

## THE NAGEL CRITIQUE AND LANGER'S CRITICAL RESPONSE

The critical literature on Susanne K. Langer's philosophical work appears to be rooted in the Ernest Nagel review<sup>1</sup> of Philosophy in a New Key.<sup>2</sup> This famous critique has bred the conventional view that Langer was mistaken in her conception of "discursive symbolism" and therefore failed in her attempt to provide a viable conception of "non-discursive symbolism". The same view suggests that Langer accepted the critique and effected fundamental changes in her terminological usage, for example, from "meaning" to "vital import" and from "symbol" to "expressive form". Thus far, however, the critical literature does not suggest that Langer has ever engaged Nagel's critique. In this paper the focus is precisely on the Nagel critique and Langer's critical response to it. The purpose of our examination is clarification: the intent is to clarify the status of the Nagel critique, especially in view of Langer's response. The function of the clarification is promotional: the intent is to promote an appreciation of Langer's work such that future criticism may assist the development of her theory of 'mind' and the conception of 'art' that derived from it.

## I

The Nagel critique must be seen both on the level of its style as well as on the level of its content or message. The style in which Nagel delivered his critical message reveals the conflict between the established or official view of rationality and an unofficial view. The function of the style is to reinforce the main theme of the message -- the invalidation of Langer's unofficial view of rationality. And the implication of the reinforcement of invalidation is the discreditation of any such view of rationality. The point being suggested is that PNK challenged the authority of the scientific establishment at one of its most contested commitments -- the relationship between science and religion, science and politics.<sup>3</sup> Langer's view represented a new version of this challenge, i.e., emotion and the irrational not as religion or politics, but as art. And of course the quintessence of her unofficial proposal was that art is the rationality of emotion.<sup>4</sup>

Nagel's review assumes the following form in three parts. First, he introduces Langer's thesis in perspective: in theme it is not novel but fashionable, although in treatment, novel. The introductory section ends with unmistakable praise: analytically she is "singularly earnest and vigorous" and in problem conception "fresh and generously broad". The "obvious merits" of her book permit exclusive attention to be devoted to the critical examination of her major claim concerning musical form. Second, the body of the review is devoted to the critical examination of that claim. Third, the review ends with the conclusions that her book widens horizons but is ultimately a disappointment. The impact of her radical alteration of the normal meaning of "cognitive"

ultimately not only sacrifices the ideal of clarity but is also a serious disservice to the value of knowledge. Thus, Nagel opens with the identification of Langer's position and the assignment of due praise. Thence to his critical business of invalidation, culminating in the finale of discreditation. The reception of Langer's deeply discrepant viewpoint is thus subjected to conventional evaluation and dismissed by one of the most prestigious representatives of the scientific establishment.

Is it not odd that the crux of Nagel's critical evaluation is the contention that Langer has made a fundamental mistake in her treatment of the nature of "symbol"? Odd not because Langer could not have been mistaken, but odd because one masterful specialist in the logic of symbolization is treating another masterful specialist in the same field as a novice who has not mastered the fundamentals. After all, that Langer published a text in symbolic logic four years earlier, certainly qualified her for a status at least a cut above novice.<sup>5</sup> Thus what we have is not a master informing a novice of a mistake but two masterful professionals discovering a difference of opinion on a fundamental issue; one which concerns the established and so conventional view of the logic of "symbol".<sup>6</sup> This is specifically manifested in Nagel's explanation of Langer's alleged position "... that the pattern in which a proposition combines names for things and actions must be 'somehow analogous' to the pattern in which the items named are combined".<sup>7</sup>

Nagel begins his examination of this position by presenting three exceptions to Langer's alleged use of "analogy". The exceptions -- the trigonometric formula for a sinuous curve, the map and the line -- evidence that he misrepresents Langer's treatment of "analogy" by confusing it with "iconicity". Langer does not say that a proposition must simply resemble that which it symbolizes in an unqualified way. She in fact states that by "analogy" she means a "logical relationship", which is different from "iconicity".<sup>8</sup> Yet Nagel notes, "Now in spite of the 'similarity' between the structure of the map and of the area it represents, the map can serve as a representation of the area only if certain rules of interpretation are used."<sup>9</sup> He grants "similarity" but rejects "analogy". Is "analogy", understood as a logical relationship, so different from "similarity"?

