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# Original Article Beauty and Creativity in Choice and Ranking Experiments

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Abstract: For economists, the job of artists is to embody creativity in their works of art. In fact, a recent handbook on cultural economics states that the concept of creativity seems to be, at the very least, a hallmark or characteristic feature of art generally, if not a necessary condition of artistic practice (Borowiecki, 2020). However, Creativity as Art is more a 20th-century biased definition of Art, because from the ancient Greeks to at least the 19<sup>th</sup> century, Art was valued for its Beauty, according to Philosopher's records. This paper carries out several choice and ranking experiments. Experimental subjects are asked to grade and rank paintings according to their perceived Beauty, Creativity, Complexity, Novelty, Interestingness and Expensiveness and then asked to choose among the paintings. The paper finds that the individual's preferences for Art can be represented by a simple linear combination of the individual's perception of Beauty and Creativity in Art. This may potentially explain the shift from Beauty to Creativity in 20<sup>th</sup> century Art for the artist's sake of novelty and transcendence in the History of Art.

Keywords: Beauty, Creativity, Preferences for Art, Ranking Experiments.

# I. INTRODUCTION

Since the start of the 20<sup>th</sup> century, the Fine Arts have experimented with a tremendous break from the past regarding what is beautiful and creative in a work of Art. Painting, Literature and Music, just to mention a few of the Fine Arts, experimented with new forms, techniques, and materials to express their messages. Technical competence seems to have been sacrificed for the sake of the novel and creativity, resulting in artworks that are difficult to comprehend for the wide public. Abstract paintings by Wassily Kandinsky, novels like Finnegans Wake by James Joyce, and Expressionist music by Arnold Schoenberg left a legacy of incomprehensible art techniques for the masses. As a result, many artists struggled economically during their lifetime (with some well-known exceptions). The traditional concept of beauty was transformed or at least abandoned in search of new frontiers of creativity for art. Were the traditional preferences of the wide public forsaken by artists when creating their works of art? This paper studies preferences for aesthetic objects among the common public without deep knowledge of the history of the arts. I pay attention to a possible tradeoff between beauty and creativity in preferences for artwork. Several choice and ranking experiments were conducted between artistic objects with around 300 experimental subjects. Each participant graded neoexpressionist and abstract paintings (mixed media on paper) according to perceived levels of beauty, creativity, complexity, novelty, interestingness, and expensiveness as perceived in them. Then, each subject chose or ranked the paintings according to their preferences. I tested the hypothesis that only the level of creativity is important in individual preferences, and it is rejected in favor of a utility function that corresponds to a linear combination of beauty and creativity. This is the first time this empirical result has been obtained from real paintings and the first time a similar experiment has been reported in the English language.

Economists usually attempt to define artistic goods using traditional elements in the language of economics. It is common to hear an economist define artistic goods as those that exhibit characteristics of externalities, public goods, or experience goods subject to rational addiction, while at the same time, their production requires human creativity. And this last component has been so important in the economics of art that when Bryant and Throsby (2006) modeled the behavior of artists, they focused their attention on the artist's choice of "creative effort". They also assumed there could be a discrepancy between the cultural objective of the artist (i. e., creating cultural value through creativity) and what the market demands.

In more recent research, Throsby and Zednik (2014) focus on several characteristics that may imprint cultural and economic value to a work of art, like beauty, but omit creativity from their analysis. This paper simultaneously studies beauty and creativity in the preferences for art and other aesthetic factors. Thus, the discrepancy between the importance of creativity in the artist's objective function and the one it plays in consumer demand is eliminated.

Economists have inherited the psychologist's definition of creativity through the work of Herbert Simon (2001). There is probably nothing wrong with that concept of the creative as something close to the novel and valuable, or novel and appropriate to an objective, except that creativity cannot be the only defining characteristic of artworks. Creativity has been embodied in the creation of ALL goods and services, artistic and non-artistic, because all goods and services were new at some point in time, as well as valuable or appropriate to an objective. The notion that artistic goods need to be novel or creative is relatively recent,

perhaps originating in 20<sup>th</sup>-century art. Before that, the Philosopher's defining characteristic of an artistic good was Beauty. The job of the artist was to create new beauty with each work of art, as demonstrated by Hutter and Shusterman (2006). Other desirable characteristics have probably been added by the 20<sup>th</sup>-century art connoisseur or consumer, including novelty, complexity, and interestingness, whereas the last one perhaps just measures some type of conscious or unconscious ignorance on why we like a particular work of art.

