DIAGRAMS MATTER

Stan Allen

> **An abstract machine in itself is not physical or corporeal, any more than it is semiotic; it is diagrammatic. . . . It operates by matter, not by substance; by function, not by form. . . . The diagrammatic or abstract machine does not function to represent, even something real, but rather constructs a real that is yet to come, a new type of reality.**
>
> — Gilles Deleuze and Félix Guattari, *A Thousand Plateaus* (141–42)

Although diagrams can serve an explanatory function, clarifying form, structure, or program to the designer and to others, and notations map program in time and space, the primary utility of the diagram is as an abstract means of thinking about organization. The variables in an organizational diagram include both formal and programmatic configurations: space and event, force and resistance, density, distribution, and direction. In an architectural context, organization implies both program and its distribution in space, bypassing conventional dichotomies of function versus form or form versus content. Multiple functions and action over time are implicit in the diagram. The configurations it develops are momentary clusters of matter in space, subject to continual modification. A diagram is therefore not a thing in itself but a description of potential relationships among elements, not only an abstract model of the way things behave in the world but a map of possible worlds.

Unlike classical theories based on imitation, diagrams do not map or represent already existing objects or systems but anticipate new organizations and specify yet to be realized relationships. The diagram is not simply a reduction from an existing order. Its abstraction is instrumental, not an end in itself. Content is not embedded or embodied but outlined and multiplied. Simplified and highly graphic, diagrams support multiple interpretations. Diagrams are not schemas, types, formal paradigms, or other regulating devices, but simply place-holders, instructions for action, or contingent descriptions of possible formal configurations. They work as abstract machines and do not resemble what they produce.

STEALTH DIAGRAMS

> **You won't see us but you will see what we do.**
>
> — IBM advertising copy for 1998 Nagano Winter Olympics

IBM's announcement of its own invisibility, appearing periodically out of the image saturated field of the Olympic broadcast, sends a curious signal. Curious, because a complex game of power, and its visible and invisible workings, is being played out in public. To point out that power no longer resides exclusively in the realm of the visible is, of course, no longer news. What does seem new here is the forthright manner of this advertising strategy, which locates publicity value in the fugitive character of information technologies. The suggestion here is that hardware – including all of the weighty apparatus of the multinational corporation – could be profitably dissolved into invisible codes of information and fluid media effects. For architecture, which still belongs to appearance (if no longer entirely to presence), this possibility triggers profound uneasiness. At a time when the dynamism of images and information dominates everyday life, the traditional association of architecture with permanence and durability has become suspect. Some practitioners have proposed a retreat, suggesting that architecture must once again define itself as stable and grounded in contrast to the fluidity of information. Others have proposed that architecture's solidity could (or should) be dissolved into these streams of information.

This is, in my view, a false dilemma triggered by a diminished – or misdirected – conception of architecture's capacities. If one of the things challenged by new media technologies is architecture's material presence, it is simply reactionary to reassert architecture's material condition. On the other hand, the more "radical" strategies (which have consisted, alternatively, in representing new technologies in metaphorical terms, or in grafting multimedia images onto a conventional architectural scaffold) have been no more productive. The emergence of new information-based technologies has provoked an understandable desire for a lighter and more responsive architecture. The practice of architecture today is measured by its performative effects as much as by its durable presence. It must negotiate a field in which the actual and the virtual assume ever more complex configurations: a field in which diagrams matter.

A diagrammatic practice begins with the assumption that simply to oppose the materiality of building to the immateriality of information is to ignore architecture's own rich history as a technique for actualizing the virtual. Architecture is already implicated in a number of media, and the architect is out of necessity constantly moving from one medium to another, transcoding from virtual to actual and vice versa. To move from drawing or writing to building (and back again) is only one example of this; architecture's constant transactions with and actualizations of social, technical, and urbanistic variables are perhaps more significant. Historically, architecture has deployed a limited catalogue of techniques to negotiate the actual and virtual: techniques of projection, calculation, or notation, for example. In recent practice, this catalogue has been incrementally expanded by the appropriation of techniques from film, video, or performance, and by the simulation and visualization capacities of the computer. Nevertheless, the conceptual apparatus of conversion (transcoding, translation, or transposition, as proposed below) is left unexamined.

