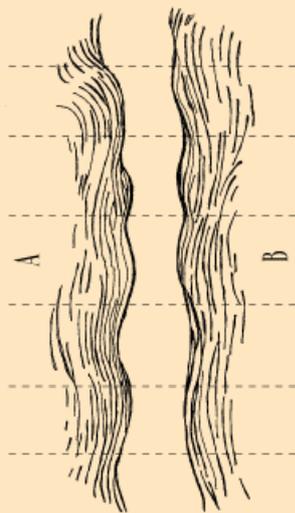


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# **Disentangling the web of belief. Metatheoretical status and empirical testability of Saussure's principle of arbitrariness**

HUBERT KOWALEWSKI

**ABSTRACT.** The aim of this paper is to take a metatheoretical look at Ferdinand de Saussure's principle of arbitrariness. What is the status of this principle in the overall theory of language proposed by the Swiss linguist? This question is not just a plaything for historians and philosophers of linguistics, since the answer is intimately related to actual scientific practice, namely the degree of empirical testability of the principle and the degree of protection against falsifying evidence that the principle should receive. The question about the status of the principle of arbitrariness can be broken down into at least two more specific questions. The first one refers to the place of the principle within what Quine and Ullian would call "the web of belief" of Saussurean linguistics. Thus, the principle can be a "metaphysical model," a part of the "hard core" of the research program, a regular empirical hypothesis, or an a posteriori summary of results from actual investigation of linguistic data. The second question concerns the degree of idealization involved in the principle. Is the principle more similar to what Cartwright calls a "phenomenological law," i.e. a law about actual observable linguistic phenomena; or to a "theoretical law," which describes an idealized model of the phenomenon under investigation, but does not always describe empirical data correctly.

## **1. Introduction**

The principle of arbitrariness is widely considered as one of Ferdinand de Saussure's most prominent and innovative contribution to the science of language. Uncritically accepted by some and forcefully rejected by others, the principle became a reference point for most of the 20<sup>th</sup> century schools of linguistics. Considering its importance for modern science of language, it is somewhat surprising how little attention was devoted to its metatheoretical status within Saussure's overall theory of language. Is the principle some sort of fundamental postulate, a starting point for further research accepted without much evidence? Is it a thoroughly tested empirical hypothesis? Or is it something else entirely?

The question is not merely a sterile philosophical debate with little influence on practical research, for the metatheoretical status of the principle largely determines its testability. Unless we have a fairly good understanding of the place of the principle in Saussurean linguistics, it is not obvious whether the principle can or should be tested, and it is difficult to evaluate the force of potential counter-evidence against it. In Section 2, I will discuss several options of what the status of the principle may be in what Quine and Ullian call the "web of belief" [Quine and Ullian, 1978]. The web of belief is a system of interconnected statements, implicit and explicit postulates, hypotheses, etc. which together constitute a scientific theory.

In Section 3, I will introduce Nancy Cartwright's [1983] distinction between theoretical and phenomenological laws. While *Course in General Linguistics* [1966 [1916]] does not make clear whether the principle of arbitrariness should be treated as the former or the latter type of law, the classification also makes a significant difference for actual scientific practice. I will not attempt to give conclusive and definitive answers to the questions about the metatheoretical status of the principle, since I do not believe such answers can be given on the basis of *Course in General Linguistics*, even when the edited volume of Saussure's notes *Writings in General Linguistics* [2006] is taken into account. At best, I will try to cautiously evaluate how likely each option is, bearing in mind that each of them is open to debate.

From the philosophical perspective, the options discussed in this article come from various, usually mutually incompatible, philosophies of science. Choosing one of the options entails subscribing to a particular vision of science and sometimes it also means excluding the visions of other philosophers.<sup>1</sup> Thus, the philosophical background for the following discussion is diverse and does not form a neat and coherent system of ideas. The aim of the article is to overview various alternatives for what the principle of arbitrariness could be within the Saussurean web of belief rather than to propose a comprehensive evaluation of the principle from one philosophical perspective.

## 2. A postulate or a hypothesis?

I believe there are four main options for what the principle of arbitrariness could be within the Saussure's theory of language: a metaphysical model, a part of the hard core of a research program, a regular empirical hypothesis, or an a posteriori generalization from inductive research. Even though *Course in General Linguistics* does not make clear which option is the preferred one, in the following paragraphs I will briefly discuss the options and try to evaluate their plausibility.

