1 What Is Art?

1.1 Introduction

The title of this Element, *The Biology of Art*, raises two questions: *What* is the biology of art? *Why* a biology of art? The next four sections are largely an answer to the first question. The answer to the second question, asking for justification of a biology of art, will obviously depend partly on the answer to the first. We might begin to answer, though, by noting the spectacular success of science in general, and of biology in particular. If through biological investigation, for instance, we can understand and cure diseases, why not use similar methods to understand art? Skeptics might answer, however, that art consists of cultural practices and traditions grounded on a conceptual background and can therefore only be explained using the resources of philosophy, art history, cultural anthropology and related disciplines. To see if this sort of skepticism is justified, we need to look at a full development of the biological approach. Only then will we see the range and depth of its explanatory power.

1.2 Defining *Art*

But first, what is art? If we are going to give a biological account of *art*, we need to have some idea of what it is that we are explaining. We might take this question to be asking only for a definition of the term "art" when we say that some object or activity is a work of art. Such a definition would then just be telling us how that term is used. But if that is all we are after, a good dictionary will answer our question and this inquiry will be done. Instead, we might be asking about the idea or concept of *art* that lies behind the use of the term "art," and that *best* reflects, clarifies and organizes our thinking and practices. If this is our project, to answer the question "what is *art*?" we could adopt a method with a long history, Plato's "elenchus," which begins an inquiry with a definition of an idea or a concept, and then tests that definition by its application to the world. In his *Republic*, for instance, Plato asks the question "what is justice?" and then addresses a variety of answers. Each answer – some definition of justice – is tested by its application to the world. If a definition implies incorrectly that some truly unjust actions are just, or that some truly just actions are unjust, then that definition is modified to accommodate these counterexamples. The new definition is then tested to find counterexamples. This process is repeated until the true, clarified definition is found.

Using this method to arrive at a satisfactory definition of *art* (as idea or concept), we start with some definition, then apply that definition to see if it correctly identifies all and only those things that are truly works of art. If it

doesn't, we revise the definition to better identify works of art. The history of philosophical thinking about art is filled with what could be regarded as definitions in this sense. We can begin with the idea of *mimesis*, usually understood as imitation or representation, developed by Plato in books 2, 3 and 10 of his *Republic* (Plato 1997) (Janaway 2002), and by Aristotle in his *Poetics* (Aristotle 1987, 1448b6). In drama, for instance, an actor imitates the actions or emotions of another person, and the plot of the play represents events. But as a definition of art in the modern sense, this will not do. Not all things that seem to be art engage in this kind of imitation or representation. Abstract paintings and instrumental music are just two obvious counterexamples.

Perhaps the distinctive functioning of art is not to imitate or to represent, but to produce a certain kind of pleasure. After all, we enjoy listening to music, looking at paintings, reading poetry and watching drama. This view, typically attributed to David Hume (Goldman 2012), is not all wrong, but it is easy to find counterexamples. Some plays and films are disturbing, and instead generate anxiety, angst or even disgust. Nonetheless, they still seem to be legitimate instances of art.

We might instead associate art with imagination. Immanuel Kant identified the experience of art with the stimulation of the disinterested, harmonious free play of the imagination and understanding (Kant 1978; Schellekens 2012). Kendall Walton (1990) has more recently identified a distinctive role for the imagination in art, as the foundation for make-believe. But as in the case of mimesis and pleasure, some commonly accepted instances of art seem to be counterexamples. It isn't clear that Bach's concertos stimulate the imagination, at least in the way a landscape painting might.

Perhaps instead we should conceive of *art* as expression. According to Leo Tolstoy (1899), true art expresses the artist's emotion, and then stimulates that same emotion in the audience. Benedetto Croce (1938) and R. G. Collingwood (1945) have argued for similar, but less personal accounts of expression, in that the emotion expressed need not be an emotion actually experienced by the artist (Kemp 2012). While some art (music in particular) is clearly expressive in some fashion or other, it isn't clear that *all* art is expressive in these ways. Piet Mondrian's geometric paintings, for instance, don't seem expressive in the sense advocated by Tolstoy, Croce and Collingwood.