If one goes to Langer's text, it becomes clear that she is misrepresented. Langer's treatment and clarification of the concept of analogy establish that she is speaking only in logical or formal terms. During this clarification, Langer turns to a consideration of the logical relationship of a picture (which for the moment replaces a proposition) to the object it represents. A picture does not have to share the visual appearance of that object to any high degree. She stresses, "The reason for this latitude is that the picture is essentially a symbol, not a duplicate, of what it represents."<sup>10</sup> Later, during the same discussion, Langer notes that what the picture may represent as a symbol, "... is dictated purely by its logic ..."<sup>11</sup> Thus, when Langer is correctly read, the nature of the analogy of a symbol and what is symbolized is understood as a relationship of logical form. And if so, how else would one interpret the meaning of "logical form" other than as a "rule of interpretation"? Would Nagel lead one to

believe that Langer would go so far as to interpret the meaning of "analogy", in logical terms, but not far enough to mean by the logic of "analogy", that it is a "rule of interpretation"? As a final clarification of her use of the concept of analogy, Langer notes that denotative symbols are "... very different, but analogous ..." to the denoted things.<sup>12</sup> Here Nagel's misrepresentation of Langer is pinpointed: how could Langer assert both, regarding the connection between a symbol and its object of reference, that that connection is different and at the same time analogous if "analogy" is something other than a logical relationship?

Using this preliminary criticism as a stepping stone, Nagel attempts to dismantle Langer's formulation of "discursive language", as well as her discussion of the significance of music. The underlying critique is that Langer presents music as a symbol system that is iconic to feelings. This is an accusation that Langer might launch against the traditional expressionist theories of musical significance. She notes that it is not anyone's personal feelings being represented in music.<sup>13</sup> The composer is symbolically transforming the logic of feelings. Langer is careful to continually point out that it is a logical relationship that music has to feeling. She reiterates this use of "analogy" as a relationship between music and feelings several times in the Chapter, "On Significance in Music". For example, she says:

"... let us look at music from the purely logical standpoint as a possible symbolic form of some sort. As such it would have to have, first of all, formal characteristics which were analogous to whatever it purported to symbolize; that is to say, if it represented anything, e.g., an event, a passion, a dramatic action, it would have to exhibit a logical form which that object could also take."<sup>14</sup>

Later she points to the "... peculiar fact that some musical forms seem to bear a sad and a happy interpretation equally well".<sup>15</sup> Langer's amplification of this apparent paradox supports the position that by "analogy" she means a logical relationship which is different from "iconicity". She notes that, "For what music can actually reflect is only the morphology of feeling: and it is quite plausible that some sad and some happy conditions may have a very similar morphology".<sup>16</sup> It is because music is analogous only to the morphology, i.e., form or logic, of feeling that this paradox is possible. Music, understood as the symbolic transformation of the logic of feeling is not actual feeling; as a logic it can represent both happy and sad conditions.

It is the logic or the conception of feeling, not feeling itself, that music presents. This is consistent with the theory of signs and symbols Langer presents earlier where she stresses that, "In talking about things we have conceptions of them, not the things themselves; and it is the conceptions, not the things, that symbols directly 'mean'."<sup>17</sup>

## II

Thus far, in summary fashion, it has been shown that Nagel's review comes to a major attack on Langer's understanding of "discursive symbolization" and the application of that attack to Langer's concept of "non-discursive symbolization". The upshot of Nagel's analysis is that since Langer is wrong in the first case, she is therefore wrong in the second case. We now enter the next phase of Nagel's review. The point at issue here is that of "general reference". Nagel correctly observes that Langer is inconsistent in her use of this concept. He notes that during her Chapter, "On Significance in Music", Langer asserts that music conveys general forms of feeling.<sup>18</sup> Yet in her earlier chapter concerning discursive and presentational forms, she clearly states that non-discursive and presentational forms have no intrinsic generality.<sup>19</sup> If Langer is using the term "intrinsic generality" in some idiosyncratic way, she does not clarify that use in the text. As a result, on this issue Nagel is right; Langer did contradict her earlier position.

