

Spring Elective Seminar, Generative Models, Arch 746-001
Tuesday 2-5, Furness 306
David Ruy



No one can claim that the spandrels under the dome are adaptations for anything. I suppose it's a good idea to put some plaster there — otherwise the rainwater is going to come in — but the fact that they're tapering triangular spaces is a side consequence of the adaptive decision to mount the dome on four arches. It's space left over. It's a side consequence; it isn't an adaptation in itself.

...Many biologists would say, "Well, of course, that's right. We know there are spandrels, or bits and pieces, left over, but they're just nooks and crannies, funny little corners; they don't have any importance." But that's not true; the fact that something is secondary in its origin doesn't mean it's unimportant in its consequences. Those are entirely separate subjects.

... the dome of San Marco is radially symmetrical; there is no reason to ornament the dome in four-part symmetry for structural reasons, yet every dome but one in San Marco is ornamentally structured in four-part symmetry, in harmony with the spandrels below. The spandrels are not just nooks and crannies; they actually determine the iconographic program of the dome itself. Just as with the human brain: most of what the brain does are probably spandrels — that is, the brain got big by natural selection for a small set of reasons having to do with what is good about brains on the African savannas. But by virtue of that computational power, the brain can do thousands of things that have nothing to do with why natural selection made it big in the first place, and those are its spandrels.

Because I began this paper with an architectural example, no one would confute it, because it wasn't a threat to their conventional thinking. If I'd started with an organic example, it would have raised the hackles of all the people trying to be strict Darwinians.

- Stephen Jay Gould

This seminar is structured as an intensive experiment into techniques associated with generative models of design. Students are asked to develop technical understanding as a springboard for difficult questions about emergence and organicism in architecture. Though the term 'generative model' is now commonly used to herald the provocative powers of digital design, its literal connotations are surprisingly esoteric and problematic. Life is generative. The claim that architecture can use a generative model implies that architecture itself has the capacity to be alive, autonomous, and have mind of its own. How is this possible? And why would computer technology enable a generative model? What is the relevance of a generative architecture in society today?

The seminar examines current lines of research investigating the becoming of architectural form, (morphogenesis, phylogenesis, dynamic systems modeling, parametrics, generative grammars, cellular automata). The speculative discussions in the weekly workshops focus on the motivations for these techniques to understand that the techniques are in service of a larger, unfinished cultural project.

The primary requirement of the seminar is the assembly of a physical model based on a generative principle to be defined by the individual student.