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Against Zangwill's Extreme Formalism About Inorganic Nature

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Abstract Extreme formalism is a radical and important position in the aesthetics of inorganic nature. Zangwill offers a new formulation of what formal aesthetic properties are, according to which a formal aesthetic property of a thing is an aesthetic property that is determined merely by its appearance properties. An appearance property of a thing is the way it seems if perceived under certain conditions. With the notion of formal aesthetic properties formulated as such, extreme formalism, the claim that all aesthetic properties of inorganic things are formal, says that all aesthetic properties of inorganic things are determined merely by their appearance properties. Recently, Zangwill defends extreme formalism by deflecting the famous counter-example of the cumulonimbus cloud given by Budd, and argues for extreme formalism by arguing against the idea of the existence of non-formal beauty in inorganic nature. In this paper, we argue that both his defense and positive arguments are not successful. If our arguments are right, the burden of proof is still on Zangwill's side.

Keywords Appearance properties · Extreme formalism · Temporal parts · Non-formal beauty

One chief metaphysical question in the aesthetics of nature is what determines the aesthetic properties of a nature thing. Nick Zangwill has argued that the answer would be quite different if the nature thing is inorganic rather than organic. He holds extreme formalism about inorganic nature, according to which all aesthetic properties of inorganic things are formal in the sense that they are determined merely by how those things are considered in themselves. In contrast, he holds moderate formalism about organic nature, according to which some aesthetic properties of organic things are formal and some are not. Two well-known counter-examples to extreme formalism about inorganic nature are offered by Ronald Hepburn (1966) and Malcolm Budd

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(1996). In both examples, when an appreciator realizes a certain scientific fact about the inorganic thing of appreciation, his or her aesthetic judgments would change, while the thing itself does not change at all thereof. The counter-examples have partly motivated anti-formalism, according to which all aesthetic properties of inorganic things are not formal. (see e.g. Carlson 2000; Parsons and Carlson 2004)

Zangwill (2013) defends extreme formalism about inorganic nature by attempting to deflect Budd's cumulonimbus cloud counter-example, and Zangwill argues for extreme formalism by arguing against the idea that there is non-formal beauty in inorganic nature. We will argue that both Zangwill's defense and his positive arguments are not successful.

In "Appearance Properties and Extreme Formalism" section, we present Zangwill's new formulation of extreme formalism about inorganic nature via appearance properties. In "The Buddian Scenario and Zangwill's Part-whole Analysis" section, we present Budd's cumulonimbus cloud counter-example and the part-whole analysis given by Zangwill. In "The Non-formalisticness of the Part-Whole Analysis" section, we argue that the part-whole analysis is not formalistic. In "Doubts about the Understandability of the Part-Whole Analysis" section, we argue that the part-whole analysis is mysterious. In "The Existence of Non-formal Beauty in Inorganic Nature" section, we argue that Zangwill's two arguments against the idea of the existence of non-formal beauty in inorganic nature are undermined by the cumulonimbus cloud counter-example. Concluding remarks are made in the last section.

Appearance Properties and Extreme Formalism

Zangwill is not satisfied with the already existent formulations of what formal aesthetic properties are. He offers a new formulation, according to which a formal aesthetic property of a thing is an aesthetic property that is determined merely by its appearance properties. (Zangwill 2013: 582) An appearance property of a thing is the way it seems if perceived under certain conditions. For example, a round coin has the appearance property of looking elliptical from a certain point of view. (ibid.: 581) According to Zangwill, his formulation is a positive one and consists of no concepts that need further explanation, and so is more reasonable.

With the notion of formal aesthetic properties formulated as such, extreme formalism, the claim that all aesthetic properties of inorganic things are formal, says that all aesthetic properties of inorganic things are determined merely by their appearance properties. In contrast, moderate formalism says that some aesthetic properties of inorganic things are determined merely by their appearance properties, and some are not; anti-formalism says that all aesthetic properties of inorganic things are not determined merely by their appearance properties.

The Buddian Scenario and Zangwill's Part-Whole Analysis

Budd claims that when we know what kind of cloud a cumulonimbus cloud is—a thundercloud—we come to see it as powerful (while its appearances does not change).(Budd 1996: 217) Hence it seems that our aesthetic appreciation of that cloud

is informed or at least partly determined by our knowledge of its scientific nature. Or, metaphysically speaking, it seems that the beauty of that cloud is at least partly determined by the fact that it is a thundercloud or that it will cause thunder. Let us refer to this scenario by "the Buddian scenario".

