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## **Changes in Art: Market forces or evolution?**

### ***A response to Colin Martindale***

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### **Introduction**

Colin Martindale has presented the case for the end of art based on an evolutionary argument that invokes the need for representation and novelty as the key selection pressures. Art is hopelessly doomed to use up novelty and so render itself extinct.

In this response I take issue with Martindale's use of evolutionary theory and then with his notion of novelty. I conclude that a better conceptual framework might be that of the market and of game theory. To begin with, however, I briefly outline evolutionary theory in order to lay the groundwork for subsequent arguments.

### **What is evolution?**

Evolutionary theory is a theory of design. For years scholars had noted the apparently purposive function of organisms and the intricate mechanics that produced their outputs. Some sought theological arguments for this apparent design, and others used this as evidence for a designer. But, as has been well-documented, it was not until Darwin and Wallace that we had a theory that could account for this phenomenon – there was no need for a designer, instead this was the consequence of natural (and sexual) selection.

Natural selection (of which sexual selection is a special instance) operates as follows. Organisms face a variety of problems that might impede their survival and reproductive success. However, they possess heritable traits that can help to resolve these issues. These traits are expressed to different degrees in different individuals, such that there is variation within a population. Those variants of traits that better resolve survival and reproductive problems increase in relative frequency within the population as a consequence: individuals with them are more likely to survive, reproduce and pass on the same variant to their offspring. Gradually those variants reach saturation within the population, just so long as the original problems remain stable, and the other variants disappear.

Survival and reproduction problems provide selection pressure, such that particular variants are selected. Thus, natural selection is to be seen as an economic outcome of the interaction between heritable traits and problems. Those traits that are selected can be termed adaptations.

Famously, Darwin had no coherent theory of inheritance during his time. In 1953 DNA was discovered and gene theory began. DNA provided the biochemistry to make sense of earlier particulate inheritance claims made by Mendel, but also to account for seemingly non-Mendelian inheritance patterns. In the 1960s the full impact of gene-theory was spelt out in the work of such scholars as Hamilton and Maynard-Smith. They reasoned that as traits were built by genes, and genes were in the business of replicating themselves through the generations (just so long as natural selection 'permitted' it), then genes should be seen as the level of selection. In other words, what natural selection is really doing is affecting relative gene frequencies. The traits that these genes build will die with the organism, but a copy of those genes will have been passed on. Any trait that causes the underlying genes to increase in relative frequency is therefore an adaptation; indeed, this is the technical definition of an adaptation.

Genes explained inheritance but they also explained new variants. Every so often genes would mutate and give rise to variations in the trait they expressed. Most of the time such mutations have no real effect, the rest of the time they are mostly deleterious to the organism and they never get off the ground, but just occasionally they produce a variant that better solves existing problems, or solves new ones. Mutation combined with selection gives the blind process that accounts for the presence of apparent design.

Dawkins (1976) captured all these elements of evolution with the phrase “the selfish gene.” All that was meant was that genes can be conceived of, heuristically, as simply interested in their own replication. If the best way to do this is to build traits that create great self-interest in the organism, they can. However, if it helps genes to build traits for cooperation, this can happen too. Selection pressures will dictate this. By Dawkins’s terms genes are to be seen as replicators and organisms as vehicles. The vehicle-replicator distinction has become a key conceptual part of evolutionary theory and arguably systems that see change over time can only be said to be evolving if this distinction is present. Indeed, the introduction of memes (a term Dawkins also coined, in the same book) to explain cultural change was an attempt to meet this explanatory demand.

Darwin was interested in species and speciation. Evolution through natural selection explains the apparent design of organisms, but an extra element is needed to account for the diversity of species. It is worth noting that the species level is part of the Linnaean taxonomy and might not represent a true natural kind. None the less, models of speciation exist. The main model is that of allopatric speciation. If a sub-group of an overall population finds itself geographically and reproductively isolated from the main group there is the opportunity for separate evolution. Thus, different variants within this sub-group might do better than they previously had due to new environmental problems. Over time these variants would come to dominate. Similarly, new mutations might throw up new traits that are in turn selected for. After many generations, and a number of such events, the sub-group no longer resembles the original population.

It is important to note that this model of speciation, and all others, relies upon gene-level arguments. The vehicle-replicator distinction is essential to these explanations.

### **What is Martindale’s claim?**

Martindale’s central claim relates to the high arts. He argues that on “the one hand, they must represent and communicate something. This gives them their interest and importance. On the other hand, they must be novel.” It is this pressure for novelty that characterizes the evolution of the arts, but Martindale

also believes that novelty will be exhausted and this will lead (if it has not already) to the extinction of the arts.

