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ART AS COMMUNICATION:
EMPLOYING GRICEAN PRINCIPLES OF COMMUNICATION
AS A MODEL FOR ART APPRECIATION

by

MELISSA J. DOLESE

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment
of the requirements for the degree of Doctor of Philosophy, The Graduate Center of the City
University of New York

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Abstract

Art as communication:

Employing Gricean Principles of Communication as a Model for Art Appreciation

by

Melissa J. Dolese

Adviser: Aaron Kozbelt

How and why artworks elicit varied preferences and judgments among different individuals remains a topic with many unresolved issues. For instance, individuals with little artistic experience tend to show little appreciation for abstract art, even though such works often show a highly skilled organization of visual elements. A key aspect of a positive aesthetic experience concerns the ability of viewers to construct meaning. I propose that viewers attempt to make meaning of artworks due to a sense that art is a communicative process. Here I attempt an application of one intentionalist model of communication, the Gricean framework, to visual art. I examine a great deal of empirical psychological research on art appreciation and subsume the research under the Gricean model. A survey instrument was developed to capture artistic communication and assess its usefulness in predicting aesthetic liking. A key component to this model is the cooperative principle, the implicit agreement of those engaged in a dialogue are doing so with the intent to be understood. With the cooperative principle established four

maxims follow to facilitate meaning making in verbal discourse; quality, quantity, meaning, and relation. These maxims along with intent were operationalized according to prior literature and measured on a 6-point Likert scale. Using Rasch analysis over several rounds of testing with artists and non-artists, the survey instrument was refined; the interitem correlations for each construct were robust and reliable. Hierarchical linear modeling was used to assess the predictive power of each maxim and intent for aesthetic liking for both artists and non-artist for images that range in their level of abstractedness. The level one analysis showed significant effects for all variables with positive coefficients, indicating that maxim fulfillment (or understanding nonfulfillment as intentional) was related to increased liking. The level two analysis showed that all maxims with the exception of quantity maintained their relative weight in predicting liking; quantity was more effective in predicting liking as images became more representational. Artist and non-artist differences in maxim fulfillment, intent, and liking were examined for the four most abstract and representational images following the logic that differences seen in previous research for these two groups might be a function of understanding nonfulfillment of the maxims to be intentional. There were no differences seen for artists and non-artists for the four most representational images. However, for the four most abstract images there were differences seen for all the maxims and liking but not for intent; the differences were in the direction of the artist having significantly higher mean ratings. The nonsignificant intent scores indicate that even with abstract artworks the cooperative principle is met for both groups therefore it can be argued that artists see intentional nonfulfillment whereas non-artists see violations. In order to disrupt the cooperative principle in study two creator type (animal, child, and artist) was varied with the expectation that viewers would not expect an animal to communicate in a similar way as a child or an artist. Hierarchical linear modeling was done separately for each attributed creator type for

each maxim in predicting liking. All maxims and intent when looked at individually were significant predictors of liking for the attributed child creator, although the coefficient for quantity was negative indicating the less visual elements, or less fulfillment, the more images were liked; all but quantity were significant predictors for the attributed animal and artist. The disagreement of quantity from the first study could be a function of the abstractness of the images, which was necessary for them to be plausibly created by any of the three creator types. A follow-up ANOVA showed that intent did not vary as a function of creator type. A median split was performed to indicate those who are low and high in intent to examine patterns in the data. All follow-up factorial ANOVAs showed intent as a significant between-subjects factor with results indicating those high in intent provided higher evaluations for each maxim and liking. These findings are interesting because they give support to the idea that those who are engaged in the process of wanting to understand or make meaning rate the maxims and liking different than those who are less engaged cooperatively. Also of interest is that there are high and low intent individuals in each of the three creator types; so the use of animals in this study did not push the limit of the cooperative principle quite far enough. Future studies would have to examine this issue. It could be that individuals automatically engage with art as a place to derive meaning and there isn't a way to push this factor. The take home however is that the Gricean framework thus far has shown to be a fruitful means of capturing perceived artistic communication and how that contributes to liking. It is possible to create measurement tools for other art types, such as music, performance, or literature.

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This dissertation is the result of the culmination of a number of fortuitous events and interactions with individuals who supported and believed in me and this project. I'd like to mention a few of these exchanges with sincere appreciation. As I learned from my mentor Dr. Aaron Kozbelt, creativity takes a prepared mind that can recognize how seemingly unrelated concepts may fit together. Blessedly, Dr. Paul Locher, my former adviser, provided me a solid background in aesthetics with our discussions and readings on balance structures and visual rightness leading me to question what were the necessary conditions for appreciation. I discovered the literature on meaning making in art and fortunately at that time I had a friend, Aaron Mandelbaum, who was studying issues of how we make meaning of our experiences. Concurrently other dear friends; Benjamin Bernard, Blythe Fichtenholtz-Peck, Kathleen Hill-Saber, and Natasha Nadler would indulge me in detailed discussions regarding these issues, while in museums and outside of them. These interactions and consumption of literature led to the prepared mind. Dr. Locher led me to Dr. Aaron Kozbelt who was willing to work with me on ideas not yet clearly defined. Once at CUNY, I serendipitously was introduced to the Gricean framework by Dr. Curtis Hardin and the prepared mind saw it as the framework to attempt an understand of meaning making in visual art and its role in appreciation, and once I recognized communication as an interesting avenue of investigation I registered for Dr. Natalie Kacinik's Language and Communication seminar to grasp at her expansive knowledge in that area. So for their belief, support, enthusiasm, and brilliance I am grateful; and special note for Dr. Kozbelt's ability to provide grounding, a scaffolding, and direction for me in this process. He has been instrumental in my growth and development as a researcher. I also want to acknowledge Pablo

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CHAPTER 1

INTRODUCTION

“Art is a technique of communication. The image is the most complete technique of all communication.”

-artist Claes Oldenburg

Art matters. The creation and viewing of art are vital and central human experiences. The experience of creating or interacting with and appreciating art has incited investigation in several disciplines. For instance philosophers, critics, art historians, and empiricists have questioned “what is art,” “how and why we appreciate art,” and “how and why do we make meaning from art.” The aim of this paper is to present and integrate the multidisciplinary approaches to understanding these questions and to argue for the perspective of art as communication. I first review work in several domains that inform this set of issues. I then examine several frameworks for communication in general, which could potentially be applied to understanding communication processes in visual art. I next focus on the four Gricean maxims of communication (Grice, 1975), as in some ways the best suited for this purpose. I then discuss each maxim individually, describing how they can be applied to visual art principles, and review relevant psychological research to elaborate this analogical framework. I conclude with a brief discussion of how the application of the Gricean maxims to communication in art can be empirically tested.

Historically, art has often been seen as a vehicle for communication. Every known human society, past and present, has created art as a means to express and experience feelings and ideas, and to inspire (Dissanayake, 1995). The creation and reception of art are social acts of considerable importance to people. They are infused with the intention to impact and affect one

another. Communication is likewise a social act with the ways and means to affect other individuals (Krauss & Fussell, 1996). Understanding communication often involves disambiguating the meaning of an utterance or gesture. Many scholars have argued that a viewer's ability to construct meaning from a work of art is a significant contributor to aesthetic value (Dissanayake, 1988; Donald, 1991, Humphrey, 1999; Landau, Greenberg, Solomon, Pyszczynski, & Martens, 2006; Lewis-Williams, 2002; Ramachandran & Hirstein, 1999; Rank, 1936/1968; Russel, 2003). Art viewing is an arena where those participating are trying to disambiguate meaning – but why? There are few other inanimate objects to which we try to ascribe meaning or from which we attempt to derive meaning. Meaning construction may be present in an art viewing scenario because the experience of viewing art is perceived as entering into a communicative exchange with the artist, via the work of art itself.

Multi-disciplinary Approaches to Communication and Art

“Art is a language, an instrument of knowledge, an instrument of communication.”

– artist Jean Dubuffet

Researchers and scholars in a variety of domains have investigated the nature of art and communication. Much of this work has focused on the idea of art as a language. The idea of art as a language, in particular a language of emotion, has deep historical roots. This idea of expressionism in art assumes that conventional signs and symbols (like those found in religious art, for instance) are not necessary for understanding; rather, emotions are expressed and understood by what we can detect in the manner of a painter's brushstrokes or heaviness of line and form, which is natural and unlearned (see Gombrich, 1962). We can equate signs and

symbols to language and writing; we can also equate conventional symbols that have learned meaning and symptoms to emotions, which themselves have natural (e.g., blushing, laughter) or learned (e.g., gesture, the meaning of which is filtered through cultural context) components. Thus, communication through art could potentially be understood as biological reactions to natural symbols in a work.

The art historical methodologies of iconography and semiotics have provided further bases for the comparison between visual art and language. The iconographic approach considers the meaning of the subject matter as if the artist has told a story by “writing” with “images.” Here the content of the image functions almost as text to be read by the viewer (Adams, 1996). The translation of text to image through symbols is often seen in religious art, although the technique has also been used to “read” later styles. Similarly, semiotics is the application of signs of interpretation, where the meaning of the sign extends beyond the sign itself, to the understanding of visual art. Language is an example of a semiotic system. The signifier is the sounded or written aspect of a word and the signified is the word’s conceptual element. Different accounts of semiotics make somewhat different claims about the relation between the signifier and the signified. For example, in Saussure’s (1916/1983) semiotics the relation between signifier and signified is completely arbitrary (Adams). In contrast, in an alternative view, that of Peirce (1931-1958), there is room for some relation between signifier and signified (Adams).

In a slightly different vein, art historian E. H. Gombrich (1972) approached the discussion of visual imagery in terms of its efficiency in communication with a comparison to language. According to Gombrich, images can function to arouse but not to describe or express, in the way that language does. Description is used by the speaker to explicitly inform the listener of experience, and language is “expressive when it informs of the speaker’s state of mind” (p. 138).

As an example, Gombrich noted that the expression of anger has a component of arousal for the speaker and the expression of arousal could potentially cause in the listener an identical type of arousal, such as anger, or a non-identical type of arousal, such as amusement. Gombrich argued that art is inefficient as communication due to the lack of a one-to-one translation of an artist's expression and the reception of a viewer: for instance, the notion that an artist is feeling blue and that feeling is passed onto the viewer through some sort of emotional contagion. In other words, in art viewing there is often a gap between message and reception.

However, it is also worth noting that the process of pulling meaning from spoken utterances often shows a gap as well. Instead of viewing art as language in its communicative functioning we could look at language and imagery (i.e., art or other types of images) as both functioning to communicate a felt experience. Imagery has a similar function as metaphor, in that both can convey types of information that literal or descriptive language does not do as completely. "The visual language of metaphors is one we all speak, consciously or not. We all dream in that language (Coulter Watt, <http://www.art-quotes.com>).” Imagery and metaphor are both bound by social constructs and it is possible for receivers to extract different meanings than what was intended by the maker (Krauss & Chiu, 1997). It follows that the lack of a one to one communication in imagery is not a sufficiently strong critique to conclude that art does not communicate.

In yet another perspective on these issues, philosopher John Dewey (1932) rooted aesthetic experience in terms of one's interaction with his or her environment. An individual's ability to create an aesthetic experience comes about through the tensions and other emotions felt by dealing with a complex, dynamic environment. According to Dewey the integration of a new experience with an old experience gives the new experience the meaning that is then expressed.

Therefore, for Dewey, artworks containing meaning become instruments for communication; art is created to be communicated. The feelings and meanings that are expressed in a work of art are communicated to the viewer via an aesthetic experience. The aesthetic experience could be the understanding of what is expressed. Arguably, the extent to which an artwork has the ability to communicate the feelings and meanings of the creator's experiences with his or her environment, either negative or positive, is the primary determinant of 'good art' (Dewey). It is not necessary for the feelings communicated in an aesthetic experience to be pleasurable in and of themselves; that which is being communicated could be received as negative emotions, a claim could be made that the reception of a communication or an understanding of the artwork on a level below cognitive awareness is what makes the aesthetic experience pleasurable even if what is communicated is of a darker or more negative nature.

In a more modern vein, Ramachandran and Hirstein (1999) took a neuroscience-based perspective on aesthetics. Specifically, they argued that artists, consciously or not, make use of visual principles to excite our visual systems – and in the process communicate or evoke an emotional response in their viewers. Assuming that an artist is able to express something via a created object, one can ask how this is achieved. According to Ramachandran and Hirstein, the essence of an object is captured by amplifying the effect on the neural mechanisms that would respond to the original object. Thus, the authors argue that often art displays important aspects of caricature. For instance, ancient sculptures of feminine forms often have exaggerated hips and busts. Ramachandran and Hirstein suggested that there are neurons in the brain that respond to “rotund feminine forms as opposed to angular masculine forms” (p. 18); in order to capture the feminine essence of the represented object the artist exaggerated those features to more powerfully affect those neurons. Similarly, they also argue that artists take advantage of neural

representations of posture. A memory for a large number of postures that an individual has seen in others may map onto one's own body representation. When artists accurately represent a posture in the posture space system, there should be neural activation that communicates the essence of the piece. In sum, the perspective of Ramachandran and Hirstein argues that communicative aspects of art can be understood in terms of principles of neural processing – though the meaning that individual viewers make from their viewing experiences is not well-specified in their model. Perhaps this is not surprising, given the multiple intervening levels of analysis between basic neural events and complex subjective experience.

Ramachandran and Hirstein's (1999) emphasis on perception of the body does however, link to other lines of work on the importance of embodiment in understanding aesthetic experience. For instance, for Johnson (2007), the language-centered view of aesthetic communication relegates meaning construction in art to a level below that of language. However, Johnson argues that experiencing art is the quintessential arena for meaning construction. He argues that because we can experience meaning in art, with or without words or linguistic symbols, we are reminded that the quality of meaning is ultimately based on our embodied interactions with the environment. We understand movement and directionality in art given our experiences moving through the world or interacting with objects moving through space. In other words, human meaning making is embodied. Meaning is created through our embodied experiences with our environment. Sensations, perception, emotions, and thoughts cannot be separated into a mind/body dualism but instead are seen as the holistic foundation of meaning. As children we experience the world through our senses and we make these sensations mean something, we categorize and process these experiences (Barsalou, 2010; Glenberg, 1997; Johnson, 2007, Prinz, 2002).

The making of art, being a human enterprise, communicates our shared experiences and therefore communicates meaning. We can understand this through our basal, embodied reactions to artwork, regardless of the medium. For example, music is described through the way it moves; this is intrinsically related to how we describe our bodies in motion. The language we use to describe art is the same as we use to describe our physical movement through the world. Music takes us on journeys, it moves us. We also experience visual art through bodily experience. Our ability to sense balance and “the power of the center” of visual compositions (proposed by Arnheim, 1988) is learned through our interactions with our world. For instance, we have orientation cells in our visual cortex that respond to line and direction. If an artwork is not balanced it is usually disturbing to viewers. This is due to our need to be physically balanced when moving through our world. These techniques are then used by artists to communicate this feeling to the viewer. We understand posture space, as discussed by Ramachandran and Hirstein (1999), by reflecting on our own physical posture. In general, the meanings we assemble from our interaction with the environment occur before the development of language and are embodied. Therefore we could argue that both language and art function to communicate a felt or embodied experience.

Besides these perspectives from art history, neuroscience, and psychology, artists themselves have commented on the general importance of communication in art, as well as how artistic communication may transcend ordinary language and be particularly potent at expressing emotional information. For instance, artist Eric Fischl was asked about his sculpture, *Tumbling Woman*; his comment was, “I was trying to say something about the way we all feel” (see Junod, 2009). Artist Arthur Ganson (2004), in an online talk on ted.com, expressed the following:

I would go into these private places, and I would put my ideas and my passions into objects, and sort of learning how to speak with my hands. So the whole activity of working with my hands and creating objects is very much connected with not only the idea realm, but also with very much the feeling realm... So a lot of the pieces that I've made, they involve found objects. And it really – it's almost like doing visual puns all the time. When I see objects, I imagine them in motion; I imagine what can be said with them... When I'm making these pieces, I'm always trying to find a point where I'm saying something very clearly and it's very simple, but also at the same time it's very ambiguous. And I think there's a point between simplicity and ambiguity which can allow a viewer to perhaps take something from it.

In sum, thinkers in many domains have contributed ideas toward an understanding of communication in art. The arguments advanced in this section suggest that there is broad agreement that art *does* function to communicate to viewers in *some* way – perhaps especially regarding emotional content. However, there are several important limitations to this line of inquiry. First, different scholars have emphasized very different aspects of this communicative process (e.g., symbolic representations, felt experiences, neural activity, and so on), leading to a hodge-podge of viewpoints with little sense of integration. Second, the arguments, while interesting and potentially informative, remain largely theoretical, without an abundance of direct empirical corroboration.

In the following several sections, I attempt to remedy some of these shortcomings. To begin with, in the next section, I review empirical studies pertaining to art and communication that lend credence to the notion that at least some things are indeed communicated through

works of art. The empirical studies are presented in a way that does not necessarily correspond to any particular viewpoint advanced in this section; however, a more integrated survey of broader perspectives on communication and their potential relevance to art will be addressed later in the paper.

Empirical Studies of Art and Communication

“Some paint comes across directly onto the nervous system and other paint tells you the story in a long diatribe through the brain.”

-artist Francis Bacon

A number of empirical studies have examined the kind of information that could potentially be communicated by works of art – for instance, feelings or emotions that might be associated with different colors or forms in painting, or with different melodies or timbres in music. In such studies, usually conducted under highly controlled laboratory conditions, participants are presented with varied stimuli and must classify or describe something about what is communicated by the stimuli. Such studies are important because they can empirically demonstrate and provide details about the communicative capacity of art, complementing and potentially disentangling the theoretical explanations offered in the preceding section. In such studies, a random or unsystematic pattern of responses would indicate that there is little reliable communication that occurs through the works of art, whereas a non-random or systematic pattern of agreement among participants (that presumably maps on to what the artist wanted to communicate) would indicate that works of art do reliably communicate at least some information. Fortunately for the argument advanced here, most studies conducted along these

lines have generally found systematic relations between different features or characteristics of an artwork and the way in which those features are interpreted by viewers or listeners. I now describe a representative sample of studies that have examined these issues.

