

Construction and *Worldmaking*: the Significance of Nelson Goodman's Pluralism

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ABSTRACT: Goodman's style may be elusive sometimes, so that it may result difficult to interpret what he really has in mind. This is a consequence of his masterful use of irony and metaphorical language. This difficulty of interpretation affects important parts of his philosophical thoughts and had led to misunderstandings. In the present article, I discuss the significance of Goodman's pluralism, one of his most relevant theses. I try to show that Goodman's pluralism does not lead to skepticism or the relativism of "anything goes". One of the most common arguments directed against Goodman's pluralism is that his attempt to provide a genuine standard of "rightness" fails, leaving us without a conception of truth or an appropriate substitute. I will argue that the conclusion of this argument is false, trying to show that Goodman's aim of defending an irrealist pluralism is perfectly coherent and defensible against the common interpretation of his critics.

Keywords: Nelson Goodman, relativism, pluralism, worldmaking, constructivism, irrealism.

1. Introduction

Goodman was a kind of thinker whose style and art of writing, often metaphorical and elusive, was clearly reflecting the main tenets of his own philosophy. Some readers find his style too ambiguous, some others find it evocative and stimulating. Goodman himself noticed that "the more complicated and elusive the style, the more does it stimulate exploration and reward success with illumination" (Goodman 1978, p. 40). But this also means that Goodman's philosophy needs sometimes for a reconstruction in order to make clear certain aspects or to reveal more clearly the structure of certain arguments. If this is the case of all great thinkers, it may well be truer in Goodman's case. But the fact that Goodman's style is sometimes metaphorical does not necessarily mean that it becomes ambiguous or less intelligible. Recall that, according to Goodman, metaphorical use of language is not less comprehensible and no more independent of truth and falsity than the literal use — see Goodman 1984, p. 71.

From all the issues in Goodman's philosophy that are more discussed, pluralism has been one of the most controversial and less understood, precisely because of the elusive style he employs to put it forward. What is exactly a "worldversion"? To answer this question is a challenge for all those that aim at an interpretation of Goodman's philosophy. More particularly, it is very important in order to give an adequate interpretation of Goodman's pluralism and constructivism. He presented the idea of pluralism in one of his most well known books, *Ways of Worldmaking*. In this book, Goodman (1978, p. x) says:

Few familiar philosophical labels fit a book that is at odds with rationalism and empiricism alike, with materialism and idealism and dualism, with essentialism and existentialism [...] What emerges can perhaps be described as a radical relativism under rigorous restraints, that eventuates in something akin to irrealism.



These words are extracted from the foreword of the book, which ends by characterizing the whole idea as a movement from unique truth and a fixed world to “a diversity of right and even conflicting versions or worlds in the making.” Some years later, in his *Of Mind and other Matters*, a book in which he reexamines some of his previous theses and arguments and tries to defend them from criticism, Goodman says of his irrealism that it “does not hold that everything or even anything is unreal, but sees the world melting into versions and versions making worlds” (Goodman 1984, p. 29).

Sometimes Goodman (1978) speaks of versions as *being* worlds, sometimes as *making* worlds. This apparent tension has been pointed out by Scheffler (1996, p. 133), who sees two possible and conflicting interpretations of the term “world” in Goodman’s text. On the one hand, we have the *versional* interpretation, according to which a “world” is a right worldversion and the pluralism defended simply reflects the doctrine already presented in *The Structure of Appearance*: conflicting systematizations can be found for practically any prephilosophical subject matter. On the other hand, we have the *objectual* interpretation, that sees worlds as realms of things referred to or described or represented by a right worldversion. To talk of many worlds in this case has quite another ontological significance.

In one of his replies to Scheffler, Goodman tries to defend his position against criticism and admits that talk of worlds and talk of right versions are often interchangeable. But being interchangeable doesn’t mean being identical. As he immediately emphasizes (Goodman 1984, p. 41), a right version and its corresponding world are different. A version, again, is a human construction, for example, a theory, a hypothesis or just a portion of language, saying — let us say — that there is a star up there. A version saying that there is a star up there is not itself bright or far off, and the star — in its turn — is not made up of letters. As obvious as this may sound, it must be said that it has constituted one of the main points of debate in Goodman’s thought and is one of the central issues in the discussions collected in McCormick (1996).