A diagrammatic practice, on the other hand, locates itself between the actual and the virtual, and foregrounds architecture's transactional character. It works in the midst of architecture's constant interface with human activity, and its own internal negotiations of actual and virtual. A diagrammatic practice is relatively indifferent to the specifics of individual media. It privileges neither the durability of architecture's material effects nor the fluidity of its informational effects. Inasmuch as it does not insist on historically sanctioned definitions of architecture's disciplinary integrity, it is, in principle, open to information from architecture's outside. Inasmuch as it is skeptical about the promise of new technologies, it remains free to take full advantage of architecture's traditional techniques to organize matter and space. A diagrammatic practice extends the horizontal, affiliative character of the diagram directly into the field of construction itself, engendering an architecture of minimal means and maximal effects. You won't see us, but you will see what we do.

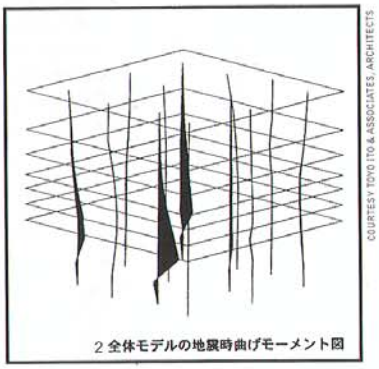
TRANSPOSITIONS: TRANSACTIONS WITH ARCHITECTURE'S OUTSIDE

A diagram is a graphic assemblage that specifies relationships between activity and form, organizing the structure and distribution of functions. As such, diagrams are architecture's best means to engage the complexity of the real. The diagram does not point toward architecture's internal history as a discipline, but rather turns outward, signaling possible relations of matter and information. But since nothing can enter architecture without having been first converted into graphic form, the actual mechanism of graphic conversion is fundamental. The diagram may be the channel through which any communication with architecture's outside must travel, but the flow of information along these channels will never be smooth and faultless. The resistance of each medium – in the literal, physical sense – needs to be taken into account. Static and interference are never absent. In this regard, the formulations of media theorist Friedrich Kittler are particularly suggestive. "A medium is a medium is a medium," writes Kittler, "therefore it cannot be translated." Against the inevitable linguistic overtones of "translation," Kittler elaborates an alternative model, a concept of "transposition" that has particular relevance to the functioning of the diagram:

> In a discourse network . . . transposition necessarily takes the place of translation. Whereas translation excludes all particulars in favor of a general equivalent, the transposition of media is accomplished serially, at discrete points. . . . Because the number of elements . . . and the rules of association are hardly ever identical, every transposition is to a degree arbitrary, a manipulation. It can appeal to nothing universal and must therefore leave gaps.[1]

In operations of transposition, conversions from one sign system to another are performed mechanically, on the basis of part-to-part relationships without regard for the whole. In the same way, diagrams are not "decoded" according to universal conventions, rather the internal relationships are transposed, moved part by part from the graphic to the material or the spatial, by means of operations that are always partial, arbitrary, and incomplete. The impersonal character of these transpositions shifts attention away from the ambiguous, personal poetics of translation and its associations with the weighty institutions of literature, language, and hermeneutics.

A diagram in this sense is like a *rebus*. To cite Kittler again: "Interpretive techniques that treat texts as charades or dreams as pictures have nothing to do with hermeneutics, because they do not translate." The diagram brings the logic of matter and instrumentality into the realm of meaning and representation and not vice versa: "Rebus is the instrumental case of *res*: things can be used like words, words like things."[2] Slavoj Žižek provides another example: "Remember Aristander's famous interpretation of the dream of Alexander of Macedon, reported by Artemidorus? Alexander 'had surrounded Tyre and was besieging it but was feeling uneasy and disturbed because of the length of time the siege was taking. Alexander dreamt he saw a satyr dancing on his shield. Aristander happened to be in the neighborhood of Tyre. . . . By dividing the word for satyr into *sa* and *tyros* he encouraged the king to press home the siege so that he became the master of the city.' As we can see, Aristander was quite uninterested in the possible 'symbolic meaning' of a dancing satyr (ardent desire? joviality?); instead he focused on the word and divided it, thus obtaining the message of the dream: *sa Tyros* = Tyre is thine."[3] As Žižek points out, the mechanism of interpretation here does not consist in constructing a series of symbolic equivalents (shield = city; satyr = desire, etc.). Instead, Aristander has performed a material operation (cutting, separating) on the actual linguistic stuff of the dream. The result is immediate, and the sense clear, a way out of the abyss of associative meaning. Further, inasmuch as these operations cannot be performed in translation, no overriding, universal sense is claimed, only the local and specific possibilities of manipulation. In this sense, words are made to behave like architecture rather than architecture being made to behave like discourse.