Perhaps art should instead be understood as the production of a distinctly aesthetic experience. The function of a painting might be to give an aesthetic visual experience, and the function of music might be to give an aesthetic aural experience. Clive Bell (1914) postulated a distinctive aesthetic emotion, stimulated by "significant form," based on the formal qualities of an artwork such as

the color, line and composition of a painting. Monroe Beardsley (1982), like Bell, started with the idea that art seems to stimulate the senses in distinctive ways. We often have distinctive perceptual experiences when we experience art that we don't seem to have otherwise. But here, as with other theories of art, there are apparent counterexamples. Duchamp's "readymades" – his snow shovel, bottle rack and urinal – don't obviously stimulate these aesthetic experiences in the ways suggested, yet they are now typically regarded as art.

1.3 Procedural Criteria

The distinctive features of art identified in the theories just surveyed can broadly be described as *functional*, in the sense that art is identified with the particular (and valuable) things it can do. But we might instead identify art by how it is produced. Stephen Davies calls these "procedural" definitions of art, and distinguishes them from the functional (S. Davies 1991, 2002). On this approach an object can be a work of art by virtue of being created within a particular art tradition or institution. A new ballet produced by the Bolshoi ballet company, for instance, will be a ballet because it is produced by a *ballet* institution, and within the *ballet* tradition. More generally, it will be *art* on the same grounds – the history of the Bolshoi ballet institution in producing ballet instances of art. Arthur Danto and George Dickie advocate these sorts of procedural criteria for identifying art. In their terms, for something to count as *art*, it must be a product of the "artworld." For Danto (1964), the emphasis is on art theory and the historical tradition. (See also Levinson 1979, 2002, and N. Carroll 1988, 1990.) For Dickie (1974), the emphasis is on the role of institutions and established practices in doing things.

As with the other criteria, this approach captures something important about what counts as *art* – the social and historical context in which it is produced. But also, as with the other criteria, there seem to be counterexamples. Prehistoric cave paintings may look like art and function like art in producing pleasure or an aesthetic experience, but the first cave paintings could not possibly have been produced as part of an art tradition or through an art institution. There were none. Therefore they cannot be art in a straightforward procedural way. But even if the traditions and institutions are important to the modern practice of art, do we really want to say that *in principle* no one can ever have produced art except within an established art tradition or institutional context? We might agree here with Stephen Davies (2015), who thinks an adequate definition of art must account for the cases of things that look like art – cave paintings, for instance – but that weren't produced within an art tradition or institution. Otherwise, if we don't know about the relevant art tradition or institutional

context, as in the case of much prehistoric cave art, we simply cannot know whether something is a work of art or not. This is surely problematic.

These procedural approaches must also confront two related problems. First, they push questions about the definition of art back to the questions "what makes a tradition an *art* tradition?" and "what makes an institution an *art* institution?" If we need to know whether something is a product of an *art* tradition or institution to identify it as art, we need to know what makes something that kind of tradition or institution, and not some other kind of tradition or institution. How, for instance, do we distinguish *art* traditions and institutions from *craft* traditions or institutions? Perhaps we can identify something as an *art* tradition or institution *only* because we have some prior way of identifying something as a work of art (Stecker 1996)!

Second is the *artworld relativity* problem. If there are multiple artworlds – multiple art traditions, institutions and practices – then one artworld might regard something as a work of art, while another might not (S. Davies 2002, 174–175). This might be the case with some of the more controversial instances of recent art, Duchamp's readymade "Fountain" urinal, for instance. Elite traditions, institutions and practices might treat it as art, whereas folk traditions, institutions and practices might not. And contemporary artworlds might regard it as art, whereas 18th-century artworlds may not. We might be tempted to understand our own preferred artworld as authoritative, but it isn't obvious why we should. While these problems may not necessarily refute procedural approaches, they do present serious worries.

Perhaps a hybrid approach that combines functional and procedural criteria can avoid some of these problems with the simple procedural and functional criteria. Stephen Davies argues that there is more than one way something can qualify as art: a) if it exhibits skill in serving some aesthetic goal; b) if it falls under an art genre or form within a recognized art tradition; or c) if it is intended by its maker to be art, who does what is appropriate and necessary within the historical context to realize that intention (S. Davies 2015, 377–378; see also Stecker 1997). This solves one problem in that it may better reflect our intuitions that some works produced outside of art traditions and institutions, such as the first cave paintings, really can be art, but that art traditions and institutions also sometimes play a role in establishing what counts as art. But since none of these conditions is necessary for something to count as art, we might conclude that there are then three kinds of art, each satisfying one of the criteria – art as aesthetic object, art as tradition and art as intentional action. If so, there is no single thing that is *art*.

