Classifying the Humanities

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Rick Szostak is professor of economics at the University of Alberta. His research is focused on facilitating interdisciplinary research and teaching; knowledge organization has become the dominant element in that research agenda. He authored two books and several articles that develop classifications of things (phenomena), theories and methods applied, types of data, ethical perspectives, research practices, and relationships. He contributed to the Integrative Levels Classification and is developing the Basic Concepts Classification, and is collaborating on a book about interdisciplinary knowledge organization. He is exploring how these classificatory principles can be applied to galleries, museums, archives, and the Semantic Web, as well as to libraries.

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Abstract: A synthetic and universal approach to classification which allows the free combination of basic concepts would better address a variety of challenges in classifying both humanities scholarship and the works of art (including literature) that humanists study. Four key characteristics of this classificatory approach are stressed: a universal non-discipline-based approach, a synthetic approach that allows free combination of any concepts but stresses a sentence-like structure, emphasis on basic concepts (for which there are broadly shared understandings across groups and individuals), and finally classification of works also in terms of the theories, methods, and perspectives applied. The implications of these four characteristics, alone or (often) in concert, for many aspects of classification in the humanities are discussed. Several advantages are found both for classifying humanities scholarship and works of art. These four characteristics are each found in the Basic Concepts Classification (which is briefly compared to other faceted classifications), but each could potentially be adopted elsewhere as well.

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1.0 Introduction

There are multiple ways in which disciplines or groups of disciplines might be classified: subject matter, method, theory, epistemological perspective, or historical evolution among them. The Basic Concepts Classification (BCC) (Szostak 2013a) classifies in terms of subject matter. It recognizes that philosophy, and to a lesser extent history and geography, are different from other disciplines: they each treat a wide range of subjects. History and geography treat the temporal and spatial characteristics respectively of diverse subjects. Philosophy asks a variety of questions—what should be?; how should we study?; what is the real nature?—of diverse subjects. Efforts to fit philosophy and history into the humanities—for classificatory rather than administrative purposes—have thus generally proven problematic; recourse is generally made to a common tendency toward close reading of texts, but of course this is to some degree a characteristic of all scholarship (and humanists often do other things such as interviews). It is in general much harder to distinguish disciplines in terms of the methods they employ (of which there are only about a dozen, broadly speaking) than subjects, especially in the contemporary academy where humanistic approaches infuse the social sciences. Culture (including language) is one subject that is often treated in the humanities, but it has long also been studied by social scientists. Art (including literature) receives far more attention from humanists than from social scientists. This paper thus, somewhat unusually, defines the humanities as the study of art, including literature (see Szostak 2003).

Gnoli (2007) has urged the development of classifications that can simultaneously address both documents and the objects in the world that those documents address. One key purpose of this paper is to show that a synthetic approach grounded in basic concepts can simultaneously classify works of humanities scholarship and

works of art themselves. More generally, this paper will strive to show the value of the following four characteristics for classifying the humanities:

– A classification that is not grounded in disciplines.
– A classification that allows all concepts to be freely combined, but stresses a sentence-like combinatory structure linking things (phenomena), relationships, and properties.
– A classification that breaks complex concepts into basic concepts that at least potentially have broadly shared understandings across groups.
– A classification that treats the theories and methods and perspectives applied in a work.

The paper will suggest that a classification with each of these four characteristics is best suited to the needs of the humanities. It is nevertheless true that each of these characteristics is valuable in its own right. The paper can thus also inform and support efforts to add or enhance one or more of these characteristics in other classifications.

Still, it is useful in the next section to briefly distinguish the Basic Concepts Classification—which possesses each of the four characteristics above—from other classifications. The third section of the paper briefly discusses certain challenges that arise in classifying the humanities. The fourth section of the paper then addresses in turn various elements of a classification of the humanities, and shows how one or more of the characteristics outlined above can be applied. A brief concluding section summarizes the main advantages that result from each of the four characteristics above for classifying both humanities scholarship and works of art.

2.0 The Basic Concepts Classification

The advantages and disadvantages of a faceted versus enumerative approach have been long discussed in the KO literature (e.g. Broughton 2006). It is worthwhile here to briefly distinguish the BCC from other faceted approaches. The Bliss and Colon Classifications are organized around disciplines, and facets are described for each disciplinary class; the Universal Decimal Classification has some general facets but also subject-specific facets (Broughton and Slavic 2007, 731-2). The faceted approach to classifying the humanities described in Broughton and Slavic (2007) likewise has some general and some subject-specific facets. It is notable that in the penultimate paragraph of their conclusion, Broughton and Slavic (2007, 750) urge further research on interdisciplinarity and on the possibility of a classificatory structure not dependent on disciplines (they had earlier worried that it might not be possible to apply facets universally; 131-2). All of these faceted approaches necessarily treat synthetic combinations within disciplines differently from synthetic combinations across disciplines. The BCC shares with the Integrative Levels Classification (ILC) (2014) the distinction of being entirely grounded in things, relationships, and properties rather than disciplines.