At first pass this seems to be a fairly straightforward statement. In this construction the high arts are seen as subject to selection pressures. They can more or less successfully represent and more or less successfully be novel. From Martindale's subsequent focus upon poetry, it would appear that the high arts are being seen as, at the very least, a genus in the Linnaean taxonomy, and equivalent to *Homo*. Poetry must therefore be a species, equivalent to *Homo sapiens*. Presumably there are also sub-species of poetry, just as we are in fact *Homo sapiens sapiens*, rather than *Homo sapiens neanderthalensis*.

The extinction of a genus is undoubtedly made up from a number of extinction events for the entirety of its constituent species, so Martindale's focus upon poetry is legitimate in this sense, although one would need to look in detail at local ecologies for all species before making a final claim for the likely ending of the genus.

Martindale makes his point for poetry as follows:

Many forces act on poets, but across long periods of time, these forces vary rather than endure. However, there are two exceptions so obvious that they are often overlooked: the selection criteria of communication and of novelty. A poem that communicates absolutely nothing to no one will not survive. Once something has been communicated, later poets cannot repeat it again. If repetition were allowed, there would be no difference between a poet and a typesetter.

Here we see a slight shift from the art itself, poetry, to the poet. Poems, the product of poets, are more or less successful in terms of the selection criteria. Once a poem has been selected for the implication is that it will have reached some kind of stability and, more importantly, have used up that design, for under Martindale's description it cannot be repeated. This is not what happens in the organic world. A successful design will reach saturation in a population due to its success at resolving selection pressures which enables it to out-reproduce others. For Martindale, it seems the repeating poet is simply a typesetter and the implication is that the poet is a failure.

The typesetter metaphor is important. Gene-level selection relies on a type-setting replication element as said above. Genes copy themselves and get

passed on through reproduction. It is the successful variants that gradually increase in relative frequency and come to dominate as a consequence of this very process. It would appear that Martindale's shift to seeing the typesetter-poet as a failure under the stated selection pressures is possibly due to an absence of a clear vehicle-replicator distinction in his model.

We can express this argument by way of a rough and ready analogous model. Imagine a world where poems are individuals that make up the species of poetry. Poems have two traits – communication and novelty – that can be expressed differently such that there are many variants. The most communicative and the most novel variants will come to dominate due to the selection pressures in the environment. Poets can painstakingly copy poems thereby reproducing them. However, occasionally the poets make a copying error and introduce a new variant. If this is more communicative and/or more novel than its antecedent it will thrive and come to dominate for it will be constantly reproduced.

In this analogy poems are copied in their totality – there is not a particulate model of inheritance at work, but that is not essential. Poets act as the mechanism of replication, replicating the poems, and presumably the vehicles are the paper and ink in characteristic patterns that make up the poem. Reproductive success might be marked by the number of copies sold, or some such. As said, this is a rough and ready analogy but it serves to make a point. In Martindale's version of events he seems to be conceptualizing the selection pressures as a test for the poet, not the poems. Poets have to introduce new variants (poems) into the environment and just so long as they are suitably communicative and novel they will reach stability. So, poems can endure once created, and will bear repeated airings, but for a poet to make her mark she must produce just such an enduring item. In this way Martindale is not discussing the evolution of poetry so much as the market forces acting upon poets, which will of course have an affect upon the poems produced, but not an evolutionary one *sensu stricto*.

The market forces that act upon poets might provide selection pressures for increasingly inventive poets who can be more communicative and novel than their ancestors, but this is locating the evolutionary story elsewhere.

Putting to one side the exact parsing of the putative evolutionary process, there are other things to discuss, relating to the notions of communication and novelty.

The dynamic that Martindale describes seems to assume that the world-to-be-represented by poetry, or any other art, is stable. This stability gives certain finiteness to the available design space such that it can be exhausted. However, this surely is not true unless one assumes a specific and set level of granularity for the descriptions of poetry. So, if poems were only ever about the species of trees available in the Forest of Dean in 1859 then this would indeed present a limited set of items to represent. But poems are not set at any particular granularity, nor are they focused upon any specific set of objects or experiences, and given this poems are quite capable of capturing the changes that go on around us all of the time. Which means that they are potentially open to being novel at all times.

One might suggest that the poetry of high art focuses upon enduring themes, such as romantic love, and this might be true. But our experiences of romantic love now, in 2008, are surely different, in the kinds of detail that really count to us, from those of some hapless honeymooners meandering through the forest in the mid-nineteenth century. Just think of the complexities of modern office romances, with their emails and photocopying high jinx, and compare that to the decorum of the tea-party and the veiled expressions of interest. Novelty is inherent in cultural change and this will be represented in poetry. The readers of the future will engage with these poems for the lasting themes, and the historically located ethnographic gains which will seem both alien and novel to them.

