Research Ideologies, Information, and Moral Dilemmas

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Is there a "shape" to information? I have been asking this question of my latest Ph.D. class in theory. To produce a "knowledge-based design" architecture practice and/or teaching we have to process information in a way that we find useful, being a generally pragmatic group. Information, however, is a tricky subject. For instance, is the "shape" of information (mathematical equations, matrices, shape grammars, typologies, taxonomies, hypothesis, content analysis, allegories…etc) dictated by "how" you ask a question much less "what" is the question you are asking? Ph.D. students in architecture struggle, in their first semester and beyond, with what question they are asking and what methodology they should use to "find out" the information needed to answer the question.

To define "information" philosophically I would have to follow some fairly complex and dry interpretations of Hume, Pierce, Lewis, and a bunch of other white Western philosophers. It would probably be simpler to leave the definition of information to the dictionary: "the communication of knowledge or 'news' of some fact or occurrence; the act of telling or the fact of being told something."[i] This last part of the definition of information is particularly relevant, as it seems to tell you that you should go chase your tail. I am not a philosopher, but the questions that students ask can

often be traced back to what I would call a "research ideology." I define research ideology as a consistent logic between the relevancy of the question, it's premise, it's assumptions, the method used to collect data, the practice of analysis/interpretation (as form), and the conclusions drawn (as information).

Unfortunately Western philosophy has outlined a deep divide between how one can approach research and the bridges that people have tried to build have not always held structurally (pun intended). John Collier[ii] defines the major "characteristics of modern thought is the pervading tension between the object and the subjective, the universal and the particular, the eternal and the temporal, the global and the local, and the ultimate and the immediate." I do not particularly want to debate that the two sides exist; they are simply conundrums of thought established early, generally produced by early Greek thinkers. In the class I teach I think it is important for students to understand that "picking" a methodology is a more serious act than their pragmatic souls would like to indulge. I think it is important for a student who earns a doctor of philosophy to have some idea of what philosophy means, and how it leads to particular methodologies, and perhaps in this case, the shape of information.

The "great divide" in Western philosophy has left me with

students who take up positions near the ends of the divide, and those who try to span it in some way (usually by addition or invention). The "divide," as a term, seemed too permanent or unforgiving to me so I have defined it as a series of continuums. For this class I defined two distinct but interrelated axes that cleave Western thought into four somewhat defined groups. The first axis runs between passive and active, the second runs between individual and community. The axis between passive and active is marked at the point where theories of evolution (Spencer and Darwin) were beginning to "adjust" worldviews from one that identifies individuals, communities, or the world as relatively passive receptacles of data to individuals, communities, or worlds that are creative expressive, dynamic, and constantly in flux.

The second axis between individual and community is defined by the crisis of "self" in European Philosophy of the 1700's that partly spilled over into the establishment of some American pragmatists. The most significant issue for this group of Ph.D. students was the unit of research. On one hand the unit of research moves from objects or structures to activities, on the other hand the unit of research moves from individual objects to community structure. This is really a three-dimensional structure, if time was taken as the third axis (see illustration 1).

I have lately organized my class around debates—true debates,

three students for each side—who structure an argument that is basic to research. The question, in each case, possesses the basic subject/object problem in Western philosophy. The first question was: Do inherently structural or organic universal and absolute laws exist for how the world domain is arranged, or is the social/physical world/universe dynamic and constantly changing (See Illustration 2).

The debate went well, we had no resolution. We had two sides that argued long enough to sort out a couple of things. The people who like to measure phenomena, occurrences, or ideas and who are comfortable with predictability are attracted to universal, or at the least *probably* universal, laws. Although three students argued valiantly to defend a completely positivist view of inevitable and knowable cause and effect relationships, they were unable to convince any of us to stand without probability as a reliable alternative. The other three students noted that the theory of evolution and the theory of complexity made it impossible to have universal laws. Even at the two ends of scale, from the universe to subatomic particles, change existed but was often too slow or too fast to be detected by our tools for measuring. Besides, how can you possibly measure significant phenomena, occurrences, or ideas? These three students argued vigorously that there were no absolutes other than change. Although no one was willing to plunge over this edge completely, there were

those who thought the idea of "measuring," then reliably "predicting," was suspect "knowledge." At the end of this debate everyone sort-of huddled in the middle by admitting that we rely on measurements because we "believe" it is a good foundation for some kinds of information. But for other kinds of information, like how light effects the emotions of people in a Buddhist Temple, how do you "measure" these things with a traditional, quasi-empirical method? What kind of information do you need to make a significant effort to "know" *something* about intangible phenomena, occurrences, or ideas?