In one of the earliest studies in this vein, Osgood (1952, as cited in Gombrich, 1962) asked participants questions about color hues. He asked if a particular hue was more “sad than gay, more heavy than light, more powerful than weak, or more old than young” (Gombrich, p. 58). The responses were not random; for instance, participants consistently described black as sadder, heavier, and more powerful than gray – likewise for blue compared to red on the same qualities.

In a similar mode, a more recent study by Takahashi (1995) had students at an arts university produce nonrepresentational drawings that would capture the emotional states of anger, joy, tranquility, depression, human energy, femininity, and illness, using the “language of line” (p. 674). A different set of participants saw high quality photocopies of those images and were asked to select the five images that best communicated each emotion to them (five images each for all seven emotions) and then put them in rank order for congruence of feeling. The selections and rank orderings of those images showed strong consistency among viewers. Thus, participants were successful in producing nonrepresentational images that communicated emotions.

A second experiment by Takahashi (1995) examined the generality of meaning; specifically, would the same line drawings produced in Experiment 1 convey divergent meanings from each other, and would their meanings relate to verbal concepts? Out of the stimuli created in Experiment 1, three from each emotion category were selected for their degree of communicability. The experimenter showed participants either a word or three drawings;

following these stimuli were 27 pairs of adjectives. Participants were asked to judge the word or the three drawings against the 27 pairs of adjectives on the basis of what the word or images meant to them. The analysis found a correspondence between semantic judgments and the assigned meaning of the images. Thus, it appears as if line drawings do communicate some emotional constructs adequately, and there does appear to be a relationship between the perceptual qualities of stimuli and particular meanings or interpretations.

Similar effects have been shown in responses to music. For instance, a developmental study (Trainor & Trehub, 1992) examined referential meaning in music – that is, can one generate nonmusical conceptual representations from music? In their Experiment 1, researchers gave four- and six-year-old children the task of listening to excerpts from Prokofiev’s *Peter and the Wolf* and associating them with one of four images; a wolf, bird, cat, or duck. If children can reliably choose the image that matches the composer’s intended meaning, this would provide a basis for the argument that sensory dimensions of sound are associated with meaning. On each trial, the children heard the music and were asked to choose one of the four images that represented one of the four animals. Both age groups performed reliably well in this task, with the six-year-olds performing better overall than the four-year-olds. Some excerpts were easier to identify and assign referential meaning to than others. For both age groups, performance was superior for the wolf and bird excerpts; there was confusion for the cat and the duck excerpts. Experiment 2 utilized the same stimuli with a slightly different procedure. The sample was a group of three-year-olds; the children were asked to match one of two excerpts with one of two images. The number of possibilities in the forced choice match was smaller than for the older children in Experiment 1. The three year-olds were reliably better at discriminating the wolf-bird pair than the rest of the pairs (bird-cat, wolf-duck, bird-duck, cat-duck, and wolf-cat). Further

analyses determined that three-year-olds were best at giving referential meaning to the bird excerpt, the wolf and the bird excerpts were better than the cat, and the bird excerpt was better than the duck. The researchers also evaluated performance of adults using the same procedure as Experiment 1. Adults performed significantly better than the children, though the same pattern of difficulty resulted: the wolf and bird excerpts were identified more reliably than the cat or duck. The systematic observances of incorrect answers point to the lack of clarity of the composer than some other factor. It is possible that the mechanism that underlies this finding is emotional and metaphorical attribution. The elements of the music may be analogous to life experiences. For instance there may be common physiological responses to how it feels to be in the presence of one of these creatures that are related to the responses felt when listening to the excerpt.

In another study on communication through music, Barbieri, Vidal, and Zellner (2007) found similar results. They had participants listen to four sound clips and asked them to associate these clips with colors. Participants were also asked to rate the emotional content of the song clips. Assigning emotion ratings such as happiness, sadness, and anger to each clip, individual responses were again not random. Participants were able to associate music with color and emotions. For instance, sad song selections were most clearly associated with the color gray. This study points to emotion or feeling states as the moderating factor in associating music with color.

Finally, convergent results have also been found in a more applied domain: the use of imagery in advertising (see, e.g., Bulmer & Buchanan-Oliver, 2004). Some have argued that some advertising campaigns fail to communicate basic information due to their more conceptual nature; others have suggested that vague or obscure advertisements leave the consumer with room to co-create a meaning based on their experience – arguably, a powerful type of meaning

making that is tied to personal experiences and emotion. Bulmer and Buchanan-Oliver) took a qualitative approach to this issue, with a two-pronged approach to data collection: open-ended surveys and a focus group. Participants watched a French perfume commercial three times and during the focus group gathered interpretations and reactions to the ad; one researcher moderated the focus group discussion while another researcher noted nonverbal forms of communication. The researchers found support for the idea of co-creation of meaning: participants were bringing their own experiences into their interpretations of the ad as well as discussing other facets; few people had the same interpretations. Aside from unique interpretations based on personal experience there was also overlap among the viewers' descriptions and the ad campaign creators' communicative intentions – for example, common themes referenced the story of Little Red Riding Hood.

In sum, these studies, which span a number of domains and modalities, provide empirical evidence supporting the view that art can communicate some form of meaning and that meaning is understood through feeling states. Art can thus be viewed as a form of communication. To better understand the nature of artistic communication, we next turn to various models of communication in general.

General Perspectives on Communication

Having established some empirical support for the idea of art as communicating some form of meaning in the previous section, here I detail several perspectives on communication in general. These perspectives are offered as candidate frameworks for understanding the nature of communication in art. However, since few attempts have been made to explicitly apply these general frameworks to the specific issue of communication in art, it is not clear how well the

frameworks described in this section might work for that purpose. Before assessing their potential to provide a framework for understanding artistic communication, I first provide some basic information about each perspective.

A point common to all perspectives on communication is that communication involves exchanges of representations. Krauss and Fussell (1996) and Krauss and Chiu (1997) provide a detailed discussion of four main paradigms of the processes that convey representations. These four paradigms are: *encoding/decoding*, *perspective-taking*, *dialogic*, and *intentionalist*. Each is now described.

The Encoding/Decoding paradigm has been instantiated in various models, including the Shannon-Weaver model (Shannon, 1948), the Osgood and Schramm model (Schramm, 1954), and The Speech Chain (Denes & Pinson, 1993). This paradigm proposes that representations are coded, transformed into signals that map onto meanings (encoded), and those codes are transmitted and transformed back into representations (decoded); the code in this model is language. The decoded mental representation corresponds to the speaker's mental representation. Despite the long history of research under the encoding/decoding paradigm, Krauss and Chiu (1997) note that it has difficulties explaining some basic aspects of communication, stating that the same message could be understood to mean many different things in different contexts or for different individuals. It is possible that the sender and listener have different understandings of the terms used in the message or have applied them incorrectly when forming the mental representation (Krauss & Fussell, 1996).

In an effort to overcome the limitations of Encoding/Decoding models, Perspective-taking paradigms were introduced. The Perspective-taking paradigm recognizes that different messages could have different meanings for different recipients. Individuals may process and construct the

intended meaning of a communication differently given their experience. These models propose that effective communication is the result of a reciprocal process where speaker and hearer try to experience the situation from the point of view of the other; therefore communicators are tailoring their messages to their listeners (Krauss & Fussell, 1996). Despite its appeal, there has been relatively little understanding of the process involved in assessing others' perspectives – a limitation of this kind of model. Also, it has been shown that speakers are strongly biased when composing messages for their audiences, in that they often assume that there is a greater degree of common knowledge than there actually is (Fussell & Krauss, 1991; Nickerson, Baddeley, & Freeman, 1987; Nisbett & Kunda, 1985).

Other theorists hold the view that communication models should focus on conversational speech – the exchanges between participants – when developing communication paradigms. Such Dialogic models frame communication as a joint process where the speaker and listener are working collaboratively to construct shared meaning. Here the interaction between the participants builds a mutual understanding that cannot be separated from the context in which they are communicating. The co-constructed meaning cannot be separated from the particular circumstances of the interaction. Therefore, these models see communication as a joint activity leading to shared knowledge and understanding. This model gives preferential status for conversation as communication, therefore giving elevated status to language's role in communication, as opposed to nonverbal forms like art – a serious limitation from the perspective of trying to understand art as communication.

A fourth communication framework, the Intentionalist paradigm, acknowledges communicative intention. Here those involved in discourse attempt the best suited way to convey meanings. There are two main approaches that focus on communicative intention. One is

Searle's speech act theory; the other is Grice's cooperative principle and conversational maxims. In speech act theory, direct and indirect speech acts are a function of the match between a literal and intended meaning. When literal and intended meanings match there is a direct speech act; a mismatch is an indirect speech act. According to Grice, individuals involved in discourse adhere to a set of conventions or maxims, which act to propel a conversation forward. The maxims may also be violated, and some violations may be deliberate, giving an utterance added meaning by indirect communication. These rules fall under the blanket of the "Cooperative Principle," which implies that communication is a cooperative endeavor. Perspective taking is implicit in the Intentionalist approach (Krauss & Chiu, 1997). Both Grice and Searle work into their theories the importance of common ground or shared knowledge in interpreting utterances. For the maxims to be adhered to the speaker must take into account the knowledge/perspective of the listener, the establishment of common ground. A more detailed description of Gricean principles is offered in the next section.

Intentionalist models of communication have led to the development of the "three stage model of comprehension." This model makes empirical evaluation of the process of message comprehension possible. The argument states that the process of comprehending speech acts begins with assessing the literal meaning of an utterance in terms of conversational principles (such as being truthful, relevant, and so on), with the intended meaning comprehended on the basis of an attempted matching to a literal meaning. If the literal meaning is an appropriate match given the context, the process is complete and the meaning is comprehended. However, if there is not a match the listener will attempt to construct a different meaning given the context (Temple & Honeck, 1999). The predictions that follow from this model are that nonliteral forms of language or indirect speech acts should take longer to process than literal or direct speech acts.

In contrast to these predictions, however, research has generally found that nonliteral forms or indirect speech acts such as metaphors and idioms take the same amount of time and are no more difficult to process than literal language or direct speech acts (Gibbs, 1982, 1984, Glucksberg, 1991; Glucksberg & Keysar, 1990). The results of these studies imply that literal and figurative meanings could be processed in parallel or figurative meanings are stored in memory that we then access. However, the findings amassed from the literature on metaphor comprehension, as a violation of conversational maxims, is not necessarily a criticism of Intentionalist models, since Grice (1975) purposed that purposeful violations of the maxims are just as informative as adherence to them.

How can these paradigms be related to potentially understanding communication processes in art? An important and highly relevant distinction among the paradigms was noted by Krauss and Fussell (1996), who argued that the differences among the perspectives mostly lie in where they locate meaning. For Encoder/Decoder models, meaning is a property of messages, for Perspective-taking models it derives from an addressee's point of view, for Dialogic models meaning is an emergent property of the participants' joint activity, and for Intentionalist models it resides in speakers' intentions. This distinction informs the selection of the Gricean Intentionalist framework as probably the best model to apply to the understanding of the process of art appreciation, in that artists' intentions would seem to be a particularly important aspect of artistic communication – recall the point made above that art represents perhaps the only class of inanimate objects from which we attempt to derive meaning – perhaps because the experience of viewing art is perceived as entering into a communicative exchange with the artist and his or her intentions, via the work itself.

The other models do not speak to this point as clearly. For instance, Dialogic models aren't suitable for this purpose given the elevated status of language and conversation as a means of communication. The reception or creation of meaning in artwork is nonverbal and most likely happens on an embodied level. Meaning is not only a property of the message or the artwork as the Encoder/Decoder model would suppose, but also involves the experience and the expectations that a viewer carries into the interaction. A key idea is that viewers typically come to art viewing scenarios with an expectation that the artist intended to communicate something via the artwork. Therefore, an Intentionalist model seems to be best suited of the models to understand aesthetic communication (recall that Intentionalist models subsume Perspective-taking models). The viewer must share common ground in order to receive the artwork appreciatively. I will discuss the differences between art-trained and non-art-trained individuals in reception and responses to different types of art further on in the discussion. It is enough to state here that it is possible that trained individuals respond or can construct meaning in a greater range of artistic styles due to this sharing of common ground or knowledge of the art world and/or materials, techniques, and exposure to styles.

The Gricean Maxims: An Intentionalist Model of Communication

Grice (1975) proposed that a successful communication is a cooperative enterprise. Both speaker and listener engage in a speech act cooperatively; that is, there is a common purpose or a direction that is understood by the participants. There are multitudes of possible purposes and directions, such as persuasive discourse, informal dialog, a teaching environment, and so on. Generally, once those involved are aware of the purpose and direction, they work to reinforce it. Regardless of the communicative direction there is an expectation among the conversers that

Grice has termed the ‘Cooperative Principle:’ “make your conversational contribution such as is required at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged” (p. 26). Under the Cooperative Principle are four categories, which each contain maxims. When the maxims are adhered to, or even when they go unfulfilled, the meaning of a speaker’s utterance can be inferred by the listener. The maxims provide expectations for communication, that is, ways to disambiguate a speaker’s meaning from what was actually said – or, as Grice labeled it, conversational implicature.

One of the four categories is Quality, which contains the maxim of truthfulness. More specifically, one should not state what they know to be false or what they lack adequate evidence for. The expectation here is that the speakers are honest, stating what they believe to be accurate. Some may think that irony, sarcasm, or jokes are violations of exceptions of this category; however, they are not. Mooney (2004) explained how supposed violations of the maxims can be as informative of the speakers meaning as adherence by not only giving the listener clues to the meaning of the speech act but also giving the listener clues about the speaker.

Another of the four categories is the category of Quantity, which contains two maxims: make your utterance as informative as required and do not make your utterance more informative than required. Here again adherence is the expectation. However, if the maxim is violated one may gain information regarding the speaker or situation. For instance, if a man asks his wife if she has been seeing someone else, the maxim of quantity would dictate that a response of no would suffice. However, if she replies, “No, I am not seeing another man,” her elaboration, the inclusion of “another man” may provide additional information. Perhaps she is seeing someone or something other than “another man.”

The category of Relevance contains one maxim: be relevant. Specifically, the contribution to the exchange should be relevant to the exchange. There is a difference between steering a conversation to a different direction than saying something out of place and completely off topic. Steering a conversation to a different direction is often done by mentioning something that is still relevant to the current direction but leaves room for a slight change. For instance, if individuals are discussing novels they have read in the past and one of the speakers has nothing to add to the current flow they may move the conversation to movies that are adaptations of particular novels. Here the direction of the conversation has changed but not so dramatically that it is no longer relevant to what has come before; in other words we are avoiding non sequiturs.

The fourth category is Manner, which, according to Grice, relates more to *how* something is said rather than *what* is said. The maxims under the category of Manner are to avoid obscurity of expression, avoid ambiguity, be brief, and be orderly. In other words, here one tries to express oneself clearly. To best exemplify this maxim we could look at a violation: business speak. In business speak the words or phrases used in organizations are often seen as obscure, complicated, and long-winded.

In sum, the conversational heuristics identified by Grice are based on expectations or assumptions that speakers and listeners employ to disambiguate communication. Again, information regarding implicature can be communicated either by an adherence to the maxims but also by a purposeful nonfulfillment of them.

Importantly, Grice stated that these maxims could apply to exchanges outside of the sphere of verbal communication. For instance, the maxims could apply to a situation in which someone is assisting in repairing a car or baking a cake: if one needs a screwdriver and is handed a wrench, or if someone needed a cup of sugar and was given salt instead, that would be a

violation of the quality maxim. In other words, language *per se* need not be the only means or vehicle of communication. In the next section, I propose that the maxims can also be applied to art viewing scenarios; implying that art viewing is perceived as a communication.

The Gricean Maxims as a Potential Means of Understanding Communication in Art

If the Gricean maxims are theoretically applicable to understanding a wide range of communicative interactions, including nonverbal situations, there is reason to think that the maxims might also inform the nature of communication in visual art. As noted above, scholars from many disciplines have argued that art does have communicative capabilities, and empirical research supports this basic claim. Thus, if the production and viewing of art can indeed be regarded as a process by which information, emotions, or creators' intentions are communicated, then the maxims may be useful for informing this dynamic. Indeed, in the previous section, I argued that of the general models of communication, an Intentionalist model, specifically the Gricean maxims of communication, is best suited to the task.

Art may function to communicate felt experience and similarly to linguistic communication may adhere to communication principles. The adherence to, or purposeful violation of, these principles may produce what professionals consider "good art." If the maxims are adhered to, the product should be a well-organized, balanced, complex structure, image, or composition, where the artist has used the best possible arrangement of elements and choice of materials to represent the intended idea, thought, or emotion. As the artist Hans Hofmann noted, the artists' chosen medium is "the material means by which ideas and emotions are given visual form" (see Chipp, 1968, p. 538)." It could be argued that canonical or museum-quality artworks

are those that follow these principles or purposely violate them in a way that still delivers a clear and rich communication.

In this section, I pursue the question of how the Gricean maxims might apply to communication in art. I examine each of the four categories (quality, quantity, relevance, and manner) in turn. Each maxim is first briefly mapped on to visual art, to show how in principle the maxim may be informative in this context. I then describe some relevant empirical research detailing the hypothesized relationship between the two. In discussing this new conceptual framework, it is important to note that this paper represents the first attempt to ground the process of communication in art in the Gricean maxims. Since the research cited below was not conducted with this point of view in mind, the fit between some maxims and earlier research is clearer in some cases than in others.

Quality

The maxim of Quality, according to Grice, relates to the *truth* of an utterance. In art viewing, truth could equate to an artist's depictive skill or to the sincerity of the artist to communicate. Along these lines, we can ask several questions. Did the artist appropriately demonstrate his or her skill? Is the artist's knowledge of the subject and the materials evinced in the work? Is the depiction an accurate representation of an object or an experience? Are the materials and style that the artist used appropriate to the subject?