The BCC can be distinguished from the ILC (and all other faceted classifications) by its approach to facets. In particular the BCC is able to eschew the use of facet indicators. Though the BCC allows the free combination of any concepts, it encourages a sentence-like structure. Most scholarly works, and likely most general works, investigate how one thing or set of things influence in a particular way a different thing or set of things (Szostak 2012a). The best way to classify such works is thus to synthetically link things and relators: (chemical)(reduces)(blood pressure) or (dogs)(bite)(mail carriers). A minority of works describe the properties of a thing: (steel)(is)(strong). Such works are also best captured synthetically, this time by linking a thing and a property. This sentence-like structure will prove particularly useful in classifying the humanities (see below). In particular it can be applied to both humanities scholarship and the works they study: (woman)(riding)(horse) or (gods)(celebrating). But eschewing facet indicators has a more general advantage: it greatly simplifies both user queries and machine programming for neither user nor machine need be acquainted with the logic of facet analysis (Broughton and Slavic 2007, 749 speculate that users might be able to just input concepts they wish to see combined in queries). Nor is it necessary to provide a strict ordering for facets as all of the above faceted systems do. Szostak (2013a) describes in detail how each of the dozen facets identified in the Bliss Classification, plus additional facets employed in the ILC, are captured in BCC.

The BCC employs the classification of relationships developed in Szostak (2012b). A class of some 200 adjectival/adverbial "properties" has been developed and organized into a couple of dozen flat hierarchies. These relators and properties can be combined with any of the thousands of things (phenomena) in the classification. The BCC thus encourages classification in terms of concept strings that capture the key arguments of a work. Such an approach allows us to simultaneously capture works and ideas, a desiderata noted by Gnoli (2007). We shall see below that such an approach is also well-suited to capturing the subject of a work of art. That is, it can cope simultaneously with works, ideas, and objects.

A further shared characteristic of the ILC and BCC is that they allow and encourage works to be classified in terms of the theory and method and perspective applied. This is information that users often seek: it is critical in

allowing scholarly users in particular to evaluate the likely relevance of a work (Szostak forthcoming). This facility might be achieved within any classification but is rarely pursued. This paper will suggest a novel application of this approach to works of art.

Szostak (2011) argued that ambiguity could be substantially reduced by breaking complex concepts—which are understood differently across disciplines or groups—into their constituent basic concepts, which are understood in a broadly similar fashion across groups and disciplines. Conceptual atomism suggests that shared understanding will be most likely for things and relationships that we regularly perceive. The BCC (and ILC) pursues the classification of works in terms of combinations of such things and relationships and properties.

3.0 Challenges in Classifying the Humanities

There is no one widely accepted approach to the subject classification of works of art. Dozens of classifications are used in music libraries, suggesting that classification is difficult and existing schemes do it poorly (Lee 2011). The *Categories for Description of Works of Art* (Getty Research Institute 2014a) and *Cataloguing Cultural Objects* (Baca et al. 2006; Getty Research Institute 2014b), by far the most widely used approaches to classifying art, recommend the use of controlled vocabulary in subject classification of art, but leave it to individual galleries to choose among several possible vocabularies. These vocabularies often take the form of thesauri (notably the *Art and Architecture Thesaurus* (*AAT*)(Getty Research Institute 2000)) rather than formal classification schemes; this opens the door to further differences in classificatory practice across institutions. This paper will recommend a simple but powerful approach that allows the sort of terms in the *AAT*—and, importantly, beyond—to be synthetically combined in a formal classification.

Subject is one key element that we would wish to capture in classifying works of art. But there are many others, including style, purpose, technique, provenance, and form. Each of these can also benefit, as we shall see, from one or more of the four characteristics listed above. Indeed the purpose of this paper is to suggest the breadth of uses of these classificatory characteristics in classifying the humanities.

Classifications should be evaluated in terms of their impact on users. Medaille (2010) notes that theatre artists find it troublesome to navigate large research libraries. Yet they list "seeking inspiration" to be one of their six main goals. If artists would turn to the literature for inspiration, but find it daunting to do so, then society suffers. And if they find libraries daunting, it must seem that it is not easy for them to find what they need. Inspiration will often come in art in the same way that innovation occurs in science: by juxtaposing previously separate ideas. In art as in science, then, we need a classification system that alerts users to items that might be related to their core area of interest. Users should not have to be familiar with and master a device such as the relative index in the *Dewey Decimal Classification* in order to achieve this kind of inspiration.

If there are challenges in classifying works of art, we might reasonably anticipate related challenges in classifying the scholarship of art. Casual empiricism suggests that humanities scholarship is also characterized by diverse and contested terminology, and by a multiplicity of theories. These challenges can also be addressed through application of a classification that has one or more of the characteristics listed above.

This paper, then, is broad in its approach. Its purpose is to show how a small set of classificatory characteristics can potentially address a wide range of actual or potential challenges in classifying the humanities. Future research (Szostak 2014b) will take a narrower focus on subject classification, and more carefully compare the approach recommended here to extant approaches, and provide many examples of the classification of actual works of art.

4.0 Phenomena

We must first classify art itself before worrying about subject, style, and other characteristics. A first challenge here is that many artifacts—notably pottery and textiles—are intended to be both useful and aesthetically pleasing. Indeed most of the artifacts created by humans embody some aesthetic elements. Our buildings, bridges, shoes, cutlery, furniture (the list goes on) could all be made much more cheaply if we focused only on their function and not their appearance. Works that address the practical side of such artifacts are usually given quite different subject headings, and shelved in quite different parts of the library, from works that treat their aesthetic side.

Should "china" or "fashion clothing" themselves be classified as works of art or as items of utility? General practice tends toward the latter, except when a work stresses their aesthetic elements. This is perhaps unfair: a set of china that is put on display in a china cabinet yearround, and only pulled out once a year for a special family dinner, is likely misclassified as an item that is primarily useful. But we hardly want either classificationists or classifiers to have to decide where particular artifacts (or works about these) fall on a continuum of art to practicality. If we will follow common practice and privilege utility over art by classifying most artifacts as useful arti-

facts, then it becomes particularly important to be able both to readily identify and find aesthetic treatments of such artifacts, and connect these to works regarding their practical attributes.