On the other side, the fact that Goodman himself refers to his own philosophy as a relativist one, or as defending a relativist position, had led to misunderstanding and had made the ill minded criticism easier. He refers to his own position as “*radical* relativism”, but at the same time he specifies that his relativism is “under rigorous restraints”. In the present paper, one of my aims is to delimitate the strength and scope of Goodman’s relativism. To investigate the nature of his relativism will help to reexamine the critical arguments that are often directed to it and will also allow us to see the fruitfulness and relevance of some of his ideas.

The plan of the article is as follows. In the next section, I will abound in an interpretation of Goodman’s pluralism according to which it becomes immune to the charge of “irresponsible relativism” — as Goodman himself labels it. In this sense, Goodman’s pluralism does not lead to skepticism or a relativism of “anything goes”. One of the most common arguments directed against Goodman’s pluralism is that his attempt to provide a genuine standard of “rightness” fails, leaving us without a conception of truth or an appropriate substitute. I will argue that the conclusion of this argument is false, trying to show that Goodman’s aim of defending an irrealist pluralism is perfectly coherent and defensible against a common view among his critics. In

section 3, I will deal with the ontological problem of the starmaking, making sense of the idea of “worldmaking”, i.e. of Goodman's constructivism, in a way that avoids some misinterpretations and tries to make clearer the pluralist thesis. Finally, I will try to show the relevance of Goodman's ideas for the discussion in some current issues in philosophy of science.

2. “*A radical relativism under rigorous restraints*”.

When he refers to his own philosophy, Goodman often talks of “radical relativism”¹, but we must remember that he sometimes liked to use the irony and to be provocative. At the same time, he also specifies that there are severe restraints to be imposed — see Goodman 1978, p. 94. Of course, in the paradoxical label “radical relativism under rigorous restraints” there is a kind of irony that tries to emphasize an apparent tension in a deeper thought. He also says that his relativism is “equidistant from intransigent absolutism and unlimited license” (Goodman 1984, p. 40). By “unlimited license” we have to understand the kind of “irresponsible relativism” he wants to avoid, the thesis according to which “anything goes”, a kind of relativism that takes all statements as equally true. Goodman's pluralism is then contrary to a rough relativism.

For an adequate characterization of Goodman's relativism, we have first to specify what is meant by “worldversion”. But Goodman's use of this notion is rather broad: it can not only refer to linguistic systems, such as natural languages, but also to notational systems in music or artworks in the case of painting, the “languages of art” he studies in another well known and influential book. They all share the property of being symbolic systems with rules of their own. According to Goodman, we use these systems in order to understand and construct our worlds of experience, in such a way that there can be words (or, more generally, symbols) without worlds, but no world without words or other symbols. Artworks as well as scientific theories can do the work, because art can serve to cognitive purposes too². An analogue of this cognitivist position and the kind of pluralism defended by Goodman is to be found in Ernst Cassirer's three-volume chief work *The Philosophy of Symbolic Forms*, which explores a similar idea of alternative conceptual frameworks³.

But in which sense there are *many worlds*? — we can legitimately ask. “The conclusion that there are many worlds if any is prompted by the discovery of separately adequate but irreconcilable descriptions and representations.” (Goodman and Elgin 1988, 53). Two different frames of reference, two incompatible but empirically equivalent scientific theories, the different styles of painting by two masters belonging to different schools or periods, ... may be very opposite ways of interpreting the world, both being perfectly adequate. The world as interpreted in a certain system is a “creation”, a construct, so that it can be said that there are many “worlds”, different versions or

¹ See, for example, Goodman (1978, pp. x and 94) and Goodman (1984, p. 39).

² As Goodman says: “the arts must be taken no less seriously than the sciences as modes of discovery, creation, and enlargement of knowledge in the broad sense of advancement of the understanding” (Goodman 1978, p. 102).