One can easily imagine an artist using all of his or her knowledge and working with great sincerity to create an image that demonstrates his or her technical skill and communicates a straightforward message. Indeed, for much of art history this probably has been the norm (Gombrich, 1960) – consider any number of religious paintings or portraits from the European Renaissance or Baroque. However, one can also easily imagine various violations of the

truthfulness category. For example, particularly in the 20th century, artists often created works using more primitivist means of depiction (see Martindale, 1990), with grotesque distortions of the proportions of human figures or faces that are clear violations of the maxim of truthfulness (interpreted as realism). Dissonant combinations of subject and media can also work against this maxim, such as a representation of a war scene in brightly colored pastels.

Art that in one way or another threatens the value systems of some, such as *Piss Christ*, a photograph by Andres Serrano that depicts a crucifix submerged in the artist's own urine, can elicit anger, contempt, disgust, or a mixture of these emotions (Silvia, 2009). If a work of art is found to be intentionally offensive and against the viewer's value system, anger was experienced. If the work of art was judged as counter to one's value system and unpleasant, disgust was experienced (Silva & Brown, 2007). In Gricean terms, it is possible that an intentionally offensive work would be interpreted by the viewer as a purposeful violation of the quality maxim (i.e., the artist's sincerity of communication) and would thus not be taken seriously as a vehicle of communication. This piece was perceived quite differently by art professionals. In adherence to the maxim of quality, the artist's choice of an unconventional material, his own urine, was the prime choice for the intended expression. The fulfillment of the quality maxim was recognized by those within the community, they share common ground with the artist.

One of the clearest violations of the truthfulness maxim involves abstract paintings, where there is often no discernible subject at all. In general, non-expert viewers tend to show strong aesthetic preferences for representational, as opposed to abstract, styles of art. Indeed, there is a vast body of literature that speaks to this point (see, e.g., Leder, Belke, Oeberst, & Augustin, 2004).

The quality maxim could reference the artist's skill instead of just the image's accurate representation of the world. Individuals without much artistic experience often question the talent of abstract artists and have been heard uttering statements such as "my child could do that." However, in actuality a child most likely could not do that. Evidence for that claim comes from an experiment conducted by Hawley-Dolan and Winner (2011) in which they paired a work by an abstract expressionist with a work, that on the face of things was similar (matched in color, line, brushstroke, and medium), but was created by a child or an animal. The experiment sought the influence of labels on the judgments and preferences of art, rated by artists and non-artists. The labels either attributed the work to its maker (ten pairs) or identified the incorrect maker in the pair (ten reversed pairs) or made no use of attribution labels (ten pairs). It was hypothesized that both artists and non-artists would prefer and judge as better the works by the professionals indicating that it is possible to identify skill and complexity in abstract art (implicated more in the judgment selection than the preference selection). It was also hypothesized that artists would select the professional works more often than non-artists, especially in the judgment condition, likely due to their experiences viewing art. Finally, Hawley-Dolan and Winner hypothesized that labels should have more of an effect in the judgment condition and that professional artworks would have a greater degree of selection in the correct label condition but the reverse label condition shouldn't enhance the selection of the child or nonhuman work.

Hawley-Dolan and Winner's (2011) results indicated that both artists and non-artists reliably judged nonrepresentational art created by professional artist better and more skillful, than nonrepresentational art created by a child, chimp, gorilla, monkey, or elephant. The label condition did assist the non-artists in selecting the professional artworks as better; however, the incorrect label condition did not attenuate those effects. Therefore, the viewers were not biased

by the labels when judging these compositions. The skillfulness of the artist is represented in the work if not explicitly clear for the viewers. The artist, it seems, is following the truth maxim in terms of displaying skill in manipulating materials with intention to communicate. This study's findings run counter to some observations made by other researchers. However, as Howley-Dolan and Winner noted, earlier methodologies were quite different: they used a paired presentation format, in contrast to other presentation formats or anecdotal evidence of a child's artwork being mistaken for work by professionals (Chittenden, 2007).

Importantly for the present purposes, criticisms, such as "my child could paint that," do not appear as mere detached criticism; instead disapproval of abstract art is often very emotionally laden. It appears that the artists' sincerity to communicate through their skillfulness in selection and manipulation of materials is not entering the viewer's awareness and is therefore leading to some negative aesthetic emotions, possibly alienation. However, art-trained viewers tend not to experience the art the same way. An explanation for this is that they have training in looking at and producing works that may be in various artistic styles. Another possibility is that they share common ground, that is, mutual knowledge that is instrumental in communication. Artists and those in the art world are familiar with the methods and techniques that are employed by the artists to communicate their experiences. They share knowledge regarding possible materials available to work with, styles in which to express certain ideas, and what has been done before. Being familiar with the styles that preceded the development of new work allows those familiar to comment while informed. It is similar to discourse in any discipline; the speaker must take into account the listeners' prior knowledge in order to tailor an understandable utterance.

Quantity

The maxim of Quantity refers to the amount of information that is necessary to be maximally informative in discourse. In an art viewing scenario Quantity, that is, the information within a composition, could involve the degree of visual or conceptual complexity. For example, are there too many or too few visual elements within a composition to allow the viewer to construct meaning? Is the piece complex enough to hold viewers' attention and interest? Is the piece thought provoking? Is there unity among the elements? One can imagine compositions that are either overly simple or overly complex. In other words, the piece needs to be complex enough to hold viewers' attention and interest, but not too complex that a viewer finds it difficult to understand.

Viewing quantity as a communication principle equating to complexity, one can find empirical support for complexity's role in hedonics. Empirical studies on the relation between aesthetic preference and visual complexity have a long history. Early research concerned with complexity used polygons oriented at various angles (e.g., Deese, 1956; Eisenman, 1966; Garner, 1962; Musinger & Kessen, 1964; Vanerplas & Garvin, 1959). These studies showed that the number of visual elements is positively related to the perceived level of complexity. Berlyne and colleagues (Berlyne, 1963; Berlyne & Lawrence, 1964; Berlyne & Peckham, 1966; Berlyne, Ogilvie, & Parham, 1968) showed relationships between interestingness, pleasingness, and complexity judgments; complexity is positively related to interestingness. The relationship of pleasingness to complexity varies as a function of time. The arousal theory, proposed by Berlyne (1971), has attempted an explanation of this relationship. The degree of complexity corresponds to levels of arousal and subsequently judgments of pleasingness and preference. He showed that displays that are simple in their degree of complexity and displays that were moderately complex

were given the greatest preference ratings. However upon continued viewing participants reported becoming bored with the simpler images. The more complex images sustain viewer attention, lead to greater degree of arousal and pleasingness.

More recently, Avital and Cupchik (1998) proposed that complexity was not only a function of number of visual elements. Complex imagery is also created by the layering of elements. The layering of pictorial elements creates structure and depth. Avital and Cupchik used three nonrepresentational images to examine non-artists' ability to recognize compositional structure and to explore the relation of pleasure and complexity. In a series of experiments, Avital and Cupchik demonstrated that untrained viewers were sensitive to compositional structure in nonrepresentational art by asking them to rank-order nonrepresentational images in a way that made sense to them. These images had differing amounts of layering and therefore different structures. They also demonstrated that affective ratings of pleasingness were positively related to image complexity; the more complex the nonrepresentational compositions were the more pleasing they were rated.

It should also be noted that the visual complexity of paintings is often difficult to assess and may depend on the training of the viewer. Many acclaimed modern paintings, for instance by Color Field Abstract Expressionists or Minimalists, appear to be quite simple, which might be thought to violate the quantity maxim. However, this point of view is often itself an oversimplification. For instance, the many large untitled paintings produced by Mark Rothko, which feature just a few colors or shapes, arguably lack visual complexity. In the case of a Rothko the aspects of overall size and texture are vital to its viewing; the texture contributes to its layeredness. It has been shown that reproductions of any paintings often lack many qualities of the originals (Locher & Dolese, 2004; Locher, Smith, & Smith, 1999); unfortunately a great

deal of art is experienced first through reproductions. Indeed, Rothko and Gottlieb defended their style by stating, “We favor the simple expression of the complex thought. We are for the large shape because it has the impact of the unequivocal. We wish to reassert the picture plane. We are for flat forms because they destroy illusion and reveal truth (Rothko & Gottlieb, 1943, p. 10).”

Despite Rothko’s avowed intention, it is unclear how well viewers without artistic training respond to such abstracted works without any additional knowledge or common ground.

Works by Marcel Duchamp and other artists adhering to Dadaism present with similar problems. Again, many of their works, containing “found objects,” are not visually complex – consider Duchamp’s readymade, a urinal which he turned upside down and titled *Fountain*. For an untrained viewer, such pieces may violate the maxim of quantity – not only in terms of visual complexity, but also in being conceptually very ambiguous. However, for those who share common ground with the art community, and for the artist himself this piece and others like it are complex intellectually or conceptually. It is possible that degree of perceived complexity varies individually with training, which influences looking behavior, with common ground or shared knowledge, and with exposure.

The apparently simple kinds of works created by artists like Rothko or Duchamp may violate the quantity maxim, particularly for those who lack experience in looking. Another interpretation could be that the minimalist nature of their work, that is, excluding many visual elements, may be purposeful violations of the maxims to experiment with new techniques of depiction or to focus attention on specific elements, such as the impact of color, or texture. Whether or not this aspect of the creator’s intention is successfully communicated is open to question.

Relevance

Another of the maxims, Relevance, seems one of the more intuitive maxims in terms of its relation to conversational implicature and meaning construction in art viewing. Danto (1964) pointed out that we enjoy artwork we can see ourselves reflected in because it allows us to learn something about ourselves. The Relevance maxim would dictate that a piece that successfully communicates is somehow relevant to a viewer and/or to the world (either the larger sense of the world or possibly the art world). For example: Can one relate to what the image depicts or Can one make a connection with the piece? Does the piece represent or comment on societal issues? Does the work teach me something that I can apply to my own life?

Artists are often commentators on social issues. Artists' depictions of themes related to economics, war, and race are relevant to culture, history, and society. For instance, Jeff Widener's image of *Tank Man*, a photograph of one man stopping the advance of tanks during the Tiananmen Square protests of 1989 became a famous image symbolizing the powerful effect one person can have in changing the world. Similarly, Dorothea Lange's *Migrant Mother* photographs, taken during the 1930s, captures and communicates the desperation of the people in America's Dust Bowl during the Great Depression. It is not only photographers who comment on relevant social/historical issues. Paintings by Evergood represent labor issues and poverty during the Depression, Picasso created *Guernica* in response to the bombing of the town of Guernica during the Spanish Civil War, and Turnbuff's *Ride* was painted to capture racial tension in America. Again, these images capture enduring issues that are relevant for history and society. To my knowledge there have not been empirical investigations on relevance of art in terms of social issues and its connection to appreciation. However, the degree of recognizability and endurance of these images is an indicator of their importance.

Art need not only function as relevant socially; it can be relevant to the individual. It could be argued that personally relevant art is appreciated more than art that is not personally relevant. Indeed, there is empirical evidence that states that an individual's ability to relate experience to the content in art will influence its ratings. Most notably, Landau et al. (2006), proponents of Terror Management Theory, sought to influence participants' ratings of abstract art by relating structured or chaotic abstract art to the viewer's personal experiences and feelings of structure or chaos. Participants received a mortality salience manipulation, which was previously shown to influence preference ratings for abstract art in a negative direction, and were asked to either write about how it feels being in a chaotic environment where everything was nonsensical or to write how they felt in a stable environment where everything made sense. It was found that personal experience that related to the content of the piece helped alleviate the influence of the mortality salience manipulation. In other words, imbuing a piece with meaning by making it personally relevant affected liking.

In sum, we can imply appreciation through relevance given the examples above. Imagery that is relevant to the world, in that it addresses issues that are of importance to society, tends to become recognizable and maintain their artistic value over time. Art can also be relevant to the art world; in that it introduces novelty in subject or technique, adding to the existing knowledge of the discipline. Appreciation can also vary as a function of personal relevance. If the qualities of the work resonate with a person by eliciting emotions or memories, it is more likely to be appreciated.

Manner

As applied to art viewing, the maxim of Manner, which in conversational implicature addresses the obscurity of a statement or the organization of what is said, could address the structure or architecture of the work – in other words, how it is composed. This maxim differs from quantity in that quantity is concerned with the elements or the layering that is anchored in manner, that is, the structural skeleton. This also differs from the maxim of quantity. Quantity references the elements within the structure, its complexity; Manner references the structure, how the work is composed, how the elements are arranged. A successful work of art is typically a balanced and well organized composition perceived as a cohesive unified piece. Imagine however, that an artist intends to induce a feeling of uncomfortability and unease; this may be attempted by creating a nonsymmetrical balanced composition or a composition that purposefully upsets the balance structure so the work appears off kilter.

Compositional balance is a primary design principle that is intimately linked to a pleasurable aesthetic experience (Arnheim, 1974; McManus, Cheema, & Stoker, 1993). An artist creates a structural framework by organizing the compositional elements around a balancing point or center. This helps determine the role of each element within the balance structure as a whole (Arnheim, 1988). The structural framework of a composition is cross-shaped, meaning the framework consists of horizontal, vertical, and diagonal axes. The center establishes itself by the crossing of these lines and is the locus of attraction. Any location that coincides with a feature on one of these axes introduces stability through the push and pull of equal, opposing forces (Arnheim, 1974).

Each compositional element has a perceived visual weight. A balanced composition results when the elements of a composition are arranged so that the perceptual forces, or

perceived visual weight, of each element compensates the others. Said another way, a balanced composition occurs when the elements of a composition are pitted against one another about a center or a point of balance so that they appear anchored and stable (Arnheim, 1988). This creates a cohesive perceptual whole. Locher, Gray, and Nodine (1996) had art-trained and non-trained students view reproductions of paintings along with redesigned, less balanced versions of those paintings. Across participants, there was strong agreement as to the structural framework underlying the balance organization of the paintings. Results indicated that particular features were not the origin of compositional balance; rather judgments concerning the balance structure and its center were dependent on the global integration of information across a wide area of the display field but especially from the central region.

Museum quality abstract art has visual properties arranged in such a way as to be considered “visually right.” A satisfying composition is thought to be one in which there are simple geometric relations among the major compositional elements of the picture, resulting in a balanced picture or a “visually right” design (McManus & Kitson, 1995). The visual rightness theory (Carpenter & Graham, 1971) maintains that the structural framework created by an accomplished artist is the best possible organization of its pictorial features. For example, the abstract artist, Mondrian, produced paintings in the 1920s and 1930s focused on experimenting with primary colors and compositional balance. McManus et al. (1993) conducted a study where both art-trained and non-art-trained individuals made preference judgments between an unaltered Mondrian composition and two altered versions in which the horizontal and vertical black lines in these compositions were altered by a relatively small amount. Both groups preferred the originals to the altered versions. Latta, Brain, and Kelly (2000) provided additional evidence of

the visual rightness of Mondrian's work: individuals preferred his compositions seen in the original orientation rather than those presented in one of the eight different oblique orientations.

The maxim of Manner applies to conversation in terms of the overall structure of the composition; the placement of visual elements or the purposeful obscurity of the piece. Let's look at Dadaism again. It is possible that untrained viewers see this type of work as not only a violation of quantity, in that it's perceived as lacking in visual complexity, but they may also see it as a violation of manner, that is, as being purposefully obscure. If we examine styles like Cubism or Fauvism, these artists work with some representational content but the arrangement is at odds with reality. Forms are often exaggerated as in Matisse's *Large Reclining Nude* or disrupted or fragmented in some way as in a great number of Picasso's works. It is possible that from the perspective of viewers that lack training or much interest in the arts feel that any work that lacks representational or perturbs representational content violates the maxim of manner. Again, the purposeful violations of these maxims may communicate to the viewer a different way of looking at the world.

Given some of the empirical evidence stated above we can conclude that there is a clear trend to prefer the artists chosen arrangement of pictorial elements; however, we do not see a clear trend of individuals preferring nonrepresentational forms to other forms of art. It would appear that structural organization is a necessary but not sufficient contributor to aesthetic appreciation.

Adherence, Nonfulfillment, and Violations of the Maxims and Negative Aesthetic Emotions

To reiterate the main argument: Art may function like language to communicate a felt experience or thought. If art is communication, or at least is perceived as such, the Gricean

maxims of communication represent a well-suited model for understanding the relationship between appreciation and communication. Specifically, Quality or truthfulness in communication could reflect an artists' sincerity to communicate or their skill and the selection of an appropriate style and medium in artistic communication. Quantity may be regarded as synonymous with appropriate levels of visual complexity. Relevance could take place at the level of the individual's personal concerns or that of cultures and communities. Manner may reflect the perceived obscurity of expression or the visual rightness/structural soundness of the composition.

Much of the time, art probably communicates quite well through adherence to the four sets of maxims. However, if the Gricean framework is a valid perspective on aesthetic experience, then, just as in verbal communication, in artistic communication the four categories of maxims can be adhered to, can intentionally not be fulfilled in order to facilitate indirect communication if common ground has been established, or can potentially be deliberately spurned if the artist altogether rejected the goal of clear communication to potential viewers. In general, individuals with lots of experience in looking at or making art, are likely more able to appreciate abstract works since they probably share more knowledge/common ground with the artist. In contrast, for untrained viewers, it would appear that art that is anything other than a representation of reality is typically associated with reduced aesthetic preferences (Leder et al., 2004). Thus, for untrained viewers, violations of some or all of the Gricean maxims of communication can be perceived, and this would likely account for the observation that abstract art is generally not appreciated by naïve viewers. Such viewers lack the knowledge and common ground to make sense of subtle violations of the maxims that are intended to communicate indirectly. Thus, it is possible that

non-artists regard abstract artwork as violating most if not all the Gricean maxims, which can elicit negative aesthetic emotions.