From this point on "general reference", Nagel quickly moves into the issue of "representation" in musical symbolism, asserting, "But she (Langer) does not seem to note that when language is treated in this way -- i.e., in abstraction from any reference it may have -- language is not operating symbolically at all. If, however, the development of a musical theme is a sort of syntactical operation with musical forms, how does music suddenly become representative and expository of the dynamics of emotional life?"<sup>20</sup> This conclusion is derived from Nagel's partial quote from PNK which follows:

"In music we work essentially with free forms, following inherent psychological laws of 'rightness', and take interest in possible articulations suggested entirely by the musical material. We are elaborating a symbolism of such vitality that it harbors a principle of development in its own elementary forms, as a really good symbolism is apt to do -- as language has 'linguistic laws' whereby words naturally give rise to cognates, sentence-structures to subordinate forms, indirect discourse to subjunctive constructions 'by attraction', noun-inflections to inflections of their modifiers 'by agreement'."<sup>21</sup>

Partial because when one completes Langer's own discussion, what Nagel has omitted challenges his conclusion, if not refutes it:

"No conscious intellectual intent determines vowel changes, inflections, or idioms; the force of what has been called 'linguistic feeling' or a 'sense of words' ... develops the forms of speech. To make up a language upon a preconception of what it is to express never leads to a real language, because language grows in meaning by a process of articulation, not in articulate forms by a process of preconceived expression."<sup>22</sup>

Especially in Langer's concluding statement, she distinguishes between formal changes of a language in use and formal changes of an artificial language.<sup>23</sup> This distinction is reflected in the fact that Langer observes that scholars of linguistics, in studying the actual history of language, discovered that language users are not aware of the formal changes that result in the language they are living. Therefore, when Nagel states that the meaning of his partial quote from PNK is that, "Mrs. Langer is here simply acknowledging that discursive language can be exploited in a purely formal or syntactical manner", he is confusing the formalism of a language with the formal changes of a language in use.<sup>24</sup> His statement, if not wrong, is certainly misleading: in effect, Nagel is claiming that according to Langer, to make up a language upon a preconception of what it is to express does lead to a real language. And therefore language must grow in meaning not by a process of articulation but in articulate forms through a process of preconceived expression. Of course, this is the reverse of Langer's concluding statement which, as was pointed out, Nagel omitted in his review.

Perhaps the ultimate thrust of Nagel's review is not to invalidate Langer's conception of the logic of symbolization; rather, that thrust is to be found in Nagel's attack on Langer's conception of 'mind' which underlies the process of symbolization as she sees it. Consider what Nagel asserts:

"... although Mrs. Langer professes a conception of mind which construes the latter as transformative rather than as simply reproductive of experience, she in effect maintains a sort of 'copy theory' of musical significance ..."<sup>25</sup>

If Langer does indeed maintain a "copy theory" of musical significance, this would dictate a "reproductive" not a "transformative" conception of 'mind'. For in her opening chapter, Langer states categorically that, "... the edifice of human knowledge stands before us, not as a vast collection of sense reports, but as a structure of facts that are symbols and laws that are their meanings."<sup>26</sup> The import of this statement is asserted on the same page: "... the triumph of empiricism in science is jeopardized by the surprising truth that our sense-data are primarily symbols."<sup>27</sup> A copy theory, therefore, must entail the perspective of empiricism which stresses the primacy of sense data and the procedure of sense reports; and in that sense, a copy theory presupposes a reproductive conception of 'mind'. Yet Langer's conception of 'mind' is transformative, as the above reveals. What else could one conclude knowing that her intellectual roots are Kantian, not Humean, and from Cassirer, not Comte? That tradition of which she is a part takes as its major premise that 'mind' is an active process of constructing meaning, by way of the symbolic transformation of experience.

Given the foregoing discussion, one might ask why Nagel correctly presented Langer's conception of 'mind' as transformative and not reproductive, but then proceeded to characterize Langer's conception (via the copy theory) as reproductive. Perhaps the answer lies in the completion of the Nagel quote cited immediately above:

"... for, according to her, the primary function of music is to represent patterns of emotional tension, which are presumably simply "given" to and apprehended by the composer in some fashion or other."<sup>28</sup>

Nagel is repeating his initial conviction that Langer's conception of "discursive symbolization" is incorrect. And it has been demonstrated that this is due to a misrepresentation and misreading of Langer's usage of the concept "analogy". Langer's use of the terms "analogy" and "representation" can only be properly understood from her primary commitment to formal symbolism.

