some people can achieve automatic writing which is perfectly good verbal behavior containing all the organization of behavior which you know about.

260. A whole novel has been written in this way. Skinner wrote an article for the ATLANTIC MONTHLY which the editor entitled, "Has Gertrude Stein a Secret?" The article proposed that Miss Stein's literary efforts were produced by automatic writing. Miss Stein denied it in "The Autobiography of Alice B. Toklas". She had done some experiments in automatic writing at Harvard under Munsterberg in 1896. Her article in the "Psychological Review" gave some samples of the automatic writing which she was able to achieve as one of the experimental subjects. Her three samples, to an impartial observer, leave little doubt that her later work is essentially automatic. It is the same kind of stuff as her samples; e.g., "Tender Buttons".

261. A person with puritanical standards may write obscene stuff automatically, and it is better not to let him know it happened. Multiple personalities don't occur as often as formerly. One personality might write notes to the other. The only authentic automatic writing that Skinner has seen was produced by a student who came on for graduate work from a small ivy college where he had a lot of paternalistic care. The university was a place where nobody paid any attention to him and things were hard. About halfway through a particularly difficult lecture he stopped taking notes and his hand very slowly began to write in big letters: "Please. I want to go back. I can't go on. Please."

262. Some part of this student as a person would not permit that kind of behavior. We don't have to assume the Freudian scheme of the triumvirate: ego, id and super-ego. There are incompatible responses, and the only way one can come in is by sneaking in when the other systems aren't looking. If you don't know what you are doing, then it is possible sometimes for behavior to come out uncritically. The whole point consists of what we mean by critical and uncritical.

263. Sometimes you can see your wit coming. Shall you tell it? It may be improper. If you wait too long, it probably won't be too good because some of the variables will have subsided.

264. A large part of verbal behavior can be interpreted only by supposing that other verbal behavior is one of the variables which are functioning. There are always verbal responses which only talk about words. We are getting ahead of ourselves here—into primary and secondary language. Secondary verbal behavior deals only with one's own verbal behavior.

265. As soon as the automatic writer becomes aware of what he is doing, he ordinarily stops. He is startled and critical.

266. A schizophrenic student once presented Skinner with two pictures he had drawn automatically during class. They were packed with Freudian symbols. He was a skilled typist, but Skinner tried unsuccessfully to get him to type automatically.

267. The fact that automatic writing can be an integrated whole seems to indicate that the presence or absence of awareness is not the critical part of the control of verbal behavior.

268. The literature on aphasia is very large, but is as inconsistent as anything could possibly be. Writers on the subject had had to build up theories of language to account for the phenomena, but it is practically impossible to find an unbiased report on the aphasic condition itself. Henry Head had four types of aphasia. Then some people in this country found that Head's test didn't even make sense when applied to non-aphasics.

Head's report of what happened was all

mixed up with his interpretation of what happened.

269. The whole problem of awareness has infiltrated philosophical discussion. What do we mean by saying we are aware of what we are doing? What is "known" in that case? Any kind of motor theory of consciousness, any behavioristic theory of knowledge, is that you are making a response even though it is a conceptual one and hard to explain in motor terms. In this case we mean that the person responds to his own behavior as formed or to his own verbal behavior with respect to the variables, and then the question is: what is the knowing response? One good hypothesis which makes sense as a preliminary approach is that this kind of knowing must always be verbal.

270. We made that point in connection with abstractions—ways of talking about properties of nature apart from things. We mentioned that there is no way of getting anyone to respond appropriately to redness without respect to what is red except through verbal responses, because the kind of reinforcement which would make this response contingent upon a single property must be mediated by a community of hearers; therefore, it is only when verbal distinctions have been built up that we can break the environment into separable properties. We would not get beyond things if it were a practical world. We might talk about red things. We could respond to color without being verbal. But we can't respond to the single property alone short of a verbal response, because there is no kind of reinforcement which respects single properties except the verbal response.

271. This can be used to support the hypothesis that one's awareness is the ability to react to one's own behavior, and must be verbal. It can only come about because somebody has forced you to make discriminations. You can have the stomach-ache before somebody tells you you have one. You do react to your body as a source of stimuli of all kinds. But this peculiar relation which sets up a vocabulary descriptive of one's own behavior depends on the fact that the community has thought your behavior important enough to force you to build an appropriate vocabulary with respect to it.

272. Consciousness of self is a social phenomenon. Your behavior becomes important for yourself only in so far as it is important to others. Curiously enough, the solitary man would have no vocabulary about himself in this sense, although he would react to cramps, pains, etc. He would have no way of being aware of himself as a self, as a person. He would be what we take animals to be.

273. The child's awareness of himself as an acting organism comes from discriminations of himself imparted by parents and others. You can see it emerging at two and a half or three years of age. He begins to talk about his own behavior because his parents do. There is a lot of work done by parents to get a child to talk about himself and get him to build up a verbal system which depends on his own behavior as a stimulus.

274. A unique state of affairs emerges. This vocabulary can recede so far that it is descriptive of private stimuli which have previously accompanied these public stimuli of a man's behavior. You can begin to talk about what you intended to do or what you almost did or what you did in the dark when nobody else saw you. You can transfer your repertoire of descriptive responses to covert instead of overt behavior. That is the only thing the reinforcing community can use in imparting to a child a vocabulary descriptive of his own behavior. You talk to the child about what he is doing, until he gets a big vocabulary. This can then shift to cover covert behavior.

Later the child says, "I was on the point of asking him," etc.

275. That gives you a vocabulary for describing your own behavior which is no longer visible to society. That problem of how a verbal community can build up a vocabulary descriptive of private events is an important one. You react to yourself when you have a cramped leg, but awareness of self implies a different kind of reaction to oneself as a stimulating state of affairs. A tumbler can turn a backflip because he knows where he is most of the time. One kind of knowledge of self is involved in such a performance, but it need not be any more conscious than the behavior of a tumbler pigeon. It is a sequence of behavior depending on automatic stimulation from oneself. When you say you are aware of yourself, this is a special kind of knowing possibly interpretable as a verbal response, where the verbal reinforcement occurred before the growth of awareness of self. It is a function of other people. You are not forced to think about yourself until somebody else forced you to because it is important for him. As always, this is a difficult field.

276. It is difficult to make a good science out of relatively vague verbal facts. The simple operational attempt to get out of the subjective dilemma makes all this private stuff inaccessible, but we can talk meaningfully enough about reacting to oneself, to one's own behavior, so that we can throw some light on fundamental processes of organized behavior as it comes out and examine our reasons for so doing. It would be very difficult to treat experimentally and may always remain a field talked about by transferring to it a descriptive system tested elsewhere. This is worth doing, and we think not in violation of scientific principles.

277. To be aware is here equated with being able to talk about. We are able to talk about the behavior which is emitted. We are able to talk about the variables involved, etc.

278. We assume that nothing in the environment is reacted to as specific and different from anything else until something hinges upon it. The whole world would remain a buzzing, blooming confusion unless events were related among themselves. This is the notion of crisis.

279. We can learn about the physical environment because there are consequences of our behavior with respect to it. With single properties, such as redness, etc., there seems to be no natural contingency which would force our setting up behavior appropriate to redness alone; therefore this is probably verbal in nature. A similar argument is that one will not be able to react in a practical way to his own behavior unless the crisis is supplied by a verbal community. It is only the fact that our behavior is important to others and they teach us to report it that we are ever aware of our own behavior at all.

XIX. Secondary Verbal Behavior.

280. We react to our own behavior in a verbal way. This may not be identical with the problem of awareness, but we do talk about our own behavior after it has occurred, or almost at the moment of its occurrence, or even preceding it. We have verbal behavior which is about, which is emitted with respect to, other verbal behavior.

281. This gives us something rather close to a device of the logicians. There has been a kind of logical problem, an antinomy, which has bothered people for about two thousand years. Example: "This sentence is false". What can you say about this sentence? If it is true, it is false; or, if it is false, it is true. There is a modern

version still more interesting. You can classify all words in two ways: homological or heterological. If a word describes itself, it is homological; e.g., white written with white chalk. If a word does not describe itself it is heterological; e.g., French (English is homological). Small is reasonably homological, but infinitesimal is heterological. Mispelled is homological. Now the question arises: what is the word heterological? If it is heterological, it doesn't describe itself and must therefore be homological; but if it is homological it does describe itself and is not heterological.

282. The answer which has come out of modern logic, due to several people, but especially Tarski, is that no sentence can refer to itself. There are different levels of language. A primary language must occur first in time. Carnap, the logician, calls primary language protocol language. He calls secondary language—that is, talk about primary language—metalanguage. The terms primary and secondary are used by Bertrand Russell.

283. In primary language you have all statements about things. C.U. is in New York City.[†] The metalanguage, or secondary language, talks about statements in the primary language. It quotes. "C.U. is in New York City" is true, etc. The question arises as to whether the quote is the statement or the name of the statement. The logicians have found it necessary to set up levels of language. Then "This sentence is false" is not meaningful because it refers to something in another language.

284. A language which puts the primary language in quotations and then uses such expressions as "is true", "is false", "can be denied", etc., is too trivial for us to bother with here. It does, however, apparently solve the ancient paradoxes if you feel the need of a solution. We do, however, talk about our own verbal behavior and the classes and ways in which we do it are many. There is a part of our behavior—a part of almost every sentence—which is talking about the rest of the sentence. Carnap: the words no and not are primary language. For Russell they are secondary language. To say "There is no cheese in the icebox" is not to talk about something which is "no cheese". It is, rather, equivalent to, "'There is cheese in the icebox' is false".

285. The logical distinction between A and not-A does not hold in verbal behavior because not-A is not a stimulus. If it were, we would be fairly bursting to emit responses for all the things not present. "No" or "not" is a response to verbal behavior. It is a kind of command when you say, "No, not that". The victim on the verge of being tortured screams, "No!" It is an injunction: "Stop!"

286. The sentence which contains "no" is to be interpreted as a sentence without "no", plus the response "no". It is advice or warning to the hearer to react in the opposite way, or be aware that there is no good reason for saying whatever is being said without the "no".

287. "It is not raining". This has meaning only when somebody says it in a particular situation. Why would anybody say it at all? There must be some reason for saying, "It is raining". Somebody may be using the garden hose and hits the window. You look out and say, "No, it is not raining". Nobody except the logician ever says, "It is not raining", unless there is some reason for saying, "It is raining". The "not" is a statement about the verbal behavior emitted and expresses the fact that it is not prompted by the ordinary state of affairs which the hearer or reader has a right to expect from the verbal behavior. There must be a sizeable part of the stimulus for "It is raining" before we introduce the "not".

288. What about is? What is the referent for is? Well, just as we could say that not is an example of negation, then is is an example of assertion or affirmation. We don't see any affirmation around when we say, "It is raining". But is is in the secondary language and must refer to assertion. In assertion the emission of the response rain, plus the addition of a tag is or is not, serves notice on the hearer that the statement can be trusted—that it does arise from a given state of affairs.

289. Is and is not are secondary terms emitted when we are on the way toward emitting simple responses of the sort we have already studied. Out comes the primary speech. Then the speaker, as a separate response system, imparts upon it some of these indicators such as is or is not.

290. Some and all are quantifiers. In what sense can we say, "all swans are white"? Obviously we are not reacting to all swans, but to all swans as experienced. Some swans are white. Where is the stimulus? We can regard all and some as being in the secondary language in the sense that they can be replaced by some of the time and always. This works like the Aristotelian syllogism. No swan is black means At no time can we say swan is black.

291. We look out the window and see pigeons, some brown, some gray, etc. What do we mean when we say Some pigeons are gray? Don't we mean All the gray pigeons? Doesn't the some refer to pigeons? If you get them all in a group, then gray refers to all the gray pigeons. When we see a batch of mixed pigeons, we can say some are gray. Some is secondary language. It describes not the truth value, but the functional relationship that we have so far been discussing. These are ways of talking about our own behavior so that the hearer or reader gets some help. The hearer reacts with a high probability that what we say is useful information.

292. The secondary terms are thrown in by way of warning or advice or assurance to the hearer that behavior on the part of the hearer is justified. Assertion is not just emitting gray in the presence of a pigeon. Pigeon is gray. The is is in there to help the hearer make use of this collocation of sounds.

293. There are other expressions in the secondary language that are also interesting. Like and as and sort of are ways in which we advise the hearer that our behavior is suffering from metaphorical extension. Sort of warns the hearer not to take it too strictly.

294. If we take chair and extend it broadly, and then come across a certain kind of bent tree, we will say it is a sort of chair, or it is sort of like a chair. The stimulus prompts us to say chair but we are aware that it so prompts us because of metaphorical extension. The sort of behavior is sloppy, vague, with fuzzy edges.

295. As and like come in in the case of simile. He is like a lion in the fight. To say, as in the metaphor, He is a lion in the fight[†] is capable of being misunderstood. In the case of human beings we can guard against misunderstanding by putting in like or as to show that this is not the usual stimulus for the response lion, but there is enough to justify use of the response with due caution.

296. President Conant, of Harvard, prefixes almost every statement with a statement about his own verbal behavior. It is interesting to note that— It is only after the that that he begins to use primary language. I say—, I think—, I am inclined to say—, from my point of view—, etc., can be interpreted as a warning that what follows is the speaker's observation of his own verbal behavior.

297. A great many of our sentences are heavily borrowed from the culture in which we are moving. Suppose two aspects of the situation

are associated as black horse. There is a horse and its blackness. But whether you say black horse or horse black depends only on the language you grew up in. When you say horse is black you have begun to put in something which is a comment upon our reasons for saying this. If I say not I am going still further and commenting on the fact that for some reason I am inclined to put these words together but it isn't the true state of affairs.

298. John Horne Tooke: Englishman of the 18th century. He wasn't liked and was popped into jail once or twice by the government. He had one trial which hinged on the interpretation of the word that. This got him going and he wrote a book with a Greek title and the subtitle "The Diversions of Purley". He interpreted little words like that as compressions of round-about terms. He was a good behaviorist, although he didn't know it. He had the correct semantic approach to a great many problems. Some of his interpretations follow.

299. to means till. Getting to something, going to Boston, going to sleep. Tooke had a good muscular sense of the words he studied.

300. If Tooke incorrectly traces to Old English Gothic gif (give).

301. Except. "Everybody in this room will go except so and so." Except does not refer to so and so, but refers to the statement.

302. Notwithstanding, nevertheless, etc., are still pretty close to the expanded form. But if, to, etc., have suffered an abbreviation so that we have lost the feeling for the original manipulative power of those words.

303. Some secondary language is an injunction upon the hearer to do something by way of manipulating what you have said. But, except, etc., order you to leave something out. Vice Versa means: turn it around and say it again.

304. The main thing in connection with secondary language is to get the feeling that you are doing something with your behavior as you talk. All grammatical devices are just more of the same. If this is true, then logic is concerned with possible orders and with kinds of sentences that can be made up. Any validity it has will depend on useful results obtainable from sentences containing is, is not, all, some, etc. Logic gives us useful arrangements.

305. Qualifiers. These express the readiness with which we emit some bit of speech. "I believe it is on 116th St.", The I believe clearly refers to the strength of the statement which follows. If one says I know, you will be more inclined to go there than if he says I believe. I believe, I think, I guess, etc., will indicate lesser degrees of strength in behavior. This is very useful for the articulation of people in an integrated community.

306. We have words like maybe, perhaps, etc., which clearly qualify whole sentences. They don't apply to or describe words alone. "His fall happily broke no bones." The happily applies to the whole sentence. It is a comment about the disposition to make this statement. There are a large number of words of this sort. It is not a case of the truth or falsity of the statement, but as to the conditions of its emission.

307. It isn't so obvious that is or final s or all or some refer to verbal behavior in this way. Yet there are some terms which seem to be at this level. They are not comments on degrees of strength, but are injunctions upon the hearer to behave in a certain way.

308. And means add. One and one make two is the same as saying One add one make two.

309. Not means cancel. Not Coolidge, Hoover, is the same as saying Cancel Coolidge, say Hoover.

310. If we can acquire the feeling for secondary words as ways of pushing speech around for the sake of the effect on the immediate situation, or pushing the hearer around, we will develop some respect for Tooke's original notion that these terms are abbreviated manipulations—and all the rest of language is the correspondence-school kind of thing.

