

THE GESTALT OF DEFAMILIARIZED URBAN CONSTRUCTS

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KEYWORDS < Giambattista Nolli, Defamiliarization, Figure-Ground, Beginning Design Student, Extrapolation, Matrix, Urban Design, Constructivism, Morphology >

This paper narrates the conceptualization, methodology and implementation of a two-part academic exercise entitled “Extrapolation of Form” and “Contextual Rhythms” for beginning design students at Portland State University. The exercises engage the students in a high-level dialogue that gives them a glimpse of their full design potential; while making use of their foundation skills.

As we progress through architectural education and training, we move linearly along the radii of concentric ripples in a pond. Starting with the ‘basics’ and eventually moving our way up to ‘advanced’ theories and praxis. This is commonly considered to be the natural progression of learning, and our architecture program starts with appropriately basic concepts of composition. The most simplistic concept is figure-ground recognition. It is a compositional language based upon the understanding that objects have a symbiotic relationship with the field in which they are being drawn. Therefore, an equal amount of rigor should be applied to the creation of the negative space, which surround and interlocks with the positive forms that are typically solely focused upon. The explorations we immerse the students in challenge them to go from this fundamental comprehension of Gestalt psychology, through levels of pattern cognition, beyond fashionable historicism and deconstructivist kinematics onto basic tenants of urban design. It is an educational pedagogy that rejects iconographic and sociological norms in preference for a comprehension of empathic space.

FIGURE - GROUND

The gestaltian figure-ground relationship, where we begin this exploration, has a very simplistic positive / negative state. One is either focusing upon Object ‘A’ or Object ‘B’, so there are not many distinctions. But, as the amount of data increases, the complexity of finding patterns becomes more involved. At first, there is the process of finding a ‘hidden object’ amidst a field of superfluous information. [See Figure 1.1.] Then, once students are able to find and distinguish between differing patterns, we have a dialogue with them about the harmonics of overlapping tones. We instruct how one object may be within a family of a large group of objects and how systems, repetition and rhythms may augment or detract from global pattern formation. In such, we illustrate methods by which differing systems may overlap without detracting from their inherent strengths. We also discuss how one may bolster the strengths of the found systems while allowing tertiary elements to have an additive effect to the whole. The students’



Figure 1.1: Figure – Ground Cognition (Anonymous)

minds begin to construct additive and subtractive ordering systems by purposefully blurring boundaries and interlocking shapes, in which they may prove and subsequently disprove the existence of forms, as with the complex interwoven tonalities of Schoenberg’s opera *Moses and Aaron*. This blurring of categorical divisions allows for the facilitation of amorphous figure-ground role reversals. Thereby, the binary duality of positive-negative separations may be silenced such that both figure and ground may simultaneously become either composite objects or fields. (i.e., Two figures and a ground may be annexed together to create a new whole. $[2F+1G=1F]$ Or, conversely, a larger figure may be physically divided into its component subsets. $[1F=3F+(5G-2F)]$ The possibilities are mathematically infinite.) We strive for them to deny mere coloration in favor of a more rigorous and rational methodology of rhythm recognition. Through this methodology, they are given the responsibility to either validate their reasoning or an ability to step back through the sequence and allow a ‘lost’ pattern

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to re-emerge. This entire process can happen within a matter of seconds.

The strength to our urban dialogue around this exercise is based upon our primary choice of a figure-ground catalyst. We have had many professorial debates over using the abstracted compositions of Dadaist or Cubist works, and once even ventured to propose the paintings of Jackson Pollock; however, the graphical strength of urban form and their ability to serve as a foundation for future study have proven their structure to be the most appropriate. Although it is possible to make use of any strong multi-layered urban condition, by using a mechanically parsed medieval city there is a particular organic unpredictability that gives strength to the exercise upon both micro and macroscopic exploration. We have been working predominantly with the exhumed northwestern region of the fifth sector of Giambattista Nolli's "La Pianta Grande," which was commissioned by Clement XII of the Vatican (1736 - 1748). The map's cartographic rendition was historically the first orthographic vertical projection of Rome, versus the typical perspectival manner in which urban space was commonly depicted at that time. The Roman streetscape has a wonderfully amorphous quality, in which the figure of buildings and the ground of streets and piazza are blurred back and forth and in such a way that gives a unique balance between the two positive / negative volumes. [See Figure 2.1.]