In other words, we have here a diverse set of artifacts (and many works about these) that do not fit neatly into just one hierarchy. And the hierarchies of works of art tend to be quite distant in most classification systems from the hierarchies of items of utility. Such artifacts are inevitably treated poorly in "universal" classifications that are organized around disciplinary silos, and treat engineering and economic outcomes in a quite different fashion from works of art. These artifacts reflect an intersection of utility and aesthetics that is hard to signify in an enumerative classification. It is much easier to address in a classification that stresses relationships. A user interested in china often wants to move seamlessly from reading works on pottery technology to works on pottery aesthetics.

Szostak (2014a) argues that only a synthetic classification without disciplinary boundaries could instantiate a "web-of-relations" approach to classification. One of the values of a web-of-relations approach is that it should be much easier for users to move between studies of aesthetics and of practicality. The user need not master disciplinary classes (or even know of the Relative Index) in order to move from (technology of)(Ancient Greek)(pottery) to (trade in)(Ancient Greek)(pottery) to (art of)(Ancient Greek)(pottery). And this facility in turn could encourage ever-better integration of beauty and practicality in our lives. The web-of-relations will likewise facilitate the search for works that are similar in terms of any characteristic included in the synthetic classification of a particular work.

What sort of subclasses might we attribute to art? Szostak (2014a) argued also that much of the concern that there are diverse ways of subdividing classes into subclasses simply disappears within a synthetic approach. For example it is often suggested that pharmacologists would want a quite different classification of chemicals from that which chemists want. But in fact pharmacologists are interested in causal relationships such as (chemical)(reduce)(blood pressure) and their concerns are thus not just adequately but best addressed through a classification that stresses free combinations of things and relationships.

We might wish to classify art by purpose. But "art as propaganda" is a causal relationship, as indeed is "art (that) enhances understanding" or "art (that) evokes a better world." We might seek to classify art by audience, distinguishing fine from popular art. Yet this boundary is unclear and shifting. It is much better to classify works which emphasize the audience or purpose of a work or works utilizing causal relationships. In particular, masterpieces are works of art thought to be particularly aesthetic. We might emphasize differences in materials, but again these are best seen as relationships: (art)(made from)(wood). We might classify art primarily in terms of time and place it was developed. Such distinctions are readily captured by allowing free combination with classifications of time and place. In order to facilitate a web-of-relations approach, it is important that the same classification of time and place be used throughout the universal classification (which can be achieved with respect to time by focusing on decades and centuries rather than "The Golden Age" or "Middle ages" or "Renaissance"). This will facilitate connections being drawn between the art of a particular time and place and the culture, politics, economy, and technology (and so on) of the same time and place. Finally, we might distinguish art in terms of artistic styles. We will make the novel argument below that styles can be treated in a very similar manner to scientific theories.

We are left, then, with the classification of art in terms of "type of," the standard avenue of developing subclasses (occasionally replaced by "parts of") in the Basic Concepts Classification (Szostak 2013a). In the case of art, "type of" primarily captures what is often termed "medium":

Non-reproducible art

1. Painting
2. Sculpture
3. Collage
4. Cartoon
5. Graphic art

Reproducible art

1. Prose
2. Poetry (rhyming or not)
3. Theater
4. Film
5. Photography
6. Music
7. Dance

The reproducible versus non-reproducible distinction is stressed here because it has a host of implications for how art is produced and appreciated. Non-reproducible art is by its nature unique whereas reproducible art can be copied or repeated (as with all classes the boundary can be fuzzy here, as with limited-edition prints). Though it is a logical distinction, it is one that reflects the importance of particular relationships: it was thus discovered inductively rather than deductively.

Several of these subclasses merit further subdivision. At this lower level we also seek subclasses in terms of medium. In the case of music, this would involve distinguishing singing from a variety of musical instruments. Lee (2011) notes that musical performers are most likely to search by medium. This may well be true for perform-

ers more generally. We would want a notation that allowed easy recognition of when two or three different types of music were combined (and also some notational shortcuts for indicating common combinations of many instruments such as orchestras). And we would want our subclasses to be free of cultural bias: instruments common in non-western music should not be disadvantaged. Poetry can be distinguished by rhyming scheme and rhythm (and again we want cultural fairness such that haiku is treated similarly to sonnet). Painting can be distinguished by: oil versus water, canvas versus fresco. Film likewise can be subdivided in several ways: silent, black and white, 3D, large screen, made-for-television, 360 degrees. Folklore can be distinguished as tales, legends, fables, and so on (La Barre and Tilley 2012). In all cases we want flexibility to allow new mediums to be recognized.

This classification does serve to distinguish art in terms of human senses: auditory, verbal, visual, mixed. It is not explicitly organized in terms of these. In part this is to not ground the classification unnecessarily in an approach where there is scope for dispute: some have claimed that sculpture is really an art of touch. Arguments about how various senses are applied in both production and appreciation of art are best captured through causal relationships.

The classification is flexible such that new subclasses can be added. It is fairly standard, except for incorporating literature within art (where it logically belongs). Architecture was included in previous versions of the BCC but is, admittedly, a misfit. The argument above would suggest that we treat buildings primarily as items of utility, and capture their aesthetic elements through causal linkages: Architecture is thus (aesthetics)(applied to)(buildings). And if we were to include architecture then we risk the slippery slope of demands to include pottery and other artifacts that mix utility and art.