311. Paraleipsis: where you say the thing and say you haven't. "I will not refer to my adversary's treachery".

312. To say white horse is to say nothing. To say the horse is white makes it an assertion. We don't pay attention to a person who goes around mumbling white horse until he puts in is or something of that sort.

313. In English we say the horse neighs. The neigh could be regarded as a universal and we could say the neigh horses. The horse has a certain continuity and we make it the noun. We pick on the solid, sensible, abiding things and make them nouns and adjectives. The fleeting ephemeral things we make into verbs and adverbs.

314. Any language will show a preference for either the use of order or the use of grammatical tags. Tags are, for instance, endings in Latin which agree, conjugations, etc., or, in English, such things as -ing, -able, etc. Some languages, such as English, have a minimum of tags and a lot of order. We get along with order where Latin uses tags. If we say black book is on the brown table, we let out the words in a particular order to indicate that the book is black and the table brown. Words which occur close together indicate properties which occur close together. In Latin we would make the color agree in case, gender, etc., with the noun. There is some interchange between putting things in order or adding tags.

315. Past tense is correspondence with a fact, but insofar as you also indicate that the verb goes with a particular subject you are asserting that the properties in your verbal behavior match this particular thing. The resulting mess of words, if you simply let your latent speech come forth, won't have enough order to get across the effect desired. We emit verbal behavior for the sake of a certain reaction in the hearer. It will depend on correspondence. We must, therefore, put the order in.

316. If a language uses order for this purpose, then it can't use it very much for rhetorical effects. It is difficult to build up intriguing orders in English as compared with Latin.

317. When we arrange responses in order which is not necessarily the initial order in behavior, we are doing that over and above emitting the underlying verbal latent speech. Only in that way will any sizeable sample of verbal behavior have any effect upon a novel occasion. All the verbal behavior which wells up in us has to be adjusted to the present instance.

318. Part of our behavior is the basis for another part. We are letting some words out, but qualifying them as we go. It is a separate activity which results in things coming out in order.

319. There are three kinds of order in English:

1. rat — tar. Small elements moved about to provide variation in meaning. Look over — overlook.

2. Order of S^Ds. The order in which the behavior develops.

3. Strength. Some things come out first because they are stronger. This is deliberately reversed in periodic sentences.

320. Our unit may be as small as a single phoneme or may be a whole sentence. When we have the sentence as our unit we have no new problem. To people who don't live a very intellectual life, conversation is merely a string of clichés. Inquiries about health, comments

on the weather, children, etc., make up the bulk of their talk. These are pretty obviously whole units. Just because we have evidence for something with a subject and a predicate doesn't mean we have a new problem.

321. But what about the case of the person who is saying something new upon a new occasion? Suppose he is writing a book and is trying to make sense of the subject matter or thinking out something on his feet. To suppose that he is responding merely with appropriate behavior built up in the past makes him too much of a jack-in-the-box.

322. We not only have some responses explained in terms of interests and needs and the situation, but we have the intraverbal connections which to some extent account for the fact that this response precedes that or occurs at all. There is, however, something more. This something more is the manipulative behavior, which edits, suppresses, lets go, etc. It is this which produces intelligible sentences out of chaotic latent behavior.

323. What goes on in organizing the material into form? Some evidence is obtainable from the way in which it goes wrong, or the way in which erroneous or defective orders occur. Some are effective although they deviate considerably from ordinary usage.

Rhetoric has invented hundreds of terms for plays on order.

324. "That whiter skin of hers than snow". The whiter should be closer to snow, but the general structure of the sentence makes it difficult. Sometimes the order goes completely haywire, especially in spontaneous speech, and we get the spoonerism at the small unit level, or chaotic sentences at a higher level. In children's speech you can see the relatively undeveloped activity of making correct order. At ages two, three or four, when sentences are first being emitted as sentences and not as constructions, you get a lot of illuminating material.

325. When asked what shoes were, a small child replied, "Shoes are put on to keep the floor cold from." A child picked up a cigarette and said, "I picked it up quickly so it wouldn't turned into fire." Further example: "They match just the same alike". Very heavy thematic grouping is represented in the last sample: match, same, alike. Ordinarily the activity of the speaker allows one instance of a thematic group to appear and then cancels the rest. Very forceful speech may allow several to come out, as in, "No, I didn't say so. That is not the case".

326. "Why did you put your milk and coffee to the same gether?" For the small child who said this together was not yet inseparable. "I am not through with it still quite yet" is an example of piling up without canceling.

327. In a detective story a character says, "They know I am too much for them with my good common streak of hard sense and determination". Here a lot of words are permitted to come out without enough ordering.

328. The order is almost gone in telegrams, headlines, and the speech of some people. Mr. Jingle, in "Pickwick Papers", simply lets words come out without articulating them into sentences.

329. In literary work it is usually possible to get a pretty good picture of the underlying variables simply by striking out the manipulators and making a tabulation of what remains. One of Shakespeare's sonnets contains the following thematic groups:

A small group of military terms: rebel, powers, array.

Vague setting of stage: servants, mansion, walls, painting.

Some groups of adjectives describing this setting which fall into two groups:

large-small dimension: short, large, aggravate, excess; rich-poor dimension: rich, cost, costly, store, poor dearth,

dross.

Principal activities mentioned fall into two groups: business transactions: buy, sell, spend, charge, less; eating: feeds, fed, fed, eat.

Emotionally charged words: weakness, life, death, religion.

Weakness: Pine, pine, suffer, fading dying.

Death: death, death, dead, body's end, worms, cold, no more.

Religion: soul, soul, sinful, earth, earth, divine.

Most important of all – a special framework within and without in nature: within, within, outward, center.

This gives us some kind of picture of the main thematic groups strong at the time this was written. The actual thought in this sonnet is nothing more than re-arranging some of these within and without groups. The thought is negligible in most of Shakespeare's sonnets, but they are wonderfully rich ways of saying these things.

330. The technique of building up thematic groups deliberately and then letting oneself go is actually advocated by people who teach the writing of poetry.

331. With Gertrude Stein the grammar is important rather than the thematic groups. She had nothing to say.

332. as—as. Grammar forces you to put in something else. "This is as white as—uh, uh—you can well imagine". The situation demands speech when there are no important determiners. Miss Stein encouraged herself to emit responses for no good reason.

333. A radio advertising writer may have one minute to use. He must employ fresh three times, dated three times, Chase and Sanborn six times. What else appears does not matter a bit. The commercial must be changed from week to week, although Lucky Strike apparently doesn't think so.

334. A book by R. Flesch, "The Art of Plain Talk", has already changed American life considerably and will probably change it more. One bad habit of "the academic mind" is to put things in the form of substantives. "The reinforcement of a response depends upon the obtaining of the prior emission of the response." Revised: "To reinforce a response the response must first be emitted". When sentences get off to a bad start they are sometimes salvaged by tools of the trade. These may not be very graceful.

335. A study of literary style breaks down into a study of the predominant manipulatory devices the writer uses in hanging his language out to dry. There is a great difference in the amount of this that goes on. In the 18th century there was a great deal; in Hemingway, there is very little.

336. Verbal behavior may be present, but has to be put in order to make it effective upon a particular occasion. A quick example is a response negatively reinforced. Some behavior leads to undesirable consequences. A child brings home a naughty word and is spanked, or a remark we make falls on deaf ears, or people don't laugh at our jokes, or they are offended by something we say. Many cases of verbal behavior come up against such negative reinforcement.

337. Let us suppose that we are starting to say something about a subject which suddenly turns out to be taboo. Some member of the group would be offended. Recognition of the bad taste, a relatively late variable in the picture, makes us suppress the story. Perhaps we are just about to the point of the story when the presence of this person in the audience makes itself felt. Essentially we then suffer a kind of anxiety which can only be cleared up by avoiding the response. If we go ahead and make the response we will burn slightly when we think about it during the next twenty-four hours. If we can avoid making it, we avoid this threat of trouble. We get

some kind of stopping behavior. It may be as crude as bricks where one response stops another, or we may put a different ending on the story. The only point here is that when verbal behavior gets started it brings up new behavior which may then produce the manipulative action of suppression. This may be done by bringing in other responses or coming to a dead stop and saying "I forget what I was going to say."

338. There may be good reasons for making a verbal response, but no behavior is there. This is a practical problem in the case of the writer who must turn out behavior of some kind to earn his daily bread. It also is a problem in conversations where gaps have to be filled but there is no behavior relevant to do the job. It is the problem of having verbal behavior.

XX. Verbal Behavior which Fulfills a Contract.

339. That there is a condition which requires behavior means that some variables are operating. We can call these contracts. The contract specifies something about the behavior, but doesn't give us the behavior. Our job is to come through and live up to the specifications of the contract with the behavior which comes out. The contract may specify no form whatsoever—the case where we simply want to be a writer but haven't anything to say, or we want to fill an awkward silence. There is no cue given as to what should be said—simply the pressure for speech at any price.

340. The contract may specify some of the variables operating. We can hypnotically tell a person he is hungry and get hungry behavior coming out. Or in the psychodrama we can tell a person to act as if he had certain needs. We can provide the occasion for a person to fill a contract when we say, "Write me a letter while you are gone and tell me what you are doing on your trip."

341. We may have difficulty when the contract specifies the language to be used, but nothing further. If we are to talk to the Philosophical Society or to the Kiwanis Club, we know what kinds of vocabulary to employ, but no further help is given. The audience only has been specified.

342. We can also have a contract which provides the class of verbal responses. The injunction "Be truthful" insists on the relation to antecedent fact rather than yielding to internal pressures of motives, etc., in what we say. "Speak only in clichés" or "Don't speak in clichés". "Be nonsensical" or "Give reasons for your answers as indicated". Or some other class may be specified: "Be metaphorical", "Use multiple causation", etc. These are all possible demands made on our verbal behavior. How can we live up to them? How can we get a word to rhyme with this word? Specifications are given to the poet by the form of the poem itself.

343. Here are some of the ways in which these kinds of things can be done. We are interested in indicating that our formulation will handle this particular kind of problem. We have two ways of fulfilling a verbal contract: 1. Acquiring. This involves manipulating one's own behavior so that one gets what is demanded. The problem may be that of acquiring the verbal behavior which one doesn't possess. 2. Encouraging. One may have the behavior in oneself but at too weak strength to come out. In other words, one acquires or one nurses along what one already has.

344. An editor may write to a poet, "We are putting out a special edition of our magazine on Italy. We would like for you to write a sonnet on Dante." What can the poet do? He can build up some verbal behavior. He can go to the library and read up on Dante. This

This is a way of filling his head with verbal behavior. Or he can visit a Dante shrine somewhere and look at manuscripts or wax models of people who lived in Dante's time, etc. This would be acquiring some behavior about the subject matter.

345. We can also acquire more verbal experience by reading other books. Coleridge did this in "The Ancient Mariner". That was a specification job if there ever was one.

Coleridge boned up on travel books, etc., and then the stuff came out.

346. By playing "the sedulous ape" we acquire behavior from other people, hoping this will be helpful for our own work. We are trying to get ourselves to have some verbal behavior by exposing ourselves to the various sources.

347. Another way of acquiring the behavior in particular patterns is exemplified in its worst form by "Plotto" devices. It brings words into juxtaposition. It is like certain children's games. It is mechanical, but as great a writer as Joyce used mechanical devices in the form of lists of one sort or another.

348. Ways of encouraging verbal behavior are well known. A simple case is the use of the verbal prompt or probe upon oneself; e.g., the way one recalls a name. From the initial letter one may go down the alphabet. The poet may get his rhyme this way also.

349. The poet can also use a stress pattern to push out a response he needs at that time from the specifications arising from the formal pattern of the poem.

350. All of this presupposes that we have the manipulative ability to reject undesirable terms and keep at it until we find something we can accept. The undesirable things do not fulfill the contract.

351. A very important class of devices used to encourage verbal behavior is to manipulate the audience. Let a person find an appreciative listener and out comes a lot of verbal behavior. We can get the behavior out by creating such an audience. As said previously, the psychoanalyst is such an audience. We can see the effect on ourselves when we find somebody to whom we can talk about a certain thing.

352. Such things as dramatizing oneself implies the selection of an audience. We get many anecdotes about authors. Buffon could not write well unless sitting in fine clothes in a summer-house with servants around. This would in a sense be conjuring up an audience by building a situation where the audience was appropriate.

353. Dissociation: you get rid of yourself as an audience. You may be an inhibiting audience to yourself and the thing is to get rid of yourself. That is what you do with ouija boards, etc.

354. Other routines: The same time every day seems to have some control over behavior. The situation in which one writes can develop considerable control, or the situation in which one talks. Writers seem to be agreed that it is good to write at the same place at the same time each day. Trollope's motto was: Nulla dies sine linea. It is hard in modern life to arrange things quite so well.

355. There are conditions which one can arrange so that one's own verbal behavior is much more readily forthcoming. Forcing yourself to write by "will-power" is not the correct way to go about it at all.

356. The Greeks distinguished ecstatic and euplastic behavior. In ecstatic behavior there is not much criticism of the output. In euplastic behavior one edits, contrives, manipulates.

357. Does the behavior fulfill the contract or doesn't it? In everybody's behavior where there is a strong tendency to respond in a given way the stuff will come up and out, but there is another set of behavior processes involved in the shaping or rejecting of what does

not immediately fit. Sometimes these behaviors can be put into different skins—that is, have someone do the ecstatic stuff and another the euplastic.

358. Talleyrand had six secretaries. When there was an important paper or letter to be written, he set them all to work on it. When one of them produced what he felt was just right, he said "C'est ca" and took it. At other times he might say "No" or "Almost".

359. Behavior does come up. The job is to shape it or strengthen what is there in relation to a contract. Jules Romain, in that volume of "Men of Good Will" entitled "The Depths and Heights" gives an honest account of the contriving of a poem by a worn-out poet Strigelius. The poet gets a dictionary and chooses words at random. Several pairs come up which are somewhat promising. When he comes upon lesson and cenotaph, he decides to write a poem called "The Lesson of the Cenotaph". He free associates to cenotaph and brings up such things as tomb, white stone, Mediterranean, Cyprus, the sea, etc.. A few words pop up or, as he says, "fall through the trap", and he gets the phrase "A wonder to behold". That gives him a suggestion of the length of line he wants. Out comes eventually a very acceptable poem. When, at the end, you read it and recall the curious things that have happened, it seems a little cynical. Perhaps, however, a great deal of poetry is written in pretty much that fashion. It isn't too bad because of that.

360. The sonnet has a most rigid pattern specified in advance. Thousands have been written, as if thoughts came in about that size in English.

361. Sometimes confessions of ecstasy attribute a great deal to the underlying creative self. It seems to be going on at a lower level. A. E. Housman claimed to get his poems in whole stanzas at a time.

362. We could press the analysis so that what appears to be the superior mind is simply an organization of responses which makes use of or acts upon prior behavior because of the exigencies of the given situation. The speaker or writer is making a unique adjustment to one set of variables, but the latent behavior is a helter-skelter set of variables which developed in his past history, and is a relatively unordered latent verbal reserve.

XXI. The Behavior of the Hearer.

363. We have reached the field of the receiver of speech: the listener, the reader, or the watcher of gestures. What is the behavior of the receiver from our present point of view? Our job is not at this point to get to the stage of experimental analysis, but rather to formulate the behavior so that we are reasonably contented with the analysis and don't feel that there is some process which we have overlooked.

364. In the hearer we have a new kind of behavior. An objection to a theory of meaning is that it supposes some ideation in the speaker and then in the hearer. Nothing of that kind is assumed here. Nothing is more obviously different, also, than a man speaking and a man listening. Our treatment reflects that difference.

365. One's responses in making noises or marks produce stimuli for somebody else. If they didn't you wouldn't have verbal behavior. One can be one's own listener, so that some unique events develop which we will have to look at later on. But the growth of behavior in the speaker and the hearer seems to take place separately. When we have learned to speak we haven't learned to hear, or, when we have learned to respond to speech, that doesn't necessarily give us any verbal behavior on the side of the hearer.

366. It is the hearer that reinforces the speaker's behavior. With no hearers there would be no speakers, although that isn't the case after there has been a hearer in the past.