Of course, my discussion of novelty leads to the question – just what elements of poetry have to be novel in Martindale's view? And any answer would need justification.

I doubt Martindale's empirical support for his prediction that novelty will be exhausted; or rather, I see it as support for the possible exhaustion of a particular token of novelty. Martindale has used some ingenious methods to look at particular syntactic games of novelty which become increasingly obscure such that they clash with comprehension at some point and the system fails. This is potentially possible, in so far as it goes, but I was forced to rethink the implications of this when Martindale mentioned in passing that poetry is only read by poets these days.

If it is true that only poets read poetry then we have a closed population and this allows us to make some rudimentary game-theoretic analyses. Game theory focuses upon strategies that can emerge in populations and reach equilibrium. Interestingly, Maynard-Smith developed evolutionary game theory in the 1980s, in which phenotypes (the expression of genes) were regarded as strategic moves in a game where the aim was to maximize fitness, or increase the relative frequency of underlying genes. This has proved a most useful approach within the evolutionary behavioural sciences, but for now we need only focus upon basic game theoretic issues.

If the game is to produce poems that communicate but that are also novel you can imagine poets, in a closed population, competing with one another to produce increasingly novel representative poems just so long as novelty is rewarded. At one point in time, the novelty element might be unpredictability, as Martindale has measured, such that word and phrase length can be varied etc. It is quite possible that the to'ing and fro'ing of poems that play on this dimension will at some point exhaust the available design space (understood in relation to its trade-off with comprehension). However, were this to happen one would predict a jump to a different variable. Each variable so manipulated might represent a tradition within poetry for a while, which Martindale alludes to in his paper.

Such games have an added communicative element. It is in the interests of each player in the game to understand the variable being manipulated and the manipulative algorithm being applied. It is highly likely that new codes will emerge within this closed population that are effectively communicating about just this, and not representing the outside world at all – so the game then becomes rather like the completion of a number sequence and is played for this reason alone. This is especially true if the pay-offs for players are directly related to the evaluation of novelty made by other players. From the outside this will begin to look peculiar and non-representative, from within, the potential for new variables and new codes has been liberated from direct representation of the world and shifted to a representation of an emerging and shared understanding. Such forces could emerge in a more open population but I suspect they would act to produce a closed group.

I have an intuition that this might be a way of making a distinction between high and low arts. Previously I have been averse to such distinctions but it is possible that the seeming obscurantism of such games marks them out as high arts, a



code that is to be broken by the onlooker. Low arts operate in a different market place which values direct representation of current culture. Given that the utility being maximized in these games might be seen as large amounts of money, and not just the money of the artist but also of those who control the production companies, then one might predict a constraining influence that would not encourage the kind of novelty games just outlined.

Popular music, which Martindale briefly discusses, might be regarded as a low art by the above criterion. Given that it is to be sold in order to make large amounts of money the market must recognize something of value in it. A common view might be that pop songs represent current life and normal emotional responses in a readily digestible form. Martindale does not speculate on the exact nature of the market (though he notes the financial issue) but one possibility is that pop music pleases us with its use of musical and lyrical form. Pop music might be stimulating some specific musical dispositions. For example, pop songs undoubtedly make use of harmonic minor keys, and this is known to be enjoyable, cross-rhythms are used in order to excite and repetitive hooks are often the order of the day with surprising flourishes just to keep the listener guessing. What is more, lyrics use current registers and have references to time and culture specific aspects of life, and sometimes songs are politically motivated also. Our interest in all of these things arises from our evolutionary history. Understanding the endurance of low art as a genus, or collection of species, will rely on proper accounts of such matters. Equally, I am certain that the human disposition to seek status is at work in the world of high art. Being able to align oneself with a seemingly closed group, being able to claim understanding of their esoteric codes undoubtedly has a certain social cachet that will have direct benefits for individuals. The story of art cannot be separated from the nature of its producers and users.

## **Conclusion**

Evolution through natural selection is a very particular thing relying on certain core elements. It is not clear from Martindale's account that poetry is subject to this process because the key distinction between replicator and vehicle has been blurred. Given this, his concern really seems to be with poets, rather than poems.

The dynamics that Martindale describes can be better captured by the notion of a market, and some weak game theoretic notions have been presented as stimulation to further hypothesis formation in this realm.

Finally, I have suggested that even under the conception of the market, any account of change in art cannot be separated from discussion of the dispositions of those humans who produce and consume it. It is at this point that biological evolutionary theory will play a key role.

### **Reference**

Dawkins, R. (1976.) *The Selfish Gene*. Oxford: Oxford University Press.