Lecture 7: On some semi-automatic machines for the drawing of the architectural orders oddly invented in the seventeenth century.

Transcribed by B. Alex Miller.

When you need something to transfer narrative motion from one state to another, please build a machine.
*The narrative-based state change of the **transparent** geometric process and the fluidity of a machine built to replace this **transparent** narrative.*

As the process of geometric construction is carried out that is necessary to proportionally design the orders according to authors such as Serlio, a narrative is developed that prompts a movement from one proportional state to another: In the appropriate order of operation, the previous length of measure that is established for a portion of the column is subdivided into a particular fraction of that length of measure. Once this subdivision occurs, the original length has undergone a kind of state change that alters its reference from one portion of the column to another; a consistent signifier of measurement is altered through a narrative sequence of geometrical subdivision, changing its state of significance at the conclusion of each act of subdivision. In this case, the vehicle for this active state change is the sequential linearity of a narrative.

In the late 16th and early 17th centuries, as algorithmic processes started to define the evolution of architectural design and production methodology, examples of mechanical constructs that took the place of the narrative geometric sequence began to surface in order to compete. The artisans that were not taught in the ways of algorithmic processes were forced to develop and attempt to use these physical, mechanical constructs as replacements for these processes.

In all of these machines designed to recreate the orders, a state change similar to that of the textual / verbal narrative of Serlio occurs, but it occurs through a physical embodiment of movement(s). Just as one can almost picture an original length being subdivided over and over again to modify a signifier of measurement, the physical machines made this modification visible via expanding / folding armatures, and radial compositions of template punches. After one armature is moved to a particular location, the machine itself can be considered a frozen artifact that represents one of these phase changes, or narrative subdivisions. Both narrative-based processes are transparent, allowing the physical presence of each phase change to be known or witnessed as they occur.

The machines also embodied a type of physical 'memory', but a memory that was still rooted in the linear sequence of ordered operations. The cam of an automobile physically embodies a particular sequence of movement that is required to allow the internal

combustion engine to work properly over the passage of units of time (engine cycles), but it's only true functioning capability comes from its place within this cyclical sequence of mechanical movements; it is part of a repeating 'narrative' or transposition of movement that passes from one mechanical piece of machinery to the next. Its form derives solely in its physical 'crystallization' of its portion of a narrative. You can retrieve the data embodied in the physical artifact of the cam, but only a portion of the overall functioning sequence can be derived, not the conclusion of the entire sequence. The only meaningful data is retrieved at the end of the sequence that is enacted by the moving physical parts of the machine. The sequence is what lends the machine its functionality.

Similar to a narrative evolution, the machines for the creation / design of the orders were also functionally encapsulated by an implied passage of time. The process of state change implies that there is an original state that is modified in some way; an algorithmic process does not necessarily require this original state to be changed. The entire result can be signified in some kind of resolved algorithm or mathematical equation. This is in contrast to the state-changes that occur through the use of the machines that are governed by the previous step in the process (in the case of the machine-based process, the subsequent movements of each part of the machine define each state change). The machine can not 'multi-process', or layer one movement on top of the other to collapse the sequence. One could look at the algorithmic condition (or at least its algorithmic state) in a much different manner. [1]

----

[1] The algorithm could be seen as a signifier of an entire result of calculation. Of course, one can also see this process as one of mathematical sequence (one that occurs within the step by step order of operation that goes into the calculation of the algorithm itself). The difference between this process and the mechanical-narrative process is that the machines themselves do not allow themselves to be broken up into simultaneous actions (just because of simple physical and motion-relative constraints). An algorithm can, however, because it is an abstract collection of subsidiary and sometimes-autonomous calculations that need not be calculated one after the other in a linear sequence.