³ Goodman also refers to William James' pragmatism as source of inspiration.

ways the world can be, being all of them valid for certain purposes. Of course, not any version makes or constitutes a world, only *right* versions do — right versions, i.e. theories, sets of statements, artworks... that can be considered “correct”, “adequate” or “good” in a relevant sense to be specified. And a version is not to be confounded with the world it makes — see Goodman 1984, p. 34 —, unless we speak in a metaphorical sense.

A central question is whether there is an independent world outside and apart our descriptions. For maybe “the world” can be taken as that which *all right versions* describe. Goodman’s answer is negative: “we cannot test a version by comparing it with a world undescribed, undepicted, unperceived.” (Goodman 1978, p. 4). So, for Goodman, neither of any particular right version nor of the totality of the right versions can be said that they represent “the world”. Goodman is consequently contrary to the idea of reduction to a common base, to the physical or anything else. There is no version such that the other versions can be reduced to it⁴. Pluralism is in principle compatible with reductionism in the sense that there can be many worlds, but such that they all reduce to one of them, being that which really represents the world. But Goodman’s pluralism is in fact incompatible both with realism and reductionism. According to Goodman:

- (i) There seems to be no worldversion that can properly reduce any other worldversion.
- (ii) There is no version telling us how the world really is.

The two main arguments (respectively against realism and reductionism) are related to each other: one is the argument from the indispensability of frames of reference, the other one is that from comparison. The argument from the indispensability of frames of reference says that to state something about the world we always need to speak under a particular frame of reference. The argument from comparison tells us that we cannot compare our versions directly with the world as something outside and independent of all of our descriptions and ways of perceiving and understanding it. This is a well known thesis already advanced by Otto Neurath in the heroic times of logical positivism, the idea that we cannot test our theories, which are linguistically formulated, by comparing them directly with the experience, but only with a linguistic formulation as well⁵. And, as every linguistic formulation is made from a particular point of view, within a certain framework or symbolic system, the argument is clearly related to that from the indispensability of the frames of reference. At the same time, both arguments are closely related to other anti-realistic theses defended by Goodman. For example, according to Goodman, perception is always conceptual and “facts” are not neutrally given, but they depend from a particular frame or have to be understood as a construction of a certain theory. Facts are “fabricated”. Goodman is then against the idea of an unstructured content and an unconceptualized given. So, in

⁴ For Goodman’s form of anti-reductionism see Elgin (this issue).

⁵ This point was acknowledged by Hempel (1996, 125-127) in relation to Goodman. As Hempel puts it, “what we call experimental findings can serve to test a given hypothesis only if they are expressed in sentences that sustain relations of confirmation or disconfirmation to the hypothesis.”

this sense, he is sympathetic with the idea of theory-ladenness of observation made popular by Hanson and other historicist philosophers of science or with Hacking's idea of the construction of data. For this reason, he would be rather happy with Boghossian's recent point against his constructivism — see Boghossian 2006, pp. 34-35. Goodman do indeed extend his constructivism even to the level of the most basic facts, though he would admit different degrees of construction.

As we shall see, Goodman's relativism does not imply the negation of any interesting notion of normativity, but only of the notion of truth as traditionally understood, that is, as a kind of correspondence with reality. This notion of truth is completely rejected by Goodman. Statements can be true or false only under a certain version or frame of reference. Whether the earth stands still while the heavens move around us or it turns on its axis and revolves around the sun or even if it dances the role of Ptolemaic are questions to be treated within a certain system or version. The mere question of whether the earth really moves or not is, according to Goodman, senseless, because these statements have to be considered true or false within the context of a certain worldversion. Obviously, most of us share the realist intuition that only one of these statements, that according to which the earth moves around the sun, is saying something we all recognize nowadays as true. Nevertheless, this is a *realist* intuition we assume to be true, but that it could be revealed false if we get loads of overwhelming evidence against it. This may well seem rather unlikely to happen, given that it is considered a well established scientific statement since Copernicus and counts as part of the common knowledge of almost everybody. But if we are fallibilists, we must admit that this is a possibility. Once we recognize that the statement in question belongs to a particular astronomical system accepted today as part of the well established corpus of scientific knowledge and that, nevertheless, we can be wrong about what we considered to be real knowledge, we also recognize that even this wholly accepted statement is defeatable. In this case, we will probably change that system for another one, as it was the case with the Ptolemaic system when the Ptolemaic cosmology was substituted for the Copernican one. But, according to Goodman, what we do in these cases is not to compare an astronomical system with cosmological reality, with "the real universe". "The universe as-it-really-is" is nothing accessible to us; the only things being accessible to us are collections of astronomical data (that cannot be neutrally given) as interpreted in one or another way.

