CHAPTER I

ANALYTICITY

#1 The Analytic-Synthetic Distinction

Analyticity is supposed to be that feature of sentences, statements, propositions or judgments which renders them true, come what may, by virtue of the meanings of the terms or linguistic expressions involved in those sentences, statements, propositions, or judgments.

A typical example of analyticity is

(1) A bachelor is an unmarried man.

Syntheticity, on the other hand, is supposed to be that feature of sentences, etc., which renders them true, if, indeed, true they be, by virtue of (i) the meanings of the terms involved in these sentences, etc., and (ii) the way things are in the world, i.e., by virtue of empirical fact.

A typical example of syntheticity is

(2) The cat is on the mat.

According to many thinkers who accept this distinction, there may be at least two other kinds of sentences, etc.: the meaningless and/or the metaphysical, which may respectively be

exemplified in the following:

(3) Quadruplicity drinks procrastination.

(4) God is good.[1]

If (3) and/or (4) is seen as meaningless, then it can have no claim to truth and so is considered neither analytic nor synthetic.

Analytic sentences, besides being held to be true by virtue of the meanings of the terms involved, or, perhaps, because of that feature, are commonly held to possess the following related, and philosophically interesting, characteristics: (i) pure formality or non-informativeness; (ii) necessity; and (iii) a prioricity or rationality.

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[1]Some philosophers, such as A.J. Ayer, consider all metaphysical sentences meaningless, and, I presume, viceversa, and so would not necessarily distinguish between (3) and (4). Other thinkers, usually empirical linguists, such as Noam Chomsky, distinguish between (3) and (4) by declaring such sentences as (3) selection mistakes. (Cf. Chomsky's Aspects of the Theory of Syntax, (Cambridge, Mass.: M.I.T. Press, 1965)). Such thinkers may or may not consider such sentences as (4) as meaningful. If so, and if they accept the analytic-synthetic distinction, they would then classify sentences such as (4) as either analytic or synthetic.

(i) Analytic sentences are considered to be purely formal or non-informative. That is, they tell us nothing about the world outside of the narrow confines of the analytic sentences themselves, and the terms which are its components. They are, in the words of Ayer simply a record of "our determination to use symbols in a certain fashion."[1] Analytic sentences are, then, "contentless." They contain no material reference to the "real" world outside of the sentence itself. They make no difference to possible experience and are therefore considered trivially true. As such, they are held to be related to logical formulae such as

(5) If if p then q and p then q.

or

(6) A is A.

Now (5) and (6) are two predications of <u>similar</u>, but not the <u>same</u> form. The astute observer might see that (6) is obviously purely formally true, whereas to make a similar claim for (1) is less than obvious. Rather, we are tempted to reduce (1) to some such formula as

(7) A is B (or maybe: All A's are B).

which is clearly not obviously true by virtue of its form alone.

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[1] A.J. Ayer, <u>Language, Truth, and Logic</u>, (Middlesex: Penguin, 1946), p. 41.

The proponents of the analytic-synthetic distinction are, however, prepared for this objection. They argue that (1) can be reduced to (6) by means of the substitution of synonyms for synonyms. In the case of (1) "unmarried man" is held to be a synonym for "bachelor" and so (1) translates to

(8) A bacelor is a bachelor.

which is clearly of the same form as the obviously purely formally true (6).

Besides substitution of synonyms for synonyms, there are other methods of reducing less obvious examples of analyticity to the more obvious, most important being definition of terms and equivalent translation.

This characterization of analytic sentences as purely formal and uninformative carries with it a certain amount of intuitive weight. Sentences (5) and (6) seem to be obviously true and seem to be just as obviously not at all concerned with the "real" world, which, after all is made up of "facts", "events", or "things", and not p's, q's or A's. (5) and (6) are forms or formulae, which when we fill them out with meaningful terms, so the theory goes, instantly become meaningful as well as true by virtue of the meanings of those very terms.

(ii) The second characteristic of analytic sentences, according to proponents of the distinction, is that of necessity.

The notion of necessity, of course, necessitates clarification. But the main relevant feature of necessary statements is that their denial always and everywhere results in a self-contradiction. Analytically true statements, then, are true once and for all, completely independent of all other considerations of matters of fact. Each analytic statement stands in glorious isolation and independence, necessarily true by virtue of meaning alone.

Analytic sentences are supposed to be true at all times, in all places, and for all peoples - such is the force of "come what may" in the formulation of analyticity given above. Leibniz and others have used the equally evocative phrase "in all possible worlds" to convey the same notion. So, for example, here in this world of ours or in any other part of the universe, for Christians, Islamics, Democrats and Communists, it is, has been and always will be true according to the defenders of the analytic-synthetic distinction that no married man is a bachelor, or that the square of the hypotenuse of a right triangle is equal to the sum of squares of the other two sides of that triangle.

Whether the statements of mathematics in general, and/or the statements of geometry in particular, are necessary or not be dealt with in more detail below at various places. However, it has long been understood (some would say misunderstood) that mathematical statements, perhaps including those of geometry, are,

in some sense that is relevant, necessary. It would appear that both Hume and Kant were concerned with reconciling the apparent necessity of mathematics and certain scientific principles (such as the principle of causation) with the empirical methods of the natural sciences. If logical truths are purely formal (conventional) and if mathematics can be reduced to logic, then we have, some would hold, a convenient way of explaining necessity. The necessity of analytic statements could be explained in some analagous fashion. Some, however, have been liberal enough to include the statements of logic and mathematics among the analytic truths. This would, apparently, solve the problem at one stroke.

(iii) The final characteristic of analytic sentences is that they are a priori or rational. Analytic sentences are those whose truth need not depend upon experience. They are known "before" experience, or are learned through reason. Defenders of the distinction frequently invoke the faculty of "intuition" (in a Cartesian sense) to explain how we come to know the truths expressed by analytic sentences.

The arguments in favor of this rational character of analytic sentences are, again, very powerful in an intuitive sense. In this case the tradition is long and noble-extending at least as far back as Plato's epistemology and metaphysics. Lines, by definition, are the shortest distances between two

points and have neither height nor breadth but only length. How, then, is it possible for us to learn anything at all about lines, since that which is one dimensional cannot be seen with the eyes. Therefore every "line" which we can, indeed, see is, in fact, merely a three-dimensional picture or symbol of one-dimensional length. But we do, indeed, know much about lines and linear figures such as triangles, squares and circles. The solution is intuitively clear: we learn of these things through the use of reason; before experience. Sentences which express such rationalistic or a prioristic truths are analytic.

Not only are the truths of mathematics learned through reason. Other supposed truths such as

(9) All men are mortal

cannot be learned through the senses: no one has ever had any experience of "all" men. Yet no one would, normally, deny the truth of (9). How then do we learn (9)? Again, through reason. Is then (9) an analytic sentence? Here we have a slight problem - but it is instructive in learning the theory of the defenders of the analytic-synthetic distinction. Whether (9) is analytic or not, it is clearly not learned through sense experience. So it must be rationally learned. But we must not forget, the defenders of the distinction would urge, that reason may be deductive or inductive. When the defender of the distinction claims that analytic sentences are rationalistic he is specifically referring to deductive as opposed to inductive reasoning. It, then, (9) is

deductively learned or known to be true, then it may be held to be analytic; if, however, it is learned through inductive reason, it is synthetic.

Synthetic sentences are, of course, just the opposite from the analytic ones; they are (i) material (though not purely) and so informative; (ii) they are contingent, i.e., maybe true, maybe false, maybe true today and false tomorrow, etc.; and (iii) synthentic sentences are a posteriori or empirical, i.e., learned or known to be true, if true they be, after and through experience or inductive reasoning. The truth of synthetic sentences is "discovered" while the truth of analytic sentences is "understood" or intuited (in a Cartesian sense).

One final observation worth noting is Gilbert Harman's division of the theory of analyticity into two versions, the weak and the "fullblooded" versions. The weaker version of analyticity is, according to Harman, the version "that identifies the analytic truths as those that are either explicity or implicitly truths of logic."[1] The fulblooded version holds that analytic sentences are true by virtue of meaning alone and finds its ultimate defence in necessity or a prioricity. The argument, according to Harman, is that

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[1]Gilbert Harman, "Quine on Meaning and Existence, I," p. 131.

> . . . all necessary or a priori truth must be analytic, truth by virtue of meaning or knowable by virtue of meaning . . . because . . . a sentence expresses a necessary truth if, given the meaning of the sentence, it must be true no matter what; and a sentence expresses an a priori truth if knowledge of its meaning can suffice for knowledge of its truth.

Such then, in broad perspective is the theory of the analytic-synthetic distinction as most commonly held by supporters of the distinction.

#2 Historical Background

Immanuel Kant was the first modern philospher to use the words "analytic" and "synthetic" as we have been considering them. In Part IV of the Introduction to his Critique of Pure Reason, Kant writes:

> In all judgments wherein the relation of a subject to the predicate is cogitated . . . this relation is possible in two different ways. Either the predicate B belongs to the subject A, as somewhat which contained (though covertly) in the conception A; or the predicate B lies completely out of the conception A, although it stands in connection with it. In the first instance I term the judgment analytical, in the second synthetical. Analytical judgments . . . are therefore those in which the connection of the predicate with the subject is cogitated through identity; those in which this connection is cogitated without identity, are called synthetical judgments . . . the former add in the predicate nothing to the conception of the subject, but only analyse it into its constituent conceptions, which are thought already in the subject . . . the latter add to our conception of the subject a predicate which was not contained in it, and which no analysis could ever have discovered therein. For example . . . 'All bodies are heavy' . . . is . . . a synthetical judgment.[1]

In the present section I would like to show that, although Kant's formulation of the analytic-synthetic distinction was part of an overall effort to reconcile the Rationalists with the Empiricists, and thereby answer Hume's scepticism and explain causal and mathematical necessity, it was, in fact largely responsible for a perpetuation, even unto contemporary times, of

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[1]Immanuel Kant, Critique of Pure Reason, J.M.D. Meiklejohn, trans., (New York, 1969), pp. 30-31.

the rationalist-empiricist controversy, as well as an uncritical family of dualisms which merely have the appearance of doing away with the Humean scepticism.

The rationalist-empiricist controversy began when Descartes tried to discover an indubitable foundation for all knowledge. His solution, the cogito, was subjective and mentalistic and left the problem of how to relate the mental to the physical, the mind to the body.

From Kant's point of view, Hume had the last epistemological word; and that was scepticism. Hume's theory of meaning was to explain everything soley in terms of sense impressions. But Hume's theory of truth, though it could validate some particular assertions regarding physical objects, could make almost no sense of general statements. Specifically, the Humean position could not account for the necessity which seemed to be a part of mathmatics as well as of the physical sciences' appeal to the necessity of causation. Hume's strict impressionism posed a serious problem for him and also for Kant who tried to resolve the problems about incipient scepticism which Hume left in his wake. The problems arose when Hume turned to consider and account for the principles of science (causal necessity) as well as the statements of mathematics. As Schuldenfrei puts it: "It was the necessity in these areas that seemed to present the difficulty, since knowledge of necessity is presumably not

empirical knowledge."[1] Since the time of Plato, of course, mathematics had held a special position as the paradigm of certain and necessary knowledge. The beginning of the scientific revolution in the 15th and 16th centuries led not only to a confirmation of this notion insofar as the seeming necessity of the physical sciences could be quantitatively specified, but also led to the (still wide-spread) popular belief in some kind of physical or natural necessity which the statements of the sciences somehow reflected and embodies. Hume's position was an attempt to solve the problem of how to give an empirical explanation for these two areas of apparent necessity.

That Hume held mathematical truths to be necessary can be seen from his unequivocal declaration in Appendix B of his Treaties:

> Though there never were a circle or triangle in nature, the truths demonstrated by Euclid would forever retain their certainty and evidence.[2]

Hume's account of mathematical necessity dovetails with his account of physical necessity: it's all, so to say, in the mind. His solution lies in his acceptance of ideas as the basic unit of epistemological significance wherein those ideas are

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[1] Richard Schuldenfrei, "Quine in Perspective," p. 7.

[2] David Hume, A Treatise of Human Nature, Book One, D.G.C. Macnabb, ed., (London: Fontana, 1962), p. 354.

derived from sense impressions. In this way Hume accounts for all necessity in terms of a relation of ideas which are distinct from matters of fact:

> Thus, as the necessity which makes two times two equal to four, or three angles of a triangle equal to two right ones, lies only in the act of the understanding, by which we consider and compare these ideas; in like manner the necessity of power, which unites causes and effects, lies in the determination of the mind to pass from the one to the other.[1]

That is to say: ". . . necessity is something that exists in the mind not in objects." This, of course, goes contrary to the popular belief (and one would also suspect contrary to the belief of some sophisticated thinkers also) that necessity, be it physical or logico-mathematical, is somehow independent of the mind of individual man. The reduction of necessity to the subjective tribunal of psychological associations is an open invitation to scepticism if one begins with impressions and ideas. A more sophisticated theory of meaning as well as a better understanding of the process of experience and the relation between experience and theoreticity can overcome the threat of scepticism.

The truths, then, of mathematics as well as the fundamental principles of science were unprovable and therefore, for Hume, illusory. The net result: scepticism which the scientists, fortunately, chose to ignore or scoff at (as did Johnson in his refutation of Bishop Berkeley's idealism by kicking a stone).

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[1] David Hume, A Treatise of Human Nature, Book One, p. 217.

The main goal of Kant's philosophical efforts was to validate "the authority of science and yet perserve the autonomy of morals."[1] The tremendous influence of Kant on almost all modern and contemporary philosophers is partial indication of the degree of his success in achieving that goal. But Kant, along with his immediate predecessors, began with an uncritical assumption that mind is mind; body is body; and never the twain shall meet. This is the element of cartesian dualism which has survived Kant's attempted compromise and come down to us today almost unchanged and unchallenged so that many people would readily agree that mind and body are two clearly distinct, separate and independent sorts of entities, each giving rise to clearly distinct and independent sorts of knowledge: analytical (or rational) and synthetical (or factual).

