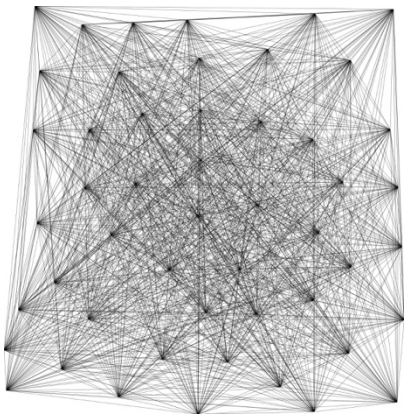
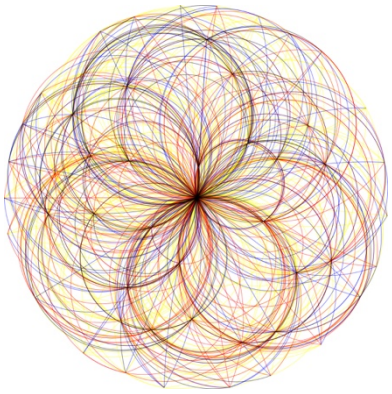
LeWitt Transpositions

Marc Miller





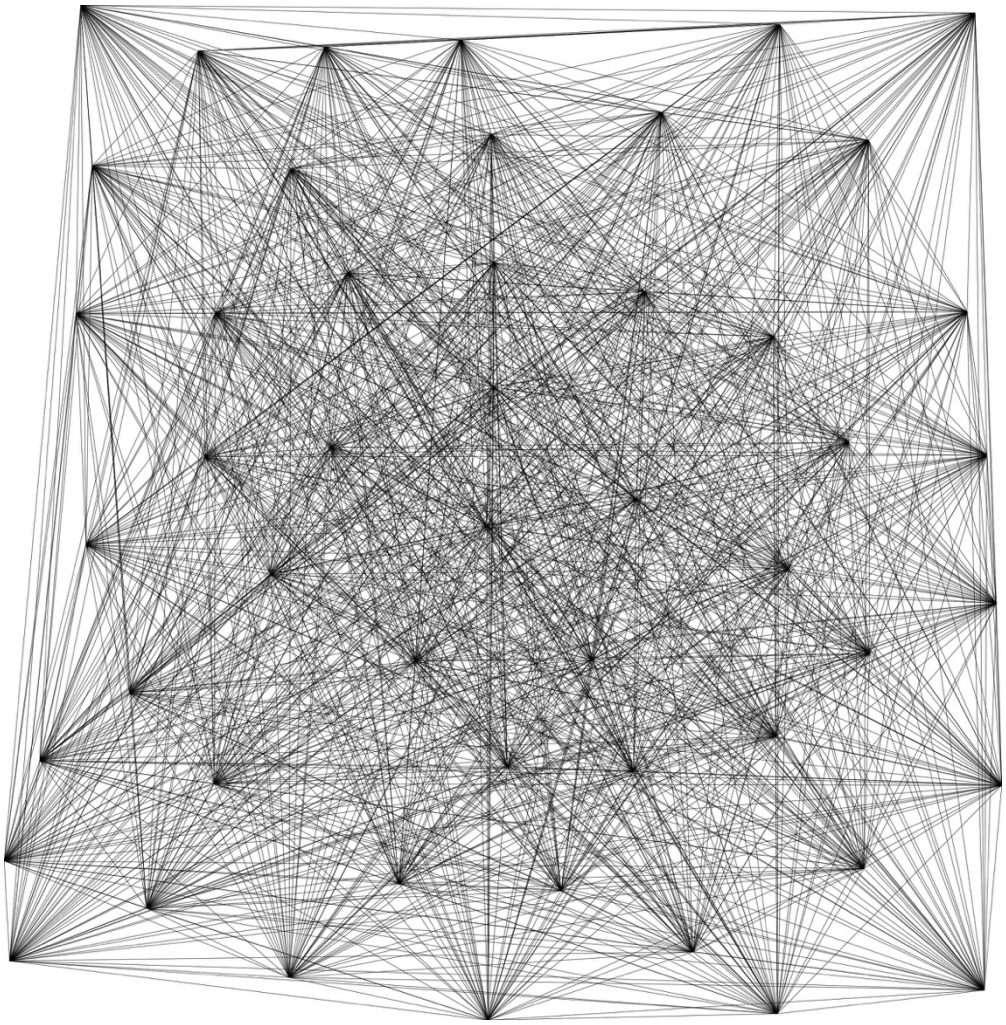


Figure 1 Marc Miller, Transposition 118- Derivation 118-0. *Image courtesy of the artist.*

"On a wall surface, any continuous stretch of wall, using a hard pencil, place fifty points at random. The points should be evenly Distributed over the area of the wall. All of the points should be connected by straight lines."