It is also necessary to classify works of art by artist. Indeed much (or most) art scholarship focuses on individual artists (Ørom 2003). This is probably best done separately from the classification above, since artists often produce more than one type of art, and it is then annoying to have to search for them multiple times (Ørom 2003). But each artist should then be connected to the type(s) of art that they produce.

4.1 Causal Links in Humanities Scholarship

As noted above, most scholarly works, and likely most general works, investigate some causal link(s): how one or more of the things in the world affects one or more others. This is true of humanities scholarship as well. Existing classification systems unnecessarily privilege some causal links over others. There is thus tremendous value in moving toward a system that allows works to be freely classified in terms of any causal relationship.

It is fairly straightforward to imagine causal influences between art and every other category of human science scholarship (see Szostak 2000):

- The non-human environment provides both raw materials and inspiration. Art in turn affects both how we perceive nature and how we construct the built environment.
- Our genetic predisposition generates aesthetic universals (though literary theory at times suggests that these do not exist), our senses; and our ability to structure say music; many have posited that humans are evolutionarily selected for art because it teaches, raises the spirit, and creates social bonding (note that these are then links from art to yet other phenomena).
- Cultural elements and aesthetic sense are combined in most (or all) artworks. Thus works of art are generally seen to express certain cultural values or beliefs. Art is emphasized in all religions. Art may help us cope with cultural change.
- As for individual differences, artists likely display unusual personality traits and behaviors, and perhaps so do their audiences. And if art does impart meaning, then art changes what people believe and do. Art may be cathartic.
- Economic circumstances influence both the demand for art and supply of art. Art may also reflect and communicate economic ideology. As noted above, artistic sensibility increases the cost of all goods.
- Politics exerts various influences: funding, censorship, ideology, nationalism. The fact that many regimes have funded artistic propaganda suggests a belief that art can have important political influences.
- Social structure affects who becomes an artist and who supports the arts and thus likely the content of art. Art can support group solidarity. It can thus either encourage or level social distinctions.
- Technology influences the cost and quality of art. As noted above, art influences the design of almost everything we use.

The central importance of art to human existence is lost in a classification that does not allow the myriad influences on and of art to be readily captured. Yet in practice art scholarship has emphasized some links more than others. And classification systems grounded in literary warrant thus make it easier for the user to investigate some links than others. Notably Ørom (2003) speaks of the "bricolages" of today's classification schemes. The classifications most in use today were developed over a century ago, and have developed slowly over the succeed-

ing decades. The result is that these classifications thus include elements of many schools of thought regarding the arts over the last centuries, but do not represent any one coherent view. Ørom (2003) argues that the new art history since the 1970s has been interdisciplinary in orientation and thus poorly served by pre-existing classifications. The challenge, then, is to take a new approach that encompasses these many ways of looking at art. A universal synthetic classification automatically meets this challenge, for art can then be linked to any other subject. A discipline-based classification can only achieve this equivalence in treatment of all possible causal linkages by reproducing all other classes within the classification of art.

4.2 Causal Links in Works of Art

In the preceding section we made a fairly modest recommendation for a classification that can encompass all of the myriad causal links that humanities scholarship might engage. In this section we make a more radical recommendation that the exact same principle should be applied to the works of art that humanists study.

It is useful to return to Ørom here. Notably, Ørom (2003, 134) references an increased importance of thematic study in art scholarship. To this end he looks at recent Danish art exhibitions: "In 'Symbolism in Danish and European painting 1870-1910' there are five themes: Beauty and Death, The Greatness of Man and Nature, Silence till Death, Eros and Melancholy, and The Prophets of Beauty. The painter's nationality, the art form, and the date of the exhibited works are subordinated to the themes." If scholars of art want to study such themes, and especially if art galleries wish to gather together works that exemplify such themes, then surely we should attempt to classify works in terms of the themes they express. Imagine how much easier it would be for scholars—or indeed anyone interested in art—to explore how artworks across different times and places expressed any particular theme if we took this simple step.

Rossett (2013) reports widespread interest in subject classification of works of art, but very limited progress. Financial constraints are one barrier, but even more important is the lack of a clear vision of how to proceed. Some galleries have experimented with social tagging as a result, but there are naturally worries both about the lack of controlled vocabulary and expertise. Rossett wonders whether experts would be willing to tag for free, and finds in a survey that there is some limited willingness to do so. Such an approach might address the financial challenges of classification, but as Shatford Layne (2002) suggests will most likely achieve a consensus classification if a shared and simple controlled vocabulary is employed.

Scatturo (2013) summarizes impressive efforts to classify the European Collected Library of Artistic Performance. Yet the approach to subjects is quite limited (p. 28): "The 'Subject' facet can be used to explore themes which are common to different collections. Its foci may include: artistic movements (e.g., Expressionism, Futurism), performing arts disciplines (e.g., history of theatre, physical training, voice, directing), specific issues (e.g., catharsis, jealousy, feminism, racism), and well-known characters (e.g., Medea, Hamlet, Oedipus, Nora). This will help to create monographs and virtual exhibitions, as well as helping teachers to gather the content needed for their courses. The user community may propose to the Content Board how this facet can be enriched." This paper would suggest that these goals would be better achieved by allowing any subject to be captured synthetically.

Panofsky has identified three levels in the description of works of art. One level, description, simply describes the main elements (woman on horse). Another level, identification, gives specifics (name of woman). Users, of course, often search for particular people, places, or times. The third level, interpretation, records cultural significance (e.g. Christian parable). Baca et al. (2006) are far from alone in wondering if a classification can possibly capture all three levels. Shatford Layne (2002) surveyed art historians and found that 20 percent of art history research addresses what works are "about" (Panofsky's third level) and 35 percent addresses what works are "of" (Panofsky's first two levels). She concludes that art historians will benefit significantly from subject access of both types. She notes that scholars from a variety of other disciplines also would benefit from subject access to works of art, and wonders whether works should be classified in diverse ways to suit these diverse audiences. The sort of universal approach to classification recommended in this paper would spare us from such a complicated procedure.