But Kant did much more than merely introduce the analytic-synthetic distinction. He also identified that distinction with two other distinctions which he inherited from his predecessors (along with the mind-body dualism).

The first distinction was that between what Leibniz

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[1]W.H. Walsh, "Immanuel Kant," Encyclopedia of Philosophy Collier-Macmillan 4(1967): 306.

called "truths of reason" and "truths of fact"[1] and which Hume called "relation of ideas" and "matters of fact."[2] According to both Leibniz and Hume, to deny a truth of reason or a relation of ideas was to involve oneself in a logical contradiction. Therefore, these truths of reason are logically true, whereas matters of fact are not. Moreover, analytic sentences were therefore seen as being necessarily true, by virtue of their relationship to logic, which was also seen as being necessary. By this token, synthetic truths were seen as being merely contingently true and therefore their denials, though perhaps false, were not self-contradictory.

Secondly, Kant associated the analytic-synthetic distinction with the a priori - a posteriori distinction wherein the one distinction cut across the other yielding three distinct types of sentences or truths: (i) analytic a priori; (ii) synthetic a posteriori; and (iii) synthetic a priori. (The fourth possibility, analytic a posteriori, was seen as being impossible and therefore unfilled, by Kant.) The last classification, the

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[1]Gottfreid Leibniz, Monadology, # 33, in Leibniz: Philosophical Writings, G.H.R. Parkinson, ed., and trans., (London: 1973), p. 184.

[2]David Hume, A Treatise of Human Nature, Book One, p. 354.

synthetic a priori, was Kant's solution to the rationalist-empiricist controversy and Hume's scepticism as well as the problem of the validation of morals.

Analytic a priori and synthetic a posteriori truths were commonly enough recognized and accepted by Leibniz, Hume and others. Kant's innovation and attempted compromise, the synthetic a priori, though interesting enough in its own right has found few supporters. But at first, it seemed to work. According to this theory, some sentences - namely mathematical truths and the principles of physical science - are informative and non-empirical; necessary while their denials do not result in self-contradictions. Thus, for example, Kant held that arithmetic involved an intuition (i.e., according to Kantian usuage, "pure sense perception") of time, and geometry involved an intuition of space. When these intuitions were applied to various categories of reason, they delivered the synthetic a priori truths of mathematics. In a similar way, the rational category of cause-effect, when applied to sensed physical objects, resulted, or could result, in the scientific principles that all events are caused.

In this way Kant hoped to show that both reason and experience, mind and body, analysis and synthesis were necessary for any complete explanation of knowledge, including, mathematical and scientific knowledge of necessity: "Thoughts without

content are void; intuitions without concepts, blind."[1]

From almost the very beginning, Kant's attempted compromise was challenged and questioned. Its almost universal rejection left the empiricists, and their modern descendents, the positivists, with the embarrassing problem of explaining, in empirical terms, i.e., in a posteriori and contingent terms, the apparent necessity of mathematics and induction (or science). The struggle was long and difficult, but when it ended, it so happened that the positivists, against whom Quine is most directly reacting, would end up where Kant began: at the analytic-synthetic distinction based on a theory of necessity without mediating compromise of the synthetic a priori. The unique contribution of the positivists was their theory of meaning: the principle of verification.

Kant's theory of the synthetic a priori was, as we have seen, partially intended to account for the apparent necessity of science and mathematics. Now in considering the a priori it seems that we must make a distinction between kinds of necessity. The necessity which is said to be characteristic of analytic statements is logical necessity, i.e., the denial of an analytic statement is equivalent to a self-contradiction.

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[1]Immanuel Kant, Critique of Pure Reason, p. 62.

In the Critique of Pure Reason (B, 3) Kant wrote that necessity is a sign of a prioricity. But, unfortunately, it seems that he did not mean that kind of necessity which characterizes analytic statements or judgments.:

> The criteria of a priori character in a judgment are less clear than the definition of 'a priori judgment'. It is very clear, however, that the necessity which is in all a priori judgments according to Kant is not the logical necessity of analytic ones.[1]

It seems that the necessity of a prior judgments according to Kant, is a kind of psychological necessity, if we take 'psychological' in terms of physiologically specifiable behavior. In other words our physiological structure determines what we c can sense and/or think. This understanding of the synthetic a priori nature of the truth of Euclidean geometry does not in the least preclude the possibility of non - Euclidean geometries. Indeed, it seems to invite such 'non-necessary systems. ("Non - necessary" in the sense that they go beyond - contrary to - the 'normal' way of looking at spacetime.)

An interesting question is whether or not Schuldenfrei is aware of this when he writes "nineteenth-century work in non-Euclidean geometries had weakened its [Euclidean geometry's] claim to be both synthetic and necessary.[2] It may be that

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[1] S. Korner, Kant, (Middlesex: Penguin, 1955), p. 24.

[2] Richard Schuldenfrei, "Quine in Perspective," p. 7.

Schuldenfrei is representative of a common misunderstanding about the nature of the necessity of a priori judgments.

Although Kant intended to apply his theory of the synthetic a priori even to statements of basic arithmetic, it would seem that arithmetic and other non-geometric areas of mathematics continued to be interpreted as necessary in an analytical or logical sense. So although geometry was no longer seen as being necessary, arithmetical necessity still needed accounting for, and this seemed to come with Frege's, Russell's and Whitehead's reduction of arithmetic to logic. Arithmetical necessity was, therefore, explainable in terms of logical necessity.

The necessity of physical causation was accounted for when Comte suggested that causal necessity, among other notions, was just a remnant of metaphysical or pre-positivist (i.e., pre-scientific) thinking.

The final step facing the positivists in the early part of this century was to account for the logical necessity and this was done by evoking the principle of verification:

> The theory of meaning told the positivists that sentences that couldn't be verified had no content. It also told them that, of the sentences without content, some were true (or false) by virtue of linguistic convention or meanings of their terms. Causal statements couldn't be verified and were not true (or false) by convention; so they were metaphysical, just as the positivists wanted. Necessary statements couldn't be verified, but were true by linguistic convention, hence empty and not real knowledge. Thus the fact that there were a priori, did not imply that they were

> a pirori knowledge. Thus the theory of meaning tied up all the loose ends of empiricism - or seemed to . . . the fact that the theory of meaning solved such age-old problems counter-balanced the apparent demeaning of philosophy to an aspect of the theory of meaning.[1]

The positivists' theory meaning, the principle of verification, has been identified, by Quine, as simply another facet of the analytic-synthetic distinction.[2]

The situation, then, does not seem to have progressed much since the time of Kant. We have a distinction of sentences or kinds of truth and two criteria for determining whether a given candidate is an example of analyticity or not: (i) the concept of the predicate is included in the concept of the subject - the criterion of meaning; and (ii) the denial of the analytic sentence results in a self-contradiction - or the criterion of logical necessity or logical truth.

I have tried to show, in this section, that the analytic-synthetic distinction, is in large measure, traceable to the earlier Cartesian dualism or distinction between mind and body. And we have seen that there are many other dualisms or distinctions which have become firmly attached to the analytic-synthetic

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[1]Richard Schuldenfrei, Ibid.

[2]W.V.O. Quine, "Two Dogmas of Empiricism," in From a Logical Point of View, p. 41.

one including the a priori - a posteriori; the necessary and the contingent; and truths of reason and truths of fact (or relations of ideas and matters of fact). Once we allow these distinctions and dualisms, a host of others will come flooding in very easily; form-matter; essence-accident; spiritual-physical (or mental-physical); deductive-inductive; proposition-sentence and so on.

Although they are all closely related, I do not think that they are logically related. Indeed, from a Quinian point of view, nothing is strictly speaking, logically related, since, strictly speaking there is no one correct logic. One could logically construct a theory or systems of beliefs wherein he held the analytic-synthetic distinction yet rejected all other distinctions mentioned above. But, I would like to suggest, even a casual reading of the contemporary literature on the problem will indicate that there is a tendency for the person who accepts the analytic-synthetic distinction to accept many, if not all, of the other distinctions also. This, according to Quine, is bad science and philosophy.

For Quine, all of the distinctions listed above are intuitive and uncritical theoretical points of view. But most important, from the point of view of this thesis, Quine denies any kind of dualism or distinction or difference in knowledge; to hold that some knowledge has content and other knowledge does not, or that some knowledge is necessary and other knowledge is

contingent, or that some is true by virtue of meaning and some by virtue of fact, or that some comes from the reason and some comes from the senses, or that some kinds of knowledge are more certain than other kinds of knowledge is definitely contrary to the epistemology which Quine is suggesting. It is, Quine would hold, intuitive and uncritical and scientifically unenlightening. It is not self-contradictory to hold those distinctions. It is merely bad philosophy.

In the past two sections I have tried to present the andlytic-synthetic distinction as most commonly presented by those who accept it. Obviously there will be many variations in the way the distinction is presented depending on individual thinkers' different theories. In the sections that follow I will present some theories offered by contemporary thinkers in support of the distinction. But mostly I will be concerned with pointing out the weaknesses and difficulties of the distinction as well as Quine's attack on the distinction which I hold, derives primarily from his broader epistemology.

#3 Analytic Sentences as Purely Formal and Non-Informative

Quine's attack on analyticity is on two distinct levels. On the first level he holds that the arguments for the distinction are not convincing or satisfactory enough. What is supposed to be explained is left unexplained. What is supposed to explain does not explain. These arguments follow from Quine's position that the usual formulation of the theory of analyticity, "true, by virtue of meaning and independent of fact, commits one to explanation and clarification. But, Quine insists again and again, all such attempts to explain and clarify the analytic-synthetic distinction leave the boundary between the two far from clear. One reason for this state of affairs is that the attempted explanations are frequently made in terms of a closed family of notions - e.g., synonymy, entailment, inconsistency, etc. - which merely render the proposed definiens in need of as much clarification and explanation as the definiendum. Quine admits that his attacks on this level are "in a somewhat formalistic and unsympathetic spirit"[1] although a perfectly acceptable philosophical spirit.

The second level of Quine's attack is more serious and more basic. He claims that there is simply NO distinction.

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[1] W.V.O. Quine, The Ways of Paradox, p. 138.

It is a non-distinction such as that betwen witches and non-witches.[1] Quine, when he denies the very analytic-synthetic distinction feels that the notion itself springs from an uncritically accepted world view: "My guess is that that Weltanschauung, is more or less attenuated holdover of phenomenalistic reductionism."[2] And this world view, according to Quine, perpetuates a misunderstanding about the relationship between language and the world.

In this and the next section, I will examine Quine's replies to various attempts to explain the analytic-synthetic distinction. After that I will present Quine's case against this world view that sees such a distinction as possible and his own world view which leaves no room for the distinction.

Analyticity as logical truth: Quine allows for two senses of the word "analytic" - a narrow sense which Quine identifies with his own theory (i.e., a non-linguistic theory) of logical truth, and a wide sense which Quine identifies with essential predication, i.e. those true sentences which supposedly, can be turned into logical truths by subsituting synonyms for

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[1]Gilbert Harman, "Quine on Meaning and Existence, I," p. 125.

[2]W.V.O. Quine, The Ways of Paradox, p. 138.

synonyms. Quine has much to say about both senses of the word "analytic."

In the first place, Quine does not accept what he calls the linguistic doctrine of logical truth held by Carnap and others.[1] The linguistic doctrine of logical truth is that a sentence is logically true soley because of the logical language or grammatical structure of the sentence. That is, it is true by virtue of meaning, or by virtue of language, only, without any reference to the way things are in the world. The nature of the world, "facts," has nothing to do with the truth of logical truths.[1]

The linquistic doctrine of logical truth is attractive because of a certain intuitive appeal to the position which contends that even such factual sentences such as "Napoleon won the battle of Austerlitz" are composed of both a factual and a linquistic element. If "won" did not have the sense of win, but say of lose, of if, "in fact," Napolean did not defeat his enemies at Austerlitz, then, obviously, "Napolean won the battle of Austerlitz" would not be true.

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[1] See, for example, W.V.O. Quine, "Truth by Convention," pp. 77-106, and "Carnap and Logical Truth," pp. 107-132, in The Ways of Paradox.

[2] W.V.O. Quine, Philosophy of Logic, p. 95 f.

The defenders of the analytic-synthetic distinction then continue the argument by pointing out that the logically true sentence "Napolean won the battle of Austerlitz or Napolean did not win the battle of Austerlitz" is true purely because of the way we use (mean) our logical words - in this case "or" and "not," and their structural or grammatical (Carnap would say syntactical) relationship.

In "Carnap and Logical Truth"[1] Quine suggests that the intuituve appeal of the linguistic doctrine of logical truth is strengthened by the possibility of alternative logics as well as the unacceptability of the theory of pre-logicality (i.e., an illogical culture cannot be distinguished from a poorly translated culture).

Quine himself, formulates the notion of logical truth as those true sentences which essentially involve only logical words - e.g., "or", "not", "if", "all", etc. - and so which will be true for all re-interpretations of the non-logical words. Quine admits that logical truth depends on the linguistic characteristic of grammatical structure but insists that this in no way commits one to the doctrine that logical truths, are, therefor, true solely by virtue of language or meaning. As Quine points out, if we admit that grammatical structure is

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[1] W.V.O. Quine, The Ways of Paradox, pp. 108-109.

linguistic, so then we should also admit that lexicons are linguistic. If we admit that lexicons are used in talking about the world, we should not forget that grammatical structures are similarly so used:

> A logical truth, staying true as it does under all lexical substitutions, admittedly depends upon none of those features of the world that are reflected in lexical distinctions; but may it not depend on other features that our language reflects in its grammatical constructions rather than its lexicon? . . . Perhaps the logical truths owe their truth to certain traits of reality which are reflected in one way by the grammar of our language, in another way by the grammar of another, and in a third way by the combined grammar and lexicon of a third language.[1]

There is no reason, Quine argues, to explain logical truth solely, essentially, in terms of language or meaning or in terms of no reference to "reality." Or, perhaps, we could say, there is just as much reason to assert the non-linguistic doctrine of logical truth. Indeed, with a behavioristic mechanism we find it possible to keep a workable sense of logical truth without having to adopt the analytic-synthetic distinction; without having to appeal to meaning alone as an explanation.