367. We must formulate behavior of the hearer assuming the behavior of the speaker. In how many ways can the listener react? There are four primary functions of stimuli, and verbal stimuli are no exception:

1. Eliciting. We assume these stimuli will be only for responses of the strict Pavlovian type involving the autonomic nervous system. Emotional, affective behavior comes in here. Such responses can be over and above most of the other reactions of the listener. They are mood reactions. Certain words have certain emotional charges. They can elicit emotional reactions of one sort or another. One's reactions to the speech of foreigners, if one is prejudiced, can be of this sort.

2. Discriminative. This is the big case for ordinary communication. If somebody says, "Dinner is ready", our reaction is not to dinner. We do not eat the words. The response is to the dinner table, the chair, the food, etc.. When somebody says, "Dinner is ready", this sets the occasion for successful emission of the responses of going to the table because it leads to food.

3. Reinforcing. This is the important case in which we instruct someone. This sets up new verbal behavior in the hearer.

4. Emotional. These stimuli arouse a predisposition to act. This may be splitting hairs, when we differentiate the emotional from the eliciting stimulus.

5. Character. The above reactions result from stimuli which are lexical. The character stimulus is non-lexical. Over and above the reactions which we make to the stimuli already listed, we also make what we can call a character reaction, depending upon whether the speaker's verbal behavior is rough, vulgar, crude, etc..

368. Because of the connection between some prior variables in the behavior of the speaker, the hearer uses that behavior to perform certain responses. To what extent does the listener respond? This reduces to what we can call his belief in the speaker. There are a great many different variables coming in here. Clarity of the response: is the stimulus clean-cut[†] or confusing? Speed of response: if you make a phonograph record that can be speeded up you will find that some people who understand the slower speech can't follow at the higher rate; this is a kind of semantic aphasia. The element of timing is important. A good experimental problem would be the effect of speed upon comprehension.

369. Has the hearer in the past been reinforced for responses made to the speech of the speaker? As you know, interesting speakers can produce a strong listening response because interesting consequences have followed from listening to them in the past. The bore you don't listen to at all. You hear him, of course, but you make no responses because nothing has happened in the past as a result of that.

370. Whether you will react to metaphorical stretches of the speaker will depend on your own tendency to make metaphorical stretches. There is the case where the extension is too great and you just give up. You can't get anything out of it. Your behavior is extinguished and you stop.

371. The state of your motivation is relevant. You listen to some things more intently than to others, depending on your own drives. Fatigue and boredom in listening to a speech is perhaps one of the most painful experiences. You no longer make the listening reaction, but the stimulus goes on.

372. The hearer's belief depends on a lot of past experiences, and he will sometimes react strongly and sometimes not at all. This is another aspect of the theory of meaning. Most people who talk about it switch back and forth from the speaker to the hearer. The hearer in some ways gives the better case, since we can talk about what the verbal behavior leads him to do. In a literary work we can talk about our emotional responses to it, practical results and future behavior, character responses in appreciation of style, etc..

373. There is one more, and by all odds the most important effect, on the hearer. The behavior of the speaker can be regarded as probing or prompting behavior in the hearer, exactly as the verbal summator probes or prompts, or any of the devices considered earlier. When you speak to another person you will be making more likely speech in him. He will have some tendency to say what you are saying. As a result of having heard you he now has a different tendency to say it. That supplementary effect on the hearer is most important in analyzing responses made to important speech.

374. When we read a magazine article we may go through some emotional changes, we may discover there is a good restaurant somewhere, we may gain some facts—but what the article is likely to do to us is to give us responses which we already possessed in some strength. It gives them to us in more powerful form.

375. When we read a "discussion" article we tend to say what the writer said a little more intensely. We and the writer have had access to the same material and have had the same experiences. The writer puts the matter into powerful words. We then put it into powerful words—which we were just on the verge of doing for ourselves as we read the article. He has strengthened, shaped, formed our verbal behavior.

376. The process which emerges from this analysis explains a lot of what has been attributed to style. It accounts for what we mean when we say that somebody "understands" something. The philosopher has been puzzling about the world. He has some verbal behavior which he finds appropriate. If we eventually come to make that behavior ourselves, he will have prompted in us similar behavior. He may have used legitimate or illegitimate devices to get us to have this behavior in some strength.

377. This concept of heard speech or read speech acting as a kind of verbal summator—probe and prompt—is something very difficult to handle in ordinary linguistic terms, but easy for us here and quite illuminating. We certainly are aware of that ideal condition when somebody says "exactly what I was thinking". The notion of agreement is expressed easily enough in these terms. We agree with someone in the sense that we say the same thing. If someone makes us agree, we have been inclined already on the basis of some variables to say it; now, if we have to say it with him, we give him applause.

378. Figures of speech operate in the same way. We are all inclined to make metaphorical extensions ourselves. It is that kind of thing that makes literature fun.

379. The verbal solution of a problem can come that way. What is the answer? Somebody gives you the answer and you say, "Oh, of course, I see it all now". You were on the verge of it anyway.

380. What are the conditions which bring it about that the speaker and the hearer do tend to say the same thing? That would be worth examining if we wanted to make a further analysis. We have experience in the same environment. We like to read books and to talk to people who have common experience with us. Of course, it also

works the other way round where we like to talk with people who have had backgrounds different from our own. However, when the backgrounds are similar, the chances are better that the other person will plug in again and again on strong circuits in our verbal behavior.

381. The writer, by a subtle use of thematic and formal strengths, gets the hearer on the verge of making a response just as he makes it himself.[†] A good style has that effect of teasing you as you go along. "That is just what I was going to say". You can analyze styles in terms of the likelihood of that build-up. If you read someone who has the same word-associations, build-ups will be likely.

382. A man like Conrad uses English correctly and powerfully, but English wasn't his native language and he doesn't have the thematic interconnections which most of his readers have. We could show this by making one of those thematic class analyses which was done earlier with one of Shakespeare's sonnets. There is just enough for the prose meaning. His words are correct and tell the story, but they don't give the build-up. Other writers with a stronger feeling for English write so that every word is the one that seems as if it should be there. The timing must be just right or you lose the preparation you have built up.

383. There may be accidental connections between the speaker and the hearer, when the hearer makes a reaction for quite different reasons. A passage may accidentally say what you were on the verge of saying. Such a thing can come even from a mixture of anagrams. You hit upon a proposition you would say.

384. Most works lack what is called universality. Universality reduces to this: large numbers of people will be inclined to say what the author says. We may all be interested in how some primitive culture mines gold, but the universality in a writer must be a universality of interests and propositions—whether he says the kinds of things that we ourselves want to say.

385. There are some extremes to be respected in this matter. If the hearer has too strong a tendency to say something, then there is little effect upon the hearer when the writer says it. If too weak in the hearer, the writer's saying it again has little effect. What we want is some kind of titillation. "Too strong" implies that the hearer for some reason can't speak for himself; e.g., at a committee meeting he is not the spokesman when a matter is presented which he knows best. On the other hand, if the speaker clarifies something for us, then it is very pleasing. In stylistic devices we don't want too much preparation for the word, because then it is banal or dull. If not prepared for it, it is too far-fetched.

386. This is, perhaps, what has always been meant when we said the reader or hearer must take an active role or part in any speech episode. It is creative reading, creative listening, in the sense that it is the behavior of the hearer being built up, plugged, supported, strengthened, by what he hears. He himself is saying the thing just as much as the speaker, but not quite as completely. The whole expression "understand" is involved in this supplementary response. We understand anything which we ourselves tend to say for reasons other than a mere echoism or mere reading of a text.

387. When we try to understand a passage by reading it over, we go through and through collocations of words for part of which we see no reason. As we read it over and over, we find ourselves saying the same thing. There is a great danger that we have by reading this very passage built up intraverbal connections between the words in it—and that all we are doing is memorizing. Many a student has felt that he understood a philosopher when he had merely memor-

ized a number of frequent collocations in that philosopher's work.

388. Presumably we do also come to understand a passage in the sense that we come to make these particular responses about the general state of affairs involved. If this is mathematics, perhaps the whole situation may be down in front of us. The only thing talked about may be some other collocations of words. If it is something about conditions in the world today, the situation is not in the book. In both cases we will come to understand in the sense that we ourselves will come to make the responses which are made in the book, not because we are merely reading them or have memorized them, but because it is now a plausible response to the state of affairs.

389. We can understand something we don't agree with. We can say it for specified reasons, but then we reserve saying it. That response would be made by us on different evidence or by someone else on the given evidence, but we lack one particular element which is making the speaker say that. The question of agreement is a good deal like the matter of saying not. We must have some tendency to say something before we can put in the not and cancel it. Agreement would be essentially the same assertion from the premises.

390. In the case of the syllogism we cut out of the universe a little sub-universe. We are only going to consider premises one and two. Our understanding of either premise or conclusion will be our recognition that this is a verbal response which is acceptable in certain circumstances. Whether we agree or not is our statement that, all the variables acting, we will say that. Our statement that we understand how the speaker might say it, even though he is wrong about it, is a statement about other kinds of verbal behavior. We understand how he made the mistake. We would subscribe to a statement describing his mistake.

391. The intellectual application, where we assume that both the speaker and the listener have the same responses, and then we put the hearer in possession of verbal behavior by effective speaking, is persuasion, discussion, getting understanding. This could all be regarded as concerned with the state of affairs—with the making of correct, useful statements.

XXII. Style.

392. A premium is put upon something called style. We are not referring here to style as the man, or as his peculiar preferences for one subject matter as against another, or his peculiar, forceful way of saying something, but rather all of those processes which go on in the reader, or receiver, over and above the changes which may be called acquiring information or acquiring clearer ways of talking about something already known. A great deal does go on which the literary critic has attempted to talk about for hundreds of years. The critic has tried to separate out the function of style. Ezra Pound analyzed the effects of poetry into three classes:

melopoeia: musical form

phylopoeia: content

logopoeia: something to do with the way sounds are made to fit the sense, etc.

393. The general notion of the writer's plugging into the latent verbal behavior of the reader is a progressive and fruitful way of formulating these matters and leads to an analysis of style which is worth developing. Most of the verbal tricks of style are obviously concerned with the strength of the reader's behavior—playing with the question of whether the reader will say it with the writer or not.

394. Examples of ways of momentarily altering of strength of the reader's behavior, and hence of giving the writer the opportunity of playing with his behavior by bringing up the response which he is on the verge of making include all kinds of intraverbal connections. "It wasn't hot. It was cold". Cold has been prepared for by the word hot. That sort of thing goes on more subtly by virtue of the very structure of writing. Formal devices would include rhyme schemes, alliterations, etc.

395. An empirical check can be made on the extent to which the reader has been prepared by simply copying out passages and leaving a word out and then finding whether the correct word can be supplied by the reader, or by finding whether the distribution would be altered by changes earlier in the text. It might be possible to show whether the style is effective. This has been done with couplets, where students filled in the rhyming word at the end of the second line.

396. The main way to build up a tendency is through repetition. The delight taken in repetition is seen in the twice-told tale. As we grow up we don't value this so highly, but the child does because he is saying it along with the speaker and objects to changes in phrasing. He will complete a phrase if we don't. Some people enjoy reading the same novel again and again. They may make a point of reading the same novel at a particular time of each year. They undoubtedly get a very considerable heightening due to previous intraverbal connections built up.

397. In the case of literature there is a device predisposing the reader to say something through what can be called character-formation. As every librarian knows, people take out books with lots of conversation. In a novel with good, consistent characters, the reader is moved to respond the way the character responds, and it is the very complex meaningful situation which encourages the reader's development of that speech, so that when the hero tells off the villain the reader is right there with him. The direct quotation has the best possible chance of plugging into the reader's latent responses. That is probably why we prefer conversation in fiction, although it may delay development of the story.

398. A good part of style is the building up of latent responses in the reader and then coming through with the response at just the right time. Good prose timing is such that the speaker or writer hits the reader just before he has got to the point of making the response.

399. There are other ways in which a stylist plays with the verbal tendencies of the reader. They somewhat amplify this conception of style as dealing with the readiness of the reader to make the response for himself. If we have something to say which is too obvious, we emit only part of it. "A word to the wise—" If you knew your hearer very well, you might be able to say, "Well, you know, a word—" Another way of teasing the reader is not to clip the response, but actually omit it. This is the use of innuendo, significant silence, etc..

400. An effect characteristic of literature rather than science is to surcharge the reader's behavior. The writer builds it to a high pitch and then may give the reader no chance to get it out. This creates a turbulence which seems to be highly prized. This is used in stories which have a point, but then the point is not made.

401. Logician's story: A duke invites newly made friends to his castle for tea. While waiting for the duke to appear they talk to his priest, who, in recounting his personal experiences, mentions that his first confessant was a murderer. Later, after the duke appears and he sees that his guests have been talking to the priest, he remarks that he was the priest's first confessant.

402. One of the things in learning to write is to know when you have built the thing up to a point where you must not say it. In Aesop's Fables the story may not quite bring the reader to the point of formulating the moral, so the writer does it for him.

403. The writer may revise the expected order. Oscar Wilde gets you all set for one thing and then says another.

404. This whole area can be formulated much more clearly in connection with humor. Even poetic style is close to humor in the processes involved. The advantage in the case of humor is that, whereas people will disagree with the goodness of a poem, they usually agree in laughing or not laughing at a joke. A laugh is a clear indicator of an effect. Nobody knows just what a laugh is or what it is for, but it is a more marked effect than any literary achievement.

405. Rough classification of jokes:

1. The verbal behavior describes something funny.
2. The verbal behavior may be funny in character, if it is dialect, stumbling, awkward, badly executed, etc.. It may be dragged out or too quick, or inconsistent, etc..
3.
 - a. The verbal behavior may have no apparent strength. The behavior in the hearer is upset or disoriented so that he is tickled. This may be because he can not see any apparent variable. Hence he does not have that kind of behavior. Or he may not see any intraverbal connections. "Horse feathers", etc.
 - b. Very faint strength. We recognize in ourselves some very slight tendency. If "The Flight of the Bumble-Bee" is being played and someone starts waving his arms as if fending off the bumblebee, some may think it funny. A humorist allows himself to emit behavior which has almost no justification. We can just glimpse what is back of it and that makes it funny. A dentist working on his car gets a grip on a spark-plug with a wrench. He says, "This is going to hurt a little". The far-fetched intraverbal connection may be of the same sort—there is some slight continuity.
 - c. Multiple sources of strength. The pun is, of course, the very common example. Distortion may be a source of humor. "As Maine goes, so goes Vermont". When Lewis was trying to organize a CIO union for farmers, Skinner woke one morning singing, "Old MacDonald had a farm, CI, CIO."
4. Tricks of playing with strength. A poem may have about ten extra feet in the last line. Ogden Nash does this. The left-out word is a fundamental source of humor. By leaving certain blanks in Mother Goose rhymes they can be made to sound quite dirty. There is also the let-down kind of effect.

406. Max Eastman's "Enjoyment of Laughter" has a collection of good jokes, but his theory doesn't seem any better than anyone else's. He makes great use of change in expectation. You start to hand a baby to its mother, but then hand it to someone else. The baby laughs.

407. Freud says that jokes save words and energy. This isn't convincing. One thing that does seem clear is that jokes play cat-and-mouse with the listener's tendency to say something.

XXIII. Thought.

408. The present topic is very difficult. It is often advanced as arguing for the inevitable failure of a behavioristic viewpoint. It is tied up with discussion currently active in logic as well as psychology, epistemology, theory of facts.

409. Let us take it first from the standpoint of the behavioral analysis with which we are now working. Our analysis has permitted us to double up these processes: if someone says "Dinner is ready", you get a Pavlovian reaction, a signal reaction of going to the dinner table; the statement might also plug in with resting behavior and cause you to shriek with delight "Dinner is ready!" and get some stylistic effect.

410. There is one other function of verbal behavior and its effect on the hearer which is difficult to describe or formulate, which is, perhaps, the crux of the whole matter. We didn't, in talking about the speaker, say much about verbal thought. That is what we have to talk about now. We will deal with it both on the side of the speaker and the hearer.

411. So far we have considered single responses, but in some situations which one might speak about as creative verbal behavior there are things emitted which are statements. We talked about assertion as emission of verbal behavior plus a tag which gave a cue to validity or usefulness.

412. Verbal behavior is usually characterized by the fact that two or more responses are put together in a new pattern. That has been called nexus, among other things. When we make a proposition or express a fact, we usually involve ourselves with nexus. We are asserting the occurrence together of two situations, each with its appropriate response. That is much nearer to what we can usefully regard as a proposition, a thought, an idea, than mere emission of a single response upon an appropriate occasion. Simply to say desk when a desk is around may be useful to society, but statements such as "The desk is well-worn" include the response to one aspect of the state of affairs, desk, and the rest is a response to another. We say this is a fact about nature that we are describing.