(de)FAMILIARIZATION

The use of the overwrought "Pianta Grande" is made possible in the context of this exploration without the baggage of cultural fixations for two reasons. The first is that students in the foundation year of architectural education are aware of and have mental images of Rome, but they do not recognize that this graphic is actually a historic rendition of the Italian metropolis in a plan form. Secondly, by parsing the plan down to small sectors of an arbitrary grid, the intricate mosaic is further reduced into abstract tiles. Once the smaller puzzle pieces are removed from their larger context of the urban plan, the students cannot correlate the part to the whole or imply a priori historic preconceptions to their form-making explorations. Beyond the purely functional reasons for segmentation of this large plan to individual students, it gives us a methodology for later discussion of cartographic conventions and regulation of urban land use. The divisions are done, not on an object-to-object basis, but as arbitrarily as possible.

At higher levels in the studio regiment, this exercise could be explored in a pure object / ground basis, but at this foundation level, the real intrigue happens when the actual forms are asymmetrically bisected and subdivided arbitrarily, in particular the categorically recognizable spaces; such as the Pantheon. This method of blind fragmentation was appropriated due to an interest in Bernard Tschumi's concept of defamiliarization. The concept proposes an appropriate pedagogy for the early stages of design, in which we are not trying to remove inherent knowledge from our students' opus (as that shall be supportive of their future studio design work), but rather we are trying to divorce their unconscious understanding for spatial relations from the semantic and iconic baggage. In communicating the methods in which primary and secondary forms may augment the relationships of positive and negative space on varying scales, we begin to enlighten our students to the modernist principles of design. The sculptural abstractions are hence created from the raw naiveté of the beginning design student.

Our discussions for this project focus around a series of figure/ground drawings; which we randomly distribute to our students. These 6"x6" drawing tiles are all unique in their pattern, with the only correlating element being a differing unique pair of letters in the upper corner. Each student is asked to enlarge the



Figure 2.1: La Pianta Grande (Nolli, 1748.)

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pattern to twice its size and then extrapolate it to three times its dimension both above and below a constructed datum (+3'-0" & -3'-0"). The given figure-ground drawing tile is to solely become a theoretical plan section at the construction's meridian. While as the adherence to objects physically passing through this section plane is purposely questioned, all lines and forms within the given pattern are to be accounted for someplace within the 1'-0"x1'-0"x6'-0" form and no other elements are to be added than those found in the original tile.

MATERIAL LANGUAGE

Moving beyond the formal system, we ask the students to incorporate a simple color coding and material language to their constructs, which is coordinate to the basic extrusions of points, lines and planes into their gradations of solidity: frame, skin and mass. [See Figure 3.1.] With the multitude of design possibilities ahead of them, we have found that a certain amount of structuring assists students in both the initiation and refinement of their design process, which can sometimes become otherwise hampered by their torrential enthusiasm. The basic concept of this color-coded system comes from a skewed interpretation of Tschumi's Parc de la Villette's decomposition and recombination of cubes in relation to their finally constructed forms. In these studies, Tschumi proposed a series of platonic constructs, which in an additive manner can create an infinite number of potential forms. Prescribing a set of phonetics to the project not only gives a certain level of cohesion to the work of each student, but also gives order to the potential chaos of the many students working separately on a subversive collaboration. Using such a color / material coded system, they may be as complicated and cerebral as they so desire, but will still be responsible in providing

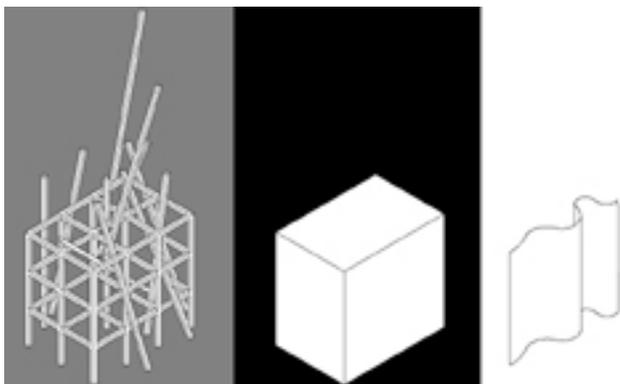


Figure 3.1: Frame / Mass / Skin Language (Zal, 2002.)

