

MEANING, TRANSLATION AND SCIENTIFIC THEORIES IN W.V.O. QUINE

Gaetano Licata

Abstract The problems and the views about translation between languages are at the heart of the debate concerning the science and the epistemic value of scientific theories. Are scientific theories representations of truth and do they express true facts (phenomena) of the world or are they simply instruments and “hypotheses” which can be more or less useful in the interpretation of phenomena and in the technological applications? (Cf. Popper, 1956). The epistemology of W.V.O. Quine is an extreme form of empiricism. His view on knowledge as a way “from stimulus to science”, without reference to a determined and univocal world of objects, is bound to an ontological relativity where theory is undetermined with respect to experience. In my opinion, Quine’s conception of science, as well as that of his followers, is something like a “black box” view, because his absolute empiricism denies the possibility of true descriptions of phenomena. Moreover, the instrumentalism proposed by Kuhn and Quine is self-contradictory because better or worse “instruments” can exist, in a technical sense, with respect to reality.

Keywords: Truth, Meaning, Translation, Quine, Reference, Scientific Theories

The views about translation between languages are at the heart of the debate concerning the nature of science and the epistemic value of scientific theories. Are scientific theories representations of truth, and do they express true facts (phenomena) of the world, or are they simply instruments and “hypotheses” which can be more or less useful in the interpretation of phenomena and in the technological applications? (Cf. Popper, 1965). The epistemology of W.V.O. Quine – one of the most important logicians and philosophers of language of twentieth century – is an extreme form of empiricism. His view on knowledge as a way “from stimulus to science”, without reference to a determined and univocal world of objects, is bound to an ontological relativity where theory is undetermined with respect to experience: the same set of observations and experiments can be validly explained by different and logically incompatible theories. The under-determination of theory with respect to experience is the foundation of the instrumentalist view of science (criticized by Popper and expressed by Kuhn in 1962 in his historical view of scientific knowledge). The under-determination of theory is grounded by Quine on the principle of indeterminacy of translation, the famous Quine’s thesis which affirms the possibility of many incompatible translations of a sentence, expressed in language *x*, in a different language (*y*). As Quine showed in *Word and Object* (1960), the indeterminacy of translation is evident especially in the radical translation, the case where the source language and the target language of the translation belong to cultures which never had contacts.

In my opinion, Quine’s conception of science (as well as that of Quine’s followers) is something like a “black box” view, because his absolute empiricism denies the possibility of true descriptions of phenomena. Moreover, the instrumentalism proposed by Kuhn and by Quine is self-contradictory because “better” or “worse” instruments can exist with respect to reality in a technical sense: there is a confrontation between the instrument and the reality and a judgement expressed by reality on the instrument. Therefore, although Quine’s ontological relativity is today undeniable, technological successes are a confirmation that scientific theories give us “true”, or approximately “true”, descriptions of phenomena: a truth which, as Popper (1965) points out, is never absolute but always dialogical and with infinite degrees of depth. In this work we try to decide whether:

1) Scientific theories are instruments useful to match observations and experiments with calculations and predictions about phenomena (scientific theory as “model”): this is a coherentist idea of truth argued by: Osiander (1543), Cardinal Bellarmino in 1616, Quine (1953), Kuhn (1962);

Or

2) Scientific theories are true representations of the world how it is *per se* (scientific theory as “description” or “representation” of reality): this is a correspondence idea of truth argued by Galileo in 1616, Popper (1965) and Putnam (1975), for scientific theories; this conception follows Plato’s and Aristotle’s correspondence theory of truth on the relation between sentences and facts.

