

Everyday Geometries

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"Streamlining becomes here an organic force as it relates to the dynamic equilibrium of the motion of the body within encompassed space."

Frederick Kiesler¹

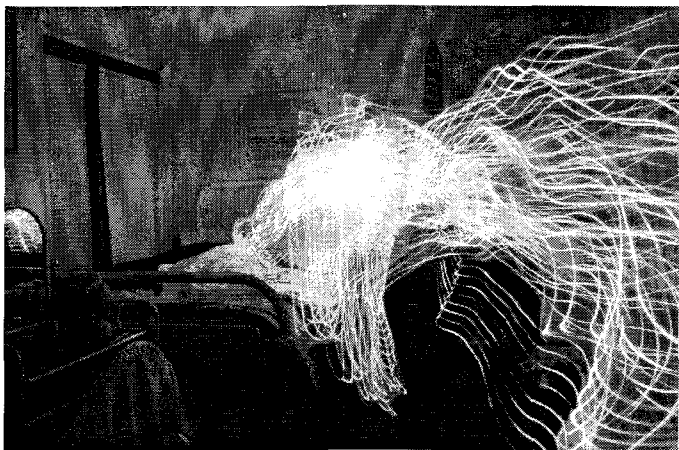


Fig. 1. *chronophotography.*

Bounding Space, a beginning-design studio, is the pedagogical component of an ongoing critical and creative investigation of surfaces.² The studio asks students to develop analyses that approach a synthetic understanding of the ephemeral and imprecise relationships between the events that occur in a space and the physical form of that space. The exercises presented here explore simple notions of surface through "everyday geometries." These are spatial formalizations that delve into what Edmund Husserl has called the "protogeometric," or descriptions of form that precede mathematical generalization and measurement. Such everyday geometries are the inverse of Pythagorean "point, line, and plane" thinking.³ The studio investigates how simple and straight-forward delin-

eations of different boundaries in space (such as profile, edge, rim, and surface) collapse into more complex and ineffable understandings (synthetic facts) of familiar and everyday space described, in Husserlian terms, as "smooth," "sharp," "clean," and "clear."⁴ We contend that Husserl's "adjectivalist"⁵ spatial description is an important foundation for design education because it goes beyond the analysis and representation of space (Newtonian spatial absolutism) and begins to look at the effects of physical entities (both static and active) on the surfaces of the spaces that they occupy (Leibnizian spatial relationism).



Fig. 2. *Frederick Kiesler constructing Bucephalus.*

The genesis of this studio springs out of the authors' misreading of a photograph of the architect Friedrich Kiesler constructing his *Bucephalus*,⁶ the horse of Alexander the Great. The image depicts Kiesler working inside a bulbous and malleable mesh

surface that appears to hang from the ceiling of his studio. While we know that this is simply an image of Kiesler building a sculpture, from the inside out, our misreading of the image is warranted by Kiesler's theoretical experiments with dynamic space in such architectural projects as the Endless House. In our invented "Kiesler-narrative," we construe *Bucephalus* as a mutable and voluptuous space in which the architect lives, shaping its surfaces through his everyday movements. Below Kiesler's changeable but highly specific "espace suspendu"⁷⁷ runs a flat and seemingly boundless floor plane over which the mesh is clearly suspended in another type of space which is defined by other bounds and notions of surfaces. *Bucephalus* doesn't float in Newtonian universal space. Instead, it is a "part," a clearly demarcated autonomous organ in the surrounding (actual and whole) space of the studio. The "whole," or the surfaces that bound this container, is as important to our misprision of the photograph as the "part" or "mesh bag" itself. The tractable nature of the ephemeral "bag" informs, and resists the greater fixed space that it occupies.