Other examples may seem less extreme and more frequently discussed. Johnston (1993), following an example provided by C.Z. Elgin, presents a paradigmatic case of empirically equivalent theories, both equally adequate in the sense of saving the phenomena, as an example of what Goodman has in mind: suppose we have two physical theories T_1 and T_2 , the first saying that there are particles of type P being causally responsible for all detected facts about the strange actions of particles of type R , and the second saying that other particles, those of type Q , are causally responsible for them. Suppose that, given the way in which T_1 and T_2 characterize respectively the P -particles and the Q -particles, it follows that no P -particle is or overlaps with a Q -particle and suppose further that none of them is actually detected. They remain, at least for the period in which they are not detected by the physicists, equally acceptable

theories, although we cannot easily accept that they are true together. The reason is that, although T_1 and T_2 are not inconsistent, it is implausible to believe in a sort of pre-established harmony of the P -causes and the Q -causes overdetermining the class of the R -events — see Johnston 1993, p. 100. According to Johnston's suggestion, one way of understanding Goodman in the context of the present example would be to take him as observing that T_1 and T_2 , which are consistent theories, have their own models which we can call the T_1 -world and the T_2 -world respectively. Goodman's position will continue by saying that there is no theory-independent world being the intended model of a theory aiming to describe it. Of course, we may discover a plausible way of reconciling the P -causes and the Q -causes within a new theory proved to be equally adequate, but even in this case we are not allowed to consider it "the world".

Now, there seems to be a problem in saying that there could be theories each steadfastly assertible and yet together inconsistent with something we take to be steadfastly assertible (in the present case, the denial of overdetermination of the R -events), although Goodman's argument seems to require that all be considered steadfastly assertible — see Johnston 1993, pp. 101-102. Nevertheless, what Goodman would think about this case is that both theories are acceptable or approximately adequate for certain purposes and that they cannot be plausibly thought to be compatible according to certain criteria of compatibility, which includes logical consistency. This is something rather different from asserting that both theories together with the claim of no-overdetermination are true or can be asserted at the same time. We can have good and independent reasons to think that two rival theories are true (though not at the same time) or right to some extent, although we know that they conflict, in some particular sense, with one another. This has even been a common situation along the history of science⁶.

Instead of regarding versions as true or false, Goodman sees them as right or wrong. There can be truths that are useless and falsities that are very useful and can be taken to be approximately correct or acceptable for certain purposes and for a certain degree of accuracy. Truth is then neither necessary nor sufficient for choice of statements. It is not necessary, because statements that are approximately correct up to a certain level of accuracy may perfectly be accepted. On the other hand, even if you think that truth can be establish without further difficulties, truth is far from being a sufficient criterion. Some truths are negligible for being trivial, irrelevant, unintelligible, or redundant; too narrow, too broad, too boring, or too complicated (Goodman 1978, pp. 120-121). Furthermore, truth seems to be dogmatic and monolithic, whereas rightness is multidimensional. According to Goodman, there can be different and acceptable criteria of rightness or standards of acceptability for worldversions and the fact that such criteria exist prevents that his position collapses into a rough form of relativism according to which anything goes. In making worlds, at least if we want to become *right* worlds, we cannot use any criterion we please. For example, as Hempel

⁶ Think, for example, in the case of the wave and particle theories of light or in the case of Einstein's relativity theory and Newton's mechanics. In the last case, we have a theory, Newton's, that is —strictly speaking— false, but that may be considered approximately true or correct for certain purposes.