### III

Since no scholarship to date -- to the writers' knowledge -- has systematically addressed itself to the status of the Nagel critique, it is not possible to engage in a genuinely comparative analysis of critical reviews of Nagel's critique. The critical literature on Langer seems to be predicated on a belief in the correctness of Nagel's review: this paper provides warranted grounds for the rejection of such a view. As has been shown, Nagel's review is (except in one instance) generally incorrect. This should strike one as surprising, for Nagel at that time was a noted philosopher of science and so was renowned for his expertise in the logic of symbolization and its formalism; he was the most likely type of scholar to review a book within the field of the philosophy of science. Especially so since this was a book authored by a philosopher also expert in the logic of the formal sciences.

As it has been specifically shown by following Nagel's review, the actual course of his analysis betrays misrepresentation ("iconicity" for "analogy"), misapplication (carelessness in his move from the "discursive symbol" to the "non-discursive symbol"), crucial omissions (omitting challenging commentary from Langer's text), and unappreciativeness (failure to reconstruct and consider the basic structure of a thinker's stance). From Langer's own commentary in the "Preface to the Second Edition of PNK", one may infer that Nagel's misreading can be readily understood. For Langer graciously offers the possibility that she herself was responsible for misreadings. This is so because, "The process of philosophical thought moves typically from a first, inadequate, but ardent apprehension of some novel idea, figuratively expressed, to more and more precise comprehension, until language catches up to logical insight ..."<sup>29</sup> Langer, in the same breath, avers that the second edition is in an "unaltered form" and the only acknowledgement of change made was terminological (from sign to signal). For that, Charles Morris was duly noted. But absolutely no mention was made of Ernest Nagel.

Several years later (in a talk in 1956 which was subsequently published in Problems of Art in 1957), Nagel is mentioned in connection with a terminological shift.<sup>30</sup> Though most scholars have registered this article, another article delivered in the same year and later published seems not to have been noted. In 1956, "On a New Definition of 'Symbol'" was delivered by Langer at Brown University.<sup>31</sup> Here Langer examines Nagel's position in broad terms. It must be noted first that it is in PNK that Langer asserts that the study of symbols and meaning are the new intellectual foci in philosophical and scientific thought. She seeks in that same work to develop the concept of "symbol" into that of "non-discursive symbol". Fifteen years later, in the Brown University paper, Langer continues this main thrust. The significant difference in 1956 is her grave concern that intellectual work within the field of semantics is courting sterility in the sciences and unsystematic usage in the semantic studies of symbols and meaning are, for Langer, indicative of an intellectual disunity in fundamentals, i.e., in the basic conception of "symbol". In this paper she offers a symbol concept as a way of unifying intellectual thought so that fruitful work might once more be possible. This conception was new only in the theoretical sense, because again (historically) it was presented as the "new key" change in modern thought fifteen years earlier.

To demonstrate the cogency of her proposal of problem and solution, Langer deepens her analysis. This brings her to Nagel and his critical stance on the fundamental issue of the concept of "symbol". At this juncture the context of discussion is as follows: she notes that semantical studies exhibit two interests, discursive thought and the communication of thought. Of late, she observes, greater stress is being given to the latter in two ways, referentiality and conventionality. Concerning conventionality she cites and quotes from Nagel's 1954 paper where he defines "symbol" such that what is signified does so "... by way of tacit or explicit conventions or rules of language".<sup>32</sup> And at this point Langer critically engages Nagel. She does so not as a direct answer to his critique of PNK, but rather as a broader challenge to the official view of "symbol" that still dominated (in 1956) the American intellectual community. And in that domination, the official view was responsible for the fact that, "The whole study of symbols and meaning seems ... to be temporarily exhausted, and bogging down."<sup>33</sup> Langer notes:

"This is, I think, a sufficient characterization of 'symbol' for all purposes of science, and indeed all literal uses of language including idiomatic and colloquially figurative uses. The rules of using language need not be strict to be publicly though tacitly accepted conventions. In most cases of figurative statement, the literal equivalent is directly understood, and could be readily produced by the speaker or writer using the figure of speech, which is itself a further convention.