413. Thoughts aren't necessarily all verbal, but most of them probably are. They usually reduce to some kind of nexus—to saying that this is also that. A large part of science is certainly of that sort. We associate attributes with subjects—the kind of thing familiar to logicians, who also deal with nexus.

414. The subject of the validity of verbal thinking will be considered later; here let us examine what happens in the behavior of the speaker when the speaker emits two responses in juxtaposition in this way.

415. Suppose you have been introduced to somebody for the first time. Later on the person who introduced you, feeling some obligation, tells you So and So is likely to borrow money. "Watch out for him". What is the effect upon you?

416. The warning may give you some Pavlovian reactions if you have lent money before and not got it back. You will now, however, as a result of this nexus, emit those reactions in the presence of So and So where you wouldn't have done so before. You have a kind of quick Pavlovian conditioning. The nexus is between two verbal responses and we don't at this point need to worry too much about the unitary character of them.

417. Borrowers of money set up emotion in you. Joe So and So is a borrower of money. Joe sets up the emotion. But not until Joe has been said to be a borrower. The emotional reaction according to the regular Pavlovian formula, gets shifted to Joe.

418. That is one result, but that isn't all. The next time you see Joe you are going to do more than have an emotional reaction. You aren't, if you can help it, going to let the conversation get around to money, or, when he isn't looking, you are going to shift the two ten dollar bills out of your wallet, perhaps leaving a single, so that, if he does put the touch on you, you can take out the billfold and say, "Well, I guess I'm a little short myself."

419. What do we mean when we say that now you know it when you didn't before? What is the new state of affairs in the hearer as the result of this connection? Not only do we have Pavlovian conditioning, but a very complicated shift of function of what is essentially an S^D . This apparently all happens in a short time with a very slight manipulation of the environment.

420. If the critic is inclined to say this is very far-fetched—that you get a conditioned reflex just from saying Joe is a money-borrower—and that you can't approximate any such result in the laboratory on such short notice, the reply is that the standing of the concept of conditioning is not necessarily that you can do it in the laboratory but rather that your formulation of the process of conditioning is respected. If people do make these quick changes, we have to accept them as facts. We should not be hindered by our amazement at the achievement of the human organism in this respect. We do, as the result of word behavior, alter our own behavior in very extensive ways. That is probably the chief reason that we have got on as we have. It is the main contribution of verbal behavior to the development of science and human progress in general. All we can do is to say this in the conditioning terms of our formulation, and let those who choose go on saying it in the old.

421. We have got to get in a science of behavior some basic skeletal framework on which we can put statements of the sort which change your behavior in respect to Joe So and So. What is the fundamental nature of the knowing response? What do we mean when we say "There is gold in the Klondike"? What happens in our behavior as a result of our being made aware of that fact?

422. Gold in the Klondike is useful if you go to the Klondike. If we have been in the Klondike and said gold and found gold, now when we need gold we will go to the Klondike whenever the drive for more nuggets arises. We don't need any propositions floating around in the air to account for this behavior.

423. Yet many people argue that the statement "There is gold in the Klondike" is something more than the actual existence of gold in the Klondike. When somebody makes the statement to us, has he communicated a fact or put us in possession of a fact, and, if so, how will that be represented in our behavior? It seems that all we can do in a scientific analysis is to see what differences have occurred in our behavior as a result of that statement.

424. Suppose that the speaker's statements have in the past been useful. He is the kind of person whose words have been effective because they have led to results in the past. He has prestige for us. What can we do now, after he says to us "There is gold in the Klondike", that we couldn't do before? In a verbal way, we can repeat the statement. If somebody says, "What did he tell you?" we can say that he told us there was gold in the Klondike. If somebody says, "Where can I find gold?", we can say, "In the Klondike". We respond to his mand. In this instance he wants a locution of location. The answer is the naming of a place. If, however, I should think that Klondike is an ore, then I won't be able to answer the question, "Where can I find gold?"

425. You can watch children learn responses to "where", "What kind of", etc.. You learn to make a certain class of responses to such questions.

426. We have not assumed the existence of gold or of the existence of a proposition. We have simply shown that behavior has been altered by the verbal response. As a result of somebody telling us this, we are now able to make certain kinds of appropriate responses. If we get a multiple choice question: "There is gold in _____," etc., with various locations listed, we will choose Klondike. We don't even have to believe there is gold there. But if gold is associated with a place in our behavior, so that we have what may be regarded as a repertoire of traveling responses, and if we also developed a desire for gold—that is, we will go through any performance that leads to gold—then we will go through this particular performance. We have our complicated geographical behavior associated with gold.

427. When somebody says, "There is lemonade in the icebox", that changes our behavior with respect to the icebox when our motives associated with lemonade are involved. As a result of our hearing this response, "There is lemonade in the icebox", the behavior of going to the icebox becomes more likely whenever the motives, drives, etc., associated with lemonade are strong. This is also what occurs if we discover for ourselves that there is lemonade in the icebox. In the verbal case this has been short-circuited. The icebox itself becomes a "hot" object when lemonade is attractive. There is a shift of motives. Going to the icebox has now become a member of those responses strong when we are thirsty for lemonade.

428. This is certainly a separate activity on the part of the listener. We would prefer to call it, oddly enough, just instruction. "Dinner is ready" is not nexus. If, however, you look over the table and check the items, etc., then say, "Dinner is ready", this is equivalent to, "Now our job is done and the diners can sit down", or, if we are the caterers, "Now we can go", etc.. The behavior of going and sitting down depends on past experience and is not in the current instruction, which includes only those cases which now modify our future behavior but not our momentary behavior. Stop-and-go behavior is very different from what changes your behavior in the future.

429. What is the relevance of "fact"? In instruction the conditioning is lightning quick and seems far-fetched, but in this field everything is far-fetched. Complex behavior involves hundreds of thousands of discriminated responses. All we can do is to run back to simple examples and stay there as long as we can.

430. "Being instructed" consists of defining operations. If we go to the zoo and see an animal in a cage bearing the sign Sea Lion, this enables us to respond with "Sea lion" on future various occasions. If we look up "sea lion" in a book, we have a verbal definition, rather than definition by pointing.

431. Over and above definition there will be an enormous field in which we impart so-called facts. We put words in collocations of one sort or another which enables us to transfer responses from one to the other or enables us to make appropriate responses. An experimental problem which needs more work is the effect of instructions on experimental subjects.

432. If we present a light to a subject and then administer a shock, very soon the presentation of the light alone will alter GSR.[†] Suppose with a new subject we say, "As soon as I turn on the light I am going to give you a shock". Then if we just turn on the light and omit the shock, there is alteration of GSR. This is not easy to formulate. There is a lot left out in our present analysis. But

that is the kind of effect we have to take account of. We are bringing it up because there is something more in the behavior of the hearer than is ordinarily taken into account.

433. When we make some simple statement to you, we will alter your behavior in more ways than we would ever be able to predict. It may not make big changes, but it will alter your behavior in complex ways. It is simply staggering from the standpoint of analysis, but it is, perhaps, possible to classify the various ways, and that is what we have tried to do.

434. Putting a person in possession of a fact simply means making changes in the person's future behavior.

435. We react powerfully to some people as verbal stimuli, but not to others. Hypnosis would be a good subject for a lecture if we had time. We believe it is nothing more than a pointing up of these processes in the hearer. It is essentially reducing the behavior of the listener to the verbal stimulus alone. The devices used and the results obtained are simply extreme cases of this sort. If we say to a hypnotized subject, "There is a Charlie Chaplin moving picture being projected on the ceiling", he looks up and starts laughing. We have made a very powerful transfer of "Charlie Chaplin moving picture" to the ceiling.

436. It may be possible over a long period of time to establish the situation in which an animal would always come out with the weaker of two responses. We would have to work on the animal quite a long time. It would be a way of having him tell us that he saw in himself weakness of this tendency to respond.

437. We should expect that pre-verbal man was very inferior to verbal man and that it was the development of language which really made human society possible and led to the organization of a much more talented organism. It is the same line many people resort to in their heated discussion of the differences between man and the animal.

438. Any hope of reducing an actual instance of human behavior to laboratory control seems to be impossible. No science undertakes to deal with complex events at this level when it has no more control over the underlying variables.

439. The John Dewey kind of educational setup is an attempt to build up prestige for the teacher by having his instructions lead to consequences in the behavior of the pupils, so that they have some check on what is said in school. Just taking people's word for things gets exhausted after a while.

440. Consider the effect upon you in your verbal and non-verbal behavior of reading a book. There is an enormous change if the book was worth reading on a subject in which you were interested. All the ramifications would be more than one man could work out in his lifetime. But we can outline the kind of changes which went on. We can tell the difference between your merely Pavlovian reactions to the tone of the thing, or simple setting off of behavior like going out to vote, and also future changes in your behavior as a result of having experienced the words in certain arrangements.

441. The group which call themselves semanticists have been alarmed by the way our thoughts are restrained by their verbal framework and the bad thinking which follows from bad verbal processes. This is only one aspect of the whole problem.

442. What is of main interest to the psychologist is, essentially, what is the nature of thought? What is it made of? We will be using thought and idea glibly. They have been used by many intelligent people for a long time and it is hard to assume they were talking nonsense.

443. Yet the attribution of some special stuff, some special nature, to thoughts and ideas, is, perhaps, unnecessary. We ought to be able to account for and to express in some kind of terms these things. If we dispense with the explanatory fiction of a psychic world in which thoughts, ideas, live and have their being, this activity then being converted into words—if we break up that dualistic analysis and try to get at what these things are in terms of verbal behavior itself—then we have, of course, a very big problem. But whatever we do here, even though it is unsatisfying, is what the psychologist old-style had to do anyway. So we are all in the same boat. The simplification of throwing it back into a psychic world is that we forget our interest in the problem.

444. The possibility is presented of dealing with thoughts and ideas on the basis of an operational analysis. What determines whether we use these terms? Can we use them without assigning psychic qualities to them? Some attempts have been made to get the meanings outside the organism. That seems to avoid the psychic characteristic of meaning. But thought and meaning historically have been tied up with activities in a parallel world of some kind. Therefore the problem is somewhat more difficult—the meaning dodge is a trick for getting it outside the skin but is not a satisfactory solution.

445. When we say thought, or idea, we don't mean the crude operationism which simply says, "He simply means this". The kind of analysis we have attempted in verbal behavior should enable us to place items of this sort and get a feel for how they exist, what they exist as. This is, in a sense, more than a verbal problem, because it is apparently possible to have non-verbal thought.

446. The general assumption that the words are the ideas was one of the first dodges made in trying to solve this problem. All abstractions are just the words that represent them. This was the program of Nominalism in the Middle Ages. That won't hold water at all.

447. If we make "idea" [equivalent to][†] "verbal response", we still have some problems remaining. The whole program is an offshoot of an earlier motor theory of thinking—that is, when you are having a thought, you are in some sense doing something. But in what sense? It has been difficult to say in what sense. Those who are physiologically inclined have put electrodes on various parts of the body to determine what this doing is. They have had some success in showing that when you imagine lifting your arm you are doing it a little. When you talk to yourself there is movement in the musculature. That is not, however, a frontal attack on the matter.

448. In our own terms what is thought and what is thinking? We are in a position to handle this because of our analysis of the likelihood of a response. We have found it meaningful to talk about latent verbal behavior and to deal with some cases in which there practically is an emission of a response, but not quite. This is the kind of device for thinking about something which is expected to emerge from any scientific analysis—the notion of a response, not as a completed act, but as a potentiality of an act. It enables us to talk about something which has a potential characteristic similar to potential conceptions in physical sciences. We can talk meaningfully about a tendency to say something without actually having it realized. This is going to be the probability conception of verbal behavior.

449. Something is undoubtedly happening and we may need to appeal to the interrelationships among these things. To do that we want to get it a little more solid than a pure probability conception would permit. So we talk about incipient verbal behavior, or inchoate—something started but unrealized—covert, inner, etc.. Whether that has got to the point of muscular contractions is not, properly,[†] our

problem. We have to deal with a response which has a certain tendency and its effect on other behavior.

450. Having a thought in the non-verbal sense would be on the motor side—starting to act in a certain way or possessing a high probability of acting in a certain way. "The thought occurred to me that if I turned around I would catch him staring at me". What do you mean by this? "The thought occurred" to you. What seems to have happened was that you reacted to your own tendency to turn around, and the connection between that tendency and the reinforcement of seeing somebody behind staring at you. What happened was that you tended to turn around, and could then report on it.

451. A more appropriate statement is that "It occurred to me that if I turned around I would see it". What is the "it"? Isn't that a way of saying that the action of turning around occurred to me? The speaker could react to, and he could tell you about, a tendency to turn around.

452. "It occurred to me that it was time to go". You saw yourself start to go. The thought occurred to you in that sense. We characteristically use the word think to refer to behavior which isn't quite strong enough to come out. When you make an assertion that is not very powerful, you tack on I think. You can report later, "I thought I would speak up, but then I didn't". That is a report on your observed tendency to speak up.

453. To account in full for the process we would have to supplement this with imagery, etc. We are dealing now with the tendency to respond, not the tendency to see or hear or feel. The stimulus-response distinction still applies. When we talk about verbal behavior we are talking about verbal acts; when we talk about verbal thoughts we are talking about something too weak to come out.

454. Weakness, however, is not the defining characteristic. In popular parlance, thinking is something not quite out in the open. "I will think about it for a while before I act." "That is So and So, I think". You haven't seen the person clearly. Perception, as seeing something more than the raw data, is an act, more than mere sensing. You are organizing it. You will be able to report on it, perhaps. We are prepared to talk about private events in that sense, where the strict operationist does not permit himself to do so.

455. If you have actually seen a picture, we should expect to detect that effect somewhere in your behavior at some future time. Later you may say, "I've seen that before". You weren't staring blindly at something. We nourish the hope of getting it out into the open later.

456. One big field in the analysis of thinking is that of concept-formation and abstractions. As we have already developed, abstraction and concept-formation are peculiarly verbal. There is nothing you can do about an abstract property as such which has effectiveness in the world and hence can be differentially reinforced, except to act verbally. The verbal community has the unique power of reinforcing such a response. It is impossible in a non-verbal community ever to have a response to redness alone. This is a fundamental fact involved in concept formation.

457. There is the further question of whether an idea as such can exist in a non-verbal form. We have assumed that there will be acts which can be called thoughts which are non-verbal. The thought that it is time to go, if you accept this as a reference to a slightly increased tendency to go or a start toward going, even though your neighbor doesn't see it, would be an example.

458. In the case of nexus you have what the logician breaks down into subject and predicate—where that is an original thought and not

just a standard paired-response. The act of putting them together would be something more than mere thinking and apparently it is always verbal. Take the case of the duke who was the first confessant of the priest who said that his first confessant was a murderer. In the behavior of the hearer there arises a nexus between this man, the duke, and murderer. That is a thought in the sense of verbal response. You must have verbal support for the independent manipulation of these things so that you can make a response which is appropriate to the single individual at one time. As a matter of fact, when this is applied to the duke it is essentially a single property word. The predicate is attributed to the duke and you can feel it come out in your own behavior. It is the thing you realize, it is what occurs to you, when the story is told.

459. This is a very inadequate example of thought, but is, essentially, what goes on. The scientist decides that this is really a case of that. Somehow a single situation leads to the appearance of the two responses, and that is the beginning of the discovery of the fact. It is the creation of a fact in one sense. As this enters into your behavior the proposition or fact or belief is just your tendency to say together duke and murderer with respect to the same stimulus. A large part of our thought, we believe, has got to be of that nature.

460. Basic problems of verbal behavior as related to thought:

1. Concept-formation.
2. Idea as nexus. The duke is a murderer. The world is round. When such ideas hit, what can they be except verbal? We are not asserting that imagery is not possible, but that the manipulation of imagery frequently breaks down, especially with non-picturable things.

3. Verbal thought activities. This is what happens when the logician goes through a chain of reasoning, or one solves a problem by talking it out in various ways. A great deal of exploratory activity can go on with words. Watson supposed that with words you could carry the world around with you. We don't actually, however, take the word skyscraper and drop the word man off and find the smash at the bottom. It is true that we carry around a batch of words much more easily than we could carry the things.