(1996, 130-131) argues, we cannot take the number of pulse beats of the Dalai Lama to measure the duration of an event, because otherwise we would get a version in which the rate of change of all physical processes would depend on the Dalai Lama's health. To measure duration of events in this way would clearly prevent the formulation of simple laws of nature. This version would in any case be avoided by Goodman for not satisfying a minimal principle of simplicity, which is a typical criterion of acceptability.

There are critics disputing that Goodman's notion of rightness or acceptability can be a suitable surrogate for truth⁷. Certain passages by Goodman may suggest that he is proposing to construe truth as acceptability in the long run or acceptability which in never defeated. But, as Goodman himself points out, attempts to construe truth in terms of acceptability face the obvious objection that the most credible statements often turns out to be false. Total and permanent credibility would be perhaps indistinguishable from truth, but cannot be considered a necessary condition for truth "since a disjunction may be permanently and totally credible even though none of its components is." (Goodman 1978, p. 124).

But is permanent and total acceptability a sufficient criterion for truth, as Goodman (1984, p. 38) proposes? Some critics tend to think that not⁸. For example, if we admit that permanent credibility is species relative, we could imagine an intelligent creature sharing with us the ability to construct empirical theories but equipped with very inferior sensory capacities. We can perfectly imagine that they arrive at a theory fully acceptable for them (according to their own standards) but completely false⁹. Or we can easily imagine, with Johnston (1993, p. 102), that we had not arrived at an acceptable and intelligible theory being capable of handling indeterministic phenomena. In that case, the thesis of determinism would have been acceptable (for us) yet false. These possibilities may show that permanent and total acceptability is not sufficient for truth as understood according to the correspondence view, but Goodman is trying to show that this would not make a difference from our point of view, as neither we nor the intelligent creatures of the former example were able to recognize the falsity of our respective theories.

So, according to Goodman, not all worldversions constitute worlds, only the right ones do. And right worldversions are right according to a certain set of acceptability criteria. Goodman distinguishes different forms of making worlds through (right) versions: composition and decomposition, emphasis (or weighting), ordering, deletion and supplementation, deformation. At the same time, he conceives different criteria for rightness. Standards of rightness do not vary with individual opinion. They are carefully selected from a long experience of training in knowledge. "Rightness [...] is neither constituted nor tested by correspondence with a world independent of all versions" (Goodman 1984, p. 39).

⁷ See, for example, Haase (2005) for recent criticism.

⁸ See, for instance, Johnston (1993, p. 102) and Künne (1993, p. 116).

⁹ The example is from Künne (1993).

That truth and rightness are relative to worldversions does not mean that the worldmaking thesis implies that *we* make sentences true. As Schwartz (2000, p. 152) has pointed out, following an analogy between making and baking, “[o]nce the cake is made, the truth of “It’s chocolate” or “It contains 120 calories per ounce” is *independent* of the maker”. By making versions that are right, we make worlds; by making worlds, we are fixing “truths”. What is nevertheless unpleasant for many is the view that the rightness of versions is something that we ourselves determine. Maybe we are free of making versions, but the criterion of rightness should be determined from something external to us¹⁰. According to Goodman, there is indeed a determination of what counts as right relative to a given context in terms that are dependent of our theories, goals and values. For example, in natural sciences theoretical choice is supposed to be determined by our best inductive practices as well as by criteria like simplicity, heuristic capacity or empirical predictability, but the result of working with all these practices and criteria clearly supervenes on the world’s behavior. And it is precisely this fact what gives the possibility of improving our methods as well as our theories. Without an interaction with the world, only by imagining worlds of our own, we could not go very far.

Some critics have pointed out that rightness cannot be an adequate surrogate for truth, because — according to Goodman — there are multiple criteria and standards of rightness. What if these criteria conflict with each other? What if our standards and goals reveal to be jointly unsatisfiable: “considerations such as accuracy scope, entrenchment, and appropriateness are brought to bear. The difficulty is this: the standards of rightness [...] and the goals we want them to realize may be jointly unsatisfiable.” (Goodman and Elgin 1988, p. 23). How then, if there are multiple criteria and they can even change, can we ever establish anything for sure? Goodman’s answer is, as it was easily to suppose, that we can’t and that that is no fault of him. We have to start somewhere, with the best we have available, premises and principles we can consider at least provisionally acceptable, but there are no absolute and incontrovertible certainties (Goodman 1984, p. 40). Nevertheless, the existence of a multiple set of criteria of rightness must not be seen as a problem, because it is rather our best equipment and furniture in a world of uncertainties and handicaps.

