STIMULUS MEANING
AND THE DETERMINATION OF THE INDETERMINACY
OF TRANSLATION

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by

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To
Sadie and Nicholas for giving me life
Mary for sustaining my life
Kimberly for loving and living my life
Gary, Robert, and Gregory for dealing with my life
ABSTRACT

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Willard V. Quine attempts to show that there is an indeterminacy that results from the effort to construct a radical translation of one language into another. Radical translation is the task of constructing a translation without the aid of a pre-existing interlanguage dictionary (translation manual). Indeterminacy is a condition in which dispute over what counts as a uniquely correct translation is, in principle, unresolvable. This indeterminacy occurs whenever it is possible to construct two or more incompatible manuals, or sets of principles, for translation such that both can account for all speech dispositions of those persons whose language is to be translated. It is Quine's contention that one cannot determine which of several incompatible translations is uniquely correct. In this paper I attempt to develop a clear statement of Quine's position on the issue of the indeterminacy of translation,
as that position appears in Chapter II of *Word and Object*, and to present an argument for indeterminacy derived from my statement of Quine's position.
I
RADICAL TRANSLATION

Some persons, especially philosophers, consider the following to generate a serious problem: The sentence

(A) The chair is green

and the sentence

(B) La chaise est verte

appear to be synonymous. That is, (A) and (B) appear to have the same meaning. But in what respect is it that two sentences of different languages have the same meaning? They look and sound different and, for the most part, are spoken by different kinds of persons in different places. The answer to the question of the sameness of meaning is, for many persons, the following: Expressions (A) and (B) have the same meaning because they express the identical proposition. Allowing the letters S and S' to stand for any two sentences, we might state this thesis more generally as: S means the same as S' if, and only if, the proposition expressed by S is identical with the proposition expressed by S'. So it is that (A) and (B), two syntactically unrelated sentences, can be synonymous: Each expresses the fact or proposition

(C) That the chair is green.

This seemingly comfortable solution to the problem of sameness of meaning gets challenged by a simple query.
What is a proposition? Calling a proposition "a description of a state of affairs" does not solve anything, for a sentence, by itself, can be such a thing.

Willard Van Orman Quine thinks that the discussion of propositional meaning, and meaning for sentences in general, is misguided if we take meanings as any more than what investigatory conditions for linguistic analysis allows us. Truly, (A) and (B) mean the same. However, Quine asks us to seriously consider what we are talking about when we claim that (A) and (B) are synonymous because they express the same PROPOSITION.

Quine's efforts in Chapter II of *Word and Object* are a series of moves designed to find out what meaning could be, not just for ordinary translation, as from (A) to (B) or vice versa, but for radical translation. Radical translation occurs whenever one attempts to translate one language into another language without the assistance of an appropriate interlanguage dictionary. In effect, radical translation is the effort to construct such a dictionary. Quine exemplifies this interlanguage dictionary building by presenting us with a linguist who goes into the jungle to translate into English the utterances of an alien native. Given this setting, Quine aims to "consider how much of language can be made sense of in terms of its stimulus conditions, and what scope this leaves for empirically unconditioned variation in one's conceptual scheme."
Ia. A Naturalism

Quine's philosophical intuition about "meaning" is strongly stated in the following passage from Ontological Relativity:

When...we recognize with Dewey that "meaning...is primarily a property of behavior," we recognize that there are no meanings, nor likenesses nor distinctions of meaning, beyond what are implicit in people's dispositions to overt behavior. For naturalism the question whether two expressions are alike in meaning has no determinate answer, known or unknown, except insofar as the answer is settled in principle by people's speech dispositions, known or unknown. If by these standards there are indeterminate cases, so much the worse for the terminology and likeness of meaning.

I do not believe that this statement of Quine's naturalism could betray more fully his view that outside of behavior there is no object, or subject, of language study. Quine exploits his naturalist viewpoint (that language study is the study of verbal behavior) by the dramatics of radical translation. Quine claims that his radical translation undertaking reveals indeterminacy in rendering a full translation of a foreign language as uniquely correct.

