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WORLDMAKING AS AN APPROACH TO SCIENTIFIC PLURALISM

Abstract: *This study discusses the extent to which Goodman's constructivist conception of worldmaking may serve the needs of scientific practice. I argue that worldmaking should help us retain a common methodological order and a basic framework for scientific pluralism. In this way it should provide us not only with better scientific knowledge but also with a greater understanding of the world in general that would be inclusive of both scientific and non-scientific disciplines. The main purpose of this paper is to show that, if revisited, Goodman's idea of versions, including even mutually exclusive scientific theories, can aid the gradual progress of pluralistic science. Taking the prevailing criticism of Goodman's conception into account, I argue that worldmaking can serve as a methodological apparatus for scientific disciplines because it presents a position of moderated constructivism which, thanks to the variable criterion of rightness, offers a way to maintain both relativism and skepticism.*

Keywords: *scientific pluralism; worldmaking; methodology of science; constructivism; Nelson Goodman*

Světatvorba jako přístup k vědeckému pluralismu

Abstrakt: *Studie se zaměřuje na aplikovatelnost Goodmanovy konstruktivistické koncepce světatvorby pro potřeby vědecké praxe. Světatvorba, jakožto metodologický aparát, by měla sloužit k posílení vědeckého pluralismu a měla by vědám (i nevědám) poskytnout metodologický řád a strukturu. Tímto způsobem bychom měli dosáhnout nejen přesnějšího vědeckého popisu, ale i hlubšího všeobecného porozumění světu, které zahrnuje jak vědecké, tak i nevědecké disciplíny. Hlavním cílem studie je poukázat na to, že Goodmanova teorie verzí světa, která zahrnuje i vzájemně neslučitelné vědecké teorie, může podpořit pokrok pluralisticky pojaté vědy, je-li interpretovaná v umírněné formě. Po zhodnocení stávající kritiky a vypořádání se s námitkami, může světatvorba sloužit jako metodologický aparát pro vědecké disciplíny, protože díky pozici umírněného konstruktivismu poskytuje prostor vědeckému pluralismu, přičemž zabraňuje relativismu i skepticismu.*

Klíčová slova: *vědecký pluralismus; světatvorba; metodologie vědy; konstruktivismus; Nelson Goodman*

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1. Introduction

Whilst the main thesis of this paper is that worldmaking is an effective methodological apparatus for scientific pluralism, there are some revisions to be made in response to the prevailing criticism. When speaking of pluralism, I mean not only multiple approaches and/or theories pertaining to a phenomenon within a particular discipline but also a pluralism of disciplines explaining what we consider to be our reality. After introducing the conception of worldmaking and the objections to it, the revisions are systematically categorized as follows: firstly, the criticism related to irrealism and pluralism; secondly, the criticism related to nominalism and constructivism, and thirdly, the criticism related to relativism and skepticism. Such general, well-arranged groups are suitable for further examination, for they are built upon the doctrines at which the most common objections are aimed.

I shall show how the revised worldmaking can offer a pluralistic approach to science which is not only consistent with realist principles but also keeps its constructivist elements intact. Needless to say, such an approach would not lead to boundless relativism, or even to skepticism, despite Goodman's philosophy sharing features of both.

The usefulness and applicability of Goodman's ideas for scientific pluralism are further demonstrated by the examples of relevant pluralistic conceptions of philosophy of science, namely those of Scheffler, Westerhoff, and Chang. That should consequently confirm that using worldmaking together and the principle of rightness – a criterion substituting truth – is an intelligible and reasonable aspect of scientific discourse when evaluating theories.

2. The Idea of Worldmaking

When Nelson Goodman first introduced "worldmaking" in 1978,[1] he attracted the attention both of thinkers generally, and of philosophers of science. His creative thought, his analytic insight into symbol theory, his pluralistic and moderately relativist approach to reality, and his combination of scientific and non-scientific disciplines become a topic of broad interest in various discourses and set off a huge wave of interest.

Goodman's conception of worldmaking, or "irrealism," advocates a pluralist, constructivist approach to ontology and knowledge and seemingly rejects

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[1] Nelson Goodman, *Ways of Worldmaking* (Indianapolis: Hackett Publishing Co., 1978).

realism, that is, the realist ontological theory and the realistic depiction of the world independent of a language.[2] Its core thought, which is built upon the claim that there is no symbol system or methodology to be preferred while describing the world, might not seem so revolutionary, similar thinking being found, for example, in Feyerabend's *Against Method* (1993) and Rorty's *Philosophy and the Mirror of Nature* (1979). However, Goodman goes further. He asserts that many world-versions, made of various kinds of symbols and of various forms, literally create "worlds." These worlds are all actual and must not be conflated with possible worlds.[3]

Such world-versions, or simply versions, can employ pictures, numerals, sounds, letters, or symbols of any kind; a version can simply be a point of view. They are perceived under one or more frames of reference; we cannot say anything about the world by itself apart from all frames of reference. Their form can be literal, non-literal, metaphorical, verbal, non-verbal, etc. All of them are human-made and should help us retain some kind of structure[4] and order in the arts and sciences and some of them can be ir-reconcilable.[5] It is important to take into account that there is no place for boundless relativism in worldmaking – determining if a version is right or wrong prevents such anarchy and plays an important role when co-creating a world. Everything we can learn and know about the world is contained in its right versions.[6]

In other words, following Rorty, Goodman proposes that the idea of a fixed world, which was thought to be out there to be discovered, be exchanged for the diversity of the several symbol systems of the sciences, the arts, philosophy, everyday discourse, and perception.[7] A unique, inde-

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[2] Goodman defends his pluralistic position by means of irrealism which principles are used in worldmaking.

[3] It is necessary to point out that Goodman's ambiguous use of the term "world" at times makes it harder for one to find one's bearings within such a complex system. As Scheffler remarks, the term "world" sometimes applies to what Goodman calls "right world versions" and sometimes to the referents of such a version. See Israel Scheffler, "My Quarrels with Nelson Goodman," *Philosophy and Phenomenological Research* 62, no. 3 (2001): 668.

[4] In this paper, I use the term "structure" as it is generally understood. I believe a structure can be found in any language since it is human-made, but the question regarding structures in nature, the sciences, or the arts remains unsettled. Perhaps in the same way as we put the structure into languages, so too we project it into nature, sciences, and art. Thus, to do so we need an apparatus.

[5] Goodman, *Ways of Worldmaking*, 94.

[6] Ibid., 4.

[7] Ibid., x.

pendent reality is just an old-fashioned construct. We no longer reveal and explore the world; we co-create it. It can be asserted that humans make the world through categorization.