What can come from our misreading of the image of *Bucephalus* as the construction of a surface of everyday life, as the instantiation of an informal and "adjectivalist" descriptive geometry of daily action? According to our interpretation of the photographic image, Kiesler becomes the sculpture *Bucephalus*. Moreover, the form (*Bucephalus*) of the program (Kiesler's everyday life) is recordable and recognizable. But it is not universal. In Husserlian terms, the form of the bag is alternatively smooth, supple, and perhaps, at times, sharp. The source of the form thus shifts from the sculptural to the indexical. *Bucephalus* is the trace of Kiesler's movement, not an abstract form willfully constructed. Such indexical bounds and surfaces are "modulated,"⁷⁸ becoming a continuing record of a life that resists the reduction to generalized formulae. We may measure the trace with various techniques just as Marcel Duchamp recorded the fall of meter-long pieces of thread in his *Standard Stoppages*. However, these traces are formalizations of temporal events which will never be repeated again in precisely the same configuration. Just as Duchamp's *Stoppages* are absurd as a set of standardized measuring devices because of their variable transitory outcomes, these traces are not iterable, and thus cannot be read as practical or predictable bases for building.

From observations of these traces, our investigation of the surfaces of everyday life posits two primary types of boundaries. One is constructed by the actual, static, and physical (the Bona Fide bounds), the other by abstract, indexical, ephemeral, dynamic, temporal, and programmatic boundaries (the Fiat bounds).⁹ In terms of measure, Bona Fide bounds are comprised of measures of extension (volume) in space. Fiat bounds are measured in terms of spatial duration (time). Both are spatial. The fictitious space-bag of *Bucephalus* corresponds more to a fiat boundary defined by Kiesler's inhabitation of space, whereas the physical surface of the architect's surround-

ing studio is a bona fide boundary.¹⁰ From the photograph, we have imagined spaces of everyday life in which notions of boundary and surface are both actual and apparent. We can measure and describe both Fiat and Bona Fide boundaries in adjectivalist, protogeometric terms. By their nature, such terms cross the limits of an extension-duration dichotomy. But only the latter, the Bona Fide bounds, can be expressed in geometric or normative architectural conventions.

Not all boundaries are surfaces but surfaces are the most complex and varied category of boundaries. For example, the Prime Meridian is a boundary but not a surface because it is only a one-dimensional extension in space. A property line (which is as much duration as extension) projects a surface, because in zoning it delineates an envelope of space that is as much temporal as it is physical. Words like "brim", "brink", and "verge" are part of what Avrum Stroll calls "surface-talk."¹¹ Similar to Husserl's, Stroll's terminology describes boundaries and surfaces in space but they lack the capacity to precisely indicate anything universally geometric. Surface-talk exists as an informal, everyday geometry, mediating between formal geometric entities or concepts and the way in which they are conceived and expressed in language.

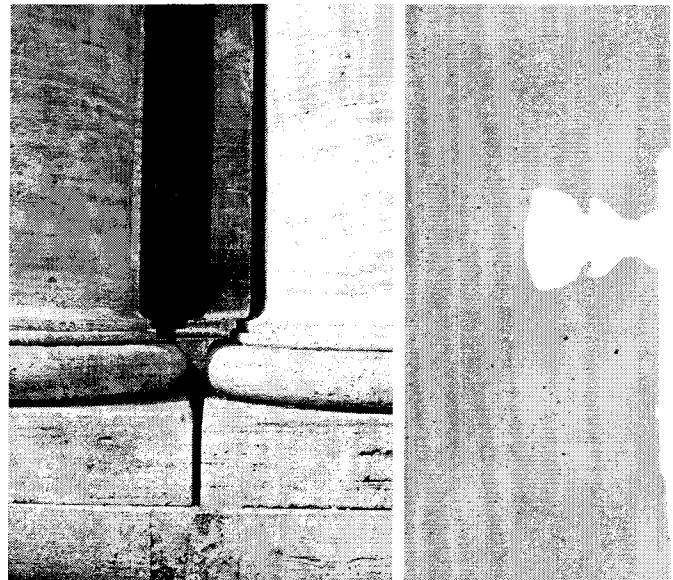


Fig. 3. surface profiles.