Radical translation involves the translation into one language, say English, of the expressions of a tongue common to "a hitherto untouched people." This method allows Quine to show that a notion of meaning as propositions, or concepts, goes well beyond what meaning could possibly be in an imaginary setting where a linguist attempts to translate the utterances of an "untouched"
native into English. I will recount the linguist's efforts in order to show how Quine discloses the following:

(a) Meaning for sentences will be identified, apparently, with the appropriate stimulus properties had by a speaker when that sentence is normally uttered.
(b) When two or more sentences have the same meaning, and are thus synonymous, the stimulus properties had by a speaker are the same in kind when any of those sentences is uttered.
(c) At a certain point in trying to radically translate native utterances the linguist will have to provide hypotheses to account for such phenomena as grammatical structure, reference, and individual word translations.

Ib. In the Jungle

The Quineian linguist finds himself in a jungle whose human inhabitants are unfamiliar to the linguist and every other member of a language community with which the linguist has an acquaintance. A native appears and, perhaps because this native is of a peace loving group, feels no fear when the linguist takes notice of the native's behavior. The radical translation attempt occurs in the following manner:

(1) "A rabbit scurries by, the native says 'Gavagai', and the linguist notes down the sentence 'Rabbit' (or 'Lo, a rabbit') as tentative translation, subject to
testing in further cases."4

(1a) The linguist has, in effect, hypothesized that 'Gavagai' is a response to the stimulus situation of the passing of a rabbit. He makes no distinction between (on the one hand) the having of a stimulation, for the native, of a rabbit passing and (on the other hand) a rabbit having in fact passed by in visual proximity to the native.

(2) "Only by taking the initiative and querying combinations of native sentences and stimulus situations"5 will the linguist be able to test his hypothesis (that is, the hypothesis that the kind of stimulus situation that will prompt assent to 'Gavagai?' will be rabbit-presenting stimulations).

(2a) "The general law for which he [the linguist] is assembling instances is roughly that the native will assent to 'Gavagai?' under just those stimulations under which we, if asked, would assent to 'Rabbit?'; and correspondingly for dissent."6

(3) The linguist realizes that fully eliciting a 'yes' or 'no' answer to 'Gavagai?' involves rabbit-presenting stimulations (or stimulations by a good artifice of a rabbit) for the native. So, if all stimulus conditions remain the same in kind repeatedly, when a rabbit scurries by and the linguist appropriately asks 'Gavagai?' and gets what he trusts to be a positive response, then the linguist will
likely conclude that 'Gavagai' is the utterance which should be translated 'Rabbit' (or 'Lo, a rabbit').

(4) Stimulations, not actual conditions in a Cartesian sense of "actual" or "externally real," are what prompt reactions. Here Quine takes the visual stimulation of a rabbit, for a subject, as a "pattern of chromatic irradiation of the eye." The linguist might then regard this rabbit irradiation pattern as the stimulus condition prompting the utterance of 'Gavagai', or as the precondition for attaining a 'yes' or 'no' answer to 'Gavagai?'.

(5) The following move to a definition of 'stimulus meaning' as a correlation of utterances with non-verbal stimulation seems apparent from the previous discoveries of the linguist.

We may begin by defining the affirmative stimulus meaning of a sentence such as 'Gavagai', for a given speaker, as the class of all the stimulations (hence evolving ocular irradiation patterns between properly timed blindfoldings) that would prompt his assent. More explicitly...a stimulation σ belongs to the affirmative stimulus meaning of a sentence S for a given speaker if and only if there is a stimulation σ' such that if the speaker were given σ', then were asked S, then were given σ, and then were asked S again, he would dissent the first time and assent the second. We may define the negative stimulus meaning similarly with 'assent' and 'dissent' interchanged, and then define the stimulus meaning as the ordered pair of the two.³

Stimulus synonymy, or the sameness of stimulus meaning, can be a property of the behavior of the individual
speaker or a property of a community of individual speakers. Intrasubjective stimulus synonymy for the native under scrutiny holds between 'Gavagai' and, say, 'Napalm', where 'Napalm' is uttered under just those kinds of stimulus conditions where 'Gavagai' is uttered. To extend stimulus synonymy to verbal behavior in a community, we might understand 'Gavagai' to be intersubjectively stimulus synonymous if for all native speakers the stimulus meaning of 'Gavagai' remained constant. If the same stimulus conditions held for both 'Napalm' and 'Gavagai' then they would be intersubjectively stimulus synonymous for all native speakers. And, if the native were a bilingual speaker of both the native language, or NL, and the English language, or EL, then the same synonymy relation would hold between 'Gavagai' and 'Rabbit' intrasubjectively. And, if the native were a representative speaker of both languages, we might infer the intersubjective stimulus synonymy of 'Gavagai' and 'Rabbit' and 'Napalm' as well.