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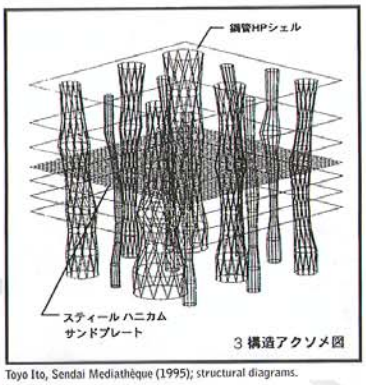

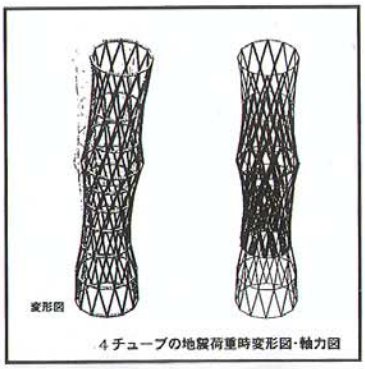

Toyo Ito, Sendai Mediathèque (1995); structural diagrams.

DIAGRAM ARCHITECTURE

The term *diagram architecture* comes from Toyo Ito. He writes about the work of Kazuyo Sejima, but the passage has the force of a general statement. His critique of the assumptions underlying conventional design procedures is worth citing at length:

> Most architects find this a complicated process: the conversion of a diagram, one which describes how a multitude of functional conditions must be read in spatial terms, into an actual structure. A spatial scheme is transformed into architectural symbols by the customary planning method, and from this a three-dimensional change is brought into effect, one which depends on the individual's self-expression. In this process, a great deal depends on the psychological weight of preconceived ideas attached to the social institution known as 'architecture.' . . . Therefore, to position architecture's place in our society would be to describe it on the one hand as an individualized artistic intent based on self-willed expression, or on the other hand, to place it within the framework of public order we recognize as a social system, the latter based on mere commonplace habits that

1 Friedrich A. Kittler, Discourse Networks, 1800/1900, trans. Michael Metteer and Chris Cullens (Stanford: Stanford University Press, 1992), 265.
2 Ibid., 274.
3 Slavoj Žižek, Looking Awry: An Introduction to Jacques Lacan through Popular Culture (Cambridge, Massachusetts: MIT Press, 1991), 51–52.

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> **have become the established archetype. When you stop to think about it, the fact that almost all architecture has emerged from the confines of these two antagonistic, completely opposite poles is virtually incomprehensible. It is almost incredible to think that most architects have no serious doubts when faced with this contradiction that architecture has nurtured within itself.[4]**