4. Verbal aids to non-verbal behavior. A good example would be the use of a number-system in practical manipulations involving counting. After a while counting activity is very important as an aid to non-verbal responses. As a matter of fact, we can argue that it is probably important even with small numbers of things. What counting does is to build up differential reinforcement to different collocations of objects.

461. Skinner ran a little experiment to determine whether subjects could learn a concept without being able to verbalize the basis of their choices. He paired geometrical forms with nonsense syllables. Subjects eventually were able to name correctly a red triangle where the differentiating property was simply the shadow of an apparently accidentally placed nail. The results, however, weren't very good. The nail tended to pop out of the situation. As soon as the nail began to make a reliable difference in responses, the subjects tended to become able to verbalize with respect to it.

462. It would be instructive to compare talking to oneself, which can be done because oneself is also a hearer, with fantasy of a non-verbal sort, and then move on into the outside world through writing or the arts. Stages: talking to oneself; writing; working with media.

463. When you get to the practical manipulation of the environment, you have problems to solve which are largely non-verbal. To what extent does talking to oneself lead to better results than fantasy?

An inventor may work in non-verbal terms. Mathematicians use both. Logicians can think of syllogisms in terms of overlapping circles non-verbally. Some blindfolded chess players see the board; others carry the game as a verbal story and don't see any board at all, so they say. We don't want to make any exclusive grab and say that verbal behavior exhausts the field of thought; but it certainly does amplify and facilitate thought.

XXIV. General Characteristics of Verbal Behavior

464. Our main concern has been to integrate verbal behavior with a science of behavior, to see whether there is any special process involved in verbal behavior not amenable to the kind of concepts developed in connection with non-verbal behavior. It is important that we try to get along without the notion of the symbol, or meaning, as something carried by verbal behavior. We think we could analyze some of the traditional attempts to get at relations we are dealing with here. Practically all of them have taken the correspondence school theory of meaning and supposed there was a separation between objects, words, counters, or marks, and meaning—the new version of idea—carried by these marks when meaning is communicated. If we throw out the notion of symbol and confine ourselves to verbal behavior as the raw material observed and then come out with a formulation of this sort: Verbal behavior = $f(\quad)$, we can then say this is what we meant by the meaning of anything. When you say something, all the factors which have entered into your speech are in essence what it means to you. When that behavior is used as a verbal stimulus, then we have to consider all the behavior it arouses in the listener, and say that is what it means to the listener. This does not imply any logical notion of a meaning in either case.

465. Many people have felt that if you throw out the notion of symbolism—something standing for something else—you will simply have thrown out the baby with the bathwater and be unable to define verbal behavior at all, and, in a sense, there is no separate division of behavior which we call verbal, because we have not so far turned up any distinctly different principle. However, verbal behavior has many integrating and defining characteristics and our problem is to set up a definition which will justify our treating it as a separate subject matter. If this is nothing but a series of relations which are similar to the relations involved in nonverbal behavior, why bother to treat it separately?

466. The reinforcement definition of verbal behavior is, apparently, the answer. On the side of the speaker the way in which verbal behavior gets its effects is the essential difference. Verbal responses lead to non-mechanical, non-geometrical effects. It involves the mediation of another organism.

467. We want to show how important characteristics of verbal behavior follow from that fact. A plausible picture can be made in terms of that one item—there is no connection between the form of the verbal response and what happens. The reason is that someone else produces the effect for you. That requires some slight redefinition.

468. Verbal behavior is behavior where reinforcement is mediated by another organism, but so is a boxing match, or dancing. You have to depend upon the presence of someone else for the successful execution of that behavior, so that we have to make a distinction: Verbal behavior is behavior which is mediated through the conditioned behavior of another organism where that particular conditioning arises from the existence of verbal behavior itself.

469. If the question arises of which occurs first, we could take up some hypothetical instances of primitive behavior. When we wave a fly

off our salad, that is not verbal, although the wave had no effect other than starting an organic effect on the fly. The fly's response is not conditioned. There are other ways in which I could use a conditioned response of an organism and still not have a verbal case if that conditioning did not depend upon previous instances of verbal behavior.

470. Let us take the case where we have a fully developed reinforcing verbal community and see what results develop. We have a variety of characteristics which follow from the fact that the response does not act mechanically upon the environment.

A.

1. There is no energy relationship between the response and the effect. It is true that we sometimes shout to get more immediate or more effective behavior, but ordinarily that does not hold. This is a highly important characteristic—the ease with which enormous consequences can be achieved through the verbal relation. However, this difference is not so important as it must have been at one time. We now have systems of stored energy. A steam shovel with somebody pulling two or three levers does the work which would formerly have required a thousand men. In an automobile large masses move to the delicate turn of the steering-wheel. Belief in verbal magic has gone down. We are no longer intrigued by the ways in which we get results when we speak. We no longer are very much surprised by it and have no longer that preoccupation with verbal magic which peoples have who don't have stored energy to work with. Our feeling for the magic of words has gone down as other differences have been built up.

2. Great speed is possible. If you compare verbal behavior which does use a medium—typewriter or pen—with verbal thinking, you see your thoughts outstrip your medium. The fact that the verbal mechanism can run on very rapidly without waiting for some inorganic things to respond, makes it possible to build up tremendous speeds of verbal thinking.

3. Great diversity of form. It is possible to develop hundreds of thousands of different forms of response with the same effector without trying to find hundreds of thousands of objects which will move in different ways as a result of these complex patterns. In sports movements are relatively limited—for example, the things you can do with a tennis racket. Only a few movements are selected by the mechanical action on a ball.

4. Effect may be delayed. This tends to weaken the response. This results in many motivational characteristics of verbal behavior. We do not need to be prepared for an immediate effect upon the environment. In certain environments our tendency to talk is lower than our tendency to act. Except for sticking or locked doors, there is immediate reinforcement for grasping the knob and turning. In speaking there may be a considerable lapse between speaking and the door being opened.

5. Production of objective intermediating things—words. In the case of mechanically pushing something around, there is no tendency to refer to the action as a thing. In verbal behavior we immediately objectify the behavior and call it language, words, etc. We would not speak of using a grasp to take hold of a piece of chalk. There is no objective status to the intermediating action. If we ask somebody to give us chalk, on the other hand, the word chalk seems to have an objective status, and this leads to the notion of language as a tool or instrument. This has caused more trouble than it was worth.

6. Variation in time. The effect of verbal behavior may be days, months, or years later. The ancients are in a sense still talking to us. the words of Socrates, written down by Plato and any number of other people afterward—the number of steps is enormous—are still

being received by us. If the words have not been changed too much, Socrates in a sense is still speaking to us. But Socrates isn't giving any of us a slap in the face today—that would be mechanical.

7. Multiplication of effect. One speaker—a million listeners. This is achieved by the press, the radio, etc..

8. Different responses can have the same effect. This isn't wholly a verbal matter. You can eat with fingers or fork. In the case of verbal behavior there are frequently many ways of getting the effect. Speech, writing, typewriting, different languages, etc.. The extraordinary possibilities far exceed anything in the mechanical field.

9. Same response—different reinforcements. This is the case of homophones, and also wit, irony, etc., where there is a double effect. In the case of irony there will be a different effect upon two audiences at the same time. In Greek drama a character speaks to another character, saying something which the audience knows will be true in a different sense later in the play. We have examples of that kind of double talk today in some sarcasm.

10. Reinforcement is periodic rather than inevitable. The reinforcement of verbal behavior is a very delicate, tenuous thing. You don't always get what you ask for. In generalized reinforcement sometimes you don't know whether you are being reinforced or not. One or two head-nodders in a class can supply a lot of reinforcement to a lecturer.

11. Possibility of neologisms. This is a direct result of the definition. It is only because of this very complicated mediated reinforcement that we can build new verbal forms which are effective on the reinforcing environment.

12. Possibility of generalized reinforcement. Because there is no mechanical connection between the response and the effect society can reinforce in many different ways and iron out the individual preferences and special interests, so that the individual speaks because of the relation to the environment only and not because of what it is going to get him. You might say an icebox is a kind of generalized reinforcement for opening the door, but you are limited by the generality of the contents of the icebox. Money is a kind of verbal reinforcement because it calls for another person to make it good.

13. Possibility that the self can reinforce. The self reinforces when you scratch yourself, but that is a trivial case in comparison with the enormous proliferation of behavior in the verbal field. When the verbal community sets up in you both a speaker and a listener, this is new and novel. It is the mediation of a second organism which allows you to step in as the second organism.

B. Since verbal behavior does not act mechanically, it is independent of the situation at the time it is emitted. You can only drive a car when you have a car, peel an apple when you have an apple and a knife, but verbal behavior can take place anywhere and without special equipment.

1. Talk without a hearer if the hearer has at some time been present to set up verbal behavior. Nothing need be present to enable you to let out this verbal behavior.

2. Talking to oneself as hearer is not very different from self-reinforcement.

3. Induction to new situations is possible. Metaphor, for example, enables you to carry the word over to the new situation because there are no mechanical exigencies involved. When a child picks up a stick and calls it a gun, it may be a metaphor, but this is trivial. Even there there is some necessity for an S^D —the stick.

4. Abstraction is possible. It is only because of the generalized

reinforcement, which enables us to get a single property acting as an S^D for a verbal response.

5. Multiple causation in the stimulus field. It is possible for a response to "stand for" two situations.

6. Same S^D —different Rs. Synonyms.

7. Same Rs—different S^D s. Homophones.

8. Speed. You don't have to wait for the environment to present the S^D for the next response.

471. We could at this point pay some tribute to traditional linguistics. Our analysis is pretty far from what the linguist is interested in. He is usually interested in existing languages as cultural objects, in a comparison of existing languages as cultural objects, and changes in form as cultural changes. We recognize the importance of that field, but we do not believe that any particular language need be considered at all in dealing with our material. It is important that we do not make the mistake of supposing that the characteristics of one language are general. We do not believe that anything in the analysis given here is peculiarly English, or Indo-European, or even vocal. The linguist also at times analyzes language as such. We often find an introductory chapter asking what is human speech. There he deals with our material. The difference is in the concepts that we bring to the analysis. The linguist will usually be more interested in the implications of a single point or process for the data that he is interested in. Here we have not talked much about traditional linguistics, although there were all along points which could have been brought up.

472. It is only because words can be treated as objects that we get linguistics. You could likewise, if you chose, objectify a procedure or a craft. But there is not much point in doing it. We don't here think of behavior as an objective cultural object, but we do get a recordable form which is not at the moment organic but can be looked at. We therefore get languages and, hence, a language of their differences—the science of linguistics.

473. Some consequences of the definition of verbal behavior:

1. We will have, if we want it, language as objective fact.

2. We can compare different languages with respect to the ways in which they make noises, or work out forms for specific cases, or put these forms together and work up larger units.

3. There will be historical changes in the forms, meanings and semantic processes, which all follow from our definition without any appeal to symbol or meaning.

474. We have presented a pretty impressive list of the characteristics of a subdivision of human behavior. The generalized reinforcement seems to be exclusively verbal, the self as reinforcer, induction to new situations, etc.. If the question comes up as to whether these are exclusively verbal, we must bring up the possibility of arts and fantasy, because some of this will apply to fantasy, thinking in images, as well as the manipulation of a medium for artistic purposes. For example, the self as reinforcer is very definitely the case in imaginal activity which becomes objectified in music, painting, etc.. Much of it is behavior which is formed by the resulting effect upon the performer. Examples of self-reinforcement: reciting poetry to oneself; writing notes for one's own later use; etc.

475. Some people are very insensitive to the listener. They may use the proper names of people the listener has never heard of. He simply gives them an excuse for talking.[†] They may not stop talking if he moves out of earshot. Such individuals are talking more to themselves than to anyone else. "He likes to hear himself talk".

XXV. General Functions of Verbal Behavior in Human Society.

501.[†] We have immediately the problem of the prediction and control of behavior itself. Our analysis, while it has not been as experimental or particular as we might like, has been in that direction. We have considered what is the datum to be accounted for—that is, verbal behavior defined without relation to meaning, in relation to various things we can do to change its likelihood of appearance, etc. We have considered what we can do—that is, alter the audience, alter the background of the speaker, etc. Then, finding how these variables combine, we could account for some of the multiple causations, the multiple meaning effects in speech. It was necessary to consider a second order behavior which occurs in editing behavior to suit it for a particular occasion. We have also talked about the behavior of the hearer and suggested the interlocking behavior of speaker and hearer in giving a complete picture of what happens in a given episode.

502. If we drop these terms now and talk about the broader implications of verbal behavior for human progress, we shall have to be talking at a more general level with even less chance of direct experimental check-up. But it is important to understand what place verbal behavior has played in human development. This can be done in a somewhat speculative way.

503. We can begin by considering the actual social gain to a community from the emergence of something corresponding to primitive verbal behavior. This is to be seen in its simplest form among primitive people in the use made of certain verbal ceremonial acts in connection with very practical matters. The songs used by fishing people to integrate the combined activities of throwing nets, pulling them in, etc., are an example of the way in which purely verbal devices coordinate a group and make it almost like a single organism. They tend to be stylized, cut-and-dried, but, nevertheless, adapted to the particular situation and producing a much more effective society as a result. All of the signals and cries of the hunt would be something of that kind—the general coordination of a group. We see a modern counterpart in the use of verbal devices for holding groups together—mottoes, slogans, symbols. We can't have much of a movement until we have some kind of organ, publication, etc.,—something for quick exchange of information and incitements to action.

504. All this was probably first in the scheme of things from the verbal point of view. People got along better when they began to respond to the noises made by others of the group and the noises became better adapted to the situation, so that you got the emergence of a larger unit. Out of the cooperative kind of thing you get the beginnings of what we can call the scientific gain—the gain in the motives called human knowledge. The concept, the abstraction, generalization, etc., emerged, which enabled you to talk about single aspects of objects and begin to get something more than the mere practical behavior with respect to them. The verbalization of non-verbal behavior is always a gain. It enables one to impart knowledge much more expediently and also to hold it for one's own use. A verbal formula is ordinarily easier to remember than the procedure itself. Medicos like jingles which tell them how to set legs, etc. Dislocated hips have a poem of their own. It is easier to store away the verbal knowledge in the form of a jingle than to store the actual manipulative behavior for getting the joint to snap back in place.

505. E. Mach, in Science of Mechanics, developed the notion that scientific law emerges from rules made by craftsmen in instructing apprentices. What this eventually leads to is the whole development of science itself. You simply move on from your acquired experience

of a non-verbal sort to verbal behavior with many advantages. It enables you to go beyond non-verbal activities, as in counting, for instance. With the invention of numbers, which are essentially, necessarily verbal, you get the development of the mathematical sciences over and above the non-mathematical formulae and rules of conduct arising out of the trades to produce science as we know it.

506. Transmission of knowledge is ever so much easier in the verbal than in the non-verbal way. Nothing that is now done in a physics course would be relevant without verbal support. You might give the student some greater facility in handling physical things, but it wouldn't be anything like the science of physics. The transmissibility which arises from verbalized knowledge can make knowledge permanent. The knowledge was in the behavior of the book writer, but the record can be made permanent. The Low Memorial Library is not full of knowledge; it is full of marks on paper. The marks got there because of people who knew something. The objectification of the language is likely to be misunderstood. The library is knowledge in transition, not knowledge itself. It does enable one person to influence another over great distances and over great differences of time. This would be completely impossible if you acted only directly and mechanically on the environment and others learned from you only by watching you at the time.

507. Over and above the scientific gain we have some kind of personal gain. This probably comes last rather than first. You might suppose that the individual gets something first and then passes it along. But probably it is only because verbal behavior makes society more effective and then by secretion leads to science as we know it, that we get any personal gain out of it. By this time science has developed ways by which we can know ourselves.

508. In general it runs this way: Until your behavior becomes important to somebody else, it won't be important to you. Society teaches you to know yourself. You can see parents teaching the child a vocabulary dealing with its own behavior. "Now you are tying your shoes". "Now you are looking at the kitty", etc. This doesn't mean that society has to step in and enable you to utilize your proprioceptive stimulation to execute a handspring, but rather that reaction to yourself as a source of stimuli of a non-verbal sort and reaction to yourself as a source of verbal stimuli, or knowing yourself, are different matters.