The following two weeks brought the next debate. The question posed was: can you build from a foundation of separate, independent data modules a theory for how the world domain functions, or, must you understand how a whole, indivisible domain functions in order to distinguish its interwoven, concurrent parts (See illustration 3).

The debate went well, we had no resolution. The two ends of the continuum were debated with physical props, illustrative diagrams and vigorous arm-waving. Again, although the teams of three were committed to either parts or wholes, no one was convinced to stand only at one end. Did one need a "foundation" of fact to "know" anything or could one pursue a more "coherent" systematic, situational "way of knowing." One model promotes a foundation from which a string of logic from premise to conclusion is

built. The other end of the continuum promotes an interwoven, three-dimensional web where the interior of the web contains the most logically connected beliefs and near the exterior the web begins to have inconsistencies. Was there a middle ground where a composition of logic and belief could meet? Are there different kinds of information in our lives?

At this point we were starting to discover that it was difficult for some students (and professors) to separate their research question from the life they lived day by day. Others had no problem with different structures for different understandings ("I can measure phenomena, occurrences, or ideas effectively when they are dissected from the 'noise' of the rest of the world, then I can go home at night a be a loving mother/father by helping my child to understand faith"). The students who could separate usually fell somewhere in the empirical/ pragmatist camps, the students who could not fell somewhere into naturalistic inquiry or beyond (I dread trying to explain phenomenology, in fact, it can not be explained but only understood?). Anyway, things were just getting interesting.

The following two weeks brought the next debate where the question of determinism and indeterminism was addressed in more detail. We asked the students to think about whether they believed that there is a linear and direct connection between entities—a compelling relationship of cause and

effect, or, if they believed that all connections are complexly woven with enough fragmentation to suggest unpredictability and chance (See illustration 4)?

The debate went well, we had no resolution. The arm-waving continued as one side argued inclusiveness with active construction on the part of the inquirer. One could not predict the future of anything because we could not tease-out the interfering variables—including the inquirer. This proved to be a convincing argument until we were faced with the "laws" of physics. Perhaps we could not know things with absolute predictability, but we could come to that precipice with some conviction in certain disciplines. This was interesting as the matter of the "scale" of the inquiry, or the "unit" of inquiry, began to clarify. It seemed to me that students who felt they could measure things (events or objects) like the erosion of an adobe wall or the energy lost through a certain wall type, had either physical devices or physical laws through which they could proceed. This is somewhat true of people interested in some kind of communal action if measurable (surveys or patterns of behavior). At the biologic scale, however, individuals or individual pieces of the puzzle become more dynamic and difficult to "scientifically" measure with the tools we have at our disposal. The realization that the scale or unit of inquiry was an important determinate of what information

would "look-like" was the outcome of this debate.

During the following two weeks another question was posed. This question had to do with where the inquirer "stands" in relation to the information they pursue. At one end of the continuum there are those who believe they stand independent and external to the entities and occurrences they study—an objective observer of the "other." At the opposite end stand those researchers who believe the world to be complex and sticky. For these students the connection between the knower and the known are dependent. One cannot eliminate subjective complicity in whatever inquiry is afoot. The knower and the known permeate each other.

The debate went well, we had no resolution. Students seemed to be more confident at this point that they would "never figure out anything." I commiserated with them, telling them of my own difficulties of working out how the world worked. The debate again turned on whether the world was seen as empirically knowable, or biologically messy. How long could one hold the world "in place" so that one could contemplate its objects or events? Actually, the term "event" introduces a notion of time that is difficult to discard from objectivity. Events imply that things are always changing, either very, very slowly over time or so quickly that we cannot discern or conceptualize them. Objects that were considered real and outside our bodies were

changing, but most were eroding so slowly that it might prove irrelevant to an investigation.

Students had to begin to come to some conclusion about the scale of their inquiry or, perhaps, what was the unit of inquiry. They also needed to decide to what level the world, including ourselves, is passive, or to what level it is active. Then they had to decide how they stood in relation to their inquiry—outside or inside, or somewhere on the edge. Many of the students were trying to take "middle" positions—finding themselves somewhere "between" ism's and ideologies. Others separated their experience in research from their experience in life. A few may have tried to hold to a strict ideology, but I found this rare. Our intent was to confuse them initially, then slowly build the ideologies and questions surrounding each continuum, and finally to have them clarify their own positions as researchers. Many stay confused until they see the end of the semester coming—they become recognizably pragmatic. A few remain befuddled and sometimes distraught. But most students find themselves somewhere in the puzzle of research ideologies.