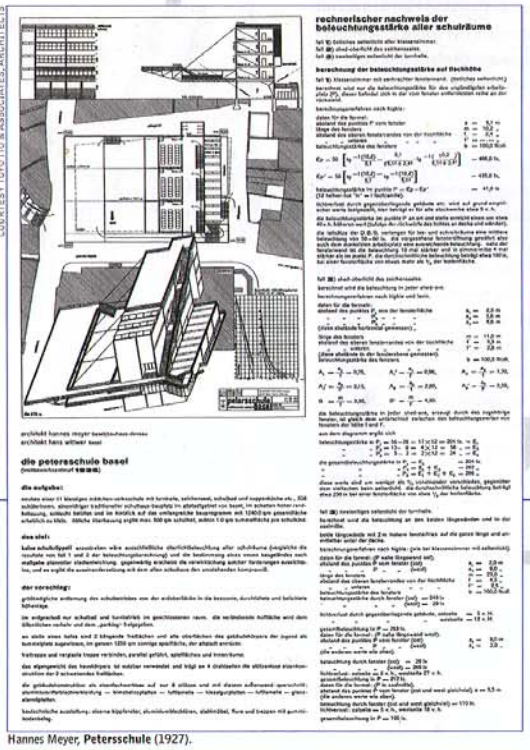
The architect's conventional means of working – the "customary planning method" that Ito describes – can be classified according to the well-known categories of sign established by C.S. Peirce at the beginning of this century.[5] Plans and elevations function like icons (according to similitude), while the notations that accompany them are symbols (based on the rule of convention). In recent practice, the concept of the index has been brought into play as a means of encoding information about the site or its history ("site forces") through process-based operations of tracing or geometric transformation (contiguity). Interpretation and translation figure deeply in all of these procedures. By contrast, the move away from translation to a diagrammatic practice based on transposition, and the resulting bypass of the interpretive mechanism, is consistent with Deleuze and Guattari's description of the functioning of the diagram, which also evades conventional semiotic categories: "*Diagrams* must be distinguished from *indexes*, which are territorial signs, but also from *icons*, which pertain to reterritorialization, and from *symbols*, which pertain to relative or negative deterritorialization."[6] A diagram architecture does not justify itself on the basis of embedded content, but by its ability to multiply effects and scenarios. Diagrams function through matter/matter relationships, not matter/content relationships. They turn away from questions of meaning and interpretation, and reassert function as a legitimate problem, without the dogmas of functionalism. The shift from translation to transposition does not so much function to shut down meaning as to collapse the process of interpretation. Meaning is located on the surface of things and in the materiality of discourse. What is lost in depth is gained in immediacy. Diagram architecture looks for effects on the surface, but by layering surface on surface, a new kind of depth-effect is created.

The diagram architecture described by Ito is critical both of the social institutions of architecture and of exaggerated mythologies of personal expression. Ito imagines an architecture in which the process of conversion is minimized; consequently, architecture's traditional claim to transform its material (the last vestige of architecture's connection to magic and alchemy) is undermined as well. No complex mysteries to untangle, no hidden messages to translate, no elaborate transformational process to decode. On the basis of this and other examples, it might be possible to identify a diagrammatic sensibility, exemplified in contemporary architecture by (among others) the work of OMA, Ito, Sejima, or MVRDV. This would be an architecture that takes pleasure in the immediacy and directness of procedures that often short-circuit conventional design schemas. It is an architecture that frankly and openly displays its constraints and is comfortable with the limitations imposed by forces of market economy, codes, or the shifting field of the contemporary city. The complexity of these real world constraints is neither held at arms length nor literally incorporated, but reformed as architectural material through the vehicle of the diagram. It is an architecture that travels light, leaving the heavy stuff behind. At one level, nothing more (or less) is claimed for the diagram than this: a diagram architecture is part of a new sensibility characterized by a disinterest in the allied projects of critique or the production of meaning, preferring instead immediacy, dryness, and the pleasures of the literal.

A diagram architecture is not necessarily an architecture produced through diagrams. Although diagrams figure in the work of the architects mentioned, the idea that the working procedures of the architect imprint themselves on the realized building is foreign to the logic of the diagram. Instead, a diagram architecture is an architecture that *behaves* like a diagram, indifferent to the specific means of its realization. It is an architecture that establishes a loose fit of program and form, a directed field within which multiple activities unfold, channeled but not constrained by the architectural envelope. It is an architecture of maximum performative effects with minimal architectural means, characterized at times by indifference (MVRDV) and at times by exquisite restraint (Sejima), but always by deference on the part of its author to the impersonal force of the diagram.