Quine holds that elementary logic consists of truth-function theory, quantification theory, and identity theory. These three, Quine contends, are characterized by "obviousness" which means that most speakers of the language community would

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[1].V. Quine, Philosphy of Logic, p. 95.

accept the truths of those theories as true, or, failing that, be subject to the accusation of using (meaning) words in strange ways. This obviousness may characterize the logical truth directly or indirectly through the medium of a number of deductive steps, each of which is obviously true in itself. The fact that a person's denial of such obvious logical truths can be explained by the fact that that person is using words in a way different from the rest of the language community does not, Quine insists again and again, in any way imply that such truths are true due to meaning or language alone. Obviousness may as well be ascribed to the way things are in the world as to the ways we use our words. And so the arguments in favor of the linguistic doctrine of logical truth which we mentioned above - alternative logics and the myth or pre-logicality cease to carry any special weight as they can be explained away as just another obvious aspect of the world. Quine neatly sums up his position in the following passage:

> Consider, however, the logical truth 'Everything is self identified,' or '(x) (x=x).' We can say that it depends for its truth on traits of the language (specifically on the usage of '='), and not on traits of subject matter; but we can also say, alternatively, that it depends on an obvious trait, viz., self-identify, of the subject matter, viz., everything. The tendency of our present reflection is that there is no difference.[1]

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[1] W.V.O. Quine, The Ways of Paradox, p. 113.

At this point, Quine is still not offering a counter theory. He is not suggesting that some version of a non-linguistic doctrine of logical truth is somehow more ultimately true or a more accurate picture of the way things are, i.e., the way language and the world are. He is merely saying that it makes no difference, no real sense to insist that some sentences are true only in terms of language or meaning and completely apart from the way things are in the world.

Some defenders of the analytic-synthetic distinction have tried to show that the linguistic doctrine of logical truth is correct by arguing that all logical truth (as well as mathematical truth) is truth by convention - i.e., truth by agreement on how to use language. Quine attacks this thesis most thoroughly in his "Truth by Convention." The general conclusion of this rather technical essay is that the truths of logic presume the truths of logic for their formulation and deduction from the supposed linguistic conventions. Quine argues that this is so because the logical truths are infinite in number and so only general, as opposed to single or particular, conventions can serve as the source of such a conventional logic. Such general conventions, and the logical truths deduced from them, presume the truths of logic or metalogic

> In a word, the difficulty is that if logic is to proceed mediately from conventions, logic is needed for inferring logic from the conventions . . . It is important to note that this difficulty besets only the method of wholesale

> truth assignments, not that of definition. . . .
>
> If the truth assignments were made by one, rather than an infinite number at a time, the above difficulty would disappear . . . This course was seen to be closed to us, however, by the infinitude of the truths of logic.[1]

Another element of logic, according to Quine, is set theory. Set theory is different from other parts of elementary logic insofar as it is not, like them, obvious. In other words, if someone were to deny a sentence in set theory it might be due to the fact there are "many" different versions of set theory each depending upon a wider backgroung scheme or purpose for which that set theory is intended. The logical truths of set theory, then, are not obvious. In determining which of the sentences in set theory to count as true we come very close to something which might be called pure and simple convention. If this is so it would imply that at least part of logic is true purely by virtue of language or meaning, and so, analyticity, albeit in a very restricted sense, may be saved. This aspect of conventionality of set theory derives from the use of postulates which, stated at the outset, determine which sentences to count as true.

Quine's answer to this explanation is to distinguish between legislative and discursive postulation. Legislative

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[1] W.V.O. Quine, The Ways of Paradox, pp. 104-105.

postulation "institutes truth by convention"[1] where convention must be interpreted in a fairly literal and simple-minded way. Discursive postulation simply selects some truths from a given body of truths, to serve as postulates. It is legislative postulation which poses the problem, since it seems to be what the conventionalists "mean" when they say "true by convention." But, Quine goes on, the distinction between legislative and discursive:

> refers to the act, and not to its enduring consequence . . . So conceived, conventionality is a passing trait, significant at the moving front of science but useless in classifying the sentences behind the lines. It is a trait of events and not of sentences.[2]

The truth of sentences postulated legislatively passes immediately into the body of the theory as a whole. What was conventional for a moment at one point, disappears, so to speak, to add substance and form to the theory as a whole. Convention, then, applies to the current events of set theory "but only as attaching to a process of adoption."[3] The truth so postulated is not a lasting characteristic of any one sentence, but of the theory as a whole.

In section VI of "Carnap and Logical Truth" Quine goes

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[1] W.V.O. Quine, The Ways of Paradox, p. 118.

[2] W.V.O. Quine, The Ways of Paradox, p. 119.

[3] W.V.O. Quine, The Ways of Paradox, p. 121.

on to argue, moreover, that the characteristic of legislative postulation, and hence the conventional truth it establishes, is generally observable in the theory construction of all sciences, not just logic and/or mathematics. So, if one were to insist upon the conventional nature of truth in set theory as proof of either analyticity or the linguistic doctrine of logical truth, the net result would be to thereby declare even the sentences of the physical sciences as analytic truths! The truth of sentences which are true by virtue of legislative postulation ceases to be a feature of any one sentence but passes into the interior of the theory and so such appeal to "truth by convention" ceases to have any explanatory of clarificatory sense in the matter of analyticity since one of the significant features of the theory of analyticity is that an analytic sentence, true by virtue of meaning alone, retains its truth in isolation from all other sentences for all time. Subsequent isolation of such sentences does not help the matter any for such subsequent postulation is clearly a case of discursive postulation.

It is sometimes wondered whether it is possible that some sentence or statement be uninformative yet meaningful. Presumably this is meant to imply that some statement, while meaningful, could fail to inform, and if such a statement were true, it might be a good candidate for analyticity.

The intuitive answer to the question is "No." If some statement is uninformative then it can tell us nothing - old or new. But the reason for this answer is not that "inform" and "tell something" or "be meaningful" mean the same thing so that to deny one and assert the other would result in an inconsistency or contradiction. Assuming the strict behavoristic starting point of Quine, we find that the crux of this particular problem is whether any sentence at all can be uninformative. Is it possible for some sentence, say a new theorem in logic, to be uninformative yet tell us something new? This new logical sentence has, presumably, been formulated by someone. Let us also presume that he knows that he has formulated a new theorem in his logic. Now, following Quine's theory of inference or evidence, this simply means that the person who formulated this theorem has extended, according to given rules and postulates, a given lexicon. The new sentence (theorem) informs us, at the least, that it has certain theoretic connections with other sentences in that logic. The logical sentence also tells us something new because no other sentence in the logic has just the connections with the rest of the logic as does the sentence under consideration - unless it is just another token of the same sentence. It might be said, in a loose way, that the new theorem is uninformative in so far as we might not know of any use or application for it. That is, it might be what some people call 'trivially true'. But triviality for all its triteness is

still informative.

There can be, according to the Quinian philosophy, no uniformative and meaningful sentence. A sentence which exhibits a selection mistake, e.g., Carnap's "This stone is thinking of Vienna," might be seen as being uninformative; but then, usually, it will also be seen as meaningless. Note, however, that there are two, at least, circumstances under which such a sentence can be made both informative and meaningful. First, it might be seen as an example of some particular theoretical consideration, as in the present discussion. Its meaning, and therefore informativeness, as with all non-observational sentences, derives from the background collateral information of the accompanying theory. Secondly, it might be interpreted in the light of some theory which gives actual significance to that particular concatenation of symbols. Thus the recent fad of "pet stones" might give rise to such a sentence. Beware, however, the science-fiction syndrone. (Cf. #4).

Analyticity as essential predication: What has been said so far concerning logical truth still leaves the wider sense of analyticity as essential predication unaccounted for. It is in this wider sense of analyticity that we come face to face with the problem of sameness of meaning - synonymy. Prior to addressing this aspect of the problem of analyticity, I think it might be convenient to indicate a point of usage: Quine tends

to reserve the term "logical truth" for the narrow sense of analyticity examined in the first part of this section: namely, in the sense of those true sentences in which logical words (only) appear essentially. Quine then tends to reserve the term "analyticity" for those true sentences in which it is not the case that only the logical words appear essentially - that is, essential predication, which I will examine in this second part of the present section. Carnap and others tend to use the terms "logical truth" and "analyticity" interchangeable - i.e., all logical truths are seen as being analytic, and all analytical truths are logical truths either in themselves or through substitution of synonyms for synonyms. Again, we can see that these formulations of analyticity tend to center around the notion of true "by virtue of meaning or language" alone.

The keystone of the argument for analyticity as essential predication is sameness of meaning. "Synonymy", as we have seen, is one of the family of related words, all equally in need of clarification, none of which, according to Quine, can satisfactorily be called upon to explain any of the others. I will examine some attempts to clarify the notion of synonymy after examining the notion of definition as an attempt to explain sameness of meaning and, thereby, analyticity.

Before I begin to consider definition per se, I would like to make a few general remarks about meaning in general.

To begin with, meaning is not to be confused with naming. Russell's theory of descriptions has clearly shown that although two terms may name the same thing they need not have the same meaning as in the example "Scott" and "the author of Waverly." In contemporary terminology, meaning and naming are frequently referred to as intension and extension.

Quine indicates that the contemporary notion of meaning (intension) is a carry over from the Aristotelian doctrine of essence and accident which underlies the notion of essential predication.

> A real definition, according to the Aritotelian tradition, gives the essence of the kind of thing defined. This defining property is part of the essence of each thing of the kind.[1]

To give a definition (or meaning) of a term (or a thing) is often seen as simply supplying that term's synonym (or that thing's essence). Two terms' being synonymous implies that one can be essentially prediated of the other.

The point of these preliminary remarks is to dispense with meaning as an entity - an intensional object:

> Once the theory of meaning is sharply separted from the theory of reference, it is a short step to recognizing as the primary business of the theory of meaning simply the synonymy of linguistic forms and the analyticity of state-

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[1] W.V.O. Quine, The Ways of Paradox, p. 51.

ments; meanings themselves, as obscure intemediary entitites, may well be abandoned.[1]

Quine, then, begins his attack on analyticity as essential predication by pointing out that the analytic distinction between essential and accidental traits of a given subject is a relative and not an absolute matter. ". . . it makes no sense to say of the actual individual, who is at once a man and a biped, that his rationality is essential and his two-leggedness accidental or vice versa."[2] This particular confusion arose from the fact that, for Aristotle, things had essences. But since the time of the seventeenth and eighteenth century epistemologists, it has been words or ideas that have been considered to have meanings. "meaning is essence divorced from the thing and wedded to the word."[3]

Despite this slippery nature of the traditional notion of meaning, many have felt that they could catch and isolate it through the medium of definition. Many, indeed, are wont to assert that analytic truths, for example "All bachelors are unmarried men," are true because "bachelor" is equivalent in meaning to "unmarried man" by definition; and so the above

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[1] W.V.O. Quine, From a Logical Point of View, p. 22.

[2] W.V.O. Quine, Ibid.

[3] W.V.O. Quine, The Ways of Paradox, p. 51.

example is translatable into the logical truth "All bachelors are bachelors" by substitution of synonyms for synonyms. What, then, does Quine have to say about the notion of definition?

In section 2 of "Two Dogmas of Empiricism," Quine enumerates three kinds of definition: (i) lexicography; (ii) explication; and (iii) explicit convention. Only the first two depend upon an antecedent synonymous usage.

(i) Lexicographical definition: This sort of definition is clearly a blind alley if it is supposed to serve as a possible explanation of linguistic sameness of meaning and, thereby, of analyticity, because the work of the lexicographer is basically that of an empirical scientist. The truths of his research - the dictionary definitions he publishes are synthetic truths. They are scientific hypotheses. The lexicographer merely reports upon accepted usage, as he has observed it, within a given language community; he reports what he discovers to be sameness of usage (meaning) between terms. This is not a clarification of the notion of synonymy but rather an appeal to its antecedent usage.

Quine holds, moreover, that even when the philosopher or the scientist is involved in lexicography, when they "define" or clarify problem terms by paraphrasing them into more acceptable and familiar formulations, they also make use of antecedent synonymous usage rather than explain synonymy.

(ii) Explication: Explication, which Quine refers to as "an activity which philosophers are given, and scientists also in their more philosophical moments"[1] is different from lexicographical definition in that it is not merely an attempt to report an antecedent synonymous usage, but a conscious effort to improve upon the definiendum. Explicative definition is, perhaps, the clearest example of Quinian position that "Definire est eliminare."[2] Indeed, in Word and Object, Quine writes: "explication is elimination."[3] Although explication is not a mere report of antecedent synonymous usage between definiendum and definiens, it does depend upon other antecedent synonymous usage, to a certain degree, while allowing new connotation or formulation never before considered in connection with the explicandum. In this way we are able to draw a parrallel between the metaphilosophy of Quine and Wittgenstein wherein Wittgenstein holds that philosophy is the therapeutic elimination of pseudo problems (and eventually of itself). Explication is the therapeutic elimination of unfavorable contexts of the explicandum. What is claimed in explication is not that the explicans reflects the antecedent synonymous usage of the explicandum, but that the

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[1] W.V.O. Quine, From a Logical Point of View, p. 25.

[2] W.V.O. Quine, Ontological Relativity, p. 78.