Throsby's (2001) distinction between cultural and economic value as possible objectives for the artist is in part inspired by the distinction between intrinsic and extrinsic motivation introduced in the economic literature by Frey (1997), and that goes back at least to Amabile in the field of psychology. Economists assume that the economic value of a work of art first increases and, after some point, decreases with creativity, while cultural value strictly increases in creative effort. So, a tradeoff between economic and cultural value exists for the artist. The origin of that trade-off comes from the preferences of art consumers who do not fully value creativity at its maximum as an artist does.

A different picture was drawn more recently by Throsby and Zednik (2014), where beauty and other cultural factors play a role in the preferences for art. A strong assumption in the original Bryant and Throsby model of an artist's behavior is that the market only cares about the economic value of the work. This is surprising since intuition and the work by Baumol (1986) suggest that art consumers also care about aesthetic pleasures, which are not reflected in market prices and rates of return. Bryant and Throsby also distinguished between the market and the "art world". However, looking at contemporary markets for paintings, we may see that collectors, artists, art historians, gallerists, art critics, and general consumers all form part of the "art world", and it is hard to make such a disjoint distinction. I agree with David Throsby that art markets and the world of ideas (or the world of art history) are different and probably independent, but their systems overlap, and feedback is easy to identify. However, their general distinction between economic and cultural value seems very reasonable.

This situation was finally abandoned in Throsby and Zednik (2014), where beauty appears in the preferences for art. However, creativity disappears, and where cultural value feeds part of the economic and financial value of a work of art.

This paper tries to combine both views, giving prominence to beauty and creativity in the preferences for art. Section 2 summarizes the role beauty has played in the formation of art's value in the minds of philosophers. Section 3 looks at the role of creativity in the Psychologist's approach to the pleasant. Section 4 presents the traditional economic choice model, adapted to the choice among paintings. Section 5 summarizes the set of experiments carried out, and Section 6 presents the empirical results. Conclusion are drawn in Section 8.

#### **II. BEAUTY AND AESTHETICS**

However perfect or imperfectly embodied in man's works, beauty has been present in the discussion of art, at least since Plato's time. Beauty and its Truth or Good were given prominence when evaluating artwork from Classical Greece to the start of the 20<sup>th</sup> century (Hutter and Shusterman, 2006). Beauty was first considered as something inherent to the object, an objective property. Then, 2,000 years later, in the 17<sup>th</sup> century, it was thought of as a subjective trait that can be evaluated and appreciated through the development of taste and the correct attitude, given by class, towards the art object. Proponents of beauty as a simple sensory perception available to anyone arrived thereafter. David Hume /1757/1963) was a proponent of the theory that beauty needs certain judgments that can vary among individuals, so a consensus of experts is required to evaluate a work of art. Subjective evaluation from the members of a community is the important concept here. Efforts to define beauty more precisely came later. For instance, beauty is present when awakening a sentiment of pleasure and self-love, while at the same time, it develops feelings of friendship and benevolence. With Adam Smith (1759/1982), beauty and elegance became the keywords for art valuation, along with the fitness of the art object to God's divine plan. Imagination was the keystone, and beauty was what made people look for wealth; thus, it was the desire behind economic progress.

The word "Aesthetics" was coined by Alexander Baumgarten in the 18th century with the end of embracing studies that perfect sensory cognition of beauty, which was the objective of every art object. When the turn came to Immanuel Kant (1790/1986), he proposed that anyone can, in principle, with the right attitude, make a judgment about a work of art and its beauty.

Friedrich Hegel (1835/1993) was the first philosopher to propose a deviation from beauty as the most important factor when considering or valuing a work of art. He claimed that art's highest value was "the promotion of the spiritual truth of the Idea rather than the mere experience of beauty". He also made a distinction between the High Arts that reveals truth, and the Low Arts that merely entertain.

Then came Arthur Schopenhauer (1819/1966), who proposed, following Hegel, that the truth art reveals is human Will. Art penetrates reality. And then... for Friedrich Nietzsche (1872/1956), "Truth is ugly... (So) We possess art lest we perish of the truth". This way, we are nourished back in a circle to the point of departure. By providing beauty, meaning and pleasure, art

offers an escape from the distressing truth. If the Renaissance had put the artist at the level of a Genius, Romanticism set it at a Demigod level, with Beauty occupying a central role in the artist's output.

