

Nelson Goodman (1906–1998)

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Nelson Goodman, distinguished American philosopher, was born on August 7, 1906 in Somerville, Massachusetts, and died in Needham, Massachusetts on November 25, 1998. He received the Bachelor of Science degree from Harvard University in 1928 and the Ph.D. from Harvard in 1941. From 1929 to 1940 he operated an art gallery in Boston; throughout his life, he was a collector of ancient and modern art. From 1942 to 1945 he served in the United States Army. Thereafter, he taught for one year at Tufts University before his appointment to the faculty of the University of Pennsylvania, where he served as associate professor from 1946 to 1951, and then as professor from 1951 to 1964. From 1964 to 1967 he was the Harry Austryn Wolfson Professor of Philosophy at Brandeis University. From 1968 to 1977, he was professor of philosophy at Harvard University.

Goodman's contributions to philosophy are wide-ranging, penetrating, and fundamental. The areas in which he worked include epistemology, philosophy of science, philosophy of language, analysis of simplicity, theory of symbols, aesthetics, and metaphysics. His work is characterized by unusual originality, typically rejecting conventional approaches in order to reconceive the problems to be addressed and then proposing provocative solutions to them. Thus, for example, he recasts the traditional problem of induction so as to require codification, rather than justification of inductive practice, thereafter dooming the prospects of purely syntactic or semantic approaches to such codification and offering a new pragmatic treatment based on "entrenchment." To take another example, he reorients aesthetics as a division of epistemology, concerned primarily with understanding rather than evaluating works of art, a project that leads him to formulate a comprehensive new theory of referential functions embracing the literary, pictorial, and other arts as well as the sciences. Finally, rejecting both physicalism and phenomenalism, both realism and idealism, he emphasizes the diversity of equally adequate conflicting conceptualizations for any subject matter, thus championing what he calls "irrealism"; the doctrine that there are many worlds if any and that worlds are made, not found.

Goodman's treatments are analytically subtle as well as inventive. His writing is terse and telling, making brilliant use both of logic and of metaphor. To summarize his work in this brief space is clearly impossible. Instead, we shall give a selective account of his main contributions in basic areas of his thought.

Likeness of meaning

Goodman's discussions with W. V. Quine and Morton White in the late 1940s led to a widespread discrediting of the analytic/synthetic distinction. Goodman's paper, "On Likeness of Meaning" reflects some of his contribution to these discussions. "Under what conditions," he asks, "do two names or predicates in an ordinary language have the same meaning?" He considers and rejects such answers to the question as that they stand for the same essence or the same image or idea, or that nothing can be conceived that satisfies the one but not the other, or that it is impossible that something satisfies the one but not the other. Eschewing all reference to essences, images, ideas, conceivability, and possibility, he asks whether two predicates have the same meaning if and only if they are coextensive, that is, apply to exactly the same things. The answer is no, since there are clear cases where words with the same extension (or equally lacking in it) differ in meaning, for example "centaur" and "unicorn." Extensional identity is indeed a necessary, but not a sufficient condition for sameness of meaning.

Here, Goodman proposes that it is not only the extensions of the original two words themselves that we need to consider (so-called *primary* extensions) but also the extensions of their parallel compounds (so-called *secondary* extensions). A pair of parallel compounds is formed by making an identical addition to each of the two words under consideration; thus, adding the word "picture" to "centaur" and to "unicorn," we have the parallel pair "centaur-picture" and "unicorn-picture." Now, although there are neither centaurs nor unicorns, there certainly are centaur-pictures and unicorn-pictures and, moreover, they are different. Although the original words have the same extension, the parallel compounds differ in extension. Goodman's idea is, then, that the difference in meaning between two words is a matter either of their own difference in extension or of that of any of their parallel compounds. In general, terms have the same meaning if and only if they have the same primary and secondary extensions.