[3] W.V.O. Quine, Word and Object, p. 260.

explicans reflects an antecedent synonymous usage of the explicandum in certain, specified, desirable contexts. Therefore, it is not to be wondered at that two different explicata, both equal to their task, may not be synonymous with one another although they are derived from the same explicandum. A paradigm case of explication in this sense is offered by Quine: the case of ordered pairs. There may be many theoretical explications of ordered pairs which conflict with each other in some contexts but which agree in other more essential areas.[1] The essential aspect of ordered pairs is that they were introduced as a means of treating pairs of objects as if they were one. Also they were introduced subject to the postulate: If $\langle x,y \rangle = \langle z,w \rangle$ then x=z and y=w, which Quine calls the law of ordered pairs. But, and this is the important point for this illustration of the process of explication, the normal occurences of " $\langle x,y \rangle$ " or "ordered pair" is limited by those contexts where the law of pairs can be employed. Quine expresses this deficiency of " $\langle x,y \rangle$ " and "ordered pair" by calling them "defective terms." The way to overcome this defective aspect is to add a convention determining desired usage. So, for example, if one were dealing with pure number theory one might adopt Kuratowski's convention and identify $\langle x,y \rangle$ with $\{\{x, \{x,y\}\}$. Then again, for work with complex numbers, Wiener's identification of $\langle x,y \rangle$

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[1] W.V.O. Quine, Word and Object, pp. 259-260.

with $\{\{x\}, \{y, \Lambda\}\}$ might be a more useful explication. Note, however, these two would conflict with each other (as well as with any number of other explications) while remaining faithful to the law of pairs. This leads to the significant point that all of these formulations satisfy the law and so it is senseless to ask which formulation is the correct formulation of $\langle x,y \rangle$.

In all explication, according to Quine, there is a term or linguistic expression which is worth keeping although it is problematic in some aspects of its usage. Explication singles out what is subjectively seen as worth while from the problematical aspects, relegates the latter to the category of "don't cares" and proceeds to clarify - explicatively define - those cases of interest for the matter at hand.

In Word and Object, Quine claims that such explicative activity is paradigmatic of the philosophical spirit of "analysis." The subjective aspect mentioned above is important to emphasize the fact that explication does not "expose hidden meaning."[1] This is important in metaphilosophy. It is not the philosopher's task to discover, say, "what Plato really thought" or "what 'freedom' really means." Such intuitive explications of "analysis" and/or the explicative function of the philosophic activity are impossible to achieve, according to Quine, because they

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[1] W.V.O. Quine, Word and Object, p. 258.

demand an unprofitable committment to essentialism.

Another instructive example of explication that Quine notes is Russell's theory of singular descriptions:

> In the case of singular descriptions, the initial problems are the inconvenience of truth-value gaps in the paradoxes of talking of what does not exist; Russell disolves these problems by showing how we can dispense with singular descriptions, in any problematic sense, in favor of certain uses of identity and quantifiers.[1]

Explication, then, is clearly <u>not</u> preservation of meaning in any intuitive sense.

(iii) <u>Explicit Convention</u>: Explicit convention as definition does not presume an antecedent synonymous usage. It is the outright equation of one linguistic form with another for the sake of convenience and abbreviation:

> . . . the definiendum becomes synonymous with the definiens simply because it has been created expressly for the purpose of being synonymous with the definiens. . . . would that all species of synonymy were as intelligible.[2]

When Ayer declares that analytic statements indicate our determination to use symbols in a given way, I think he is expounding a theory of explicit conventional definition.

Well, then, if this is a case of conventionalism, pure and simple, doesn't that indicate that such definitions are

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[1] W.V.O. Quine, <u>Word and Object</u>, pp. 259-260.

[2] W.V.O. Quine, <u>From a Logical Point of View</u>, p. 26.

"true by virtue of language" only, and hence analytic, logically true (according to the linguistic doctrine of logical truth), as well as synonymous? No. Because what applied to postulation applies also to definition. Explicitly conventional definition is a case of legislative, as opposed to discursive definition. Both, or rather, all definition is a matter of act and not of enduring consequence. The truth which results from the explicitly conventional definition ceases to adhere to the definition itself as soon as the act of adoption is completed; that truth then becomes shared by the theory (for which the explicitly conventional definition was invoked) as a whole including those sentences with no apparent direct connection with the act of explicit convention.

How then are we to account for the apparent sacred inviolability of definition which has such great intuitive appeal when talking about meanings and so on? Quine feels that this intuitive certainty that accompanies definition is a result of the formal use of definition in logic and mathematics. One such formal use of definition is to equate different vocabularies, each fulfulling a certain economy. While one vocabulary is economical on grammatical notion, another is economical on lexicon entries. Formal definition, here is a set of translation rules which allows one to join the two vocabularies in a sort of unified field. As such, formal definition will take one of the three forms of definition listed and explained above.

Another kind of formal definition is implicit definition which Quine defends in "Implicit Definition Sustained"[1] In this essay Quine identifies the formal definition of mathematics with axiomatization or postulation. It serves its purpose in the forefront of mathematics without giving recourse to any analytic-synthetic distinction. It is, of course, another example of legislative postulation.

In a brief and very readable essay, "Vagaries of Definition"[2] Quine divides definition into eliminative and non-eliminative and reserves the term "definition," properly speaking, for the former case. An example of eliminative definition is to define "gorse" as "furze" or "bachelor" as "unmarried man." An example of non-eliminative definition is to define "gorse" as "any of several spiny, thickset shrubs." This is not eliminative because it is more generic and so cannot, satisfactorily, stand in place of "gorse".

Eliminative definition, or definition properly speaking, is divided into two main sorts by Quine: (i) simple definition,

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[1] W.V.O. Quine, The Ways of Paradox, p. 133.

[2] W.V.O. Quine, The Ways of Paradox, p. 50 ff.

and (ii) contextual definition.[1] Simple definition is mere equation of one linguistic form with another. Many lexicographical entries and almost all explicity conventional definitions fall into this category. Other, and also many, lexicographical entries as well as most explication fall into the second category of contextual definition. I will have more to say about contextual definition in later sections.

Having dispensed with definitions as a serious obstacle to Quine's rejection of the analytic-synthetic distinction, we come now face to face with synonymy itlself. Sameness of meaning, most frequently, is explained as interchangeability salva veritate. What does Quine make of this theory?

In the first place, Quine would insist that the problem of substitutivity or interchangeability does not presume only the mode of salva veritate. Rather, the problem of interchangeability cannot be answered until one has answered the question salva quo.[2] Another question which is presupposed by the problem of substitutivity is "In just what sorts of contextual position, if not in all, are the two forms to be interchangeable?[3]

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[1] W.V.O. Quine, and J.J. Ullian, Web of Belief, (New York: Random House, 1970), Chapter II.

[2] W.V.O. Quine, From a Logical Point of View, p. 56.

[3] W.V.O. Quine, Ibid.

In "Two Dogmas" Quine answers the second question by begging the question in favor of an undefined sense of the notion "word". In a latter section I will argue that Quine holds that the proper unit of "meaning" is neither the word (term) nor the sentence, but rather the systematic whole of all scientific theory. For now I will attend to the problem of interchangeability salvo quo.

Now the type of synonymy we are trying to isolate is cognitive synonymy; that is, a type of substitutivity which would allow us to translate sentences of essential predication into sentences of logical truth. Thus, we need, Quine argues, interchangeability salva veritate. Is this kind of interchangeability available to us? Quine answers that it is - but only in an extensional language - that is a language based on an extensional logic. Quine outlines such an extensional language in his "New Foundations for Mathematical Logic"[1] and in "Two Dogmas" he gives us a brief summary of its basic elements:

> . . . an indefinitely large stock of one-place predicates (for example, 'F' where 'Fx' means that x is a man) and many-place predicates (for example, 'G' where 'Gxy' means x loves y), mostly having to do with extralogical subject matter. The rest of the language is logical. The atomic sentences consist each of a predicate followed by one or more variables 'x', 'y', etc.; and the complex sentences

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[1] W.V.O. Quine, From a Logical Point of View, pp. 80 ff.

> are built up of the atomic ones by truth functions ('not', 'and', 'or', etc.) and quantification.[1]

In "New Foundations" Quine uses only one predicate, the two-place predicate of class membership, " $\in$ ".

This language, Quine claims is sufficient to deal with descriptions, singular terms, abstract singular terms, classical mathematics and general scientific discourse, "except insofar as the latter involves debatable devices such as contrary-to-fact conditionals or modal adverbs like 'necessarily'."[2]

Such a language will be perfectly adequate for interchangeability of terms salva veritate, if those terms have the same extension, that is, if they are true of the same objects. Thus not only will "bachelors" and "unmarried men" be seen as synonymous, but so will "creatures with hearts" and "creatures with kidneys," which no ordinary defender of the theory of analyticity would be willing to accept because then the true sentence, "All creatures with hearts are creatures with kidneys" would be seen as analytical since, by substitution of synonyms for synonyms, we could translate it to "All creatures with hearts are creatures with hearts." But, obviously, the truth

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[1] W.V.O. Quine, From a Logical Point of View, p. 30.

[2] W.V.O. Quine, Ibid.

of "All creatures with hearts are creatures with kidneys" is a clear cut example of synthetic truth, that is, truth discovered through empirical experimentation and investigation and not through analysis of the terms involved.

Quine argues that the only way to avoid this problem is to allow for the modal adverb "necessarily". If we do this then we get "Necessarily all creatures with hearts are creatures with hearts" which is true and analytic. We also get, by substitution of synonym for synonym "Necessarily all creatures with hearts are creatures with kidneys" which is false and so, seemingly, the distinction between the analytic and the synthetic is saved. But what is the price to be paid?

The distinction has been saved by presuming the very thing we have been trying to explain - analyticity in terms of synonymy. For such, according to Quine, is the force of "necessarily". To explain analyticity in terms of synonymy, which synonymy presumes analyticity, is what Quine calls an argument which "is not flatly circular. . . . It has the form, figuratively speaking, of a closed curve in space."[1] (In the next section I will devote more space to Quine's arguments against necessity per se.) Quine concludes that to explain, thus, synonymous interchangeability in terms of the modal adverb "necessarily"

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[1]W.V.O. Quine, Ibid.

leads to interchangeability salva analyticitate, not veritate. We are left, then, with an extensional sense of salva vertitate which renders no sentences as analytic, and such sentences as "All bachelors are unmarried men" as merely true.

Some opponents of Quine have approached the problem of sameness of meaning a bit differently under the heading of "equivalence." Grice and Strawson, in their paper "In Defense of a Dogma"[1] argue that:

> two sentences are synonymous if and only if any true answer to the question 'What does it mean?' asked of one of them is a true answer to the same question, asked of the other. . . . if we are to give up the notion of sentence-synonymy as senseless, we must give up the notion of sentence-significance (of a sentence having meaning) as senseless too. But then perhaps we might as well give up the notion of sense.[2]

Quine's response to this argument for sentential equivalence as opposed to term synonymy is in two parts: First of all, equivalence, as Grice and Strawson present it, is merely stimulus-synonymy (See Chapter II #8) and therefore hardly counts as a case of "true by virtue of meaning". Secondly, Quine

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[1]H.F. Grice and P.F. Strawson, "In Defense of a Dogna." in Analytaicity, James F. Harris and Richard H. Severens, eds., pp. 56-75.

[2]H.P. Grice and P.F. Strawson, "In Defense of a Dogma," pp. 61-62.

accuses Grice and Strawson of the fallacy of subtraction.[1] To argue falliciously in this way assumes that all meaningful sentences must have a meaning; and sentences which have meanings, may, obviously, share the same meaning, i.e., have the same meaning. Now Quine argues, just because one denies such notions as "having meaning" and "sameness of meanings" does not give sufficient reason to reject meaningfulness althoghter. Quine's reply to those who argue thus is:

> I remain free to maintain that the fact that a given linquistic utterance is meaningful (or significant as I prefer to say so as not to invite hypostasis of meanings as entities) is an ultimate and irreducible matter of fact; or, I may undertake to analyze it in terms directly of what people do in the presence of the linguistic utterance in question and other utterances similar to it.[2]

Another approach to sameness of meaning is to distinquish, as Harman does,[3] between ordinary talk and philosophical talk about sameness of meaning. Ordinarily, when we talk about sameness of meaning, Harman argues, we tend, in fact, to be talking about similarity as opposed to strict sameness. This similarity depends upon shared background information, whereas philosophical talk of strict sameness of meaning depends solely

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[1] W.V.O. Quine, Word and Object, p. 206.

[2] W.V.O. Quine, From a Logical Point of View, p. 11.

[3] Gilbert Haman, "Quine on Meaning and Existence, I," pp. 135 ff.

upon the notion of meaning. Thus we can easily talk about the similarity in meaning between A and B and between B and C where A and C are seen as not being similar in meaning. This theory seems to receive much support from the behavioristic mechanisms which Quine favors and would adequately cover most ordinary, but not scientific (i.e., philosophic) talk about "sameness" of meaning.

> Conveivably the mechanism of such recognition of similarity when better understood, might be made the basis of a definition of synonymy and analyticity in terms of linguistic behavior. On the other hand such an approach might make sense only of something like degrees of synonymy and analyticity.[1]

What Quine is saying here harks back to his holistic theory of meaning as presented in "Two Dogmas," et al. True sentences which are linguistically anchored to the very center of the fabric of knowledge have a more legitimate claim to "analyticity" just as those sentences on the very edge of experience have a more legimate claim to "meaning". But the absolutes of "analyticity" and "meaning" are merely conveniences.

Hilary Putnam, in his paper "The Analytic and the Synthetic"[2] presents an interesting notion which, in some respects

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[1] W.V.O. Quine, The Ways of Paradox, p. 129.