The final debate was to be about "information" and its "shape." With each research ideology that we covered there were examples of the methodology and outcome. I was unsure how to pursue a continuum relating to information. Initially, I thought that the continuum about information should be from simple to complex. On one end, the formulation of universal

laws at the core of any explanation of data is what is sought. The order can be quantifiable, essential, or foundational. On the other end one can understand the data to be intricately woven, nonlinear, and labyrinthic in nature. We did read and discuss issues of information but I felt less sure, in this case, how to proceed. Perhaps the continuum I began to develop was not yet the right one or a continuum is not appropriate here.

Initially I had thought of this part of the class as addressing the nature of "order." The simple end would encompass essential, linear, sequential, typological, indexed, or ranked information. The other end of the continuum would be a complex arrangement of information—non linear, tumultuous, intricate, and arrhythmic. Between would be systematic, taxonometric, and integrated arrangements of information. This construction has something to do with static and active views of the world. If you stood on one side the information would be simple and elegant; if you stood somewhere in the middle the information would be actively manipulated but would also display order; at the other end the information could be seemingly overwhelming but would have an overall pattern that could be discerned (See illustration 5).

I believe that it is a part of human, collective nature that requires us to construct order. I do not know whether this desire is biological or mechanical. John Collier claims that our collective nature "requires that we find some way

to live with the tensions" of our rational, social condition. Other authors, like Gerald Edelman in *Bright Air, Brilliant Fire*[iii], suggest that while the theories in physics provide the necessary bases for biology, it is not the concern of physics to deal with biological structures, processes, or principles. He calls this kind of transfer a "category error." Order, to this neoDarwinist, consists of a large dose of "free-will" with the introduction of environmental data that are meaningless if we do not understand "intentionality" on the part of the individual. So as a community we may seek order differently than the biologically based personally aware individual.

Students, and professors, may be making a categorical error when they try to understand the world domain utilizing one worldview for all scales of macro and micro conditions. But this seems to be the core of Western Philosophy and Science, to come to one understanding or order. Not only do I slip around and change research ideologies depending on the question, I also am looking to produce different kinds of information at different scales of a research unit. Consistency across units of research and scales of inquiry seems to be a very elusive state. Most of the students display a "range" through stepping from one ideology to the next, adding ideologies to each other, or bridging and sometimes inventing research ideologies. Looking for one answer, or one kind of information seems unnecessarily dogmatic. Instead I find that

there is a kind of Escheric continuum where information may simply fold into the next "scale." However, Collier notes that "A satisfactory science should be able to account for spatio-temporally extended dynamically organized autonomous entities such as ourselves…a purely external perspective has trouble reconciling extended, self organizing particulars with its universal laws[iv]." Collier concludes that beginning with the advent of systems theory— that complexity theory has produced a more holistic approach to phenomena. In complexity theory one can determine the shape of the external or structural system, sifting its non-random behavior to time and measurement. At the same time, the internal perspective is more autonomous and adaptive, unfettered by absolutes and able to describe our social systems.

The students of research in architecture have a continuous struggle before them that is real, complex, and ethical. To order is a strong desire in these students—they want answers. When I was a student, it was understood that the world domain was explained through quasi-empirical cause and effect relationships. With time, my view has "moved" around the map of explanation and understanding. The advice that I now give to these students is that perhaps they need to identify the "unit" and "scale" of research before they choose a method of inquiry and its ideological baggage. This allows for adjustment, depending upon a change in the focus of their research. I find, by

taking this position and structuring the class through debates, that the class members have generated a kind of positive tolerance of different "ways" of structuring and pursuing research and the varied physical outcomes of information. My desire is that this kind of exchange creates a more complex and satisfactory exchange within the group and between groups within the design and research community of the College. These students tend to stay in touch with each other and become voluntary critics of each others work. I believe the course content has ferreted out the shape of information as it relates to ideologies, but conclusions of good fit between research design, ideologies, personal beliefs, and professional inquiry are still debated among the students.