Goodman further replaces truth as a criterion with an adjustable principle of rightness, since truth only applies to statements, and only if they are literal. However, he retains the use of the concept of truth for literal verbal statements, i.e., logic statements. As Hempel suggests, there are some similarities between Goodman's conception of worldmaking and those of Neurath, from which the most important is perhaps Neurath's claim that science as a system of statements is the issue.[8] According to Neurath, statements are compared with other statements, not with experience, therefore not with the world.[9]

Similarly, Goodman insists that the rightness of a version can never be tested by comparing it with the world undepicted and undescribed, which further leads to the rejection of the idea of comparing statements with facts. This, as Hempel suggests, results in considering that experimental findings serve to test a hypothesis only if they are expressed in sentences.[10] Needless to say, a similar rejection is made by Feyerabend, who criticizes the legitimacy of observational statements, claiming that observations (i.e., observation terms) are not only theory-laden but, in fact, fully theoretical.[11] Whilst Feyerabend believes that science and its methods should take a pluralistic approach, but has no criterion upon which one should choose the prevailing theory, Goodman offers the conception of rightness to serve the purpose of judging among various kinds of versions. Rightness is determined by the users, formed by circumstances, and further defined as a matter of functionality, which is verified by the use of a current complex of symbols, discourse, or context. Furthermore, let us not forget that conventions are crucial factors when setting rightness which is bound to them.

The controversy contained in worldmaking, however, split the scientists and academics in two. While some admired the virtues of the conception, such as its vast possibilities and applicability or the innovative thoughts and insights Goodman had brought to the table, others criticized the very same

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[8] Carl G. Hempel, "Comments on Goodman's 'Ways of Worldmaking,'" *Synthese* 45, no. 2 (1980): 196.
[9] Otto Neurath, "Sociology and Physicalism," in *Logical Positivism*, ed. Alfred J. Ayer (New York: The Free Press, 1959), 291.
[10] Hempel, "Comments on Goodman's 'Ways of Worldmaking,'" 197.
[11] Paul K. Feyerabend, *Realism, Rationalism and Scientific Method: Philosophical Papers* (Cambridge: Cambridge University Press, 1981), x–xi.

features, viewing some, in fact, as drawbacks. I shall present the crucial features of Goodman's pluralistic theory of knowledge based on irrealism and constructivism, highlight and investigate the main criticisms, show the utility and benefits of Goodman's pluralist constructivist conception for the scientific discourse, and thence make it work as an apparatus for the use pluralistic science.[12]

3. Objections to Worldmaking

First, we shall consider some of the major criticisms aimed at Goodman by the various sciences and discourses and, to fulfill the stated purpose of this study, point out those which are important for the philosophy and methodology of science. Therefore, the selected criticisms come mostly from analytic philosophers and philosophers of science, notwithstanding Goodman's admirable intention, by means of his general theory, to extend his conception and its applicability to aesthetics and the arts,[13] for it is the ability of worldmaking to unite the sciences and non-sciences which makes it both distinctive and worthy of closer examination. It is important to mention that whilst Goodman's innovative approach, and particular aspects of his philosophy find many supporters, it tends to be his philosophy as a whole which causes misunderstandings and ends up being perceived as incoherent. In other words, thinkers appear mostly to agree with him on some level but are not willing to take the pluralistic, irrealist, and constructivist worldmaking with all the features and restrictions, entirely as it is.[14]

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[12] Generally, basic realist thoughts are the main principles followed by those of realist belief. For the purposes of this study, this term comprises especially the common features of the world "w" or, for example, the material existence of external entities apart of our minds, where such "dependence" is understood as the inability of the mind to create physical objects and can also be partly identified with the problem of nominalism.

[13] There are several issues addressed by the representatives of art criticism and aesthetics, e.g., James M. Ackerman, "Worldmaking and Practical Criticism," *The Journal of Aesthetics and Art Criticism* 39, no. 2 (1981): 249–54; Paul Hernandi, "More Questions Concerning Quotation," *The Journal of Aesthetics and Art Criticism* 38, no. 3 (1981): 271–73; Richard Martin, "On Some Aesthetic Relations," *The Journal of Aesthetics and Art Criticism* 38, no. 3 (1981): 258–64, etc. These and more were published together with Goodman's replies in *The Journal of Aesthetics and Art Criticism* in 1981. To Goodman's surprise, Ackerman shows a surprising understanding of worldmaking, considering he is not a professional philosopher; however, he also holds the view that science is mainly about experimentation and proof – a view Goodman cannot accept.

[14] There are studies and books dealing with the criticism of Goodman or problematic features of his conceptions. See, for instance, Alexandre Declos, "Goodman's Many Worlds," *The*

Aesthetics and the arts aside, the most frequent criticisms center upon realism – to a greater or lesser extent, realism always emerges. I anticipate finding it to be an aspect or byproduct of all three of the most relevant topics of critical interest and thus shall sort, list, and assess them in sequence. Nevertheless, based on the relevant objections the most problematic features of Goodman's philosophy are incoherence within the conception and the unsustainability of the "many worlds" view, terminological ambiguity and the possibility of open interpretations, inclination towards nominalism (Goodman's "mindmaking"), abandoning realism and monism, and least but not last unclear distinctions and the neutrality of methods resulting in skepticism or subjectivism. The objections are sorted and divided into three general groups, i.e., the criticism related to pluralism and irrealism; nominalism and constructivism, and relativism and subjectivism. Those points of critical interest are examined in this section and further dealt with below in section 4.

3.1 Irrealism and Pluralism

The first category of objections is centered around the issues related to irrealism and pluralism; therefore, it also discusses associated matters concerning realism, anti-realism, anti-foundationalism, and anti-essentialism.

The very own definition of irrealism is challenging due to its ambiguity. It can be understood as a position claiming that the world dissolves into world versions or a belief asserting that reality is composed of multiple worlds. Nevertheless, the seemingly similar definitions in principle may lead to rather contradictory conclusions. Despite both having renounced the idea of the one world, the former claims that there is no fixed world but mere versions, the latter concludes that there is no conceptualized reality but many worlds.