An important point of reference in tracing a genealogy of contemporary diagram architecture is K. Michael Hays's description of Hannes Meyer's Petersschule project as an abstract machine. Working from the 1927 presentation of Meyer's project as a single-page layout dominated by diagrams and calculations, Hays notes that the form and substance of the depicted building "is only one component of the total architectural apparatus that includes these diagrams." In this way, he is able to extricate Meyer from the conventions of functionalist logic. Instead of seeing the individual building as the result of generic calculations (the application of technical norms), Hays suggests that it is possible to see the Petersschule as only one of many possible instances of the diagrams presented, "part of a larger machine for the production of desired effects of light, occupation, and sensuous experience."[7] The abstract machine at work here is an assemblage of social and technical forces that are actualized in multiple forms by multiple agents, among them the specific instance of Meyer's project. In the realized project, these forces in turn would couple with others to activate the life of the building and to keep it in play over time. As opposed to a functionalist logic that would describe a fixed set of actions to be completed within a fixed architectural envelope (and risk obsolescence if those functions change), the notion of an abstract machine sees the building as a component in a larger assemblage that can be recontextualized according to the progressive rearrangements of the other components in this social/technical/urbanistic machine.

In functionalist discourse, any formal elaboration that cannot be accounted for by programmatic or technical criteria is an embarrassment. By contrast, in Hays's reading, the precise formal character of the building is key to its functioning. The spare, linear character of the architecture itself creates a kind of directed scaffold, a sharply defined ground for multiple activities. It



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Hannes Meyer, **Petersschule** (1927).

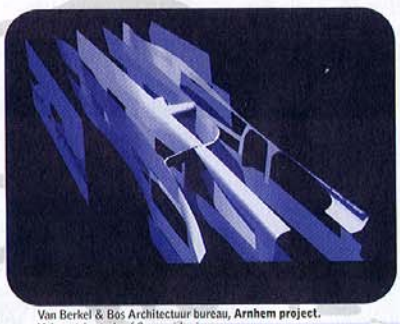
4 Toyo Ito, "Diagram Architecture," in **El Croquis** 77(I) (Madrid, 1996), 19.

5 "A sign is either an **icon**, and **index**, or a **symbol**. An **icon** is a sign which would possess the character which renders it significant, even though its object had no existence; such as a lead-pencil streak as representing a geometrical line. An **index** is a sign which would, at once, lose that character which makes it a sign if its object were removed, but would not lose that character if there were no interpretant. Such, for instance, is a piece of mould with a bullet-hole in it as the sign of a shot; for without the shot there would have been no hole; but there is a hole there, whether anybody has the sense to attribute it to a shot or not. A **symbol** is a sign which would lose the character which renders it a sign if there were no interpretant. Such is any utterance of speech which signified what it does only by virtue of its being understood to have that signification." Charles Sanders Peirce, **Philosophical Writings of Peirce**, ed. Justus Buchler, (New York: Dover Publications, 1955), 104.

6 Gilles Deleuze and Félix Guattari, **A Thousand Plateaus**, trans. Brian Massumi (Minneapolis, University of Minnesota Press, 1987), 142.

7 K. Michael Hays, **Modernism and the Posthumanist Subject** (Cambridge, Massachusetts: MIT Press, 1992), 111.

performs much information, which would quickly exhaust itself. The assertive verticality of the classroom block (emphasized by a structural expression that has little to do with the actual stacking of classrooms within) establishes a strong formal tension to the layered, cantilevered play decks, which are themselves a startling and slightly disorienting displacement of the horizontal ground plane. This formal tension is only partially softened by the elaborate series of circulation elements, the walkways, stairs, and platforms that weave through and around the building parts. These multiple routes and unexpected connections laced through a generic functional diagram (horizontal decks and vertical classrooms) produce complex performative effects. Unlike Le Corbusier, Meyer is indifferent as to the origin (semiotic, social, or technical) of these effects. The displaced ground plane braced back to the building by elegant cable struts does not call forth associations with aircraft technology or memories of the garden; nor is he interested in transforming this material into a new whole. Rather, the force of the abstract machine as deployed here is to address precise problems with precise solutions, while maintaining fluidity among the parts – a disjointedness that keeps the elements in play and allows for their constant recontextualization with changing external forces.



Van Berkel & Bos Architectuur bureau, **Arnhem project.**
Volumetric study of flows, side view.