*A metaphysical model.* The notion of a metaphysical model was introduced by Thomas Kuhn in his seminal book *The Structure of Scientific Revolutions* [Kuhn, 1996 [1970]]. Metaphysical models are parts of a scientific paradigm defined as "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" ([Kuhn, 1996 [1970]], p. 175). Broadly speaking, metaphysical models are beliefs about what exists or what things are like. They are divided into two general classes: *ontological models* are statements about the metaphysical nature of things referred to in a theory, e.g. "heat is the kinetic energy of the constituent parts of bodies" ([Kuhn, 1996 [1970]], p. 184); *heuristic models* are conventionalized metaphors commonly accepted in the community, e.g. "the molecules of a gas behave like tiny elastic billiard balls in random motion" ([Kuhn, 1996 [1970]], p. 184).

It is not hard to see how the principle of arbitrariness could be viewed as a metaphysical model. Under this interpretation, the principle is simply a statement about an inherent property of the linguistic sign, or put simply, about what the linguistic sign is like. Since according to Kuhn metaphysical models enjoy the status of fundamental postulates, they are not normally subject to empirical testing; rather, they are "starting points" for further research and theoretical background against

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<sup>1</sup>Perhaps the philosophical conflict is most prominent in the case of Karl Popper's and Thomas Kuhn's philosophies, discussed very briefly in Section 2.

which facts are interpreted. One linguist who would possibly subscribe to this interpretation of the principle of arbitrariness is Charles Hockett. In his book *A Course in Modern Linguistics*, he listed arbitrariness as “a key property of language” ([Hockett, 1958], p. 574). Hockett was aware of the fact that linguistic signs like onomatopoeias display some non-arbitrariness in the connection between the signifier and the signified, but he conceded flatly that onomatopoeias are largely arbitrary nonetheless (cf. [1958], pp. 577-578).<sup>2</sup> Later I will argue that after close reading of Saussure’s *Course in General Linguistics* this interpretation of the principle is not very likely.

*A part of the hard core of the research program.* Imre Lakatos’s notion of research program (cf. [Lakatos, 1970]) is similar to Kuhn’s paradigm in that it stands for a web of belief to which scientists in a community are committed. The crucial difference between the two notions is that Lakatos’s research program is restricted to the theory of a phenomenon under investigation, while Kuhn’s paradigm is a broader complex incorporating elements which, strictly speaking, do not belong to the theory proper, like values held dear in the community. Lakatos describes the structure of a research program in the following passage:

All scientific research programmes may be characterized by their “hard core.” The negative heuristic of the programme forbids us to direct (...) [a falsifying test] at this “hard core.” Instead we must (...) articulate or invent “auxiliary hypotheses,” which form a protective belt around this core (...) [This belt] has to bear the brunt of tests. ([Lakatos 1970], p. 191)

This suggests that even though the statements constituting the hard core are in principle falsifiable and may be subject to empirical testing, scientists will typically defend these central claims against falsification.

*Course’s* passage on onomatopoeias and interjection towards the end of Chapter 1 (cf. [Saussure, 1966 [1916]], pp. 68-70) suggests that the author might have treated the principle of arbitrariness as a part of the hard core of his program. Firstly, the passage clearly shows that Saussure was aware of potential counter-evidence to the principle (onomatopoeias and interjections), which suggests that he treated the principle as something that can be tested, at least in principle.<sup>3</sup> Secondly, in the light of potential falsifiers to the principle, Saussure did not abandon his claim, but launched militant defense designed to show that onomatopoeias and interjections are not genuine counter-evidence. This behavior is strongly reminiscent of a scientist protecting the hard core of her research program, when she believes that some central elements of her theory are under threat.

It should be noted, however, that Saussure’s defense is probably illicit by Lakatos’s standards, since it betrays some characteristics of what Karl Popper calls “conventionalist stratagems” (cf. [Popper, 2002 [1934]]). Conventionalist stratagems are meant to provide immediate ad hoc protection against falsification without enhancing the epistemic value of the theory. Saussure’s rebuttal of the counter-evidence is somewhat provisional, when he claims that onomatopoeias

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<sup>2</sup>As we will see later, a similar argument is used by Saussure himself, so possibly this way of defending arbitrariness is inspired by the author of *Course in General Linguistics*.

<sup>3</sup>For exactly the same reason it does not appear likely that Saussure viewed the principle as a metaphysical model, since such models are not typically tested, so counter-evidence against them is not even discussed.