We can, then, offer the following definitions of 'intrasubjective stimulus synonymy' and 'intersubjective stimulus synonymy':

S and S' are intrasubjectively stimulus synonymous for a speaker A if and only if the stimulus meaning of S for A is the stimulus meaning of S' for A.

S and S' are intersubjectively stimulus synonymous for a community of speakers if and only if the stimulus meaning of S and the stimulus meaning of S' are the same and constant for all of those speakers.
II

STIMULUS MEANING AND THE INDETERMINACY OF TRANSLATION

The strong conditional in the definiens of 'stimulus meaning' (that is, "if the speaker were given \( g \), then were asked \( S \), then were given \( g \), and then were asked \( S \) again, he would dissent the first time and assent the second") should be taken to indicate a disposition on the part of the verbal agent. Quine states that this disposition "may be presumed to be some subtle structural condition, like an allergy and like solubility; like an allergy, more particularly, in not being understood."

We must not, however, get carried away with innate structures or linguistic frameworks of the mind. For, taking the allergy analogy a bit further, we can see that symptoms may be all there are to what can be classified as an allergy or as a verbal habit or disposition. That there may be a physiological structure that determines the reactions, and hence qualifies as the cause of the disposition, is an independent issue. For purposes of ontological simplicity at this point, we can allow 'disposition' to express, generally, one's particular verbal habits.

Just as the linguist must study the native's verbal behavior to discover stimulus meaning, so he must do the same to begin to correlate sentences in a synonymy relation. Quine, of course, defines 'stimulus synonymy' as
'sameness of stimulus meaning'. So,

La chaise est verte

and

The chair is green

are stimulus synonymous as they have the same stimulus meaning for a French-English bilingual speaker. And this kind of relation can be tested for by the same procedure followed by the linguist in the jungle. That is, study a speaker's responses to 'La chaise est verte?' and 'The chair is green?' after the appropriate stimulation.

Thus far we have seen that an interlanguage translation can be produced, at least for sentences whose stimulation period is long enough to be detected by the linguist, yet short enough to be tested for its role in the stimulus meaning of a native utterance. Quine gives the name "modulus" to the maximum duration recognized for a current stimulation. The length of a modulus for a stimulus meaning may change over time as a speaker becomes more familiar with a particular kind of stimulation.

Besides attending to the existence and length of a modulus, the linguist must also be on the lookout for what Quine calls "collateral information." Collateral information attends the use of, say, 'Gavagai' for the native in such a way that a long history of dealings with rabbits in the jungle may have taught the native speaker that rabbit-flies always accompany rabbits. As a result of this awareness, the native may utter 'Gavagai' at the prompting stim-
ulation of a rabbit-fly. That is, the native may utter 'Gavagai' when he experienced no rabbit, but only experienced a rabbit-fly. Such subtlety the linguist can perceive only after a fairly full acquaintance with those stimulus conditions constantly prevailing for the utterances of 'Gavagai' and weeding out what he takes to be irrelevant stimulatory data. The work may be exhausting, but only in this fashion of collecting data, by direct observation and inference, can the linguist confidently account for those stimulus conditions under which 'Gavagai' is, or would be, uttered.

The method the linguist must employ is the stimulus meaning test where the appropriate responses to 'Gavagai?', by the native, will allow the linguist to collect relevant information to determine the complete stimulus meaning of 'Gavagai'. So, the linguist's cataloging of speech dispositions is contingent upon both the modulus and collateral information for certain of the native's verbal behaviors.