[2] Hilary Putnam, "The Analytic and the Synthetic," in Minnestoa Studies in the Philosophy of Science, V. III, pp. 358-397.

come close to Quine's theory. Putnam feels that the analytic-synthetic distinction is a real distinction, although very trivial. He feels that the Quinian denial of the distinction is philosophically more useful than those defenders of the distinction who give it too much weight. In the next few paragraphs I would like to introduce these notions of Putnam's which will be resolved when I present Quine's theory of stimulus-meaning in Chapter II #8.

Putnam begins by introducing the notion of a <u>law-cluster</u> concept, e.g., "energy: which "centers into a great many laws. It plays a great many roles, and these laws and inference roles constitute its meaning collectively, not individually."[1] Putnam indicates that most of the theoretical terms of the sciences are such law-cluster concepts and that we should be wary of anyone who claims that all sentences containing such terms are analytic sentences. So far, so good, from the Quinian point of view. Such law-cluster terms would be similar to what Quine calls theoretical terms (e.g. "momentum") as well as observational terms (e.g., "Indian nickel). Like Putnam, Quine feels that the use of such terms, which may enter a theory through definition, could change in the face of recalcitrant experience. Such change in usage could be interpreted as a change in belief

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[1]Hillary Putnam, "The Analytic and Synthetic," p. 379.

as well as a change in meaning.

Putnam goes on to indicate that such terms as "crow" and "man" differ from law-cluster concepts in that they unite, not a cluster of law, but a cluster of properties, none of which is seen as essential. Again, this seems to parallel Quine's discussion of non-theoretic but highly observational terms such as "rabbit" or "red".

Putnam's divergence from the Quinian position is in his treatment of "bachelor" which Putnam considers a non-cluster concept. Unlike "energy", "bachelor" is immune from definitional revision because

> . . . there are no laws underlying our use of the term 'bachelor' . . . there are no exceptionless laws of the form "All bachelors are . . . ' except 'All bachelors are unmarried', 'All bachelors are male', and consequences there of. . . . preserving the interchangeability of 'bachelor; and 'unmarried man' in all extensional contexts . . .[1]

Putnam's relation to Aristotelian essentialism is seen when he declares that there is one single aspect, the legal sociological one, governing the use of "bachelor". But this is just not the case. That there is one single aspect governing the use of the term "bachelor" can be questioned on at least two

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[1]Hillary Putnam, "The Analytic and the Synthetic," p. 384.

counts. First of all, the single legal sociological aspect may be seen as governing the use of the term "bachelor" precisely when "bachelor" is used to refer to unmarried males, and not holders of an academic degree. Secondly, I contend, that there may be other aspects governing the use of the term beyond the legal sociological one. Thus, for example, although, legally, a celebate priest is a bachelor, we do not frequently refer to priests as bachelors because "bachelor" carries with it the weight of "open to marriage". Thus witness the term "Confirmed bachelor".

#4 Analyticity as Necessity or a Prioricity

In my treatment of analyticity, I have been following Harman in dividing the theories of analyticity into the weak and the "full-blooded." In the previous section I considered the weaker version of the theory under the heading of logical formality, and in the present section I will consider what Harman calls the stronger version of the theory under the heading of the notions of necessity and a prioricity.

Ever since Kant and his attempt to assert the existence of a class of propositions which were both synthetic and a priori, there has been much debate as to whether a prioricity presumes necessity or vice versa. From the Quinian point of view, of course, the whole debate resembles that over whether or not some witches are, indeed, good as opposed to evil; that is, it is a debate resulting from an over zealous distinction. Quine's summary of the contemporary situation regarding this matter comes out in what appears to be sole reference to the a priori in his major work, Word and Object:

> philosophical tradition hints of three nested categories of firm truths: the analytic, the a priori, and the necessary. Whether the first exhausts the second, and the second the third, are traditionally matters of disagreement, though none of the three has traditionally been defined in terms of detectable features of verbal behavior. Pressed nowadays for such a clarification, some who are content to take the three as identical have responded in this vein: the analytic

sentences, are those that we are prepared to affirm come what may.[1]

This view has been confirmed in my researches on the subject and Ayer goes so far as to identify a prioricity and necessity: ". . . to speak of a proposition as being a priori will come to the same as saying that it is true or false by one or other form of logical necessity."[2]

So, since the three notions of analyticity, necessity, and a prioricity are so closely associated, and since it is not my intention to defend either the notion of analyticity or its association with the other two notions, I will, in this present section, confine myself mostly to a consideration of necessity and hope thereby to further clarify Quine's position in rejecting analyticity altogether.

The argument for analyticity in terms of necessity or a prioricity hinges around the notion of meaning. Again, Quine insists that all such appeals to "true by virtue of meaning" fail to explain what the theory sets out to explain. To say that a sentence is necessary usually means, according to the defenders of the analytic-synthetic distinction, that given the

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[1] W.V.O. Quine, Word and Object, p. 66.

[2] A.J. Ayer, Some Central Questions of Philosophy, (middlesex: Penguin, 1973), p. 200.

meaning of the sentence alone, that sentence must be true come what may or no matter what. In other words its denial is a self-contradiction. The crux is the phrase "come what may". A sentence is seen to be a priori if simply the knowledge of the meaning of that sentence can account for the knowledge of its being true. The crux here is the phrase "simply the knowledge of the meaning of the sentence" which implies that no reference to the way things are in the world need be made.

The most frequently advanced test for the necessity or a prioricity, and therefore analyticity, of a sentence, is whether or not one can conceive of its not being true. Theoretically, if one can so conceive of a situation which would imply a sentence's being false, then that sentence is synthetic or non-analytic. Quine's position is simply that we can conceive of any sentence as failing to be true:

> Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. . . . Conversely, by the same token, no statement is immune to revision. Revision even of the logical law of the excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superceded Ptolemy, or Einstein Newton, or Darwin Aristotle?[1]

If we insist, in other words, that "No bachelor is a married man" is true, come what may, Quine will respond "What do you say of the truth of that statement in the situation

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[1] W.V.O. Quine, "Two Dogmas of Empiricism," p. 43.

where you meet a married bachelor?" Grice and Strawson hold that to ask such questions along with the rejection of attempts to explain "analyticity", "necessity", "a prioricity", etc. in terms of each other constitutes a refusal to understand the distinction between the purely verbal and the merely empirical - the analytic and the synthetic. This appears to me to be a clear example of an ad hominem argument, and like all such arguments, it need not delay us longer.

However such insistence on the "come what may" aspect of necessity, has led to another more wasteful trend among contemporary thinkers, especially those taken up with the cogency of the Quinian position, and that is the trend which I call the "science fiction syndrome" which Quine, rightly, I feel, inveighs against.[1] An example of this kind of argument can be found in Edward S. Shirley's "Putnam on Analyticity":

> Suppose that super-intelligent, man-like, but non-human beings from, say, Mars pay the Earth a visit, and that some of our women find them attractive. Then we would, I believe, understand the question of a young lady was raising if she asked whether one of them was a batchelor. We can even assume that they have a social institution similar to our institution of marriage. One might argue that in such a case she would not be using 'batchelor' in its literal sense, but figuratively. But how can we know this? how can we know that she has changed the meaning of

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[1] W.V.O. Quine, review of Milton K. Munitz, ed., Identify and Individuation, in Journal of Philosophy, LXIX 16, 197.

'batchelor' rather than simply abandoned the belief that all batchelors are men (i.e. human)?[1]

So much for "true, come what may"!

We saw in the previous section that attempts were made to explain analyticity in terms of the linguistic doctrine of logical truth by making an appeal to "truth by convention." Some thinkers make a similar appeal to convention in order to support the notion of logical necessity. The arguments of Quine, as outlined previously, suffice in the present situation also. But there is a further aspect of conventionalism which is worth noting. Even if it were true that the conventional assignment of truth values determined meaning, that is, even if a sentence is "true by convention," it does not follow that the sentence is, indeed, true. This is so, Quine argues, because the notion of convention cannot, practically speaking, be distinguished from that of postulation. Just as we postulate meaning in the physical sciences ('momentum", "neutrino", etc.) not all physical theories are true, and what was postulated at one point may be revised at a latter point without making appeal to a change in meaning. Likewise, Quine, insists, for logical and metamathematic truth or postulation.[2] To attempt to explain "necessary

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[1] Edward S. Shirley, "Putnam on Analyticity," Philosophical Studies, 24, 4, July, 1973.

[2] W.V.O. Quine, "Truth by Convention," pp. 101-102.

truth" by an appeal to convention or postulation is to fail to make the distinction between legislative and discursive postulation, as well as to fail to notice that postulation is a passing trait of the act of adoption and not a lingering trait of any given sentence.

It should not be terribly surprising that the connection between analytic truth and necessary truth, namely meaning, derives from the confusion of the Aristotelian doctrine of essentialism and the "metaphysical jungle"[1] which accompanies it.

Aristotle, in fact, drew two parallel distinctions between the essential and the contingent on one hand, and the necessary and possible on the other. The first distinction was held, by Aristotle, to be absolute, whereas the second distinction was merely relative.

The first distinction, so the theory goes, derives from the ways things are in the "real" world, that is to say the world of "natural kinds". According to this theory, things are, naturally, grouped into objective kinds according to the essences of the various kinds. The essence of a thing is its "whatness", that which makes it what it is and not something else of a

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[1] W.V.O. Quine, The Ways of Paradox, p. 176.

different kind. It is, in effect, nothing more than the Platonic Form or Idea taken from the realm of the Platonic heaven and inmeshed in the "inner reality" of each kind of thing. That which did not pertain to the essential aspect of a given kind, pertained to its properties or its contingent accidental aspect. Thus, man, the class, is essentially distinguished from other animals because of its essential trait of rationality, whereas such qualities as "being able to laugh" or "fat" are seen to be merely contingent. The logical art of definition, i.e., the classification of things according to their categories and classifying predicates (the theory of predicables), would enable one to isolate the essence of any given kind. In this way, so the theory goes, one could gain objective knowledge of the world; the resulting truth of statements reflecting such knowledge was absolute, undeniable truth. A fine theory as far as theories go except for one thing: it dosen't work.

On the other hand, the necessary-possible distinction was seen to be a relative trait of related statements. More specifically, the relation between a premise and a conclusion of a logically valid deductive argument was considered necessary; of an invalid argument, only possible.

As we saw in the previous section, the real modern problem of meaning began when, in the seventeenth and eightteenth centuries, the rationalist and empiricist epistemologists

divorced essence from the external "objective" world of natural kinds, and applied it, instead to the realm of ideas, concepts, or what nowadays we call meanings. This change caused a confusion, and now necessity, not essence, was opposed to contingency, and the distinction was absolutely interpreted. This absolute distinction was then enhanced by Kant with his doctrine of the analytic-synthetic distinction and its relationships to the necessary-contingent and a priori - a posteriori distinctions. It has come down to contemporary times as "an unempirical dogma of empiricists, a metaphysical article of faith."[1]

How does Quine analyse/explicate the problem of necessity? First of all, he grants, for the sake of argument, that there are two types of necessity: (i) physical or natural necessity, and (ii) logical or mathematical necessity.

Physical necessity can be explained in terms of generality or regularity of experience: Hume's uniform nature. On this point, also, Quine and Hume are in agreement: There is no necessity in matters of fact. "Necessarily", as it is used in the realm of the physical sciences, reduces to "If . . . then . . .", according to Quine. The conditional, for example, "If this is a leopard, then it has spots," is supported by the antecedently accepted generalization "All leopards have spots,"

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[1] W.V.O. Quine, From a Logical Point of View, p. 37.

and the conditional is merely an instance of the general truth.

If Quine's analysis of natural necessity at this level is correct, we can see immediately that such necessity does not properly refer to events or states, but rather to conditioned connections. In other words, Quine is denying the theory of Aristotelian essentialism. "Necessarily is a condensed way of saying that a sentence follows from or is compatible with some fixed premise understood as background."[1]

A special case of physical necessity is that of disposition. Dispositional conditionals - if this lump were placed in water it would dissolve - demand "a necessity that goes beyond mere generality over time."[2]

The necessity of the disposition terms, e.g., "soluble," depends upon a background of "full-blown theory"[3] as opposed to mere generalization. The theoretical background of the physical necessity of disposition terms takes the form of an explanation, a mechanism, usually in terms of physical structure. In the case of "soluble" this mechanical explanation takes the explicit shape of the atomic structure of the chemicals involved: sub-

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[1] W.V.O. Quine, Word and Object, p. 195.

[2] W.V.O. Quine, The Ways of Paradox, p. 71.

[3] W.V.O. Quine, The Ways of Paradox, p. 72.

stances with a particular atomic structure react in a certain sort of way when placed in water. Thus, we can see, that dispositional conditionals, ultimately, also rest upon an observed generality or regularity, but demand, in addition, a theoretical explanation.

Quine calls disposition terms "promissory notes"[1] which posit an explanatory mechanism as a general or regular background feature to support the dispositional necessity. The explanatory mechanism may not be apparent, as in the case of "intelligent", or may change and develop depending upon the current state of science as in the case of the disposition of metals to conduct heat which was at one time explained by the false theory of phlogiston but is now explained by the, presumable, true mechanism of electrons.

> In general, when we say 'If x were treated thus and so, it would do such and such', we are attributing to x some theoretical explanatory trait of cluster of traits. Typically these would be traits of microscopic structure of substance. Sometimes analytically discernable in all explicitness, by specialists if not by us, as in the case of solubility. Sometimes they are envisioned only as some day describable.[2]

The second kind of necessity which Quine examines is logical or mathematical necessity, which is usually explained as that feature of making sentences true by virtue of definition

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[1] W.V.O. Quine, Ibid.

[2] W.V.O. Quine, The Ways of Paradox, p. 73.

or meaning. It is here, supposedly, that analytic sentences come in. An example of such a truth by definition is that momentum is proportional to velocity.