Nagel is quite aware of the fact that the word 'symbol' has some uses to which this definition would not be adequate, and takes care to point it out. In the essay from which I just quoted, he does not censure those other uses as illicit, though he has questioned their credentials elsewhere. But the thing that concerns me here

is precisely the ground on which he could and did question them -- namely, that a symbol concept appropriate to those other uses cannot be derived by any modification of the scientific concept. No generalization of the definition he has given, followed by a different specification, will yield a meaning of 'symbol' usable in the contexts where obviously a different meaning obtains."<sup>34</sup>

From Langer's comments it is clear that she demonstrated that although Nagel previously questioned the credentials for deviant definitions (of which that offered in PNK counted as one), by 1954 he did not censure them as illicit. The import of this moment in intellectual diplomacy is that Nagel had changed on the matter of the symbol; by 1954 he was tolerant of deviation! Langer, on the other hand, held her ground despite her usage having been censured in 1942 as illicit by Nagel. But more important is that (as Langer points out) Nagel's grounds for questioning deviant definitions are most peculiar. Specifically, the scientific concept of "symbol" given by Nagel cannot, by any technical manipulation of its logic, generate a symbol concept appropriate for other useful research. This unmistakably is the source but not the root of the problem of sterility and unsystematic usage. And this is precisely why Langer, a page earlier, asserted that the official view of "symbol" as we have it in Nagel's codification is suspect: any concept, she declared, would be suspect if its logic makes the creative work of a Cassirer or Freud impossible.

There can be no doubt that the Brown University paper manifests a devastating critical attack on Nagel's definition of "symbol", his review of PNK, and much more. It is an attack that goes to the root of the problem generated and maintained by the official view Nagel then represented. It becomes clear that this root was generally philosophical and specifically "paradigmatic". The problem is the continuing debate concerning a metaphysical vision which prescribes most adequately the nature, function and practice of science.<sup>35</sup> Langer and Nagel are respectively working with theories of symbolization which stem from conflicting metaphysical visions. Clearly in PNK Langer declares her intellectual independence of the positivist vision of science.<sup>36</sup> And while it would be fallacious to simply designate Nagel as a positivist, he certainly embraced (as of 1954) a number of crucial positivistic beliefs which undergird the dispute over the nature of "symbol", e.g., the belief in the pragmatic view of truth and the instrumentalist version of theory.<sup>37</sup> In the pragmatic view of truth the only acceptable connection between knowledge and the world is usefulness and so the only acceptable version of theory is formalistic. To know is to know how to get about in the world. A theory is thus a device whereby "how to get aboutness" is facilitated with the addition of precision: with precision the anticipation of common sense becomes the prediction of science. Langer of course was committed to a correspondence view of truth and a realistic version of theory: to know how to get about in the world, one must know something about the world. Since "to know" in this case is to know what, theory proposes what the world might be. Knowledge and world also connect by way of correspondence, and a theory proposes what is real about the world. From this vantage point what is asserted to be Nagel's incorrect reading of PNK by way of misrepresentation can be clarified.



The dispute over the thesis of "analogy" in PNK strikes a fair-minded reader in two or three ways: a pedantic quarrel, an analytical subtlety, a profound clash. Once it is remembered that Langer, too, was a master in formalism, to read the dispute as primarily pedantic is unfruitful. To consider that Nagel is engaged in analytical subtlety is a possibility, but the analysis in his review did not unequivocally indicate what the subtle point was. Nagel's rejection of "analogy" in favor of "similarity" is not only uninformative, it is a surprise. To suggest that "analogy" is being employed on the assumption of a "copy theory" of mind and in the same breath quote Langer's discussion of "symbol" as a "logical resemblance" is no longer a surprise, it is bewildering. The move from Nagel's review to his 1954 paper provides evidence that the dispute over "analogy" is not a matter of an analytical subtlety, but one of a profound clash.

In this paper (1954) Nagel takes up the issue of "symbol" (especially in science) and places Langer in the company of Russell and Wittgenstein. His critical thesis against all three is that they present a correspondence theory of truth and a realist version of theory. Nagel's argument against this position -- what Karl Popper in 1956 called the Galilean view of knowledge -- is clear but not compelling.<sup>38</sup> First, Nagel admits that his instrumentalist version of theory is primarily a belief; this is a normative argument.<sup>39</sup> Second, he does not systematically formulate the major logical thrust of his argument. Fundamentally, he admits his acceptance of a restricted version of correspondence and realism. And so the main thrust of his analysis is to argue against any version in excess of a restricted one.<sup>40</sup> But in so doing, Nagel does not decide what the crucial problem is with what he called the wholesale version of correspondence and realism. For instance, he declares that the Russell-Wittgenstein-Langer position is "wrong", "misleading", "irrelevant", because: 1) it entails the assumption of a copy theory; 2) any theory entails a component with no representative function; and 3) the representative function of a theory cannot be one of "substantial identity" nor can it be defined as an intrinsic connection between a symbol and an object or defined as an inherent mirror.<sup>41</sup>

