The Case of Biophilia

A Collective Composition of Goals and Distributed Action

by

Mark Cypher

Murdoch University, Western Australia

m.cypher@murdoch.edu.au

www.markcypher.com.au

A B S T R A C T

Rather than follow the machinations of a singular artist in the production and exhibition of an interactive artwork, this paper uses an actor-network approach to collectively hold to account a whole host of actors that literally make a difference in the production of an interactive artwork, Biophilia *(2004-2007). My main argument is that in order for any action to take place both humans and non-humans must on some level collectively work together, or, in actor-network terms translate one another. However, such new relations are predicated and indeed just as dependent on and what these new actors are willing to give up as it is to do with what they can offer. Needless to say that when the negotiations are momentarily over, actors give up individual goals and compel others to collectively form new definitions, new intentions and new goals with each interaction. In other words, the 'work' represents neither the beginning nor the end of a particular event, but is described more as a continually shifting and cumulative series of distributed actions.*

INTRODUCTION

In an application form addressed to the Siggraph 2006 Intersections Gallery, the artist must describe his interactive artwork. The form states:

The installation Biophilia *will enable participants to interact with and generate organic forms based upon the distortion of the user's shadow. Coined in 1984 by sociobiologist Edward O. Wilson, Biophilia refers to the need of living things to connect with others - even those of different species. On one level,* Biophilia *critiques Wilson's notion that western culture desires a connection with nature, even though that same desire belies a deep unconscious fear of all things natural. With these ideas in mind the installation* Biophilia *attempts to absorb and synthesize users and their contexts, producing unpredictable patterns of propagation and hybridity.* [1]

Although short, this simple paragraph, like many others about the work, belies the complexity of relations that have enabled such a reference to be made.

For the moment though, complexity is not important. The statement must have enough impact to catch the attention and interest of Siggraph and the judges who work on its behalf.

The form together with the inscriptions and reference images, imply a desire for a connection to form, or a movement from disinterest to one of interest.

Several months later, the artist receives an email that accepts the proposal.

Now unbeknown to the artist and the judges, they have just formed the first step in translating the art work *Biophilia,* and the chain of actors that support it, into a binding sociotechnical relation. Even though the artist is in Australia and Siggraph and its judges are in North America. In the end, the written form and its inscribed references were enough to convince all the actors involved that a relation can be made. The effect will be that the artist's CV will get bigger, Siggraph will also get greater international participation and *Biophilia* will be more attractive to other judges, festivals and curators in the future. In a sense, both actor-networks are now able to achieve effects that would not have been possible on their own. [2]

Several days later the artist receives another email from the Siggraph "Art Show Chair":

> I am concerned about the amount of walk space between your booth and the art walls below it in the plan. [...] We need more space so people can stand back and view the art plus the Fire Marshal does not like us to have close passageways. [3]

Several emails later it is clear that some negotiation over space is required, if the embryonic relation between *Biophilia* and Siggraph is to be sustained.

This description of the trials of strength inherent in the construction and exhibition of an artwork may have started in a rather strange place. But the process demonstrates how actors are co-defined when they begin to form relations. In actor-network terms, the elemental affiliation that enables a network to form is the process called translation. Michel Callon describes translation as:

> 'A translates B'. To say this is to say that A defines B. It does not matter, whether B is human or non-human, a collectivity or an individual. Neither does it say anything about B's status as, an actor. B might be endowed with interests, projects, desires, strategies, reflexes, or afterthoughts. The decision is A's – though this does not mean that A has total freedom. For how A acts depends on past translations. These may influence what follows to the point of determining them.. All the entities and all the relationships between these entities should be described – for together they make up the translator. [4]

The trajectory and relative makeup of a translation can be mapped when we consider the amount of associations and substitutions that go into making a relation stable and thus viable. This process can also be expressed in Figure 1.