According to Quine, the weakness of this position is the fact that in the face of recalcitrant experience, the scientist is confronted with the falsity of his theory as a whole and not with the falsity of any one sentence or definition. He is free to choose where to modify the theory in order to account for the recalcitrant experience. We have seen how the truth of legislative definition passed into the body of the theory. Now, when faced, say with an unrealized prediction, the scientist may decide to save the bulk of his theory by changing a sentence which was, upon its adoption into the theory as a whole, seen as being "necessary" by virtue of definition. And so, for example "he makes momentum proportional instead to, say, velocity divided by one minus the ratio of that velocity to the speed of light . . ."[1]

Here we have a crystal clear case of a change in definition which is normally interpreted, by the scientists, as a change in belief and not in meaning. The same situation holds, Quine asserts, throughout the whole of science - logic and mathematics included, and not excepting supposed analytic truths

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[1] W.V.O. Quine, The Ways of Paradox, p. 74.

about bachelors, or supposed synthetic sentences about rabbits.

Quine, therefore, refuses to acknowledge any special sense of "necessity" for the realms of logic and mathematics because he attaches "no relevance to the status of definition."[1] To dispense with definition and return to the redundant, e.g., "mass times velocity is proportional to velocity," does not save the situation. It merely brings us face to face with what we have been trying to explain all along, analyticity. Quine indicates that the tendency to interpret such sentences as necessary is partly a result of a tendency to make another distinction parallel to the analytic-synthetic, namely, that between the theoretical and the practical or empirical. We tend to make a sharp division between pure mathematics on the one side and physics and the other natural sciences on the other. This, Quine argues, is a matter of nomenclature:

> Boundaries between disciplines are useful for deans and librarians, but let us not overestimate them - the boundaries. When we abstract from them, we see all of science - physics, biology, economics, mathematics, logic, and the rest - as a single sprawling system, loosely connected in some portions but disconnected nowhere. Parts of it - logic, arithmetic, game theory, theoretical parts of physics - are farther from the observational or experimental edge than other parts. But the overall system, with all its parts, derives its aggregate empirical content from that edge; and the theoretical parts are good only as they contribute in their varying degrees of indirectness to the systematizing of that content.

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[1] W.V.O. Quine, The Ways of Paradox, p. 75.

In principle, therefore, I see no higher or more austere necessity than natural necessity; and in natural necessity, or our attributions of it, I see only Hume's regularities, culminating here and there in what passes for an explanatory trait or the promise of it.[1]

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[1]W.V.O. Quine, The Ways of Paradox, p. 76.

#5 Analyticity as Reductionism

In the previous two sections I was concerned with various attempts to explain the analytic-synthetic distinction and with how those attempts have failed. But this alone is not enough to establish the Quinian position that there is no distinction at all. It just might be that although the distinction does in fact exist, no one has, to date, been able to formulate it satisfactorily. If Quine's negative attack on the failure of proposed explanations were all there to his position, it would, indeed, be a tenuous - albeit an interesting - position. But there is a more positive side to the Quinian position.

This present section will be a sort of turning point between the negative and the positive aspects of Quine's attack on the doctrine of analyticity. The theory of reductionism is still another attempt at explaining the distinction. (More accurately, we might say that it presumes the distinction; as we shall see, Quine feels that analyticity and reductionism are, at heart, one and the same.) In responding to the theory of reductionism, for the first time we get a clear indication of the deeper philosophy of Quine and to which I have alluded in previous sections. In the next section I will pursue that philosophy directly so as to give greater plausibility to Quine's attack on the analytic-synthetic distinction.

The verification principle: Reductionism, simply put, is nothing more than the contemporary logical positivist principle of verification, especially as espoused by such thinkers as Carnap, Ayer, and Hempel.[1]

Historically speaking, reductionism goes back at least as far as Locke, Berkeley, and Hume, the seventeenth and eighteenth century empiricists who held that all knowledge must be reducible to sense experience. In more contemporary, and less radical, parlance thinkers are wont to say that for a statement to be considered meaningful, it must be able to be translated, ultimately, into a statement about some immediate experience. This is what Quine calls radical or naive reductionism.[2] But contemporary reductionists also admit of another class of meaningful, though non-informative, statements or sentence, namely, the analytic truths including the truths of logic and mathematics. Contemporary reductionism, then, demands the analytic-synthetic distinction.

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[1]One must be careful to distinguish between this doctrine of the verification principle and the pragmatic doctrine of the verification theory of meaning mentioned above on pages 4-5. These two are similar but not the same. The pragmatic doctrine makes no claim concerning the analytic-synthetic distinction.

[2]W.V.O. Quine, From a Logical Point of View, p. 38.

Since we are concerned with an explanation of analyticity in terms of sameness of meaning, Quine suggests that we examine the relationship between the verification principle and synonymy. The first thing to note is that the verification principle is applied to statements and not to terms. Quine considers this no major problem since sufficient sense can be made of the notion of term synonymy for the needs of the verification of principle. However, the distinction between term-synonymy and sentence or statement-synonymy is interesting both historically and because Quine's own position as a whole as we shall see when I present Quine's own theory of meaning.

According to the verification principle, two statements are the same in meaning if their empirical verification (or falsification) is the same. Quine argues that it is less than obvious what the notion of sameness of confirming or disconfirming experience for two given statements implies. According to Quine, this is the normal state of affairs; hypotheses come before the tribunal of evidence not as single sentences or statements, but as whole groups of interconnected and inter-supporting sentences even including the laws of logic which underlie all the various sentences. Are we then to infer that all those different hypotheses mean the same? This is a problem that the reductionist must explain away.

Redical reductionism would reduce all non-analytic

meaningful sentences to bare reports of sense experience which would or could be then verified (or falsified) by making a direct appeal to the evidence of immediate experience. This theory is by no means new. It goes back to Hume's theory of sense impressionism: everything could be reduced to sense impressions - everything that was "real" or meaningful, at least. So, for example, when Hume came to consider the physical sciences, he answered the conceptual problem (the theory of meaning) concerning physical bodies by an outright identification of physical objects with sense impressions.[1] Man, for Hume, is a "bundle of impressions." From sense-impressionism, it is only a short step to either phenomenalism or sense-dataism. All of these forms of radical reductionism, as well as the more contemporary less radical versions are held, by Quine, to be inadequate because of the basic position that our knowledge of the external world is underdetermined by sense experience. This piece of paper is more than white to the sight, crackly to the ear when crumpled, and smooth to the touch, (and more than its odor and taste for those who seek complete sensory knowledge of the paper). There is time-space to be considered also. And even Carnap's quadruples of real numbers used to identify spatio-temporal point instants seem to fail to justify reductionism. Sensory underdetermination is the deeper meaning of Quine's call that we

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[1] W.V.O. Quine, Ontological Relativity, p. 71.

begin with ordinary things - middle-sized objects. We don't begin, as Hume and even Carnap in his Aufbau would have us begin: with an exhaustive specification of sensory experience. And even if we did, we would not be able to get very far in our task of seeking knowledge, scientific knowledge. Indeed, such exhaustive specification is, according to Quine, impossible; there is no "fancifully fancyless medium of unvarnished news."[1]

Quine, of course, is not rejecting his empirical or positivist starting point. Rather, like all good positivists, he insists that we tie down all our sentences, our entire theoretical system (including logic and mathematics) to experience. But he also insists that the task of reductionism must always fall short of perfection and that no sentences confront experience individually (with the exception of observation sentences, which are fewer than most people would tend to think). We might observe that, for Quine, all good philosophy, like all good epics, begins in medias res; i.e., with middle-sized physical objects of common everyday experience, not with bare color, sound, odor, taste and texture.

There is no presuppositionless philosophy or science or knowledge. Pure objectivity, Descartes' ignis fatuus, is an incommunicable, and therefore non-cognitive, goal, if, indeed,

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[1]W.V.O. Quine, Word and Object, p. 2.

it is possible at all. In philosophizing, or in any other systematic conceptualizing or theorizing, we find ourselves already on Neurath's ship which we must rebuild while afloat. It is no use asking how we got there and it is no use trying to specify the final form of that repair. We cannot say what science is and then do it. Rather we do science first and then stepping back say what we have done. Then utilizing our new insight we undertake a continuation of the same task. And so science evolves over the ages. Repair of the ship while it is afloat, improvement in the sciences, begins, like a dream or an epic, in the middle of an already dimly, but not completely, understood story: our presuppositions. As philosophers and scientists, we try to improve this germinal understanding fully realizing, if we are honest with ourselves, that no matter how well we do our job, there will still be more work to be done when we have done all we can do. No matter how much we strengthen and explain our initial pre-suppositions, we can never fully prove or explain them without some recourse to still more basic hypotheses. Quine is no stranger to the Aristotelian dictum that it is the sign of a foolish person to hope to prove everything. The so-called synthetic sentences cannot be fully explained by an appeal to experience; science is not fully objective:

> . . . it is meaningless . . . to inquire into the absolute correctness of a conceptual scheme . . . Our standard for appraising basic changes of conceptual scheme must be, not

> a realistic standard of correspondence to reality but a pragmatic standard.[1]

Quine is explicit: what confronts experience is not the supposed synthetic sentence in solitary splendor but the conceptual scheme, a group of sentences including the supposed analytic truths of logic and mathematics which make up the conceptual scheme stand together. There is, then, no distinction between analytic and synthetic.

Historically, one of the problems with the sensedataist formulation of empirical verification, i.e., radical reductionism, was that it tied down the process of verification to terms. This condemns us to the prison of the ideational theory of meaning, strengthens the intuitive and uncritical acceptance of the mind-body dualism, and poses such insuperable problems as finding a sense verification for such terms as "sake" and "than".

The situation first began to improve with Bentham's theory of fictions which Quine refers to frequently as the beginning of the use of contexts to define. According to this theory, terms need not be treated in isolation but may be seen as syncategoremata.[2] Quine sees this as the historical beginning of a shift away from the term or the word as the basic unit of

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[1] W.V.O. Quine, From a Logical Point of View, p. 79.

[2] W.V.O. Quine, The Ways of Paradox, p. 54.

meaning. Quine traces the history of contextual definition from Bentham to Frege, where, Quine claims, it appears explicitly, down to when "it attained its full flower in Russell's doctrine of singular descriptions as incomplete symbols."[1] The sentence had thus been shown to be the basic unit of meaning. Indeed, many of the formulations of the verification principle were made in terms of sentences. However, even as late as 1956, Carnap, in the second edition of Meaning and Necessity, continues to place the emphasis on the term.

Quine feels that the most serious and successful (though ultimately inadequate) attempt to radically reduce meaningful statements to reports of sense experience, while retaining the analytic-synthetic distinction, was done by Carnap in his Aufbau, (1928). Carnap's starting point was more than mere sense experience in that it included a host of logical notions which led Quine to comment, "Empiricists there are who would boggle at such prodigality,"[2] It was in this work that Carnap utilized his quadruples of real numbers to pinpoint spatio-temporal instants. But despite a certain initial success in defining certain sensory concepts, Quine tells us that in the end even Carnap realized the futility of his efforts:

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[1] W.V.O. Quine, Ontological Relativity, p. 72.

[2] W.V.O. Quine, From a Logical Point of View, p. 39.

> . . . in his later writings he abandoned all notion of the translatiability of statements about the physical would into statements about immediate experience. Reductions in its radical form has long since ceased to figure in Carnap's philosophy.[1]

In Logical Syntax (1934), according to Quine, Carnap offered a milder version of the theory of analyticity based on the notion of meaning postulates. But as we have seen Quine has offered serious objections to this proposed solution and so we still remain far from clear on the matter of analyticity itself, and the theory of reductionism, i.e., the verification principle, as a means of isolating the non-analytic from the synthetic statements.

It has been held by some that the verification principle is no longer considered a serious alternative. Even so staunch a supporter of the principle, A.J. Ayer, concludes a summary of the principle in the following plaintive manner: "Attempts have since been made to emend the criterion . . . but none of them has so far been successful."[2] However, if the verification principle has been shunted to one side, reductionism still haunts us in more subtle forms. The notion lingers on in the intuitively accepted doctrine of empiricism that for each synthetic

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[1] W.V.O. Quine, From a Logical Point of View, p. 40.

[2] A.J. Ayer, The Central Questions of Philosophy, p. 22.

sentence or statement there are two groups of significant sense experiences. One group of experiences adds to truth of the statement and one group of experiences detracts from the truth of the statement. The important notion here is that sentences or statements face experience singly:

> The dogma of reductionism survives in the supposition that each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all. My counter suggestion, issuing essentially from Carnap's doctrine of the physical world in the Aufbau, is that our statements about the external world face the tribunal of sense experience not individually but only as a corporate body.[1]

In this Quine, admittedly, follows the theories of Duhem.

On the relationship between reductionism and analyticity, as well as a summary of Quine's position, I would like to quote at length from the conclusion of part 5 of "Two Dogmas":

> . . . as long as it is taken to be significant in general to speak of the confirmation and infirmation of a statement, it seems significant to speak also of a limiting kind of statement which is vacuously confirmed, ipso facto, come what may; and such a statement is analytic.
>
> The two dogmas are, indeed, at root identical. We lately reflected that in general the truth of statements does obviously depend both upon language and upon extralinguistic fact; and we noted that this obvious circumstance carries in its train, not logically but all too naturally, a feeling that the truth of a statement is somehow analyzable into a linguistic component and a factual component. The factual component must, if we are empiricists, boil down to a range of confirmatory experiences. In the extreme case where the linguistic component is all that matters, a true statement is analytic. But I hope we are now impresses with how stubbornly the distinction between analytic and synthetic has

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[1] W.V.O. Quine, From a Logical Point of View, p. 41.

