Minding an Ecology of Steps: Computing with Social Context

[DRAFT - WORK IN PROGRESS]

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> "[F]requency of validation of an idea within a given segment of time is not the same as proof that the idea is either true or pragmatically useful over long time. We are discovering today that several of the premises which are deeply ingrained in our way of life are simply untrue and become pathogenic when implemented with modern technology." – Gregory Bateson, "Steps to an Ecology of Mind"

> "People need new tools to work with rather than tools that "work" for them. They need technology to make the most of the energy and imagination each has, rather than more well-programmed energy slaves." – Ivan Illich, "Tools for Conviviality"

Introduction

This essay is an attempt to present a welcoming and accessible introduction to the philosophy and vision of the senters project. The title is both a nod to Bateson and to my earlier nod to him in the title of my first, very rough articulation of the senters project, "Steps to an Ecology of Bicycles for the Mind: a Situated Programming Manifesto". As the title might seem to suggest, this is an updated presentation of the project at a similarly high level as that first essay, with the added perspective of having made a certain amount of progress on the project since then. More specifically however, the title foregrounds the notion of "steps", which play a central role in the story I will tell here. So I begin by talking about steps. This discussion will lead to what is meant by "centers of attention". First we will go over the basics of attending, what it means to attend to something. Then we will will get into the unique properties of human joint attention. This will involve a gentle overview of the main gists of Michael Tomasello's thesis on cooperative communication and Charles S. Peirce's theory of symbol and semiotic self-control, in order to describe what a center of attention is, and how it is something we are all very familiar with since our very first experiences with joint attention from infancy. This is where we can start to talk about scaffolding, which is about the use of tools (including signs and graphical practices) to center our attending to practice. Scaffolding has been a ubiquitous part of human experience as long as we've been human, even before we were homo sapiens. We will present the senters vision for the future of scaffolding, and how it differs in character from the ways technology is involved in present-day human culture. While we don't yet know what we'll learn in a fully realized attention-flow computing ecosystem of the kind the senters project is proposing, this essay will attempt to paint a picture of the likely experience and impact of intelligently augmented sensemaking.

What are Steps?

Of the Oxford English Dictionary's definitions of "step", the following are the most relevant to the way we will be using the term.

> "a measure or action, especially one of a series taken in order to deal with or achieve a particular thing."

> [example] "a major step forward in the fight for justice"

> "a stage in a gradual process."

> [example] "sales are up, which is a step in the right direction"

> "a particular position or grade on an ascending or hierarchical scale."

> [example] "the first step on the managerial ladder"