View 1) is the basis of the popular thesis of incommensurability proposed by Kuhn in 1962 and by Feyerabend in 1975. According to Kuhn scientific theories are untranslatable models of explanation of specific phenomena, in competition with each other to be the best instruments to operate in nature. This competition is in contradiction with the idea that theories are just instruments that are not in correspondence with a determined and *per se* reality. According to the View 1) there is not an absolute set of essences; no real world is described by theories: each model has its own world. Quine’s philosophy of “ontological relativity with respect to language” is the logical and epistemological foundation of Kuhn’s thesis of incommensurability. In the years from 1940 to 1960, working on logic and on philosophy of language (on Carnap and on logical neopositivism), Quine formulates theses similar to those of the late Wittgenstein (1953) against Frege’s semantic platonism. Quine’s ontological relativity can be expressed in this way: the theory is underdetermined with respect to experience, the same set of observations and experiments can be matched with two (or more) theories which are incompatible with each other. I don’t believe that any knowledge has necessarily a clear and immediate usefulness but the discussion on epistemological problem at issue is useful: a) The relativistic/instrumentalist View 1) gives right to incompatible theories to be discussed, eliminating the principle of authority, and b) The elimination of the essences permits to pose any question about nature, erasing any “definitive” knowledge: Newton’s essentialist conception of gravity prevents to ask «why do bodies attract each other?», because the essentialist view on gravity describes it as a natural character of the matter, as inertia, extension, etc. (Popper, 1965). Against the relativistic-instrumentalist View 1) Popper (1965) argues that this conception confuses theories with coherent sets of “calculation and technological rules”. This is the difference: I) “Calculation and technological rules” are controlled by usual cases (the wing of the airplane must have just “this” shape to fly, the mathematical relation between the weight of airplane and the power of engine must be just “this” to fly); II) “Theories” must be controlled by very special cases (“remote implications”), boundary cases which can falsify the theory, cases which Bacon called *experimenta crucis*. Theories are large and profound descriptions of phenomena coherent with our conceptions of the world, descriptions or representations which individuate causal chains and refer the phenomena to more fundamental entities: entities like molecules, atoms, sub-atomic particles, more able to explain different kinds of phenomena (chemistry, physics, molecular biology, etc.). Theories, when considered as simple calculations and technological instruments, cannot be refuted in experimental sense: they have a narrow and absolutely limited range of application. A refuted theory, as classical gravity today, can be still employed as instrument, within the range of its application, also after its refutation.

Theories, when considered as instruments, cannot account for real tests (attempted refutations) and then they cannot account for scientific progress. Popper (1965) writes: «By neglecting falsification, and stressing application, instrumentalism proves to be as obscurantist philosophy as essentialism». Therefore, Popper is critic against View 1),

Instrumentalism/Relativism, but also against View 2), Essentialism; but he is closer to Essentialism than to instrumentalism. Popper does put forward a third View:

3) A true description of facts remains the aim of scientists, it is attainable in partial form and up to a certain level, but, in its absolute form, it is an unattainable aim. Scientist can only be sure that a theory is false when it is falsified by a test. Popper (1965: 113ff) writes:

Essentialism looks upon our ordinary world as a mere appearance behind which it discovers the real world. This view has to be discarded once we become conscious of the fact that the world of each of our theories may be explained, in its turn, by further theories – theories of higher level of abstraction, of universality, and of testability. The doctrine of an essential or ultimate reality collapses together with that of ultimate explanation. [...]

According to our third view the new scientific theories are, like the old ones, genuine conjectures, they are genuine attempts to describe these further worlds. Thus, we are led to take all these worlds, including our ordinary world, as equally real; or better, perhaps, as equally real aspects or layers of the real world. (If looking through a microscope we change its magnification, then we may see various completely different aspects or layers of the same thing, all equally real). It is thus mistaken to say that my piano, as I know it, is real, while its alleged molecules and atoms are mere 'logical constructions'. [...]

Our falsifications thus indicate the points where we have touched reality, as it were. [...] Thus, I agree with essentialism in its view that science is capable of real discoveries, [...] Since I believe that science can make real discoveries, I take my stand with Galileo against instrumentalism. I admit that our discoveries are conjectural.

On the base of this refined form of realism (which entails a representationalism about theories) we better understand, *ex contrario*, Quine's clever foundation of view 1) Instrumentalism/relativism. The principles of ontological relativism are: i) Rejection of Analytic/Synthetic distinction (1951); ii) Rejection of propositional reductionism (discrete statements true do represent discrete facts) (1951); iii) Inscrutability of Reference and Undetermination of Translation (1960). About i), ii) and iii) I can put forward the following remarks.

i). Let us consider Quine's example:

(α) All bachelors are unmarried men

Despite Quine's opinion, a statement like (α) is analytic when it is true on the base of its meaning and not on the base of experience of the world. Analyticity is grounded on synonymy. I admit that it needs the experience of the world to know what is a 'bachelor' and that a 'bachelor' is synonym of 'unmarried man', and it needs the interaction between linguistic and non linguistic behavior (that "extreme empiricism", from stimulus to science, required by Quine); but, in this sense, all the statements like (α) could be considered synthetic, except tautologies (perfectly analytic). The synonymy and thus the analyticity of (α) is imperfect indeed «Catholic priests are unmarried men» is a well formed formula while «Catholic priests are bachelors» is not a well formed formula; also 8 years old unmarried men are unmarried men, but you wouldn't say that 8 years old unmarried men are bachelors; in this sense, the set of unmarried men is larger than the set which contains the bachelors. Quine doesn't believe in the classical distinction between analytic and synthetic statements, while in classical correspondetist frame (which I follow) the distinction holds and all the statements similar to (α) are analytic; it is pointless to employ a so pervasive concept of experience: on this way we could arrive to consider synthetic even $A=A$. In Quine's opinion, the synonymy is the real linguistic phenomenon which creates the deception of "meanings" as mental realities; the linguistic expressions do "mean" but there are no "meanings" as real entities. Semantic platonism by Frege, and in Wittgenstein's *Tractatus*, does create the "myth of museum", a set of

hypostasized mental objects (similar to platonic ideas) which are commonly understood as the “meanings”.