Define a square boundary, 7"x7";
Randomly seed fifty points within the boundary;
Construct lines that connect all the points.

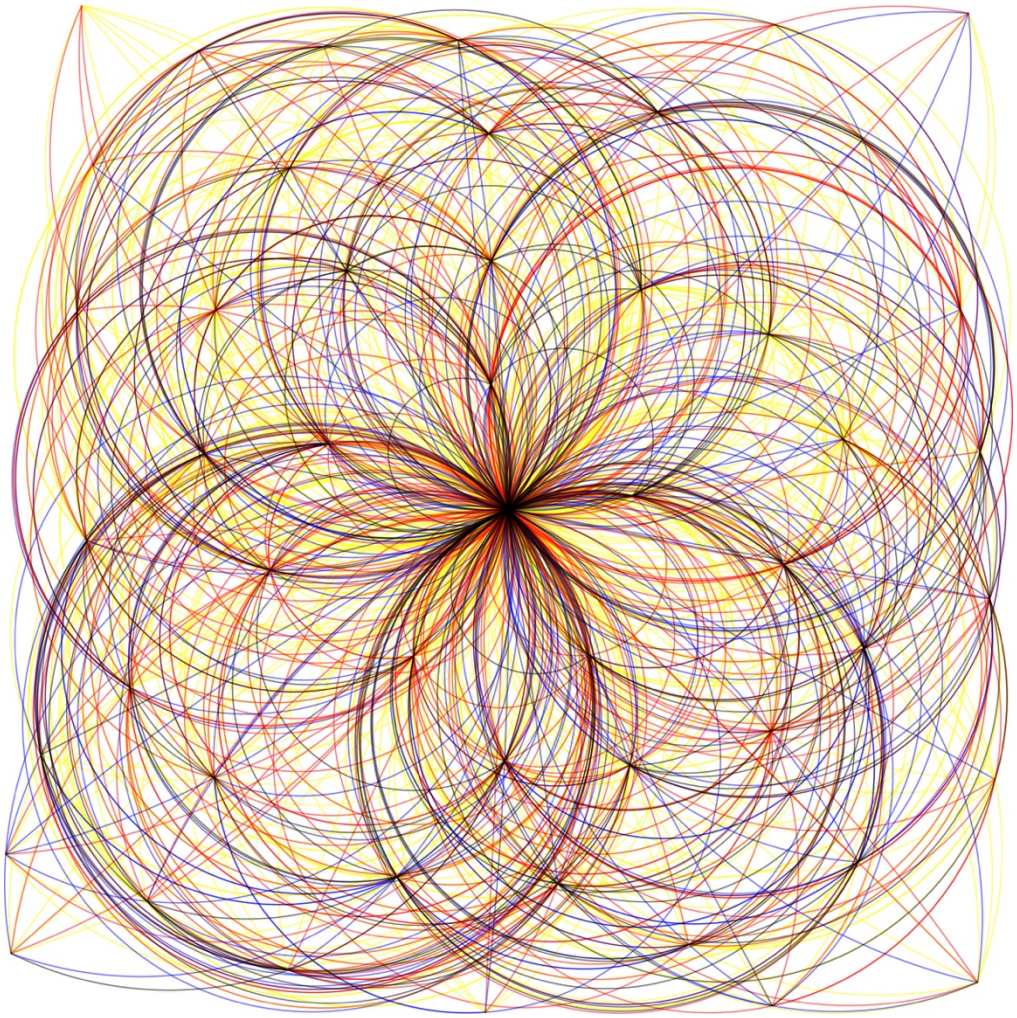


Figure 2 Marc Miller, Transposition 118- Derivation 3. *Image courtesy of the artist.*

Define a square boundary, 7”x7”;
Randomly seed fifty points within the boundary;
Construct arcs that connect all the points using the center of the bounded area as one of the construction points;
Draw only those lines that that do not intersect with the boundary;
Randomly assign the curves with one of three colors.