Before we proceed to the next section, let me now focus on the thorny question of the self-refutation of relativism. Many authors have coincided in concluding that the main problem with radical relativism is that it is self-refuting (a good example of this is Siegel 1987)¹¹. According to Siegel (1984, p. 367), Goodman’s relativism can receive two contrasted interpretations: a weak one, according to which there are version-neutral criteria of rightness by which alternative versions can be judged (this thesis would be not truly relativist), and another, stronger one, according to which criteria of rightness are version-bound. Both theses can be found in Goodman (1978). Practically

¹⁰ Scheffler (1996) and Scheffler (2000) is precisely arguing this point.

¹¹ More recently, authors like Bennigson (1999) have casted some doubts on the validity of this very common and extended idea. They still maintain that relativism (or, at least, some versions of it) can be perfectly consistent.

at the end of the book, for example, Goodman says: “rightness of design and truth of statement are alike relative to system” (Goodman 1978, p. 139). The problem comes when we add to the second, stronger interpretation the following idea, which also seems to be held by Goodman: that his philosophical meta-version (i.e. his own radical relativism with rigorous restraints) is itself just one of countless possible meta-versions¹². So, if we interpret Goodman as holding the second relativist position and we apply it to the thesis itself as if it were a version among others, we face the problem of relativism as a self-refuting thesis. Relativity of versions reappears, as Siegel (1984, p. 368) argues, at the meta-level, undermining Goodman’s relativism (at least in its second interpretation). Harris (1992, pp. 69-72) essentially follows the same line of criticism¹³.

Nevertheless, although it is true that, in order to be plainly coherent, Goodman must accept the possibility of different, incompatible meta-versions, each one with their own criteria of rightness, this does not imply that we have a relativism of the kind “anything goes” at the meta-level. To recognize that alternative, even incompatible meta-versions are possible does not imply *per se* to recognize that they are equally acceptable. Goodman’s rigorous restraints would also apply at the meta-level, recommending us the choice of a meta-version that could fit better our meta-practices than another one. If we asked how then can we evaluate this meta-choice in a neutral way and we conceded that Goodman would also defend Siegel’s second interpretation, the answer would be that we cannot (as Siegel notices). There would be no neutral criteria at all. Nevertheless, Goodman could further defend his relativism in a coherent way by resorting to an upper meta-level, by which we could evaluate the lower one. This may seem to be an infinite regress, but it is perfectly coherent. Even if we accept the regress, it is still to be shown that it is a vicious one. A sort of hierarchy of different levels of version-judging could have been accepted by Goodman in a rather natural way.

3. *Pluralism of worlds and construction of versions.*

In this section we will deal with the *making* worlds in worldmaking. In which sense we make worlds in proposing right versions? Should we understand this worldmaking literally?

After quoting some passages in which Goodman seems to commit to both interpretations of “world”, the versional and the objectual one — see section 1 in this article —, Scheffler displays his critics against the objectual reading in the following way:

¹² Certain passages of Goodman’s book would support this interpretation. See for example the paragraph at the end of chapter VI when he says: “My outline of the facts concerning the fabrication of facts is of course itself a fabrication” (Goodman 1978, p. 107).

¹³ Other critics of Goodman’s relativism include Johnston (1993) and Lynch (1998). For a discussion on Goodman’s relativism and its epistemological and ontological consequences see Shottenkirk (2009, pp. 86-87 and pp. 103-104). See also Norris (2000) for a critical discussion of Goodman’s pluralism in relation to philosophy of science and, more in particular, to the many-worlds interpretation of quantum mechanics.

The claim that it we who made the stars by making the word “star” I consider absurd, taking this claim in its plain and literal sense. It is a mistake Goodman himself has warned against in an earlier paper, and it seems to conflict with his own insistence on the difference between a version and what it refers to. [...] that the stars did not exist qua stars does not imply that they did not exist, or that we made them. (Scheffler 1996, p. 138).

