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# Harmonic Rhythm: The Essence of an Enjoyable Design Process

Amos Ih-Tiao Chang

While production efficiency is the rule of modern life, design efficiency has not reached the happy level it could when dealing with the human factors of our environment because the process of design—and the production of a design—is not exactly an enjoyable one. In striving to insure that an architecture students experience in the studio is a gratifying one, I wish to write some thoughts about the strategical and tactical essentials of any enjoyable design process from the position of a designer and that of a design teacher.

Based upon the natural principle of duality between action and repose, or fatigue and relief, specific rhythms between emphasis on rational thinking and emphasis on human feeling compose the functional theme of this design process. The primary rhythms between being and actual non-being, or between separate substantiations of things and emptiness in between, nevertheless, are simply considered indispensable.

## Rhythm the Reason

The choice of the word RHYTHM as the key word of the theme of my efforts is natural; nature invariably rectifies all types of functions with rhythmic regulation and facilitation. Its substance is the mental reality of CONTRAST which assures us the clarity of conception, the attraction of in-

terest, and eventually the inducement to movement during an enjoyable process of confronting a holistic experience.

The impact of rhythmic function is omnipotent and omnipresent: the vicissitudes of historical events and the pattern of our daily activities consistently follow a similar compensatory and alternating sequence of actions in an unusual manner, thus, amazing us with its regularity at times.

Assuming rhythm is the reason of all functional occurrences one may begin to understand why we provide a large office space to accommodate a high ranking executive. He needs to experience the refreshing rhythm of alternating his physical experience of pacing in the room with his mental experience of indulging in a pressing problem.

Of all the rhythmic phenomena happening in our daily experience, the pulsation of one's heart beat is the most intimate and the alternation of seasons is among the most conspicuous. Also quite intimate to ourselves (but unfortunately not quite conspicuous, therefore technically unidentified and taken for granted,) is one's habitual and compulsive switch of interest or preference, often appearing at the beginning arbitrary and irresponsible.

The purpose of this article is to tap such seemingly illegitimate rhythmic

functions in architectural design and to tackle the technical imperatives which lead to the correspondent organization among them, in order to formulate the strategical profile and the tactical process of an enjoyable design method.