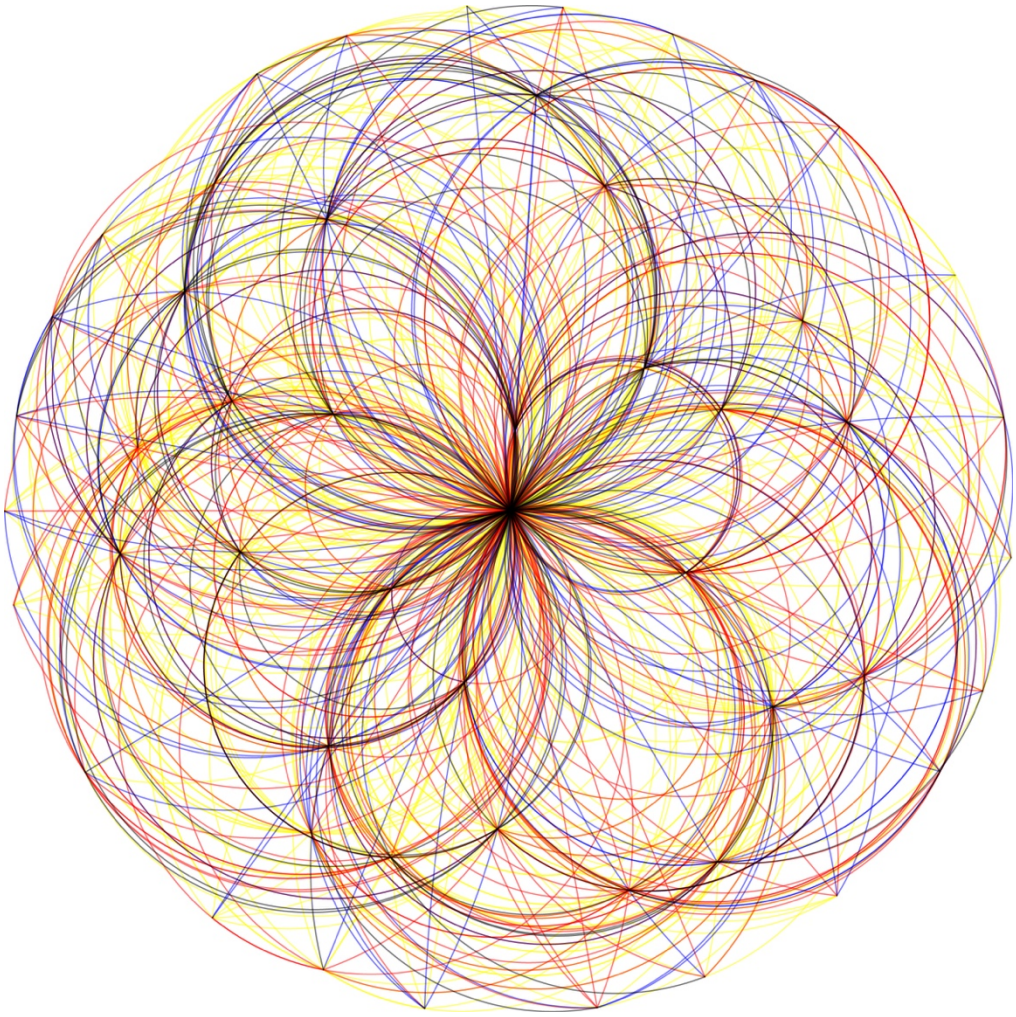


Figure 3 Marc Miller, Transposition 118- Derivation 4. *Image courtesy of the artist.*

Define a circular boundary;
Randomly seed fifty points within the boundary;
Construct arcs that connect all the points using the center of the boundary as one of the construction points;
Draw only those lines that that do not intersect with the boundary;
Randomly assign the curves with one of three colors.