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[i] Oxford English Dictionary (the 5th meaning of the verb "information")

[ii] Collier, John "Emergence of the Internal Perspective in Western Science," *Contemporary Philosophy. 24-11:* 355-362.

[iii] Edelman, Gerald. *Bright Air, Brilliant Fire*. Basic Books: New York, 1992.

[iv] Collier, *op cit, 356.*

1) Illustration of the intersection of axis.

	PASSIVE	ACTIVE

INDIVIDUAL	DESCARTES (1596-1650)
	• Rationality = **introspective reflection.**
	LOCKE (1632-1704)
	• Rationality + Causality = **observation** of world.
	HUME (1711-1776)
	• Rationality
	KANT (1724-1808)
	• **Categories** = **structure** of thought.
	FREGE (1848-1925)
	• **Logic** & the **structure** of language.
	BERGSON (1850-1941)
	• **Inference** & intuition from our own experience.
		ROUSSEAU (1712-1778)
		• Introspection + Freedom = **expression.**
		KANT (1724-1808)
		• **Construction** of world is necessary
		SCHILLER (1759-1805)
		• Individual **expression** of self as universal.
		FICHTE (1762-1814)
		• Individual **participates** in & **uses** world.
		JAMES (1842-1910)
		  • Humans **interact** with and **control** the world.
		BRENTANO (1838-1917)
		• Consciousness is **directed, intentional.**
		DEWEY (1859-1952)
		  • Individual, **creative intelligence.**

	UNIT OF RESEARCH = Individual objects in the world **through observation, reflection, and logic.**	**UNIT OF RESEARCH = Individual human activity** in the world **through experience, construction, and expression.**
COMMUNITY	DARWIN (1809-1882) • Natural selection = **induct/deduct observation.** SPENCER (1820-1903) • **Evolution**, the product of which is **increasing complexity.**	SCHILLER (1759-1805) • Self to be **integrated** with culture and politics. SCHELLING (1775 -1854) • Humans **grow** and **develop** in a living universe. HEGEL (1770-1831) • Spirit **merges dialectics** via culture & language. DILTHY (1833-1911) • Hermaneutic **interpretation** of human experience.
	UNIT OF RESEARCH = Community structure as an object in the world **through observation and reflection.**	**UNIT OF RESEARCH = Community activity through dialectics, development, and integration.**

2) Illustration of Static/Dynamic Continuum.

STATIC	....	....	....	**DYNAMIC**
• Pertaining to forces in equilibrium, or to bodies at rest. • Inherently structural or organic as opposed to functional **Universals are absolutes that exist in forms, laws, or structure.**	Predictable Controlled Correlative Correspondence Distinction Contrasting	Constructed Reciprocal Relative Communion Complementary Mutual	Interrelated Interconnected Interactive Coherence Diverse Variable	• A force producing motion. • Potent, vigorous, pluralistic, and varied. **There are no absolutes; change is the only attribute of the world that is constantly present.**

3) Illustration of Part/Whole continuum.

PART

Individual	Ensemble	Interaction	Woven	**WHOLE**
Discrete	Assemble	Interwoven	Collective	Indivisible
Apart from	Juxtapose	Concurrent	Structured	Total
Self vs. Nonself		Composition	Re-Structured	Entire
Independent				Complete
Autonomous				
The inquirer gains objectivity by abstracting from all perspectives, and ac-cumulating facts.				The whole picture is an image created morphogenetically from multiple perspectives.

4) Illustration of Independent/Dependent continuum.

INDEPENDENT

Objective	Accompanied	Constructed	Connected	**DEPENDENT**
Extrinsic	Accommodated	Relative	Comparative	Subjective
External	Detached		Associated	Contingent
Isolated				Sustained
Separate				Correlated
				Interrelated

5) Illustration of Simple/Complex continuum.

SIMPLE

Linear, causal links.	Hierarchical	Taxonomy	Irregular	**COMPLEX**
Sequential	Categorical	Interconnected	Complicated	Nonlinear
Typological	Continuity	Bound	Involved	Tumultuous
Ranked	Probable	Systemic	Integrated	Intricate
Indexed	Feedback	Patterned		Labyrinth
Reductive				Descriptive
Abstract out for intense study one or a few elements while holding everything else constant, that is, known parts can predict unknown reality.	The principle of hierarchy is that there is an inherent order in nature.		It is impossible to separate a thing from its interactive environment, diversity and interactivity are characteristic of reality.	**If** there are orders, many of them exist side by sided heterarchically.