509. The old philosophical jargon about self-knowledge, as well as our present position here, derives from the descriptions of people made by others. There would be no reason for you to say that you are seeing yourself or to use the word see at all in your own case. There would be no reason for you to develop the notion of a subjective life, or conscious awareness of things, unless someone else was concerned with your reactions. You see the light—there it is—that is all there is to it. Someone else is concerned with whether you see it. Before long you have a "mental process" coming in which is different from reaction to light.

510. The social-scientific analysis of the behavior of the other fellow passes over to the other fellow. You begin to understand yourself and separate yourself from nature as a self exactly to the extent that you were separated by your colleagues. If you were not a separate organism you would never learn the vocabulary of talking about yourself in that way any more than a dog would.

511. Talking about yourself gives you your sense of awareness of self. The paradox arises that it is only because the verbal community builds up in you a vocabulary of talking about your own behavior that you get any sense of self. Consciousness is a social construct regarding the behavior of the individual taken over by him from

society. That is the argument. We can't take time here to defend all the points involved. 512. There is presumably a later personal gain which could not come about first. The single individual becomes the total verbal system when he talks to himself and about himself later. Not only do you have self-knowledge—essentially verbal—you have other personal functions which are equally important, although not so tractable or scientific. These are the problems of self-realization, self-expression, etc., which are eminently possible in the verbal field. All the talking one can do regardless of whether there is a world around which can be manipulated, is the case in point. With verbal behavior you can act in extraordinary ways on any occasion. It gives you a whole subdivision of your behavior available to you in a very special way.

513. There is the escape theory of literature. Also, talking things out, talking about things that interest you, is something that becomes part of the personal repertoire of behavior. As a result of derivation from these other matters is roughly the way the development occurs.

514. There is in general a sort of antipathy between the scientific and literary spirit. We can formulate it fairly clearly here. The scientific ideal is the tact. A verbal response will have the form it has only because of a given state of affairs. We have complicated states of affairs. What is the appropriate expression? The ideal is that there should be no special interests, no particular reason why the scientist should say one thing as against another so far as he is himself concerned. If he does have a stake in a theory, or attempts to please people, or gets the interest of commercial organizations for applied work—anything which leads him to distort the relation—this is regarded as not cricket in science. The logician, too, is concerned with making sure that statements based upon preceding statements have a precise relation. So we have science and logic very neat, and clean. That is probably always only an ideal. There is always some reason why we investigate one subject matter rather than another. That violates the scientific ideal.

515. On the literary side you have verbal behavior emitted for very different reasons. There is an obvious selection because of consequences. The consequences may be on the reader or hearer or the self may act in that position. The opposition to the scientific is, perhaps, perfectly clear and satisfactory. The trouble arises when people who practice the scientific claim that the literary is dishonest, or when the literary say the scientific is very dead, dull, and perhaps not true.

516. The literary performance sometimes precedes and helps the scientific development. This is true in the case of personality types, for instance. It may be that there are still things which can be talked about in a literary way which are not susceptible of scientific treatment. The difference may be in the occasion. You can't go on always being scientific and you fall back on literary devices. To say, "He is a Babbitt" is a lot easier than to say "He is—" and then go on and give a lot of coefficients, scores, etc. Science has apparently just about rounded the circle, and if you want to talk carefully and precisely you had better stop being literary. It is time to abandon the literary techniques in characterizing human behavior. Dostoevsky could produce good types and characters, but whether he knew what he was talking about is another matter. Chesterton said of one of Thackeray's characters, "Thackeray didn't know about it, but she drank". It is perfectly possible for a literary person to make a convincing description without going through the steps that

a scientific analysis would have to go through.

517. What can we understand from the literary picture in terms of its consequences? What orders can be discovered in the behavior of literary people, and hence what orders get some kind of psychological analysis in an adequate treatment of literary works? The Freudians have attempted psychological analysis of literary works, although they have undoubtedly been somewhat unclear as to what they were doing. Sometimes it appears that they would like to show that a given literary work is a beautiful case history of the Oedipus Complex; e.g., D. H. Lawrence's "Sons and Lovers". That is all right, but if they think, as they seemingly do, that they are exposing Lawrence, that is something else. Freudians like to use literature both ways—to bolster up their own theories and also to expose the literary person.

518. What we want is a classification of the relations between the behavior of the writer and whatever variables we can discover. We won't have any very important direct knowledge. We will be arguing back to supposed variables, but an analysis of this sort can do it after it has been checked up in other circumstances. We want to get from literary behavior to whatever will help us to understand it. Why did it occur? Why does it have the internal organization it does?

519. We can make use of inferred variables or some real information. This is essentially what a large sphere of literary criticism has always done. When you know something about the life of the writer and you have his literary work, you can establish a relation which satisfies you if it turns out to be what has already been assumed. If you don't have the writer you make the assumptions from his work alone. Very little, for example, is known of Shakespeare's personal life. There the direction of inquiry is usually from the behavior to the inferred experience. Somebody may show that Shakespeare was in a street brawl and then the same year wrote a scene with a street brawl in it. Caroline Spurgeon's analysis of Shakespeare's imagery, where the supposed biography is inferred from the metaphors in the plays, is an example of taking the literary behavior and from it inferring the life experience of the writer.

520. Let us tabulate a few of the kinds of correspondence.

1. Subject matter—life experience. What is it about? Books of travel, etc., are obviously related to the experiences on the trip, etc. "Voyage of the Beagle", "Travels with a Donkey", etc. This would include also, diaries, autobiographies, any accounts of one's own experience. These fall into the pattern of the fact. Things happened and they are recorded.

2. Metaphor. One thing is being talked about, but something else in the history of the writer is also being referred to. Shakespeare's history, according to the argument, is reflected in what he says. If we know about the man, then we can prove the relation. If we don't know about the man, we take the work and make inferences about his life history.

3. Borrowing—literary experience. The "Ancient Mariner" reflects Coleridge's reading. This is a demonstration of intraverbal behavior. It can be statistically proven of borrowing.

4. Character aspects. Is writing concise, flamboyant, neat, sloppy, retiring, bold, etc.? These give us characteristics of the writing, which we then attribute to the writer. A sloppy poem indicates a sloppy poet because it is an actual record of his behavior.

521. The whole development of fiction as a mode of emission of verbal behavior for self-satisfaction and entertainment of others has always been a progressive discovery of new techniques. What has happened in the development of new forms is that new systems have

been worked out, new frameworks established, etc., in which the writer finds an opportunity to release his own verbal behavior. That is a kind of cumulative process, like any of the arts. Musicians find new harmonies, new instruments, etc.. The artist discovers new ways of painting light and shadow, abstracting, etc. The discovery of various techniques of fiction involved, first, epic poems, and then the early stories, the novel, and the modern novel (which leaves off a large part of the integrating passages). All of that is a way of releasing verbal behavior. It is an important contribution to human knowledge and the gaiety of nations and something worth examining.

XXVI. Control of the Individual by Self and Society.

522. The issue at stake is free will. Our problem is not primarily in connection with learning, but with whether a science of learning is possible in the case of human behavior.

523. We are concerned with behavior which operates on and affects other behavior in the same organism. It is behavior which springs from an S^D which is also some of the behavior of the organism—you have to know when to act—but the result is very often a change in behavior. This means that it is a kind of second order phenomenon.

524. We found it necessary to describe a secondary language somewhat similar to the metalanguage of the logician in dealing with one's own verbal behavior, in editing, suppressing, etc., and in encouraging or evoking it with supplementary techniques. Behavior which depends on prior behavior in the same individual is its occasion and results in a change in that behavior as one of its reinforcing conditions.

525. This has a number of applications. It is clearly what is meant by controlling behavior and self-controlling behavior, since this is all in the same organism. It is not necessarily control according to the standards of society, but to make a change in or to alter behavior of the organism which is doing the altering.

526. The following analysis had the intention of developing therapeutic techniques. We were interested in examining all of the behavior devices by means of which a man controls or alters his own behavior. These are the actual techniques which one imparts to a client in a clinic.

527. You can't build suitable conduct in a person as so many responses A, B, or C, and send him out into the world prepared for whatever will arise. You can't build an adequately responding organism simply by training in a certain number of responses. You have, instead, to impart techniques of control to the organism so that it can, when the occasion arises, alter its behavior to make it more suitable to the circumstances. The aim, then, of counseling or guidance in the field of behavioral adjustment is to impart to the client techniques of self control in this sense. That is what the religious and moral and ethical systems of the past have always been doing, effectively or not. What they consist of, if you examine their writings, is a set of rules, techniques, tricks, for altering one's own behavior, presumably for one's betterment in terms of one set of principles of conduct.

528. In an experiment using human subjects, the individual can, by the self-controlling behaviors considered here, step into the situation and change the experimental results. Maybe he's mad at the experimenter and would like to make him get negative findings, etc. However, while this may be a practical problem in such experimentation, it is not crucial for the possibility of a science of human behavior. It simply indicates that human behavior science must

include this very behavior in its subject matter and must be able to tell you whether the organism will step in, when, and why. What is the extra conditioning which brings the organism to take any of these steps to alter its own conduct? Then, at the end, we can consider whether any chance for freedom survives.

529. We will consider first of all any technique by which society controls organisms. Then we will examine the case to see whether the individual has available the same technique to control his own behavior. So we want first of all an example of control by society of the individual and then an example of whether the individual can use the same process in controlling himself.

530. Short-run devices. The simplest and most effective technique for controlling the behavior of an individual by society or by an experimental psychologist is the actual physical restraint or coercion of behavior, or, on the other side, facilitating or pushing him into behavior—that is, acting physically on his body to prevent or encourage behavior.

531. Physical restraint of response:

By society: Jails, straitjackets, guarded voting boxes, fences, locks on doors, etc.

By individual: A man can at time A put all his money into a trust fund, and then at time B he will not be a spendthrift. Putting your hand over your mouth to prevent saying something raises the interesting problems: what is the special motivating mechanism and why doesn't the original verbal behavior fall below the threshold rather than requiring an additional act of the individual for its suppression? A person may burn a letter to avoid reading it. This, like the first example, is a case of doing in a strong moment something to avoid what might be done in a weak moment. It is as if two individuals inhabit the same personality, or perhaps the other way round. When the controlling system is strong it can take steps to prevent responses by the other system when it might become strong.

532. Facilitating, aiding and abetting behavior.

By society: Supplying special equipment to encourage sports, etc.

By individual: Providing oneself with false teeth, crutches, or a typewriter to make oneself a better correspondent, etc.

533. Controlling the stimulating environment. This breaks down into an extensive series of cases.

a.† A stimulus is provided.

By society: Curfew, whistles, etc.

By the individual: Suppose a movie actress must cry for a certain close-up.

There are various devices by which she can make herself cry. She may painfully bite her tongue, or put a little onion juice in her handkerchief, etc. The behavior is not directly controllable, but through provision of a stimulus which will evoke tears a way is given of getting control.

534. b. Elimination of a stimulus which is causing undesirable behavior.

By society: Elimination of bad situations which cause accidents. Prohibition was supposed to eliminate stimuli which led to drunkenness. However, since, this device supposedly made drunkenness impossible, a better example is the elimination of liquor advertising. Drugs may be provided—novocaine, ether, etc.—to get rid of struggling behavior.

By individual: He can do the same things as society. From the ethical standpoint he may say, "Get thee behind me, Satan". He alters his environment to keep himself from making an undesirable response.

535. c. Production of a stimulus for incompatible behavior.

By society: Staging church parties on New Year's Eve or Halloween. Providing playgrounds to keep child off the streets or becoming delinquents.

By individual: To control an emotional response, the individual may conjure up a stimulus which is for an incompatible emotional response. He can go to a funny movie to get over the blues. He may read good books to avoid reading trash. These are all behaviors which alter or produce subsequent behavior which alters the total complex.

536. d. Elimination of a stimulus for an incompatible response.

By society: Elimination of stimuli which would distract from the desired behavior.

By individual: A man may get away from a girl friend who is taking too much of his thought and time.

537. e. Production of a stimulus which arouses anxiety, for which a given good act then gives relief.

By society: Threats. If a hold-up man says, "Your money or your life", he creates fear from which you can escape, perhaps, by turning over your billfold; he coerces you into action by creating a threat. Society calls various acts sin and ties them up with punishment hereafter. The act then generates anxiety and the individual ceases it in order to get relief.

By individual: He can use society's trick by talking up to himself threats and rehearsing the connections between acts and consequences.

538. f. Elimination of threat. In the clinic you may talk or let a man talk himself out of fear of hellfire; he may talk out and get rid of fear of fancied terrible consequences of behavior.

539. g. Production of stimulus for emotional predisposition to act. This is close to motivation. You build up a state in which behavior is likely to occur by building up stimuli of one sort or another.

By society: Music in a church.

By individual: Things done to screw up courage to sticking point or whipping oneself up to act.

540. h. Elimination of stimuli producing predisposition for undesirable behavior.

541. Altering motivation. Increase drive by depriving yourself of whatever is appropriate. Or use drugs, such as morning coffee, to key yourself up.

542. Long-term alterations of behavior.

Adaptation. This phenomenon seems close to extinction. People who worked in blood banks tended to get over fear of blood. Practice in getting over flinching in rifle practice. Holding hot objects to increase tolerance of heat.

543. Pavlovian conditioning.

By society: Builds up suitable responses and extinguishes unsuitable by the usual techniques of pairing stimuli appropriate to or cutting them off from unconditioned responses. Feelings of adience or abience to certain situations. Refreshments served at end of club meetings to increase attendance. Salesman uses alcohol on his prospective customers to make them more accessible next time. Funny pictures in the dentist's office. Pediatricians give sticks of gum to children.

By individual: Can perform undesirable action in happy circumstances. Getting used to things that have previously involved fears. The individual has available all the classes given so far for conditioning responses.

544. Operant conditioning.

By society: Behaviors built up because certain consequences are attached to them. We learn most strong adaptive behavior in this fashion.

By individual: It is a moot point whether the individual can ever reward or punish himself. He can of course produce stimuli which from someone else would be rewarding or punishing, but whether he can do so in a way which alters his future potentiality of action is not clear. If a person goes to a movie after working all day, or he punishes himself for doing something he shouldn't have done, do such things really alter the probability of similar action the next day? Probably the organism can not alter its own behavior in this fashion.

545. Organism may simply emit behavior. This is the chance for some kind of freedom to come in. But, as we make progress from a theoretical point of view, we come out with something like this: There is behavior which we control and behavior that effects this. If there is something that you want to do, this intensifies the strength. If something to be avoided, the behavior eliminates it. The total state of affairs is reinforcing to the organism. He has now done right. The whole act does get identifiable positive reinforcement, through its consequences. In order to account for these acts of control we must be able to point to the actual consequences. Therapeutically we must establish those consequences or make them clear to the subject, or somehow effective. There is always the conflict between the consequences and the reasons for the behavior. But we are always building up these behaviors of control because they bring out what is socially acceptable, or, better, personally adjusted behavior which isn't necessarily social. For instance, when you prevent yourself from eating something which will give you a stomach ache tomorrow, this is a case in point. The clinical psychologist must bring out the good consequences so that in the long run the desired behavior does come out.

546. There are two response systems. The first is the simple behaving organism. There are large numbers of behaviors. Sometimes they lead to consequences which strengthen, etc. In the same skin there is a response system of controlling behaviors. These will have no meaning at all without the other system. There is no meaning for turning away from a tempting but poisonous dessert until there is the tendency to eat it. These response systems can be referred to as selves.

547. There is the id, or libidinal self, and perhaps the super-ego. There is the ego operating under pressure of the super-ego, which is built up by the consequences, mostly social, which will enter in and produce a change in the first order behavior.

548. When somebody steps into an experiment and says, "Well, I'm not going to recall any more of these nonsense syllables", is that really a threat to the determined character of behavior? No. You have had this organism operating under weak motivation. The response was not strong in the first place. When some other consequences emerge, the so-called free act of will occurs, which must itself be accounted for by an appeal to much more complicated motives—social adjustment, adherence to the social system, and so on. There is still a completely lawful determination, so that when you ask, "Well, why doesn't he simply respond to this stimulus?", and somebody says, "Well, he doesn't let himself", that is the problem for analysis at this other level.