While examining "pluriworldism" (a plurality of actual worlds) and its possible limitations, Declos warns that once combined, pluriworldism

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Journal for Analytical Philosophy 7, no. 6 (2019); Xavier de Donato Rodríguez, "Construction and Worldmaking: The Significance of Nelson Goodman's Pluralism," *Theoria: Revista de Teoría, Historia y Fundamentos de la Ciencia* 24, no. 2 (2009): 213–25; Dena Shottenkirk, *Nominalism and its Aftermath: The Philosophy of Nelson Goodman* (New York: Springer, 2009); Robert Schwartz, "Starting from Scratch: Making Worlds," *Erkenntnis* 52, no. 2 (2000): 151–59; and Harwey Siegel, "Googmanian Relativism," *The Monist* 67, no. 3 (1984): 359–75. Scheffler inspired both by Goodman and the criticism of Goodman, creates his very own conception of plurealism – see Scheffler, "My Quarrels with Nelson Goodman"; and Israel Scheffler, "A Plea for Plurealism," *Erkenntnis* 52, no. 2 (2000): 161–73.

and worldmaking imply that the many worlds we inhabit are of our own making.[15]

A similar issue related to such problematic interpretation of the worldmaking thesis was also recognized by Scheffler. When responding to Goodman, he presents his idea of plurealism and defends a position between monistic realism (Peirce) and pluralistic irrealism (Goodman). He upholds the existence of objects independent of our minds but rejects the claim that there is only one world version for inquiring into such objects. By doing so keeps the main principle of realism in a pluralist guise.[16] Furthermore, Scheffler points out the ambiguity in the worldmaking conception and the problematic origin of the ancient worlds. He claims that Goodman's usage of "world" is quite puzzling – it is sometimes used for referring to "right world-versions" and other times to the referents of such a version.[17] Naturally, Goodman himself concedes that "a right version and its world are indeed different."[18] Consequently, it is difficult for him to accept that the many worlds of which Goodman speaks are all actual. However, if worldmaking is to be taken metaphorically, he finds the idea fairly satisfactory.[19]

Quine believes that Goodman will inevitably settle for the versions and let the world(s) pass. If, he asks, we have two versions of the world, they must logically be versions of a world, but which one? The ambiguity or divergent ways of generalizing from the same observations do not discourage Quine from accepting Goodman's conception. However, he starts to struggle when he feels that Goodman treats the commonsense world version and those in music and abstract paintings as equal – in Quine's opinion the latter two depict nothing. He further suggests that it is possible to accept alternative physical theories which may be insusceptible to adjudication – in Good-manian terms, he speaks, I believe, of compatible world versions which are incommensurable – but is not willing to conceive the whole idea of worlds or world versions as being no more than a metaphor.[20]

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[15] Declos, "Goodman's Many Worlds," 1.
[16] Scheffler, "My Quarrels with Nelson Goodman," 673. For further information, see also Scheffler, "A Plea for Plurealism," 161–73.
[17] Scheffler, "My Quarrels with Nelson Goodman," 668.
[18] Nelson Goodman, *Of Mind and Other Matters* (Cambridge, MA: Harvard University Press, 1984), 41.
[19] See Scheffler, "My Quarrels with Nelson Goodman."
[20] Willard V. Quine, "Otherworldly," review of *Ways of Worldmaking*, by Nelson Goodman, *The New York Review of Books* (November 23, 1978): 25.

Putnam sees the core purpose of worldmaking (irrealism) to be the defense of pluralism. He also addresses the "no-privileged basis" issue and warns that Goodman's assumption that physicalism and phenomenalism as research programs are analogous would certainly challenge the status quo.[21] However, he goes strictly against Goodman with no further discussion in the matter concerning realism, more precisely the incompatible true versions. He believes that there is only one true version, not incompatible true versions.[22]

The most recent criticism comes from Westerhoff who uses the irrealist thesis in his conception of a virtual world generated by our brain. Westerhoff examines the non-existence of the external, perception-independent world, claiming that the world dissolves into versions.[23] Following the principles of irrealism and anti-foundationalism, he denies the existence of the real world and points out the delusiveness of perception. After examining irrealism in detail, he uses Goodman's constructivist approach as an example of "a theory with clear anti-foundationalist implications." However, Westerhoff warns that Goodman is a constructivist about everything.[24]

3.2 Nominalism and Constructivism

The questions about irrealism and the relationship among versions and worlds and versions and language result in the criticism of the amount of nominalism and constructivism involved in worldmaking.

The most important criticism concerning nominalism and the nature of the worlds comes from Scheffler, Putnam, and Hempel. Scheffler agrees that humans make symbol systems (including languages) and even that nothing can be said about the world as it is by itself, independent of a language or frames of reference. However, he rejects the literal claim that we make worlds with words. Such a claim can be metaphorical, but never literal, he

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[21] Hilary Putnam, "Reflections on Goodman's Ways of Worldmaking," *The Journal of Philosophy* 76, no. 11, (1979): 603.

[22] Putnam, "Reflections on Goodman's Ways of Worldmaking," 612. Goodman claims that there is no point in talking about "the world" apart from all versions, whereas there are incompatible true versions – the aforementioned conflicting, incommensurable versions.

[23] See Jan Westerhoff, "What It Means to Live in a Virtual World Generated by Our Brain," *Erkenntnis* 81, no. 3 (2016): 507–28.

[24] Jan Westerhoff, *The Non-Existence of the Real World* (Oxford: Oxford University Press, 2020), 192.

purports.[25] This matter is assessed in detail in his idea of plurealism, which is built upon revised worldmaking.[26] Despite the fact that he does marvel at Goodman's thought, finding it most beneficial, he thinks Goodman goes too far. Scheffler calls Goodman's position extreme constructivism. He supposes that it is the result of a quite popular belief according to which if we abandon monism, we also must give up all thought of objects responsive to our inquiries and "entirely independent of our opinions about them."[27] Hellman and Bell agree with Scheffler; they find the assumption that the real world gives way to many literal world versions to be far-fetched and simply too much.[28]

Putnam has his issues with Goodmanian constructivism and sees nominalist features in worldmaking; however, he agrees with Goodman's claim that the comparison of theory with experience is not a comparison with unconceptualized reality – even, he adds, if some positivists once thought it was.[29] Moreover, Norris even asserts that Putnam made various attempts to makes sense of Goodman's ultra-nominalist and strong-constructivist approach.[30]

Hempel also appreciates the virtues of Goodman's ideas but suggests a certain supplementation of the account given in *The Ways of Worldmaking.* What he desires is a "fuller account of the empirical character of scientific versions, and of the 'stubbornness of facts,' which surely is one of the roots of the idea of facts that are independent of our version-making."[31] He also sees similarities between the ideas of Goodman and Neurath, although he admits that they differ in many aspects. He points especially to the comments about unconceptualized reality and experience. Neurath claims that

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[25] A similar critique comes from Peter J. McCormick. See Nelson Goodman, "On Starmaking," in *Starmaking: Realism, Anti-Realism, and Irrealism,* ed. Peter J. McCormick (Cambridge, MA: MIT Press, 1996), 144–45.

[26] Scheffler, "My Quarrels with Nelson Goodman," 668–71.