Moderate formalists and anti-formalists take the Buddian scenario as a serious threat to extreme formalism. The argument behind is as follows.

> Argument 1: (1) the Buddian scenario shows that the cumulonimbus cloud as an inorganic thing seems to have the non-formal beauty of being powerful, which is not merely determined by its appearance properties, but at least partly determined by some scientific causal fact about it; (2) extreme formalism says that inorganic nature things only have formal beauty, which is determined merely by their appearance properties; so, (3) if formalists cannot give a formalistic analysis of the Buddian scenario, then extreme formalism is wrong; (4) formalists cannot give a formalistic analysis of the Buddian scenario; therefore, (5) extreme formalism is wrong.

Extreme formalists have to argue that (4) is false, i.e., there ***is*** a formalistic analysis of the Buddian scenario. Zangwill takes on this burden. His main response to Budd is to offer a part-whole analysis and he claims that the analysis is a formalistic one. (Zangwill 2013: 588) He understands the Buddian scenario as a temporal whole with two temporal parts: in the first phase, there is a large grey cumulonimbus cloud, while in the second phase, that cloud is issuing thunder. Let us refer to the phase one cloud and the phase two cloud by "A" and "B" separately and refer to the temporal whole of A and B by "C". According to Zangwill, A has its formal aesthetic properties, which are determined ***merely*** by its appearance properties; as a temporal part of C, it ***also*** has other aesthetic properties, which include the property of being powerful. A is powerful ***in virtue of*** being a temporal part of C, but ***not*** in virtue of any deep scientific nature of A. Based on this analysis, he concludes, "there is a formalistic interpretation of Budd's cumulonimbus cloud" and "there is nothing to threaten extreme formalism here." (ibid.: 588)

The Non-Formalisticness of the Part-Whole Analysis

If the part-whole analysis is formalistic, then Zangwill's attempt to deflect the counter-example is successful. However, we will argue that the part-whole analysis is not formalistic. If the part-whole analysis is formalistic, the aesthetic property of being powerful that the cumulonimbus cloud has should be a formal aesthetic property. We will argue that it is not formal. Our argument is as follows.

> Argument 2: (6) being a temporal part of C is ***not*** an appearance property; (7) A is powerful in virtue of A's being a temporal part of C; so, (8) A is powerful in virtue of A's having a property that is not an appearance property; (9) if a thing has an aesthetic property not merely in virtue of its appearance properties, then this aesthetic property is not a formal aesthetic property; therefore, (10) the property of being powerful is ***not*** a formal aesthetic property of A.

The argument is valid. (6) is very intuitive to us. (7) is a claim of Zangwill himself. (ibid.: 588) (9) is a part of the definition of formal aesthetic properties.

We will offer two arguments in support of (6). One is syntactic, and the other is semantic since it concerns an implication of the truth of judgments about appearance properties.

> Argument 3: (11) all appearance properties are perceptual properties in the sense that their corresponding predicates in natural language contain a verb of perception, for example "***looking*** elliptical"; (12) the property of being a temporal part of C is ***not*** a perceptual property, i.e., "being a temporal part of C" does not contain a verb of perception; therefore, (6) the property of being a temporal part of C is not an appearance property.

This argument is valid. (11) is a part of the definition of appearance properties. (ibid.: 580–81) (12) is a syntactic fact. I think Zangwill also admits this fact—after all, he calls his strategy a "part-whole tactic" but not a "seeming part-whole tactic". (ibid.: 588)

> Argument 4: (13) for any object *a*, any appearance property G, "*a* has G" implies "*a* has G, no matter if *a* actually has F or not", where "F" stands for a closely related property with G; (14) "A has the property of being a temporal part of C" is true; (15) it seems very hard and even very strange to fill a predicate in "A has the property of being a temporal part of C, no matter if it actually has ___ or not"; therefore, (6) the property of being a temporal part of C is not an appearance property.

This argument seems strong to us. (13) is Zangwill's own intuitive contrast between "appearance" and "reality". (ibid.: 580) For example, the coin has the property of ***looking elliptical***, no matter if it is actually ***elliptical*** or not. (14) is a claim of Zangwill himself. (ibid.: 588) (15) seems true to us: it is really hard for us to fill a predicate in. We cannot see how Zangwill can fill this blank.

So, according to arguments 3 and 4, we have good reasons to think that (6) is reasonable, i.e., the property of being a temporal part of C is ***not*** an appearance property. Then according to argument 2, it seems that Zangwill has to admit (10), i.e., the property of being powerful is ***not*** a formal aesthetic property of the temporal part A. If so, we have a good reason to think that the part-whole analysis is ***not*** formalistic, and so to think that he is not successful in establishing that there is a formalistic analysis of the Buddian scenario. If so, he is not successful in defending extreme formalism by deflecting the cumulonimbus example.