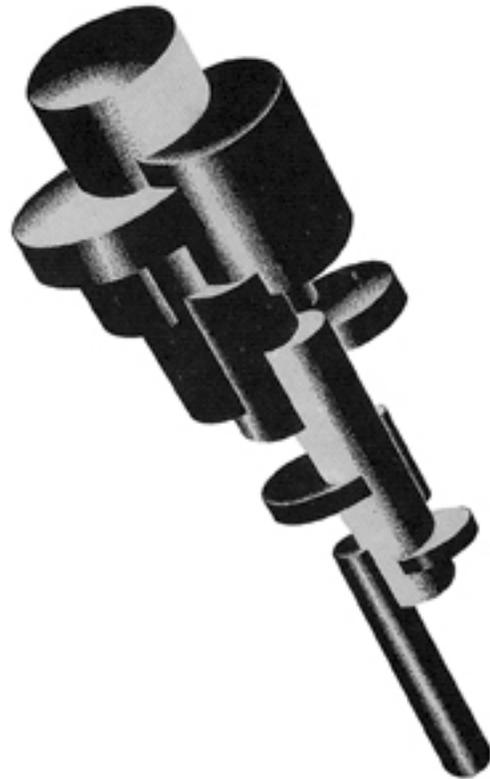


Figure 4.1: Constructivist Theory (Chernikhov, 1931.)

basic context clues for others to distill down the design work. The mental association of applied semiotics adds clarity to the project. (A similar method of gestaltian categorization is used when the complexity of polychromatic 'reality' is simplified to the limiting palette of traditional bass-wood models.) Without such systems, the mind has too much to immediately absorb, and gets distracted in the cacophony of visual noise. Therefore, all 'frames' are to be constructed of red sticks [Miller Paint AC118R, LRV 13, "red alert"], all 'masses' of opaque matte black illustration board and 'skins' are to be constructed from translucent white tracing paper. Since most students tend to balk at the assignment of rules, we have a discussion with them concerning the potential interrelationships of frame, mass and skin. Just how much artistic license is possible within the nature of the dictated design rules, and how one may creatively use all components of the original pattern while establishing a clear system of hierarchy in the students' emergent forms is illustrated by some basic examples: Vesnin's Pravda, the Statue of Liberty and the Twin Towers.

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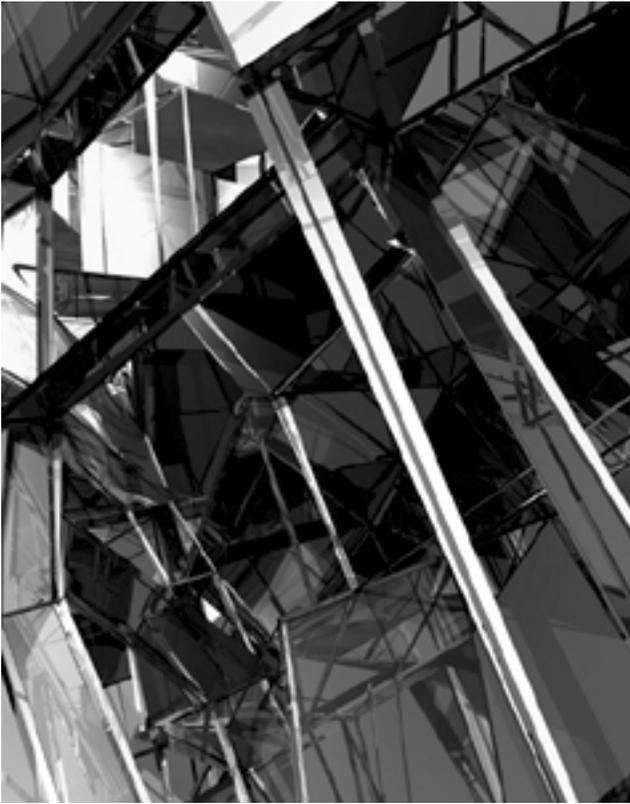


Figure 5.1: 4DParisN (Novak, 1998.)



Figure 5.2: Steel Cloud (Asymptote, 1998.)

CONSTRUCTIVISM

From these overlapping layers of pattern, color and materiality, we ask the students to begin to construct three-dimensional forms based upon fundamentally Constructivist principles of assemblage. [See Figure 4.1.] These systems of assemblage allow minor and major forms to interact in a manner that is both structurally and mentally rational to the psyche. As the forms emerge, we push the students to experiment with these primary and secondary relationships and how their morphology transforms through space. As we want to foster the highest level of artistic creativity, we do not desire for the students to create simple blocky extrusions of a footprint, as what might be seen along a highway strip mall. We urge students to investigate how the permutations of form might change or fracture as the construction ascends and / or descends. The students are told to question, which forms should become dominant and how secondary forms either affect the primaries or become subordinate to their dominance. The process questions whether these affects are directly additive / subtractive or conversely juxtaposed / separated from each other. Synchronous with these