Since stimulations play such a vital role in the definition of 'stimulus meaning' and 'stimulus synonymy', Quine moves into a discussion of stimulations. Instead of using 'stimulations' as a collective noun, he construes it as an abstract noun naming the kinds of things that would prompt assent or dissent. This construal avoids the difficulty of allowing 'stimulations', as a collective noun, to range over domains containing unrealized entities.
Quine explicates the difficulty thusly:

If the stimulations were taken as events rather than event forms, then \([[the class of all stimulations of a kind that would prompt assent to a certain sentence \(S\)]\) would have to be a class of events which largely did not and will not happen, but which would prompt assent to \(S\) if they were to happen.\(^{12}\)

Quine, then, takes a stimulation to be a universal or repeatable event form.\(^{13}\) And it becomes sensible to speak not of the recurrence of two like, but numerically different, stimulations, but of the recurrence of the same (kind of) stimulation.

IIa. Types of Sentences

Quine makes a distinction between kinds of sentences based on the degree of need for stimulation required to prompt assent to or dissent from sentences. He distinguishes occasion from standing sentences. The former are sentences such as 'Gavagai', 'It hurts', 'My foot is on the ground', and 'Red' which "command assent or dissent only if queried after an appropriate prompting stimulation."\(^{14}\) Standing sentences such as 'There is ether drift', 'The world is round', and 'I go to the doctor for my regular checkup' require little or no prompting stimulations for verbal agents to either assent to or dissent from them when they are expressed in question form.

Quine allows for a continuum of sentences from standing to occasion extremes in the following manner:

Standing sentences grade off toward occasion sentences as the interval between possible repromptings diminishes; and the occasion sentence is the extreme case where that interval is less than the
Stimulus meaning, and thus stimulation, has the most import for occasion sentences as it covers all the evolving dispositions to assent to or dissent from a sentence. Contrarily, verbal agents retain fairly static dispositions to assent to or dissent from a standing sentence (since it requires little or no reprompting stimulation). The role of collateral information becomes prominent at this point in assisting the linguist to determine just which of the native's speech dispositions can be correlated with non-verbal stimulatory conditions.

Minimally, we should be able to radically translate occasion sentences, of some kind, if we are successful at all. There are, however, seemingly maximal renderings from the linguist's efforts. The maximal yield includes:

(1) Observation sentences. This is no surprise as these are just those occasion "sentences on which there is pretty sure to be firm agreement on the part of well-placed observers." In other words, the noted stimulus meanings for observation sentences differ little or not at all from speaker to speaker. That is, for example, 'Gavagai' would probably have the same stimulus meaning for all normal adult native speakers. Sameness of stimulus meaning can then be extended to be a general property of all those utterances of 'Gavagai' by the native in the stimulus circumstances of rabbit-scurrying-by. And, thus, a sentence like 'Gav-
agains is rendered intersubjectively stimulus synonymous.

(2) Truth functions may be translated by stating semantic criteria "for determining whether a given native idiom is to be construed as expressing the truth function in question."17 For example, "The semantic criterion of negation is that it turns any short sentence to which one will assent into a sentence from which one will dissent, and vice versa."18 The practicality of using short sentences to test for such responses is noted by Quine, implying, perhaps, that the problem of testing for elicited responses to truth-functional negation, conjunction, and alternation can be exaggerated for long sentences by the difficulty of the native having to remember all the substantial elements of a long negation, conjunction, or disjunction. The linguist, then, must attend to the limitation of memory in trying to develop his translation in the field.

(3) We can also render a sentence stimulus-analytic for a subject if he would assent to a query about that sentence after every stimulation within the modulus of that stimulus-analytic sentence. That is, there is no appropriate dissent disposition predictable of the verbal agent in relation to a sentence deemed stimulus-analytic. We can regard a sentence
as stimulus-contradictory if that sentence's appropriate query commands "irreversible dissent."\textsuperscript{19}