The vehicle of the Bounding Space studio is a beginning student's most familiar and everyday place, her dorm room or bedroom. Directed investigation of a familiar space compels the student to transcend habitual understandings of it. The experience of everyday geometry cannot be reduced to a formula of predictable behaviors from which to generate an efficient or economic manifest of a place. The studio intends for the student to contemplate the incision of the commonplace with its own geometry so as to provide a clearly defined and specific description of the momentary surfaces of the transitory and singular movements of everyday life.



Fig. 4. photomosaic.

The series of studio exercises that comprise Bounding Space begins with two parallel investigations of boundaries in the living space: a survey of the physical (Bona Fide) bounds and an analysis of the ephemeral (Fiat) bounds of daily actions. Although certain tasks are the bases for those that follow, the additive and incremental exercises are not intended to coalesce into the “final project” familiar to most studio pedagogies. Our intention is to offer the project’s culmination to the student for contemplation and study. Thus, the outcome is determined in reflection, not “en charette”. Similarly, despite the apparent architectural relevance of the studies, discrete tasks are equally suited to analyses that might found work in the studio arts, textile design, and other of the disciplines that we teach. The projects develop a knowledge of surfaces common to many creative practices. While the student builds a photomosaic and delineates the profile lines through the mass of her room, she simultaneously charts the duration, frequency, and volume of the events in a single day. As the student strives to find the graphical manifestation of an action in a chronophotograph, she teases a metaphorical CT scan of the room’s material voids out of her measurements. Through the exercises students find that delineated profiles resemble a graphical equivalent to linguistic “surface-talk.” By asking students to employ graphical techniques such as template making and interpolation, we underscore the lived resistance to the universalizing forces of geometry, as the students’ everyday geometries become evident on paper and in models. Similar Duchamp’s *Standard Stoppages*, the aim of the studio is to represent an almost pure manifestation of this informal experiential geometry, exposing the absurdity of fixing noniterable forms in everyday life.

Gradually we encourage the two lines of questioning (of the temporal, durationally coded Fiat bounds and the a-temporal and extensive Bona Fide bounds) to fold into one another. We noted that both types of bounds become more and more superficial (or “about surface”) in their graphical notations. Both gradually collapse onto the same set of section drawings, while each is reduced to lines demarcating a different type of

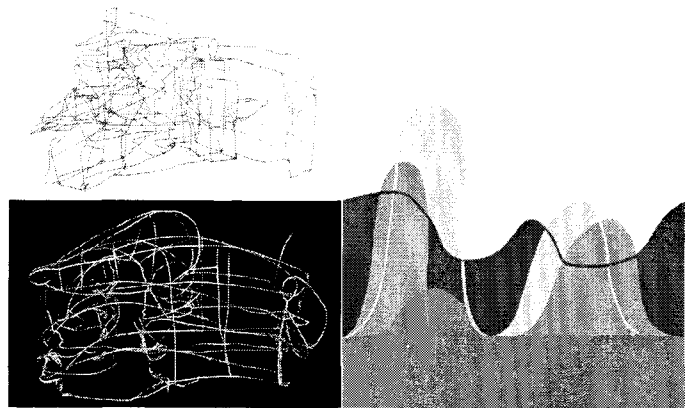
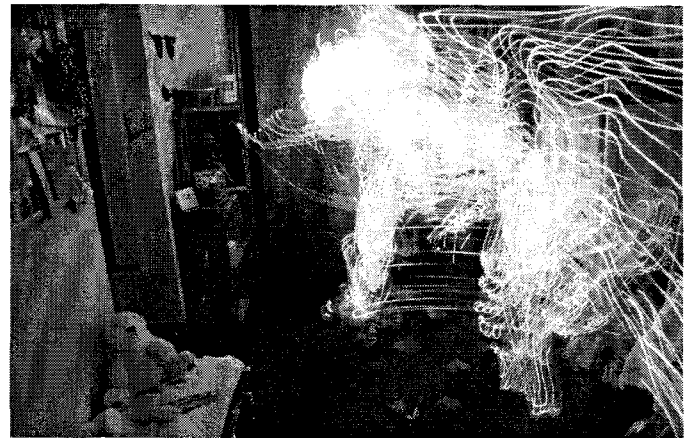


