Chapter III
Instruction for Design and Designs for Conversation

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ABSTRACT

Effective conversation occurs when beliefs are negotiated through interaction and evolve via goals. Concurrently, goals are negotiated and evolve through interaction. Such conversations are processes of design. Similarly, design—where proposed constructions are negotiated and evolve toward goals, while goals for the design are negotiated and evolve—is a process of conversation. Outcomes from such activities are greatly facilitated, in my view, from an understanding of Pask's two main frameworks from conversation theory: a structure for the architecture of conversations and a schema for modeling the evolution of conversations. My conviction is that these can be used to mirror how design happens. This begs the question, can it help designers design? Yes, I believe it can. This chapter offers a review of Pask's frameworks and discusses their application in theory and practice.

STRUCTURE OF THE CHAPTER

Sections of the chapter have two parts. Each first part addresses the premise of the chapter regarding the application of Pask's work, as outlined in the abstract. Each second part relates personal experiences in attempting to design cybernetic conversations to make such applications successfully. For example:

I. *Gordon Pask* is the primary source for 'conversation theory,' but he is by no means the only one. Dionysius Kallikourdis, Bernard Scott, and other collaborators were present when the papers were published that I consider the vital core. (Pask et al., 1972; Pask, Scott, & Kallikourdis, 1973; Pask 1975)

II. A secondary (and personally idiosyncratic) reference is that of Italo Calvino's *Mr. Palomar* (Calvino, 1986), a collection of

short stories about the experiences of, who else, Mr. Palomar. The protagonist desires to experience cybernetic thinking in all its richness; yet he constantly encounters a daily life that contradicts cybernetic convictions. Similarly, this author has had a career of applying conversation theory that has not always been smooth. Yet, like Mr. Palomar, he has not lost his convictions.

INTRODUCTION

I. *Design* is conversation and conversation is design.

That is, *effective conversation*—where beliefs are negotiated through interaction and evolve via goals, just as goals are negotiated and evolve—is a process of design. Similarly, *design*—where proposed constructions are negotiated and evolve toward goals, just as goals for the design are negotiated and evolve—is a process of conversation.

The premises of this volume of collected papers require, in my view, a spotlight on *Gordon Pask's* two main frameworks from *Conversation Theory*—a structure for the architecture of conversations (Pask, 1975) and a schema for modeling the evolution of conversations (specifically, entailment meshes, see Pangaro, 2001). My conviction is that these can be used to mirror how *design* happens. This begs the question, can they help designers design? Yes, I believe they can, in two senses.

In the first sense, processes of *design*—at their most general, these comprise iterative convergence on goals via the construction of prototypes of increasing fidelity—yield to cybernetic analysis. In Dubberly and Pangaro (2007), models from cybernetics, including conversation theory, are shown to be homologous (Beer, 1966) to issues foundational to design: goal-development, system constraints, testing and iterative learning, politics, rhetoric, and agreement (Rittel, 1973). This approach to design is a delight and Dubberly has been a consistent, rigorous force for connecting models from cybernetics to the design process (his métier as a design planner). In this context, *conversation theory* is a critical, crowning methodology of cybernetics because it closely tracks the most complex, complicating, ineffable, and sometimes intractable aspects of systems, their design, and their taming. It is enlightening to grasp the analogy between a model for the necessary elements for agreement to be achieved and, say, the process of a team comprising the expert on the business, the expert on the market, and the expert on the expression of a novel idea, all collaborating on the creation of business value. Using cybernetic models to frame problems and progress on design projects is the core idea of a class that Hugh Dubberly and I co-teach at Stanford University each year (Dubberly & Pangaro, 2006). Thus, the first sense of how *conversation theory* helps designers to design is by providing models that expose a system's capacities and capabilities, and therefore their limits, where 'the system' may be a product, a service, or the team involved in the design of products and services.

About the second sense of how *conversation theory* helps designers to *design*, I can only say that I use conversation theory to think about any interaction problem that I may be focusing on, whether it is training complex decision-making tasks, avoiding unnecessary expenditure of bio-cost while using computers, allowing users to have goals when using software, or creating a Web search experience that does not feel like using a typewriter. I will not say that it makes me a better designer, I believe that is the case but there is no way to reliably test it. However, I'm certain that conversation theory can map the cognitive transitions that are the core value of using computers—or any human activity, for that matter—like no other theory or model known. Later in this chapter those interaction examples will be explained in more detail.

II. First, a Mr. Palomar-like story: At dinner with a close family relative and his new girlfriend, I

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