Negative emotions as part of the aesthetic experience have recently gained attention in the empirical aesthetics literature. The focus on the emotional aspect of aesthetic experience has been mostly on positive emotions such as pleasure and beauty (Silva, 2005). Art not only elicits exclamations of beauty, which has been argued for as an aesthetic emotion (Prinz, 2007) but can and does inspire negative emotions. As discussed under the maxim of Quality, art that in one way or another threatens the value systems of some, can elicit anger, contempt, disgust, or a mixture of these emotions (Silvia, 2009). Silvia (2007) showed viewers works of art that were controversial or offensive and his results support the use of appraisal theories of emotions to predict the viewer's experience of particular negative emotions..

It appears reasonable that offensive or controversial art would elicit negative emotions when it is incongruous to one's value system. Art that depicts or references objects in the world that are meaningful to individuals could be met with negative reactions if the artist threatens the beliefs or value systems of others. It appears less reasonable however that art with nonrepresentational form, art that is composed of the visual elements: line, color, shape, size, location, and directionality (Arnheim, 1974), without directly or literally referencing objects in the world, can elicit such negative criticism and emotions unless we propose that art functions as a communication and hence an arena for meaning construction. It is possible that when the maxims, as applied to art viewing, are violated the viewer experiences a negative emotions such as alienation.

Making the Negative More Positive? Meaning Making is a Consequence of Communication and the Role of Information in Maxim Fulfillment

If the Gricean maxims represent a plausible framework for understanding communication in visual art, and violations of the maxims are responsible for negative aesthetic experiences and emotions, it is possible to shift viewers' degree of liking or appreciation by fulfilling the maxims thereby providing them with meaning or knowledge that would allow them to establish common ground with the artist's intent? To address this question, consider the issue of meaning making. Meaning making is a natural consequence of communication. When we communicate we are required to make meaning, and the fulfillment of the maxims assists in this process.

Interestingly, there is a trend in the literature that shows participants' ability to make meaning is related to their liking of art. Since finding ways of increasing a viewer's ability to make meaning would presumably enhance his or her aesthetic experience, I now discuss several empirical studies that speak to this issue.

Researchers who support terror management theory claim that abstract art inspires negative emotions due to its perceived meaninglessness (Landau et al., 2006). Terror management theory posits that individuals' need to perceive meaning in the world is motivated by their need to manage mortality concerns. They argue that art can threaten meaning in a couple of ways – for instance, when a piece has interpretable representational content that violates the viewer's belief systems, which we have already noted can lead to negative emotions such as anger and disgust (Silvia, 2007), or when the content is difficult to interpret due to its abstractness (e.g., shape, color, line, and form that does not reference recognizable, complete objects). Although proponents of terror management argue that meaning construction is a function of managing mortality concerns, I am arguing that meaning construction is a natural

consequence of communication, fitting their proposed threats to meaning construction within the quality maxim. However, their research is consistent with the idea that maxim fulfillment does influence liking for images.

Specifically, Landau et al. (2006) tested their hypothesis that mortality salience reduces liking for abstract art by asking their participants to write about the emotions that the thought of their own death aroused and the physicality connected with death. Participants in the comparison group were asked to write about a negative scenario not related to their mortality. Participants were then asked to look at abstract art and give attractiveness ratings. Participants found abstract art significantly less attractive after the mortality salience manipulation and after debriefing noted that the artwork was not particularly meaningful. Landau et al. also sought to weaken the effects of mortality salience on the attractiveness of abstract art by imbuing the work with meaning using titles. Titles did affect liking ratings for those participants who displayed a high need for structure.

Thus, the ability to construct meaning in artwork increases participants' liking for images. Again, terror management theorists claim that meaning making is a function of managing mortality concerns whereas I propose that it is a function of communication. What we do in communication is we attempt to make meaning of spoken utterances. The same thought applies to visual communication: artists use lines, shapes, forms, subjects, and colors to formulate and convey meaning. There are several studies to follow that show the influence of perceived meaninglessness on a work of art. They also demonstrate that when untrained viewers are given additional information about a work that helps to fulfill a communicative exchange the artwork gains in appreciation.

For instance, Russell (2003) sought to influence ratings of meaningfulness and pleasingness by varying levels of descriptions for abstract and semi-abstract paintings. Participants viewed 12 paintings and either received no information about the paintings or a 50 word description intended to help the viewers' understanding of the image. This description was taken from art texts and the internet. Participants rated the 12 abstract and semi-abstract artworks for their meaningfulness and pleasingness. They were then asked to go through the images again and indicate if their ratings increased, decreased, or remained the same. Overall meaningfulness and pleasingness ratings increased from the first to the second viewing for the majority of the paintings. These results support the *effort after meaning* hypothesis put for by Bartlett (1932), which supposes that pleasure derives from understanding a painting's meaning. Importantly, Russell instructed participants to rate meaning in terms of how well the painting was understood in terms of what it represented. It is hard to comment on which maxim was fulfilled specifically in this case. It is possible that the description given to the participants by the author fulfilled one or all of the maxims by providing the subjects with some common ground with the artist.

Additional information about paintings can take multiple forms; for instance, it is not only titles that accompany artworks in museums but also more detailed textual information regarding content and style. Along these lines, Cupchik, Shereck, and Spiegel (1994) assessed the role of textual information on aesthetic communication. Experiment 1 was conducted in the University of Toronto's art gallery. Three works were selected by the same artist; each piece was a painting with a sculpture set in front of it. The information condition varied in that one condition, called the baseline, only offered titles. In another condition, an elaborated title was offered along with a phrase from the artist statement to describe the piece's emotional quality; this he calls the mood condition. The final condition was the style condition; here information is used to draw attention

to stylistic devices that the artist used. The participants gave pre (before information) and post (after information and time to reflect) ratings measuring affective (pleasing, powerful), cognitive (challenging), and contextual (personally meaningful) judgments. Results showed no differences for the information conditions. However, Cupchik et al., did find that after participants were given time to reflect and interpret the images post-ratings showed that the art was rated as more personally meaningful, more challenging, and marginally more interesting. Engaging in active interpretation allowed participants to process these works more deeply, engage in meaning construction through the maxims of relevance and quantity, thereby enhancing the affective, contextual, and cognitive dimensions.

Cupchik et al.'s, (1994) second experiment examined the role of stylistic and contextual information in relation to different art styles, specifically, figurative (narratives founded on emotional experiences) and rhetorical (which embody complex layers of meaning). The participants were either art-experienced or naïve viewers. They were shown 12 artworks from each style. Again they were asked to provide pre-ratings and then were given varying types of information and asked to evaluate the artwork again in light of it, the post-ratings; participants made judgments on affective, cognitive, and contextual scales. The information consisted of mere description, which directed the viewers' attention to physical elements of the artwork; stylistic information, which related internal qualities of the artwork to evocative effects; and information that related the artwork to a broader social context. The results indicated that figurative art, which has emotional content that makes it accessible to viewers, was initially rated highest on the affective and cognitive scales. However, post-ratings showed an increase in ratings for rhetorical artworks, especially on the contextual scales. Information allows artwork that isn't easily assessable to be placed in a meaningful context. There were also differences in

judgments related to viewer experience. Naïve viewers found the figurative art to be more powerful, complex, and socially relevant whereas the experienced viewers found the same to be true of rhetorical artwork. We again see the influences of common ground via training and the ability to receive a communication to account for the differences in judgments.

To cite one more example: Seifert (2001) proposed that naïve viewers would be unable to interpret abstract artwork given their lack of knowledge about themes or symbolism used to express these themes. In one study, Seifert had 18 participants view seven reproductions of works by the artist Arcimboldo that represent abstract themes of seasons and elements with the use of tangible objects such as fruit, flowers, vegetables, and animals. Participants were asked to conduct two tasks; one was a liking rating and the other was a judgment of relatedness and a description of similarities. It was found that only one participant was able to identify the theme running through the works. For the 17 participants that were not identify the theme their liking ratings varied; however, the one subject that could identify the themes indicated that he or she liked all of the images. Individuals were generally able to recognize and describe the tangible objects but this recognition was not related to abstract preference. The overall gist of this experiment was to show that naïve viewers are not able to recognize abstract themes. Aesthetic preference did partially predict ability to recognize abstract themes but could be strongly swayed by one individual out of the 18 who could recognize the theme.

Aesthetic preference is multifaceted; we could infer that the one participant gave a liking rating to all images due to a grasping of what was being communicated in the images; the recognition of the seasons. However, something else might be moderating this relationship. Even though the other 17 individuals in the study did not grasp the theme and hence by our previous inference we could claim that they did not like the images because of their inability to recognize

themes, but that would not account for why some were liked when the theme was not recognizable. Perhaps judgments were made on some other dimension of aesthetic emotion, that meaning was constructed by the viewer to be meaningful to him or her.

Seifert's (2001) second experiment sought to understand the influence of information on ability to detect abstract themes and if this understanding would influence liking. There were four groups of participants: two uninformed, one that had a forced choice task of identifying the themes, and one group was asked to do so in an open-ended way (therefore, the forced choice group was not completely uninformed). The two other groups also engaged in the forced choice task or the open-ended task of identifying themes but both groups were given a brief description of the pictures coupled with facts about the artist and how he portrayed seasons and elements. Results showed that participants in the informed group performed better than those in the uninformed group at recognizing themes; participants in the forced choice task also performed better than those in the open-ended task; finally, those individuals who were in the uninformed open-ended condition performed least well, as shown through a significant interaction. Such findings indicate that when naïve viewers are given appropriate schema, they can identify themes among semi-abstract artworks containing tangible objects. Interestingly, results again showed that aesthetic preference did not predict recognition of themes.

It is possible that due to the art's lack of communicability of theme or its ability to share meaning with its viewers is responsible for the lack of aesthetic preference. Preference ratings were taken prior to the manipulation. It is also possible that being informed of a theme is less powerful than co-constructing meaning on one's own in terms of liking. I am not arguing that a viewer should always necessarily feel what an artist felt or can extract the subtle meanings that the artist intended, but that the viewer works within the piece to co-construct meaning, and if that

meaning is relevant to the individual, then the artwork will be liked. Art is a space for meaning construction because viewers see art making as an intended communication, not just an interaction with a static object.

In sum, these studies have shown that providing viewers' with meaning via theme, description, or titles reliably influences liking of them. Providing information about the work of art through a description or a title provides the viewer some way to understand and process the image, possibly common ground. It is difficult to say which maxims specifically were fulfilled given the information provided by the authors. It is necessary to test the maxims directly to see if the Intentionalist model is a viable way to blanket art appreciation.

Empirical Directions

If we understand art as a vehicle of communication, then applying a communicative framework that has informed meaning making in linguistic communication may likewise inform the process by which individuals do (or do not) make meaning and experience aesthetic pleasure (or other aesthetic emotions) by interacting with visual art.

The foremost methodological issue in applying the maxims to visual art is to articulate the maxims in a way that relates specifically to visual art. That is, in order to parallel the principles used in verbal exchanges put forth by Grice with those used in a nonverbal exchange such as art viewing, one would need to develop an appropriate measure of the maxims. Examples of questions that will be rated on Likert-type scales were mentioned in each subsection for each maxim.

Using a variety of items, that are related, to tap into each maxim in a visual arts context, and to purify the measurement of each maxim, would have multiple empirical uses. Assuming the maxims are as theoretically distinct in visual art as they are in language-based

communication, then once each maxim is reliably and validly measured, one can assess and compare the relative power of each of the maxims in predicting aspects of aesthetic processing, such as aesthetic judgment or preference. Would some maxims have greater predictive power than others? To address this, participants were asked to respond to items that measure the maxims as well as other response measures such as liking and items that assess intention. Statistical techniques like multiple regression and hierarchical liner modeling was employed to examine the maxims as a moderator of participants' responses of aesthetic judgment, preference, and so on.

Statement of Research Problem

To reiterate the main argument: Art may function, not as a language, but like language in that it communicates a felt experience or thought. If art is communication, or at least is perceived as such, the Gricean maxims of communication represent a well-suited model for understanding the relationship between appreciation and communication. Specifically, Quality or truthfulness in communication could reflect an artists' sincerity to communicate or their skill and the selection of an appropriate style and medium in artistic communication. Quantity may be regarded as synonymous with appropriate levels of visual complexity. Relevance could take place at the level of the individual's personal concerns or that of cultures and communities. Manner may reflect the perceived obscurity of expression or the visual rightness/structural soundness of the composition. If we understand art as a vehicle for communication, then applying a framework and principles that have informed linguistic communication may likewise inform the process by which individual do (or do not) get meaning and experience aesthetic pleasure or other aesthetic emotions by interacting with visual art.

General Hypotheses

Overall, it was expected that artworks that fulfill the maxims, by adherence to or purposeful nonfulfillment (when viewers believe that the artist is working under the Cooperative Principle) would yield higher appreciation ratings from viewers than artworks that violate the maxims. We expected to see variation in the contribution of each of the maxims themselves and variation across styles and training. For instance, we expected that museum quality representational artwork would fulfill the maxims quite well, especially for non-art-trained viewers. When we move along a continuum of abstractness we expect to see a lessening of perceived adherence to maxims for non-trained viewers. In contrast, art-trained individuals may see these styles as a purposeful nonfulfillment given the common ground they share with the artist, using shared knowledge within the discipline. Therefore the perceived degree of fulfillment of the maxims should vary as a function of training and may moderate aesthetic appreciation and judgments.

If art is perceived as a communication and is therefore an area for meaning construction the degree to which a painting is thought to communicate and the expectations of fulfillment should also vary as a function of the creator (e.g., trained human, child, or animal). One would not think to expect to communicate with, for instance, an animal, the same way one would with an art-trained human. There should be an expectation of maxim fulfillment or purposeful violation by a trained artist whereas the criteria for meaning making when the art is made by an animal should be different. Exactly how this would happen remains unknown, but one might hypothesize that the maxims quality and relevance would be affected greater than quantity or manner. The reasoning behind this assumption is that the maxims of quality and relevance relate to capturing experiences with the appropriate mediums. Adult human beings share

fundamental experiences with each other simply by being human that animals and children, who hasn't reached certain developmental stages, are foreign to.

In short, the maxims should contribute to the liking of a piece similarly for everyone when the artwork is created by professional artists but this should shift for images created by children or animals. This shift is possible due to the shift in the perceived intention of the creator to communicate something via personal experience or selection of medium to represent their experience; maxims such as quantity and manner, those that deal with structure and pictorial content should weigh more heavily.

CHAPTER 2

SURVEY DEVELOPMENT AND REFINEMENT USING THE RASCH TECHNIQUE AND THE ROLE OF INTENT AND THE GRICEAN MAXIMS IN AESTHETIC EVALUATION

Study 1 Introduction

The intention of Study 1 is to carefully construct and refine an instrument to measure each Gricean maxim as it pertains to communication in visual art so we may use these as a basis for understanding their respective contributions to aesthetic experiences, judgments, and preferences across a range of individual differences (chiefly, participants having training in visual art or not) and categories of artistic stimuli (20 paintings spanning a wide range of abstraction to realism; see Appendix A). The development of the survey took several iterations with several samples of raters. In this chapter methodological details of the development of the survey and the results of the statistical analyses based on the survey data are described.

The chapter is structured in the following way. First the initial version of the survey (Study 1A: 62 items, 21 non-artist raters) and the preliminary statistical analyses to examine internal consistency and item fit, in order to refine the measurement of the six constructs of interest are described: each of the four Gricean maxims (quality, quantity, relation, and manner), a dependent variable of aesthetic liking, and a measure of intent (i.e., the extent to which each rater reported engaging in a communicative process; the Cooperative Principle). Next, a shortened version of the survey (Study 1B and Study 1C: 33 items) were administered to 15 individuals with training in visual art and 26 individuals with no training in visual art, as well as an isomorphic set of analyses performed on those data are described. Since both versions of the

survey yielded measures of the identical constructs, to increase power, the data from both versions of the survey were pooled into a common dataset. These data were analyzed by hierarchical linear modeling (or HLM), in which scores on each maxim and intent were used as predictors of aesthetic liking (first individually, and then collectively). HLM was then used to examine variation in the predictive power of each maxim as a function of the judged level of abstraction of each image.

Finally, a series of follow-up analyses examined differences in the data of artists and non-artists among the four most abstract and four least abstract images from among the corpus of 20 paintings to determine the extent to which the patterns of responses vary between the groups on highly abstract versus highly representational images.

Survey Development

The development of the first iteration of survey items ($n = 62$; see Table 1) was guided by the literature on aesthetic evaluation and preferences. Using the Gricean maxims as a model of art appreciation was a way to umbrella the various components of art preference that have shown to be impactful and to provide an explanatory function for the importance of meaning making in art, as described in Chapter 1. These contributions to art evaluation can be seen as the basis for operationalizing each maxim. Survey refinement was then guided by the method of Rasch statistical analysis (Rasch, 1960/1980; Wright & Masters, 1982).

Survey Refinement

Rasch Rationale

To refine the survey instrument a Rasch statistical analysis (Rasch, 1960/1980; Wright & Masters, 1982) was performed using the WINSTEPS software application (Linacre & Wright, 1991/2000). Rasch analysis takes into account both the difficulty of each survey item (in terms of

the likelihood of receiving a high score from judges), as well as the harshness of each individual judge (in terms of their willingness to give high versus low scores on particular items) and the presumed intrinsic qualities of each image reflected in the survey items, to construct a metric of the constructs of interest (here, each of the four maxims, the measure of intent, and aesthetic liking). For each construct, this is achieved through an iterative, maximum-likelihood process that minimizes the residuals of the differences between each judged image and each survey item until their positions on an underlying dimension are stable. If a meaningful underlying dimension (such as for the maxim of quality, any of the other maxims, intent, or liking) exists, the analysis will converge successfully; if no such dimension exists, it will not. In the course of the analysis, survey items which do not adequately reflect the underlying construct are identified and can be eliminated. The unit of measure in this kind of analysis is the logit, which represents the log-odds probability of an image being rated high on the construct of interest by a particular rater, and which the Rasch procedure keeps uniform over the range of observations. In sum, the Rasch procedure yields a highly refined interval-scale metric of each construct which provides a solid foundation upon which to base later analyses.