This idea is generalized to cover cases in which the addition of "picture" yields a compound with null extension. For example, "acrid-odor-picture" and "pungent-odor-picture" have the same (null) extension, neither applying to anything. Compounds can, however, be formed by other additions, and Goodman suggests that "description" constitutes a suffix capable of yielding all the wanted distinctions for every pair of words *P* and *Q*. For any inscription of the form "a *P* that is not a *Q*" is a thing denoted by the compound "*P*-description" but not by the parallel "*Q*-description." And any inscription of "a *Q* that is not a *P*" belongs to the extension of "*Q*-description" but not to that of "*P*-description." Thus, "pungent-odor-description" and "acrid-odor-description" differ extensionally since the first, but not the second, applies to any inscription of the form "a pungent odor that is not an acrid odor," and vice versa. Thus, even if all pungent odors are acrid and acrid odors pungent, the terms "pungent odor" and "acrid odor" differ in meaning. It follows from this proposal, in fact, that no two different words have the same meaning.

To the objection that the compounds used in deriving this radical conclusion are "trivial," Goodman replies that when a single form of compound indeed has a different extension for every term, "the fact that it has different extensions for two given terms is of no striking or special interest. Let us, then, simply exclude every compound for which the corresponding compounds of every two terms have differing extensions . . .

instead of saying that every two terms differ in meaning but that some may not differ in interesting ways, we say that two terms differ in meaning only if they differ in certain interesting or peculiar ways" (1972: 237–8).

The new riddle of induction

The starting point for modern discussions of induction is Hume's denial of necessary connections of matters of fact. Effects cannot be simply deduced from their causes, nor can predictions be logically demonstrated on the basis of available evidence garnered from past experience. What then can be the rational justification of the predictions upon which we base all our actions? Hume answers that while there is indeed no deductive justification, there is a mental habit which underlies the expectation that phenomena uniformly conjoined in our past experience will be so conjoined in the future. In effect, he offers the uniform past conjunction of events as a mark of those inductions we find compelling in making our predictions. This idea is also represented by a modern version, which has found wide favor among scientists as well as philosophers. According to this version, predictions are made in conformity with generalizations that have regularly worked in the past. Such congruence with past experience is of course no guarantee of future success, but it seems to single out those predictions we adopt at any given time. Lacking such guarantee, however, what justification can there be for adopting these predictions?

Goodman argues that the justification of *induction*, like that of *deduction*, is only a matter of codifying our particular sanctioned inferences, and coordinating them with the governing rules of our practice, thus bringing them into agreement with one another. "A rule is amended if it yields an inference we are unwilling to accept; an inference is rejected if it violates a rule we are unwilling to amend. The process of justification is the delicate one of making mutual adjustments between rules and accepted inferences; and in the agreement achieved lies the only justification needed for either" (1983: 64).

How persuasive, then, in codifying our practice is the prevalent regularity doctrine, the view that our sanctioned predictions are those in conformity with generalizations that have regularly worked so far? Here Goodman introduces the notorious case of the green emeralds: suppose all emeralds examined before the present time t are green. We predict the next emerald to be examined will be green, since such prediction conforms to the generalization that all emeralds are green, a generalization uniformly confirmed by all our past evidence. Consider now the predicate "grue," applicable to everything examined before t if and only if green but to everything else if and only if blue. Then, all emeralds examined before t are not only green, but also grue. Hence, the generalization that all emeralds whatever are grue is supported by no less evidence than the generalization that they are all green. The prediction that the next emerald to be examined will be blue is thus, by the regularity theory, as confirmed as the prediction that it will be green. This theory, whether in Hume or in modern scientific dress, thus fails utterly to separate the properly confirmed "green" prediction from the bogus "grue" one. "Regularity in greenness confirms the prediction of further cases; regularity in grueness does not. To say that valid predictions are those based on past regularities, without being able to say *which* regularities, is thus quite pointless. Regularities are

where you find them, and you can find them anywhere” (1983: 82). If the old problem of justifying our inductive practice has indeed been supplanted by “the new riddle of induction” asking for a principled distinction between valid and invalid predictions (or more generally, “projections”), we still have a long way to go.

Goodman’s solution depends on utilizing knowledge typically not used in attempts to interpret induction. In particular, he presumes some knowledge of past projections, that is, of hypotheses that have been actually projected in the past, “adopted after some of [their] instances have been examined and determined to be true, and before the rest have been examined” (1983: 87). Now, when we consult the record of past projections, we find that “green” has clearly been projected much more often than “grue”; it is much better *entrenched* than the latter. The entrenchment of a predicate flows from the actual past projections of it and of all other coextensive predicates. While in a sense it is thus the class that is entrenched, it becomes so only through the projection of terms that determine it.