Shatford Layne also recognizes that description and identification lie on a continuum; it is thus desirable to have a hierarchical classification such that a specific (Lady Godiva, Westminster Abbey) denotes also the general (woman, church); one need not then separately treat identification and description. It is also often the case that a work is of and about the same thing. But often also this is not the case: Shatford Layne provides several examples of paintings expressing Biblical themes but employing medieval settings. It is thus sometimes but not always valuable to distinguish "of" from "about." A classificatory strategy that insisted on separate treatment of Panofsky's three levels would thus be inefficient. A synthetic approach to classification allows us to specify a difference between "of" and "about" only as necessary. We can also employ identification to imply description as long as we place all specifics employed within general classes.

Harpring (2002, 21) notes that subject matter may be narrative as in "slaying the Nemean lion" or "capturing the wild boar of Mt. Erymanthus." Her first example of non-narrative art is "young woman bathing." The importance of verbs in each of these three examples is noteworthy. A concept chain that allows things and actions to be linked seems the best way to address narrative works (where the subject is a sentence fragment) and at least many non-narrative works.

Harpring urges extensive subject classification. For a painting described as "Nike crowning the victor, with the judge on the right and defeated opponent on left" she suggests a long list of subject terms: Nike, game, judge, competition, victory, games, prize, festival, and athlete. This list, notably, does not capture the combination at the heart of the painting; there is no mention of "crowning" at all, nor of defeat. A synthetic approach utilizing both (basic) things and relators would be: (Nike)(crowning)(victor)(of)(particular game)(beside)(judge)(and)(loser), where the particular game would be linked hierarchically to games in general. This synthetic entry is more compact than Harpring's list but communicates much more of the nature of the work.

Shatford Layne had worried that there is often controversy regarding what a painting is "about." Harpring urges us to use a word like "probably" in situations where there is controversy regarding the subject of a work. We could easily insert (probably) into a synthetic concept chain. But we should be cognizant of the fact that the theme attributed to a work may evolve through time: a religious work may be appreciated long after the religion has been eclipsed. Though no classificatory strategy can address this possibility perfectly it could be that a synthetic approach has the added advantage of allowing multiple interpretations to be recognized.

Of course, some works of art may be about a single thing (or perhaps a single relator) rather than some combination. If a work seems to be about "small girl" or "vineyard" or "raining" so be it. But most works are better described in terms of combinations of basic concepts: (girl)(smiling) or (vineyard)(at)(sunrise). And many/most works of art will express some causal relationship: (girl)(smiling)(because)(gift).

If a synthetic approach is valuable, we should then ask what sort of concepts we wish to combine synthetically. The danger in classifying art is the same as the danger encountered above with respect to the scholarship of art: that we become captured by the themes thought to be important at some place and time. La Barre and Tilley (2012) discuss the (admittedly valuable) efforts to classify folktales in terms of a hundred or so themes. The leading classification of this type would classify "Beauty and the Beast" as falling under "Tales of Magic," then "Supernatural or Enchanted Wife (Husband) or Other Relative," and more precisely "The Girl as the Bear's Wife." Despite their widespread use, such "motif and tale type indices" are subject to frequent criticism. Critics often note that the classes are arbitrary. And it is felt that these indices are not updated regularly but need to be. There are also complaints that these particular indices are not themselves part of document classification schemes, and thus users must then track down cited works themselves. It would be much better to allow works of art (including fiction) to be freely classified in terms of dominant (and even subsidiary) themes within our documentation classification schemes. That is, we should be able to employ combinations of any concepts employed in the entire classification in order to indicate the theme of a work of art. It is noteworthy in this respect that the tale types and motifs employed in the classifications referenced by La Barre and Tilley are combinations of basic concepts.

We do try to some extent to classify the subject of art works within our classifications. For example, the Library of Congress *Classification* attempts a few precise classes for the subject of paintings: animals, birds, hunting, and fishing (which Ørom 2003 argues represent a Renaissance sense of art subjects; for our purposes it is worth noting that these are each basic concepts or very simple combinations rather than very complex concepts). If we will attempt to classify art in terms of some arbitrary subjects, why not instead classify works of art in terms of any subjects that they seem to address?

It should be noted that controlled vocabularies such as the *Art and Architecture Thesaurus* naturally focus on the terminology of art itself The *AAT* provides controlled vocabulary for artistic styles, materials, objects such as furniture, appearance (colors, for example), and artistic processes, but limited treatment of subject. These controlled vocabularies are of limited use in describing the subjects of works of art, unless these are works about art itself. Capturing the subject of a work requires access to a universal controlled vocabulary such as can (best) be provided by a universal classification. If this universal vocabulary takes the form of a universal classification then we dramatically increase the likelihood that different classifiers will apply the same classification to a particular work.

We noted above that humanities scholarship evolves, and can thus outgrow any classification grounded entirely in literary warrant. The same is true for art itself. Art is an inherently evolutionary endeavor, where artists build on what has gone before but try to create something new. This will mean among other things that artists will seek out new subjects (say, soup cans) that have not been treated before. We thus need to be able to classify works in terms of any subject.