permutations is the divorcing of physical construction from the readymade impetus of the proscribed datum. The relationship of the student's form to its hypothetical meridian in space, is only to assist in inspiring formal ideas. It is not to imply narcissistic symmetry, and asymmetry is actually encouraged. As previously stated, 'the given figure-ground drawing tile is to solely become a theoretical plan section at the construction's meridian', not a self-definition of its composite form. Further examples to excite the complexity of possibilities, while still adhering to material rules, are "4D-ParisN" by Marcos Novak and the "Steel Cloud" project for Los Angeles by Asymptote. [See Figures 5.1 + 5.2.] Once they are appropriately excited about the exploration ahead of them, they are given a couple of days to construct these sculptural extrapolations. This is a duration of time similar in nature to the multitude of prior discrete projects that they are given during the term.

(re)FAMILIARIZATION

Once the constructions are completed, in order to initiate a dialogue about urbanity and to refamiliarize the students with their Roman context, their initial

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models are inserted into the larger framework of a matrix table. It is at this moment that they instantaneously realize that they have actually been working in a subversive collaboration. When we hand out the encryption matrix for the coded letters on each of their drawings, and they begin to insert their constructions into the corresponding slots, the students are amazed at the immensity of their synthesized work. Predictably they are fascinated with searching for those all too famous built forms, which they had come to know as symbols of Rome. They are usually pleased to see the Piazza Navona playfully re-interpreted, but mortified to see the Pantheon exploded upwards and rendered "wrong". Its interior negative space has become the positive mass and its substantial walls eviscerated into mere gossamer filters. [See Figure 6.1.]

When their attentions come back to the focal understanding of figure-ground relationships and they stop lingering on the 'incorrectness' of certain forms in relation to pre-determined cultural baggage, we are able to have an in-depth dialogue about urban space formation and the public/private delineation of the Nolli map, for which its figure-ground rendering of urban context was chosen. An epiphany occurs as the students investigate the differentiation from preconception to actualized construction. What arises from this dialogue is a student-initiated discussion around all of the permutations and ramifications of their design forms from micro to macroscopic scales, relations to an 'urban' context, methods of crafting complex volumes, as well as hierarchies of pattern and form. This is the first of many cognitive steps that lead beginning design students to a higher plane of comprehension and ability. This discussion is guided to be in particular relation to the interpretative constructions, which the students have just envisioned.

EDGE CONDITIONS

During the first phase of this exercise, the students are randomly given alternating segments of the Nolli map. Similar in composition to a game of checkers, the first phase is only constructed from the red squares of the board. It is during the second phase that the remaining voids are in-filled.

The students reiterate the exercise again using the same methodology, but with the new impetus of a contextual environment of built forms for which they are responsible. Each square's figure-ground pattern

now has three to four neighbors (dependant upon their edge or interior location) to which they must analyze relationships. Therefore, they have to not only resolve their own patterns into form, they must create a rhythmic balance with the potentially staccato neighbors on all sides created during the previous iteration. In this urbanistic phase, however, the students are armed with knowledge of how to craft materials into complex three-dimensional forms, have an understanding of finding pattern subsets within the composite forms, and, lastly, they can learn from the methodologies of their peers. The overlays of grids, forms that corkscrew through space and others that fracture and puncture volumes, are just the beginning phonemes to their new interpretative language. But, since the first iteration was assumed to be the totality of the exploration, most edges of the individual student's objects are fully resolved and do not readily allow for annexation or reinterpretation by the group. The staggered juxtaposition of individual's forms are quite often in direct conflict with each other's physical space. Therefore, the real challenge of this phase is at the seams between segments, and hence this is where the import of our discussions leads. Contemporary designers practicing within the praxis of urban paradigms, zoning and property segmentation commonly face this difficult process of grafting to such an existing 'site' condition. In fact, it was the self-referential objectivity at these seams that was the breaking point for even the most eloquent of designers as they worked collaboratively on the "Roma Interrotta" project (1978). Therefore, when we are designing along or for such edge conditions, it is tantamount to analyze and synthesize the established orders of not only what is there, but also what can be predicted to come in the near future. As Denise Scott Brown would argue, what are the larger rhythms and patterns, which we can establish in our cities, since we are not going to compose every note in the opera? This interpolation allows for our individual designs to establish a verse in harmony with the entire score of urban tympanum.