Now as for point one on the copy assumption, Nagel cannot in the end maintain that all three philosophers do assume a copy theory. He only maintains that their position would entail that assumption if it were ". . . seriously and consistently held".<sup>42</sup> This admission weakens the force of his argument. In point three on the substantial identity assumption, Nagel does not demonstrate by logic or evidence that Langer asserts that symbolization entails an intrinsic connection or is an inherent mirror.<sup>43</sup> Thus, Nagel's reading is neither literally accurate nor in keeping with the spirit of Langer's position on "mind" and "symbol". As a matter of fact, this kind of reading would have to be judged literally false, and in spirit, insensitive. Finally, point two does not present a credible argument: Nagel would have one believe that three masters in formalism did not understand that the formal component of any theory has a function that is not necessarily a representative one.

Nagel's overall analysis then is certainly clear, but again it is not compelling. On the one hand it is not compelling because no subtle point about the inadequacy of "analogy" as a characterization of the symbol-object connection was revealed. Nagel simply restates his position initially given in the review, this time (1954) with amplification. On

the other hand it is not compelling because Nagel admits a minimal acceptance of correspondence-realism and admits that his instrumentalist version of "theory" is a belief and not a conclusion dictated by logic or fact. In short, Nagel reveals the dispute with Langer to be a profound clash of paradigmatic assumptions.<sup>44</sup> Therefore, the conclusion that Nagel's reading of Langer is generally incorrect, especially in reference to the logical character of "symbol", is ultimately clarified as having its roots in this profound clash.

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#### FOOTNOTES

1. Ernest Nagel, "Book Review of Philosophy in a New Key", The Journal of Philosophy 40, 12 (June 1943) 323-329.
2. Susanne K. Langer, Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art, 3rd ed. (Cambridge, Mass., Harvard University Press), 1973. Hereafter cited as PNK.
3. Until quite recently the natural science tradition prescribed that the scientific revolution demonstrated that philosophy and science are discontinuous enterprises -- authority in matters of knowledge about the natural world is purely scientific; speculation (the method of faith and reason in pursuit of the supernatural) was supplanted by theorization (the method of reason and experience in pursuit of the natural). Thus matters of knowledge are decided by the authority of objective rationality in the context of justification and not by the chimerical authority of objective rationality in the context of discovery. The standard import of this, of course, came to be that any variety of non-scientific pursuit -- philosophy, religion, and art -- is not only irrelevant to genuine knowledge, but also inimical to it. Any form of the subjective -- faith, feeling, imagination -- is the source of what scientific methodology controls for. This famous reading of the scientific revolution prescribed by the natural science tradition is what is meant by the term "scientific establishment". From this established position is derived the official view of rationality as strictly a logical, observational and calculational affair.
4. In PNK Langer suggests the following theme: the modern Western world is in the midst of a crisis of meaning and existence which encompasses the meaning of man himself and the question of the future of his existence as a human being. For Langer this crisis is rooted in the nature of "mind": on the one hand the problem of envisionment and on the other hand the problem of the "unity of will". Envisionment indicates the formulation of meaning through the coordinated process of emotion and reason. The "unity of will" indicates overcoming the Cartesian dualistic view of "mind", in which feeling and reason are defined as separated, conflicting and mutually exclusive. This theme (revealed in PNK) became the fabric of the entire corpus of her work. Its logic has become the proposition that the human mind

originates in feeling, emerges in the evolution of feeling, and crystallizes from the social elaboration of feeling. The mind is thus seen as an act of feeling and feeling is viewed as an act of form-making. Rationality, then, is the appreciation of form.

5. See Susanne K. Langer, An Introduction to Symbolic Logic, 3rd ed. (New York, Dover Publications, 1967).
6. At issue is also a difference in the criterion each professional uses to judge the worth of different approaches to the problem at hand. For Nagel it is the criteria of technical correctness and "independent empirical evidence". For Langer, it is the criterion of "fecundity": the expectation of generalization to novel problems.
7. Nagel, p. 324.
8. Although our point is revealed in Nagel's own discussion, it appears that his reading has become the standard one (without the realization of its incorrectness). For example, Eugène F. Kaelin (see Art and Existence: A Phenomenological Aesthetics (Lewisburg, Bucknell University Press, 1970, p. 198) writes, ". . . Ernest Nagel pointed out that Mrs. Langer had misinterpreted some of the properties of symbols, primarily in her assumption that the pattern of meaningful discursive symbols must be in some way analogous to the patterns of events symbolized. This is to attribute iconicity to all meaningful discourse, and is patently false".
9. Nagel, p. 324.
10. Langer, PNK, p. 68.
11. Ibid. p. 70.
12. Ibid., p. 73.
13. Ibid., p. 221.
14. Ibid., p. 225.
15. Ibid., p. 238.
16. Ibid.
17. Ibid., p. 61.
18. Ibid., p. 238.
19. Ibid., p. 96.
20. Nagel, p. 328.
21. Langer, PNK, p. 240.
22. Ibid.