Procedure and Materials for Study 1

Each participant was informed of the study's purpose; to investigate how visual art is evaluated and appreciated. After signing and submitting the consent form, participants was asked to view and evaluate 20 images, taking as much time as they need to examine each image. They were instructed to leave the image on the screen while evaluating each one (see Appendix C for participant instructions).

The stimuli represented several different categories of art along a range of abstraction (see Appendix A). The work chosen was of museum quality selected from works available on

<https://artsy.net/>; which is a website designed to bring museum collections online for public viewing. Work from varying genres and styles, ranging from highly representational through highly abstract, including Impressionism, Pop Art, Minimalist work, and others were represented. An issue of importance was ensuring the work be of high quality though not familiar so as to avoid mere exposure effects or judgment criteria based on prior experience or education; therefore, artwork was excluded that is featured in major New York City museums, as well as including an item on the response sheet that measured familiarity with styles or particular images.

The participants viewed each image, presented using Microsoft PowerPoint on a standard desktop computer. Participants were tested individually in a lab setting. Each image was presented on a black background with its size kept relative to the original image. Image number appeared in white text at the bottom left of the screen. Image numbers were three digit numbers created with the random number generator function in Microsoft Excel. Images were presented in random order for each participant.

Participants rated each image on a series of items, each one on a 6-point Likert scale ranging from 0 to 5 (0 meaning the item applied not at all and 5 meaning the item applied extremely well). The items assessed the degree to which the image communicated according to how each maxim was operationalized and the cooperative principle as a whole (assessed through intention items; see full-item surveys below). Participants also rated the degree of overall liking for the image along with several other aesthetic judgments and qualities (including emotional valence), which were combined into an overall measure of aesthetic liking. The final piece of the measurement asked for demographic information, including the extent of their experience and interest in the arts (see Appendix G).

Study 1A: Testing and Refining the Survey Instrument

Study 1A: Participants

A sample of 21 non-experts was recruited from the Brooklyn College subject pool to respond to the full 62-item survey (Appendix D). Non-experts were defined as individuals reporting no formal training in the visual or other arts. After completing a research session, which lasted about 1.5 to 2 hours, each novice recruited via the subject pool received a confirmation of fulfilling two research credits.

Study 1A: Results

The initial round of data analysis began by including all 62 items of the survey. The full 62-item survey is shown below in Table 1.

Table 1. The original 62-item survey applying Gricean principles to judgments of paintings.

QN1	To what extent is this picture interesting?
QN2	To what extent is this picture visually complex?
QN3	To what extent does this picture have enough visual elements?
QN4	To what extent does this picture have sufficient variability of visual elements or marks?
QN5	To what extent does this picture have the necessary amount of negative space?
QN6	To what extent does this picture appear flat?
QN7	To what extent does this picture seem uncluttered?
QN8	To what extent does this picture keep your interest?
QN9	To what extent do you think there is nothing important missing from this picture?
QN10	To what extent are there elements in the picture that you wish were enhanced?
QN11	To what extent do you think the artist created a picture of the right level of visual complexity?
I1	To what extent do you think the artist <i>intended</i> to create a picture whose level of visual complexity would communicate appropriate to you?
QL1	To what extent does the artist show evidence of skill in this picture?
QL2	To what extent are the symbols used by the artist in this picture familiar to you?

QL3	To what extent can you recognize the symbolism in this picture?
QL4	To what extent is it clear what the artist is trying to depict?
QL5	To what extent is this an accurate portrayal of an emotional state?
QL6	To what extent does the artist seem knowledgeable about the subject of the picture?
QL7	To what extent do you think the artist is knowledgeable about the materials used in the picture?
QL8	To what extent would the intention of the artist be clearer if the artist had used different materials?
QL9	To what extent do you think the artist was emotionally invested in this picture?
QL10	To what extent do you think the artist put effort into working on this picture?
QL11	To what extent do you think the artist successfully used his or her skill to convey a message?
I2	To what extent do you think the artist <i>intended</i> to use his or her skill to convey a message?
R1	To what extent can you relate to what is depicted in the picture?
R2	To what extent does this picture speak to your personal experience?
R3	To what extent does this work speak to the state of the world?
R4	To what extent does this work represent societal issues?
R5	To what extent does the message of the picture seem important?
R6	To what extent would this work appeal to people 1,000 years from now?
R7	To what extent would this work appeal to people 1,000 years ago?
R8	To what extent would you consider this work to be pertinent to you?
R9	To what extent do you feel connected to the artist's experience?
R10	To what extent do you <i>want</i> to feel connected to the artist's experience?
R11	To what extent is this picture relevant to you?
I3	To what extent do you think the artist <i>intended</i> this picture to be seen as relevant to you?
M1	To what extent does the meaning of this picture seem obscure?
M2	To what extent do you think the artist <i>intended</i> the meaning of this picture be obscure?
M3	To what extent does this picture seem visually well organized?
M4	How well did the artist arrange the elements of the picture?
M5	To what extent does the picture seem balanced?
M6	To what extent are the elements easy to absorb?

M7	To what extent is the picture understandable?
M8	To what extent are the elements of the picture clearly connected to each other or to the whole picture?
M9	To what extent is it easy to absorb the whole image?
M10	To what extent could you summarize the meaning of the picture?
M11	To what extent could you summarize the emotions shown in the picture?
I4	To what extent do you think the artist <i>intended</i> the picture to be understandable?
I5	To what extent does the picture make you <i>want</i> to understand it?
I6	To what extent were you able to make meaning from the picture?
I7	To what extent does the picture make you <i>want</i> to make meaning from the picture?
I8	To what extent do you think the artist <i>intended</i> to depict something relevant to you?
I9	To what extent do you <i>want</i> artists to depict something relevant to you?
P1	How much do you like this image?
P2	How much would you like to see this image hanging in your home?
P3	To what extent do you find this image to be pleasing?
P4	To what extent do you feel any emotions when viewing this image?
V1	To what extent are these emotions positive?
V2	To what extent are these emotions negative?
P5	To what extent do you think this image is of high artistic quality?
F1	To what extent is this particular image familiar to you?
F2	To what extent is this particular artistic style recognizable to you?

Note. Survey items are shown in the order presented on the 62-item survey. Here, each item is labelled by the construct it was meant to assess: QN=Quantity, QL=Quality, R=Relation, M=Manner, I=Intention, P=Preference, V=Valence, F=Familiarity. These labels did not appear in the survey shown to participants. In the final analysis, preference and valence were combined into one overall measure of aesthetic liking.

In this set of analyses, groups of items relevant to each construct (the four maxims, intent, and liking) were analyzed separately. In each analysis, ill-fitting survey items were removed to purify measurement of the construct of interest using the usual criterion of ‘infit’ or ‘outfit’

indices greater than 1.20, which is a sign of poor fit with the other survey items. In this way, the Rasch data was then used to maintain the integrity of the survey instrument by eliminating the worst fitting items from the survey. We used the results of the initial analysis to condense the 62-item survey to a shorter 33-item survey. Items eliminated due to poor fit in this first round of analysis included the following: Quality: QL1, QL2, QL3, QL4, QL5, QL8; Quantity: QN2, QN5, QN6, QN7, QN9, QN10; Relation: R3, R3, R5, R6, R7, R10; Manner: M1, M2, M7, M9, M10, M11; Intent: I3; Liking: P4, P5; Valence: (none); Familiarity: F1, F2.

After the ill-fitting items were removed, the reliability statistics (equivalent to Cronbach alpha) were quite high, reflecting strong internal consistency within each measure. These are reported in Table 2.

Table 2: Reliability Coefficients for Each Maxim, Intent, and Liking (33-item survey)

	Quality	Quantity	Relation	Manner	Intent	Liking
Item						
Reliability	.97	.90	.96	.83	.97	.98
Person						
Reliability	.77	.84	.85	.82	.80	.87

Thus, each Rasch analysis yielded an internally consistent metric of each construct of interest, which should provide a solid foundation for later analyses.

Study 1B: Comparing Artist and Non-Artist Survey Data

The purpose of Study 1B was to examine the internal consistency of the 33-item survey (Appendix E) with a sample of art-trained and non-experts, in the hope of comparing the two groups and of validating the shortened (33-item) version of the survey.

Study 1B: Participants

A sample of 26 non-experts, defined above, and 15 art-trained individuals, defined by individuals holding degrees in the fine arts or working professionally in arts fields, participated. Non-experts and a portion of the art-trained individuals were recruited from Brooklyn College subject pool. After completion of this session of approximately an hour participants received research credit. Other art-trained individuals were convenience sampled from personal associations with the principal investigator.

Study 1B: Results

Data from the second iteration of the survey (33 items) were separately analyzed by items relevant to each construct. Initially, data from non-artists were analyzed separately from artists.

Table 3. The 33-item survey applying Gricean principles to judgments of paintings.

QN1	To what extent is this picture interesting?
QN3	To what extent does this picture have enough visual elements?
QN4	To what extent does this picture have sufficient variability of visual elements or marks?
QN8	To what extent does this picture keep your interest?
QN11	To what extent do you think the artist created a picture of the right level of visual complexity?
I1	To what extent do you think the artist <i>intended</i> to create a picture whose level of visual complexity would communicate appropriate to you?
QL6	To what extent does the artist seem knowledgeable about the subject of the picture?
QL7	To what extent do you think the artist is knowledgeable about the materials used in the picture?

QL9	To what extent do you think the artist was emotionally invested in this picture?
QL10	To what extent do you think the artist put effort into working on this picture?
QL11	To what extent do you think the artist successfully used his or her skill to convey a message?
I2	To what extent do you think the artist <i>intended</i> to use his or her skill to convey a message?
R1	To what extent can you relate to what is depicted in the picture?
R2	To what extent does this picture speak to your personal experience?
R8	To what extent would you consider this work to be pertinent to you?
R9	To what extent do you feel connected to the artist's experience?
R11	To what extent is this picture relevant to you?
M3	To what extent does this picture seem visually well organized?
M4	How well did the artist arrange the elements of the picture?
M5	To what extent does the picture seem balanced?
M6	To what extent are the elements easy to absorb?
M8	To what extent are the elements of the picture clearly connected to each other or to the whole picture?
I4	To what extent do you think the artist <i>intended</i> the picture to be understandable?
I5	To what extent does the picture make you <i>want</i> to understand it?
I6	To what extent were you able to make meaning from the picture?
I7	To what extent does the picture make you <i>want</i> to make meaning from the picture?
I8	To what extent do you think the artist <i>intended</i> to depict something relevant to you?
I9	To what extent do you <i>want</i> artists to depict something relevant to you?
P1	How much do you like this image?
P2	How much would you like to see this image hanging in your home?
P3	To what extent do you find this image to be pleasing?
V1	To what extent are these emotions positive?
V2	To what extent do you think this image is of high artistic quality?

Note. Items are shown in the order presented on the 33-item survey. Each item is labelled by the construct it was meant to assess: QN=Quantity, QL=Quality, R=Relation, M=Manner, I=Intention, P=Preference, V=Valence, F=Familiarity. Numbering of each item is carried over from Table 1. In the final analysis, preference and valence were combined into one overall measure of aesthetic liking.

As above, in this set of analyses, groups of items relevant to each construct (the four maxims, intent, and liking) were analyzed separately, as were data from artist and non-artist raters. In each analysis, a few ill-fitting survey items were removed to purify measurement of the construct of interest, again using the usual criterion of ‘infit’ or ‘outfit’ indices greater than 1.20, which is a sign of poor fit with the other survey items. Among non-artists, items eliminated due to poor fit in this first round of analysis included one from Manner (M6) and one from Intent (I9). Among artists, items eliminated due to poor fit in this round of analysis included two from Manner (M6 and M8) and one from Intent (I9).

After the ill-fitting items were removed, the reliability statistics (equivalent to Cronbach alpha) remained quite high, again reflecting strong internal consistency within each measure. These are reported in Table 4 (non-artists) and Table 5 (artists).

Table 4: Reliability Coefficients for Each Maxim, Intent, and Liking for Non-Artists

	Quality	Quantity	Relation	Manner	Intent	Liking
Item						
Reliability	.98	.91	.87	.73	.82	.99
Person						
Reliability	.80	.87	.96	.87	.96	.84

Table 5: Reliability Coefficients for Each Maxim, Intent, and Liking for Artists

	Quality	Quantity	Relation	Manner	Intent	Liking
Item						
Reliability	.97	.98	.92	.86	.98	.99
Person						
Reliability	.77	.88	.96	.42	.82	.88

Here again we see each Rasch analysis yielded an internally consistent metric of almost all constructs of interest, with the exception of manner for person reliability among artists; this latter result indicates inherently lower inter-artist agreement about the use of that particular maxim in assessing the images of the study. The reason for this is unclear. However, having established adequate reliability across most of the constructs we can now examine how the maxims and intent weight in predictions of liking for images across a range of abstraction.

Study 1C: The Role of the Maxims and Intent in Liking for Artists and Non-Artists over a Range of Abstraction

It may well be the case that artists would be superior to non-artists in identifying instances of non-fulfillment and incorporating this information into their aesthetic experience. Although we can infer this through the disparity in perceived adherence to each maxim we may also see a disparity in responses to the questions that examine the cooperative principle, the umbrella for the maxims (e.g., “Does the artist intend for me to understand this piece?”). Depending on how questions such as these are responded to will inform the extent to which the viewer sees the piece as a communicative tool and therefore a place where intentional nonfulfillment lives as opposed to a house of violations.

While the non-trained individuals will most likely perceive more abstract images to violate the maxims and the cooperative principle, depending on where on the continuum the piece falls should influence which maxims are affected; for non-experts, more abstraction probably implies higher degrees of perceived communication violations. On the other hand the art-trained individuals should share enough common ground through their familiarity with the discipline to see the non-art-trained individuals' perceived violations as intentional non-fulfillment, evinced through responses to the blanketed cooperative principle questions and where on the maxim scaled points they respond.

We used statistical techniques such as HLM and follow-up means comparisons to analyze the data from this study. If we look at overall liking as a primary dependent variable and the maxims and intent as moderators we can examine how each group responds along the continuum of abstraction. Again we are looking to see how expertise moderates communicability of images and how the degree of communicability influences aesthetic appreciation and liking. Again it is difficult to make claims as to the relative weights of each maxim and its influence on liking or appreciation. However, this analysis should go far in explaining the often seen disparity in liking for abstract images that the trained and non-trained show. One could imagine that for the non-trained the cooperative principle will weight heavy for representational work but not for the abstract work. It is possible that for the trained we won't see any differences in the cooperative principle for any of the pieces; that it will be assumed that all pieces are meant as communicative arenas. Another aspect of the results one could imagine is the differences in the skill/quality maxim for artists and non-artists along the continuum of abstraction. It is likely that non-artists will see more abstract works as lacking in skill and have that significantly influence their judgments. However the trained will be able to appreciate this maxim differently. Another

maxim that may weigh heavily in the judgments of non-artists is relation, especially as the work becomes more abstract. The non-artist will probably have a difficult time relating a piece without clear symbolism to personal experience whereas an art-trained individual sees differently.

Study 1C: Participants

In order to prepare for the full analysis of the data using HLM, it was necessary to collect ratings from yet another sample of judges about the relative abstraction of the images.

Participants were 24 non-artists, defined as individuals reporting no formal training in the visual or other arts. They were Brooklyn College undergraduate students who volunteered in order to obtain extra credit from their course instructors. After completing a research session, which lasted about 20 minutes, their instructors were notified.

Study 1C: Procedure

After giving participants a brief explanation of the terms abstract and representational, as they relate to a visual art context, participants were asked to view the same 20 images as above (see Appendix A) using the same presentation format as outlined above. Participants were asked to rate them along a continuum of abstractedness on an 8-point Likert Scale, ranging from 0, meaning highly abstract, to 7, meaning highly representational (Appendix H).

Study 1C: Results

The 20 paintings varied considerably on rated realism vs. abstraction. For each painting, the mean and standard deviation ratings are shown in Table 6. The raters showed strong agreement, given by a high internal consistency statistic, Cronbach's $\alpha = .939$. Prior to the HLM analyses, data from different raters were averaged within each painting; these averages were z -transformed for use as the level-2 variable in the HLM analysis.

Table 6. Descriptive Statistics for Abstraction Ratings.

Image Number	<i>M</i>	<i>SD</i>
107	1.72	2.48
136	2.40	2.47
243	5.48	1.78
259	2.28	2.53
280	1.32	1.93
305	2.12	1.62
321	4.20	1.58
370	2.00	2.31
395	5.32	1.77
509	4.88	1.45
552	5.92	2.32
637	4.08	1.85
642	4.68	2.19
660	6.00	2.00
718	5.88	1.90
736	5.12	1.69
766	4.16	1.60
778	4.52	1.64
902	2.42	2.38
987	3.64	1.32

Note. A higher number for the mean indicates a more representational images; a lower number for the mean indicates a more abstract images (see Appendix A for images associated with the above listed numbers).

Study 1C: HLM Rationale and Analysis

To assess the relative weight of each maxim and intent on the outcome variable of aesthetic liking, for images that range along a continuum of abstraction, the technique of hierarchical linear modeling, or HLM (Raudenbusch & Bryk, 2002) was used. HLM is a multi-level regression technique suitable for analyzing data with a nested structure, as in the present study. Specifically, individual raters' assessments are nested within particular paintings, which themselves differed in level of abstraction, as given in Table 6.

Once images were ranked and ordered by their degree of abstractedness, data from Study 1A and Study 1B were pooled and analyzed using HLM (Raudenbusch & Bryk, 2002). Initially, data from artists and non-artists were analyzed separately. However, since no substantial group differences were evident in the HLM results (either in the overall pattern of level-1 effects or in level-2 effects flagged by group), here only the effects for both groups pooled together (non-artists from Study 1A and Study 1B and artists from Study 1B) are reported. Note that even though the two studies involved different numbers of items, the Rasch process reduces the data to one number per construct per painting, allowing a straightforward integration of the samples into one common dataset.