The 20th century saw a tremendous shift in the perspective of Aesthetics on art. For instance, in their outstanding essay, Hutter and Shusterman (2006) include novelist Leo Tolstoy as a reference in the debate. I omit most of his ideas because there is so much truth in them, as there is a lack of empirical applicability for the present paper. However, Tolstoy's main idea is that art gives the spectator a new life and experience. And that's true from my own personal perspective as an artist.

Benedetto Croce (1901/1970), in some way, tames Tolstoy's vision. For him, art expresses a vision. And here, the keyword is "Expression". According to Hutter and Shusterman (2006), "technical skill is excluded from artistic value". And so, a separation from traditional beauty follows. For Croce, art must be evaluated by the expression of intuition. That is what gives beauty to the work of art. Not technical competence. The ugly, therefore, can be beautiful if it expresses an intuition. Think about "The Scream" by Edvard Munch, "Les Demoiselles de Avignon" by Pablo Picasso, or "Untitled (1981)" by Jean-Michel Basquiat.

20th-century philosophers of art have followed suit, Thinking that the value of art is not attached to beauty anymore but to the truth it reveals. Read here: Heidegger (1975), Gadamer (1982), Adorno (1973/1984) and Arendt (1961).

In a vein that remembers Bryant and Throsby's model of artist behavior, Walter Benjamin (1969) distinguishes between two simultaneous values for art: One related to its distant connection with Genius and History and the other with its commercial value in the contemporary museum. Where is beauty here? I respond instinctively, Perhaps implied by society's preferences for art when attending a museum. Beauty is individually defined. It is not, however, the only component relevant when valuing art, according to Benjamin.

The Analytic Philosophy of the Anglo-American School has also contributed to the discussion on beauty and other factors different from beauty for art valuation. Edward Moore (1959) is the starting point. He thinks beauty is objective and intrinsic to the art object. To this, Wittgeinstein (1970), a Cambridge-based philosopher, believed that artistic valuation goes beyond beauty and cannot be summarized in a single form. Beauty does not need a shared meaning to have an "understandable and shared meaning."

Following this type of variety, John Dewey (1934/1987) argued for a wide functionality of art as entertainment, education, religious inspiration, individual expression, political compromise, etc., and for the wide variety of experiences that art offers to make life more satisfying. The value of art is embodied in the experience that artistic objects serve (like going to a museum) and the unity the community lives through them. So, art also must be valued for its non-aesthetic functions. Monroe Beardsley (1958) follows the consequences of this reasoning and concentrates on aesthetic experiences lived through the art objects. This obviously reminds me of the starting 20th-century point of view of Leo Tolstoy. Art sells an experience. For Beardsley, it is an aesthetic experience, and it influences the life and behavior of the individual. The hope of every artist, I must add.

Among the critiques of traditional aesthetics is the work of Nelson Goodman (1969), who sees art as a symbolic system. Art, as a symbol, is also knowledge. George Dickie (1997) shares Beardsley's view that art offers an aesthetic experience but believes that it is impossible to rank all artworks, though he is positive about comparing artworks in terms of the number of aesthetic properties they display and the degree each of them display. Pierre Bourdieu (1996) takes the sociologist's point of view, establishing that the values of artworks are socially and historically constructed. Art valuation has meaning only in a specific social context. As a final cautionary note to the 20th-century philosophical discourse on art, I mention Niklas Luhmann's (2000)' observation that not only artworks' valuation may be a social construction but also the philosopher's view on that construction. That is because the artist builds a world inside the world, and from there, interpretations project in the minds of all of them: the public, intellectuals and critics.

In summary, beauty ruled art valuation from antiquity to the 19th and 20th centuries. The "ugly" was finally welcomed when art was openly valued for other characteristics, like expression, truth, knowledge, and its own aesthetic experience. So, one big question is: Was creativity there?

# **III. BEAUTY IN PSYCHOLOGY LITERATURE**

Psychologists have also focused their attention on the beauty of the artistic object as the key element behind the preferences and aesthetic decisions of individuals. In fact, they have argued that only a few factors can determine whether or not a human being appreciates beauty in a work of art (Jacobsen, 2006). Among those elements are intrinsic characteristics of the visual composition: predominantly the novelty, interestingness and complexity of the visual stimulus and the familiarity of the individual with the aesthetic resources that are present in the piece of art.