[27] See Scheffler, "The Wonderful Worlds of Goodman"; Scheffler, "A Plea for Plurealism"; and Scheffler, "My Quarrels with Nelson Goodman."

[28] Stephen H. Kellert, Helen E. Longino, and C. Kenneth Waters, *Scientific Pluralism* (Minneapolis: University of Minnesota Press, 2006), 78.

[29] Putnam, "Reflections on Goodman's Ways of Worldmaking," 611.

[30] Christopher Norris, *Hilary Putnam: Realism, Reason and the Uses of Uncertainty* (Manchester: Manchester University Press, 2003), 7.

[31] "Goodman says at one point "Some of the felt stubbornness of fact is the grip of habit" but that remark seems to me too dismissive and, at any rate, not a sufficiently full response to what puzzles philosophers of a more realist bent." Hempel, "Comments on Goodman's 'Ways of Worldmaking,'" 198.

it is always science as a whole which is at issue, for statements (about reality) are compared with other statements, not with experience; Goodman thinks alike.[32]

Boghossian considers Goodman, together with Putnam and Rorty, to be the most important and influential fact-constructivists, for he ascribes them the claim that "we construct a fact by accepting a way of talking or thinking which describes that fact." He understands such "description dependence of facts" as a version of the thesis that all facts are mind-dependent – without adopting a particular scheme for describing the world, we cannot have facts about it. Boghossian finds such position unacceptable and labels Goodman's approach as "cookie-cutter constructivism" that calls for some "worldly dough." He further insists that there must be some mind-independent facts that are objective, however, admits that fact-constructivism denies the whole idea of having basic facts.[33] Cookie-cutter or not, in accord with Goodman's anti-foundationalist and anti-essentialist views, we simply cannot speak of any kind of basic "world dough."

3.3 Relativism and Skepticism

The criticism focused on relativism and skepticism is, in fact, a result of the previous objections. The worldmaking thesis built upon multiple, incommensurable, right versions that are evaluated based on the variable criterion of rightness, which is governed by authorities, necessarily generates questions related to boundless relativism, skepticism, and subjectivism.

The most obvious threat associated with pluralistic or irrealist conceptions is anarchism qualifying all statements as equally right/true. It follows that a) each theory, version, or world are right, which results in aimless subjectivism, or b) each theory, version or world are bound to be unavoidably refuted, which leads to complete skepticism.

Elgin admitted that Goodman's philosophy as a whole contains judicious skepticism, which can partly and indirectly support the view of those who believe that worldmaking can lead not only to boundless relativism but also to complete skepticism.[34]

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[32] Hempel, "Comments on Goodman's 'Ways of Worldmaking,'" 193–94.

[33] Paul A. Boghossian, *Fear of Knowledge: Against Relativism and Constructivism* (Oxford: Clarendon Press, 2006), 27–28, 38.

[34] Catherine Z. Elgin, "The Legacy of Nelson Goodman," *Philosophy and Phenomenological Research* 62, no. 3 (2001): 688–90.

Mitchell describes Goodman's position as "a middle territory between absolutism and absolute relativism," which is directed against realist epistemology. He admits that worldmaking has its benefits – many right versions and theories grant pluralism and allow us to include both scientific and non-scientific disciplines bringing us greater knowledge, however, he feels that a certain price needs to be paid. In order to include all disciplines, the criterion of rightness cannot be defined; it must be variable. And its variability without any fixed definition may be problematic. His criticism is aimed particularly at the neutrality of method and Goodman's self-imposed limits of the worldmaking conception.[35]

Ackerman also notices the absence of definition and fuzzy limits associated with the criterion of rightness, which, he emphasizes, is not absolute. However, neither science nor non-science can function without having set some limits because the absence of absolutes and fixed definitions may lead to an uncontrollable pluralism. Such aimless pluralism easily becomes limitless relativism.[36]

Even Rodríquez points out that many critics are uncomfortable with the fact that rightness is something we ourselves determine and has no limits. He suggests that we may make versions as we please but perhaps rightness should be determined by something external to us.[37]

As aforementioned, Norris not only finds Goodman's approach advocating a plurality of various world versions strong-constructivist but he also disapproves of his relativism. He argues that the sunset as depicted by Picasso cannot be thought of as competing on equivalent terms with the scientific description of sunset delivered by physics. Picasso does not claim to capture phenomena objectively, therefore, such depiction is not a suitable candidate for scientific truth.[38]

A similar stance is taken by Quine. He falters when it comes to the equality of incommensurable versions. The sort of relativism that Goodman brings to the table is simply unacceptable for Quine. He finds it absurd that Goodman treats with equal respect not only the physics world version, which depicts a world of atoms, electrons, and particles, and the commonsense world version, which depicts a world of "sticks, stones, people, and other coarse objects"

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[35] W. J. T. Mitchell, "Realism, Irrealism, and Ideology: A Critique of Nelson Goodman," *Journal of Aesthetic Education* 25, no. 1 (1991): 24–25.
[36] Ackerman, "Worldmaking and Practical Criticism," 251.
[37] de Donato Rodríguez, "Construction and Worldmaking," 220.
[38] Christopher Norris, *Philosophy of Language and the Challenge to Scientific Realism* (London: Routledge, 2003), 75.

but also world versions in various paintings. He is, however, willing to admit the existence of a plurality of physical theories which are incommensurable.[39]

Schwartz deals particularly with the criticism of those who normally accept related pragmatic assumptions or themes but resist the idea of worldmaking. In contrast with the others, he assumes that most of these criticisms are based on several misunderstandings or misconceptions of Goodman's thesis. Therefore, he gives a list of the most common misinterpretations of worldmaking and tries to defend not only what Goodman pursued but also the effort of William James before him.

4. Dealing with Objections

Goodman presented a pluralistic theory of knowledge in which science is considered to be only one of several possible ways of gaining knowledge. It is not superior to the arts (also called *non-science*): in his view, both are equally important for understanding what he calls the world(s). He claims that such worlds are made of many human-made world-versions and these versions are made of various kinds of symbols which are not only descriptive and literal but can also be expressive and metaphorical. In this manner, worldmaking covers both the scientific and the non-scientific discourses. Moreover, by rejecting monopolistic materialism, Goodman allows not only more right versions of the world, but also more ways of describing it, highlighting that language as a system is only one way to do it.

As outlined at the start, there are some revisions to be made if the concept of worldmaking, and thereby Goodman's approach, is to work and be of use in scientific discourse as a descriptive apparatus for judging theories which may help us gain understanding, knowledge and thus a clearer picture of how the world really is. Arguments shall be presented in favor of those revisions, i.e., (1) irrealism and pluralism (2) nominalism and constructivism, and (3) relativism and skepticism.