Goodman, upon this basis, elaborates a subtle general theory of projection which would take us too far afield to characterize here. But the main point to be noted is that he hopes to have gone beyond the regularity theory by appealing to regularities in our linguistic habits. “Like Hume, we are appealing here to past recurrences, but to recurrences in the explicit use of terms as well as to recurrent features of what is observed. Somewhat like Kant, we are saying that inductive validity depends not only upon what is presented but also upon how it is organized; but the organization we point to is effected by the use of language and is not attributed to anything inevitable or immutable in the nature of human cognition. To speak very loosely, I might say that in answer to the question what distinguishes those recurrent features of experience that underlie valid projections from those that do not, I am suggesting that the former are those features for which we have adopted predicates that we have habitually projected” (1983: 97).

Constructionalism and nominalism

In his approach to philosophy, Goodman was greatly influenced by the constructionalism exhibited in Rudolf Carnap’s *Der logische Aufbau der Welt*, whereby Carnap strove to reduce all concepts to the immediately given, with the help of the new mathematical logic (see CARNAP). Indeed, in his monumental *The Structure of Appearance*, Goodman includes a detailed exposition and critique of Carnap’s system before developing an alternative phenomenalistic system taking qualia as atoms rather than Carnap’s *elementarerlebnisse*.

In addition to offering acute analyses of qualia and their concretion, of size, shape, order, measure, and time, Goodman devotes the first part of his book to the theory of constructional systems. Here he argues that not only is intensional identity too strong as a requirement for constructional definition; but even extensional identity is too strong, since it precludes alternative adequate systematizations, e.g. taking points as certain classes of volumes or taking points as certain pairs of lines. He proposes instead a criterion of “extensional isomorphism,” which he explains as allowing a given term to be definable alternatively “by any of several others that are not extensionally identical with one another” (1977: 17). The criterion, which must be applied to the whole

set of definitions of the system, nevertheless provides for the truth-value preserving character of the translations of all sentences we care about.

In his constructionalism, Goodman is concerned both with system and with simplicity. Indeed, these two concerns are, as he argues, identical. "The purpose of constructing a system is to interrelate its predicates. The same purpose is served by reducing to a minimum the basis required. Every definition at once both increases the coherence of the system and diminishes the number of predicates that need to be taken as primitive. Thus the motive for seeking economy is not mere concern for superficial neatness. To economize and to systematize are the same" (1977: 48).

Goodman's attitude toward constructional systems issues in a passionate defense of the *Aufbau* against the charge that it is abstract, static, and bloodless, a mere caricature of experience. On the contrary, such a charge is in effect an attack against philosophy in general, for all philosophy involves conceptualization, abstraction, and systematization, the effort to map experience, not to duplicate it. "A map is schematic, selective, conventional, condensed, and uniform . . . The map not only summarizes, clarifies, and systematizes, it often discloses facts we could hardly learn immediately from our explorations." Goodman emphasizes the fact that different maps are useful for different purposes. "Let no one suppose that if a map made according to one scheme of projection is accurate then maps made according to alternative schemes are wrong" (1972: 15–16). This point is worth remarking since Goodman's phenomenalistic basis in *The Structure of Appearance* is not, as has often been mistakenly supposed, a matter of philosophical conviction precluding other, for example, physicalistic bases; he insists that while a constructional system may be adequate and illuminating, it can by no means claim a monopoly of wisdom. And he sees no virtue in claims of epistemological priority made on behalf of either phenomenalistic or physicalistic systems.

In constructing systems Goodman insists that the logic employed is not mere neutral machinery. Interpreted use of the calculus of classes – employing variables taking classes as values – commits the system not only to the individuals explicitly acknowledged, but also to classes of classes, etc. of these, without limit. "The nominalistically minded philosopher like myself," he declares, "will not willingly use apparatus that peoples his world with a host of ethereal, platonic, pseudo-entities. As a result, he will so far as he can avoid all use of the calculus of classes, and every other reference to non-individuals, in constructing a system" (1977: 26). Goodman's principle is "entities differ only if their content at least partially differs." He offers the following example: "A class (e.g. that of the counties of Utah) is different neither from the single individual (the whole state of Utah) that exactly contains its members nor from any other class (e.g. that of acres of Utah) whose members exactly exhaust this same whole" (1977: 26).