So what an actor in translation gains in one area is a result of having lost something in another. It's in this way that all translation requires a series of trans-actions. [6] That is, *Biophilia* will disengage weak or threatening entities whilst incorporating those that are sustaining. It is the nature of these trans-actions,
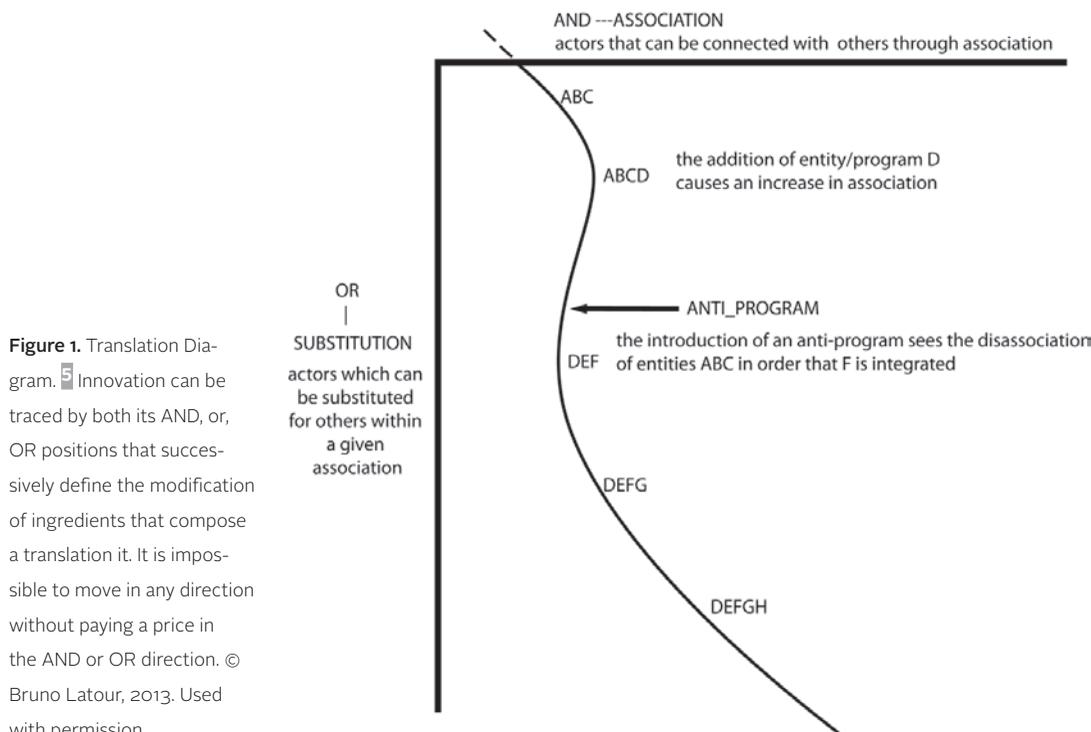
Figure 2. *Mapping the Collective: Biophilia.* © Mark Cypher, 2013. Used with permission.