## The Mission of Complement

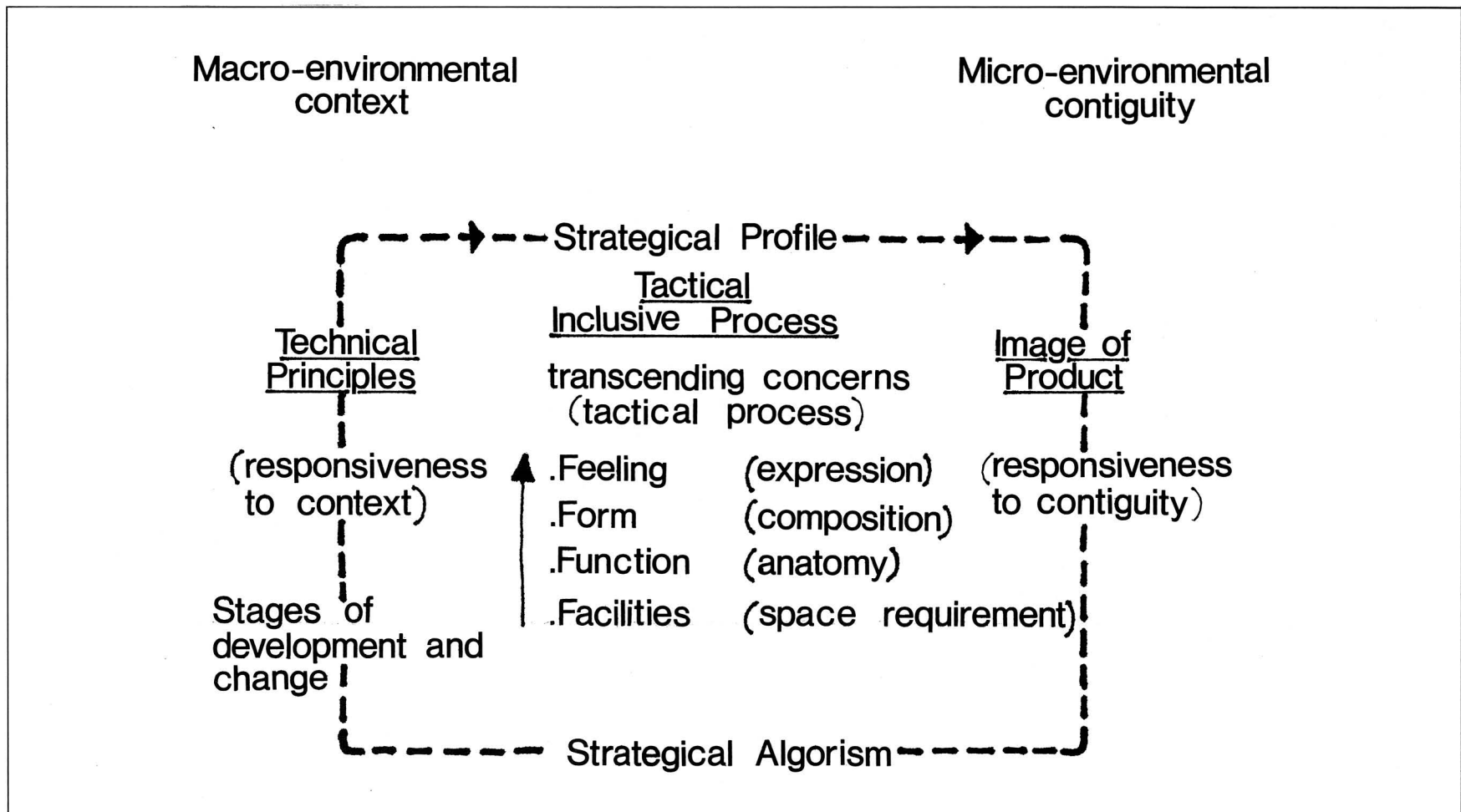
Rhythm certainly is the reason that governs various philosophical aspects of current architectural occurrences: the nostalgic affair with classicism of post-modern approach versus the pure modernism of the immediate past in the area of *aesthetic principle* of design; the alternating tendency of leaning toward the pre-fabrication method of construction versus the traditional in-situ artisan craftsmanship which conditions the *technical outlook* of an architectural product; and, the alternating preferences of *creative design process* from methodological ones to that of totally whimsical ones.

Similar to the most awesome rhythm between war and peace (which fortunately ends up in the form of a cold war, or political co-existence, at this moment) all the contrasting occurrences emerging in the wide open field of our civilized world tend to arrive logically at some form of complementary synthesis or proportional harmony among correspondent opposites. This sign of human progress stands to reduce man's deliberation

for war and to redress his impulsiveness toward peace.

Categorically, ideas that are permanent, mechanical, and methodological, are the results of deliberation and belong to the realm of rational thinking. Actions that are fashionable, manual, and intuitive, are the consequence of impulsiveness and belong to the domain of human feeling. Taking a positive attitude, we are currently at the brink of synthesizing the three aforementioned pairs of architectural opposites with the hope that endless creative differentiations will emerge.

However, in response to the overwhelming reliability of rationality in our age of reason, we must assume that when dealing with all the matters that are known to us that the approach that will secure the success of a case is to treat rational thinking as the major factor and human feeling as the minor factor of formulation of any physical or metaphysical entity. However, when dealing with things or situations that are beyond one's grasp, emphasizing the validity of intuition or feeling, instead of rational thinking, may well be a better approach; feeling and intuition are the forms of comprehensive intelligence in disguise. We must always remember, however, that the minor factor of human feeling is instrumental for making a design process enjoyable and viable.



## 1. Design Strategy and Tactics

### Design Strategy

Our concern about the rhythmic changes in our macro-environment reflects the technical mandate of several physical and societal imperatives: topography, solar angle, hydraulics, and aero-dynamics are among the physical factors, and planning ordinance, traffic regulation, building code and finance policy are among the societal factors. Together, they constitute the comprehensive set of principles and priorities of design concern. The *inevitable context* which constitutes the substance of a design program and technically decides the rough positioning and the rough mold of an architectural form for site analysis. Needless to say, hydraulic flow alone is a big factor in positioning and shaping our grounds and roofs.

Our concern about the rhythmic changes in our micro-environment, for example, the alteration of day and night, mainly involves the experiential side of architecture. Our concerns aim to capture the image of gesture of an eventual design in *adaptive contiguity* with neighboring buildings and spaces.