549. It is a secondary level in the sense that it is meaningless until

you have the first level. The controlling behavior presupposes that the organism is being stimulated by his own behavior and takes steps for altering that behavior, and the net results are strong enough to keep that controlling behavior in force. When somebody breaks down, the motives associated with social approval are weakened. "I don't care what anyone thinks". He is reporting that he no longer has a need for social approval. All the controlling behavior which would be strong because of social approval is at the moment not strong. He doesn't want social approval. That is a description of the weakness of the controlling self.

550. A similar analysis could be made of acts of intervention. Why does someone step in and upset the apple-cart? It might be precisely that he wants to upset the apple-cart. Maybe he wants to prove that psychologists are fools. Since society interferes with our administering any important rewards or consequences, we shall probably always have this problem.

551. In the presence of certain S^D s some behavior will be more likely to be observed. We can get a complete picture of this because we can predict exactly whether the organism will eat and at what rate. The variables are S^D , degree of motivation, emotional state, etc. The freedom then disappears. This is probably also the case in human behavior.

552. We tend to expect too much from the stimulus as the predictive device, whereas we must control degrees of motivation and the history of previous conditionings. When we once have this, we have complete predictability. But so much is not controlled by us in human behavior that we refer to free will.

553. The essence of this kind of analysis is that you can account for in-between states of readiness or probability. A denial of free will can not be supported by evidence. But we must in a science of behavior assume that there is no free agency. Maybe the facts will make fools of us in the long run. That is always a possibility in any science.

554. Whether it is necessary to bring in "purpose" is again, like "freedom", the kind of thing you can't assert or deny. There may be no reason to ascribe purpose to any act, although the proper analysis of the variables of which the act is a function enables us to talk about the phenomena we talk about when we talk about purpose.

XXVII(A)[†]. Literary Uses of Verbal Behavior.

555. In the case of analyzing fiction we are back to the content analysis. Logopoeia is seen most clearly in poetry—a local, small-scale playing with tendencies to make verbal responses. In fiction you have large-scale organizations which can be traced throughout perhaps a long work. This is important to an analysis of verbal behavior because it helps us to see our analysis on large samples of verbal behavior.

556. Suppose we take "The Brothers Karamazov". What is the function for the writer? This has been a favorite target for the psychoanalysts, who affirm it is the description of three or four attitudes a son may have for his father. Each brother represents some kind of adjustment to the father. Id-attitude: the brother who performs the murder. The Saint: even there you have conflicts of one sort or another.

557. We are not concerned with showing that some of the names and places correspond with names and places in Dostoevsky's life. That is the author-book correspondences which we have already mentioned. But what is back of the psychoanalytical argument, to forget our own analysis for a moment? What is the function of a story of this sort

so far as the writer's behavior is concerned?

558. There is talk of escape or release or catharsis, and what not. These theories go back to the Greeks. The effect upon the writer may be very much like the effect upon the audience.

559. If we trace the development of fiction up through the centuries we find a cumulative progress toward a more and more direct means of saying things. The culminating form at the moment would be the Joycean stream-of-consciousness kind of thing, where all grammar is forgotten, you no longer even bother about punctuation,—you just let the stuff spout out. We know, of course, from Joyce's manuscripts that that wasn't the way the stuff did come out.

560. The notion of release is, perhaps, unnecessary, and so it that of catharsis. We have people with powerful repertoires of verbal behavior. There are people like that in every age, just as there are people who have nothing to say. The arts are essentially discoveries of ways of getting out behavior which exists in strength anyway. We might say that the Greeks had movie-making tendencies, but they didn't get around to that.

561(A).[†] The invention of the novel and the growing up of an immense reading public gives some new features, some new chances to talk. The novel as an art form is just a chance for the writer to talk. It breaks down into two general possibilities. The plot situation: you create a situation in which you like to act and then you act in it. The main thing from our point of view is the character kind of writing, in which, through the device of fiction, the writer finds it possible to talk and to talk more and more effectively. That is the confirmation of a cumulative process in literature—better and better ways have been worked out for talking.

562(A). In the classical drama there were extraordinary strictures on how one could talk. Only certain subject matters and certain rhythms were permitted. That has all gone by the board at the moment. By the invention of the long adventure story and then the development of the novel with lots of conversation in it, and finally the single-voiced conversation of Joyce or the snappy conversation of Hemingway, improvements were made in that the later developments are better able to tap off various verbal reserves. The development of the characters in his story enables the writer to be different kinds of people at the same time. By the invention of different supposed writers, the author can be somebody one day and somebody else the next. He can talk in different manners and achieve release of multiple aspects of his personality.

563(A). The author may produce hundreds of characters, who may be aspects of his own personality. If three or four people are violently arguing, they may be the writer arguing with himself. By naming the characters, he names sub-response systems in his own personality. This is a quick way of giving out his own verbal reserves.

564(A). This is not to say that such writing is any more a release of pent-up behavior than falling into good company may be. You have things to say. If you are lucky, you will find an opportunity to say them. If you are clever, you will invent a way to say them. This fits well enough into our general formulation to be worth mentioning here. It makes clear why conversation is welcomed in books.

565(A). The direct quotation is the best possible verbal summator. It fits exactly into the action the reader himself has in some degree been led to commit. Skillful handling gets the reader to come through with the punch, and then there it is in the writing. Indirect quotation does not unlock as much of the reader's behavior.

566(A). When Jane Austen says that Mr. So and So walked across the room, not much is released in the reader. But when she says, he

said, " _____ ", this is the behavior itself. The direct quotation is a complete copy of the thing referred to. It isn't the response made. It is the name of the response. It has the extraordinary value of being a hieroglyphic or picture or complete copy of the thing said. Hence the abiding importance of the drama, which is all conversation, and the development of modern fiction. This has very little connection with practical affairs unless the work is propagandistic.

XXVII.† Functional versus Correlational Analysis of Verbal Behavior.

567(A). Our formulation is a functional rather than a correlational analysis. With this kind of analysis we suppose that we will eventually, if not now, have control of some of the variables which account for human behavior. We can satisfy the conditions and get the response.

568 (A). The correlational analysis assumes that we do not have control of developing variables. All we can do is to show what the variables are and to what extent they are related. There is a great gulf in terms of results. Correlation coefficients between various aspects of behavior and such things as abilities or factors—second or third order things—are well illustrated by Thurstone's factor analysis.

568 (B). A great deal of correlation analysis has been done with verbal behavior and we could have reviewed that work extensively. But what happens in correlation analysis of verbal behavior is this: Suppose you want to find something corresponding to verbal factors. You compose 40 or 50 tests, such as finding opposites, making up analogies, giving word associations, etc. Then you run a very elaborate correlational analysis and come out with some factors. You don't name them usually, unless you stray from the straight and narrow path. You say this test is heavily loaded with this factor, etc. One factor might be word fluency, another ability to manipulate verbal relations. How far does that take you and what can you do with it? Probably almost nothing. You could make up a thousand tests of verbal ability. What you would come out with would be a set of factors having no immediate relationship to verbal behavior and you would get only the factors you put in in the first place.

XXVIII. Individual Differences in Verbal Behavior.

569(A). We could mention hundreds of differences among people with respect to verbal behavior, for which tests could be designed if wanted. Just conceive now of how many ways in which people can differ with respect to their verbal behavior! In the case of mand behavior you get differences among people, of course. Mrs. Proudie's speech was almost 50% mands—ordering people around. Other differences in mands: how blunt, how softened, etc.? What is manded? What are the various needs of people? How do writers or speakers differ? To what extent does the person magically extend mands or how pedestrian is he?

570(A). In the case of the tact you get the various vocabulary counts. What things are talked about? What is this man's world? What subject matters is this person interested in? "I-counts" for Roosevelt, Stalin, Hitler, etc., indicating how big a part of their world the selves were. What about metaphorical extension of the tact relation? How narrowed down or how expansive is the person? How flexible is his behavior in transferring from one situation to another? Appearance of color words. How important was color in this man's world?

561(B).† Under the question of the distortion of the tact relation: how truthful, how precise, are the references given? To what extent does the person allow himself to yield to the effects upon himself of particular types of response? Scientific against literary. To

what extent does the man's talk represent states of affairs? How flattering is the person? Bootlicking? Behavior for consequences?

562(B). Under audience: How many languages does the person speak? Does he speak differently to colleagues and to children? Sub-language and secret languages? Does he speak French to his wife to keep his children from hearing? Trade jargons, etc.?

563(B). Under echoic: How susceptible is he? How much does he pick up? Accent? New words? Does he go on with his own solid, strong vocabulary untouched by terms being used by others?

564(B). Textual: No great differences.

565(B). Intraverbal: Word-association tests. What borrowings do you detect? Who influenced him? To what extent is his speech connected intraverbally?

566(B). Level of verbal behavior: Talkative or taciturn? How many words does the person use? How easily can you stimulate him? Modulation, speech, etc. Differences in intensity and rate?

567(B). Wit, multiple sources of strength? Does he have richness of allusion?

568(C). Does he use words incorrectly? Does he repeat? Does he distort? Does he make slips?

569(B). Differences shown on projective devices. Scores of differences among people. You could make tests for any one, and some have been made.

570(B). Editing as the speech comes out. Enormous differences in the number of words which are concerned with the manipulation of the other words. Minimum in modern writers, maximum in Dr. Johnson, where the reader is led by the hand through all the connections.

571. Grammatical habits. Comments upon the non-grammatical stratum of behavior. Many studies have been made showing fundamental differences.

572. How does the individual get verbal behavior? Different devices used by different people as revealed in their talk or writing.

573. When we get through we have all the differences among all the books which have ever been written. Then add to this a lot of differences in skill of execution, neatness, temporary changes, ability to take on characteristic styles, etc. Probably there would be several hundred rating scales available here. They would all show wide ranges of differences in verbal behavior. We might come out with some kind of profile which would characterize a speaker, at least at a given time.

574. There may be practical reasons for tests. There are certainly many reasons why they have been given. The question we would like to ask here is whether these appeals to numerical values will be of any real significance in this kind of analysis. Of course, people differ, just as metals or other animals or plants differ in physical characteristics. Even in a single observation we accept the individual differences as a fundamental datum. But what can we get out of it? These techniques may give a numerical status to any one of these traits. Actually are those values of any point? The answer is probably no. We would not say that we ought not to make occasional tabulations or make measurements. But the measurements we will make will not be the kind of things that come from correlational studies. Factors possibly will not have much relation to the kinds of relations which emerge when we manipulate a variable and watch what happens. Thurstone himself says that factor analysis merely defines areas for further study.

XXIX. Miscellaneous Aspects of Verbal Behavior.

575. A tremendous amount of work has been done on the acquisition of verbal behavior in the child. There is the whole genetic approach—rates at which speech is acquired, how acquired, etc. We have left that out very largely because we are not particularly interested in the problem of acquisition. Many people are unable to think of these forces which predispose people to speak without considering how they acquire the predispositions. They have no way of dealing with momentary tendencies. If a bit of behavior remains in your repertoire it is because it is reinforced. This is just as important as the original conditioning.

576. If one is simply dealing with time as a variable—how many words does a two, three or four year old child have—this would be useful background material in developing a science of verbal behavior. So far as we are dealing with ways in which learning takes place, we have another useful field, but one which doesn't do very much in illuminating the relations responsible for verbal behavior itself.

577. Another big field which we haven't mentioned except incidentally is that of psychopathic verbal behavior, meaning the verbal behavior of people psychopathic in other connections. And then there is speech pathology. This latter is a serious problem in the behavior of many people. Various aphasias, either as a result of injury or tumor or actually as defects appearing in the development of the verbal behavior of the speaker. Aphonias, amnesias, etc. This is an extensive and interesting field.

578. We don't see much connection between stuttering and the analysis we have undertaken so far. There are theories of what causes it, some supported fairly well, others not so well. It is a difficulty in the execution of verbal behavior, and therefore not too relevant to our field. But you get people who stutter in one language while not in another, with one audience while not with another, when describing something but not when reading aloud, etc. All this seems to indicate that behind the executional difficulties there are what would be called by speech people semantic problems, and we might get at the thing by examining unusual conditions of strength. Perhaps it arises through fear, and the stuttering is the resultant of forces leading to speech and suppressive forces in the unconscious of the speaker.

579. In the case of the aphasias we get a much better opportunity to apply this analysis. Unfortunately the publications on aphasias are usually handicapped by the fact that they are published to support some theory. Henry Head, for instance. Now a great deal is done with various aphasias. Some do clear up, especially those following injury. Those which come about from cerebral hemorrhage, like most diseases of old people, don't warrant much expenditure of therapeutic energy.

580. The way in which the behavior breaks down in aphasias should be looked into. It does not break down in grammatical terms, etc. "Why couldn't this man say this now instead of ten seconds later?" "Why can he say this long sentence where he can't say this short one", etc. If you look into the reported cases which are reported straight, the breakdowns are along the lines advanced here, and certainly any effective analysis of verbal behavior will eventually make sense in terms of these neurological splits. These breaks must follow natural lines.

581. The amnesias require the verbal report to get at the amnesic, but you might use something else. The amnesia may go back to a point in time or apply to an island in time. They may be dramatized too much by people making the report. Direct work with the cases seems essential. They are curious, and sometimes suggestive in an

analysis of verbal behavior. The aphasias usually show strong states of behavior, but weak responses.

582. Psychopaths manifest flights of ideas, etc. These are beautiful examples of intraverbal associations, perseverations, rhymes, alliterations, etc. It is verbal behavior gone wild, just as the other behavior of the psychopath has gone wild. It would repay study.

583. In psychopaths the distortion of the tact relation becomes extreme. In the paranoid the behavior is motivated by consequences. There are distortions, exaggerations, etc., of the principles set forth here.

584. We have not in our approach here done as we might have done and cracked our heads on the origin of speech. You get a little bit of a sensible approach to that problem in DeLaguna, who examines some of the signal systems of animals and primitive people and tries to work out some descriptive terms. How to get started with verbal behavior in a non-verbal world may never be answered experimentally. There is the problem in which the first occasion of verbal behavior develops and how, then, the consequences multiply. The analysis that we have set up would have made it possible for speech to have begun. Any system of verbal behavior which can't give a plausible hypothetical example of the beginning of speech has something wrong with it.

585. (A question was asked: What takes place when an instructor instructs?). Botany is taught in this room with charts, specimens, etc. Words are used in connection with the physical objects. The class is trained to make the correct tact, echoically first of all. Their tacts are labeled right or wrong—differentially reinforced. You thus get the development of a vocabulary for talking about a part of nature. It is a highly discriminative one. What looks like the same things to most people will by botanists be seen as importantly different. They represent scientific knowledge. The instructor imparts a vocabulary to the student. Botany goes far beyond that, but that will be one kind of teaching. The instructor's task is to take a vocabulary descriptive of events and get the students to use it correctly. He must get them to react to the word as to the thing. The understanding of principles is, of course, a very different thing.

586. (A question was asked: What kinds of experiments are in order dealing with verbal behavior?) All of the processes we have appealed to are probably potentially observable. Appeal to everyday examples may establish them well enough, but science must move on to the production, prediction and control of the data. In the case of verbal behavior you have social reinforcement. That sets a problem—to what extent will the reinforcement provided by the experimenter resemble those of the verbal community? In experiments you will be dealing with behavior which is part of the everyday repertoire of the organism, and it is difficult to select a particular small area of behavior and hold it in isolation. Ebbinghaus's studies are essentially of this kind. You try to set up a small language independent of the everyday language of the world at large. Actually there are changes which take place, so that ten years ago an examination of the meanings of nonsense syllables would be invalid today. It is hard to get a pure artificial language. A lot of work was done by Esper and Wolfe on artificial language, where various objects—nonsense pictures—came to be described by nonsense words, and they were able to show analogy, induction, etc., to new situations. A person who had acquired this vocabulary spontaneously knew novel patterns not seen before. The artificial language is one attempt to build up a laboratory science of verbal behavior. It is not too satisfactory.

587. In the case of the probing and prompting of verbal behavior, you do make use of the resting verbal repertoire of your subject. In the Rorschach you find what responses are strong. The verbal summator does this a little more directly. You have experimental manipulation of the situation in the form of a picture or object or heard word, and you make an analysis of the verbal behavior given by the subject in the language in which he has grown up.

588. Word-association techniques have investigated intraverbal connections. Changes take place in them from time to time. That is already established in the experimental field.