For centuries, the order and complexity of a work of art have been recognized as essential elements to appreciate. Aesthetic treaties that study the art of antiquity establish that. The first modern mathematical and empirical relationships between beauty and complexity came in the 20th century with Birkhoff (1932) and Eysenck (1941). The first one argued that the relationship between both variables is negative; the second author proposed a positive one. More recently, Berlyne (1970, 1971) synthesized both proposals, proposing concave beauty preferences regarding the level of complexity, reaching a maximum at some midpoint. Of course, the concept of "complexity" is complex because it can refer to the existence of patterns, the number of elements that conform to the work, the heterogeneity of the components or their irregularity in all their forms (Berlyne, 1971).

The relationship between perceived beauty and its complexity has been recently tested. For instance, Katz (2002), Aitken (1974) and Vitz (1966) employed very simple materials, such as geometric elements. Other sets of papers have used images artificially generated, and some authors have even taken advantage of reproductions of abstract art and cubist images. With less frequency, researchers use figurative paintings and portraits. For a summary, see Nadal et al. (2010).

In addition to beauty and complexity, psychological literature has also considered novelty, which can awaken curiosity (Russell, 1973). It has been found that a repeated exposition to novelty implies learning and object appreciation (Sluckin, 1972; Sluckin et al., 1980). The relationship between novelty and aesthetic preferences has been empirically explored, at least since the work of Zajonc (1968) and Berlyne (1970).

The experiment in this paper tests the idea that all these factors- beauty, complexity, interestingness, novelty, and creativity- are determinants of the choice of paintings. Economic literature has concentrated on creativity, perhaps putting aside all other elements. I will show that experimental subjects choose paintings taking into consideration perceived creativity, as well as the degree of beauty they appreciate in the work of art.

## **IV. PREFERENCES FOR ART**

The traditional choice model is useful for this paper. As is well known, it may have different representations that, under certain conditions, they all lead to the same consumer choices. In this paper, I will start with a choice function because it directly leads to the experiment.

I define a set X, finite and non-empty, of elements that represent different alternatives of art objects on which the decision maker must choose, while  $\Omega$  denotes the totality of non-empty subsets of X. For each subset  $A \in \Omega$ , I define the correspondence or choice function with range  $\Omega$  and where  $c(A) \subseteq A$ .

The correspondence c(A) is non-empty and satisfies choice coherence. This means that for any pair x and y in X, and given two subsets A and B of X with  $x, y \in A \cap B$ , such that  $x \in c(A)$  and  $y \notin c(A)$ , then it must be satisfied  $y \notin c(B)$ . Under these assumption of non-emptiness and choice coherence, we can define from the choice correspondence both a binary relation of complete and transitive preferences with equivalent consumer choices as a utility function,  $u: X \to \Re$ , that represents preferences and reports the same choices as the choice correspondence.

I define characteristics that the decision maker observes for each artwork in X. Let Let  $b_i^j(x)$  be the level of characteristic

*j* that individual i perceives in the work of art. This means that  $b_i^j: X \to \Re$ , tells us the degree of j = beauty, creativity, complexity, novelty, interestingness, and expensiveness that the individual perceives in the artistic piece.

One of the central assumptions of economic theory about the behavior of artists and art markets is that the public does not choose the artworks with the highest creativity but that he picks works of art, taking into consideration (possibly) some other factors. To formalize this idea, I follow Ponzio (2017) with the following:

**Definition 1.** Individual *i* choose works of art according to characteristic *j* if  $b_i^j(x)$  is a utility function that leads to the same decisions that the choice function of that individual.  $c_i(A)$ .

In general, Ponzio (2017) considers choice functions based on linear combinations of the characteristics of the work of art, which I formalize in the following:

**Definition 2.** Individual *i* choose works of art according to characteristics  $j \in J' \subseteq J$ , if  $u_i(x) = \sum_{j \in J'} \alpha^j \cdot b_i^j(x)$ , is a utility function that leads to the same decisions that the choice function for that individual,  $c_i(A)$ .

An important assumption of Bryant and Throsby (2006) is that art consumers do not choose works of art for which creativity is maximum. Therefore, the index of perceived creativity cannot represent an individual's utility function.

For centuries, the field of aesthetics has maintained the assumption that individuals choose works of art according to their level of perceived beauty. The importance of beauty and the irrelevance of creativity will be tested in the present investigation for 21<sup>st</sup>-century experimental subjects.