4.1 Irrealism and Pluralism

In order to deal with objections related to the principles of irrealism and pluralism, one of the many things that need to be set straight in worldmaking is the nature of the relationship between versions and worlds and the origin of ancient worlds. The latter is dealt with quite easily: ancient worlds

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[39] Quine, "Otherworldly."

are based on ancient philosophy which included the worldviews of Thales, Anaximander, Empedocles, Democritus, etc. Those great thinkers started building from a world built upon superstition, religion, suspicion, and experience.[40] It might appear that he gives no straight answer about the nature of such ancient worlds; we shall shed some light on this matter, but first things first.

As Rodríguez suggests, it is important to determine what a world version is in order to give an adequate interpretation of Goodman's pluralism. I agree, however, I suggest dealing with the nature of the relationship between versions and worlds first.[41] Goodman's answer does, in fact, come in a paragraph of his journal article, *Words, Works, Worlds*,[42] which was introduced three years before publishing *Ways of Worldmaking*. He states that he is more interested in "the processes involved in building a world out of others" and continues by admitting that the one world is "displaced by worlds which are but versions [...]."[43] One may further deduce, following Quine, that worlds are naturally dependent upon versions, for worlds are mere versions. Let us not forget that not any version constitutes a world. I argue that what needs to be acknowledged is the fact that a) a version can be an extremely limited and perhaps boring world by itself but more often a world consists of a multiplicity of versions, whereas such versions are made of various kinds of symbols containing various types of symbolizations. And since versions are made by humans and always perceived under one or more frames of reference, worlds are dependent upon our view. It is clear that setting the record straight regarding the relationship between worlds and versions gives rise to a different issue, i.e., subjectivism (section 4.3).

This issue, however, is aggravated by Goodman trying to offer us "what comfort he can," claiming that

> While I stress the multiplicity of right world-versions, I by no means insist that there are many worlds—or indeed any; for as I have already suggested, the question whether two versions are of the same world has as many good answers as there are good interpretations of the words "versions of the same world." [44]

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[40] Goodman's "ancient worlds" should serve as something similar to what Boghossian calls "worldly dough" but with no privileged basis. Their true nature and composition have never been presented by Goodman leaving such task to theology.

[41] See Rodríguez, "Construction and Worldmaking."

[42] Goodman later uses the study as part of *Ways of Worldmaking*.

[43] Nelson Goodman, "Words, Works, Worlds," *Erkenntnis* 9, no. 1 (1975): 61.

[44] Goodman, *Ways of Worldmaking*, 96.

As this matter itself might seem quite puzzling even to Goodman himself, he proposes to focus rather on versions than worlds. The argument is based on his idea that we cannot get to know the whole universe or what the world is like apart from all versions.

For the same reason, there is no direct answer to our initial question about the origin of ancient worlds. We can, however, based on the above deduction and in line with Goodman's argumentation, propose that worlds are but versions and thus ancient worlds are points of view built upon knowledge attained at that time. It is possible to assume that our ancestors, upon whose views we build ours, simply held points of view based upon what people then knew about the world – or what they thought they knew. Such an illustration seemingly contains an immense amount of subjectivism; however, the same issue occurs in scientific discourse in which authority is supposed to grant objectivity.

4.2 Nominalism and Constructivism

Despite some direct criticism relating to its nominalist nature (e.g., that of Putnam, Quine, and Scheffler) and assumptions that other objections may come, especially from scientists and philosophers who hold a realistic worldview, Goodman's theory of many actual worlds is considered to contain some interesting ideas and a wide range of useful applications. I argue that if the threat of nominalism is real, we can at least reduce or, in the best case, eliminate it in worldmaking if we follow Scheffler's idea of pluralism and use his solution. However, this may be unnecessary if there is a more effective solution based on interpretation.

Scheffler's idea plays a crucial role in the reduction of nominalism – whether we use it as he intended or it leads us further. As mentioned above, Scheffler, although admiring the ingenious idea of worldmaking, refuses to take it literally. Also, considering the ambiguous use of the word "world" in Goodman's interpretation, since it sometimes refers to "right world versions" and other times to the referents of such versions, he believes the claim that we make worlds can be true only for "'versional' but not the 'objectual' interpretation of 'worlds.'"[45]

Practically, if we name a star, it obviously neither means that we created the very essence of it nor that we made it; after all, stars are much older than us. That is the simple interpretation of the argument which Scheffler finds

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[45] Scheffler, "My Quarrels with Nelson Goodman," 668.

naturally comprehensible and presents to Goodman. Moreover, he thinks the claim that we make worlds by making versions is only to be taken rhetorically. However, Goodman does not find such argumentation sufficient and counters that we have made stars "by making a space and time that contains those stars."[46] Similarly, when we make a constellation, we also put its parts together and set its boundaries. Goodman's counter-argument is based on his previous claim, which is the core of worldmaking, that we make worlds by symbol systems (e.g., languages).[47]

This problem can be apprehended as simple; however, its solution might be eminently complex. First of all, with respect to religion, I must clarify the above thesis claiming that our minds cannot create objects or living things, for left unexplained, it might be challenged. It plainly states that if one imagines a full glass of freshly squeezed juice, one would most probably die of thirst before one's mind might magically embody it right before one's eyes. Common sense tells us to open the fridge and pour a glass if one is thirsty or just craving orange juice. In other words, the thesis excludes the practice of malevolent magic as a means of summoning yet nonexistent objects. Therefore, if one thinks of something, denotes it, finds or creates a name for it, one does not bring it to life, or even bring it into existence. Realists would certainly concur and Goodman, I suspect, would not disagree either.

He does claim that we make worlds by creating versions and this claim is literal; he does believe that we have made stars by creating a space and time that contains those stars; nevertheless, he does not think all making is the same. Specifically, making stars is not like making bricks, for "not all making is a matter of molding mud."[48] He continues, "The worldmaking mainly in question here is making not with hands but with minds, or rather with languages or other symbol systems. Yet when I say that worlds are made, I mean literally; and what I mean should be clear from what I have already said."[49]

Furthermore, Goodman himself presents his approach rather through an analytic study of types and functions of symbol systems (or just symbols)

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[46] Goodman, *Of Mind and Other Matters*, 42.

[47] Scheffler, "My Quarrels with Nelson Goodman," 668–69.

[48] Schwartz points out that not all making needs to be materialistic. He is convinced that many critics mistakenly ascribe materialistic character to Goodman's constructive nominalism, which leads to accusations of excessive nominalism or idealism. See Schwartz, "Starting from Scratch: Making Worlds."