One disadvantage of employing an *ad hoc* classification is that a user needs to identify precise classes of interest under which to search. If terminology is instead freely borrowed from a logically organized universal classification, then the user need not worry. If they search for (woman)(smiling) they will find instances of (girl)(smiling) if girl is in some way a logical subset of woman. (In the BCC, girl is achieved by combining woman and an age indicator.)

This universal classification is best grounded in basic concepts; only then can individuals and groups be expected to attach similar meanings to the terminology employed. Lee (2011) stresses that scholars, performers, and the public have different search needs and styles. This provides a further justification for allowing search in terms of combinations of basic concepts.

There is one classification used in classifying works of art that does strive to capture a broad range of subjects: ICONCLASS (2012). ICONCLASS is organized as a classification system: ten broad categories are each subdivided ten times, and then a further 25 times, and further as necessary. ICONCLASS attempts a broad coverage: the ten main classes address religion, literature, humanity, nature, history, society, and history. Very detailed identification is possible (the main webpage gives detailed notation for the biblical story of David and Bathsheba). Like many classifications, ICONCLASS provides some limited scope for synthesis: for example, the names of flowers can be inserted in brackets after the notation for flower, notational tricks allow nude men to be distinguished from nude women; and there are a handful of "keys" that allow symbolic animals to be distinguished from real animals or male from female. But as with most enumerated schemes there is no easy way to capture synthetic subjects. Many ICONCLASS classes are thus necessarily compounds themselves: 25L cities represented allegorically or symbolically; 25F8 extinct animals; 33A11 lifting one's hat, baring one's head; 71H7131 Bathsheba (alone) with David's letter. Many classes capture elements of a more general classification: 25F animals; 25F6 fishes; 25C geological phenomena; 23 Time. By pursuing a synthetic approach we can allow greater precision with shorter schedules. The developers of ICONCLASS have clearly striven to identify compounds found in many works, but can hardly capture compounds of importance to every work. By pursuing a universal classification, we achieve even greater precision in treatment of natural and social phenomena, while facilitating searches that span works of art and other objects.

It was straightforward to translate each class in ICONCLASS into the terminology of the BCC (see Szostak 2013b for the full translation). Some of the more specific subclasses in ICONCLASS, such as particular Biblical stories, would be handled in BCC by the use of Cutter numbers to indicate characters of a particular type from a particular source. So the BCC allows us to capture every subclass identified by ICONCLASS. Yet the BCC does so with a couple of key advantages. First, the classifier is not limited to the subclasses identified in ICONCLASS (which, notably, exhibit a strongly Western cultural bias, and seem better suited to historic than contemporary art). Second, the user need not master ICONCLASS but can input synthetic queries employing basic concepts. The classifier in turn is not limited by enumerated ICONCLASS classes but can classify a very complex work by combining multiple basic concepts. The BCC, that is, is more universal than ICONCLASS, and more flexible because of its synthetic approach. At the same time, its reliance on basic concepts facilitates both classifier and user.

4.3 Relationships

Most of what needs to be said about relationships was captured in our discussion of causal relationships. But it deserves to be stressed that what is important about a work of art is often some relationship. If a painting is of a (woman)(riding)(horse), we will not be able to describe it very well if limited only to noun-like phenomena. The concept "riding" is essential to accurate classification and retrieval.

Humanities scholarship is likewise characterized by relationships. These are sometimes external relationships, as when art influences politics or is influenced by cultural values. They may also be internal relationships. As we have seen, art is an evolutionary process. Artists want to innovate, but start from what is. Mutations are selected culturally and thus we can usually point to a dominant style of any time and place, but one that necessarily allows change. Rising incomes and a mass market allow different styles to cohabit in the contemporary world. Much of art scholarship focuses on how a particular artist (or group of these) was influenced by other artists and/or the wider world, and how they in turn influenced other artists and/or the wider world. And this sort of scholarship will be hard to classify and hard to search if we do not classify different types of influence. Among the basic relators identified in the BCC (using a combination of deduction and induction, and drawing among other sources on the *AAT*) are transforming, energizing, combining, creating, facilitating, experiencing, performing, believing, evaluating, feeling, intending, rehearsing, perceiving, selecting from, thinking, cooperating, imitating, paying, and talking. These can be combined to generate hundreds of further relators.

4.4 Qualifiers

It was noted above that elements of the form and content of works of art might usefully be classified. It should be noted here that such an approach is of particular importance for works of abstract art. Some of these elements are best captured synthetically through relationships, such as links to classifications of shapes and sizes and colors, or to materials or instruments. But the Basic Concepts Classification (Szostak 2013a) possesses a class of adverbial/adjectival qualifiers that can be freely combined with any concept. Many of these may be particularly useful in classifying both art and humanities scholarship. They capture not only elements of form and content but also of subject matter and intent: beautiful, ethereal, polished, bright/dull, intense, sleek, sublime, thankful, superior/inferior, successful, good, interesting, enjoyable, suitable, safe, simple, popular, necessary, effective, mechanical, strategic, informative, secretive, true, illusory, romantic, familiar, artificial, realistic, authentic, hard/soft, thick, clear, clean, complete, balanced, united, orderly, modern, radical, tidy, holy, and legitimate. This classification of qualities (of which the preceding is just a selection) has been developed inductively (but then organized into two dozen classes) and can readily be added to if warranted by humanities scholarship. It may be useful at times for scholars or other users to explore what range of items is classified using a particular qualifier. This is easiest and perhaps only possible if a universal synthetic approach is taken.