Armed with the *background principles* derived from macro-environmental context and the *fore-viewed imagery of the eventual design process* (although not its typology) in terms of sensible micro-environmental contiguity, the designer is in the strategical position to know where the inclusive and tactical part should start and what is to be looked for at the very beginning of the process. Whether rational thinking or human feeling is emphasized in

establishing our strategical stands, as related to both the matter of environmental context and the matter of formal contiguity, is a matter of whether the environment involved is a well-defined urban space or an unfamiliar wilderness.

The diagram shown in figure 1 represents the strategical profile as well as the tactical process of a desirable design method. Its dotted-line trail suggests a major algorithm of which the mission is to generally reassess and adjust the weights of determinants given to various contextual factors at the principle-contextual end of the strategical profile and the type of hypothetical contiguity adopted at the product end. This is the most vital strategical step or steps to take immediately after the com-

mencement of a design experience. It controls the improvement of feasible accommodation in response to both the severity and complexity of a realistic (natural) environment and the difficulty and sophistication of reaching an idealistic (man-made) preliminary conclusion for a design.

Due to the complexity involved at the contextual end and the sophistication at the contiguity end, the judgment and decision to be made amidst the bulk of uncertainty could be a rather painful one. Without confronting and resolving the basics of cloudy and knotty situations and resorting calculatedly or decisively to intuition for an initial solution, the hesitation and procrastination one has to overcome later could be endless and unsurmountable. This is particularly true

when one is going to deal with some unusual subtlety involved in the tactical parts of a design process.

### The Cognitive Map and its Territories

Before we discuss the technical specifics of a tactical process in developing a design, let us understand the mental territories a student has to encounter during his learning experience, as opposed to his creative experience in a design studio. The alternating experiences of learning versus that of creating (designing) is in fact a helpful pattern to secure the mental well-being of an architectural student.

A student traverses sporadically into various areas of learning which could be cognitively identified within a map of intellectual cognition. The map consists of an intersecting pair of axes whose polarities are *pure and applied* versus *abstract and concrete*. (See notes at the end of article).

Among the subjects of study in architecture, theoretical courses and the rational thinking involved are both abstract and pure, history or architecture is pure and concrete, technology, including the science of structure in particular, is abstract and applied, while the finished product of architecture is concrete and applied. (See figure 2).

### Radicalism versus Tactilism

Further elaboration of the cognitive map suggests that ideas that are technological and idealistic (theoretical) belong to the field of science and things that are realistic and demonstrative belong to the field of art. Thus, it seems that a review of the demarcation between them is required before we can understand the legitimacy of a desirable design process.

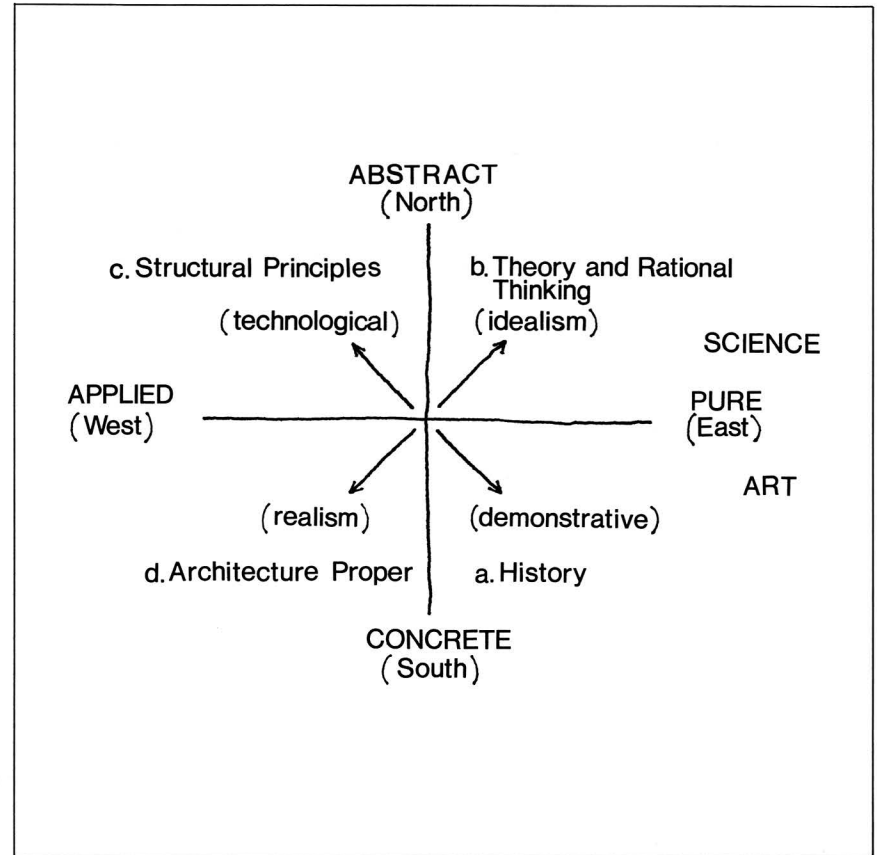
Science gives form by quantifying what is formless in order to qualify its *exact and rigid* formation, while art modifies it in order to give it its humanistic interpretation and more comprehensive presentation. *Together, art and science are fulfilling the necessary requirement of holism between rational thinking and human feeling.* The premise of its logical naturalism.