[49] Nelson Goodman, "On Starmaking," *Synthese* 45, no. 2 (1980): 213; and Israel Scheffler, *Inquiries: Philosophical Studies of Language, Science, and Learning* (Eugene: Wipf and Stock Publishers, 2013), 85.

and points out that worlds may be built in many ways.[50] Therefore, I claim that it is reasonable to take worldmaking literally in a way. Our beliefs, perceptions, points of view, the information regarding what we know about the world, comes from our minds – whether we have to process sense data, or such images as originating from prior beliefs or knowledge. It is therefore possible that the worlds perceived by two observers can differ just as much as might two objects,[51] not to mention the modes of organization such as periodization or any kind of measurement, which, he warns, are not found in the world but built into it.[52]

Goodman does not say there is no material world around us, I presuppose: he simply wants to point out that the only information we think we know "for sure" is that which we acquire. We can never know how the world is by itself through no medium; we are dependent on our worldview or on someone else's.

This "misinterpretation" of the worldmaking thesis, as Schwartz might call it, seems to originate in the different use of the same language for different events. After all, there is a different context for the use of specific words in common sense and scientific scenarios. On the one hand, it is making as a means to describing the processes, beliefs, etc. in minds; on the other, it is, in a sense, an act of embodiment. A much more fortunate statement would probably assert that worlds can be made with the mind and that the making is literal, for such a claim literally resides in one's mind, and thus it is possible to claim that we actually create versions of the world. However, it is important to remember that not all these versions are valid and/or useful; we need to distinguish between the right and the wrong. Nevertheless, such a conclusion gives rise to the aforementioned issues regarding relativism, skepticism, and subjectivism.

4.3 Relativism and Skepticism

The potential criticism of boundless relativism, subjectivism or skepticism is always understandable when dealing with pluralistic conceptions, nevertheless, I intend to show that the threat is not as real as it may seem.

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[50] "My approach is rather through an analytic study of types and functions of symbols and symbol systems. In neither case should a unique result be anticipated; universes of worlds as well as worlds themselves may be built in many ways." Goodman, *Ways of Worldmaking*, 5.

[51] Ackerman, "Worldmaking and Practical Criticism," 253.

[52] Goodman, *Ways of Worldmaking*, 14. This, I believe, is one of the features Goodman means when he speaks of our "co-creating" the world and also the main feature of constructivism.

It is true that Goodman leaves behind the world "W" by choosing to give up a solid base (the Myth of the Given) and thereby gives rise to questions about the relativist, skeptical, or even subjectivist nature of his philosophy. Goodman's conception of worldmaking certainly advocates a pluralist, constructivist approach to ontology and knowledge, yet it never claims that the material world around us does not exist. He admits that with great skill we make chairs, planes, and computers, but adds that making right world versions (or even worlds) takes a different, exceedingly complex skill-set and that we may be destined to failure many times, for we only have a scrap of material – in this context, knowledge – in our historical sources, i.e., old worlds.[53]

In his late work, after vacillating between idealism, relativism, and skepticism in various amounts, Goodman chooses the seemingly golden mean and inclines towards constructivism, although he admits it has a great deal of work ahead.[54] He allows, as expected, various world-versions, some proven wrong. However, it is necessary to distinguish between those which are right and those which are wrong to prevent absolute relativism. Goodman realizes the danger and although he agrees with Feyerabend in many ways, he does not think that "anything goes."[55] In order to prevent skepticism and relativism in its radical form, he sets the criterion of rightness – a principle by which every version is tested and proved, not forgetting that testing a version is not a matter of comparison with the world undescribed and/or unperceived, but rather of interaction between symbol users and the assumed world.[56] For Goodman believes that modes of organization are built into a world rather than found in it[57] and it is not possible to use just any criteria or to make a world by putting symbols together at random.[58] Considering that worldmaking goes beyond descriptions, statements, or theories, Goodman chooses rightness – a matter of fit, or fit with practice – which is to be a more adequate criterion than truth. The true/false criterion can only be used when dealing with literal statements but falls short when applied to metaphors or

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[53] "Making right world versions – or making worlds – is harder than making chairs or planes, and failure is common, largely because all we have available is scrap material recycled from old and stubborn worlds." Goodman, "On Starmaking," 213.
[54] Nelson Goodman and Catherine Z. Elgin, *Reconceptions in Philosophy & Other Arts & Sciences* (London: Routledge, Chapman & Hall, 1988), 189.
[55] See Goodman, *Of Mind and Other Matters*.
[56] Goodman, *Ways of Worldmaking*, 109–38.
[57] Compare with Rorty's view on scientific facts.
[58] Goodman, "On Starmaking," 214.

pictures.[59] Certainly, Goodman does not entirely abandon truth; it can be an occasional component of rightness[60] when science is considered. However, we receive knowledge not only from the sciences but also from the non-sciences,[61] and thereby we gain greater understanding of the world around us.[62] Additionally, we must remember that science in Goodman's philosophy is not strictly of linguistic, denotational, and literal character, for that would mean ignoring the scientific practice.[63]

In line with the argumentation, it seems fair to assume that radical relativism has no place in worldmaking. We can, perhaps, use Goodman's own depiction and call it "relativism under rigorous restraints," but certainly not "radical" or "boundless."

Despite such effort, the variability of rightness and authority became important subjects of criticism related to subjectivism and skepticism. The relevance of authority is discussed by Scheffler,[64] claiming that no-one has written more tellingly on this issue than Polanyi, who in *Science, Faith, and Society* (1946) puts special emphasis on the fact that scientific consensus is a matter of individual judgment:

> The harmony between the views independently held by individual scientists shows itself also in the way they conduct the affairs of science... There is no central authority exercising power over scientific life. It is all done at a multitude of dispersed points at the recommendation of a few scientists who happen either to be officially involved or drawn in as referees for the occasion.[65]

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[59] Goodman and Elgin, *Reconceptions in Philosophy*, 136–39; and Goodman, *Ways of Worldmaking*, 104.
[60] In his book, *Of Mind and Other Matters*, he claims that truth is only "a special case of rightness." Goodman, *Of Mind and Other Matters*, 14.
[61] Since the term "knowledge" is normally connected to the sciences (so-called scientific knowledge), Goodman prefers the term "understanding" as a depiction which comprises both scientific knowledge and non-scientific, i.e., knowledge gained by depiction, experience, perception, etc.
[62] Goodman and Elgin, *Reconceptions in Philosophy*, 157, 162.
[63] Goodman, *Ways of Worldmaking*, 107.
[64] Scheffler gives a comprehensive comparison of the relationship between science and religion and science and art. He discusses functions, similarities, differences, and the various nature of authority for each discipline. See Israel Scheffler, *Symbolic Worlds: Art, Science, Language, Ritual* (Cambridge: Cambridge University Press, 1997), 110–26.
[65] Michael Polanyi, *Science, Faith and Society* (Chicago: Chicago University Press, 1946), 36–37.