4.5 Perspective

Gnoli (2012) notes that information scientists have been talking about classifying works by authorial perspective for over a century. And he worries that, without a clear understanding of perspective, elements of perspective may be either ignored or conflated with subject (or type of work, an issue addressed below). Langridge (1989, 45-7) also notes that the failure to classify by what he calls "viewpoint" often interferes with subject classification: a book on the Christian approach to education may be misclassified as on education about Christianity. Gnoli recognizes that classifying by perspective may be especially important in art. A poem, he appreciates, can communicate the same message—say, sadness—through many subjects.

Much but not all of what Gnoli surveys in terms of authorial perspective—theory, method, time, and place—are captured elsewhere in this paper. What is left? As I have argued elsewhere (Szostak 2014a), we wish with perspective to capture key motives and beliefs of the author or artist. Kleineberg (2013) also urges us to capture "why" in our classification, along with "who" and "what." I suggested that a variety of dimensions (beyond those addressed elsewhere) might be useful in this respect: rhetorical, epistemological, ideological, aesthetic, ethical. These dimensions seem quite useful for classifying works of art:

- Some artists may be focused on communicating meaning of various sorts and in various ways.
- Art scholarship has at times suggested that art serves a revolutionary function, and at other times argued that art always supports the status quo. Both need to have a place in our classifications.
- Some artists may be focused on creating a certain type of aesthetic pleasure.
- Religion is the most obvious but hardly the only avenue through which an artist may aspire to encouraging particular values.

What about humanities scholarship? Clavier and Paganelli (2012) argue that we should classify all works by authorial stance: criticism, agreement, consensus, and so on. It would seem that it would be useful to distinguish different texts about art:

- Art criticism (which evaluates one or more works in terms of aesthetic standards).
- Connoisseurship (similar, but with a goal of identifying particularly valuable works).
- Contextual analysis, which analyses the influences on or of a work(s) without necessarily passing an aesthetic judgment.

This list is certainly not exhaustive but gives a flavor of what a classification by perspective might look like and accomplish. For works of scholarship it can also be valuable to identify the discipline of the author.

4.6 Theory

In classifying works of scholarship in terms of theory applied, it is necessary both to classify by the name of the theory and by theory type (a classification of theory types was developed in Szostak 2004 and applied there and in Gnoli and Szostak 2008). This is because diverse types of theory operate under the same name, and the same type of theory goes under many names. This approach will be particularly valuable in humanities scholarship which has tended to be characterized by an abundance of theories.

It is suggested here that the "theory" dimension be employed to capture "artistic style" when classifying works of art. The style pursued by an artist is at least somewhat analogous to the theory pursued by a scientist. Here again we should classify both in terms of style name and style type, and for the same reason: style names are not well defined and similar works of art may have

quite different styles ascribed to them. It may be useful to employ Cutter numbers in designating style names, given the profusion of styles. In any case, we want a system that is hospitable, for new styles emerge with some frequency. We must not privilege western styles as existing classifications tend to do (Lee 2011), but allow any style found anywhere in the world to be readily represented.

Scholarly theory types were classified in terms of the who, what, where, when, and why questions (Szostak 2004). A similar approach would be useful in capturing key elements of artistic style:

- The "what?" question could capture degree of realism.
- The "why?" question would address issues of purpose—is the intent to inform, shock, energize, and so on.
- The "who?" question might capture intended audience.
- The "where?" question captured degree of generalizability when classifying theories and could capture here the degree to which a work expresses universal aesthetic value relative to particular cultural values.
- The "when?" question might capture the historical relations between one style and another.

As with perspective just above, work remains to be done to flesh out the details of the classification. The purpose here is to suggest both the desirability and feasibility of doing so.

4.7 Method

Paintings are often classified by technique (Ørom 2003). The practice is less common for some other art forms. But theatre depends on techniques of vocalization, sound and lighting systems, and techniques for building and moving sets. In the world of film the set of techniques is even greater. Music employs not only techniques for amplification and recording but increasingly techniques for artificially creating musical sounds. Scholars, performers (perhaps especially directors and producers), and members of the public may wish to search by technique. And so it makes sense to utilize the method dimension in order to capture artistic technique.

But the very diversity of techniques, and the fact that these largely differ by art medium, makes it harder to classify artistic method here than it was to address artistic "theory" above. As with artistic "theory names" the existence of multiple techniques and the fact that new ones are often created is perhaps dealt with by using Cutter numbers to express particular techniques. There is no obvious way of classifying "type of technique" beyond the strategy of classifying these by medium. Within particular media, it may be desirable to distinguish different types of technique: techniques for lighting from techniques for sound. In cases where the same technique does apply to multiple media (lighting for stage and film, say), it would be important to ensure that works on these would be found by all interested users.

4.8 Time and Place

It goes without saying that works of art should be classified also in terms of time and place produced. This can easily be done through recourse to classifications of time and place. There is no good reason for different types of art to be classified in terms of different classifications of time and place. Indeed, it will be easier to draw connections between art, politics, economy, and culture if the same categorizations of time and place are used throughout a universal classification.

For reproducible works of art, we may need to classify with respect to multiple times and places: a work may be performed in a quite different time and place from where it was produced. Even for non-reproducible works we may wish to note where and when it was owned and exhibited. And for all works of art we may need to differentiate the time and place that a work is set from the time and place it was produced. For literature especially the time and place in which a work is set is of great interest to users; again it is useful for setting to be captured with respect to a universal categorization of time and place. It will, though, be necessary to develop some classification of imaginary times and places for works set in these.

One advantage of treating time and place systematically is that it facilitates the use of the same classification system in archives and museums as in libraries. Archives especially tend to prioritize classification by time and place (and of course source). This need not prevent them from classifying also along the other dimensions recommended here. This would in turn make it much easier to locate not just works of art but things such as theatre programs, artist sketches, posters, and other documents or objects that are relevant to a particular query (Szostak 2014b).