(4) Sentences that are intrasubjectively synonymous (for example, 'Rabbit' and 'Lo, a rabbit') may be paired off, but because of the speaker's linguistic background the contents of collateral information relevant to that speaker's performance in a particular stimulatory setting may cause an impasse in translation.\textsuperscript{20} The linguist, for example, does not have access to the native's linguistic background and can never be quite sure if 'Rabbit' is a response to a rabbit-as-object-stimulation without attendant stimulations as, for example, rabbit-flies. Only by collecting what information is available to him in his limited view of the native's collateral information vis-à-vis the use of 'Gavagai', by direct observation and inference, can the linguist use stimulus meaning evidence and, perhaps, also construct analytical hypotheses that can provide an interpretation of 'Gavagai' that either does, or does not, make 'Rabbit' and 'Lo, a rabbit' intrasubjectively stimulus synonymous.\textsuperscript{21} At least with respect to the evidential criteria adopted for, say, correlating 'Gavagai' with 'Rabbit', the linguist might conceivably also correlate 'Gavagai' with 'Lo, a rabbit'. However, the above (1) through (4) yield will not, as yet, allow the linguist to account for two kinds of phenom-
(a) the employment of general terms in NL, and  
(b) the grammatical (apart from truth-functional)  
structure of NL sentences.
Neither of the sets of hypotheses employed for (a) or (b)  
will be unproblematic. Yet, unless some analytical hypo-  
theses are adopted, neither (a) nor (b) will be available  
to the linguist. It is the need to construct a complete  
NL to EL dictionary that determines the ensuing need for  
hypotheses that will determine (a) and (b). To satisfy  
that need the linguist must employ hypotheses that provide  
justifying grounds for asserting that some NL general term,  
e.g. 'gavagai', is translatable as some EL general term,  
e.g. 'rabbit' or 'rabbit stage'.

To appreciate the importance of establishing the use  
of general terms in NL imagine the following: Since all  
the stimulus-analytic sentences of NL gain assent from any  
prompting stimulation, it follows that the stimulus mean-  
ings for all stimulus-analytic sentences are the same. This  
kind of absurdity may be illustrated more readily in EL by  
noting that both

(P) A triangle is a three-sided figure  

and  

(Q) A bachelor is an unmarried male  

seem to be stimulus-analytic. Since (P) and (Q) share the  
status of being stimulus-analytic both sentences would  
gain assent no matter what prompting stimulation were
available to a normal adult speaker of EL. However, do we want to then conclude that (P) and (Q) are synonymous? Obviously we do not wish to accept such an absurd conclusion, for in some apparent sense, though it is not entirely clear in what sense that is, (P) and (Q) are not synonymous even though they are stimulus-synonymous. The point may be put in several ways, though these ways are perhaps not of equal force.

We might envision changes in our speech dispositions (and, hence, our linguistic commitments) that would deprive (Q) of its analytic status without so depriving (P), and conversely. The kind of selective evolution one can envision would furthermore deprive

(Q') Only unmarried males are bachelors

of its analytic status. This is apparent because (Q) and (Q') are related in a way that (P) and (Q) are not; namely, the former are synonymous in some sense of 'synonymous' that is stronger than stimulus synonymy.

Additional evidence for the claim that (Q) and (Q') are related in a way that (P) and (Q) are not has to do with the notion of inference. Any reasonable theory of entailment would have it that (Q') is entailed by (Q) but not by (P). That is, it would be rather bizarre to imagine an individual claiming that (Q) and (P) have the same truth conditions, while it would not be disconcerting to imagine an individual claiming that (Q) and (Q') have the same truth conditions. What I am appealing to is a kind
of common sense semantic insight that (Q) and (Q') assert a relation, indeed the same relation, between bachelors and unmarried males, and (P) does no such thing. So, even though (P), (Q) and (Q') are all true regardless of the context in which they are uttered, we must not forget that (P) is about triangles and that (Q) and (Q') are not. One may also adduce that any inference in which (Q') figured would be one in which (Q) could have figured without loss of inferential force; not so with (P).

However these considerations serve to illustrate a problem, they do not solve it. The problem is quite simply this. In general, not all significant semantical features of the sentences of a language will be exhausted by the concept of stimulus meaning. To account for semantical differences between (P) and (Q) it is necessary to identify their referential structure. At a minimum we must be able to recognize that (P) is about triangles and that (Q) is not, which depends upon being able to recognize the referential capacity of general terms. Quite clearly this sort of semantical distinction will not be adequately made out in the absence of parallel syntactic discriminations which, in the present case, amounts to the recognition of general terms as non-sentential constituents of sentences. In effect, we must have some translationally functional notion of grammatical structure available to us.