Figure 1. Translation Diagram. [5] Innovation can be traced by both its AND, or, OR positions that successively define the modification of ingredients that compose a translation it. It is impossible to move in any direction without paying a price in the AND or OR direction. © Bruno Latour, 2013. Used with permission.
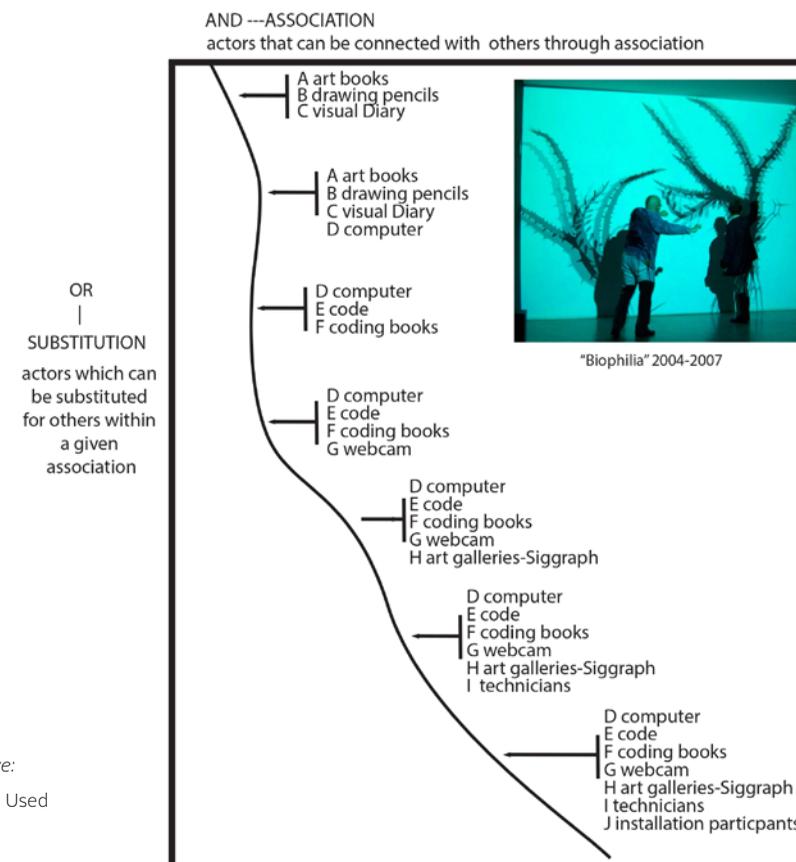
which defines the strength or weakness of a given translation and will contribute to the explicit shaping of the artwork; apart from the intentions of the artist. [7] Therefore, a collective entity like *Biophilia* cannot be entirely defined by its 'essence' or what we see on the surface in a representation at anyone particular time. Rather, translation as observed in *Biophilia* produces a unique mediatory signature of a specific association of entities at work at any given moment, as is shown in Figure 2.

The notion of translation demonstrates that the problem solving involved in art practice, is a deeply intertwined sociotechnical process. When we see the artist take his position at a desk in front of the computer and begin to work on the problem of Siggraph's lack of space, he will need the desk, the computer and a whole host of other entities to be compelled to solve the problem. But of course in order for this problem-solving process to work it will require that technical components are already socialised for use. Computer

vision is socialised, it enables the computer to 'see,' and the computer and camera can 'talk' to each other, just as computer code is compatible with reading. What at first seems like a highly complex objective process with sophisticated technological components is made compatible with social ways of coding and reading. [8] It is in this way that properties are borrowed from the social and inscribed into nonhumans.

At the same time, this process will also extend nonhuman influence in the social. Whereby, humans will equally absorb nonhuman properties; that is, take the position of sitting and using a mouse, submit to the limits of the technical components, follow structured software patterns or read feedback given, in order to establish a working relation. So much so that what the artist will learn from the production process is the result of contact with nonhumans, which is then re-imported back into the social as conceptual and afforded content through the artwork.

The computer, code and technical components lend their nonhuman properties to what was previously a scattered and unordered bunch of parts and loose intentions. The intersection of nonhuman influence will allow these actors to align and their relations to harden. So much so that the sociotechnical hybrid *Biophilia* will eventually submit to the fire laws of Boston, measured by firewardens, held accountable by the Chair of the art gallery and be granted a social life, worthy of its place in the Siggraph Intersections exhibition. [9]

When we observe the so called 'social' actions of the artist sitting and at work at the computer, trying to solve this problem, it looks as if the human does the 'work.' However, when we take into account the vast amount of translation in the construction of *Biophilia* our observations are undermined. Translation shifts the focus to a vast assembly of actors who are directly related by function, material and ontological inseparability, recombined in a specific time, space, actorial and material sequence, who are also doing the work.