- “are limited in number” (p. 69) (even though only one counter-example successfully falsifies a hypothesis about all members of a class);
- they “are chosen somewhat arbitrarily” (p. 69) (but not *entirely* arbitrarily, still);
- they “are to a certain extent subjected to the same evolution (...) that other words undergo” and they “lose something of their original character” (p. 69) (does this mean they were non-arbitrary originally?);
- onomatopoeias “are never organic elements of a linguistic system” (p. 69) and interjections “are of secondary importance” (p. 70) (these are purely verbal attempts at discarding potential counter-evidence).

*An empirical hypothesis.* In Karl Popper’s understanding, the criterion of “empiricness” of a hypothesis was falsifiability and universality. A hypothesis is falsifiable if and only if it is possible to predict a result of experiment or observation which disconfirms the hypothesis. If such a result is impossible even in principle, the entire procedure of testing the hypothesis misses the point. For example, if the principle of arbitrariness is reformulated into the statement

- (1) All linguistic signs are arbitrary

(1) is an empirical hypothesis if one could predict what a non-arbitrary sign would be like and if such a sign could be discovered (at least in principle). However, statements like

- (2) Some linguistic signs are arbitrary  
 (3) The linguistic sign *cat* is arbitrary

are not empirical hypotheses, since (2) cannot be proven false even if some non-arbitrary linguistic signs were discovered and it is not universal (i.e. it is not a statement about all members of the class of linguistic signs). In turn, (3) is falsifiable, but not universal and therefore it is not a legitimate empirical hypothesis. Falsifiability is a pivotal notion in Popper’s philosophy of science; in his book *The Logic of Scientific Discovery* [2002 [1934]], the terms “empirical,” “falsifiable,” “testable,” and “scientific” are almost synonymous. Like Lakatos, Popper did emphasize the importance of falsification, but he did not believe that any part of a scientific theory is or should be protected against falsification in any special way. On the contrary, in Popper’s view, scientists should critically evaluate all parts of their web of belief.

As already mentioned, the fact that Saussure discussed some potential counter-evidence to the principle suggests that he considered it as open to falsification. Also, the original formulation of the principle (cf. [Saussure, 1966 [1916]], p. 67) indicates that the linguist did have the entire class of linguistic signs in mind. Thus, the principle fulfills the definition of an empirical hypothesis in Popper’s understanding: it is both falsifiable and universal. Nonetheless, it should be born in mind that even though Saussure might have treated the principle as a legitimate empirical hypothesis, its defense against falsification (as already mentioned) appears provisional and unsatisfactory.

*A posteriori generalization about inductive observation.* The final option is that the principle is simply a conclusion from numerous observations of linguistic facts. The important difference between this and the previous options is that such a conclusion is made a posteriori, i.e. after observations have been carried out, while metaphysical models, parts of the hard core, and empirical hypotheses are typically a priori, i.e. they are assumptions or “learned guesses” serving as starting points for further research. This interpretation of the principle seems to be advocated by Donald Ringe, who maintains that “[in] any language, the relation between meaning and sound is largely arbitrary. This is one of the fundamental *observations of facts* on which scientific linguistics is built” ([1992], p. 3; my emphasis). Nevertheless, the interpretation does not seem likely, since nothing in *Course in General Linguistics* suggests that an extensive analysis of data had been carried out before the formulation of the principle. In particular, *Course* does not include any information, tentative as it may be, about the type and amount of data analyzed, languages from which the data were derived, description of research methodology, etc. Therefore, any claim that such investigation was conducted and eventually led to the formulation of the principle is unsupported by the book.

Even though it is difficult to draw definite conclusions about the metatheoretical status of the principle of arbitrariness on the basis of *Course*, the most likely option is that the principle was treated by Saussure as a part of the hard core of his theory of language. The author’s defense of the principle against falsification suggests that he was aware that the principle could be falsified and took some time to discard potential falsifiers. This shows that Saussure realized that the principle was vulnerable to falsification. Alternatively, the principle could also be a regular empirical hypothesis, which is falsifiable too, but it does not enjoy any special status within the web of belief and can be abandoned relatively easily in the light of counter-evidence. However, the effort taken by Saussure to guard it against falsification indicates that the principle has a very special place in the theory of language and is not to be abandoned easily. This interpretation is also supported by other passages in the book; for example, Saussure writes that “[the principle] dominates all the linguistics of language; its consequences are numberless” and it is of “primordial importance” ([1966 [1916]], p. 68).