589. A great deal can be done with the prompting kind of thing, not where you are trying to find the important latent behaviors, but where you set out to force a word with various prompts. The investigation of functional thematic groups in the individual is something that needs to be done. That can be got at with the intraverbal and thematic prompt. The whole subject of thematic groupings is important.

590. There are the analyses of texts. Word contours, etc., but these are probably not too important. There is the study of linguistic devices, etc.

591. The field of the metaphor is an ideal field for studying the problem of stimulus transfer. You can study accepted metaphors or, by getting the subjects to emit metaphors and discovering what the properties are of the stimuli which lead to the metaphorical extension.

592. In the case of the mand or tact, here it looks as if the engineering problem is too great. You don't have the control you want. It has, of course, been shown by the probing techniques that you can raise the strength of certain forms. You can build up special needs and quantify the results.

593. The problem is two-fold. To what extent do you feel the need of an experimental confirmation of this analysis? For some points we may have to forgo such a thing at the present time. But if you are asking what are the practical problems influenced by this kind of analysis, then you have a pretty large part of the field of psychology. The verbal report in psychophysics is a verbal phenomenon of considerable importance. Other things may come in besides the experimental stimulus. To what extent can you influence the verbal report?

594. There is the matter of the analysis of verbal behavior in transcription: manuscripts, books, etc. While not experimental, these are empirical and sound enough. Some use of personal documents has been made in the social sciences. Thematic analyses of such works are important from this point of view.

595. Skinner: "I don't myself at the moment feel the pressure for experimental work here. That may be because my interest originally was in the analysis of existing examples of verbal behavior."

596. What has been discussed mostly was what was relevant to our program of treating verbal behavior as a very important subdivision of the total behavior of the organism. The terms traditionally employed in this subdivision have been dualistic. The slipping over to dualism has caused a great deal of trouble because it has phrased our problems in an impossible form for solution and has led to the study of form alone as apart from verbal behavior as an active, going affair, and caused all kinds of historical twists and turns and prevented the emergence of a system consistent with a non-verbal science.

597. The logician, the literary critic, the semanticist with applied semantic problems in therapy, the experimental psychologist, all have slipped into dualism. It has been important to bring them together because they have all been using varieties of this dualistic

system. What we have tried to do here was to take the subject matter of verbal behavior without preconceptions as to its nature and consider it as behavior, to see how far we could get. We have tried to bring up important properties and aspects of verbal behavior and see whether at least in a preliminary way our framework proves to be adequate. We can account for the basic facts of verbal behavior without an appeal to additional principles. If this is true, that is a very important thing. The missing link between animal experimentation and verbal behavior is, of course, the verbal response. The activities which we think of as essentially human, such as being aware of what one is doing, can be reduced to a verbal analysis. The awareness of self emerges from a verbal community. You would be entirely an "animal soul" were it not for the ways in which society forces you to make discriminative reactions to your own behavior.

598. With an analysis of verbal behavior of this sort those matters are probably put in their proper place. We see no reason at this time why a science of behavior will be disrupted by any agent acting in the verbal field.

599. Skinner: "Here I have emitted perhaps two or three hundred thousand words in the last six weeks. What about my behavior? I tried to develop an analysis; I tried to get you to react to an extremely complicated state of affairs with certain instrumental terms. To see that certain things are examples of such and such. I myself feel that I can now talk about the phenomena of behavior better than I could ten years ago. This enables me to see similarities and differences and make more effective adjustments to verbal phenomena than I could before. I hope that also occurs in you as a change in your verbal behavior. I am concerned with saying things you will say yourselves and agree with. That builds up a certain prestige which will then enable me to go on and get you to say other things that I say which you wouldn't have said before.

600. "I assume that you have been talking and thinking about this great field which we call verbal behavior. I have made certain responses. If I have been at all successful you will have brought out in your own endeavor these responses with the comment, 'Yes, that is what I was thinking', etc. By talking about, bringing up descriptive aspects, I bring out whatever behavior you have which is compatible with what I am going to talk about. I have brought up some novel behavior in you. You will, I hope, as a result of being here, now talk about verbal behavior in a different way.

601. "But where is truth? I think we can conceive of a fruitful and expedient behavior which we call verbal, which has allowed us to account for many aspects of nature and which has been back of all human knowledge in the sense of gaining control over nature. That has occurred, I am convinced, or could have occurred, without anyone raising the question of truth in the logical sense. Logical truths are trivial. They exist because of relations with the foregoing. We are not concerned with this kind of game. We are interested in what kinds of verbal behavior will lead to further progress. If I have given you an adequately strengthened vocabulary with respect to verbal behavior you will make progress. You will see differences and similarities and advance in the scientific analysis of the subject matter. On the other hand, if I have been motivated by crying wolf just to make you sit up and argue, or if I have been satisfying my own interests, I probably have falsified these relations in the sense that the descriptions will not be useful.

602. "I have developed verbal behavior as a result of ten years of talking, mostly to myself. I think what I have said this year was simpler than what I said last year and certainly better than what I

said ten years ago. I have been very careful to keep out of my verbal behavior the kinds of terms which historically have led to a lot of discussion and no real progress.

603. "If you will agree that I have not been grinding too many axes, or trying to prove a point, but trying honestly to develop this behavior and aiding you to develop this behavior, then science moves along in this sense. We now have a way of talking about a subject matter which previously wasn't so easily talked about. That is all physics is—a way of talking about physical phenomena which is more effective than a pre-scientific way of talking about it. It is tied up with instruments, and we may get that eventually in the verbal phenomena. But this behavior leads to further simplified descriptions. That is all I conceive myself to be doing—trying to talk in a simple fashion about an extremely complicated field.

604. "I may have taken advantage of or borrowed from other sciences. Or I may have avoided philosophical terms because I have not been convinced that they lead to progress. In this sense my verbal behavior was non-echoic or non-intraverbal in a sense. I have tried to be logical rather than illogical. I have limited myself to a kind of behavior which I believe will produce an effective description.

605. "There is no such thing as the truth about verbal behavior involved here. There is no such thing as the facts or knowledge of verbal behavior which exists apart from you and me. I have talked about something, and perhaps you are talking about it in somewhat the same respect. I hope you see certain aspects and talk about it in slightly different ways which will prove to be better than mine. So far as I can see, that is an objective evaluation of what I am doing. It does not suppose that I have any kind of insight or idea, any knowledge in pure form, which I transmit to you. I have not communicated an idea as such. I have built up in you verbal behavior—or at least I have tried to.

606. "That, it seems to me, represents honestly the relation between us here. I am working on you verbally as the teacher. You as students will come to behave more like that. You may disagree, which may be the best possible result. But before you disagree you must also say it my way. You must have some reason to say something without no before you put the no in. If you take what I have said and put no in front of it and get along better, that is the final test. By effective I mean we will eventually reduce the number of terms, find simplifications and order among the data so that we come out with those general propositions which are science. The main goal of a course on verbal behavior in a department of psychology is one of integrating the subject matter with the field of human behavior in general and coming out with an effective vocabulary and technique of research which will bridge the gulf between the verbal and non-verbal, or between verbal and the vestigial remnants of a dualistic system."

Endnotes

- P. 4, §28(A): In the original manuscript there were two sections labeled 28. I have labeled them 28(A) and 28(B) to provide an unambiguous reference. I followed the same practice for all sections with repeated numerical headings, namely sections 108, 206, 253, and 568.
- P. 6, §45, *Questions essentially are mands*: Skinner is referring here to stock questions that have typical answers. However, many questions are novel and multiply determined and therefore require a more complex interpretation.
- P. 7, §51, *of this kind*: The manuscript reads, *of his kind*. Neither wording is euphonious, but the meaning is clear enough.
- P. 7, §56 & 57: In my opinion, the point of these sections is impaired rather than enhanced by the diagrams. In §56, a response of given topography is evoked by a wide variety of discriminative stimuli and leads to a particular type of reinforcement. For example, "Water!" might be evoked by a variety of antecedent conditions when one has been long-deprived of water. Thus the mand is controlled mainly by motivating variables. In §57, a given topography of response is controlled by a unitary discriminative stimulus but is followed by a variety of reinforcers (or a generalized reinforcer). For example, saying *white-throated sparrow* in the presence of the call of a white-throated sparrow might be followed by any of a variety of forms of approval or even other types of reinforcement. The latter scenario frees the tact relationship from distinctive motivational states and therefore sharpens control by the nominal discriminative stimulus.
- In the manuscript, the many-to-one relationships were represented by a cluster of lines converging on the response (in §56) or diverging from the response (in §57). I replaced them with brackets. In §57, the word *alternative* was missing, but it is required if it is to be contrasted to the diagram in §56.
- P. 8, §62, *emitted*: The manuscript reads *manded*, rather than *emitted*. The former is conceivably correct, if some contextual remarks had been left out, but the latter is clearly better in the context as presented. Moreover, in my copy of the document *manded* had been scratched out and replaced with *emitted* by a previous reader. My copy came from Mark Sundberg and his from Jack Michael. As Jack was for many years the leading expert on Skinner's analysis of verbal behavior, he is likely to have annotated his copy of the notes, and he would not have been shy about doing so, but it is also possible that Hefferline himself edited the manuscript lightly before distributing copies.
- P. 9, §71, *made*: In my copy a previous reader had crossed out *made*, and indeed I think that leads to a better reading, but I prefer to let Hefferline's usage stand unless it is misleading or clearly erroneous. This fastidious correction suggests that the redactor was indeed Jack Michael.
- P. 9, §72, *community*: The manuscript reads *reinforcement* rather than *community*, but that is clearly an error.

- P. 10, §76, *etc.*: Whenever Hefferline concluded a sentence with *etc.*, he used a double period. Although this usage looks odd to the modern reader, I have retained it, as it is harmless.
- P. 12, §86, *reinforces negatively*: At this time, Skinner still used negative reinforcement to mean punishment, a usage that grates on the ear of the modern behavior analyst.
- P. 14, §100, *hieroglyphic*: In *Verbal Behavior* (p. 18), Skinner attributes this argument to Quine.
- P. 16, §118: The anecdote described in this section appears in Chapter 15 of *A Passage to India* (p. 167 of the 1984 Harcourt edition of the book).
- P. 20, §146, *None of the dogs are hungry*: The manuscript reads *None of the dogs is hungry*. It appears that Hefferline unintentionally corrected the solecism when he transcribed his notes, making the example uninterpretable.
- P. 22, §178, *peepally*: In *Verbal Behavior* (p. 302), Skinner renders the utterance *peopally*, but as there is no "correct" spelling of such a blend, I have retained the spelling of the manuscript (though my copy shows the typed word as *deepally*, with the *d* overwritten with a *p*).
- P. 22, §186, *statistical probability is high*: Perhaps *high* is an error, and *low* was intended; alternatively the passage may mean that the statistical probability in favor of a process of multiple causation is high.
- P. 27, §223, *an intervening syllable is left out*: The manuscript reads *an an intervening syllable is left out*, which is a curious counterpoint of the haplological blend that is being defined.
- P. 29, §250, *apparent integrity of the whole organism*: It is an axiom of critics that behaviorism is incomplete because it attempts to explain behavior without accounting for intentionality. Of course Skinner does account for the phenomenon of intentionality but without reifying the term. In this passage he is quite explicit in acknowledging the need for an account.
- P. 29, §251, *an intraverbal response is coming*: In this passage and elsewhere in this document, Skinner seems to use the term *intraverbal* too loosely, at least if Hefferline represents him fairly. A reminiscence is not typically an elementary verbal operant, nor is it usually under unitary control of an antecedent verbal stimulus. Rather it is typically under control of many variables, only some of which are verbal. In *Verbal Behavior* Skinner uses the term more precisely, but even so many behavior analysts read him as saying that an intraverbal response as any verbal behavior evoked by a prior verbal stimulus, regardless whether there is a history of contiguous usage. This is a misreading. One might indeed coin a term for such a class of verbal responses, but it would not be a coherent class and would have no explanatory power and would therefore have no place beside the other terms in Skinner's system. The term *intraverbal* properly entails a history of common occurrence, just as *tact* entails a history of generalized reinforcement and

the mand a history of specific reinforcement. The elementary verbal operants cannot be arbitrarily defined; they must reflect the order in the subject matter.

- P. 29, §252, *Proudie*: Hefferline consistently spelled the name *Proudy*, which reminds us that he was taking dictation, and had no way to determine the spelling at the time.
- P. 30, §253(A): The cited passage is from Trollope's *Last Chronicle of Barse* (Chapter 67). I inserted the bracketed clause to correct Hefferline's inadvertent attribution of the whole passage to Bishop Proudie rather than to Trollope. The full passage reads, "'Blessed be the name of the Lord', he said as he thought of all this; but he did not stop to analyze what he was saying." Since Skinner cites the passage correctly in *Verbal Behavior* (p. 387), it is plausible that he presented it correctly to the Columbia class. If so, it gives us a glimpse of the degree to which Hefferline was able to capture Skinner's speech in shorthand: remarkably well, but by no means verbatim.
- P. 34, §283, *C. U.*: Columbia University.
- P. 35, §295, *He is a lion in the fight*: This example is at high strength in Skinner's writing in the context of similes and metaphor. It is not original but is used as a paradigmatic example of metaphor in books on rhetoric. I have been unable to determine its first usage, but it is cited as an example as early as 1877 [Swinton, W. (1877). *English Composition*. Toronto: Adam Miller & Co.] Skinner's friend, Ivor Richards, discussed it in *The Philosophy of Rhetoric* (1936), and it may have been from him that Skinner picked up the example. Writing a decade or more after the Hefferline notes, Wilson Follett discussed the same example in *Modern American Usage*, under the heading of *metaphor*. His entry on the topic is of interest, less for his discussion of this example, than for the following passage:

But the harm metaphor does to the power of attention is less insidious than the harm it does to thought. For there is a domain of fact, namely scientific fact, which metaphor has lately invaded, and where it has visibly weakened the hold of common sense. Both scientists and laymen, for example, now believe that digital computers think, have memories, learn, translate, make errors and correct them, and succeed each other in "generations." Likewise, scientists and laymen have been seduced by metaphor in to believing that the formative elements in genetics constitute a *code*, which *transmits information*, and thus helps determine the shape and growth of living things. Finally, some theorists have come to look upon science itself as a metaphor or a series of metaphors. All this is dangerously unclear thought. (p. 218)

It would be hard to find a more succinct condemnation of the central metaphor of the cognitive revolution. [See Follett, W. (1966). *Modern American Usage*, NY: Hill & Wang.]

- P. 43, §368, *clean-cut*: To my ear, *clear-cut* is idiomatic, but the manuscript clearly reads *clean-cut*, which is in fact a more apt figure of speech.

- P. 45, §381, *makes it himself*: Hefferline (or perhaps Skinner) meant to write (or say) *reader*, not *hearer*, but the principles are the same.
- P. 51, §432, *GSR*: Galvanic skin response, a measure of the change in the electrical conductivity of the skin in response to a stimulus or event.
- P. 53, §447, [*equivalent to*]: The bracketed expression is missing in the manuscript.
- P. 53, §449, *properly*: The manuscript reads *probably*, but the context suggests that Hefferline either misheard Skinner or misread his own notes.
- P. 59, §475, *excuse for talking*: This section is correct as written, but the pronoun references may be confusing. *He* refers to the listener, *they* or *them* to insensitive speakers.
- P. 60, §501: The manuscript jumps from Section 475 to Section 501. Whether something is missing is unclear.
- P. 65, §533, a: Hefferline used lower case letters to mark headings in this section of the manuscript.
- P. 68, XXVII(A): As this section number is repeated in the original manuscript on Page 70, the characters *A* and *B* were appended to provide an unambiguous reference for the scholar.
- P. 69, §561(A). The numbering of the sections in the manuscript proceeds from 561 to 570 and then jumps back to 561 again on Page 70. Ten section numbers are thus duplicated. In addition, Section 568 was duplicated during the first enumeration. In order to provide an unambiguous reference system to the scholar, while preserving Hefferline's system as far as possible, I have adopted, once again, the policy of labeling them (A) and (B), and in the case of the sections numbered 568, the differentiating labels (A), (B), and (C).
- P. 70, §561(B): See previous endnote.
- P. 74, §593, *For some points*: The manuscript reads *At some points*, which encourages the assumption that he meant *At some point*. However, I believe Skinner is saying that some of the points made in his analysis cannot be experimentally investigated at present.