Fig. 5. chronophotography, wirefiat space models, event diagrams.

boundary in the everyday space of home. The characteristics of each surface are represented in converging methods until the only difference between the two is the spatial mismatch between two surfaces. In this convergence, a synthetic fact of the analysis becomes evident and we can begin to develop a critique of the two notions of surface. Where there is space between the Fiat and the Bona Fide, when the fit between the two is loose, there is an in-between. We ask students to consider, what is this space? Is it leftover, or a tolerance between space-time and space-form? While it raises many complex questions, this interstitial space appears to exist as a necessary supplement¹² to the primary spatial boundaries. Although it is a part of the fixed extension of space contained by the Bona Fide bounds, the interstitial space is also subject to the mutable and temporal durations of the Fiat boundary. The interstitial space paradoxically manifests both extensive and durational quantities, but it cannot be understood in light of either quantity in and of itself. The riddle of the interstitial space is thus a measure of the lack of convergence between the space of lived events and the space of formal geometry (or normative architecture).

Thus, despite the apparent dualism of the Bona Fide/Fiat opposition, the value of the interstitial space is its power to trouble any simple binarism between Fiat and Bona Fide

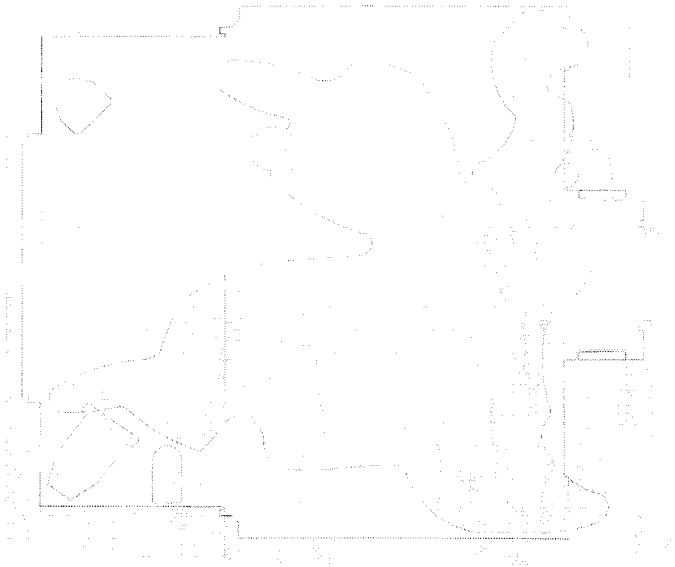


Fig. 6. pencil drawing depicting interstitial space between fiat and bonafide boundaries (part of CT scan series).

representations. The in-between is a fluid, temporal space that has no form or boundaries of its own, only those of the spaces from which it arises. The philosopher Elizabeth Grosz writes of such an interstice, "The space between things is the space in which things are undone, that space to the side and around, which is the space of subversion and fraying, the edges of any identity's limits. In short, it is the space of the bounding and undoing of the identities which constitute it."¹³ In the student's room, the in-between is a "gray fog" that oozes around the subject and connects it at a distance to the Bona Fide container.

A representational anomaly in a study committed to the delineation of temporal space, is exposed by the static and fixed representations in the exercises. This series of experiments describes phenomenal conditions in terms of surfaces and boundaries. By the nature of representational techniques available, all results are expressed as static diagrams or the formal inscriptions of temporal events. The students' products give an illusion of permanence or value to something that has long ceased to exist. The solid surface models can be the most deceptive. These complex traces of momentary activity slowly become fixed, potentially seducing students to regard them as more than mere superficialities. Students can see the models as objects, confusing temporal duration for formal extension in the limits of the graphics. Likewise, this exercise challenges the student to question the possible conclusion that a fixed curvilinear form represents a tight fit between form and function. Kiesler rejected the fixed form in his critique of "pseudo-functionalism." He states, "the true functionalist will accept no standard as final . . . 'function' appears not as a finite fact or standard, but more as a process of continuous transmutation."¹⁴ We wholeheartedly agree. As with Duchamp's *Standard Stoppages*, an underlying goal for the projects in the

