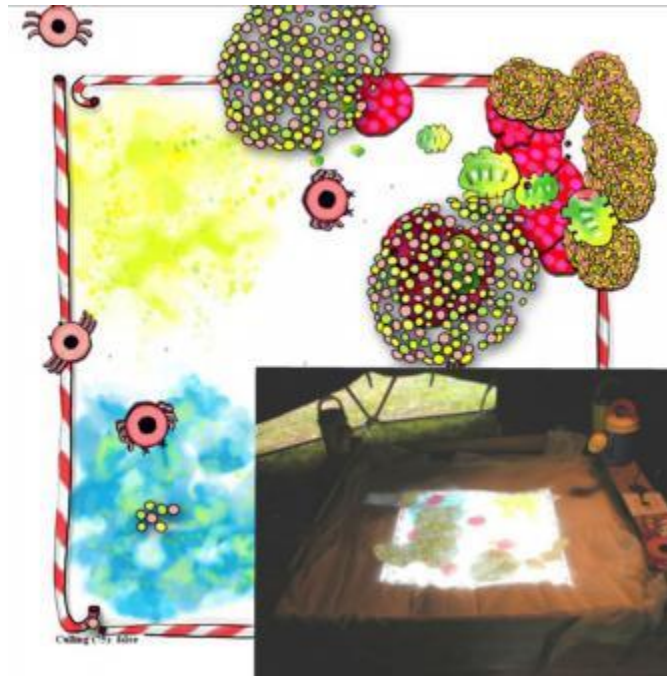# CAN DIGITAL OBJECTS BEHAVE WELL (IF WE LET THEM)?

Dew Harrison

The *Shift-Life* Installation. Dew Harrison.

Within my practice I have an interest in how computer technology can augment our thinking and elucidate deeper understandings of issues and positions within the art field (see Tamblyn). In particular I have been investigating the work and ideas of Marcel Duchamp as the instigator of Conceptual Art practice and how new technologies are best suited to enable a re-articulation of them (see Blais, Gere, Manovich, Rush, Shanken, and Harrison 1999). Early works transposed his Large Glass across the internet, and inter-related Duchampian images with his notes (Duchamp 1934, 1966) into discreet offline systems. These pieces were made using hypermedia software as this enables the linking of multimedia items by semantic association rather than by indexing or alphabetic ordering (Harrison 1997). This connectivity by semantic association is paralleled in Conceptual Art where ideas are semantically linked by the artist into one concept – often presented as a visual statement, an object.

As technology advances, the interactive interfaces, which are signatures of digital artwork, can become less visible and taxing to the viewer. My work reflects this in its move towards engaging participants through intuitive interfaces with less machine-like ways of access. From mouse, keyboard and screen - to sensors, projections in physical spaces and material objects. In order to achieve more organic means of semantic association, I am now incorporating Artificial Intelligent (AI) behaviours into my Duchampian art systems to animate data objects. Recent works have bestowed the digitized Duchampian items with flocking behaviours in order to interrelate them into families of meaning, the result being more akin to a

projected animated painting in that they are not interactive and require contemplation in considering their shifting positions.

'Flocking' is more usually associated with the collective animal behaviours exhibited by many living beings such as birds, fish, bacteria and insects, but can be more largely understood as the motion of a large number of self-propelled entities (see Reynolds). It is considered an 'emergent' behaviour arising from simple rules that are followed by individuals and does not involve any central coordination. Flocking behaviours can be applied to animal-like and non-animal-like entities and the first experiments with Duchampian items are simple rather than complex, using 'Flash' to animate them. The intent is to show the criticality of oscillation required in determining the Bride/Bachelor families and shifting relationships within the Duchampian universe of objects. These are image only objects at present but when texts are added they might provide a meta-language of semantic understanding concerning Duchampian ideas, with the object/behaviour patterns lying underneath and of less interest to the viewer. They could illustrate the flux and flow of his ideas and if emergent behaviours arise may enable new discourses within the system.

It is these Duchampian experiments which have led to the hands-on installation, 'Shift-Life', by directly influencing the approach to an exploration of Darwin's 'big idea'. Instead of Duchampian objects, AI behaviours were attached to a virtual world of animated objects featured as creatures and plants that adapt to Darwinian principles for survival. These 'families' were grouped by their form and colour, and it is the changes in these identifiers that are of interest when observed by viewers who can cause physical upheavals in their world, to which the artificial families of life-forms then have to respond. The *Shift-Life* project entailed a fantasy biological life-form, 'bugs-in-a-box', existing in conditions analogous to Darwinian evolution. Interfering with the stability of their ecosystem was done through real world actions directly affecting the virtual one. The work relied heavily on the 'animal intelligences' programmed in to display accelerated Darwinian principles by allowing them survival strategies (Ch'ng).

In attempting to both respond to the idea of a young Darwin and to elucidate his adult thinking in an holistic hands-on way, the bug-like creatures in the box reflected his childhood interest in natural life-forms by taking the form of beetle-like jelly sweets and allsorts. These virtual creatures existed in a nutritional (trophic) relationship of prey/predator and vegetation with both rooted (sessile) and free ranging (vagile) organisms. They were short-lived (60 seconds minimum and 150 seconds maximum) graphically represented as 2D and brightly coloured cartoon animals. Each plant and animal type had distinct behaviours, for instance the herbivores were big, slow and lumbering, they reproduced by laying jelly bean-like eggs and could survive the toxic plants if they didn't eat too many of them. The Carnivores were quick with a scuttling gait, they could only see straight ahead and reproduced by cloning, they would die if they ate a herbivore who in turn had nibbled on a toxic plant.

In order to allow people to interact with the Darwinian 'sweet' bugs the virtual world was projected down into a real wooden box arrayed with sensors. These sensors relayed data from the visitors actions directly to the virtual ecosystem where the animals and plants would react accordingly and in real-time. As someone used a watering can to pour liquid into the box, for instance, the planet humidity altered and some plants die back, this meant less food for the herbivore green jelly sweet bugs, and consequently less bugs to eat for the pink carnivores. Switching a lamp on would dry out the atmosphere and enable the plants to grow again, however too much 'sun' might be detrimental to the point of scorching the planet surface dry and wiping out the carnivores entirely with no water and no trees for protection. The carnivores could become extinct due to their reproduction method of cloning, unlike the egg laying

herbivores. Pouring vinegar (poison) from a watering can would 'feed' the red bushes, toxic to all the creatures, but this could be remedied by pouring baking soda liquid (plant food) and restoring the plant balance, the herbivores' main food source. Banging on the edge of the box with a toy hammer caused earthquakes, which sent the carnivores into panic mode and they would spin around and run for cover under the trees. (Harrison, Ch'ng et al)

The low-tech approach to a hi-tech installation encouraged active participation but also a state of contemplation and reflection in passively observing other people's actions and watching the subsequent life-form changes taking place. The jelly bug world was set at a self-sustainable and stable level without the intervention from human meddling and as such was visually mesmerising, it was essentially a sugar-coated version of 'nature red in tooth and claw'. Through listening to the participants' conversations it was evident that there was room for deep thought, where the virtual world could be understood as an analogy for human activity and it's effect on global climate change within our own real world. The animal behaviours, although quite complex with around 15,000 lines of code, were still fairly basic, but the question remains whether if given more sophisticated behaviours and left longer between the human interventions, would emergent behaviours become apparent within the social groupings of the creatures as they adapt to survive.

Both the Duchamp and Shift-Life projects await their next stages, visitors may need to view passively, observe and contemplate following any interaction with these 'live' systems, as unpredictable behaviours arise from digital objects.

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