THE PROTOTYPE

Try as he might, the artist is unable to solve the increasing complexity of the code. The computer is not able to 'talk' sufficiently fast enough to the camera, so yet another actor, a technician, is associated to the realization process of the artwork. After meeting with the technician, it is decided that a scale prototype of the artwork will be constructed beforehand. This will accommodate the testing of new goals and new configurations of *Biophilia* and indeed Siggraph's dimensions for its exhibition space.

To say that prototyping happens 'beforehand,' assumes that the most important actions must at some point involve hands. Or that material contact with

humans in this time and setting is somehow divorced from the nonhuman flow of activity, procurement of skill and the accumulation of goals, which are essential for any action to take place. But of course many hands and many things outside of this time and place lay embedded in every skill, in every tool. So much so that it should be impossible to clearly define any action, as beholden to any one actor because 'beforehand' should rightly stretch into the long distant millennia. Therefore hands and material are relevant contact points, but they are also just one point of many in the continually shifting and collective trajectories that are part and parcel of all action

Nonetheless, prototyping *Biophilia* in relation to the problem of Siggraph is necessary because it increases the probability that *Biophilia*'s goals will align with that of the gallery. It can only ever be a probability because the actors involved in each situation will be different. Thus the associations the new situation creates will allow or disallow a whole range of unforseen affordances. Although the Art Show Chair and the gallery staff require a certain 'stability,' duly required by professionals, they are not going to get it unless the other half of the relation (the nonhuman kind) is cajoled into line. No matter how obstinate, professional standards also relate to nonhumans. Yet even with all this work done with, and before the artists hand, the prototyping process is tenable and only as strong as the alliances it can maintain and carry forward into space.

John Law describes the construction of space in relation to the actor-network as one in which objects are co-constituted with the surrounding space. This means that "spatial relations are also being enacted at the same time [as translation]... Or, to put it more concisely ..., spaces are made with objects." [10] The relation to space, to the actor-network and/or possible actions, seems to fit well with Callon and Latour's early definition of actors as:

Any element which bends space around itself, makes other elements depend upon itself and translates their will into a language of its own. Before the elements dominated by an actor could escape in any direction, but now this is no longer possible. Instead of swarms of possibilities, we find lines of force, obligatory passage points, directions and deductions. [11]

In this way, actors and space are mutually dependent and as such mutually constituted in translation. Prototypes, much like institutions such as galleries, are exemplars of this kind of compelling space. Galleries, installation spaces and indeed prototypes not only regulate physical and material movement but also the cognitive, political and ideological rhythms of the many actors constituted in their frame of reference.

The spatial relations generated by institutions (much like the collectives at work in the construction of *Biophilia*) not only control the networks between inside and outside. They also shape the political, material and practical participation actors have in those spaces. As John Law states, "spatial systems ... are political because they make objects and subjects with particular shapes .... Because they set limits to the conditions of object possibility." [12] Yet this relationship is not a one-way affair. As much as *Biophilia* submits to the limits imposed by the Siggraph gallery, it also pushes Siggraph to negotiate and open the institutional and regulatory boundaries imposed on it. Until both networks become re-aligned each negotiation pushes *Biophilia* and Siggraph to a unique sociotechnical collective that will occupy a distinct spatial topology at a particular point in time. Therefore, *Biophilia* becomes much more than an artwork defined by a singular interaction/representation and more like a nexus of relations that shapes objective, subjective, cognitive, social and institutional associations. [13] In other words, the 'work' represents neither the beginning nor the end of a

particular event, but is described more as a continually shifting and cumulative series of distributed actions.

INTERSECTIONS EXHIBITION, SIGGRAPH ART GALLERY, BOSTON, USA

Before the participant arrives, she is already 'prepared' for involvement by various marketing materials and previous 'interactive' experiences. As she steps off the crowded bus, handrails and human attendants guide her to the entrance to Siggraph. On entering the gallery, the space is dark and quiet, and the participant's pass is checked and stamped. The darkened gallery space, gallery attendants and didactic information about each installation ensure that by the time the participants come in contact with the artwork they already know, in part, the role they must play.