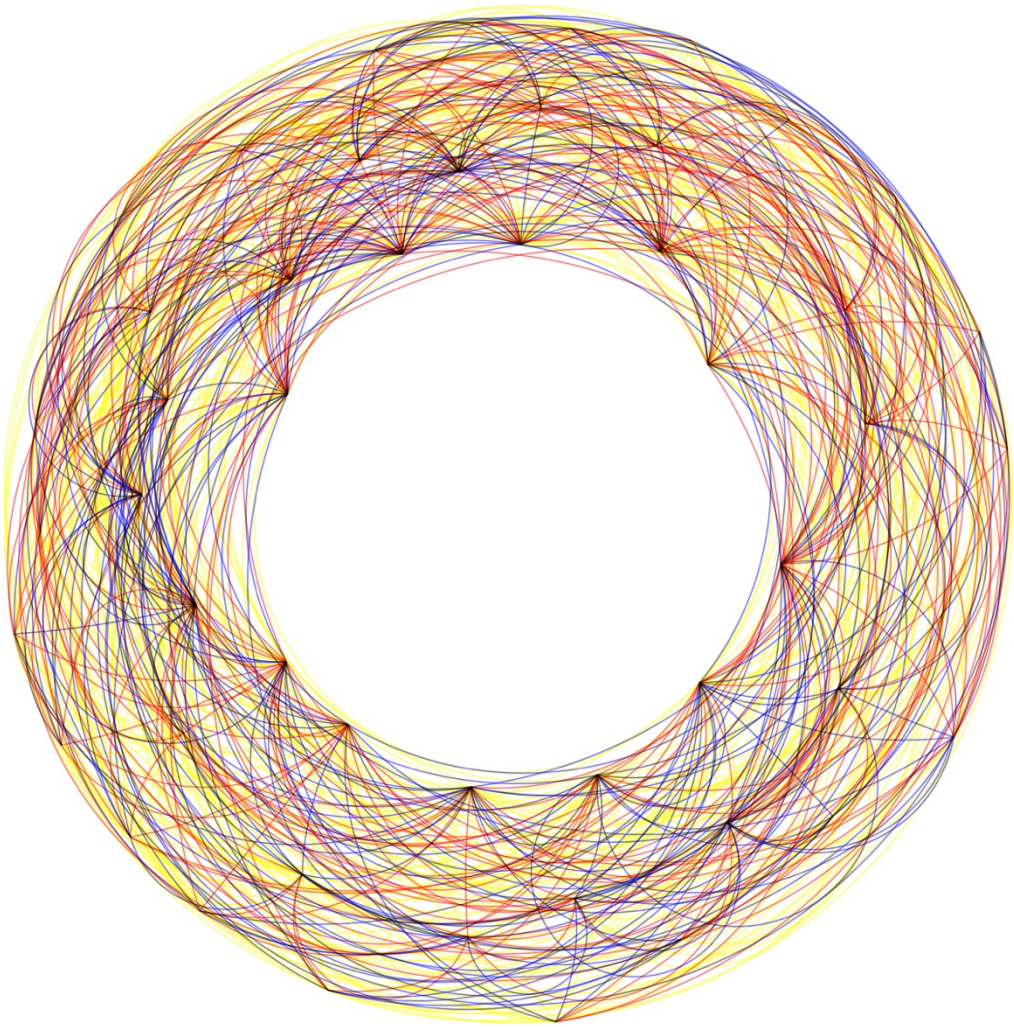


Figure 4 Marc Miller, Transposition 118- Derivation 5. *Image courtesy of the artist.*

Define on circular boundary with a radius not to exceed 7";
Define a second circulate boundary using the same center point with a radius not to exceed 6";
Randomly seed fifty points between the two boundaries;
Construct arcs using the points and the center of the boundaries as one of the construction points;
Draw only those lines that that do not intersect with the boundaries;
Randomly assign the curves with one of three colors.

