**Extended Abstract**

**A Bird in the Microcosm: An Environment of Found Objects Constructed to Create Arbitrary Preferences in Starlings**

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The human environment consists of objects and temporal relations arranged so as to manipulate our attention, learning, preferences and behavior. Our physical environments and organizational institutions create constraints on and guarantees of the future behaviors of ourselves and others [1,2]. It is crucial not just to document or subvert these institutions but also to create the ones that we imagine and need. Here I describe my approach to this challenge.

Constraints on behavior are an outcome of social and embodied manipulation of our attention and learning. The mating display of a male bird has evolved to attract the attention of the female, elicit her approach and, through a series of coordinated ritualized actions, to bring both to simultaneous states of arousal [3,4]. In an ad hoc manner, we create similar relations of anticipation and coordination between ourselves and other people and things [5]. Consistent behavioral feedback helps others to anticipate our reactions and can lead to happier coexistence [6]. To achieve the self-control required for consistency, we rely on environments and organizational institutions to guarantee and constrain our interactions.

Physical objects, both natural and cultural, communicate their function to us by taking advantage of our psychology—for example, our attentional biases and learning [7]. Rather than reacting haphazardly to the industrial products and ephemeral activities of others, I practice the construction of environments. Although some conceptual or “open systems” art appears solipsistic [8], it also provides a precedent. Beuys’s 1974 work *I Like America and America Likes Me*, for example, involved symbolic yet ambiguous inter-

actions between Beuys and a coyote living together in a gallery in New York [9,10]. Today, the alteration of natural habitats and urbanization of species causes conflict [11], while geographers have called for a “re-animation” of our conceptualization of human environments [12]. In response to these ideas, I designed an environment to constrain the attention, actions and preferences not only of myself but of another species as well.

Using found objects, including a cage, anglepoise lamps, a puppet theater, a collapsed chair on wheels, a garbage bag and picnic-ware, I constructed an arena for starlings (held under a license from English Nature). Starlings are gregarious birds inhabiting farms and cities and thus already participating in our modified environments. In this arena, an observer starling watched a trained tutor starling eat mealworms from one of two bowls or eggcups. After the tutor left the arena, the observer starling entered and could choose between the two bowls of mealworms. Fourteen starlings experienced one such session each, and a preference for eating from the demonstrated bowl was seen in the majority of observer starlings; that is, a behavioral constraint was brought about by inducing the observer starling to focus attention on the tutor (see Fig. 1). The design of the arena and equipment was critical to guaranteeing the starlings’ preferences and behaviors. Light from lamps enticed the starlings in and out of the arena and focused their attention. A sloping roof inhibited flight, allowing feeding behavior.

As the operator, I too effectively became a part of the “machine.” The apparatus acted as a prosthesis [13], but it was not simply an extension of my capacities. It was also a constraint on possible/permissible behaviors. If I became impatient, the starlings became nervous. When moving parts stuck, if I forget what to do, or if a starling escaped, the motivational and behavioral balance of our interaction faltered. This interactive construction was both a microcosm and a metaphor for other institutions.

While I can get “results” from my interactions with starlings, a rich and provocative aspect of this human-machine-animal system is how the process of the artwork helps us to rethink nature and our transformations of it.

Fig. 1. The arena in use. (© Meredith Root-Bernstein) (top left) A view of the arena showing the human part of the machine moving an eggcup into position. (top right) A starling choosing between two eggcups. (bottom) The procedure for using the arena to induce arbitrary preferences in starlings.
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References
Unedited references as provided by author.

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