#### V. THE EXPERIMENT

Experimental subjects were allowed to watch 5 figurative paintings for as long as they needed (See Figures 1-5). The paintings hung on the wall at the same time. They were all mixed media on paper, 42 x 59 cm. Experimental subjects were told that the paintings: "reflect the vision of artist Rafaella Husker on different aspects of life, appreciated from the same balcony in the center of the city of Tlaxcala, in Mexico, which she visited in the autumn of 2016. They are paintings about the afternoon, the night, childhood, youth, old age, and the spirituality of the place. Rafaella Husker believes that no painting requires explanation except paintings 3 and 4. She imagined painting 3 as the vision that her father would have from that balcony when, in fact, he was in jail as a political prisoner in an authoritarian regime of Eastern Europe. She imagined painting 4 as hope when her family was waiting for her father's trial. She saw her family watching from the balcony of Tlaxcala, and she tried to imagine the greatness of the universe in times of hopelessness".

Then, experimental subjects graded each painting on a scale from 1 to 5, according to its levels of beauty, creativity, complexity, novelty, interestingness, and how expensive they thought each painting was. Finally, they ranked the paintings from the most to the least preferred. This gives a total of  $\binom{5}{2} = 10$  pairs of comparisons between different images. Around 222 subjects participated in the experiment, divided among those who were allowed to appreciate the paintings without any explanation nor monetary compensation (150 subjects equivalent to 1,500 observations), those who received the explanation but did not receive monetary compensation (47 subjects equivalent to 250 observations). Subjects were randomly assigned to each group so that members of the same group could participate simultaneously with other members of the same group. The groups do not present important differences in terms of characteristics like age, education, career, etc. However, differences in results appear among groups, as will be shown in the section on empirical results.

## VI. EMPIRICAL RESULTS

The experiment I report here uses 5 paintings (Figures 1-5 in the Appendix). Each experimental subject graded out each work in terms of Beauty, Creativity, Complexity, Novelty, Interestingness, and Expensiveness. Then, each subject ranked the paintings from the most to the least preferred. So, for 5 paintings, I have a total of 10 comparisons or pairings. The implied choice for each pair was used in probit regressions against the corresponding differences in grades between paintings obtained for each concept: Beauty, Creativity, etc.

Table 1 presents the results. Coefficients are raw coefficients, not marginal effects. A positive coefficient means that the corresponding variable has a positive effect on the choice of a painting. For instance, a positive coefficient for Beauty means that the higher the grade of beauty perceived in a painting, the more likely it is chosen.

The first column in Table 1 talks about the sample that received no monetary payment and no explanation about the paintings. Beauty, Creativity, Interestingness, and Expensiveness are all significant at the usual 5 % significant level. They all have practically zero p-values, except creativity, with a 0.017 p-value. Then comes complexity with a p-value of 0.071. Novelty is significant at the 30 % significant level.

The p-values tell us how sure, in statistical terms, we are that the independent variable affects the dependent variable, but a p-value of 0.000 does not mean that the effect of that variable is larger in magnitude than the effect of another variable with a coefficient with a p-value of 0.001. Thus, it may be thought important to interpret the coefficients and their magnitude through marginal effects. However, the magnitude of the coefficients is not very informative since the grading of each painting is subjective and marginal effects would require interpersonal comparisons of subjective grades.

The second column of Table 1 presents the results for a sample that received no payment but heard the explanation about the paintings. Only Beauty and Creativity are significant at the 5 % confidence level (both have zero p-values). Then comes Expensiveness, which is significant at the 6.3 % level. All other variables are not significant, even at a 10 % value.

The third column shows the results for a sample that received monetary compensation for their evaluations and ranking and listened to an explanation of the paintings. Again, only two variables are significant at the 5 % value: Beauty, with a practically zero p-value, and creativity (with a 0.001 p-value). None of the remaining variables is significant at the 10 % significant value. Interestingness has a p-value of 10.1 %, and all other variables have p-values higher than 48.4 % or even closer to 70 %.

The results clearly show that the public cares about the beauty of the work of art, not only nor mainly about its level of creativity, though this concept is important in the public's preferences.

# VII. CONCLUSIONS

This paper carried out several experiments on the general public's preferences for Art. Experimental subjects were confronted with 5 figurative paintings reminiscent of Modern Art. Individuals graded the images in terms of the perceived Beauty, Creativity, Complexity, Novelty, Interestingness and Expensiveness, and then they were asked to choose or rank each painting. The main result reveals that the public's preferences for Art can be expressed as a linear combination of just two variables: Beauty and Creativity.