4.9 The Nature of a Work

Smiraglia (2001) has carefully examined the nature of a work, and in particular when a work has changed enough to deserve designation as a new work. He stresses throughout that a work is primarily defined by the ideas that it conveys. I have suggested that "ideas" comprise some set of: descriptions of phenomena or relationships, causal arguments, theories applied, methods applied, and perspectives applied (Szostak 2015). Both Smiraglia and I appreciate that the subject matter of any work cannot be

separated from its semantic content. Smiraglia was focused on written works for the most part but his analysis applies even more forcefully to works of art: these must be defined (and classified) in terms of both subject matter and what might be termed style. We have striven to capture both elements above.

When does a work change enough to be classed as a new work? When there is a significant change in either style or substance. Smiraglia appreciates that changes in media always generate a new work: a film based on a novel or play is a new work no matter how strictly it adheres to the original. Likewise a print made from a painting is a new work. And a musical score is a different work from a recording or a textual description of a piece of music. For performances, the engagement of a new performer (at least in a key role) generates a new work. This is especially important for genres such as jazz music in which a performer has considerable scope to reinterpret a piece of music. But the argument holds more broadly. Yet existing classification systems that stress the composer or playwright often leave little scope for appreciating changes in performer.

Even written texts can be changed through time. In their study of a random sample of folktales, La Barre and Tilley (2012, 697) found that "illustrators were identified more than 80 % of the time, although the original author was identified just over 40 % of the time. Records of stories that were retold indicated an agent in only one third of the instances, and editors or compilers were acknowledged in only one quarter of the records. Translators were identified only 10 % of the time, and adapters less than 5 % of the time." Yet La Barre and Tilley found that both scholars and storytellers were very interested in this sort of information.

To summarize, it is critically important to distinguish different "editions" of a work of art. Since these can be identified in terms of causal links, artistic theory (style), method, and perspective, we will be better able to identify new works if each work is classified along these myriad dimensions.

4.10 A Brief Note on Terminology

Ørom (2003) notes that humanities scholarship is characterized by the development of new terms that need to be reflected in a classification. Though Ørom is not specific, new terminology can be used in most of the areas discussed above: phenomena, relationships, theory, and method most obviously. The approach recommended here treats all complex concepts as combinations of basic concepts. It thus alleviates the need to expand the classification when a new term is coined. The challenge for the classifier is that the precise meaning of a new term may be unclear. Scholars should, of course, try to clarify their terminology, but often do not. The classificationist should respect literary warrant but not engage in unnecessary contortions in order to reflect unnecessarily ambiguous scholarship. The classificationist should thus provide an exhaustive set of basic concepts (which can be achieved in a very manageable set of schedules, at least in the social sciences and humanities), and the classifier (or indeed the author) should render complex concepts in terms of these. This strategy has been pursued throughout this paper. It will allow multiple types of user to better find both works of humanities scholarship and works of art that are relevant.

5.0 Conclusion

Only a universal classification free of disciplinary boundaries can allow for the inherently interdisciplinary nature of both works of art and scholarly examinations of these. Discipline-based classifications have privileged some relationships over others. A universal approach also facilitates the access to art (and art scholarship) of scholars from outside the humanities. Utilizing the same classification of time and space throughout a universal classification facilitates connections between the art of a particular time and place and all other aspects of life in that time and place.

A synthetic approach allows diverse elements to be combined in describing both art and scholarship of art. This again is critical in allowing any combination pursued by artist or scholar to be identified. A synthetic approach allows us to focus our classification of art on medium ("type of" subdivision), while capturing audience, purpose, material, and time/place synthetically. A structured synthetic approach that mimics (usually causal) sentence structure allows works—of both art and scholarship—to be precisely characterized. The combination of a synthetic approach with a universal classification instantiates a web-of-relations in which users can easily follow their curiosity from works on the aesthetic nature of an artifact to works on its technical or economic aspects—or indeed to similar aesthetic characteristics found in different works. The particular synthetic approach urged in this paper—which links things, relators, and properties in a sentence-like structure—is particularly valuable for it is the combination of these that usually signals the essence of a work of art or indeed a work of scholarship.

Synthesizing basic concepts—those for which there is broadly shared understanding across individuals and groups—facilitates both classification and search. Classifiers can be precise by combining multiple basic concepts. Users can then search also by combining basic concepts.

This may be especially important in humanities scholarship where new complex terminology is generated with some frequency.

Classifying theory types is important for all scholarship, but arguably especially so in the humanities. The approach taken to classifying theory types in scholarship can, with some adjustment, be applied to the classification of styles in works of art. Classifying both scholarly and artistic methods is also important. For scholarship these are a particularly important signal of relevance. We can aspire to capture in the "perspective" dimension rhetorical, aesthetic, ideological, ethical, and epistemological characteristics of both art and scholarship. This will aid users in assessing relevance.

Classification in each of the four ways discussed above has a final advantage in aiding us in identifying when a work has changed enough to be considered a new work. These four characteristics of a classification can each be found in the Basic Concepts Classification (Szostak 2013a). Most can also be found in the Integrative Levels Classification (2014). It would be possible to adapt at least some of these to other classifications.

The next step in this research will focus more narrowly on subject analysis. A more detailed comparison with extant approaches to classification can then be provided. It is also possible to provide detailed synthetic classifications of a sample of works from various leading galleries and museums (Szostak 2014 a, b).

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