Study 1C: HLM Results and Discussion

Level-1 Models

The data were first analyzed as a series of level-1 HLM models, in which each of the four maxims and the intent measure are individually used to predict aesthetic liking. This set of analyses is similar to traditional simple linear regression but preserves the nested structure of the data and allows assessment of the extent to which each of these constructs is reliably associated

with aesthetic liking, irrespective of the effects of the other variables. The results for each of these individual models are shown below in Table 7.

Table 7.
Final Level-1 Model of Each Maxim's Weight in Artist and Non-Artist Liking Ratings of Images

Model	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	χ^2
Quality	0.774	0.030	25.345***	0.663	121.404***
Quantity	0.656	0.019	34.450***	0.677	149.439***
Relation	0.443	0.017	26.561***	0.722	105.610***
Manner	0.529	0.021	25.218***	0.664	119.969***
Intent	1.100	0.042	26.270***	0.502	175.885***

Note. For each maxim, $df = 1118$ for each *t* statistic and 19 for the chi square statistic. Intercept terms for each model are not reported, as these are incidental to the main question of interest. *** $p < .001$.

Results of the Level-1 HLM analyses indicate that the maxims do have substantial predictive power in liking ratings of visual art for artists and non-artists; these findings are robust and reliable across the board. The sign of the coefficients suggest a positive relationship between the maxims and intent with aesthetic liking in that as the ratings for the maxims increase, are perceived to be more fulfilled, liking ratings increase. The estimated effect sizes, in terms of level-1 explained variance compared to a baseline model with no predictors, are uniformly high, though with considerable remaining unexplained variability (given by the significant chi square statistics for each model in Table 7).

After assessing their individual effects, the variables were then combined into a single multi-level regression analysis, to determine the extent to which the effects of individual variables persist in the context of the other predictors – akin to the difference between multiple regression and a set of individual simple regression models. The results of this integrated level-1 model are shown in Table 8.

Table 8
Integrated Level-1 Model of The Maxims' Weight in Artist and Non-Artist Liking Ratings of Images

Model χ^2	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	
Intercept	-0.348	2.295	1.515		
Quality	0.775	0.038	2.025*		
Quantity	0.352	0.262	13.469***		
Relation	0.169	0.018	9.334***		
Manner	0.137	0.023	6.028***		
Intent	0.171	0.053	3.239**		
Integrated Model				0.794	126.304***

Note. For the intercept term and chi square statistic, $df = 18$; for each other predictor, $df = 1108$. * $p < .05$, ** $p < .01$, *** $p < .001$.

These results indicate that each of the maxims maintains its significance even in the full regression context, though the effects of some are stronger than others. All of the coefficients remained positive, and the overall explained variance relative to a baseline model with no predictors was quite high, though with some lingering remaining unexplained variance, given by the chi square statistic.

Finally, irrespective of their level-1 effects in the full model, the extent to which these effects may systematically vary across paintings of different levels of abstraction in the level-2 analysis were examined; here, z -transformed average ratings of the abstraction of each image (Table 6) were used as the basis to nest responses at level-2.

Level-2 Model

The level-2 model assesses the relative weights of the maxims and intent on predicting aesthetic liking. The results are shown in Table 9.

Table 9
Level-2 Model of The Maxims' Weight in Artist and Non-Artist Liking Ratings for Images Varying Across a Range of Abstraction

Model χ^2	Coefficient	SE	<i>t</i>	Level-2 Explained Variance
Intercept				
Intercept	-4.145	2.327	-1.781	
Level-2	-2.002	2.319	-0.863	
Quality				
Intercept	0.071	0.039	1.841(*)	
Level-2	0.082	0.040	2.048*	
Quantity				
Intercept	0.361	0.026	13.708***	
Level-2	-0.000	0.027	-0.001	
Relation				
Intercept	0.167	0.018	9.228***	
Level-2	0.026	0.019	1.370	
Manner				
Intercept	0.142	0.023	6.151***	
Level-2	-0.009	0.022	-0.148	
Intent				
Intercept	0.172	0.054	3.200**	
Level-2	-0.076	0.055	-1.377	
Integrated Level-2 Model				0.038 115.487***

Note. For the intercept term and chi square statistic, $df = 18$; for each other predictor, $df = 1108$. (*) $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

The maxims (all but Quantity) and intent maintain their relative weights in contributing to liking over the range of abstraction. The Level-2 model, with mostly non-significant effects suggests that the weight of the maxims in predicting liking stays stable along the range of abstraction. The only maxim that showed significant level-2 effect is Quantity. This indicates that as the images moves from abstract and becomes more representational the fulfillment of this maxim weighs more than it does when the images are abstract. The maxim of Quantity concerns the complexity of an image, in other words the amount of pictorial elements within the

composition that contribute to constructing meaning. Overall, the fact that there were relatively few reliable level-2 effects yields a relatively mild proportion of explained variance at level-2 compared to level-1 – far smaller than the level-1 effects reported above, for instance.

Interim Discussion

Again, survey item development was informed by the existing literature. Factors shown to contribute to aesthetic evaluations were subsumed under a communication framework that stresses the importance of both the speaker's and listener's intent to be understood; to engage cooperatively in meaning construction. Responses to those items were made by samples of artist and non-artists and analyzed with the Rasch technique; the instrument showed to be an internally consistent measurement of the constructs.

The data were then examined using HLM and the overall results suggest that for both artists and non-artists the maxims and intent have good predictive power for the construct of aesthetic liking and not much modulation of these effects by the level of abstraction or realism of the image. The one exception is the maxim of Quantity; its relative weight in predicting liking is lessened for abstract art than representational. The overall pattern, however, is one that suggests with maxims fulfillment the image is liked more.

Study 1C: Overall Comparisons between Artists and Non-Artists

One limitation or issue with the previous set of analyses was that the data from artists and non-artists were initially Rasch-analyzed separately, in order to attempt to maximize the sensitivity of the measurement of each construct for each group. This was useful for examining relations among variables in the HLM analyses, but because the parameters of the Rasch output

are standardized (e.g., in having set means and standard deviations), it is not informative to do means-testing comparisons of artists and non-artists on that set of measures, since they will have the same overall descriptive statistics. In order to explore whether artists and non-artists differed on their absolute level of endorsement of the maxims and other constructs, we re-ran the Rasch analysis, combining the expert and novice data from Study 1B to facilitate a comparison of the absolute level of scores in each group.

In these analyses, the reliability statistics (equivalent to Cronbach alpha) remained quite high for most of the measures (except for Quality and Manner), again reflecting strong internal consistency within each measure. These are reported in Table 10.

Table 10: Reliability Coefficients for Each Maxim, Intent, and Liking for Artists and Non-Artists (Combined)

	Quality	Quantity	Relation	Manner	Intent	Liking
Item						
Reliability	.28	.87	.89	.27	.67	.85
Person						
Reliability	1.00	.98	.98	.99	.99	1.00

After the Rasch scores were generated, the average scores of artists and non-artists on each of the six constructs of interest were compared via a series of unpaired *t* tests. The results can be seen in Table 11.

Table 11
Overall Comparisons of Artists and Non-Artist Means for the Four Maxims, Intent, and the Outcome Measure of Liking

	<u>Non- Artists</u>		<u>Artists</u>		<i>t</i>	ω^2
	Mean	SD	Mean	SD		
Quality	61.123	10.43	65.724	8.616	-1.44	.03
Quantity	62.971	13.67	65.467	12.976	-0.571	.00
Relation	63.013	18.91	39.730	18.375	-1.262	.01
Manner	63.013	12.823	69.480	13.062	-1.545	.03
Intent	54.382	12.823	55.038	9.602	-0.231	.00
Liking	46.051	9.382	49.040	13.958	-0.831	.00

Note. For all unpaired *t* tests, *df* = 39.

The null findings in Table 11, with uniformly small effect sizes, suggest that the two groups of raters are responding in similar ways across all of the images. However, the images themselves vary greatly in their level of abstraction, as described above (see also Appendix A). To examine whether artists and non-artists differed in their endorsements of high- versus low-abstract images, we examined possible differences between artists and non-artists on the four most abstract images and the four least abstract images separately. We chose four of each type of image because those images differed substantially from the next most abstract or representational images. Recall that artists probably will rate highly abstract images more favorably than non-artists. It is also worth investigating artist/non-artist differences in the maxims to see how the maxims potentially play out differently in the two sets of images. Table 12 shows the data for the four most representational images.

Table 12

Comparisons of Artists and Non-Artists on the Four Maxims, Intent, and the Outcome Measure of Liking for the Four Most Representational Works

	<u>Non- Artists</u>		<u>Artists</u>		<i>t</i>	ω^2
	Mean	SD	Mean	SD		
Quality	63.206	13.110	66.813	12.224	-0.845	.00
Quantity	70.221	17.349	65.210	16.924	-0.899	.00
Relation	39.011	27.568	41.865	20.480	-0.349	.00
Manner	78.471	17.131	76.483	16.032	-0.366	.00
Intent	59.513	14.215	57.021	10.471	-0.591	.00
Liking	53.708	14.078	49.600	17.606	-0.821	.00

Note. For all unpaired *t* tests, *df* = 39.

Again, we see uniformly null findings and small effect sizes among the means for artists and non-artists on the four maxims, liking, and intent when viewing the most representational images. Based on what we know from previous studies it is consistent with expectations to obtain these patterns of results. It is with the abstract images that we expect to see differences on all the maxims and liking, and possibly intent; the expectation is that the content of the image itself will inform the viewer of the creator's intent to communicate. However, it is possible that people engage with art as a communication regardless of expertise in the arts and prior to any processing of content. The data for the four most abstract images are depicted in Table 13.

Table 13
Comparisons of Artists and Non-Artist for the Four Maxims, Intent, and the Outcome Measure of Liking for the Four Most Abstract Works

	<u>Non- Artists</u>		<u>Artists</u>			
	Mean	SD	Mean	SD	<i>t</i>	ω^2
Quality	52.456	13.141	60.837	10.930	-2.085*	.08
Quantity	49.041	19.118	61.532	14.018	-2.173*	.08
Relation	15.995	23.921	34.938	20.203	-2.579*	.12
Manner	39.776	39.776	61.825	16.567	-4.192***	.28
Intent	45.251	10.660	49.013	8.188	-1.179	.01
Liking	35.621	13.160	45.535	14.642	-2.210*	.09

Note. For all unpaired *t* tests, *df* = 39; * *p* < .05, *** *p* < .001.

In contrast to the previous two tables, here we do see consistently reliable differences and generally much larger effect sizes for artists and non-artists on almost all of the variables, but not intent. In line with the theoretical framework, it appears as if the artists perceive more fulfillment of the maxims than the non-artists as indicated by higher means on those dimensions. The artists are also rating the four abstract images higher on the liking dimension. This follows logically from the results of the HLM analysis that show that fuller maxim fulfillment significantly predicts liking. The similarity of the intent means for artist and non-artists suggest that they both approach the art viewing scenario as a communicative situation where the maxims can be utilized to construct something of meaning.

Interim Discussion: Studies 1A, 1B, and 1C

The results of the first study, using Rasch analysis to refine the measurement of the constructs of interest, indicate that a reliable measure of artistic communication has been developed based on the Gricean model. The maxims mirror the important constructs in the field

and umbrella them under a communicative framework. The model also takes into account the perceptions of artist intent to communicate and the viewer's want for them to be engaged in a communicative exchange (the cooperative principle). Further, the HLM analyses show that the maxims and intent are reliable predictors of liking and that, for the most part they remain stable when viewing images that range along a continuum of abstraction. The only exception is the maxim of Quality, the maxim interested in measuring image complexity (are there enough elements to make meaning) which weighs heavier in evaluations of representational images than abstract images. Follow-up means comparisons between artists and non-artist show agreement in ratings of the maxims overall; when viewing representational images there were no differences in evaluations across the four maxims, intent, and liking. This can be expected given the theoretical framework. Images that allow for greater maxim fulfillment will be liked more; it appears that representational art, with its clear symbols and depictions of scenes that are easily interpreted, artists and non-artists do not differ in their evaluations on how much the maxims are fulfilled for each image nor do they disagree on liking and intent. For the most abstract images, training differences begin to appear. The images are evaluated differently for not only the maxim fulfillment but for the liking of each image as well. The artist means are consistently higher than non-artist means indicating that they, given common ground with the artist and the discipline, can perceive the fulfillment of maxims even in abstract art. It is interesting to note that there was not a training difference in intent. The argument can be made that both groups are following the Cooperative principle in that they want to and expect the artist is engaging in a communicative process. The purpose of Study 2 then, was to see if we could disrupt the intention piece by varying the creator type from professional artist, child, computer (plausibility was not obtained in pilot testing so this category was dropped), or animal. Again, the thinking

was if we shift the creator, it might change the perception of creator intent to communicate, which may change the way maxim fulfillment is used to make aesthetic liking judgments.

CHAPTER 3

THE INFLUENCE OF CREATOR ATTRIBUTION ON COMMUNICATION INTENT

Study 2: Creator Influence on Communication Intent and Weighting of Maxims in Liking

The argument for art as communication rest on the assumption that the construction of meaning, which contributes significantly to liking, happens as a function of art being perceived as a communication; after all, meaning making is the natural outcome of linguistic communication. Study 1 indicated that both artists and non-artist do not differ in their intent scores suggesting that individuals engage in art as a communicative exchange regardless of explicit awareness. We can further test this assumption by manipulating the viewers' information regarding who or what created the piece, assess if communication intent breakdown affects liking as a function of maxim fulfillment.

Study 2A: Assessing Attributed Creator Plausibility

Prior to conducting the experiment it was necessary to see if the images selected from actual creator categories of professional, child, animal, and computer could have been plausibly created by any of the other creator types. We began by selecting images created by members of these four groups that appeared potentially plausible as having been created by any of the four groups. We then pilot tested these images to determine which particular images (or whole categories of images) might have to be eliminated from the dataset as implausible.

Study 2A: Participants

Nine Brooklyn College non-expert undergraduates participated through the Subject Pool and received credit for participating. After completing a research session, which lasted about a half hour, each novice received a confirmation of fulfilling one research credit.

Study 2A: Stimuli and Procedure

Initially, four categories of stimuli were tested: images created by animals (10 images), children (10 images), computer programs (12 images), and professional artists (10 images). (See Appendix B for images.) Participants were not told who created each image. Participants looked at each image one at a time and answered nine questions about each image on a 5–point Likert scale ranging from 0 (not at all) to 5 (very much) (Appendix I). The questions assessed the plausibility that the image was created by an animal, the plausibility that the image was created by a child, the plausibility that the image was created by a computer program, the plausibility that the image was created by a professional artist, liking, complexity, interestingness, creativity, and artistic quality. The four plausibility questions were ultimately averaged into one overall plausibility index for each image.

Study 2A: Results

The first set of results showed some substantial differences among the images in the four categories – mainly due to the presence of the computer-generated images in the dataset. Thus despite our best efforts to find computer-generated images that could have plausibly been created by children, animals, or professional artists, the particular images chosen appear to have differed markedly from those in the other three categories. Specifically, in computing a series of one-way ANOVAs using the four categories as the independent variable and average score for each painting on each survey item as the dependent variable, we found main effects for average

plausibility, $F(3, 38) = 6.423$, $p = .001$, complexity, $F(3, 38) = 3.532$, $p = .024$, and a marginal effect of quality, $F(3, 38) = 2.745$, $p = .056$. Post hoc comparisons done using Tukey's HSD showed reliable differences in plausibility between computer-generated images ($M(SD) = 2.10(0.18)$) and animal-created images ($M(SD) = 2.55(0.22)$), $p = .001$, and between computer-generated images and child-created images ($M(SD) = 2.39(0.30)$), $p = .042$. Post hoc comparisons done using Tukey's HSD showed reliable differences in complexity between computer-generated images ($M(SD) = 3.11(0.50)$) and animal-created images ($M(SD) = 2.37(0.69)$), $p = .047$. Thus, computer-generated images appeared to be both less plausible as having been made by animals or children, as well as more complex than images made by animals.

Table 14
Comparisons of Creator Type

	Animal		Child		Computer		Artist		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	<i>F</i>
Plausibility	2.56	.21	2.40	.30	2.10	.18	2.28	.31	6.423***
Like	2.24	.60	2.56	.31	2.32	.69	2.34	.10	.551
Complexity	2.38	.69	2.97	.46	3.11	.50	2.75	.69	3.532*
Intent	2.28	.65	2.53	.28	2.49	.56	2.23	.82	.621
Creativity	2.19	.71	2.68	.48	2.45	.54	2.37	.71	1.647
Quality	2.11	.72	2.79	.44	2.55	.56	2.15	.76	2.745(*)

Note. For all ANOVA, $df = 3, 38$; (*) $p = .056$, * $p < .05$, *** $p < .001$

When the computer-generated images were removed from the dataset, and the remaining three categories of images re-analyzed, the results showed far fewer differences due to stimulus category. Specifically, one-way ANOVAs computed on the average ratings for each image revealed no reliable differences on average plausibility, liking, complexity, interestingness, or

creativity. Only artistic quality showed a reliable main effect at the .05 level, but post hoc comparisons between each pair of means using Tukey's HSD revealed only marginally reliable effects between works produced by children and animals ($p = .070$) and between works produced by children and professional artists ($p = .089$). The M (SD) quality ratings for works by animals = 2.11 (0.72), for children = 2.79 (0.44), and for professional artists = 2.14 (0.76).

In sum, despite some slight numerical trends suggesting minor category differences on some of the stimuli, overall the three categories of stimuli comprising works by animals, children, and professional artists appear to be quite comparable in most respects. Thus, this set of stimuli should serve as appropriate images for Study 2B, in which attributions to plausible creator categories will be experimentally manipulated.

Study 2B: Creator Influence on Communication Intent and Weighting of Maxims in Liking

Study 2B: Participants

A sample of 24 non-experts was recruited through the Brooklyn College subject pool. After completing a research session, which lasted about a half hour, each novice received a confirmation of fulfilling one research credit.

