

ITERATIVE EMPIRICISM AND OBSERVATION

The main feature of empiricism is that a strong role is attributed to experience in shaping our views of the world, that is, our concepts, categories, beliefs, theories, etc. In other words, our views depend in large part on our experiences, whether it be because these experiences lead us to hold new beliefs or because they confirm or disconfirm already held ones. For experience to play this role of an epistemic guide, traditional empiricism has made use of *observation* as a key concept. Observation sentences have a high, maybe the highest, epistemic authority. Depending on the particular version of empiricism one considers, the propositions expressed in observation sentences are true, very likely to be true, infallible, particularly credible, etc. Regardless to these differences, the epistemic authority of observation sentences, broadly speaking, is enough to give empiricism plausibility: *if* observation sentences have a high epistemic authority, it is rational for the subject to believe the proposition expressed in an observation sentence. It is also rational to give observation sentences priority over non observational beliefs. Theories, for instance, can be strongly questioned if they conflict with observation. Even a well-established theory can continue to evolve under the pressure of observation. So while observation is a key concept of empiricism, it can only be so if observation sentences have a high epistemic authority.

Where does the epistemic authority of observation sentences come from? How can we defend it? Traditional empiricism provides an answer to this question, and a very influential one: epistemic *authority* derives from epistemic *autonomy*. Observation sentences have a high epistemic authority because they do not rely on previously held beliefs, neither for their formulation, nor for their justification. They are a direct response to a special kind of experience that occurs in certain specifiable conditions. One observes, according to the traditional view, when one uses unaided perception and directs all his attention to an observable phenomenon (a process, a property, an entity, etc.) under normal external circumstances (in broad daylight for instance), reporting on his observation using low-level or basic observation terms.

Traditional empiricism and its conception of observation have been harshly criticized over the past half century. Two of the most influential criticisms that have been addressed to the views I have just sketched are labelled with two expressions that are now symbols of post-positivist epistemology and philosophy of science. The first one, coined by Hanson [1], is the 'theory ladenness of observation', which is an umbrella term for a number of problems with the traditional view of observation, most of which dealing with the lack of epistemic autonomy of observation sentences. The second one, Sellars' 'myth of the given' [2] is also an attack against epistemic autonomy, but one that is more general than Hanson's, as it intends to demonstrate the impossibility of autonomous propositions, whether they result from observation or other.

Since the 1960s, following this criticism, philosophers have distanced themselves from traditional empiricism as well as from the traditional conception of observation. But no consensual view has emerged from the numerous debates about observation. For example, while a majority of philosophers of science seems to defend the possibility for some instruments to serve in observation, it remains unclear *which* instruments could be acceptable and *what* the relevant criterion is to

make this decision. Philosophers have also been unable to reach any agreement regarding the epistemological role of observation sentences. While some of them maintain the epistemic privilege attributed to observation sentences, others view observation as a mere pragmatic concept and do not attach any more epistemic authority to observation sentences than to the rest of propositional beliefs held by a subject. In reaction to this seeming impossibility to make sense of the concept of observation, Bogen and Woodward have suggested in a series of influential papers (especially [3, 4]) that talk of data and phenomena, rather than observation, would be of great benefit for philosophers. Data and phenomena are certainly most relevant in the context of contemporary empirical investigation but I think that there is no need to abandon the concept of observation. This paper is my attempt to reform it so it can be both meaningful and applicable in practice, especially in a scientific context.

Of the traditional view of observation, I claim that one aspect must be preserved: observation sentences have a high epistemic authority. I will however depart from traditional empiricism since I will defend this claim by means other than epistemic autonomy. The kind of view I intend to develop follows a recent trend in epistemology as well as in the history and philosophy of science, that tends to emphasize three aspects of the acquisition of empirical knowledge. The first one is that no piece of empirical knowledge, including observational knowledge, can be epistemically independent from at least a subpart of a subject's view, since a conceptual framework as well as background beliefs must be used to express a judgment in response to experience. The second one is that observation should not be considered as a static event that occurs once and for all. It is part of a bigger undertaking, that I will name 'empirical investigation'. An empirical investigation aims to gain knowledge about a given phenomenon, with given means of investigation (mere perception or perception assisted with some instrument). It is an essentially dynamical process during which the material as well as the conceptual and doxastic frameworks evolve as the subject investigates further on. Finally, the third aspect of the acquisition of empirical knowledge is that an empirical investigation is not only dynamical, it is also corrective, leading the investigator to have a better view and, if applicable, better instruments. Adding on improvements to an empirical investigation is an essential feature of what I will call 'iterative empiricism', a name inspired by Chang's emphasis on 'iterativity' in his book *Inventing Temperature* [5]. I will then argue that iterativity permits one to stabilize the material, conceptual and doxastic frameworks, therefore permitting to observe. Scientific observation then, in my view, is characterized by a state of (possibly temporary) stability, which in turn leads to a broad agreement among competent observers and high epistemic authority of observation sentences.

Bibliography

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