This reading, first elaborated in the late 1980s and early 1990s, worked against the grain of the Derridian/deconstructivist theory dominant at that time, which sought to reinscribe architecture within an abstract logic of discourse and representation. Offering a way out of the facile opposition of the semiotic to the material, Hays identifies a radical materialism in Meyer's architecture. But the reference to materiality here is not in service of the recovery of tectonics or an ontology of materials, as was typical of other critiques of deconstructivism. Instead, it draws on certain aspects of the Derridian program to describe potential social and political effects resulting from the disruption and renewal of perception in Meyer's architecture: "[Meyer's] materialism emphasizes the heterogeneous properties of things and their effects in real space and real time, and induces a play of sensuous energies in the viewer, a compulsive pleasure taken in the quiddity of building parts, but also in the contradictions, the disruptions, the gaps and silences, all of which explodes the received social meanings of things."[8] Hence the radical force of Hays's reading lies in the fact that the materiality he refers to is not a primitive or "natural" materiality that looks back to architecture's origins (as, for example, in the architecture of Louis Kahn). It is instead a physical reality that is itself entirely permeated by all the artificiality and abstraction of 20th-century urban life: a reality that is already diagrammatic. By collapsing the material and the abstract in this way, he locates architecture between the real and the virtual, capable of intervening in both, yet fully committed to neither.

My motivation for examining in some depth this one example from a potential genealogy of a diagram architecture is not so much to legitimate the present by means of reference to the past as it is to suggest that the workings of the diagram belong properly to architecture's history and its own understanding of itself as a discipline. It would not be difficult to outline a more complete genealogy of the diagram in architecture. That having been said, the radical force of the diagram belongs to its recent past, and the particularly 20th-century dilemma of confronting a reality that is itself increasingly characterized by the arbitrary and the incomplete, by false starts, dead ends, indifference, and uncertainty. (As Kittler concludes, "The elementary, unavoidable act of EXHAUSTION is an encounter with the limits of media."[9])

A diagram architecture does not pretend to be able to stand outside of this reality to offer critique or correction, nor does it hold out for some impossible notion of coherence. Instead, it accepts architecture's place in this flawed reality, not cynically, but with cautious optimism, inasmuch as these contingent diagrams of matter can sometimes be reconfigured.

DIAGRAMS – INTERACTIVE INSTRUMENTS IN OPERATION

Ben van Berkel and Caroline Bos

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Architecture still articulates its concepts, design decisions, and processes almost exclusively by means of a posteriori rationalizations. The compulsive force of legitimizing arguments still dominates contemporary debate, even though it only represents a limited interpretation of the complex web of considerations that surrounds each project. Yet for the most part we cannot bear to analyze our own internal discourse for fear of disrupting the notion of the eminent utility of our projects and thus precipitating their disappearance. The dependence of architects on being selected for work should not be underestimated. Inevitably, our strategies, our formulations, and the ways in which our interests evolve are related to this dependence. Since architecture – at least in the open, democratic, Western society in which we work – now results from a highly institutionalized, cooperative process in which clients, investors, users, and technical consultants all take part, it is natural and right that architects strive to be reasonable, responsible partners in this process, and condition themselves to think and to present themselves in a way that will persuade others that large investments can be safely entrusted to them. The frustrating result is that there is hardly any real architectural theory to be found, despite the diversity of practices at work today, and despite a hugely expanded volume of architectural publications. There is only after-theory.

The pressure of rationality is such that architectural theory is streamlined toward a moment of compelling logic, in which factors of location, program, routing, construction, and anything else that plays a role in the origination of a design are directed toward the triumphant conclusion that the particular design under discussion is the only objectively justifiable one. The demand to present the "right" solution, even when the contents of that concept have become very uncertain, propagates architecture's dual claims of objectivity and rationality. Like a door slamming shut, the barricade of retrospective justification roughly blocks the view of what went on behind it.

8 Ibid., 111-13.

9 Kittler, 265.

For the title (a gloss on "The Diagrams of Matter," the title of the last chapter of his doctoral thesis) and other borrowings that no doubt found their way into this text, I am indebted to Bob Somol.