### 3. A theoretical or a phenomenological law?

In *How the Laws of Physics Lie* [1983], Nancy Cartwright introduces the distinction between theoretical and phenomenological laws. The former are “about the reality behind the appearances” (p. 19), they may take the form of “thoroughly abstract formulae which describe no particular circumstances” (p. 10), and “can be known only by indirect inference” (p. 1). The latter, in turn, are “about appearances” (p. 1), “things which we can at least in principle observe directly” (p. 1), they are “specific to the situation at hand” (p. 8), and “tell what happens in concrete situations” (p. 3). In physics, a good example of a theoretical law is the second law of thermodynamics describing the behavior the so-called isolated systems, i.e. a system enclosed by rigid walls impermeable to mass and energy. This means that such a system does not exchange energy, neither in the form of heat, nor work, with its environment. According to the law, the entropy of a perfectly isolated thermodynamic system either remains constant or (typically) increases over time, but it never decreases. While the law is an extremely important part of modern

physics, strictly speaking, it does not describe the behavior of any real physical system, since no actual physical system is perfectly thermodynamically isolated: no physical insulation is so efficient that it completely prevents the exchange of heat between the system and its environment. Therefore, the second law of thermodynamics describes an idealized situation: it describes what would happen in a system of a certain kind if all interfering factors could be screened off, regardless of whether such screening is possible in practice. Despite the fact that theoretical laws do not describe any actual situations, they are considered to express important epistemic insights and are often considered more fundamental than phenomenological laws describing actual situations more faithfully.

At this point, the crucial question is whether the principle of arbitrariness should be interpreted as a theoretical or a phenomenological law. Under the “phenomenological” interpretation, the principle states that *actual* linguistic signs in *actual* languages are arbitrary. In this case, the principle is open to empirical falsification: to falsify the principle, it suffices to find an actual linguistic sign which is not compatible with Saussure’s definition of arbitrariness. The formulation of the principle in *Course* is somewhat vague: arbitrariness is defined in terms of lack of natural connection between the signifier and the signified, but naturalness of the connection is neither defined, nor explained.<sup>4</sup> Due to this underspecification, what counts as non-natural, and consequently as arbitrary, is open to debate. Nonetheless, if the theoretical notions were defined with more precision, any linguistic sign could be evaluated as either arbitrary, or non-arbitrary, and therefore empirical falsification would be possible.

On the other hand, if the principle is understood as a theoretical law, it is far from obvious if it can be falsified by observing actual linguistic signs. By definition, theoretical laws do not describe any actual facts, so no actual linguistic sign bears the appropriate type of relation to the law to make falsification possible. Cartwright notes that theoretical laws are typically prefaced (explicitly or implicitly) by the *ceteris paribus* clause stating the law applies in the situations when “all other things are equal” (or in Cartwright’s paraphrase, when “all other things are right”; cf. [Cartwright, 1983], p. 45). Consequently, when faced with a potential falsifier of the principle of arbitrariness, a Saussurean linguist could always evoke the clause and argue that in this particular case all other things are not, in fact, equal (or right). In other words, even if a linguistic sign betrays some non-arbitrariness in the way the signifier is associated with the signified, the proponent of the principle could point to some additional factors that make the sign non-arbitrary or make it appear as non-arbitrary, while still holding that in the ideal situation linguistic signs are arbitrary. Under this “theoretical” interpretation, actual linguistic signs fail to falsify the principle of arbitrariness, for exactly the same reasons why the behavior of actual thermodynamic systems fails to falsify the second law of thermodynamics: theoretical laws simply do not apply to actual facts and situations.

Perhaps this is the way Saussure’s defense of the principle against onomatopoeias and interjections (described in more detail in Section 2) should be understood. Despite the fact that the Swiss linguist noticed some non-arbitrariness in the relation between the signifier and the signified, he believed that under the *ceteris*

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<sup>4</sup>For a more detailed discussion on different interpretations of arbitrariness and naturalness, see Kowalewski [2015] and Kowalewski [2016].

*paribus* clause the linguistic sign is fully arbitrary (or in Saussure's parlance, "absolutely arbitrary"). More generally, in spite of the fact that some actual linguistic signs do not appear to be fully compatible with the principle of arbitrariness as formulated in *Course*, it may be argued that the principle nonetheless expresses an important truth about language.

The price to pay for this interpretation is that like all theoretical laws, the principle applies more readily to idealized circumstances than to what linguists may encounter while investigating actual linguistic data. Some linguists may balk at the idea that the object of their study is some theoretical fiction rather than "hard data" collected during scrupulous fieldwork. Yet to reject theoretical laws as a legitimate part of scientific enterprise is either to reject a vast majority of contemporary sciences like physics and chemistry or to accept double standards and to admit that what is permitted in natural sciences is for some reason prohibited in linguistics. Neither of these options seems attractive and therefore linguists should probably accept theoretical laws as part and parcel of their science.

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