CONCLUSION

The methodology of these explorations is a guerilla tactic, devised so that the students do not realize that their simple permutations will become a subversive collaboration in a complex exploration and dialogue into urbanity. It is this very reiterative dialogue that created the beauty of both Rome and its orthographic projection in "La Pianta Grande". Basic figure-ground

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recognition tends to be the start of many design programs. This symbiotic figure-ground comprehension of space is why we as educators in America so often look to the multi-phasic layering of European urbanism for contextual impetus. But, even though we begin there, we seem to lose the connection to its grander ramifications as we progress up through the academic sequence of

design studios. Many students revel in their brilliance of object creation, but lack the ability to understand their responsibility in striking a balance with open space and neighboring context. We use this course of study to assist the students in gaining the broader perspective that is required for the practice of contemporary architecture.



Figure 6.1: Student Exploration (Zal, et.al., 2001.)

FIGURES:

Figure 1.1: Figure – Ground Cognition. This anonymously authored image of a figure-ground field usually stumps even the most cognizant of students. Instead of looking for a single figure, they actually have to combine a number of separate 'figures' and 'grounds' to describe the image of a Dalmatian drinking from a puddle of water. [Please see the PSU.ARC.220 website for the unaltered version of this image.]

Figure 2.1: La Pianta Grande (Giambattista Nolli, 1736 - 1748). [Please see the PSU.ARC.220 website for an AutoCAD version of the northwestern region of the fifth sector of this plan projection.]

Figure 3.1: Frame / Mass / Skin Language (Fredrick H. Zal, 2002.) The phonetics here are based upon the conceptual design work of Bernard Tschumi's "Decomposition of Cube" and "Recombination". His studies led to a matrix of the potential permutations of recombined platonic forms. These additive forms subsequently defined the constructed designs for the follies at the Parc de la Villette. (Johnson, p.95.) The lineage of this work can also be seen in the Stockholm Exhibition (1930).

Figure 4.1: Constructivist Theory (Iakov Chernikhov, 1931.) 'Constructive penetrations of one body into another – combination of cylindrical volumes, figure 114 from *Construction*'

[*Konstruktsiia*]. This is just one of many images that were used by the Union of Contemporary Architects [Obedinenie Sovremennykh Arkhitektov (OSA)] to teach systems of assemblage to their students. "The fundamental notion of constructivism is that we unite objects or bodies with each other in such a way that they constitute a complete, harmonious form which conveys a quite specific and defined impression to our brain." (Cooke, p.17)

Figure 5.1: 4DParisN (Marcos Novak, 1998.) "The algorithm that produced these forms works as follows: data is extracted from two linked pages and interpreted as two sets of points in three-dimensional space. Using spline-curve interpolations, two series of

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curves in space are constructed; from these curves two parametric surfaces are interpolated. Then, treating the first surface as a lamina of departure and the second as a lamina of destination, a series of links across the two surfaces are made. The links themselves are initially plain lines, but are eventually also parameterized and modulated to vary along their lengths according to the contents of the original data sets. Since the algorithm is time-based as well as data-driven, as the data sets change, so do the resulting forms. In cyberspace, these forms are generated in real-time at the time of transition from one information node to another: for every hyperlink between nodes, such data-driven spaces can be generated and traversed. In bodyspace, an instance of the output of the algorithm becomes the form of a material architecture; in nowspace, the material architecture is animated by fluctuating and invisible latent forms that are, in turn, connected to the forms in cyberspace, completing the cycle." *'Next Babylon, Soft Babylon.'* (Toy, p.20-29).

Figure 5.2: Steel Cloud (Asymptote, 1988.) "In 1988 the mayor of Los Angeles launched an international competition for the West Coast Gateway, a monument to immigration from the Pacific-Rim. This monument is located directly above the median strip of the Hollywood Freeway in Los Angeles, where automobiles offer freedom from an urban landscape often

perceived as hostile and alienating. Here is a city where privacy and evasion, glamour and fantasy contrast with the anticipation of disaster and the fear of rupture and breakdown at many levels. The Steel Cloud is a prop that attempts to mend this bifurcated city. Embodying Marcel Duchamp's axiom that modernity is 'the super-rapid position of rest,' this architectural assemblage makes scale and meaning purposefully disconcerting. The lifted horizon lines that delineate this structure meld with the endless horizontality that is Los Angeles. The Steel Cloud is architecture for the post-information age, devoid of perspective, depth, frames, or enclosures; it is a prop for a place where hallucinations and fiction temper vivid reality." (Rashid, p.58.)

Figure 6.1: Student Exploration (Fredrick H. Zal, 2001.) The original exercise was assigned to the joint foundation level studios of Jim Siemens, Garrett Martin + Fredrick H. Zal at Portland State University's Department of Architecture in the Winter of 2001. There were thirty students that participated in this conglomerated studio experiment.

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