Observation is central to empiricism, whose leading idea is that all knowledge is ultimately conveyed to us through our perceptual experiences. Analytic philosophy is in part distinguished by its transformation of traditional philosophical questions into ones about language, and by its emphasis on the primacy of the sentence as linguistic vehicle. So it is no wonder that the notion of an observation sentence is central to W.V. Quine’s philosophy, which in many ways represents the zenith of empiricism as pursued in the analytic tradition. A proper understanding and assessment of his philosophy depends on a satisfactory construal of that notion, one that answers to all the roles he calls upon it to play. And yet, Quine has found “the notion of observation … awkward to analyze” and has returned to its characterization again and again.¹

In the following, I shall sketch the history of changes rung upon this notion, the internal pressures that have led to them, and the problems they raise. I shall also offer a reconstruction of Quine’s most recent conception of observation sentence and assess its consequences for the joint tenability of his views on the objectivity of science and on the indeterminacy of translation. In doing so, I hope to illuminate not only Quine’s doctrines, but also something about the movement of which his philosophy is in many respects the culmination.

1. ACCOUNTS OF THE OBSERVATION SENTENCE

Quine’s early metaphor that likened language, or scientific theory, to a man-made fabric that touches experience only along its edges soon came to be spelled out more fully.² By 1960, in Word and Object, the periphery gave way to observation sentences, and the tribunal of experience to excitation of our sensory receptors, to “the triggering of … nerve endings.”³ Observation sentences were there defined as those (1) assent to which and dissent from which are closely tied to current stimulation and (2) whose stimulus meanings across speakers are equivalent. (The stimulus meaning of a sentence for a speaker is the ordered pair of stimulations of the speaker’s sensory receptors that, upon being queried with the sentence, would respectively prompt her assent or dissent.)

Alex Orenstein and Petr Kotatko (eds.), Knowledge, Language and Logic, 21–45.
Intuitively, the identification of stimulation with the triggering of one’s receptors was meant to secure the shareability of experience, for it was assumed that the surface neural structures of different individuals are more or less homologus. And, while (1) was intended to guarantee that a speaker’s response to an observation sentence is closely tied to his experience, (2) was designed to ensure that that response be the same for all speakers.⁴

Both these features answer to roles that observation sentences play in Quine’s over-all view. First, observation sentences are the points at which one’s theory of the world makes contact with one’s experience; without such contact, empiricism is untenable. Secondly, observation sentences are the lingua franca of theories; without them, resolution of intertheoretic disagreement about the nature of the world would be impossible.⁵

Because Quine conceives of language learning as a kind of theory testing,⁶ these two epistemological roles have language-acquisition counterparts. First, observation sentences are those learned without the need for “scholarship,”⁷ that is without the benefit of any prior language; if some sentences could not be learned this way, he holds, language learning would be impossible. Secondly, observation sentences, or the experiences which they tag, are the lingua franca of learning; without them, language acquisition as Quine conceives it, in which learner and teacher exploit their common experience, would founder.

In the light of these roles of the observation sentence, its analysis in terms of stimulus meaning can be seen to express Quine’s view that the ultimate conduit for justification and meaning is experience: “The two cardinal tenets of empiricism” remain “unassailable. ... One is that whatever evidence there is for science is sensory evidence. The other ... is that all inculcation of meanings of words must rest ultimately on sensory evidence.”⁸

On Quine’s view, while translation-relevant stimulation, be it by a tack or a tachistoscope, must be shareable, we are unlikely, because of what he calls “interference from within,” to find even an approximate homology between the inner physiological states of speakers who are intuitively having similar experiences.⁹ But stimulation must also be such that it should not be describable without reference to the relevant speakers: a rabbit running in the distance is not a candidate for our shared stimulation.¹⁰ Experience, insofar as our detection of it in others constrains translation, should be understood neither as an internal event, however physically acceptable, nor as an event involving objects beyond the speaker. Quine split the difference, as it were, and located experience midway between the two, at the surface of the observing subject’s body.