Thus, I argue that rightness does not contaminate science with a greater amount of skepticism than it is already contained in its scientific practice.

Before closing this section, please do not be misled by a common misattribution to Goodman. As Robert Schwartz reminds the critics, "the worldmaking neither claims nor entails 'If everyone believes P, "P" is true' or any subjectivist variants thereof."[66] Overall, the subjectivism contained in Goodman's approach to knowledge is moderate and does not cause any inconvenience if used as an apparatus for scientific discourse.

5. Worldmaking in Pluralistic Science

I believe that scientific pluralism enriches our understanding of the world, and therefore is beneficial for science and its progress because it allows not only the possibility of having multiple accounts of the same phenomenon but allows multiple approaches and disciplines suitable for the description of the same phenomenon. In line with that argument, I proposed to use Goodman's idea of worldmaking to help bring methodology into science and, thanks to his constructivist approach, to keep it pluralistic.

If accepted, worldmaking can not only help us in many ways when trying to approach and mediate the reality in which we live; it also pertains to both scientific and non-scientific disciplines, which in other words means that it not only tolerates conflicting theories but also allows for the most suitable theories to be applied within specific disciplines in order to find the most precise solutions. Also, thanks to its constructivist-pluralist nature, the option of having conflicting theories prevents absolutism.

I argue that Goodman's idea of worldmaking is not obsolete but functional and can be applied in pluralistic science. First, let us revisit the pluralistic conception with the consideration of the most critical issues and show a theoretical concept of scientific pluralism, and second, support my argumentation by pointing out the similar features in the most recent pluralistic conception presented by Westerhoff[67] and Chang.[68]

I assume that worldmaking should help us retain some kind of structure and order in the arts and sciences – a human-made apparatus suitable for our better orientation, adaptation, and coping with what surrounds us – then it can be further used in scientific discourse when evaluating theories and

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[66] Schwartz, "Starting from Scratch: Making Worlds," 152.
[67] Westerhoff, *Non-Existence of the Real World*.
[68] Hasok Chang, *Is Water H2O? Evidence, Realism and Pluralism* (Dordrecht: Springer, 2012).

approaches, to an extent following the critical reviewers of naïve conceptions of scientific progress.

I (and many other thinkers) argue that in order to grant scientific progress we need pluralism. The worldmaking conception in its moderate interpretation supports a plurality of methods, disciplines, and theories and also Feyerabend's view of free science which is built upon theoretical plurality of hypotheses.

I perceive the development of science, contrary to Kuhn, to be a process both accumulative and revolutionary.[69] Therefore, I believe that prevailing theories, i.e., valid theories in a specific time period, can elaborate former theories simply by considering more information; however, it is necessary to take into account unexpected variables – theories which simply emerge, replacing the old ones without elaborating them. Furthermore, such theories are treated and tested as versions for a simple reason – a scientific theory indeed is a version and all of them must also be revised, for they are influenced by other theories, contexts, and times. We cannot just test a version (or theory) by comparing it with a world undescribed, undepicted, or unperceived; the process of telling right from wrong involves interaction between symbol users and the assumed world. As a result, such actions should not only ensure scientific progress and yield pluralism but also keep relativism and skepticism within tolerable bounds.

The criterion of rightness – used for testing and which helps to determine the right from the wrong, thereby bringing us greater knowledge – is to be variably defined by the appropriate scientific authorities for individual disciplines and cases. The main decisive factor is always its functionality within a given discourse. Let us not forget that the criterion of truth endures as part of rightness when judging scientific statements. However, the intention is to make one apparatus – e.g., logic – applicable both to the sciences and non-sciences: as discussed, Goodman disapproves of the scientism and humanism which set the sciences and the arts in opposition.[70]

Goodman himself defends the position which claims that there is no ready-made world waiting to be described by science.[71] He believes that nature does not sit there waiting for us to describe it; it gives us neither

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[69] Kuhn advocates the idea that the development of science is exclusively revolutionary, i.e., science advances owing to scientific revolutions rather than the accumulation of previous knowledge. See Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 2012).

[70] Goodman, *Of Mind and Other Matters*, vii.

[71] Compare with Rorty, who advocates a very similar position, calling it "a world well-lost."

the rules nor the language to do so correctly.[72] It even seems reasonable to suggest that humans make such rules according to statements that fit into pre-established systems provided by scientists, philosophers, or any other authority.

Surprisingly, we can use Scheffler's argument to support this position, for as part of his late theory of knowledge, he admits that "philosophy has no direct access to higher realities, firmer principles, or keener insights than are available elsewhere. As I view it, philosophy is systematic interpretation and deliberation."[73] In terms of worldmaking and the difficulties regarding idealism and realism, this seems contrary to his earlier works[74] in which he almost attributes the worldmaking idea with the making-of-objects conception and struggles with the whole in-a-way-we-made-stars argument presented by Goodman.

Scheffler, although fully aware of Goodman's "mindmaking," agrees that we make things with minds yet asserts that "in any normal understanding of the word, we did not make the stars, whether by hand, mind or symbol."[75] If taken metaphorically, the worldmaking thesis is tolerable for Scheffler; however, assuming the above argumentation, one does not need to perceive worldmaking as a metaphor in order for it to work. It can still be taken literally because it has never been described as a physical process, although in "any normal understanding of the word" we may feel pressed to associate "making" with a physical act.

Let us view the moderate worldmaking as a practical conception, taking into account the realist proposition that words do not physically create objects, yet respecting the principle that if an unknown object is discovered, named, and brought to people's attention, then and only then does it become part of a system, part of our account of the world. This means neither that the object previously did not exist, nor that we create objects with our minds.

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[72] Other philosophers abandon the quest for certainty in their conception of science and realize the seriousness of the argument that reality is more made than discovered by scientists. For example, Israel Scheffler, *Science and Subjectivity* (Cambridge, MA: Hackett Publishing Co., 1982); Paul K. Feyerabend, *Against Method* (New York: Verso, 1993); and Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton, NJ: Princeton University Press, 1979).

[73] Israel Scheffler, *Worlds of Truth – A Philosophy of Knowledge* (Oxford: Wiley-Blackwell, 2009), 2.

[74] See Scheffler, "The Wonderful Worlds of Goodman"; Scheffler, "A Plea for Plurealism"; and Scheffler, "My Quarrels with Nelson Goodman."

[75] Israel Scheffler, "Reply to Goodman," in *Starmaking: Realism, Anti-Realism, and Irrealism*, ed. Peter J. McCormick (Cambridge, MA: MIT Press, 1996), 164.