Study 2B: Procedure

Based on the responses from the probability survey participants viewed a total of 30 images from only three creator categories (as opposed to four, as the computer category was removed); 10 created by a professional artists, 10 created by children, and 10 created by animals. Participants were told that the image was created by one of three different creators. Creator attribution was randomly determined for each stimulus category, so a given attribution could either be accurate or not. Participants completed the shortest version of the survey assessing the

maxims, intent, and liking. Blocks of images were randomized for creator attribution and the images within each block were randomized.

Study 2B: Results

Data from the surveys were again Rasch-analyzed, with the following reliability statistics (equivalent to Cronbach alpha) shown in Table 15.

Table 15: Reliability Coefficients for Each Maxim, Intent, and Liking

	Quality	Quantity	Relation	Manner	Intent	Liking
Item						
Reliability	.53	.38	.83	.81	.87	.68
Person						
Reliability	.93	1.00	.37	1.00	1.00	1.00

Having established mostly acceptable levels of reliability, the data were again analyzed via HLM to determine the relative predictive power of the variables on liking, given different creator attributions (animal, child, or professional artist).

Level-1 Models

The data were first analyzed as a series of level-1 HLM models, in which each of the four maxims and the intent measure were individually used to predict aesthetic liking, as in Study 1. The data were analyzed separately for each creator type. The results for each of these individual models are shown below. The first analysis concerns images attributed to animal creators (see Table 16).

Table 16
Level-1 Model for Attributed Animal Creator of Each Maxims' Weight in Liking

Model	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	χ^2
Quality	0.475	2.842	9.505***	0.199	409.992***
Quantity	- 0.017	0.024	-0.745	0.000	377.644***
Relation	0.219	0.025	8.666***	0.527	295.882***
Manner	0.296	0.025	11.921***	0.407	391.608***
Intent	0.570	0.047	12.145***	0.689	307.848***

Note. For each maxim, $df = 365$ for each *t* statistic and 43 for the chi square statistic. Intercept terms for each model are not reported, as these are incidental to the main question of interest. *** $p < .001$.

Results of the level-1 HLM indicate that most of maxims, except for Quantity, do have reliable predictive power in liking ratings of visual art when participants were told they were made by animals; these findings are robust and reliable, with generally large effect sizes. The sign of the coefficients also suggest a positive relationship between the maxims and intent with aesthetic liking, meaning that as the ratings for the maxims increase, i.e., are perceived to be more fulfilled, liking ratings also increase.

After assessing their individual effects, the variables were then combined into a single multi-level regression analysis, to determine the extent to which the effects of individual variables persist in the context of the other predictors. The results of this model are shown in Table 17.

Table 17.

Integrated Level-1 Model for Attributed Animal Creator: The Maxims' Weight in Liking

Model	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	χ^2
Intercept	23.491	3.001	7.828***		
Quality	0.078	0.045	1.726(*)		
Quantity	-0.013	0.015	-0.878		
Relation	-0.026	0.021	-1.254		
Manner	0.064	0.029	2.182*		
Intent	0.489	0.080	6.094***		
Integrated Model				0.634	126.304***

Note. For the intercept term and chi square statistic, $df = 43$; for each other predictor, $df = 361$. (*) $p < .10$, * $p < .05$, *** $p < .001$.

Results of the integrated level-1 model indicate that the only maxim that retains significance is Manner, though Quality also does so marginally; the maxim of relation drops out of the integrated model, whereas quantity was not predictive individually. Intent also retained its predictive power in the integrated model. Table 18 shows the level-1 model for attributed child creator for each maxim individually.

Table 18.

Level-1 Model for Attributed Child Creator of Each Maxims' Weight for Liking

Model	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	χ^2
Intercept					
Quality	0.449	0.541	8.285***	0.222	351.760***
Quantity	-0.040	0.021	-1.972*	0.003	347.021***
Relation	0.242	0.027	9.013***	0.472	292.561***

Manner	0.281	0.030	9.223***	0.428	344.817***
Intent	0.550	0.037	15.056***	0.632	340.929***

Note. For each maxim, $df = 365$ for each t statistic and 43 for the chi square statistic. Intercept terms for each model are not reported, as these are incidental to the main question of interest. *** $p < .001$.

Here we again see several maxims as robust and reliable individual predictors of aesthetic liking; the difference here however, is in the direction of the quantity maxim, in that the negative sign indicates liking ratings increase as quantity decreases. Table 19 shows the integrated model for attributed child creator, in which all predictors but quantity and intent lose significance compared to the individual level-1 models.

Table 19.

Integrated Level-1 Model for Attributed Child Creator: The Maxims' Weight in Liking Ratings of Images

Model	Coefficient	SE	t	Level-1 Explained Variance	χ^2
Intercept	24.523	2.857	8.582***		
Quality	0.056	0.044	1.259		
Quantity	-0.035	0.016	-2.220*		
Relation	0.008	0.025	0.310		
Manner	0.019	0.027	0.716		
Intent	0.491	0.068	7.200***		
Integrated Model				0.622	353.033***

Note. For the intercept term and chi square statistic, $df = 43$; for each other predictor, $df = 359$. * $p < .05$, ** $p < .01$. *** $p < .001$.

The individual level-1 models for the attributed artist creators are reported in Table 20 below. The results indicate all maxims, besides quantity, as being significant predictors of liking; again all the coefficients are positive with strong correlations coefficients. This again indicates that as the maxims are fulfilled, aesthetic liking increases.

Table 20

Level-1 Model for Attributed Artists Creator of Each Maxims' Weight for Liking

Model	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	χ^2
Quality	0.484	0.069	7.010***	0.152	240.021***
Quantity	0.028	0.026	1.056	0.000	218.251***
Relation	0.219	0.028	7.924***	0.131	257.265***
Manner	0.303	0.030	9.973***	0.289	266.226***
Intent	0.568	0.038	15.123***	0.568	234.573***

Note. For each maxim, $df = 365$ for each t statistic and 43 for the chi square statistic. Intercept terms for each model are not reported, as these are incidental to the main question of interest. *** $p < .001$.

Table 21 shows the integrated level-1 model for attributed artist creators, in which only intent remains as a reliable predictor, swamping the effects of the other independent variables.

Table 21

Integrated Level-1 Model for Attributed Artist Creator: The Maxims' Weight in Liking Ratings of Images

Model	Coefficient	SE	<i>t</i>	Level-1 Explained Variance	χ^2
Intercept	22.375	2.591	8.635***		
Quality	0.065	0.044	1.455		
Quantity	-0.018	0.013	-1.361		
Relation	-0.010	0.021	-0.469		
Manner	0.033	0.023	1.472		
Intent	0.513	0.047	10.984***		
Integrated Model				0.549	243.495***

Note. For the intercept term and chi square statistic, $df = 43$; for each other predictor, $df = 358$. *** $p < .001$.

Study 2B: ANOVA

The HLM analyses reported above attempted to examine how the maxims and intent impact aesthetic liking for images attributed to animals, children, or professional artists.

An alternative analysis examines the data by testing for absolute differences in the liking scores given to different creator categories (attributed or real). Here, the Rasch scores were organized in the following way. First, as a pre-test the data were organized by actual creator (animal, child, or professional). Within each rater, Rasch scores for each construct were averaged across all ratings of images by a particular attributed creator. Thus, for each construct, the resulting dataset had three scores per rater, each representing the average rating of images by each attributed creator type. Each measure was separately analyzed. Recall that the goal of Study 2 was to vary creator type in an effort to shift the communication expectations of the viewer – the idea being that one would not expect an animal to communicate in the same way (if at all) than a artist or a child and that children would not communicate in the same way as an artist via the artwork itself. Therefore, a different type of relationship among the maxims and liking is expected using only the attributed creator.

Firstly, it was important to examine whether there were intent differences among the creator types. Again it was expected that participants would see the intent for an animal to communicate differently than a child or artist. To address this issue a one-way repeated measures ANOVA was conducted for both the attributed and real creator categories. For the attributed creator the effects of creator type on intention were not significant ($F(2, 84) = .503, p = \text{n.s.}$), and for actual creator it was marginally significant ($F(2, 84) = 2.707, p = .072$) None of the post-hoc tests were significant, however the trend was for the artists to have the higher intent scores ($M = 46.53, SD = 11.82$) than the children ($M = 43.02, SD = 114.24$) or animals ($M = 43.68, SD = 15.04$). Given the marginally significant finding obtained for the real as opposed to

the attributed creator type it is possible that the properties of the work itself cue the participants to treating it differently.

Although intention didn't shift significantly for this study's real or attributed creators, a null effect either indicates that the manipulation didn't work or the null effect is meaningful, in that people attempt to receive a communication from animals the same way they do for children and artist. It is plausible that this is a person trait variable; meaning, people approach art with the intent for it to communicate something but they do so in varying degrees. A median split was done to create a high or low intention score for each participant (animals: $MED = 44.22$; child: $MED = 46.26$; artist: $M = 47.54$). A series of mixed factorial ANOVAs were then performed with each maxim and liking as a dependent variable, and attributed creator type (animal, child, and artist; within-subjects) and intention (high vs low; between-subjects) as the independent variables.

Factorial Analyses of Each Maxim and Liking for Attributed Creator Types as a Function of Intent

The first 3 (creator type: animal, child, artist; within-subjects variable) $\times 2$ (level of intention: high, low; between-subjects variable) mixed factorial ANOVA was conducted for the maxim of Quality; the maxim that assesses the artists skill at conveying an idea. There was no a significant effect for creator type ($F(2, 82) = 0.713, p = \text{n.s.}$) or a creator type $\times$ intent interaction ($F(2, 82) = 0.159, p = \text{n.s.}$) but there was a significant main effect of intent ($F(1, 41) = 15.144, p < .001$) showing that those who were higher in intent gave higher Quality ratings ($M = 48.84, SE = .98$) than those low in intent ($M = 43.12, SE = 1.10$).

The second 3 (creator type: animal, child, artist; within-subjects variable) $\times 2$ (level of intention: high, low; between-subjects variable) mixed factorial analysis, when the maxim of

Quantity was the dependent measure showed no significant creator type effects, including the interaction (creator type main effect: $F(2, 82) = 0.050, p = \text{n.s.}$; intent main effect: $F(2, 82) = 0.416, p = \text{n.s.}$; creator type $\times$ intent interaction: $F(2, 82) = 0.359, p = \text{n.s.}$). Nor was there an effect of intent. The Quantity maxim is concerned with the amount of visual elements making up a composition. It is possible that intent levels can't shift the perception of the amount of elements that make a composition meaningful in the case of all three compositions being quite abstracted (see Appendix B).

The third 3 (creator type: animal, child, artist; within-subjects variable) $\times$ 2 (level of intention: high, low; between-subjects variable) mixed factorial ANOVA examined Relation as the dependent variable. For this analysis there was no significant creator type by intent interaction ($F(2, 82) = 1.538, p = \text{n.s.}$); however, there was a marginally significant main effect for creator type and a significant main effect of intent respectively ($F(2, 82) = 2.742, p = .075$; $F(2, 82) = 31.214, p < .001$). Again, post hoc Bonferonni tests show no significant pairwise comparisons but the trend is for the Relation scores to be higher for the artist ($M = 59.015, SE = 2.93$) than the other two groups (animal: $M = 51.015, SE = 2.833$; child: $M = 55.61, SE = 3.043$). The main effect of intention again shows that those high in intent saw the image as more relevant to their experience ($M = 67.297, SD = 2.872$) than those low in intent ($M = 43.155, SE = 3.228$).

The fourth 3 (creator type: animal, child, artist; within-subjects variable) $\times$ 2 (level of intention: high, low; between-subjects variable) mixed factorial mixed ANOVA examined Manner as the dependent variable. Manner is the maxim that asks about the overall structure of the composition. Again, we see no significant main effect of creator type ($F(2, 82) = 2.153, p = \text{n.s.}$) or interaction for creator type ($F(2, 82) = 0.924, p = \text{n.s.}$) but there is a significant main effect for intent ($F(2, 82) = 78.439, p < .001$). The effect is in the same direction; those who are

higher in intent show greater endorsement of the Manner maxim ($M = 67.297$, $SD = 2.872$) than those low in intent ($M = 67.297$, $SD = 2.872$).

The final 3 (creator type: animal, child, artist; within-subjects variable) $\times$ 2 (level of intention: high, low; between-subjects variable) mixed factorial mixed ANOVA examined Liking as the dependent variable. Again, we find no significant interaction ($F(2, 82) = 0.010$, $p = \text{n.s.}$) or main effect for creator type ($F(2, 82) = 0.804$, $p = \text{n.s.}$) but a significant main effect for intent ($F(2, 82) = 28.554$, $p < .001$). Those who are high in their intent scores show greater liking for the images (high: $M = 53.146$, $SD = 1.432$; low: $M = 41.634$, $SD = 1.61$).

In sum, for each maxim (Quality, Relation, Manner) except Quantity, and for Liking, there was a significant effect of intention with those who have a high level of intent (based on the average of the median ratings for each creator type) having higher Rasch scores than those low in level of intent. Relation was the only maxim that showed a marginally significant effect of creator type with artists trending in the direction of creating something perceived to be relevant to the viewers. Quantity showed a null effect possibly due to the abstracted nature of all the images, this ensured that the plausibility of being created by each category of makers was there.

CHAPTER 4

GENERAL DISCUSSION

The initial stages of this dissertation sought to develop a survey instrument designed to identify and define the multiple facets that form the construct of communication in the visual arts. The framework explored is the Gricean Intentionalist model of communication (Grice, 1975). This model clearly outlines the cooperative principle and the four maxims that are followed if that principle is met: quality, quantity, relation, and manner. The cooperative principle, as Grice defined it, is met when those involved in the verbal discourse agree to move the conversation forward. If interlocutors are cooperative, the adherence to or purposeful violation of the maxims allow for the construction of a speaker's meaning. A communication framework that allows for the influence of not only the specific words chosen but also the structure of what is being said in order to make meaning may model the way a viewer makes meaning in visual art; it's not only the specific elements in images but also the way they are composed or organized.

The model allows subsumation of concepts in the field related to aesthetic preference. The cooperative principle was operationalized in this study through our intent items. The operationalization of the maxims, as they apply to an art viewing scenario, was guided by the existing literature. The quality maxim, again which in verbal discourse represents truth, in art viewing is represented by items assessing the artist's skill in selecting an appropriate medium for representing ideas or emotions. There is literature that speaks to skill as a contributing factor in aesthetic liking (Howley-Dolan & Winner, 2011). The quantity maxim, the amount of information given in an utterance, was transferred to the visual interest or complexity in visual art. Again literature has shown the dislike for minimalist, abstract art (Knapp & Wuff, 1963) and

has also shown a preference for objects with a certain degree of complexity (Berlyne, 1963; Berlyne & Lawrence, 1964; Berlyne & Peckham, 1966; Berlyne et al., 1968). The maxim of relation, where one is adding relevant information to the flow of a discourse, is paralleled into depicting something that is relevant to a viewer's experience. The influence of personal relevance on aesthetic liking is represented in the literature as well (Landau et al., 2006). There is also a plethora of literature supporting the influence of visual rightness on aesthetic judgments (Carpenter & Graham, 1971; Latta et al., 2000; McManus et al., 1993; McManus & Kitson, 1995). In a communication framework manner relates to how something is said and how the spoken words are organized. Manner was assessed in the current project by asking participants to rate the organization of the image.

The survey went through several iterations using the Rasch technique to select the best fitting items for each construct (i.e., each maxim). The items were assessed by their ability to predict liking for images that ranged along a continuum of abstraction for those who were trained and not trained in the visual arts. All of the maxims significantly and robustly predict aesthetic liking, and so did intent. The coefficients were all positive, indicating that as high endorsements of the items representing each maxim increased so did liking. In the language of the model, we can infer that as the maxims were fulfilled, or a communication was received, individuals preferred the artwork. The maxims behaved in the same way for both artists and non-artists, and they mostly behaved similarly over the range of abstraction (except for quantity, which weighed more for images that becoming more representational).

After showing that maxims were significant predictors for liking for both groups we wanted to see if the two groups would endorse the maxims differently. Artists and non-artists showed similar ratings for all the maxims, intent, and liking for the most representational

artworks shown. However, when the four most abstract images were examined, significant differences in endorsing all four maxims and liking emerged, with the non-artists having lower ratings. This would be expected given the substantial literature documenting a general dislike for abstract art for those who have no training in the visual arts, in contrast to those who are trained in visual art, who tend to have an appreciation for abstract art.

Two interesting points are to be made here. The first is that the artists and non-artist showed no differences in their intent responses. Again, viewing intent from a communication framework as synonymous with the cooperative principle indicates that viewers look at art as a cooperative exchange with an artist where they want and expect a meaning to be conveyed. The second is that the dislike of abstract art by non-artist can be interpreted as a result of the inability for them to make meaning, to receive a clear communication from an artist due to the lack of sharing a common ground with the discipline.

These findings suggest several possible routes for future research. One interesting avenue would be to examine how different subgroups of art-trained individuals respond to the survey. For instance, would practicing artists differ in their responses from art historians and how would both groups differ from non-trained individuals. Furthermore would art historians differ from each other given their time period/style specialties?

Another potential direction would be to use structural equation modeling to look at how the weighting of each maxim may shift for the different styles of art. With the technique of hierarchical linear modeling we could only examine if each factor predicted liking, in what direction it weighted in the decision, and if the behavior shifted in the decision of liking for the range of abstraction. It would be worthwhile to investigate the relative weighting of each maxim in the decision of liking or not for the images that vary in degree of abstractedness.