Over the years, no doubt because of the centrality of the notion of observation sentence for his views, Quine has tried to address problems with his account of experience. The first expression of worry came just a few years after publication of Word and Object: in 1965, Quine fretted about whether his construal of stimulation as patterns of sensory triggerings had, ironically, the effect of making stimulation unshareably personal: “If we construe stimulation patterns my way, we cannot equate them without supposing homology of receptors; and this is absurd, not only because full homology is implausible, but because it surely ought not to matter.”¹¹
In fact, Quine’s above account of experience entails that there are no observation sentences, for no two speakers could associate equivalent stimulus meanings with a sentence. And even if this worry could somehow be allayed with regard to humans, it can be made vivid again for extraterrestrials, what with their alien sensory apparatus. It would be surprising were Quine to deny the possibility of linguistic communication between humans and any being outfitted with differently structured surface receptors, and this reveals that something has already misfired in his account about us.\textsuperscript{12}

This matter can be put more generally. A translation, viewed abstractly, is a preserving map from one set to a second. We have not given this notion any substance, however, until we have specified what precisely is to be preserved. Without such a specification, no constraints have been placed on an adequate translation; indeed, we might say that no substantive construal of the notion of translation has yet been given. What Quine has noted is that his previous account of translation, as a map from one language to another that preserves whatever stimulus meaning can be assigned to sentences, fails this test, for equivalent stimulus meanings cannot be attached to sentences by different speakers, or even by the same speaker at sufficiently different times.\textsuperscript{13,14}

Quine’s response to this unsatisfactory situation, in \textit{Theories and Things} (1981), was to define observation sentence for an individual speaker and then count as observational \textit{tout court} any sentence that was observational for all speakers of the language.\textsuperscript{15} Unlike the account presented in \textit{Word and Object}, this does not have the undesired consequence that there are no observation sentences. It still fails, however, because it counts as observational any sentence which, though observational for each speaker, is such that speakers are disposed to asent to it in intuitively very different stimulatory conditions.\textsuperscript{16} On this conception, the important roles of the observation sentence that were intended to be guaranteed by (2) of the earlier account cannot be secured.

Quine’s skepticism about the “homology of receptors” across individuals is not in conflict with his analysis of what he calls “perceptual similarity,” for this is a relation that holds between an individual’s “global stimuli – ordered sets of [triggered] receptors.”\textsuperscript{17} Nor is it in conflict with his claim that there exists (perhaps for reasons of natural selection) a harmony between the perceptual similarity spaces of different individuals. In \textit{From Stimulus to Science} (1995), Quine says something that might be read as an attempt to use these notions to provide a constraint on translation of observation sentences: “Within the individual the observation sentence is keyed to a range of perceptually fairly similar global stimuli .... It is thanks to the preestablished harmony, again, that they qualify as observation sentences across the community.”\textsuperscript{18} The proposal might seem to be this: $S$ (a sentence of Speaker\textsubscript{1}’s language) can legitimately be translated as $T$ (a sentence of Speaker\textsubscript{2}’s language) only if (i) $S$ is conditioned to a range of global stimuli that are perceptually similar for Speaker\textsubscript{1}, and (ii) $T$ is conditioned to a range of global stimuli that are perceptually similar for Speaker\textsubscript{2}, and (iii) the perceptual similarity spaces of Speaker\textsubscript{1} and of Speaker\textsubscript{2} are in harmony with one another. $S$ and $T$ are linked by virtue of the fact that they are respectively associated with
ranges of global stimuli that are respectively located in two perceptual spaces that are in harmony.

This would not do, however. To say that Speaker1's and Speaker2's perceptual similarity spaces are in harmony is just to say that "If two scenes trigger perceptually similar global stimuli in one witness, they are apt to do likewise in another." Therefore, from (i)–(iii) we can infer that if two scenes trigger in Speaker1 perceptually similar global stimuli to which $S$ is conditioned, then they will also trigger perceptually similar global stimuli for Speaker2; and that if two scenes trigger in Speaker2 perceptually similar global stimuli to which $T$ is conditioned, then they will also trigger perceptually similar global stimuli for Speaker1. But all this is consistent with $S$'s being conditioned to perceptually similar global stimuli for Speaker1 that are caused by scenes that cause in Speaker2 perceptually similar global stimuli to which $T$ is not conditioned. Under these circumstances, it would be intuitively inappropriate to translate the one by the other. (The problem here is reminiscent of the one that plagued Quine's account in *Theories and Things*.)

One might suggest adding an extra clause to (i)–(iii), namely (iv): the scenes that cause the range of global stimuli to which $S$ is conditioned also cause the range of global stimuli to which $T$ is conditioned. What this amounts to is just that $S$ and $T$ are to be translated only if the scenes that would lead Speaker1 to assent to (dissent from) the first sentence would also lead Speaker2 to assent to (dissent from) the second.