Dependent Variable: Choice Between any Pair of Paintings			
	Sample		
	No Payment, No Explanation	No Payment, Explanation	Payment, Explanation
Beauty	0.54	0.69	0.77
	(0.04)	(0.09)	(0.10)
Creativity	0.10	0.48	0.35
	(0.04)	(0.08)	(0.11)
Complexity	0.08	0.05	0.06
	(0.04)	(0.07)	(0.09)
Novelty	0.05	0.09	-0.003
	(0.04)	(0.08)	(0.10)
Interestingness	0.18	0.15	0.16
	(0.04)	(0.09)	(0.10)
Expensive	0.23	0.015	0.04
_	(0.05)	(0.08)	(0.11)
Constant	-0.15	-0.34	-0.04
	(0.04)	(0.08)	(0.12)
LR (6)	880.65	311.67	171.80
	[0.0000]	[0.0000]	[0.0000]
Pseudo R2	0.43	0.49	0.50
Ν	1,500	462	250

# Table 1: Probit Results for 5 Paintings Experiment.

Note: Coefficients are raw coefficients. Standard errors in parenthesis like (). P-values in parenthesis like [].

Each experimental subject made 10 comparisons. So, a different methodology could be used, which would be to run 10 regressions separately. However, this doesn't solve the problem of interpersonal gradings and comparisons, so for the sake of econometric consistency, I pulled the 10 regressions into one.

Also, I must mention that no explanation was given about why the results of the paid participants were different. This marginalises my research question, but my intuition is that payments obliged individuals to observe, rate and choose their paintings more carefully. Further research is required.

Until now, to many economists, creativity IS the defining characteristic of modern art. It is the main concept when accounting for goods produced by the most important 20<sup>th</sup>-century artists (McCain, 2006). However, the public also cares about the beauty embodied in the object. Suppose artists are aiming at artistic transcendence or a place in the history of art, and that is granted by art historians and critiques according to the creativity in the works of art. In that case, an economic problem is in place because the market does not put all the weight of its preferences only on creativity, but also on beauty. Put in other words, If what is important for society and the history of art, if what makes Great a work of Art worthy of being preserved as a human achievement for the rest of the times, is its level of creativity, but the wide public does not care only about it, a disparity between what is good for society and what the wide public desires is in place. Therefore, public action may be necessary when we consider the High Arts if we want to promote the contribution of the Great Creative Geniuses to Humankind's Output.

# Appendix 1

Figure 1: Painting 1 in 5 Paintings Experiment.



Figure 2: Painting 2 in 5 Paintings Experiment.



Figure 3: Painting 3 in 5 Paintings Experiment.



Figure 4: Painting 4 in 5 Paintings Experiment.



# Figure 5: Painting 5 in 5 Paintings Experiment.

## **Interest Conflicts**

The author declares that there is no conflict of interest concerning the publishing of this paper.

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- [56] Here we may include McCain (2006)'s concept of joint creativity between creator and spectator to interpret a work of art. And to that, as an example, I may add the following: Confronting a piece of art may bring to the consumer a memory of an experience which awakens positive emotions. And that conscious or unconscious "click" may be all the consumer needs to find a work interesting and enjoyable.
- [57] This section draws heavily from Hutter and Shusterman (2006).
- [58] Hutter and Shusterman (2006).
- [59] My own Reading and interpretation of Huuter and Shusterman (2006).
- [60] Guillory (1993)
- [61] Hutter and Shusterman (2006), p. 186.
- [62] Hutter and Shusterman (2006), pp. 186-7.
- [63] Hutter and Shusterman (2006), pp. 187.
- [64] Hutter and Shusterman (2006), p. 191.1958
- [65] The standard treatment of this topic can be found in textbooks like Mas-Colell, Whinston and Green (1995), and Kreps (2012).
- [66] Students of Economics and a master's Program in Finance.
- [67] As in the case of the 2 paintings.
- [68] Monetary compensation was \$20 pesos, which is approximately equivalent to a ten-minute working period for a recent graduate. Some subjects were paid while others were not due to the budget constraint. This may have affected the effort put by each subject in grading the paintings.
- [69] The objective of having some participants receive an explanation and others do not is to facilitate the conclusion that some of the ugly paintings are more creative than the more beautiful paintings. Since the results are different for each group, this suggests that the role of art critique is important and significant in the world of art.
- [70] For instance, Painting 1 vs. Painting 2, Painting 1 vs. Painting 3, etcetera.