No account of grammatical structure is available
without analytical hypotheses, for stimulus meaning testing has given no indication as to the position (or even the existence) of words in a sentence nor clues to such linguistic properties as pluralization or tensing of verbs. Although the most available source of analytical hypotheses that determine grammatical structure will be the linguist's home language, with its potential biases, it is still essential that the linguist come up with some structural basis to help with the completion of the NL to EL dictionary. I will assume that the linguist will adopt, minimally, a subject-predicate form for native sentences.

So completing, as much as possible, a full interlanguage translation implies going further than (1) through (4). To go beyond (1) through (4) would be, in effect, to construct a complete NL to EL dictionary where one translates individual words. This dictionary would be a compilation of translations for individual words, singular terms, and perhaps short expressions that appear to complete a translation of the native language into English. In constructing such a dictionary we might get the following result:

gavagai s. i rabbit

where 's' is taken to abbreviate 'substantive noun'. This kind of detailed rendering is not a consequence of the yield of (1) through (4). The linguist is, as has been shown, limited to translating whole sentences at the (1) through (4) stage. Those sentences may be members of a
truth-functional sentence translated, say, as:

(R) Rabbit and Rabbit-fly.

(R) can be analyzed into 'Rabbit' and 'Rabbit-fly' but the logical or grammatical structure of each of these is simple. It is only in sentences with a more complex structure, such as sentences of subject-predicate form, that individual word translations are crucial to sentence meanings, and thus to a coherent rendering of NL utterances. It is senseless to question the complexity of individual sentences until criteria for the individuation of words is established. Otherwise, there is no way of telling whether 'Gavagai' is one word or many words, or if it is functioning as a noun, verb, or whatever.

At the point of individual word translations, the value of stimulus meanings is obviated. Stimulus meanings are properties of utterances taken to be assertive reactions to stimulus conditions and semantically investigable through the stimulus meaning tests of questions and responses. It is not open to the linguist to test for such phenomena as reference, however, in the manner of the stimulus meaning test model. Quine states the following regarding the use of stimulus meanings to settle questions of reference: "Stimulus synonymy of the occasion sentences 'Gavagai' and 'Rabbit' does not even guarantee that 'gavagai' and 'rabbit' are coextensive terms, terms true of the same things." Quine must go on record as keeping the distinction between 'Gavagai' and 'gavagai', and corre-
spondingly for 'Rabbit' and 'rabbit', strongly made. There can be no stimulus meaning for the individual noun 'gavagai' (if it is a noun) as there can be for the sentence 'Gavagai'. The noun 'rabbit' is used to refer to things, that is, rabbits, while the utterance of 'Gavagai' is still the native's reaction to a stimulation. The reaction 'Gavagai' may indeed be relevant to the experience the native has when a rabbit scurries by, but it is a reaction to a situation, not to a particular thing. Regarded as a noun, 'gavagai' is viewed as having a specific grammatical role. That is, it is used to pick out a thing in the world. And things, such as rabbits, are whole objects. These things may be contrasted with rabbit stages where a whole rabbit may not be taken as the object of an experience of a rabbit scurrying by, rather the rabbit-scurrying condition of the world may be the object.

Quine explains that while the stimulus conditions gaining native assent to 'Gavagai' are the same as those for gaining an English speaker's assent to 'Rabbit', it is an analogical leap of sorts to move from

The stimulus meaning of 'Gavagai' is the stimulus meaning of 'Rabbit'

to

'gavagai' and 'rabbit' are coextensive.

To make this leap the linguist must take "for granted that the native is enough like us to have a brief general term for rabbits and no brief general term for rabbit stages or
On the basis of stimulus meaning alone the linguist cannot justifiably make decisions concerning native reference. Rather it will only be through the use of analytical hypotheses, that can still account for a (1) through (4) yield but provide grounds for determining the referents of native utterances (and for some features of grammatical structure), that a dictionary for the native language to the English language can be developed. Quine describes the origination of at least some of these analytical hypotheses thusly:

He [the linguist] segments heard utterances into conveniently short recurrent parts, and thus compiles a list of native "words." Various of these he hypothetically equates to English words and phrases, in such a way as to conform to (1)-(4).