1.4 Classical versus Cluster Definitions

A careful evaluation of these claims about the defining features of art is beyond the scope of this Element. It may be that some of the counterexamples can be explained away, or that some definitions can be refined to avoid some of the problems. But what this brief survey seems to reveal is that while there are functional features that are distinctive of some art, those features are also lacking in other recognized instances of art. Therefore these features cannot be *necessary* for something to be art. It cannot be that art *must* represent something, express an emotion, produce pleasure, stimulate the imagination or produce an aesthetic experience. Moreover, these features don't seem *sufficient* to make something art. Mere representation doesn't make something art, as some road signs make clear. Nor does mere expression make something art, as crying, laughing and cursing are all expressive. And production of an aesthetic experience is also insufficient in that an aesthetic experience might be produced by a beautiful person, a colorful flower or bird, a landscape, an automobile or a piece of driftwood.

The procedural criteria faces similar problems. If it is at least plausible to argue that the first cave art is still art, even though there were no art traditions or art institutions at the time, then the procedures based on tradition and institution cannot be *necessary.* And if it is at least plausible to argue that some action or object produced within an art tradition, or with the approval of an art institution, is not actually art, then the procedures don't seem sufficient. We might doubt that Duchamp's readymades really are art, even though they are institutionally regarded as works of art. Do we really want to say that anything is art *solely* because it is called "art" by some art institution or authority? As important as the traditions and institutions may be, there are legitimate worries that they can provide necessary and sufficient conditions for being a work of art.

But perhaps we should think about defining art not in terms of necessary and sufficient conditions but as a cluster of conditions. Dennis Dutton (2010) has argued that there is no set of necessary and sufficient conditions. Instead there are 12 *relevant* criteria associated with art and the production and experience of art: 1) art produces pleasure; 2) art exhibits skill and virtuosity; 3) art exhibits style; 4) art exhibits novelty and creativity; 5) art has a tradition of criticism; 6) art involves representation; 7) art has special focus; 8) art is expressive individuality; 9) art has emotional saturation; 10) art presents intellectual challenge; 11) art has traditions and institutions; 12) art involves imaginative experience (Dutton 2010, 59). On this approach, something is art if it has a sufficient subset of these features. And different subsets may do the job. Something might only have criteria 2, 3, 4, 8 and 11, for instance, and still be a work of art. Or it might

have criteria 1, 5, 7 and 9. This cluster approach seems to avoid the obvious problem that no set of defining conditions seems really necessary or sufficient. Perhaps *art* is just one of those fuzzy categories that cannot be neatly defined in this way.

While there is something attractive about this cluster approach, it cannot obviously answer some questions. First, how and why should we come up with precisely that list? Each art object has other properties or features that might be relevant. For instance, paintings are physical objects. Why not include "art is a physical object" on the list? Dutton doesn't say how this list is generated, other than it is "what we already know about the arts." Second, how many of the 12 features must be present for something to be a work of art? Five? Seven? Nine? And on what grounds do we say that a particular subset of these criteria is sufficient? Dutton admits there is no formula for deciding, but seems to think that this is nonetheless a useful guide for identifying central cases and assessing marginal cases (Dutton 2010, 60–62). Third, are some of these features more important than others? Are novelty and creativity more important than skill? The cluster approach may reflect our intuitions, but it cannot be the final word. It leaves too many questions unanswered.

1.5 Theoretical Problems

The failure so far of the functional and procedural art criteria is practical, in that they cannot be applied to pick out all and only true works of art. But there are also theoretical reasons why these art criteria might fail to give us an adequate definition. First, as Paul Kristeller noted in a widely cited article from 1951, the modern way of classifying things as *art* seems to have its origin in 18th-century European thinking. According to Kristeller, the "modern system of the arts" has at its nucleus the five major arts – painting, sculpture, architecture, music and poetry – and sometimes includes gardening, engraving, the decorative arts, dance theatre and opera. But before the 18th century, there was no tradition of grouping these arts together into a single kind of unified activity, and comparing them on the basis of common principles – treating them all as instances of *art*. Rather each of the arts was conceived independently with most of the discussion about technical principles in practicing that art. We see this clearly in Aristotle's *Poetics*, which at its core seems to be a discussion of the technical principles governing poetry. Moreover, the term "art" itself may be traced back to the Greek term "techne" and its Latin equivalent, "ars," both applied to all kinds of activities, including those we would now think of as crafts and sciences, and referring to the techniques or methods of doing these things (Kristeller 1951, 479–498).