At a more intimate level, the point at which the participant enters the installation space of *Biophilia* and begins to interact signifies a change in behaviour. The gallery visitor is now redefined as a 'participant.' The cavernous Boston Convention Centre becomes the Siggraph Intersections Gallery. Siggraph lives up to its promised brand and *Biophilia* becomes truly 'interactive.' The participant literally learns in real time, that they, in association with the artwork are "an interface that becomes more and more describable as each [actor] learns to be affected by more and more elements." [14] Moreover, the participant's objectives to engage the artwork, begins to identify with the physical affordance of *Biophilia*, to the point that the user's intentions are shaped, both in a positive and negative sense of enabling and constraining certain behaviours. [15] In other words, a certain level of influence is distributed throughout the act of engaging with participatory artworks that alters each actor's definition, ontological makeup and associated goals and objectives.
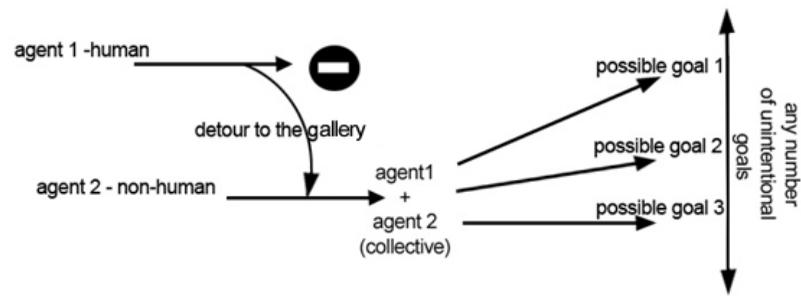
Figure 3. Goal Translation Figure3 adapted from Latour. [16] The explosion in unintentional goals is a result of different combinations of actors interacting. One can never really know what is going to happen, because we can never really know all the elements activated in a given association or context beforehand. © Bruno Latour, 2013. Used with permission.

This is represented in diagrammatic form as goal translation in Figure 3.

Goal translation represents a symmetrical example of how, through interaction, competencies, objectives and possible actions are co-constituted. Both the human participant and the artwork's goals are translated into a collective program of action, in which any number of unintentional consequences could result. In other words, action is shared amongst those in the collective and is in part uncontrollable by any one element, human or otherwise.

This kind of unpredictability is brought to bear by such translations and is used by the artist (whether he recognises it or not) to take advantage of the volatile collective action produced when a multitude of entities come together. It is no wonder then, that Frank Popper conceptualised such phenomena in electronic art works as "neocommunicability [as] an event - full with unaccustomed possibilities..." [17] The uncontrollability of relations in an interactive event is a small articulation of what many artists come into contact with every day. That is, to act means to be perpetually overtaken by the thing you are supposedly building. [18]

In this way goal translation as evidenced in both the construction and interaction with *Biophilia* demonstrates that there is no prime mover of an action and that a new, distributed, and nested series of practices allows all kinds of unintentional actions, ontological variability and exchanges to develop. The implication then is that action can be redefined as follows:

> [N]ot a property of humans, but of an association of actants [human or nonhuman agents]..[Whereby] provisional "actorial" roles may be attributed to actants only because actants are in the process of exchanging competencies, offering one another new possibilities, new goals, new functions. [19]

This kind of distributed action not only highlights the implausibility of humans and nonhumans acting alone but that the whole process of gaining some kind of competency is underwritten by exchange. As Latour further explains:

> Interaction cannot serve as the point of departure, since for humans it is always situated in a framework which is always erased by networks going over in all directions. [...] the attribution of a skill to an actant always follows the realization by that actor of what it can do when others than itself have proceeded to action. Even the everyday usage of 'action' cannot serve here, since it presupposes a point of origin [...] which [is] completely improbable. [20]