The goal of the final study was to examine how manipulating intent through the cooperative principle would affect the role of each maxim in predicting liking. If one varies the expectation for artwork to communicate, that is, for the ability of the cooperative principle to be met, how would the maxims behave in terms of their relation to aesthetic liking? To do this images that were created by animals, children, and professional artists were gathered and shown to participants with no training in the visual arts. The individual, non-integrated, HLM analyses for the attributed animal and attributed artist creator types showed the maxims, except quantity and intent, were significant predictors of liking; for the attributed child creator quantity was a significant predictor of liking as well. The maxims held differently in the integrated models; depending on attributed creator type; most predictors dropped out, though intent often remained. The maxim of quantity being either not a significant predictor, or in the case of the attributed child holding a negative coefficient, might just be a result of the images selected. The images created by the animals had to be abstract. The necessity for the images to be perceived as plausible for any of the creator types ensured that images selected created by the children and artists had to be highly abstract as well. The results of Experiment 1C showed quantity to be a significant predictor of liking for both the artists and non-artists but when examining the predictive power of the items over a range of abstraction we saw that quantity behaved differently depending on that level. Quantity mattered more when images became more representational. Due to restriction of range, it is therefore not surprising that this variable was either not significant or not in the predicted direction for this study. It is also possible that although images were pilot tested for their level of liking and plausibility they were not equivalent in their degree of complexity or interestingness; the question can be asked if there are

equivalent images to be found. Can the complexity of an animal match that of a professional artist? And if so, is that professional work ‘not that good?’

Given the intent variable maintained its integrity as a predictor for liking and considering a priori reasoning that the cooperative principle would be met differently for the different creator types, the intent variable was treated as a between-subjects variable in several factorial analyses. Participants showed variation in their level of endorsement for intent and were split into those who are high in intent and low in intent. It is noteworthy that individuals who ranked high in intent appeared in all three creator categories; raters wanted to engage in meaning making cooperatively with animals, children, and professional artists alike. This finding along with similarities for those who vary in expertise on their ratings of intent suggests the cooperative principle is met when viewing art, quite possible prior to engagement of maxim fulfillment.

There were several limitations in the final study that could be addressed in future work. Due to needing stimuli that was plausibly created by all creator types we selected images made by all three creator types; however, because the actual creator differences were not of primary interest, future work might better refine the choice of stimuli. There was also a rather small sample size. To rectify this issue we could choose images from one creator type, obtain plausibility ratings from a larger sample, and then vary the attributed creator. Another possible future direction would be to have all computer generated images and tell participants a human created them with the computer or the computer generated the images randomly. By shifting the creator I would hope to alter the fulfillment of the intent factor which guides the use of the maxims in meaning construction and thus to better examine the Gricean dynamic in art.

It is clear from the already existing literature that meaning construction matters for aesthetic liking (Dissanayake, 1988; Donald, 1991, Humphrey, 1999; Landau et al., 2006; Lewis-

Williams, 2002; Ramachandran & Hirstein, 1999; Rank, 1936/1968; Russel, 2003) and it is worthwhile to attempt an understanding of this process. Although others have argued that meaning making is a way to ward off existential angst (Landau et al., 2006), it could also be argued that meaning making is a consequence of communication. To have evolved within social structures it was an adaptive challenge, one instrumental to survival to discern what another human meant with gestures, images, and vocalizations. It may be the case that we automatically begin the meaning construction process when we encounter art objects due to their connection to human experience.

Additional further research could examine if making participants' aware of their opinions on artist intent would change the way they responded to the maxims. This would be done by asking about the intent items either before responding to the remaining items or asking them at the end of the survey; intent item placement as a variable could say something about how awareness affects art viewing and meaning making.

Significance of Research Findings

Pursuing this method of carefully measuring each Gricean maxim as it pertains to communication in visual art and using these as a basis for understanding their respective contributions to aesthetic experiences, judgments, and preferences across a range of individual differences and categories of artistic stimuli seems to be a potentially very fruitful direction – and as yet, one which is almost completely unexplored by researchers. Ideally, a rich set of findings would lead to the development of the Intentionalist model, framed for art viewing, as a viable theory of art appreciation. If art is communicative, then in principle we can apply the Intentionalist model and the Gricean maxims to art viewing. In art, as in language, the fulfillment of the principles of the Gricean maxims makes meaning construction possible.

Appendix A – The 20 Images Used in Study One

Image 509

Camille Pissarro

The Path to Les Pouilleux, Pontoise, 1881

Los Angeles County Museum of Art

Image 637

Lyonel Feininger

The Market Church at Halle, 1930

Pinakothek der Moderne, Bayerische Staatsgemäldesammlungen, Munich

Image 259

Robert Mangold
Four Squares Within a Square #3, 1974
Albright-Knox Art Gallery, Buffalo

Image 280

Franz Kline
Orange and Black Wall
Museo Thyssen-Bornemisza, Madrid

Image 136

Jay DeFeo
Incision, 1958-1961
San Francisco Museum of Modern Art (SFMOMA)

Image 987

Édouard Vuillard
Suburb, ca. 1900
Browse & Darby

Image 395

Gino Severini
The Candy Seller (Avenue Trudaine), 1908
Private Collection

Image 243

Richard Prince
Nurse in Hollywood #3, 2004
Gagosian Gallery

Image 736

Zhang Xiaogang
Boy, 2007
Pace Gallery

Image 642

Theaster Gates
Painting Black People, 2012
 White Cube

Image 718

Robert Bechtle
'71 Caprice, 1973
 John Berggruen Gallery

Image 552

Allison Green
Life, 2013
Susan Eley Fine Art

Image 778

Alfred H. Maurer
Flowers: With Two Leaves, 1928
Hollis Taggart Galleries

Image 107

Elaine de Kooning
#1, ca. 1955
Dorian Grey

Image 660

Richard Estes

Six Views of Edo: Shinjuko III, 1989

Louis K. Meisel Gallery

Image 305

Jacques Villon

Le coquillage, 1933

Francis M. Naumann Fine Art

Image 370

Georges Mathieu
First Avenue, 1957
Albright-Knox Art Gallery, Buffalo

Image 321

Jake & Dinos Chapman
One Day You Will No Longer Be Loved I, 2008
White Cube

Image 902

Ad Reinhardt
Abstract Painting, Blue, 1952
MOCA, Los Angeles

Image 766

Oskar Schlemmer
Vier Frauen (Four Women), 1935
Galerie Thomas

Appendix B – Images for Study Two

Animal Images

Child Images

Computer Generated Images

Professional Artist Images

Appendix C – Participant Instructions for all iterations of the Artistic Communication Survey

Researcher use only

Participant Number _____

Participant Instructions:

We are asking that you view each image (20 total), and respond to the survey items listed below. Each image is a painting. You may take as much time as you need with each image to interpret and respond to the survey items. Feel free to ask any questions you'd like, however you can just respond to the survey items in a way that is meaningful for you. There are no right or wrong answers, so please just answer honestly. Please leave the image being referred to on the screen until you've answered all the survey items, then you may press the down arrow key to view the next image. Please put the image number on the top of each page, in the space provided. The scale ranges from 0 to 5, with 0 meaning 'Not at all' and 5 meaning "Extremely".

Appendix D – 62-Item Artistic Communication Survey

Image Number _____

0 1 2 3 4 5	To what extent is this picture interesting?
0 1 2 3 4 5	To what extent is this picture visually complex?
0 1 2 3 4 5	To what extent does this picture have enough visual elements?
0 1 2 3 4 5	To what extent does this picture have sufficient variability of visual elements or marks?
0 1 2 3 4 5	To what extent does this picture have the necessary amount of negative space?
0 1 2 3 4 5	To what extent does this picture appear flat?
0 1 2 3 4 5	To what extent does this picture seem uncluttered?
0 1 2 3 4 5	To what extent does this picture keep your interest?
0 1 2 3 4 5	To what extent do you think there is nothing important missing from this picture?
0 1 2 3 4 5	To what extent are there elements in the picture that you wish were enhanced?
0 1 2 3 4 5	To what extent do you think the artist created a picture of the right level of visual complexity?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to create a picture whose level of visual complexity would communicate appropriate to you?
0 1 2 3 4 5	To what extent does the artist show evidence of skill in this picture?
0 1 2 3 4 5	To what extent are the symbols used by the artist in this picture familiar to you?
0 1 2 3 4 5	To what extent can you recognize the symbolism in this picture?
0 1 2 3 4 5	To what extent is it clear what the artist is trying to depict?
0 1 2 3 4 5	To what extent is this an accurate portrayal of an emotional state?
0 1 2 3 4 5	To what extent does the artist seem knowledgeable about the subject of the picture?
0 1 2 3 4 5	To what extent do you think the artist is knowledgeable about the materials used in the picture?
0 1 2 3 4 5	To what extent would the intention of the artist be clearer if the artist had used different materials?
0 1 2 3 4 5	To what extent do you think the artist was emotionally invested in this picture?
0 1 2 3 4 5	To what extent do you think the artist put effort into working on this picture?

0 1 2 3 4 5	To what extent do you think the artist successfully used his or her skill to convey a message?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to use his or her skill to convey a message?
0 1 2 3 4 5	To what extent can you relate to what is depicted in the picture?
0 1 2 3 4 5	To what extent does this picture speak to your personal experience?
0 1 2 3 4 5	To what extent does this work speak to the state of the world?
0 1 2 3 4 5	To what extent does this work represent societal issues?
0 1 2 3 4 5	To what extent does the message of the picture seem important?
0 1 2 3 4 5	To what extent would this work appeal to people 1,000 years from now?
0 1 2 3 4 5	To what extent would this work appeal to people 1,000 years ago?
0 1 2 3 4 5	To what extent would you consider this work to be pertinent to you?
0 1 2 3 4 5	To what extent do you feel connected to the artist's experience?
0 1 2 3 4 5	To what extent do you <i>want</i> to feel connected to the artist's experience?
0 1 2 3 4 5	To what extent is this picture relevant to you?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> this picture to be seen as relevant to you?
0 1 2 3 4 5	To what extent does the meaning of this picture seem obscure?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> the meaning of this picture be obscure?
0 1 2 3 4 5	To what extent does this picture seem visually well organized?
0 1 2 3 4 5	How well did the artist arrange the elements of the picture?
0 1 2 3 4 5	To what extent does the picture seem balanced?
0 1 2 3 4 5	To what extent are the elements easy to absorb?
0 1 2 3 4 5	To what extent is the picture understandable?
0 1 2 3 4 5	To what extent are the elements of the picture clearly connected to each other or to the whole picture?
0 1 2 3 4 5	To what extent is it easy to absorb the whole image?
0 1 2 3 4 5	To what extent could you summarize the meaning of the picture?

0 1 2 3 4 5	To what extent could you summarize the emotions shown in the picture?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> the picture to be understandable?
0 1 2 3 4 5	To what extent does the picture make you <i>want</i> to understand it?
0 1 2 3 4 5	To what extent were you able to make meaning from the picture?
0 1 2 3 4 5	To what extent does the picture make you <i>want</i> to make meaning from the picture?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to depict something relevant to you?
0 1 2 3 4 5	To what extent do you <i>want</i> artists to depict something relevant to you?
0 1 2 3 4 5	How much do you like this image?
0 1 2 3 4 5	How much would you like to see this image hanging in your home?
0 1 2 3 4 5	To what extent do you find this image to be pleasing?
0 1 2 3 4 5	To what extent do you feel any emotions when viewing this image?
0 1 2 3 4 5	To what extent are these emotions positive?
0 1 2 3 4 5	To what extent are these emotions negative?
0 1 2 3 4 5	To what extent do you think this image is of high artistic quality?
0 1 2 3 4 5	To what extent is this particular image familiar to you?
0 1 2 3 4 5	To what extent is this particular artistic style recognizable to you?

Appendix E – Second Iteration of Communication Survey (33 items)

Image Number _____

0 1 2 3 4 5	To what extent is this picture interesting?
0 1 2 3 4 5	To what extent does this picture have enough visual elements?
0 1 2 3 4 5	To what extent does this picture have sufficient variability of visual elements or marks?
0 1 2 3 4 5	To what extent does this picture keep your interest?
0 1 2 3 4 5	To what extent do you think the artist created a picture of the right level of visual complexity?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to create a picture whose level of visual complexity would communicate appropriate to you?
0 1 2 3 4 5	To what extent does the artist seem knowledgeable about the subject of the picture?
0 1 2 3 4 5	To what extent do you think the artist is knowledgeable about the materials used in the picture?
0 1 2 3 4 5	To what extent do you think the artist was emotionally invested in this picture?
0 1 2 3 4 5	To what extent do you think the artist put effort into working on this picture?
0 1 2 3 4 5	To what extent do you think the artist successfully used his or her skill to convey a message?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to use his or her skill to convey a message?
0 1 2 3 4 5	To what extent can you relate to what is depicted in the picture?
0 1 2 3 4 5	To what extent does this picture speak to your personal experience?
0 1 2 3 4 5	To what extent would you consider this work to be pertinent to you?
0 1 2 3 4 5	To what extent do you feel connected to the artist's experience?
0 1 2 3 4 5	To what extent is this picture relevant to you?
0 1 2 3 4 5	To what extent does this picture seem visually well organized?
0 1 2 3 4 5	How well did the artist arrange the elements of the picture?
0 1 2 3 4 5	To what extent does the picture seem balanced?
0 1 2 3 4 5	To what extent are the elements easy to absorb?
0 1 2 3 4 5	To what extent are the elements of the picture clearly connected to each other or to the whole

	picture?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> the picture to be understandable?
0 1 2 3 4 5	To what extent does the picture make you <i>want</i> to understand it?
0 1 2 3 4 5	To what extent were you able to make meaning from the picture?
0 1 2 3 4 5	To what extent does the picture make you <i>want</i> to make meaning from the picture?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to depict something relevant to you?
0 1 2 3 4 5	To what extent do you <i>want</i> artists to depict something relevant to you?
0 1 2 3 4 5	How much do you like this image?
0 1 2 3 4 5	How much would you like to see this image hanging in your home?
0 1 2 3 4 5	To what extent do you find this image to be pleasing?
0 1 2 3 4 5	To what extent are these emotions positive?
0 1 2 3 4 5	To what extent do you think this image is of high artistic quality?

Appendix F – Third Iteration of Survey (17 items)

Image Number _____

0 1 2 3 4 5	To what extent does this picture keep your interest?
0 1 2 3 4 5	To what extent do you think the artist created a picture of the right level of visual complexity?
0 1 2 3 4 5	To what extent do you think the artist is knowledgeable about the materials used in the picture?
0 1 2 3 4 5	To what extent do you think the artist successfully used his or her skill to convey a message?
0 1 2 3 4 5	To what extent can you relate to what is depicted in the picture?
0 1 2 3 4 5	To what extent would you consider this work to be pertinent to you?
0 1 2 3 4 5	To what extent does this picture seem visually well organized?
0 1 2 3 4 5	How well did the artist arrange the elements of the picture?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> the picture to be understandable?
0 1 2 3 4 5	To what extent does the picture make you <i>want</i> to understand it?
0 1 2 3 4 5	To what extent were you able to make meaning from the picture?
0 1 2 3 4 5	To what extent does the picture make you <i>want</i> to make meaning from the picture?
0 1 2 3 4 5	To what extent do you think the artist <i>intended</i> to depict something relevant to you?
0 1 2 3 4 5	To what extent do you <i>want</i> artists to depict something relevant to you?
0 1 2 3 4 5	How much do you like this image?
0 1 2 3 4 5	How much would you like to see this image hanging in your home?
0 1 2 3 4 5	To what extent do you find this image to be pleasing?

Appendix G – Demographic Information

Demographic Information:

Gender M / F

Age _____

Do you have any art training Y / N

Formal (i.e. art school) Y / N

If **yes** what type? _____

Formal or informal, how many years? _____

Please Circle:

If you are a practicing artist, on average how often/much do you produce?

Multiple pieces a day A piece per day A piece every few days

A piece per week A piece every other week A piece a month

A piece very few months A piece twice a year A piece a year Less often

If you are an art historian, how often are you involved actively in the field?

A little Somewhat Quite a bit Extensively

How often, on average, do you visit museums?

Every week Every other week Once a month Once every few months

Once every 6 months Once a year Only when there are special exhibits

Other _____

Do you have a favorite museum? Y/N

If so, which? _____

Do you work or have every worked for a museum (internship included)? Y/N

If so, in what capacity? _____

and for how long? _____

Who is your favorite artist? _____

Any additional comments (please use the back of this sheet):

Appendix I - Plausibility Survey

Researcher use only

Participant Number _____

Participant Instructions:

We are asking that you view some images on the computer, one at a time, and rate each image on how likely each image plausibly could have been created by one of four kinds of creators: **an animal, a child, a computer program, or a professional artist**. Don't worry about who *actually* created each image. We are just interested in how likely you think it is that each kind of creator *could have* created each image.

Each image has an ID number. Please put the image number in the space provided on the survey. As you work, please keep the image on the screen while you fill out the survey for that image. Please complete the survey for each image before moving on to the next image. You may take as much time as you need to complete the survey. The survey questions are all on a scale ranging from 0 to 5, with 0 meaning "Not at all" and 5 meaning "Very much".

Note that when you complete the survey questions about plausibility, each question should be answered independently of the other questions. In other words, you might think that some images might plausibly have been created by all four creator types; in that case, you should give high ratings to all of those questions. Other images might only have plausibly been created by a few of the creator types; in that case, you should give high ratings to those types and a low rating to the remaining type(s).

For each image, there are also a few additional questions on how much you like each image, complexity, etc. Please be sure to answer these as well.

If you have questions at any point in the session, feel free to ask.

Image Number _____

0 1 2 3 4 5	How plausible is it that this image was created by an animal?
0 1 2 3 4 5	How plausible is it that this image was created by a child?
0 1 2 3 4 5	How plausible is it that this image was created by a computer program?
0 1 2 3 4 5	How plausible is it that this image was created by a professional artist?
0 1 2 3 4 5	Rate how much you like this image.
0 1 2 3 4 5	Rate the visual complexity of this image.

0 1 2 3 4 5	Rate how interesting you think this image is.
0 1 2 3 4 5	Rate the creativity of this image.
0 1 2 3 4 5	Rate the artistic quality of this image.

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