Zangwill might concede the force of the above arguments for the non-formalisticness of the part-whole analysis, but suggests that his point can be recast in terms of the appearance properties ***of*** temporal parts. To be concrete, he might think that A's being powerful is determined by some appearance properties ***of*** A, some appearance properties ***of*** B, ***and*** the great difference between them. Zangwill might think that A's being powerful is determined by A's looking powerful to degree *n*, B's looking powerful to degree *m*, and *m*'s being greater than *n*. This metaphysical explanation seems plausible, but it is not available for extreme formalists. Because A's being powerful is explained here ***not*** merely in terms of its having the appearance property of how it looks, but ***also*** in terms of its having a non-appearance property, i.e., the relational property of having a much smaller degree of looking powerful than B. So,

according to this explanation, the property of being powerful that A has is not a formal aesthetic property. So this explanation is not formalistic either. So, this reply fails.

Doubts About the Understandability of the Part-Whole Analysis

In the above, we presupposed that it is understandable that "the part-whole analysis" is ***an*** analysis of the Buddian scenario. We also pretended that what we have doubted is just that it is formalistic. But the understandability of this analysis is not clear to us. We will give three reasons for its lack of understandability.

The Nonexistence of the Aesthetic Properties of the Temporal Wholes

According to the part-whole analysis, A is powerful ***in virtue of*** A's being a temporal part of C. But apparently A is powerful in itself but not in virtue of having any relational property, so it is natural to ask what determines the relation of "in virtue of" holding between A's being powerful and A's being a temporal part of C? Zangwill's explanation is that A is powerful because A, as a temporal part of C, ***contributes*** to ***the aesthetic properties of the temporal whole C***. (ibid.: 588)

This explanation is understandable only if aesthetic properties of the temporal whole C exist. Following Zangwill, we should say that formal aesthetic properties of the temporal whole C exist, since according to extreme formalism, inorganic things ***only*** have formal aesthetic properties. But the existence of aesthetic properties of the temporal whole C seems far from clear to us. Here is why.

Recall that according to the part-whole analysis, A is the temporal part at phase one, B is the temporal part at phase two, and C is the temporal whole of A and B. From an extreme formalistic point of view, in order to aesthetically appreciate C, we must have the ability to perceive the appearance properties of C, which metaphysically determine the aesthetic properties of C.

The descriptions "the phase one" and "the phase two" might lead us to misunderstand that there is only one second or at most one minute time between the two phases, while the actual interval might be very long, say one hour. For a more obvious illustration, let us just modify the Buddian scenario a little:

When we know what kind of cloud a cumulonimbus cloud is—a thundercloud, *which will issue thunder for one hour,* we come to see it as powerful. Hence it seems that the beauty of the cumulonimbus cloud is at least partly determined by this scientific causal fact.

In order to explain the cloud's being powerful, Zangwill needs to say something similar: there are n phases (say n=60); A_1 is the temporal part at the first phase, A_2 is the temporal part at the second phase…A_n is the temporal part at the nth phase; D is the temporal whole of A_1, A_2, … and A_n; A_1 is powerful ***in virtue of*** A_1's being a temporal part of D.

Here the question is: can we perceive the appearance properties of D (if there are any) that exists for ***a whole hour***? We are afraid we cannot. As a temporal whole, D is just like a string of many instantaneous entities, each of which is a temporal part of D. A person ***can*** perceive the appearance properties of a temporal part of D at the time when this temporal part exists. But it is very doubtful that a person can perceive the

appearance properties of ***the temporal whole*** D, since at any time when one perceives he can ***only*** perceive one temporal part and the appearance properties of this temporal part.

If we cannot perceive the appearance properties of the temporal whole D, it seems that we cannot experience its formal aesthetic properties, which are determined by its appearance properties. If we cannot experience them, then based on the definition of formal aesthetic properties, we have a good reason to doubt their existence. Similarly, we have a similar reason to doubt the existence of the formal aesthetic properties of the temporal whole C, which is presupposed in Zangwill's part-whole analysis. So we have one reason to doubt the understandability of the part-whole analysis.