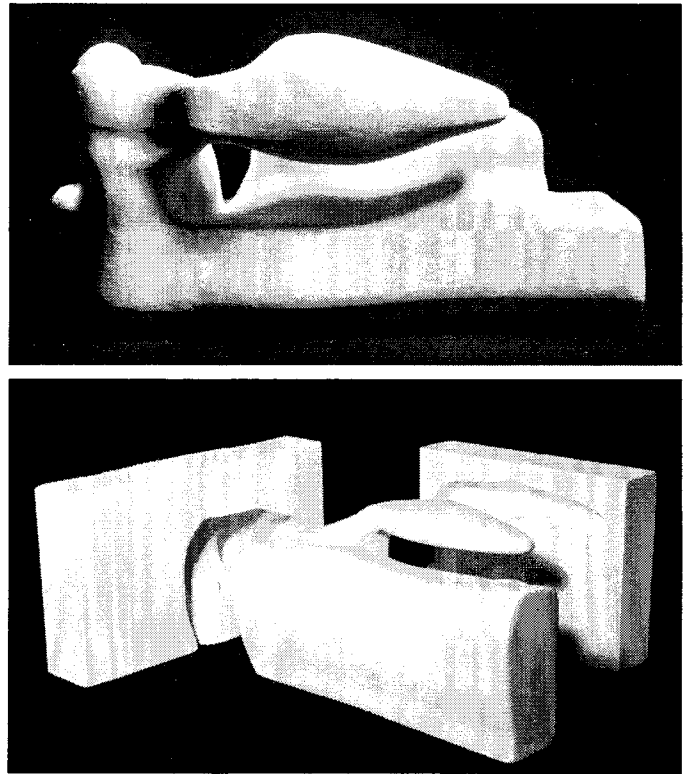
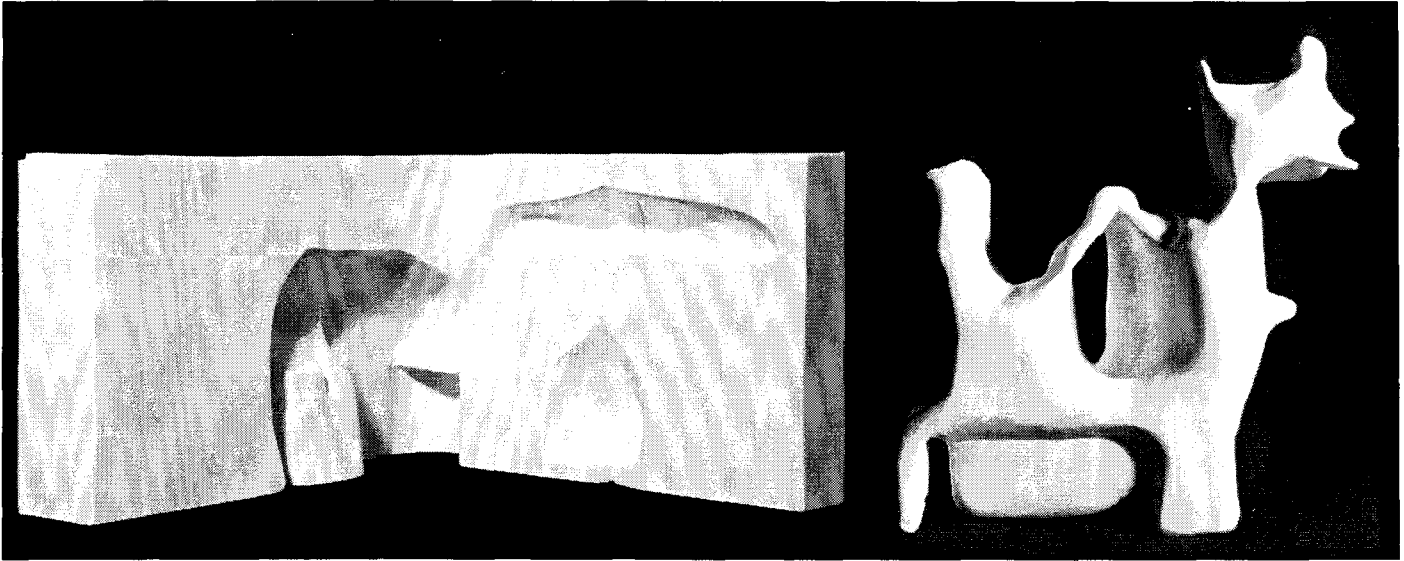


Fig. 7. solid surface models.