Therefore, to design something radically leaning toward the technological corner of the cognitive map is not logical. The *avant-garde* design of Pompidou Center, which shows its lack of taming of structural shrewdness, is not acceptable. (See arrowhead C, figure 2.) To design something radically leaning toward the corner of historicism is not logical either. The massive and monumental appearance of the Portland Municipal Office Tower also is not acceptable because of its extreme illogicality. (See arrowhead A, figure 2.)

A design produced with the concern for the holism of what is realistic and idealistic is a modernistic approach we have dealt with for years. It often brings about isolated creation, without adequate consideration of historical teaching and technological information. (See B-D in figure 2.) While its artistry could be rather admirable, its environmental relevancy is absent.

In substance or in spirit, whatever a student has learned outside of his studio (including his learning from previous experience in other studios) becomes individually useful, serving as guiding lights which enhance one's power to make decisions at each tactical stage of a design process.

The following stage by stage explanations are presented in reference to the tactical trail of a design process represented by w - x - y - z in figure 3.



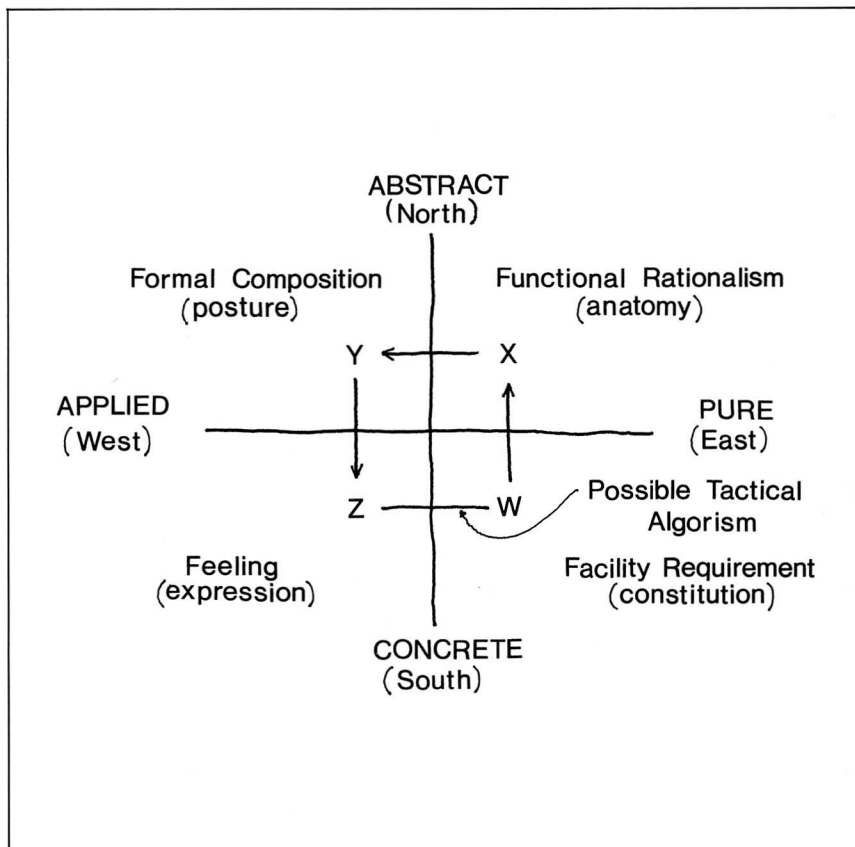
2. The Cognitive Map

w. One's learning from architectural history, for instance, most convincingly reminds the student of things that are related to all kinds of environmental factors and the consequent needs. We refer to this as "Facility."