The grouping of these activities that later came to be seen as art in the modern sense varied over time. At one time, according to Kristeller, music was a category that included poetry, with dance just as an element of poetry. Sometimes music was combined with math, geometry or astronomy. The visual arts only came to be included with the other arts (in the modern sense) at the end of the 14th century, while the sciences were only becoming divorced from the arts in the 17th century (Kristeller 1951, 501–525).

The point here is that our thinking about what we now call "art" is a relatively new way of thinking. Perhaps we shouldn't assume that there is some static, unchanging concept *art*, and some static, unchanging set of things that we can identify as works of *art*, and against which we can test our definitions. What counts as *art* at one time may not count as so at other times. If so, at what time should we take the *art* classification to be authoritative? Should we adopt the 1951 classification in Kristeller's analysis? Or should we adopt a 21st-century classification? At minimum, this suggests that when we ask what art is, we need to index it to a particular time. And any definition of the term or concept will *at best* be limited to a particular time.

Moreover, if we recognize that art practices are embedded in culture, then it is not clear there is a single cross-cultural thing *art.* Cultural anthropologist Clifford Geertz argues that cultural practices are based on cultural meanings, and that because each culture interprets the world differently, and understands its practices differently, the so-called arts of various cultures are not the same kind of thing (Geertz 1976, 1475–1476). The colorful and highly decorated Abelam yam masks, for instance, function in competitive exchange, harvest ceremonies and festivals, and are imbued with spiritual meanings (Scaglion 1993). The colorful Impressionist paintings in Europe and the United States, on the other hand, function within a system of art museums and commercially produced posters. This suggests that on cultural grounds there can be no single, universal thing *art.* If so, the definition project seems to fail.

1.6 Theory and Art

So far, the functional and procedural approaches have been superficial, in that they have focused on the obvious and manifest ways that artworks do things and function, and on the ways that they become artworks. It is obvious that drama often represents. We can just *see* the representation in plays. It is obvious that music often expresses. We can just *hear* the expression in music. And it is obvious that Impressionist paintings produce aesthetic experiences. We can just *see* the Impressionistic visual effects. It is also obvious that certain institutions call some things art, and not others, and have done so within art traditions.

The approaches outlined here are also naturalistic and empirical in the broad sense that they generally do not appeal to supernatural entities or processes, and are based on observation (looking at plays and paintings and listening to music). This is an approach that Francis Bacon might have advocated. He is famous (or infamous) for arguing that the correct approach to the inquiry into nature starts with observation unsullied by theory. We can go wrong in our inquiries, according to Bacon, by relying on the theories and dogmas of the past – what he called the "Idols of the Theatre" (Bacon 1960, Bk. I, XLIV). To avoid this bias, we should just look at the world, without assumption of any theory at all, classify what we observe, and then generalize. An investigation of the nature of heat, to take one of Bacon's examples, should begin by observing all things that have heat, and contrasting them with those things that lack heat. Bacon illustrated this approach by identifying 28 instances of heat, including the sun's rays, reflected sun's rays, flaming meteors, lightning, any flame and heated or boiling things (Bacon 1960, Bk. II).

Anyone who knows modern scientific thinking about heat will also know that Bacon's atheoretical approach did not win the day. Heat, as it is now conceived, is in terms of the average kinetic energy of particles, and cannot just be observed in the world. We could look at a lot of hot things and never generalize to some law about average kinetic energy, because we cannot simply and directly observe either the particles in motion or the average kinetic energy of these particles in the way we can observe temperature by looking at a thermometer. To understand heat phenomena, it is necessary to start with a theory – in this case the kinetic energy theory. Perhaps to understand art we need to do more than just observe artworks and activities, and then classify and generalize in the Baconian mode. Perhaps we need to start with some theory.

We can understand this theoretical approach by analogy with modern chemistry. We could begin to define *water*, for instance, by its manifest, exhibited properties. It is clear and transparent. It is wet. It satisfies thirst. It cleans things. It falls from the sky. It bubbles up from the ground. It is a solid when cold, and a gas when heated. But modern chemistry tells us that these exhibited traits are not what is crucial. What is crucial is molecular composition: Water is H_2O – one oxygen atom bound to two hydrogen atoms. Can *art* be given a similar theoretical definition? To answer this, we simply need to try. And we begin with a fully "naturalistic" approach.