Zangwill might concede that temporal wholes cannot have appearance properties ***simpliciter*** as temporal parts do, but think that they can have ***indexical*** appearance properties. Consider temporal whole D. For any appearance property F, time instant t_i, D might be defined to have the indexical appearance property "F-at-t_i", if and only if, its temporal part A_i has the appearance property F. Suppose that A_1 has the property of looking bright, then, according to this definition, D is said to have the indexical appearance property of "looking-bright-at-t_1".

Only if indexical appearance properties have a similar role, as appearances properties do, to explain formal aesthetic properties, can this retreat be acceptable. Unfortunately, it seems not so. Formal aesthetic properties should be explained by "how the thing is considered in itself". (Zangwill 2001: 112) However, according to the definition of indexical appearance properties, a temporal whole has an indexical appearance property in virtue of holding a part-whole relation to ***something else*** (i.e., a temporal part) and a ***fact*** about this something else (i.e., the temporal part's having a certain appearance property). So, indexical appearance properties are not a resource that Zangwill could use to explain formal aesthetic properties. If so, this retreat fails.

A similar reply is this. Temporal wholes cannot have appearance properties, but temporal wholes have formal aesthetic properties ***not*** in virtue of their appearance properties, but in virtue of their temporal parts' appearance properties. We have two objections. The first objection is that this idea threatens extreme formalism as a universal claim. Extreme formalism claims that aesthetic properties of ***all*** inorganic things are determined merely by their appearance properties, while this reply says that aesthetic properties of ***some*** inorganic things (i.e., temporal-whole inorganic things) are not determined merely by their appearance properties. The second objection is that it is mysterious what the contributions of temporal parts to aesthetic properties of temporal wholes are. Let us explore this.

The Mystery of the Aesthetic Contributions of Temporal Parts

Even if Zangwill could insist that in some proper sense the temporal whole C can have formal aesthetic properties, the part-whole analysis is still mysterious to us.

According to the part-whole analysis, A is powerful in terms of A's contribution to the formal aesthetic properties of the temporal whole C. But it is very mysterious what A's contribution is. Concerning A's contribution, Zangwill only has such a remark: "And, crucially, there are aesthetic properties that the whole has —of the sum of the two temporal parts—which are not the mere conjunction of the aesthetic properties of phase one plus those of phase two." (Zangwill 2013: 588)

What we can take from this remark is that A's aesthetic contribution is ***not*** like the contribution of a conjunct to a conjunction. However, we still do not know what the contribution ***is***. Zangwill might say that there is a level of complexity of aesthetic combination and call it the complexity of "organic unity", just as he does so in analyzing another kind of complexity about art works. (Zangwill 2001: 59) Our reply is that before given a satisfactory positive analysis of the complexity, it is not clear how should we understand what A's aesthetic contribution is.

The Non-Presence of the Temporal Wholes

Even if Zangwill could explain satisfactorily what A's contribution to aesthetic properties of the temporal whole C is, the part-whole analysis still seems unintelligible. In the Buddian scenario, when we are told that the cloud is a thundercloud, the cloud does ***not actually*** thunder; so when we get that scientific causal knowledge, there does not actually exist such a thing as the temporal whole C, which should consist of the ***present*** temporal part A and the ***non-present*** but merely future temporal part B. Only when the temporal part B, ***becomes*** present, can we make the aesthetic judgment that A ***is*** powerful. So, Zangwill's part-whole analysis at most can explain the aesthetic judgment that A ***will*** *be* powerful, but ***not*** *that A* ***is*** powerful. So, the part-whole analysis is still not understandable, if not false.

One possible reply is that when we get that scientific causal knowledge, the temporal part B is not present, but in aesthetic appreciation we can "see" it by imagination and in virtue of this we can "see" the temporal whole C. [1]If so, the non-presence of the temporal part B is not a problem for the part-whole analysis. Unfortunately, just as Zangwill has conceded, imagination is not a necessary condition for the proper appreciation of inorganic things. (Zangwill 2005: 188) So, this way out is blocked.

The Existence of Non-Formal Beauty in Inorganic Nature

Let us now turn to Zangwill's positive arguments. Zangwill argues for extreme formalism by arguing against the idea that there is non-formal beauty in inorganic nature. We will argue that his failure to deflect the cumulonimbus cloud example undermines the cogency of his arguments.