Bounding Space studio is to reflect the inadequacy of fixed form and surface as the bond uniting event and space.

Our work in the beginning design studio concerns a variety of measures of spaces through the analysis and description of bounding surfaces. The creative force is seen here not as the generation of superficial forms *ex nihilo*, but as a sequence of analytical acts which surreptitiously introduce creative activity through the use of imprecise and non-scientific methods. The evident complexity of these methods and the facts that they reveal are gradually introduced to the students without sacrificing their fundamental power as a paradigm for architectural production. We aim to question the common assumption that architecture has frequently relied upon: that there is a logical or natural coincidence between normative universal geometries and the events of everyday life. The Bounding Space projects suggest the importance of a continuing investigation in design practice and teaching of the necessarily fluid relationship between two conditions of design: the everyday world to which it is destined, and the conventions and methodologies through which it operates.

"A thing is a hole in a thing it is not." Carl Andre¹⁵



NOTES

- ¹ Frederick Kiesler, "Notes on Architecture: the Space-House, Annotations at Random," *Hound and Horn*, vol. 6, no. 3, (1934): 282-97.
- ² The course is taught to all first-year design students at the University of Nebraska, Lincoln including those majoring in stagecraft, fine art, graphic design, merchandising, fashion, film, architecture, and interior design.
- ³ David Farrel Krell, *Architecture: Ecstasies of Space, Time, and the Human Body* (Albany: SUNY Press: 1997): 185
- ⁴ *ibid.*
- ⁵ Roberto Casati and Achille C. Varzi, *Parts and Places* (Cambridge, Massachusetts: MIT Press, 1999), p.18
- ⁶ Such misreadings are encouraged by Kiesler. See- Frederick Kiesler, "Pseudo-Functionalism in Modern Architecture", Yehuda Safran, ed., *Frederick Kiesler, 1890-1965* (London: Architectural Association, 1989): 56.
- ⁷ This is a loose reference to Paul Nelson's project entitled *Maison Suspended*.
- ⁸ The operative term is taken from Le Corbusier who was enraptured with just such conceptualizations of surfaces in *Towards a New Architecture*. The "necessary" edges of his engineered surfaces are "generating and accusing lines in relation to forms" which create, "limpid and plastic facts". See *Towards a New Architecture*, P.33-42
- ⁹ These terms derive from a sub-area of formal ontology known as "mereotopology," and are attributed to Barry Smith and Achille C. Varzi. "Fiat and Bona fide Boundaries," *Philosophy and Phenomenological Research*, 60:2, March 2000, 401-420.
- ¹⁰ Despite that fact the mesh possesses physical qualities, we call it a Fiat Boundary because the form of the mesh is an index of Kiesler's movement within the contained space. The mesh is thus analogous to a fence on a property line: the physical fence is the index of the non-corporeal, and hence "Fiat," property line.
- ¹¹ Avrum Stroll, *Surfaces* (St. Paul: U. Minnesota Press: 1993): 84.
- ¹² The "logic of supplementarity" is one of the key Derridean deconstructive concepts.
- ¹³ Elizabeth Grosz, "In Between: the Natural in Architecture and Culture," in *Architecture from the Outside: Essays on Virtual and Real Space*, (Cambridge, Massachusetts: MIT Press: 2001) 93.
- ¹⁴ Kiesler, op. cit. "Pseudo-Functionalism in Modern Architecture," pp.57-58
- ¹⁵ Carl Andre, quoted by Robert Smithson, Jack Flam, ed. Robert Smithson: *The Collected Writings* (Berkeley: University of California Press: 1996) 95.