Action and indeed agency is always shared and distributed amongst other entities. The ability to act is therefore mediated by others' actions that have come before it. Such cumulative influence can be illustrated in Figures 4 and 5 below.
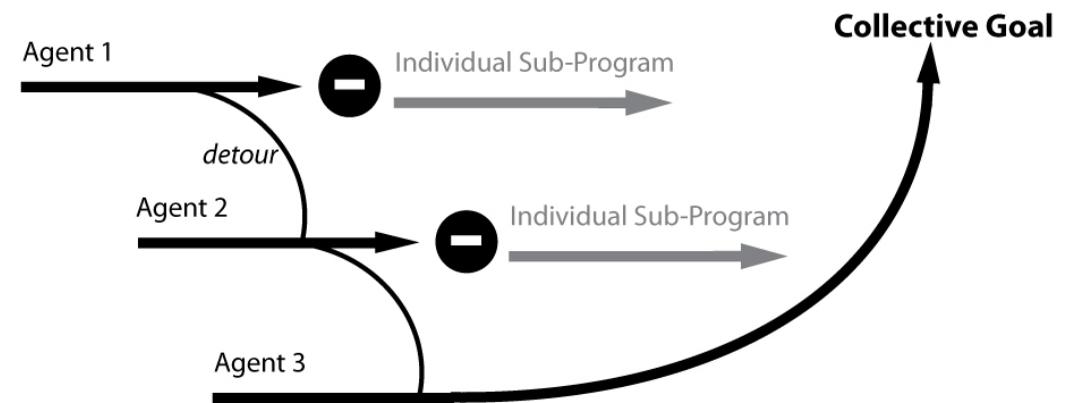
Cumulative influence of the Collective

Figure 4. Individual sub-programs of action are bent towards a collective goal. [21] © Bruno Latour, 2013. Used with permission.

Cumulative influence of the Collective

Collective Goal- Biophilia (Interactive Art Work)

Biophilia compacts the distance between subject and object, inside and outside. Where "the reproductive value of certain signs is dependent upon processes of symbiotic or co-evolutionary signification and communication. Likewise Biophilia creates hybrid forms, which emerge through the complex interaction between, theory and practice, matter and representation. Where what matters is not necessarily human.
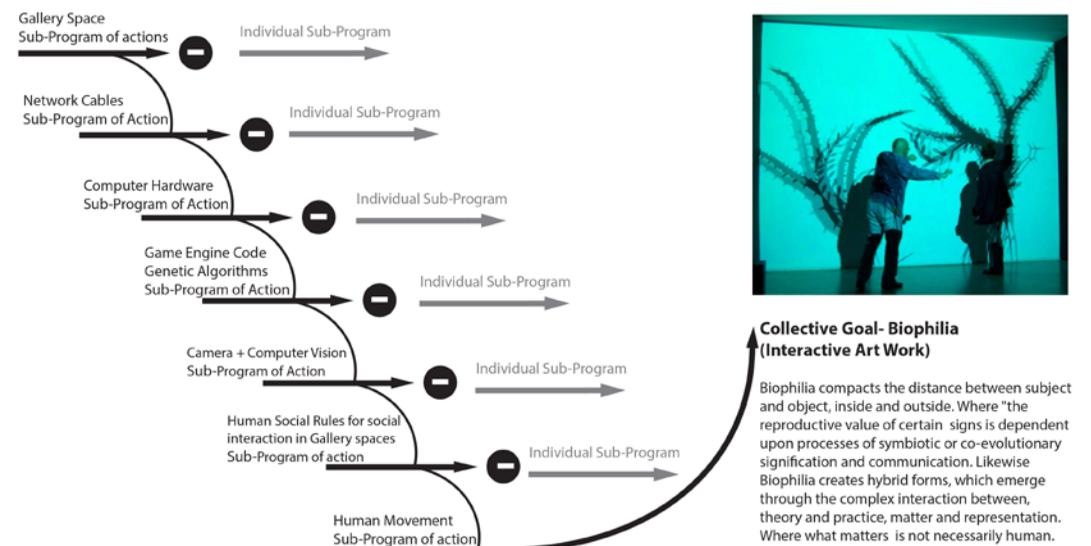
Figure 5. Mapping the cumulative influence of the collective. The composition of new goals is made possible by the colonising of many sub-programs which are then cumulatively bent towards the collective goal for *Biophilia*. © Mark Cypher, 2013. Used with permission.