Scheffler’s objection seems then very clear — see Boghossian (2006, pp. 32-34) for similar criticism. Is a consequence of Goodman’s philosophy that we made stars? Yes, according to Scheffler, if we take the objectual interpretation. Did we make the constellation Big Dipper? Goodman’s answer is very clear too. We do not make stars (in this particular case: Big Dipper) as the carpenter makes a table, “not all making is a matter of molding mud” (Goodman 1996, p. 145). It seems nevertheless clear that, in some sense, we do make stars: “After all, it is hard to think of the fact that a group of stars is a “dipper” as one which is mind independent or language independent” (Putnam 1996, p. 181). What we did, in Goodmanian terms, is to construct an astronomical version in which that group of stars is seen as exhibiting dipper shape — this is at least the way in which the astronomers saw it when they observed it for the first time. By labeling the group in question “Big Dipper”, they wanted to institutionalize the fact that that group of stars looks like a big dipper. Putnam (1996) has criticized Goodman’s position in the following terms: there is a fundamental difference between the term “Big Dipper” and the term “star”. The term “Big Dipper” is a typical proper name whose extension is fixed by linguistic convention. The term applies to a finite group of stars and we know which stars are in the group and how are they arranged by learning the meaning of the term. But the term “star” is rather different. It has an extension that cannot be fixed by convention and no particular object can be included in the extension of the term simply by virtue of being called a star.

At the time of his comment on Goodman’s philosophy, which he recognized as very influential in his own philosophy¹⁴, Putnam was defending an externalist theory of reference combined with an essentialist metaphysics of natural kinds. It is then by no means strange that his point against Goodman goes precisely in this direction. *Star* is a natural kind and, even when the concept of star may also have some indeterminate and conventional boundaries, it is not a matter of convention what to count as a star. In this point, Goodman replies that, given Putnam’s underlying semantics of natural kind terms, it may seem something odd to recognize that even these terms may have conventional boundaries. Goodman is among those philosophers who think that there are different ways of classifying things and that these ways are not independent of our language, conceptual schemes and theories. Modes of organization are not *found in* the world, but *built into* a world, as he liked to say. If we prefer green to grue is only because the first and not the second fits better with our best inductive practices¹⁵. So, from his own perspective, it may seem question-begging to appeal to the distinction

¹⁴ In fact, Goodman’s philosophy has been recognized as a source of inspiration for Putnam’s internal realism and for his criticism of metaphysical realism. See especially Putnam (1990) for a recognition of Goodman’s influence. See Cox (2003) for a study of the relation of Goodman’s pluralism to Putnam’s philosophy as it can later be found in his publications of the eighties.

¹⁵ See Goodman (1954), chapter 3, for details.

between artificial and natural kinds. Once this distinction is abandoned, it may seem not implausible to think about properties as depending on our own ways of categorizing and theorizing¹⁶. What we consider to be an instance of a property can change with the development of our scientific theories and the improvement of our inductive practices. A class becomes a kind relevant for science (“sometimes miscalled *natural*” — see Goodman (1984, p. 36) only through being distinguished, according to certain principles and proposes, from other classes. The realist will still say: But how can we have made anything older than we are? Goodman’s answer is: By making space and time containing those stars, that is, by making versions through physical and cosmological theories in which that constellation occupies a certain place. We make the past, by imposing a particular temporal ordering upon things and this temporal ordering is a consequence of certain theories, that are considered to be right versions of the history of the universe (ordering is just one of the multiple ways of worldmaking). Worlds are not made from nothing, they are made from other worlds. The attempt is not to describe how the world really is, but to create versions that are good for certain purposes. Of course, this is a position by no means acceptable for a realist, but Goodman is an anti-realist philosopher¹⁷. Anti-realist does not mean idealist. Goodman is as far from idealism as from metaphysical realism and always remained to be a sober rationalist. According to Scheffler (2000, p. 171), Goodman’s thesis cannot be taken as implying that there are two *physical* worlds in one of which the earth moves while in the other it is stationary. This way of understanding Goodman is very awkward indeed. A similar point is noted by K ung (1993), when he highlights the difficulty of showing that there are genuine truthmaker worlds that disagree. But the apparent conflict between the versional and the objectual readings of the term “world” in Goodman’s philosophy seems to disappear if we think that what Goodman had mainly in mind was the concept of constructional system, introduced in Goodman (1951). The conflict between the two following statements:

- (1) Every point is made up of a vertical and a horizontal line.
- (2) No point is made up of lines or anything else.

disappears as soon as they are considered under appropriate constructional systems, in which we respectively construe the notion of point as being the intersection of two lines and work only with points, being lines just nothing but a succession of points.

From the logical construction of systems studied in Goodman (1951) to the symbolic languages he investigates in further works, the notion of constructional system concerns almost every aspect of Goodman’s philosophy. Pluralism about worlds and constructionalism are just two faces of the same coin. “Worldversion” would be another word for “constructional system” and the fact that there can be worldversions that are equally right with respect to the same issue could easily be explained if we take

¹⁶ By rejecting the realist account on natural kinds and by adopting theory of properties according to which they are extensionally determined, Schwartz (2000) tries to make plausible the idea of worldmaking.

¹⁷ See Cox (2003, pp. 38–44) for a discussion of the Big Dipper example and for a comparison between Putnam and Goodman with respect to it.

into account that a same body of knowledge can be expressed in a manifold of alternative constructional systems — see Küng 1993, p. 33. For example, Euclidean geometry can be construed by taking points as individuals and by defining volumes as sets of points or by taking volumes as individuals instead of points and defining point, in a rather sophisticated but equally acceptable way, as the set of volumes intersecting in that point. No matter which set of individuals we take to be primitive, the crucial point is to capture all the “facts” that are relevant for Euclidean geometry. No Euclidean “truth” should be left out. In order to show that two versions “amount to the same”, it suffices to show that there are constructional definitions that allow us to preserve certain structure relations. In this point, the notion of “extensional isomorphism” becomes essential. This is a notion which, according to Goodman, can be more fruitful than reduction, because “reduction in any reasonable strict sense is rare” (Goodman 1978, p. 5). As Elgin (this issue) puts it in her article, constructional systems are *tools of inquiry*, tools that organize the world in some useful way, and the value of one tool is not diminished by the existence of other equally useful tools that may perform the same function. If reduction, at least as traditionally understood, may be seen as a last step before the end of science, an idea which in fact is contrary to Goodman’s thought, constructional systems have to be seen as “a method for enabling the sciences [...] to articulate and investigate their commitments in order to pursue their various ends” (Elgin, this issue). In Goodman (1963) we find a comparison between a constructional system and a map, an analogy which has been practically ubiquitous in the philosophy of science (it can be found in Polanyi, Toulmin, Kuhn and other authors). But Goodman seems to explore the nature of the analogy in a new way: “The function of a constructional system — he says — is not to recreate experience but rather to map it” (Goodman 1963, p. 552). Like maps, constructional systems systematize and summarize empirical data, but they also are *idealized constructs* that aim to abstract and simplify these data, that otherwise could not be manageable: they often disclose “facts we could hardly learn immediately from our explorations” (Idem.). Our most important scientific laws are highly idealized and a great part of our scientific theories are known to be correct up to a certain degree of accuracy. At the same time, scientists use different models that are equally successful to predict or to explain the same set of phenomena. Goodman can actually count as a defender of a certain form of pluralism in scientific modeling (may be similar to the form of pluralism defended by Cartwright but without her entity realism). In any case, it would be interesting to explore this approach as a suitable position in philosophy of science and to place it in the middle of the philosophical discussion. In recent times, it has been revealed that pluralism can be compatible with realism¹⁸, but Goodman’s anti-realist pluralism can still be very fruitful¹⁹.

¹⁸ See, for variations of this idea, Dupré (1993), Scheffler (2000), Lynch (1998) and Lynch (2009).

¹⁹ See Rossberg and Cohnitz (2006, pp. 191-203) for a nice exposition of Goodman’s pluralism and the starmaking issue.

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