Unfortunately, in constructing analytical hypotheses to expedite the creation of a dictionary of NL to EL, the availability of independent justification for NL translations ends with the irrelevance of stimulus meaning evidence for deciding questions of one-word translations. Ultimately, Quine wishes to show how rival sets of analytical hypotheses, used for translating native utterances or words, may themselves be exhaustive of all speech dispositions yet produce certain translations which are incompatible. That is, neither of these sets of adopted hypotheses, or translation manuals, produces a translation such that either of several alleged translations (for example, 'rabbit' versus 'rabbit stage' as a translation of 'gavagai') can be judged
We are left with indeterminate candidates for the translation of native utterances.

Sentences are the original subject of radical translation and each sentence's individual stimulus meaning is a dispositional property of its author to react with regularity to certain stimulations. If attending to certain individual words is important to the linguist's translation program, it is only insofar as they serve to give coherence to the verbal behavior of the native speaker. In these contexts analytical hypotheses, relating words of NL to words of EL, are invented, used, and developed drawing on auxiliary principles such as "verbs are tensible words."

IIb. Analytical Hypotheses

Quine sees analytical hypotheses as "a way of catapulting oneself into the jungle language by the momentum of the home language." Quine, then, recognizes some of these hypotheses as part of the conceptual framework of the linguist before he comes to the jungle, while others develop from his observations. We have already noted that the linguist needs those analytical hypotheses of both the home language logical grammar variety (that is, those which get mapped onto NL logical grammar) and those developed in the field. Quine points out the transcendent feature of analytical hypotheses in the following passage:

From the point of view of a theory of translational meaning the most notable thing about the analytical hypotheses is that they exceed anything implicit in
any native's dispositions to speech behavior. They are, that is, read into rather than inferred from native speech behavior. The linguist moves his investigations from the mere correlation of non-verbal stimulus conditions with verbal behavior to the correlation of various singular terms with particular objects. The native's verbal behavior alone will not betray the referential use of these terms, and the need for analytical hypotheses becomes apparent. However, though we need the analytical hypotheses to make a translation that goes beyond (1) through (4), there seems to be no raw empirical data drawn from the native behavior that will, by itself, justify the adoption of any one such hypothesis rather than another. And it is through the use of analytical hypotheses that the Quineian linguist will dare try to account for the specific referential use of terms as they occur in native sentences. However in order to do so the linguist will go beyond the limits of the observational data which, at least in part, justified the claims for translational yield (1) through (4). Objective evidence for translational claims runs quite lean at this point, and indeterminacy in the translation of certain native utterances is imminent. For evidence from stimulus meanings will not bear on the particular referential role of, for example, 'gavagai'.

The consequence of the transcendent character of some of the more important analytical hypotheses, then, in-
cludes the rather disturbing situation that no one of these analytical hypotheses can be checked by seemingly objective, independent empirical data laid before the linguist by the native in the jungle. Let us suppose that the linguist has satisfactorily confirmed that there is subject-predicate form to some native sentences. Suppose also that the linguist has taken 'nixon' as a general predicate term of NL and 'gavagai' as a term capable of occupying subject position. He might then claim that 'Nixon gavagai' be translated 'A rabbit is passing by' when their correlation is supported by analytical hypotheses, in their extension beyond the zone where independent evidence for translation is possible. That those unverifiable translations proceed without mishap must not be taken as pragmatic evidence of good lexicography, for mishap is impossible.27