> resisted any straight-forward drawing. I am impressed also . . . with how baffling the problem has always been of arriving at any explicit theory of the empirical confirmation of a synthetic statement. My present suggestion is that it is nonsense, and the root of much nonsense, to speak of a linguistic component and a factual component in the truth of any individual statement. Taken collectively, science has its double dependence upon language and experience; but this duality is not significantly traceable into the statements of science taken one by one.
>
> The idea of defining a symbol in use was, as remarked, an advance over the impossible term-by-term empiricism of Locke and Hume. The statement, rather than the term, came with Bentham to be recognized as the unit accountable to an empiricist cirtique. But what I am now urging is that even taking the statement as unit we have drawn our grid too finely. The unit of empirical significance is the whole of science.[1]

Empiricism without the dogmas: We are by no means finished with analyticity and its mirror image, reductionism. The constrast between term-synonymy and sentence-synonymy has not yet been dealt with. Furthermore there are arguments in favor of analyticity which can be best dealt with in terms of Quine's theory of stimulus-meaning, which I will present in section #8. For the present I would like to make a few remarks about some of the implications of a theory of knowledge which does not admit of the analytic-synthetic distinction.

Science, or knowledge, or belief, is a vast unified whole held together by logical and casual relations. Only along the periphery of experience - the edge of the fabric of know-

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[1] W.V.O. Quine, From a Logical Point of View, pp. 41-42.

ledge - does any statement, by itself, come into immediate contact with experience. But a recalcitrant experience along the edge will have an influence upon the fabric as a whole - perhaps even to the laws of logic. But Quine is careful to point out that this fabric is man-made and therefore when confronted with recalcitrant experience the scientist or philosopher has the freedom of choosing where to make the necessary readjustments. As we have seen above, though, there are no statements immune to revision, if we are willing to make enough change elsewhere in the system. Whether such wholesale change is called for will be considered in the next section, for now we can simply observe that the tendency is to disturb the system as a whole as little as possible. What this generally means is that sentences which stand close to the edge of experience which confront recalcitrant experience are, most normally, accomodated by revising these statements themselves rather than delving deeper into background theory for an explanation. We can, then, imagine a graded series of sentences extending from the edge of the fabric into the tightly knit interior. The former are those with higher empirical content; the latter with a higher theoretical content. A quick or superficial glance might lead us to the conclusion that the former are synthetic and the latter analytic; but that would simply be inexact and unprofitable thinking - suitable for the market place of daily life but out of place in the laboratories and arm-chairs of scientists and philosophers.

Even the conceptual scheme as a whole may be tossed out in some grand copernican revolution of science. This is so because, as we have seen, the conceptual scheme, as a whole, is objectively underdetermined. In fact, according to Quine, the conceptual scheme is primarily a tool used to explain the past and predict the future of experience. Epistemologically, the difference between Homeric gods and physical objects is only a matter of degree. Functionally speaking they are the same. Pragmatically speaking they differ in that physical objects seem to work better in explaining and predicting; but that is so only for the physical scientist and the philosopher. How many are those who "pray" to the little god in their automobile to ensure that it will start on a cold morning rather than force them to fumble around with something they know nothing about!

Gods and physical objects of a middle sized variety are not the only posits made in the name of usefulness. We also posit macroscopic and microscopic entities and even abstract entities of mathematics and semantics in order to simplify theory and therefore enhance explanation and prediction. But in all this positing we can work perfectly adequately without making any appeal to meanings as an extralinguistic entity or analytic sentences true by virtue of such meanings.

> Epistemologically these are myths on the same footing with physical objects and gods, neither better nor worse except

> for differences in the degree to which they expedite our dealings with sense experience.[1]

We can see, then, that there are two major results in rejecting the analytic-synthetic distinction: (i) there is a greater emphasis upon pragmatic principles of selection, and (ii) the division between natural science and speculative metaphysics becomes less distinct. The result is, then, to give it a name, Pragmatic Positivism.

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[1] W.V.O. Quine, From a Logical Point of View, p. 45.

#6 Explanation

Up to now we have seen Quine's many rebuttals against proposed explanations of the analytic-synthetic distinction, and the beginnings of a positive theory of explanation which would allow for an adequate theory of knowledge without having to make recourse to meanings as entities nor a distinction between kinds of knowledge or kinds of linguistic expressions such as is manifest in the analytic-synthetic distinction. In this section I will examine Quine's theory of explanation and evidence more thoroughly and thereby I hope to show, in more positive terms, why Quine feels that the analytic-synthetic distinction can be dispensed with.

In a sense, explanations may be seen as hypotheses. To the extent that we can talk of an hypothesis looking to the past in order to give an account of what has happened, we can call the hypothesis an explanation. In so far as an explanation looks to the future and makes predictions, we can call that explanation an hypothesis. The truth or falsity of an explanation-hypothesis depends upon its evidence, which, ultimately, and usually, means immediate sensory experience of middle-sized objects. The plausibility of an explanation-hypothesis is based on more fundamental considerations that justify the evidence under consideration, and Quine lists six "virtues" of any hypothesis which help us to determine one hypothesis' degree of

plausibility in comparison to another hypothesis when those two hypotheses are offered to account for one and the same state of affairs.

Quine's full explanation of analyticity lies within his theory of language which I will present in Chapter II. In this present section I want to generally summarize what has already been said and turn towards the matter of language, meaning, and translation. This is not really putting the horse behind the cart because, we must remember, Quine does not <u>really</u> explain analyticity - since he denies that there is any such thing. What Quine does is account for how we intuitively come to accept the notion of analyticity and then he explains the <u>lack</u> of it. Analyticity, as we shall see, is a sufficient condition for determinate translation within the radical translation situation. If it can be shown, then, that such determinate translation is impossible, a good case will have been made against the theory of analyticity. This is why most of the first part has been negative, i.e., denying the supposed explanations and/or other difficulties in assuming the analytic-synthetic distinction. The positive element, which I have been considering since the previous section, is to be found in Quine's overall epistemology- especially his theory of evidence and explanation. Epistemology naturalized, for Quine, in nothing more than a chapter in (behavioristic) psychology. That includes, to be sure, the language

learning process which we will see in more detail in the next chapter. But central to all of Quine's philosophy is his theory of evidence, explanation, hypothesis and theory. It is for this reason that I choose to deal with it here, the turning point between analyticity and translation.

As we have seen, Quine's opponents who defend the analytic-synthetic distinction have been committed to explaining it in terms of meaning, if they accept the most usual formulation of the notion of analyticity. This leads to the tendency to reify meaning; i.e., to set meaning as somehow apart from particular languages and/or other phenomena of the sensed world. Meaning, having been so ossified, becomes the pivot point or the point of unchanging reference in the problem of sameness (not similarity) of meaning. This leads to the maneuver of appealing to correct translation (preservation of meaning) as the paradigm case of sameness of meaning, and, presumably, of analyticity. Since Quine proposes a theory of knowledge which denies analyticity, his explanation of that denial becomes most clearly manifest in his theory of language which denies determinate translation. Quine's theory of language learning is merely a part or fragment of his larger philosophic endeavor of epistemological analysis which begins with considerations of evidence, explanation, hypothesis, and theory.

As we have already seen, epistemology, according to

Quine, is composed of the theory of meaning and the theory of truth. To date we have been primarily concerned with the theory of meaning and have seen how Quine analyses some of the historical trends that have manifest themselves in contemporary orthodox positivistic theories of meaning. Most notably we saw the subtle influence of Aristotelian essentialism which still lingers on in the thought of the logical positivists. Also we noticed the development of the notion of the basic unit of meaning from the term (idea) to the sentence and finally to the theory or, even more inclusively, the whole system of knowledge. Quine considers this development in the theory of meaning as positive - that is, it is a series of progressively more satisfactory explanations concerning meaning.

As regards the theory of truth, Quine feels that no real advances have been made since the time of Hume: "The Humean predicament is the human predicament."[1] That is to say, knowledge, as a whole, is less than purely objective. If we want to be perverse about it we can call ourselves skeptics and absolutely deny the possibility of knowledge. This tactic, however, does mis-service to Quine's starting points of pragmatism, positivism, and behaviorism. Indeed, the notions of "reality" and "evidence", and therefore of "knowledge", derive

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[1] W.V.O. Quine, Ontological Relativity, p. 72.

their significance from primitive common sense and not sophisticated theory. To turn the results of scientific epistemology against those notions is to cut the very foundations out from under scientific epistemology. It is an attempt to do what Quine considers impossible: give a purely objective account of reality. In this way Quine is able to counter the skepticism of the early empiricists.

Quine's explanation of the analytic-synthetic distinction (i.e., his dismissal of the distinction) is, he insists, sufficient to account for what needs accounting for. Qunie feels that his theory has as just a claim to "correctness" as do any of the other theories which depend on the distinction and which account for what needs accounting for. However, Quine also feels that to accept the distinction, as it is usually formulated, is often a case of bad empiricism, which, ultimately, leads one to an inadequate account of the relation between language and the world and so which tends not to adequately account for what needs accounting for. Those theories which admit of the distinction are limited in their explanatory power and therefore useful on only limited levels of discourse. This is an important point to remember because on the unsophisticated level of, say, the market-place, the analytic-synthetic distinction might be a perfectly adequate tool of explanation. But, Quine suggests, when we begin to deeply and systematically analyse language and the world, in other words, when we begin to do science and philo-

sophy, the distinction tends to be more of an obstacle than an aid.

Quine denies the possibility of directly correlating our knowledge of the external world to a simple enumeration of sense data. However, Quine does not reject the two basic tenets of empiricism: (i) "Whatever evidence there is for science is sensory evidence." and (ii) "all inculcation of meanings of words must rest ulitmately on sensory evidence."[1] Quine affirms these tenets of empiricism within his broader theory which I have been presenting in this and the previous sections. It is worth while to note three features of the broader framework in reference to these empirical tenets:

In the first place "science" is conceived of as a unified whole - science is co-extensive with knowledge - including logical and mathematical knowledge. The second point is that although sensory evidence is the touch stone of knowledge, that knowledge is, nonetheless, underdetermined by that evidence. The third point is that the basic unit of significiance is the theory or the system as a whole; this despite the fact that term-significance is inculcated by means of sensory evidence. But this inculcation of term-significance is a matter of derivation from observation-sentence significance through the

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[1] W.V.O. Quine, Ontological Relativity, p. 75.

processes of definition, abstraction and generalization.

Sensory evidence is subjective. Science tends to the objective. The tension set up by these contrary pulls results in uncertainty, on a common-sense level, and skepticism on a sophisticated level. Shunning these undersirable features of the tension we, both as individuals and as a race, have long tried to convince ourselves that knowledge can and must be absolutely objective. This self-deception has been aided and abetted by the fact that observation plays an insignificant part in language learning when contrasted to the derived processes of definition, abstraction and generalization. Moreover, the objective pull is necessary since all science (and language) is socially inculcated which means that there must be some intersubjective sharing of stimulus patterns. But sharing is not a matter of identity nor of sameness; rather it is a matter of similarity. If knowledge acquisition were, in fact, a matter of identity or sameness of stimulus patterns, we could delete the "tends to" and simply say that science is objective. But this is not the case. Intersubjectively shared stimulus patterns always are subjective no matter how much they tend to pull towards the objective. This tendency or disposition to objectivity is a matter of survival; without it there could be no learning at all. If, in order to learn the meaning of "Square." both teacher and pupil had to see an equilateral quadrangle, the notion of squareness would probably not arise at all.

In denying the analytic-synthetic distinction, Quine harks back to the Peircian verification theory of meaning which must be distinguished from the logical positivist principle of verification. In so doing, Quine feels that he out-verifies the verificationists. He feels, indeed, that the verificationists of Vienna sell themselves short.[1] Verification means appealing to the relevant evidence. And, as we have seen, for Quine, and Quine would say for all empiricists, the only relevant evidence is sensory evidence. How then can some sentences be held to be meaningful and therefore true or false unless we are able to verify them, ultimately, by a reference to sensory experience. But that is what the logical positivists claim to do with a seemingly infinite array of sentences - the analytic ones. They are true solely by virtue of their meaning and without any reference to the way the world is, that is, without any reference to sensory evidence. If that is the case then Quine would simply classify them outside the scope of science (which means outside the scope of knowledge and philosophy also). Before we found ourselves calling all sentences analytic; now we find ourselves calling all sentences synthetic. Such are the extremes we are led to when we allow the distinction.

The meaning of a sentence depends upon what would be

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[1] W.V.O. Quine, Ontological Relativity, p. 80.

counted as evidence for its truth. Non-observational sentences find their evidence not singly, but in groups or in theories. To admit these points is to deny that some sentences are analytic and to admit that all sentences are synthetic insofar as they can claim to be connected, either directly or indirecly, with observable experience. But to put the matter this way is not to dismiss those sentences usually called analytic as meaningless. But if this is the case, then there is not any distinction at all, and it is not necessary to characterize any sentences as either analytic or synthetic.

Science is one. Therefore, all sentences which purport to have meaning and to be true are candidates for belief and knowledge and are of a kind except for the ways in which they are learned. And it is this difference in learning that has led to the uncritical misconception that some sentences are qualitatively different from others, e.g., the sentences of logic and mathematics are seen as somehow being different from those of physics and chemistry. Drawing upon a foundation of now familiar concepts, Quine tries to account for this historically real dualism between the logical and non-logical on three counts: (i) the logical sentences are apparently obvious; (ii) the logical sentences are applicable to all the sciences - including mathematics; and (iii) the logical sentences lack apparent content - they are formal. Since mathematics shares

to a certain degree in (i) and (ii) mathematical sentences are frequently lumped together with the logical in order to differentiate them from all other sentences of the so called physical sciences. But this, Quine holds, is merely a matter of curriculum classification; it is a matter of degree and convenience; it is not a clear cut distinction which can be adequately explained without tremendous costs to other parts of our systematic explanation of science. Logical and mathematical sentences, like the theoretical sentences of any physical science, must make an appeal to the relevant evidence for their claims to truth. The fact that the theoretical sentences of the sciences are quite far removed from the periphery of experience (i.e., sensory evidence) does not render them any more exceptional than, say, the sentences of direct observation. If we can allow for this, then why not, Quine is asking, allow for the even more remote, but nonetheless experientially connected, position of the sentences of logic and mathematics.