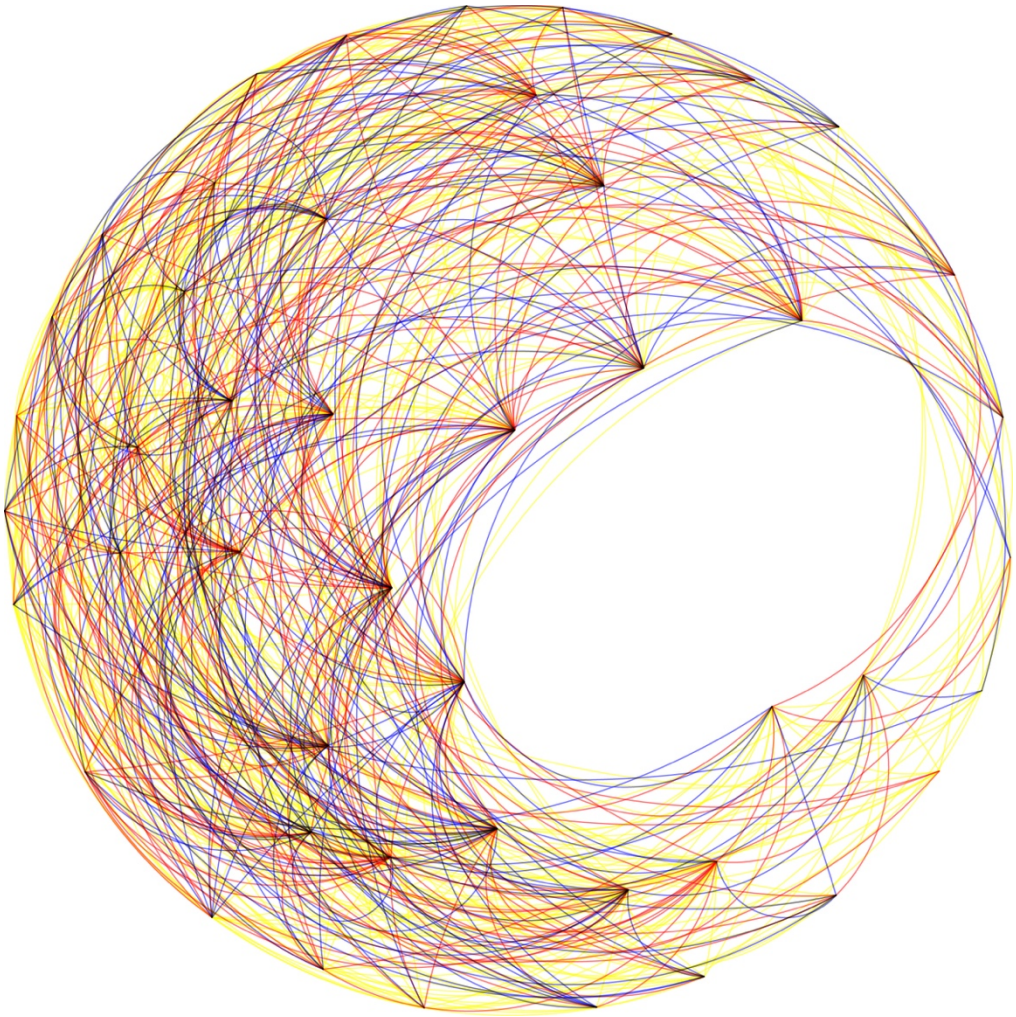


Figure 5 Marc Miller, Transposition 118- Derivation 6. *Image Courtesy of the artist.*

Define a circular boundary not to exceed 7";
Randomly seed fifty points within the boundary;
Randomly select three points to construct an oval within the circle;
Remove all points that are within the oval;
Construct arcs using the remaining points and the center of the boundary as one of the construction points;
Draw only those lines that that do not intersect with the boundaries;
Randomly assign the curves with one of three colors.

Conceptual Transpositions: Considering the Grammars of Conceptual Art and Parametric Drawing

Marc Miller

In the 1970s, artists and designers were trying to formalize their respective processes using rules. In the fine arts, there was a long period of reflection that had gained traction within the modern art movement.[1] For designers, it presented an opportunity to formalize design practices and procedures, thus providing a rationale for repetitive processes. In both cases, grammar and syntax were used to frame the process of translating the rules into operations.

Generally speaking, grammar is the system and structure of a given language. Syntax helps determine if the statement makes sense and helps make ambiguities evident. Through rules and organizational systems, information or instructions can be communicated. The use of grammar and syntax allowed the process of making artifacts to be described using narratives or calculations. These descriptions were used to make instructions that were executable by others, translating the instructions into operations.

The artist Sol LeWitt was recognized for his interest in conceptual art, in particular, for focusing on the *idea* of making more than actually making physical artifacts. For LeWitt, this led to an interest in the processes by which these instructions were translated from instructions into actual working operations. As part of his interest in conceptual artwork, the instructions that he provided were more important than the drawing artifacts that were the result of executing the instructions.[2]

LeWitt relied on the agency of the draftsperson to interpret the instructions and to execute them, believing that they were integral participants in the process of drawing. Working in situ, draftspersons interpreted the instructions and

executed them. This process of interpretation created a random outcome from execution to execution. The randomness was the result of LeWitt's focus on the syntax of the text to create the instructions instead of preparing highly specified instructions.

Prepared in 1971, *Wall Drawing #118* is an example of how LeWitt prepared a set of instructions that had a clear syntax but resulted in variable outcomes. In nine lines of forty words of text, LeWitt specifies that fifty points are to be randomly located on a wall surface and subsequently connected by straight lines.[3] He does not specify the wall surface as part of the instructions. Also, the random location of the points is spelled out as part of the instructions, signaling his reliance on decisions made by the draftspersons to complete the work.