This no-physical-making principle must be observed even when speaking literally of those actual worlds which create the core of pluralist world-making. As Goodman himself emphasizes, these worlds are not distributed in any literal space-time; their positions are characterized by conflicts among their versions.[76] True versions can be in conflict if not applied to the same world and thus multiple worlds with conflicting true versions may be actual and "their several space-times lie in hyper-space-time." Based on that argumentation, there are many actual worlds, if any. However, are there several spinning or motionless "earths"? Of course not. There is only one Earth in any world.[77]

Consequently, I argue that Goodman's moderate constructivist approach might comfortably coexist with some realist principles, especially with the existence of the one Earth. Goodman, of course, admits that we always work and think within one world version and acknowledges Putnam's internal realism. That in mind, it seems plausible to infer that Goodman calls himself an anti-realist mostly because he believes that realism must embrace monism, therefore cannot be plural.[78]

The timelessness of Goodman's innovative thought is proven by its contemporary applications, namely Westerhoff's virtual world theory, which elaborates on irrealism and constructivism, and Chang's active normative epistemic pluralism, which shares features of Goodman's pluralistic constructivist approach.

Westerhoff follows the recent development in cognitive science and discusses the world versions generated by our brain using the principles of irrealism. According to his concept, our brain creates a model world from a variety of stimuli, whereas this model is thought to be external and perception-independent but it is neither of the two. He claims that irrealism brings a radically new approach to thinking about the world, brain, and

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[76] The ambivalent use of the term "world" has been mentioned above. This inconclusiveness may be connected to the issue regarding true and false versions. Goodman explains that a true version is true in some worlds while a false version is true in none. Therefore, false versions can never be exchanged for a world, but there is a possibility that a true one could. See Nelson Goodman, "Notes on the Well-Made World," *Erkenntnis* 19, no. 1–3 (1983): 100. Goodman's only "explanation" is thus: "The multiple worlds I countenance are just the actual worlds made by and answering to true or right versions." Goodman, *Ways of Worldmaking*, 94. I believe that some worlds can be based on one version, i.e., one theory. In such a case that version is legitimately equal to a world.

[77] Goodman, "Notes on the Well-Made World," 99–100.

[78] Scheffler speculates that the assumption that realism implies monism is falsely attributed to realism by Goodman himself. See Scheffler, "A Plea for Plurealism," 161–73.

mind.[79] Westerhoff accentuates the importance of distinguishing irrealism from skepticism and nihilism. He insists that the irrealist position is in no way a version of external world skepticism, for it does not claim that we cannot have a particular knowledge of an external world.[80]

Chang's pluralism is based on multiple scientific systems in co-existence and supports their proliferation. He believes that standard realism based on monism can constitute a great hinderance to active realism.[81] Similarly to Goodman, Chang advocates scientific pluralism which practices not only the plurality of methods but also disciplines eligible for the description of the very same phenomena. Furthermore, he shares the view claiming that there are no unique methods or privileged descriptions.[82] Chang's defense of scientific pluralism is built upon a healthy degree of skepticism and the principle of humility about hypotheses. He claims that every successful system has its limits, and we are not likely to arrive at the one perfect theory. Furthermore, reductionism cannot work but neither can relativism – "many things go" does not mean that "anything goes."[83]

6. Conclusion

After having dealt with the most common criticisms of Goodman's conception, and having considered its problematic features, a theoretical concept of scientific pluralism has emerged. As a consequence, there are some matters that deserve closer inspection if worldmaking is to become a legitimate scientific conception. The following list serves as propositions eligible for further examination.

First, with respect to the main criticism, I find it necessary to weaken Goodman's pluralism, constructivism, and relativism. Worldmaking defends many kinds of pluralism and together with irrealism, anti-essentialism (anti-foundationalism), and fact-constructivism may seem like an incoherent project. I would suggest comparing Goodman's pluralism with that of Chang, Scheffler, and Westerhoff. I suppose that a comprehensive comparison would be of benefit for each conception.

Second, there is the issue regarding what scientists value in their theories, as proposed by Kuhn. It is worth exploring whether worldmaking

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[79] Westerhoff, "What It Means to Live in a Virtual World," 507–28.
[80] Westerhoff, *Non-Existence of the Real World*, 55.
[81] Chang, *Is Water H2O? Evidence, Realism and Pluralism*, 223.
[82] Ibid., 253–57.
[83] Ibid., xx, 261.

fulfills the characteristics of a good theory, i.e., that of accuracy, consistency, scope, simplicity, and fruitfulness.[84] Goodman himself discusses the suitability of the simplicity criterion and then replaces not only the criterion of truth with that of rightness but also that of simplicity, for he finds it puzzling that simplicity is a test of truth and systematization but that there is no test of simplicity.[85] Although worldmaking may seem too complex, it may also bring new order to phenomena which would be individually confused.[86]

Third, I believe it is necessary to test the criterion of rightness. Rightness is not fixed, it is not solid; it is variable and needs adjustments, but it has the potential to become an absolute without which neither science nor non-science can exist. The result of not having an absolute would be, as Ackerman argues, "an unfocused pluralism,"[87] which from the very start Goodman partly prevents with true and right versions. Therefore, I find it more than desirable to test rightness, to compare it with the five aforementioned characteristics for scientific theories and state how absolute it really is. Consequently, I would propose supporting rightness with another criterion. Whilst truth is only kept for literal (i.e., scientific) description and only as an element of the more variable rightness, it seems necessary to turn to coherency as a requirement for a valid scientific theory. Since we cannot be sure if the world is or is not really coherent, and as Goodman points out "we may never find out,"[88] we have to make sure that our account of the world is.

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[84] Thomas S. Kuhn, "Objectivity, Value Judgement, and Theory Choice," in *Thomas S. Kuhn: The Essential Tension: Selected Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press, 1974), 357.

[85] Nelson Goodman, "The Test of Simplicity," *Science* 128, no. 3331 (1958): 1064.

[86] See Kuhn "Objectivity, Value Judgement, and Theory Choice."

[87] Ackerman warns that "If we abandon absolutes, we run the risk of accepting a completely unfocused pluralism." He continues, admitting that "Goodman tries to avoid that risk by distinguishing right from wrong representations within any one of the plurality of realities he admits" and the above can add to that. Furthermore, he admits he finds it "easier to visualize the process of verifying this truth or rightness in the sciences which are concerned primarily with the processes of experimentation and proof" compared with what he does in the arts. See Ackerman, "Worldmaking and Practical Criticism," 251.

[88] See Goodman "On Starmaking," 211–15.

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