ii). Semantic Holism: knowledge combines true sentences all together (in language) with experience, not one by one with discrete facts. The whole linguistic knowledge of the world is compared with the whole world. As it is known, Quine criticizes the neo-positivist principle of verification.

iii). There is no absolute referential frame of objects between two languages: this is clear for the phenomenon of the undetermination of translation in the radical translation (a translation is radical when the two languages belong to cultures which never had contacts). Against the image of learning a new language given by St. Augustin in *Confessiones* I, 8, and quoted by Wittgenstein at the very beginning of *Philosophical Researches*, Quine does not believe in an absolute referential frame (or conceptual scheme). In *Word and Object* (1960) the example is the following. Case 1, No ostension: A rabbit appears in front of an european linguist and a native of an island of Pacific ocean, the native tells «gavagài», the linguist thinks that «gavagài» means “rabbit”, but «gavagài» could mean also “grab it” or “I can’t shoot”. Case 2, Persistent ostension: the linguist indicate the rabbit and asks the native «gavagài?» meaning “Is that a rabbit”, the native understands “undivided parts of rabbit” or “temporal parts of rabbit”. The conceptual scheme of the native is absolutely incomparable with the conceptual scheme of linguist, every language and every culture has its referential frame, its own ontology. So do scientific theories. The Quinean realtivism is today an unescapable aspect of epistemology.

Maybe an experimentalist epistemology, in which levels of truth (more and more deep) are conceived as levels of semantic refinement (Buzzoni, 1995), can solve the debate Relativism-Realism, but leaving aside bad instrumentalism and bad essentialism, and holding in high regard what Popper and Quine wrote. It seems to me that ontological relativity proposed by Quine is valid on subjective side of knowledge but it is not the final truth: it is the comparison between different cultures which gives raise to different conceptual schemes. Let us imagine in a *Gedankenexperiment* an alien species with biological parameters of cognition (dimension, perception, mental life etc.) similar to us, which develops an advanced technology whose salient points are in common with our technology: this view shows that an objective reality must exist, but it can be interpreted in different ways. Quine has a problem with objects (because he tries to erase the correspondence theory): there are no absolute objects but only experiences (of events) and the language; a hypothetical alien species could conceive reality in terms of objects and predicates as much as biologically similar this species is to human species.

References

Buzzoni, M., 1995, *Scienza e tecnica. Teoria ed esperienza nelle scienze della natura*, Studium, Roma.

Feyerabend, P.K., 1975, *Against Method. Outline of an Anarchistic Theory of Knowledge*, New Left Books, London; trad. it. di L. Sosio, P.K. Feyerabend, *Contro il metodo. Abbozzo di una teoria anarchica della conoscenza*, Feltrinelli, Milano, 2013.

Kuhn, T.S., 1962, *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago.

Licata, G., 2007, *Teoria platonica del linguaggio. Prospettive sul concetto di verità*, Il Melangolo, Genova.

Osiander, 1543, *Ad lectorem de hypothesibus huius operis. Prefatio*, in N. Copernici, *De revolutionibus orbium coelestium*, Iohannes Petreium, Normiberga, in P. Rossi, *La rivoluzione scientifica: da Copernico a Newton*, Loescher, Torino 1973, pp. 186-188.

Popper, K., 1965, *Three Views Concerning Human Knowledge*, in K. Popper, *Conjectures and Refutations. The Growth of Scientific Knowledge*, Routledge and Kegan Paul, London, pp. 97-119.

Putnam, H., 1975, *The Meaning of "Meaning"*, in *Language, Mind and Knowledge. Minnesota Studies in the Philosophy of Science*, Vol. 7, K. Gunderson (ed.), pp. 131-193. University of Minnesota Press, Minneapolis.

Quine, W.V.O., 1951, *Two Dogmas of Empiricism*, in "The Philosophical Review", 60, pp. 20-43; in W.V.O. Quine, *From a Logical Point of View*, Harvard University Press, Harvard, 1953.

Quine, W.V.O., 1960, *Word and Object*, MIT Press, Cambridge.

Wittgenstein, L., 1953, *Philosophische Untersuchungen/Philosophical Investigations*, edited by R. Rhees, G.E.M. Anscombe (eng. transl.), Basil Blackwell, Oxford; trad. it. di M. Trinchero, *Ricerche filosofiche*, Einaudi, Torino, 2009 (1967).