Thus the procedure for some translations, beyond the limits of the (1) through (4) yield, from NL into EL is, in effect, determined by the set of analytical hypotheses adopted. The basis for the correctness of that translation is just that same set of hypotheses functioning as one large manual for translation. The only grounds for evidencing claims of translation for the linguist were left behind when relevance of stimulus meaning for terms became obviated. So analytical hypotheses, prescribing the translations to be made, must be taken as the justification for translating a term of NL into its appropriate correspondent in EL. Therefore mistakes are impossible, but so is
any objective validity for the translation manual selected. That is, once the jungle linguist has adopted the analytical hypothesis that reads, say, "'gavagai' is translated 'rabbit'," then he has all the data which could possibly be made available for justifying a translation of 'gavagai' as 'rabbit'. The evidence is the analytical hypothesis. It then becomes apparent that to challenge the adequacy, or justifiability, of the translation of a term of NL into EL is to challenge the justifiability, or adequacy or correctness, of a translation manual. However, Quine has shown us at least two reasons why we can never objectively (or finally) judge the justifiability of our translation manuals. First, without some set of analytical hypotheses adopted for translation, no translation, beyond the (1) through (4) limits, is even possible. Second, the adequacy, or justifiability, of some translation of an NL term into EL is determined by proper conformity to the translation manual being employed. So, if we take 'nixon' to be translated 'is passing by', then 'Nixon gavagai' is to be translated 'A rabbit is passing by'. Still the only justification, or basis, for such a claim would be the translation manuals that prescribe that 'gavagai' be translated 'rabbit' (or, 'a rabbit') and 'nixon' as 'is passing by', plus, perhaps, auxiliary notions concerning the syntactical order of terms in subject-predicate form.
III

AN ARGUMENT FOR THE INDETERMINACY OF TRANSLATION

Quine does not offer a formal argument for the indeterminacy of translation. He does, however, set the stage for such an argument by providing us with the situation of the jungle linguist where the justified maximum yield of (1) through (4) is less than adequate for settling questions of reference and structure.

The problem of indeterminacy cuts deeply into the heart of a full translation of sentences of the 'Nixon gavagai' (or, more generally, subject-predicate) form. It has become a difficulty to establish which of competing sets of analytical hypotheses (translation manuals) should be adopted if their resulting translations of 'Nixon gavagai' are in turn incompatible one with the other, while supposed competing analytical hypotheses are exhaustive of the native’s speech dispositions. Ultimately, this dilemma is possible because of the inability to secure any more data than stimulus meaning will allow for any sentence that the native utters. And, while Quine does not anywhere insist that stimulus meaning should replace our traditional common sense notion of meaning, he does make it clear that only stimulus meaning is available to the jungle language student in alien territory.

The following argument for the indeterminacy of trans-
lation, though not explicitly contained in Chapter II of Word and Object, is supported by the text and the assumptions that the linguist is satisfied to translate NL sentences he takes to be of subject-predicate form and has criteria for determining what linguistic utterances count as terms of NL:

(1) There can exist two sets of analytical hypotheses, H and H', such that

(a) H is the justification for the translation of a term of sentence S of NL into a term of a sentence S' of EL;

and

(b) H' is the justification for the translation of a term of sentence S of NL into a term of a sentence S'' of EL;

and

(c) H and H' are both exhaustive of all speech dispositions of the native;

and

(d) S' and S'' are incompatible.

(2) The linguist's general rendering of NL into EL is coherent whether S' or S'' is used to translate S.

Hence, there is no way to determine that one of the two translations for S of NL, that is S' or S'', is uniquely correct. (Or, "there is no fact of the matter as to which is the fact of the matter" vis-à-vis S' or S'' for S.)

It must be remembered that this argument only arises from the linguist's effort to account for reference and grammatical structure. There is certainly nothing unreasonable, in general, about the linguist using analytical hypotheses to perform his translational task. In fact, the
adoption of translation manuals is the linguist's only inroad to a complete NL to EL translation. Yet, it is just this need for translation completeness that forces the adoption of those analytical hypotheses that generate the indeterminacy of translation.
FOOTNOTES

3Quine, Word and Object, p. 28.
4Ibid., p. 29.
5Ibid.
6Ibid., p. 30.
7Ibid., p. 31.
8Ibid., pp. 32-33.
9Ibid., pp. 33-34.
10Ibid., p. 28.
11Ibid., pp. 37-43.
12Ibid., p. 34.
13Ibid.
14Ibid., pp. 35-36.
15Ibid., p. 36.
16Ibid., p. 44.
17Ibid., p. 57.
18Ibid.
19Ibid., p. 68.
20Ibid.
21Ibid.
22Ibid., p. 51.
23Ibid., p. 52.
24 Ibid., p. 68.
25 Ibid., p. 70.
26 Ibid.
27 Ibid., p. 71.