23. Langer's assertion that "language grows in meaning by a process of articulation" refers to the formal changes for a language in use. The formal changes of an artificial language means the articulation of forms "by a process of preconceived expression".
24. Nagel, p. 328.
25. Ibid.
26. Langer, PNK, p. 21.
27. Ibid.
28. Nagel, 328.
29. Langer, PNK, "Preface to the Edition of 1951", X.
30. It should be noted that Langer already in PNK (specifically throughout the Chapter, "On the Genesis of Artistic Import") uses the term "import" in place of "meaning".
31. In Susanne K. Langer, Philosophical Sketches (New York, The New American Library, 1964), pp. 53-61.
32. Ernest Nagel, "Symbolism and Science", in Lyman Bryson, et al., eds., Symbols and Values: An Initial Study, The Thirteenth Symposium on Science, Philosophy and Religion (New York, Cooper Square Publishers, Inc., 1964), pp. 39-71.
33. Langer, Philosophical Sketches, p. 55.
34. Ibid., p. 58.
35. The term paradigm is being used in the sense specified in Thomas S. Kuhn's work on the structure of scientific revolutions, Margaret Masterman's critical appraisal of that concept, and especially John Wisdom's systematization and demonstration that the term paradigm is a meta-theoretical framework, i.e., a metaphysic -- a structural feature which functions to prescribe the nature and conduct of science.
36. For an excellent presentation of the positivist vision of science and the antipositivist development in the philosophy of science see Russell Keat, "Positivism, Naturalism and Anti-Naturalism in the Social Sciences", Journal for the Theory of Social Behavior, 1 (April, 1972) pp. 3-6.
37. Several others can in fact be identified. Nagel tends to accept: 1) Formalism; 2) the neutrality of observation terms; 3) ethical neutrality; 4) the equation of explanation and prediction; 5) the methodological unity of science; and 6) the concept of "nature and evolution as a mechanistic event".

In the anti-positivistic revolt in the philosophy of science virtually all of these beliefs are challenged, if not refuted. For example, one should read Karl Popper's work on three views of knowledge: essentialism, instrumentalism, and conjecturalism (See Conjectures and Refutations, New York, Harper and Row, Pub., 1968, pp. 97-119). Specifically, essentialism and instrumentalism are subjected to an analysis which is at best a refutation of both of these views of knowledge; at least it is a challenge that destroys the alleged superiority of instrumentalism as an account of the nature and function of science, and in particular its account of theory.

38. Popper also refers to instrumentalism as both the Berkleyan view and the "official view" of science. See Popper, Conjectures and Refutations, pp. 97-119.
39. Nagel, "Symbolism and Science", pp. 57-58.
40. Ibid., p. 64.
41. Ibid., pp. 60-63.
42. Ibid., pp. 60-61.
43. Ibid., pp. 62-63.
44. It is interesting to note that in the paper of 1954 Nagel classifies scientific symbolism into three kinds: descriptive, auxiliary, and maxims. In the third kind, Nagel touches on the meta-theoretical-prescriptive framework of science (see pp. 49-57). At that point in time (four years before Michael Polanyi's work and eight years before Kuhn's) Nagel hit upon the idea for "paradigm" but did not see the idea of "paradigm". Even seven years later in Nagel's classic paper on the structure of science (see Ernest Nagel, "The Realist View of Theories" in Edward A. Mackinnon, ed., New York, Appleton-Century Crofts, 1972, pp. 135-148) Nagel still did not overtly recognize this concept, nor did he note Polanyi's understanding of commitment (value) as intrinsic to scientific thought. Thus, for Nagel, philosophical assumptions and values are still seen to be arbitrary, irrelevant, and extrinsic to scientific thought.