A pioneering paper by Goodman and W. V. Quine is "Steps Toward a Constructive Nominalism" (1947) in which the authors, starting from a renunciation of abstract entities, proceed to offer ingenious nominalistic translations of a variety of non-nominalistic statements (see QUINE). They soon, however, concede their inability thus to translate all of mathematics and they therefore suggest a different way of saving mathematics nominalistically: to devise a nominalistic syntax capable of describing the syntactic rules by which mathematical inscriptions, as concrete uninterpreted marks, are manipulated.

In this enterprise, they succeed in defining a suitable nominalistic syntax language for describing the object language of mathematics, with its ingredient notions of “axiom,” “rule,” “proof,” and “theorem.” In conclusion, they declare “Our position is that the formulas of platonistic mathematics are, like the beads of an abacus, convenient computational aids which need involve no question of truth. What is meaningful and true in the case of platonistic mathematics as in the case of the abacus is not the apparatus itself, but only the description of it: the rules by which it is constructed and run. These rules we do understand, in the strict sense that we can express them in purely nominalistic language” (1972: 198).

Further discussion of nominalism, including the later differing interpretations of Goodman and Quine, as well as elaborations and answers to various objections, can be found in Goodman’s paper, “A World of Individuals” (1972: 155–72). Here, he declares that his nominalism is specifically “the refusal to recognize classes” (p. 156), requiring that all entities admitted to a system, no matter what they are, be treated as individuals.

Theory of symbols

In *Languages of Art*, Goodman develops a theory of symbols that encompasses but ranges far beyond what is typically considered aesthetics, while giving only minor attention to artistic value and criticism. His primary concern is to develop a systematic approach to the functioning of symbols not only in the arts but also in the sciences and in ordinary contexts as well, for example, in the everyday use of labels and samples. And in the realm of the arts proper, he discusses music as well as painting, literary arts as well as dance and architecture. His key emphasis is on cognitive function and to this end he devises a general theory which he employs in characterizing notations, sketches, scripts, and paintings. In related discussions, his book offers an account of forgery of works of art, a theory of metaphor and a categorization of figures of speech, a treatment of fictional expressions, and a comprehensive interpretation of reference as including not only denotation, but also exemplification and expression.

A swatch of cloth in a tailor’s shop is typically used to exemplify certain of its properties, i.e. its color and texture, but not its size or shape. To serve thus, it must possess these properties, but also refer to them. *Exemplification* is a symbolic function by which the sample stands for a property it possesses. *Expression* implies metaphorical exemplification: if a picture expresses sadness, it is itself metaphorically sad and also refers to sadness. With these two notions at hand, Goodman is able to treat works of art not merely as objects of reference but – even where nonrepresentational – as referring symbols in their own right. And the ingredient idea of metaphor vastly expands the resources available for treating the wide expressive ranges of works of art.

Goodman’s treatment of metaphor has been widely noted. “Where there is metaphor,” he writes, “there is conflict: the picture is sad rather than gay even though it is insentient and hence neither sad nor gay. Application of a term is metaphorical only if to some extent contra-indicated” (1976: 69). Along with such contra-indication, there must also be attraction, or aptness. The metaphorical use of “sad” implies that there are two ranges for the term “sad,” but that these two ranges do not simply comprise an ambiguity. In mere ambiguity, the separate uses of the term are

independent. "In metaphor, on the other hand, a term with an extension established by habit is applied elsewhere under the influence of that habit; there is both departure from and deference to precedent. When one use of a term precedes and informs another, the second is the metaphorical one" (p. 71).

The key technical discussion in the book presents a theory of notation, for example, a musical score. The main function of such a notation, says Goodman, is to provide authoritative identification of a work from performance to performance, whatever other uses it may have. "What is required is that all and only performances that comply with the score be performances of the work" (1976: 128). With this principle as a guide, Goodman develops five requirements for a notational system: unambiguity and syntactic and semantic disjointness and differentiation.

To give a precise account of these requirements would exceed the limits of this space, but a brief summation of their import is stated by Goodman as follows: "A system is notational, then, if and only if all objects complying with inscriptions of a given character belong to the same compliance class and we can, theoretically, determine that each mark belongs to, and each object complies with inscriptions of, at most one particular character" (1976: 156). Using this notion of notation, Goodman is able then to characterize other things than, for example, scores. A script, for example "is a character in a notational *scheme* and in a language but, unlike a score, is not in a notational *system*. The syntactic but not all the semantic requirements are met . . . [it is] a character in a language that is either ambiguous or lacks semantic disjointness or differentiation" (pp. 199, 201).