At the same time LeWitt was creating conceptual art, the design and computation theorists George Stiny and James Gips were exploring syntax and nonrepresentational drawings in design. Their approach differed from other applications of computerized drafting at the time because they were interested in preparing instructions to create drawings in ways that were similar to LeWitt. In their seminal paper, they described how they made nonrepresentational drawings using computers.[4]

The rules followed a simple set process that analyzed initial conditions in a drawing environment, transformed the drawing based on instructions, and executed that transformation until otherwise instructed. In contrast to the instructions prepared by LeWitt, the syntax used in a computational environment requires that each step be explicitly articulated using proper grammar and syntax. Unlike the written set instructions that are interpreted by a person, the ambiguous or improper syntax in the computational drawing environment can lead to a "failed" outcome.

While not evident then, the paper by Stiny and Gips, which introduced their concept of shape grammars, has had a significant impact on how contemporary drawing software operates. Parametrics, or the use of parameters as part of architectural design, has become increasingly utilized. Restraints determine outcomes using measurable variables. As programs, they are repetitive, iterative, and easily modified to test variants.

Parametric drawing systems are often software interfaces that use object-oriented coding interfaces. These coding systems employ the three basic operations of an analysis, a transformation, and an endpoint. Grammar (objects) and syntax (organization and flow) are seen, instead of typed, as linguistic commands. The visual nature of the programming environments has the added advantage of allowing the draftsperson to focus more on the outcomes. The benefit of parametric drawing is that the draftsperson can focus on discovering outcomes instead

of reproducing a known result, which produces a difference in how implicit and explicit instructions are interpreted. An implicit point part of parametric drawing bears some resemblance to LeWitt's conceptual artwork.

Wall Drawing #118 is transposed from the original instructions into an object-oriented programming environment embedded within the drafting program Rhinoceros (Figure 1). This transposition is done to test the parallels in language between LeWitt and programming environments inspired by Stiny and Gips, which reveal both a requirement to set up explicit conditions and an implicit reliance on the scripted algorithm to execute operations (Figure 2). The process is being described as a transposition due to these differences in implicit and explicit instructions.

Subsequent derivations illustrated in Figures 3–6 were made to explore issues of ambiguity and to develop complexity in the rule set. Like LeWitt, instructions are included for each drawing. However, the process does not describe the drawing process. Instead, the programming instructions for the draftsperson are described. Still, these instructions are written to encourage exploration within the software interface.

As drawings that are made using radically different technologies than the ones used by the reference artist, they are tools made to learn from precedents through mistakes and misunderstandings.[5] This transposition of an analog process into the computational environment creates an opportunity to make new grammars that emulate analog practices. It also creates opportunities for new practices that may be influenced by the earlier work, but takes advantage of the computer to execute operations that may not be completed by hand. This is explored in Figures 3–6, where the instructions call for the elimination of lines that intersect the boundaries of the work space. These constructions of boundaries are made increasingly complex with each subsequent derivation.

Like LeWitt's instructions for wall drawings, the instructions are intended to enable a draftsperson to discover in and throughout the process of making. In this case the process of discovery focuses on learning the language to make artifacts versus interpreting instructions provided to them.

While these initial exercises focus on LeWitt's work, there are opportunities to apply this process to other artists like Bridget Riley and Chuck Close, who also used rules to produce artwork. In examining these artists, the process of creating the algorithm is an activity that codifies the analog activities. Going one step further and translating those algorithms into text may enable comparative examinations of making instead of focusing on the finished artifact.

* * *

Marc Miller teaches in the Department of Landscape Architecture at Penn State University. He has degrees in fine arts, art history, architecture and landscape architecture. His research interests revolve around technology and representation

Notes

[1] Robert Rosenblum, "Notes on Sol LeWitt," in *Sol LeWitt: The Museum of Modern Art,* edited by Alicia Legg (New York: Museum of Modern Art, 1978), 18.
[2] Sol LeWitt, "Paragraphs on Conceptual Art," *Artforum* 5, no. 10 (1967), 200–203.
[3] Andrew Russeth, "Here Are the Instructions for Sol LeWitt's 1971 Wall Drawing for the School of the MFA Boston," *Observer*, October 1, 2012, https://observer.com/2012/10/here-are-the-instructions-for-sol-lewitts-1971-wall-drawing-for-the-school-of-the-mfa-boston/.
[4] G. Stiny and J. Gips, "Shape Grammars and the Generative Specification of Painting and Sculpture," in *Information Processing 71: Proceedings of IFIP Conference 71*, no. 2 (Amsterdam: North-Holland, 1972), 1460–65.
[5] Sol LeWitt, "Sentences on Conceptual Art," *Art-Language* 1, no. 1 (1969), 11-13.