Evidence is sensory experience offered in support of a belief. The value of that belief, and hence of its supporting evidence, is the extent to which it allows us to organize experience:

> Having noted that man has no evidence for the existence of bodies beyond the fact that their assumption helps him organize experience, we should have done well, instead of disclaiming evidence for the existence of bodies, to con-

clude: such, then, at bottom, is what evidence is, both for ordinary bodies and for molecules.[1]

And, we might add, such is evidence for the truths of logic and mathematics. The conclusion should not come as a surprise to those who remember Quine's iteration of the under-determination of knowledge by experience and the fact that all science begins with presuppositions of one sort or another.

In treating evidence in this way, Quine is at variance, though only slightly, with the position adopted by Carnap in his paper "Empiricism, Semantics, and Ontology." There Carnap states that the fact that our explanations help to organize experience is not sufficient reason for accepting the existence of the postulated entities:

> The thing language in the customary form works indeed with a high degree of efficiency for most purposes of everyday life. This is a matter of fact, based upon the content of our experiences. However, it would be wrong to describe this situation by saying: 'The fact of the efficiency of the thing language is confirming evidence for the reality of the thing world'; we should rather say instead: 'This fact makes it advisable to accept the thing language'.[2]

For Quine, to accept language is to accept an ontology. To be is to be the value of a variable; and variables are simply

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[1] W.V.O. Quine, The Ways of Paradox, p. 251.

[2] Rudolf Carnap, "Empiricism, Semantics, and Ontology," in Philosophy of Mathematics, Benacerraf and Putnam, eds., (Englewood Cliffs: Prentice Hall, 1964), p. 236.

the basic element of regimented linguistic expressions which preserve the link between the world and language:

> Carnap maintains that ontological questions, and like-wise questions of logical or mathematical principles, are questions not of fact but of choosing a convenient conceptual soheme or framework for science, and with this I agree only only if the same be conceded for every scientific hypothesis.[1]

Evidence is not merely a matter of induction (as opposed to deduction). Indeed, the inductive-deductive dualism is merely another fact of the analytic-synthetic distinction. Evidence is also a matter of systematic simplicity and integration as well as pragmatic application. There is no indubitable evidence which can lead to indubitable knowledge a-la-Descartes.

All this is not to deny the importance of language as a means of acquiring further knowledge. Indeed, it results from what Quine feels to be a more accurate analysis of the role of language in learning. However, the contribution which linguistic meaning makes to knowledge and the contribution which sensory evidence makes to knowledge are, according to Quine, too inextricably intertwined to admit of the cognitive separation of one sentence from another save for observation sentences. This empirical and pragmatic theory of evidence is the base for Quine's epistemological holism which leads him, finally, to deny the

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[1] W.V.O. Quine, The Ways of Paradox, p. 211.

family of dualisms of which the analytic-synthetic distinction is the most intuitively entrenched. This theory of evidence is perfectly adequate for theorizing about things totally removed from immediate sense experience, e.g., molecules and neutrons, as well as for those other still more distantly removed principles, namely, those of logic and mathematics.

Evidence offered in support of belief is called explanation. Some explanation, though, may totally lack evidence. Such explanations can gain strength from the fact that they support a supposed truth. Conversely, a supposed truth may gain strength if an explanation is available - even one lacking evidential support. Although all evidence may serve as an explanation for that belief which it supports, not all explanations or supposed beliefs can serve as evidence for that belief. Indeed, a putative explanation may be a guide in seeking out the lacking evidence. This is how the search for knowledge proceeds: any hypothesis or explanation is

> . . . good science insofar merely as it helps us formulate our laws - laws whose ultimate evidence lies in the sense data of the past, and whose ultimate evidence lies in the anticipation of sense data of the future.[1]

From one point of view an explanation is a general law, i.e., an hypothesis, because general laws or hypotheses can be

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[1] W.V.O. Quine, The Ways of Paradox, p. 250.

seen as explaining what they imply, and explanations can be seen as implying what they explain. But to stop here is to stop short of the philosophically interesting: we want, and need, an explanation of explanation. The reason this is so is because of the indentification of evidence with sensory experience. Now all people share sensory experience. But that is not to say that all people's explanations are equally worthwhile. We can't treat of one man's picture of the world as being equally plausible as the next man's picture. We must give more weight to the evidence of science as a discipline because, as we have seen, according to Quine, science is self-conscious common sense - i.e., a self-conscious appeal to evidence. Science is better than common sense because science is systematic:

> If the scientist sometimes overrules something which a superstitious layman might have called evidence, this may simply be because the scientist has other and contrary evidence, which, if patiently presented to the laymen, bit by bit, would be conceded superior.[1]

To systematically weigh the pros and cons of offered evidence is one aspect of science. To systematically weigh the pros and cons of what could plausibly constitute evidence and/or explanations is a part of philosophy.

> The search for an explanation centers on the search for a credible hypothesis. We seek a hypothesis from which, perhaps, with help from our other beliefs, what we want

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[1] W.V.O. Quine, The Ways of Paradox, p. 233.

explained is deducible. The more plausible the hypothesis the more plausible the explanation.[1]

The value of explanations is that they help us advance the limits of our knowledge. To explain explanations, then, would, be a significant contribution to the store of scientific and philosophic knowledge. Quine suggests that an explanation of explanation is to consider explanation as explaning not events or actions, as is commonly considered to be the case, but rather as explaining the truth of sentences. Explanation is a sentential attitude because particular events are infinitely complex and so when calling for an explanation of an event, we are, according to Quine, actually characterizing some particular aspect of that event. Those characterizations can be presented as simple declarative sentences. Thus, if I say "Napoleon won the battle of Marengo" you might ask me to explain (i) why I said that, or, (ii) why I believe that Napoleon won the battle of Marengo. Only in the second case would I be explaining an event as commonly is held to be thecase.

An explanation is, in effect, a theory, i.e., a group of sentences which, taken together, act as premises allowing us to duduce, validly, what it is that we are trying to explain. In the actual presentation of our explanation, we may omit many of

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[1] W.V.O. Quine, The Web of Belief, p. 74.

these sentences as being common background knowledge. These "understood" premises are every much a part of the explanation as the less obvious ones which are stated explicitly. This constitutes the first important feature of an explanation according to the theory of Quine: an explanation must imply what it explains.

However, there is a possibility of triviality here: if we are not careful the sentences we want to explain or other arbitrary truths might be made part of the explanation. To guard against this possibility it is necessary to assume or stipulate two special features of any good explanation: ". . . the explanation must imply more than what was to be explained, but each part of the explanation, short of the whole, must fall short of implying what was to be explained."[1]

Finally, if we are going to be scientific (i.e., systematic) in our philosophizing, we need a basis for distinguising between the plausible hypotheses and the not so plausible. Here Quine appeals to what he calls the six virtues of an hypothesis, which taken together give us a pragmatic criterion for choosing one explanation over another.

The six virtues are matters of degree both individually and taken as a group. It is perfectly possible that a given

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[1]W.V.O. Quine, The Web of Belief, p. 76.

theory or explanation rates low or not at all on some or possibly even most of the virtues but so high on one or some of them that the scientist decides to accept it as plausible, at least until more conclusive evidence come to light. These hypothetical virtues are not absolutes - taken together they can be seen as the elements of a skill which, when developed, mark the scientist and the philosopher apart from the layman.

The first virtue of an hypothesis is Conservatism or Familiarity. An explanation or hypothesis rates high in this virtue if it rejects no or few past beliefs. This is not to say, of course, that we never reject or question past beliefs. The demand for an explanation or hypothesis is, indeed, often initiated by recalcitrant experience - i.e., the failure of the past belief structure to account for present expectations. Generally and normally speaking, though, the fewer past beliefs discarded by an hypothesis, the better case we have for accepting that hypothesis.

The second and third virtues go together. They are Generality (or regularity, or uniformity) and Simplicity. As Harvard Sociobiologist Wilson puts it. "The elegance, we can fairly say the beauty, of any particular scientific generalization is measured by its simplicity relative to the number of

phenomena it can explain."[1] Simplicity gives substance to generality since, with enough complexity, we can generalize any explanation ad infinitum. Moreover, generality is a species of simplicity.[2] A general explanation has width of application as, for example, a theory of motion which has the virtue of explaining both micro - and macro-cosmic motion. It is the virtue of generality which draws contemporary physicists towards the notion of a unified field theory.

Simplicity is less easily explained because of its highly subjective nature. A graphic account is given in the case of plotting a curve. In this case, it always remains a fact that no matter how few or how many points we plot, we can draw an infinite number of curves through them. Instinctively we tend to draw the simplest curve and accept that curve as the function of the variables under consideration even though the net result may leave some points unaccounted for.

The account of simplicity leads to a secondary consideration of what Quine calls quality space. Quality space is a genetic disposition to notice similarities among stimuli and

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[1] Edward O. Wilson. On Human Nature, (Cambridge, Mass.: Harvard University Press, 1978), p. 11.

[2] W.V.O. Quine, The Ways of Paradox, p. 255.

hence to be able to rank, generally, in order of simplitity or complexity. Quality space is an observable and measurable behavioristic trait of both humans and animals. It is genetically inheritied (although it may be improved upon), and has, through a process of natural selection, reached a high degree development in humans. It is a sine qua non of all learning, including language learning. It is non-rational in the double sense of (i) being a pre-requisite for all reasoning (induction) and (ii) being logically repugnant; that is, quality space is known through our ability to notice hierarchies or similarities and set up categories of kinds. But neither the notion of similarity nor of kind can be satisfactorily explicated in terms of logic.[1]

From the point of view of this paper this is important because (i) it is a counter theory to Aristotelian essentialism and (ii) it reaffirms the "synthetic" nature of the notions of logic in the sense that they, too, derive their strength from their ability to organized experience and do not somehow stand apart and aloof from that experience. It is also important because, as we shall see, when the notion of quality space is brought to bear on the language learning process it allows us to do away with propositional entities as meanings as well as

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[1] W.V.O. Quine, Ontological Relativity, p. 117 f.

analytic sentences as a breed apart from other sentences.

As a final remark about quality space which is subjective, we might do well to recall that knowledge as a whole is not objective but merely tends to the objective. Thus there is no problem in positing a subjective starting point for the "objective" sciences.

The fourth virtue of an hypothesis is Refutability. The purpose of this virtue is to temper excessive generality and the possibility of ad hoc hypotheses which tend to make a theory so strong as to be unbelievable. A given hypothesis must be refutable, at least in the imagination, because that which explains everything explains nothing. This virtue also guides against the tendency to search for absolutely objective explanations.

The fifth virtue is Modesty. Modesty is, in some ways, similar to simplicity, especially insofar as it is subjectively determined. But it can also be seen as a species of conservatism; the better explanation has the less story to offer. Modesty simply means that the hypothesis under consideration should not be more elaborate than called for by any other virtue. An example is explaining receiving a phone call from a party who excuses himself for reaching the wrong number. A modest explanation would say that the phoning party misdialed. An immodest explanation would say that the caller was a burglar checking to

see if anyone were home before breaking into the house.

The final virtue of an hypothesis is Precision. Precision is largely a matter of measurement and so only recently has precision become the noticeable landmark of the sciences that it is and that seems to be what the layman is most conscious of when he thinks of the sciences. One of the most valuable forms of precision measurement is that which indicates dependent variation. That is when we are able to show that a change in one quantity or variable is a measurable function of a change in another quantity or variable. The strength of precision derives from the improbability of coincidences. The more exact we can become the more likely it is that our measurements and predictions isolate the relevant evidence and that the correctness of those explanations is not simply a matter of coincidence.

Precision can also be achieved through regimentation of language. And, as with physical measurement, it is only in recent philosophical history that we have been able to detect noticable advances in this area. The ancient Greek word logos is usually translated as "word", but there is sufficient evidence at hand to indicate that it also served to cover the notions of "reason", "account", and "speech". Such imprecision today would be unforgivable. As the art of definition and as our understanding of language have advanced so have we been able to formulate what we want to say in more and more precise ways. The

process of explication, which we saw in a previous section, is clearly a precision-enhancing instrument. It is largely in precision of formulation that the scientist and the philosopher differ from the layman.

Such then are the six virtues of an hypothesis, and the nature of a satisfactory explanation. How does this apply to the problem at hand, analyticity? As we have seen, Quine insists that the usual formulation of the analytic-synthetic distinction commits one to explanation. We have seen some of those explanations: analyticity explains logical, mathematical and physical necessity. Analyticity explains the purely formal and contentless nature of logic. Analyticity explains why certain "truths" are eternal. Analyticity explains why there is a qualitive difference between certain branches of knowledge (i.e., the logical and mathematical branches of knowledge are qualitatively different from the physical and social sciences).

The first feature of a good explanation is that it implies what it explains. If it can be shown that what is implied is, indeed, false, then, by virtue of a reductio ad absurdum, it can be shown that the proposed explanation is also false. That has been the purpose of this first section and of Quine's negative attacks: to show that the supposed conclusions - necessity, formality, objectivity, and difference of knowledge are untenable notions.

The second feature of a good explanation is that it must not violate the anti-triviality stipulations. On this ground I do not think that the defenders of the analytic-synthetic distinction can be faulted. This is primarily a matter of linguistic regimentation; and if Quine's opponents are anything, they are logical. Remember, Quine never accuses his opponents of contradicting themselves. If he did, he would, indeed, be contradicting himself.

The final feature of a good explanation is its virtue. But since virtue is a matter of degree, a matter of relativity I leave it to the reader to judge the virtue of the hypothesis of analyticity. Moreover, I feel that when I have presented Quine's theory of meaning and translation in Chapter II, there will be a more solid basis upon which to judge the virtue of the analyticity notion. Therefore, I end my treatment of analyticity, *per se*, and turn now to translation.