Quine, as I understand him, should not find this proposal acceptable as an analysis of what translation preserves. We saw earlier that he will not accept external causes or events as candidates for stimulation. Consequently, the present account of translation is not one that depends on anything that Quine would recognize as sensory experience. And for just this reason, the account fails to safeguard the "cardinal tenets of empiricism" that Quine holds "unassailable": for they call for an analysis of how words acquire their communal meanings, of what translation is to be faithful to, that crucially employs a notion of stimulation, or "sensory evidence." Although empiricism demands that experience be substantively implicated in the acquisition of meaning, this account of translation gives it no significant role to play.

By contrast, Quine's *Pursuit of Truth* (1992) can be read as articulating yet another approach, which is simply to grant the privacy of stimulus meanings, and to count as observation sentences those which are intimately tied to perceptual experience and which each individual would agree in assenting to, or dissenting from, "on witnessing the occasion of utterance." Instead of talking of congruence of assent/dissent behavior in the face of like stimulation, Quine there speaks of such congruence in the face of like perceptions of the relevant occasion. What Quine might mean by this will be taken up in section 4 below.

## 2. Indeterminacy of Translation

Before considering whether translation of observation sentences is indeterminate, we should say a few words about Quine's thesis of the indeterminacy of translation.
The argument for indeterminacy that pervades most of Quine’s work proceeds as follows. There is a range of acceptable evidence that the translator may appeal to in choosing a manual of translation; this constitutes “the ultimate data for the identification of meanings.”22 This evidence is restricted to that which Quine believes one has, in principle, at one’s disposal when learning a first language, that which one has to go on when “rating [another] as a master of the language.”23 All such evidence, Quine insists, is thoroughly public. The plight of the radical translator is meant to render vivid these everyday circumstances and the publicity of the relevant evidence: “All the objective data he has to go on are the forces that he sees impinging on the native’s surfaces and the observable behavior, vocal and otherwise, of the native.”24 Furthermore, this publicly observable evidence cannot be brought to bear on the translation of sentences taken one at a time, but instead is relevant to accepting an entire package of translation. Finally, Quine argues that the totality of “objective data” is consistent with mutually incompatible manuals of translation. He concludes from this that the choice of manual of translation is indeterminate, that is, that there is no correct choice of manual, that there is no fact of Nature that this choice must reflect.

Some (for example, Michael Dummett) have parted company with Quine on account of his assumption that we cannot in general evaluate hypotheses about the translation of individual sentences independently of hypotheses about the translation of other sentences. Others (for example, Noam Chomsky) have dissented from Quine’s conclusion because they question an important presupposition of the above inference. Evidence, they claim, is not being treated here as it is in the natural sciences. There, one standardly assumes that evidence provides one with information about how it is in some determinate corner of reality. Quine, by contrast, treats the totality of “objective data” as if it were constitutive of the domain of facts for which, one might have thought, it is merely evidence. Facts about meaning are exhausted by the accessible evidence, on his view, for “there is only the natives’ verbal behavior for the manuals of translation to be right or wrong about.”25 “It is the very facts about meaning,” Quine holds, “that must be construed in terms of behavior.”26 Quine explicitly draws the contrast he sees between the nature of evidence in semantics and in naturalistic inquiry: “Dispositions to observable behavior are all there is for semantics to be right or wrong about …. In the case of systems of the world, on the other hand, one is prepared to believe that reality exceeds the scope of the human apparatus in unspecified ways.”27 While physical reality is typically assumed to extend beyond the results of measurement, there is nothing to semantic reality beyond the verbal behavior of speakers. Putting it yet another way, we might say that while physical facts are not usually taken to supervene on facts about measurement, Quine holds that all truths about meaning supervene on truths about verbal behavior.

This constitutivity of evidence is what Quine means when he says that verificationism is an “attractive” doctrine that supports one route to indeterminacy.28 Another, more usual, expression of this is his avowal of behaviorism: “In psychology one may or may not be a behaviorist, but in linguistics one has no choice.”29 In part because of his penchant for this latter way of expressing himself,
Knowledge, Language and Logic: Questions for Quine
Orenstein, A.; Kotatko, P. (Eds.)
2000, XI, 446 p., Hardcover