

[Tarea 1b]

2020

Tarea 1b: Revisar el texto “[Tarea 1b]” y determinar si satisfactoriamente introduce el objeto de estudio de la investigación (en caso de que no lo haga, identificar qué información falta o sobra).

No es necesario entregarla. La discutiremos durante la sesión

A *contradiction* is a pair of propositions where one is a negation of the other. A set of propositions is *trivial* if it is possible to derive any proposition from it. According to the *Principle of Explosion*, any set of propositions, if closed under classical logic, is trivial if containing a contradiction.

In light of the above, contradictions have been traditionally regarded as extremely malignant, especially for the development of the sciences and scientific reasoning itself. As a matter of fact, there is a recurring view in the traditional literature of logic and philosophy of science which holds that if, while examining our empirical theories, we presuppose the basic principles of classical logic (or any other explosive logic), then because of the Principle of Explosion, “an inconsistent theory implies any conceivable observational prediction as well as its negation and thus tells us nothing about the world” (Hempel, 2000: 79); which is widely understood as the absolute failure of the theory for scientific purposes. Call this, the *Traditional view*.

However, despite these traditional intuitions about the role of contradictions in the sciences, some historians and philosophers have argued that if one looks closely enough to the historical record, one could recognize that many of our best scientific theories have been, at some point in their development, inconsistent and, despite this, they had not become trivial at the same time. Some of the most famous examples of this are: Aristotle’s theory of motion (Cf. Priest & Routley, 1983), Bohr’s theory of the atom (Cf. Fowler, 1913; Lakatos, 1970; Brown & Priest, 2015), and Classical Electrodynamics (Cf. Frisch, 2004), among others.

In addition, since the second half of the 20th Century, a significant group of logicians have worked on a variety of formal logics that significantly challenge

the Principle of Explosion by allowing the presence of contradictions and still pursuing the avoidance of logical triviality. These logics have been labeled as *paraconsistent logics*. Some of the formal resources that resulted from the development of paraconsistent logics have been used to describe and explain historical episodes that illustrate both the presence of contradictions in the sciences and the absence of logical triviality.

The phenomenon of working with inconsistent information and avoiding triviality at the same time is what has been called *inconsistency toleration*. In the case of scientific reasoning, this phenomenon consists of identifying a contradiction in a theory, model or pieces of reasoning and still being able to reason sensibly with the inconsistent information, this is, they are still able to distinguish between the products of their reasoning that are sensible given a particular context from those that are not (Cf. Meheus, 2002; Carnielli & Coniglio, 2016).

Pace the Traditional view, a more recent standpoint, the *Paraconsistent view*, claims that inconsistency toleration is not only possible (as paraconsistent logics have shown) but also a common and safe practice in the sciences. The main assertion of those defending this view, is that inconsistent theories do not always have to be rejected (Cf. Lakatos, 1970; Laudan, 1977; Smith, 1988; Meheus, 2002; Priest, 2002).

Nowadays, there is still no common agreement between philosophers about the plausibility of inconsistency toleration in the sciences. Defenders of the two main standpoints, the Traditional view and Paraconsistent view, have systematically scrutinized both the historical record and the formal constraints of paraconsistent logics without reaching much agreement on the actuality of inconsistency toleration. In particular, for the case of non-trivial inconsistent scientific reasoning, supporters of the Traditional view have argued that the historical record has not provided any strong evidence in favor of the need of inconsistency toleration in the sciences (see Vickers, 2013: Chap. 3-7; Davey, 2014). With this concerns in mind, the methodology that the supporters of the Traditional view have provided has been mostly historiographical and, allegedly, not motivated by any preferences regarding logic.