1.7 Naturalism

Recently there has been an extensive debate about the nature and justification of naturalism in philosophy. While there are many versions of naturalism, often it

is divided into two sets of commitments: metaphysical or ontological – about what exists – and methodological – about the best method for explaining phenomena. On the first, ontological commitment, naturalists, at a minimum, deny the existence of supernatural entities and processes. On the second, methodological commitment, naturalists tend to give special authority to scientific methods (Papineau 2015; Clark 2016). On one naturalistic approach, what we might call "scientific naturalism," philosophy should begin with what the best scientific theories tell us about the world (Clark 2016, 3–5). If so, we will then be relying on the substance of the science – what entities and processes it uses to explain phenomena – and scientific methods – how it comes to accept these entities and processes. The advantage of this approach is obvious. Just as science has given us a uniquely successful way of understanding the world, it may give us a successful way of understanding art.

Suppose we start with a scientific and theoretical approach. With which scientific theories should we begin? A pragmatic stance suggests that the answer to this question depends on what we are investigating and what we want to know. If we are interested in the visual perception of color in Impressionist paintings, for instance, we might begin with theories in visual psychophysics. If we are interested in the heredity and development of musical abilities, we might begin with theories related to genetics and epigenetics. But this approach is also objective in that the theories we use can be assessed for how well they are supported by evidence, how coherent they are and whether they are consistent with other good theories. If so, we have objective grounds for evaluating our starting point. The remainder of this Element is naturalistic in this sense, in that it begins with our best scientific theories as they inform us about the nature of art.

1.8 Conclusion

The failure to arrive at a good, clear account of the nature of art leaves us without a good, clear account of what this Element is about. We don't yet know what a scientific naturalistic account of art will look like because we don't yet know what counts as *art*. My proposal is that we start with a vague and tentative understanding of art based on what seems to be central and unproblematic cases of music, dance, storytelling and the visual arts. Perhaps after we have a more complete biology of art, we can say something more precise. It may be that ultimately we have to revise our thinking about the category of *art.* I address that possibility in the final section. This initial failure to give a single, unified, satisfactory account of art also suggests that it may be misleading to speak and write about "art" rather than "the arts." Whether or not that is correct,

I continue to write of art singularly as "art," but sometimes pluralistically in terms of "the arts." I do not intend either locution to imply anything about the ultimate nature of art.

At the beginning of this section, I suggested the title of this Element, *The Biology of Art*, raises two questions: "What is art?" and "Why a biology of art?" There is also a third question: What is biology? This last question is more fully answered in Sections 3, 4 and 5, but some preliminary comments are in order. We should obviously include the core biological commitments of evolutionary theory, genetics and epigenetics in our biology. The account here also includes psychology and neurobiology. These may not be thought to be a proper part of biology as it is usually organized in our universities. But if we begin with evolution, and recognize the continuity between humans and other organisms, then shouldn't human psychology be as much a part of biology as is animal psychology? Finally, as we see in what follows, ecology will also be part of the full framework. That is an addition that is long overdue, and it adds great explanatory power to the biological framework.

Before we look at the full biological framework, though, in the next section, we take a look at some recent efforts to naturalize our thinking about art, based on evolutionary theory, psychology and neurological functioning, and some philosophical objections to these efforts. In Section 3, we begin to understand the full biological framework by looking more closely at evolutionary theories of art. Section 4 returns to the psychology and neurobiology of art. Section 5 introduces the ecology of art, and niches in engineering. Section 6 starts with a general theory of the value of art and returns to the topic of this section – the nature of art – but with the benefit of the full biological framework.

2 Naturalism and Its Discontents

2.1 Introduction

The basic approach advocated at the end of Section 1 is a scientific naturalism that begins with our best scientific theories, and is based on a biological framework. One premise of this Element is that the biological framework has not yet been fully explored or developed. But some parts have been explored, in particular the evolution, psychology and neurobiology of art. As we see in what follows, these efforts have also prompted philosophical criticisms. First, while scientific approaches can tell us how we actually engage with art, they cannot answer the important philosophical questions about what constitutes the *proper* conception, experience and value of art. Second, scientific approaches do not and cannot study the essential, conceptual basis of art. These criticisms suggest that a scientific approach to art has very limited philosophical value.