Rather than offering a definition of the aesthetic, Goodman suggests four symptoms that tend to be present in aesthetic experience: syntactic density, semantic density, syntactic repleteness, and exemplificational character. The first two call for maximum sensitivity of discrimination, the third calls for such effort along many dimensions, while the fourth is shown by concern with properties exemplified by a symbol, not merely with things the symbol denotes. Largely as a result of his analysis, Goodman emphasizes the affinities between art and science, despite their differences. The difference between them is not that between feeling and fact or truth and beauty "but rather a difference in domination of certain specific characteristics of symbols" (1976: 264).

Irrealism

In Goodman's *Ways of Worldmaking*, he speaks of versions as including depictions as well as descriptions, works of art as well as works of science. And he insists that there are conflicting right world-versions, rather than a single world underlying the rightness of all. He considers his view on these matters as

belonging in that mainstream of modern philosophy that began when Kant exchanged the structure of the world for the structure of the mind, continued when C. I. Lewis exchanged the structure of the mind for the structure of concepts, and that now proceeds to exchange the structure of concepts for the structure of the several symbol systems of the sciences, philosophy, the arts, perception, and everyday discourse. The movement is from unique truth and a world fixed and found to a diversity of right and even conflicting versions or worlds in the making.

The view that emerges, he says, can perhaps be described as “a radical relativism under rigorous restraints, that eventuates in something akin to irrealism” (1978: x).

Goodman takes his adversary to be “the monopolistic materialist or physicalist who maintains that one system, physics, is preeminent and all-inclusive, such that every other version must eventually be reduced to it or rejected as false or meaningless” (1978: 4). Were all versions reducible to a single one, that one might be plausibly considered the only truth about the one world. But such reducibility is a chimera; the claim of reducibility to physics is “nebulous since physics itself is fragmentary and unstable and the kind and consequences of reduction envisaged are vague . . . The pluralist’s acceptance of versions other than physics implies no relaxation of rigor but a recognition that standards different from yet no less exacting than those applied in science are appropriate for appraising what is conveyed in perceptual or pictorial or literary versions” (p. 5).

Doesn’t the rightness of these various versions imply an underlying world that makes versions right? No, says Goodman,

we might better say that “the world” depends on rightness. We cannot test a version by comparing it with a world undescribed . . . all we learn about the world is contained in right versions of it; and while the underlying world, bereft of these, need not be denied to those who love it, it is perhaps on the whole a world well lost . . . For many purposes . . . just versions can be treated as our worlds. (1978: 4)

Worlds are made through the making of versions, but versions cannot be made any way we like. Goodman denies that his acceptance of many right world-versions implies “that anything goes, that tall stories are as good as short ones, that truths are no longer distinguished from falsehoods.” Although it is true, he says, that “we make worlds by making versions,” we cannot do so at random or by whim (1978: 94). “Of course,” he says,

we want to distinguish between versions that do and those that do not refer, and to talk about the things and worlds, if any, referred to; but these things and worlds and even the stuff they are made of – matter, anti-matter, mind, energy, or whatnot – are fashioned along with the things and worlds themselves. (p. 94)

The making of worlds is brought about by the making of versions and the multiple worlds thus made “are just the actual worlds . . . answering to true or right versions. Worlds possible or impossible supposedly answering to false versions,” says Goodman, “have no place in my philosophy” (1978: 94).

Goodman’s relativism on the issue of worldmaking is familiar from his earlier work on constructionalism, where, as we have seen, he insists on honoring the conflicting definitions that can be offered for the very same terms. The criterion of extensional isomorphism, as we have noted above, is a more relaxed standard than either synonymy or identity, but it nonetheless imposes clear and definite restraints.

Similarly, his theory of worldmaking, paradoxical as it may seem, recognizes a vast array of conflicting versions, rather than a single underlying world, yet insists that there are clear distinctions to be drawn between right and wrong versions. Goodman’s

relativism must therefore be sharply distinguished from nihilism, subjectivism, and cultural relativism. His hospitality to variant and opposed conceptualizations is allied with a dedication to the highest standards of logical rigor.

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