The Only Source Argument

Zangwill's first argument is as follows. (Zangwill 2013: 592) (16) Historical functions are a source and ***the*** source of non-formal aesthetic properties; (17) inorganic things do not have historical functions; therefore, (18) inorganic things do not have non-formal

[1] Levinson suggests that we appreciate music by recalling. He says, "the simplest phenomenon of this sort is that in which in the course of listening, some bit or passage currently being heard ***recalls*** another bit or passage, from earlier in a piece, leading a listener to recognize the connection involved and contemplate it as such." (Levinson 1997: 53) However, the case here is different, since when we know that the cloud is a thunder cloud, only the temporal part A exists. So, it seems that in order to introduce B and C, Zangwill needs to appeal to imagination.

aesthetic properties. We will call this argument "the only source argument", for it contains premise (16).

Premise (17) seems obvious to Zangwill. Consider a cloud in the sky. It sounds strange to ask what historical functions it has, i.e., what functions of it are determined by its evolutionary history. Of course, one might say, although the cloud does not have a historical function, it has some ecological function. (Parsons 2004: 48–51) However, Zangwill has argued that there is no good reason to think that ecological functions are aesthetically relevant. (Zangwill 2005: 190–91)

Zangwill offered two arguments for premise (16). (Zangwill 2013: 592–93) One argument is inductive—that all the plausible examples of non-formal beauty are functional. For example, the non-formal beauty of a butterfly is determined by the appropriate realization of its historical function to fly. The other argument is explanatory —that seeing historical functions as the source of non-formal beauty explains both our experience of that beauty and also the way our experience of beauty changes as we acquire knowledge of functions.

However, if our arguments in "The Non-Formalisticness of the Part-Whole Analysis" and "Doubts About the Understandability of the Part-Whole Analysis" sections are right, then it is more reasonable to think that the powerfulness of the cumulonimbus cloud is ***not*** formal, but at least partly determined by some scientific causal fact. Then, the premise of the inductive argument is false. The inductive argument loses its force. Similarly, premise (16) does not satisfactorily explain our ordinary experience of non-formal beauty (our experience of the powerfulness of the cumulonimbus cloud is such a case), so the premise of the explanatory argument is also false. So, the explanatory argument loses its force.

Since both the inductive argument and the explanatory argument lose force, the acceptability of (16) is undermined, and then the cogency of the only source argument is undermined.

The Non-Scientific Appreciation Argument

Zangwill's second argument is as follows.(Zangwill 2013: 593–94) (19) Our scientific pleasures in inorganic things depend on curiosity, which is a desire to know; (20) our aesthetic pleasures in inorganic things do not depend on desires; so, (21) our scientific pleasures in inorganic things are ***not*** aesthetic pleasures about them; therefore, (22) scientific knowledge ***cannot*** enhance aesthetic appreciation of inorganic nature; therefore, (23) there is ***no*** non-formal beauty, which is often supposed to be at least partly determined by scientific facts. We will call this argument "the non-scientific appreciation argument", since it has the sub-conclusion (22).

Based on the arguments we made in sections "The Non-Formalisticness of the Part-Whole Analysis" and "Doubts About the Understandability of the Part-Whole Analysis", the step from (21) to (22) can be blocked. Even if (21) is true, i.e., there is no overlap between scientific pleasures and aesthetic pleasures, examples like the Buddian scenario make it reasonable to think that scientific knowledge ***can*** enhance our aesthetic appreciation of inorganic nature.

Consider the cumulonimbus cloud example. In the process of getting the knowledge that the cloud causes thunder, people desire to know if it is the case; but as long as people already have such knowledge, the knowledge ***can*** enhance their aesthetic

appreciation of that cloud. There is no inconsistency. One can take scientific pleasures in the cloud, which are determined by the realization of the desire to know. One can ***also*** take a kind of aesthetic pleasure in the cloud, which is determined at least partly by the scientific causal knowledge of it, but not determined by any desire to know. Such pleasures can be called non-formal aesthetic pleasures. Non-formal aesthetic pleasures occur in situations like the Buddian scenario. So, scientific knowledge at least sometimes can enhance our aesthetic appreciation of inorganic nature. If so, the sub-conclusion (22) of the non-scientific appreciation argument is false, and so the cogency of the whole argument is undermined.

Concluding Remarks

Extreme formalism is a radical and important position in the aesthetics of inorganic nature. Zangwill defends it by deflecting the cumulonimbus cloud counter-example given by Budd, and argues for it by arguing against the idea of the existence of non-formal beauty in inorganic nature. We argued that Zangwill's argument against the cumulonimbus cloud counter-example is not successful. On the one hand, the part-whole analysis is not formalistic; on the other hand, the part-whole analysis seems mysterious. We also argued that this failure further undermines the cogency of his two arguments fighting against the idea of the existence of non-formal beauty in inorganic nature. So, if our arguments are right, the burden of proof is still on Zangwill's side.

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