As Figures 4 and 5 illustrate, there is a long chain of actors that contain their own sub-programs of action. The nature of each subsequent movement not only requires new associations. But it also means that individual sub programs (intentions and motivations) are trans-acted, if not subject to "modes of ordering" [22] implicated in the process of translation and required for a collective goal to be successful.

In this sense translation is important for rethinking production because it usually involves the exchange or trans-action of one actor, to replace another actor to help solve a problem. But as we have seen in Figure 5 these new cumulative problem solving abilities, affordances and skills come at a cost. For example, although the artist spends precious hours rigging the video camera to hang at the optimum height in the installation, the slightest bump throws out the camera's focus. So another set of goals, equipment and technicians is associated and a new reshuffling of actors and associations take place. The order of which is not aligned by mistake, nor wholly by chance, but through the finely tuned or out of tune cumulative translation of goals. Nonetheless a new camera rig collectively eventuates. The cost is time, misplaced intentions, detoured goals, and professional pride. This is not an unimportant detour from the narrative of *Biophilia*'s collective construction. But an integral 'taking into account' of the way relations are predicated and dependent on what actors are willing to give up, ransom or sacrifice, as it is to do with what they can offer.

The means by which collectives like *Biophilia* apply these kinds of enforced behaviours is recognised as a sort of agency. For Lambros Malafouris agency is something that:

[C]annot be reduced to any of the human–nonhuman components of action. [...] It cannot be too strongly emphasized that neither brains nor things

in isolation can do much. [...] Agency is in constant flux, an in-between state that constantly violates and transgresses the physical boundaries of the elements that constitute it. Agency is a temporal and interactively emergent property of activity not an innate and fixed attribute of the human condition. The ultimate cause of action in this chain of micro and macro events is none of the supposed agents, humans or non-humans; it is the flow of activity itself. [23]

By examining *Biophilia* as much more than a discrete artwork in itself we begin to see that the competencies and functions of each actor begin to lose their distinctions in order that the 'work' is made.

In this way, the intentions of the artist are significantly translated and thus altered to the extent that all the actors in the development and exhibition of the artwork shape the conceptual and physical aspects of *Biophilia*. In a sense, the long tail of the sociotechnical translations shape the type of cognitive and functional operations that are possible. As Edwin Hutchins states, "One cannot perform the computations without constructing the setting; thus, in some sense, constructing the setting is part of the computation." [24] In this way, the Siggraph gallery and the installation space are also dependent on similar sociotechnical systems (bricks, mortar, funding bodies, committees, community support) that sustain the types of movements within it. So too are participants' actions, intentions and cognition similarly shaped as an effect of the "modes of ordering" [25] implied by the framing aspect of the gallery and indeed the installation itself. Therefore, for the artwork to emerge the individual goals and functions of each actor must merge into a larger if not distributed action.

CONCLUSION

From an actor-network approach, actual interactions with participatory art works (much like still images of the event) are not a departure point, but one point of many in a chain of associative links. As is seen in the various translations in *Biophilia*, interaction consists of agents that can only act by and through association with others. As these actors associate and thus work

together, their initial goals are forcefully exchanged, sacrificed and colonised for the greater good of the collective. Sometimes these goals align with a strong probability that the trajectory of action grows stronger with more associations. Other times they don't. Nevertheless, these unfounded probabilities and lost propositions connote a deeper sense of the multitude of sacrifices required for a strong relation to form. As a result intentions and goals are detoured from their initial trajectory and precipitate new alliances and new actions that would not have been originally possible. It is in this manner that the interactions, and indeed the intentions to act in the production, exhibition and interaction with interactive artworks, is considered collective and distributed. ∎

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