x. Rationalism induced from theoretical type of studies should give the student some sense of logical guidance in the formation of an *anatomy of function* in space (i.e. the bubble diagram). This extensive subject would require elaboration.

y. Technology in the specific area of structural principle should be able to orient the student toward the well-postured formation of *structural forms*, which at this stage may qualify as a bare building but not an architectural piece of work.

z. Finally, dealing with the architectural finished product, the student's interest focuses on either the artistic refinement of structure (a Miesian approach) or the enrichment of structural expression and shrewd addition of harmonic ornaments to functional space for the sake of overall harmony of the design (a Wrightian approach). To Mies, science is the means and art is the end. The reverse is true to Wright. For most of us, holistic design exists between Miesian rationalism and Wrightian expressionism. The ordering between the means and the ends is interchangeable and not clearly defined. Perhaps, the type of building we are dealing with, an industrial building or an art museum, could provide us with a sense of ordering in this respect. At any rate, no architect can ignore the structural form which initiates the motivation of *human feeling*.



### 3. The Tactical Path

These four aspects of architecture represent the four separate ascending stages of tactical development of a smooth design process in the names of 'facility', 'function', 'form', and 'feeling' as we have mentioned before.

These four aspects, more interestingly, may well proceed in parallel with our subconscious mind after the fashion of a harmonic quartette, in which each of the four particular areas of concern are doing a leading role by turn. The key to success in this perspective is the full utilization of a modular system to enhance a designer's harmonic experience. Thus, space requirement (the facility) should be expressed in terms of number of modular units (i.e. — 3'4" x 3'4" or 10' x 10') instead of a square foot. A functional diagram should be quantitatively 'scaled' in order to express the volumes of functional spaces and their comparative distances from the core of functional

coordination as modularly passive. The modular system is simply necessary for structural, and ultimately, the expressional formulation of a design. Following the pattern of this rhythmic process sensitively, a designer's up-and-down sentiment in continuous response to the problem he has to deal with, and could implicitly become some kind of melodic experience.

The Function of Differentiated Non-Beings (Variety) and Actual Non-Being (Emptiness)

In a small way, the differentiated non-beings of configuration variety of graphics employed in representing the contents of the four stages of development is quite an aesthetical blessing. It includes *non-geometric* or ordering quality matters in the name of facility. It includes *circular* bubble representations of various sizes to stand for the elements of a functional

diagram. It includes *square* or square-cornered structural modules to represent volumes of space. Finally, it includes *angles* to stand for the shadow pattern which reflects the depth and liveliness of human feeling.

The big way of aesthetic blessing lies in the primary, or ultimate, rhythm between being and non-being, or separate conclusiveness of each stage of development and the ample emptiness or leisureness to unify it. The latter, ample emptiness or leisureness which are sandwiched between consecutive stages of design, assume the special function of releasing a designer from excessive preoccupation with this work and of building up his self-confidence as a designer by giving him the opportunity to enjoy the satisfaction of scoring succession of partial, but solid triumphs.

Still, the biggest aesthetical blessing lies in the opportunity of change and growth of the process because in changes there is a good chance of real success. The richness of compositional opportunity and choices out of the posture variability of a structural *form*, in response to the conceptual guidance of a well planned standard *functional* diagram, is quite a creative challenge by itself.

Beyond the control of a design process, designer's skill remains as the most vital factor of success. Making a distinction between what is physical and what is visual will make a difference. Toning down the visibility of necessary volume of bulky space and enhancing only the focus of interest of a functional form certainly is one technique to cherish.

Earnest architectural drill for the sake of mastering composition, technique and the tool of design, namely the design process, after all, is what really makes it tick.

#### NOTES

In Fall, the Dean of the College of Architecture and Design, Dr. Mark Lapping, distributed xeroxed copies of one section of *Modern American College* for the purpose of creating improved identification of curriculum subjects and better understanding of the subjects in the college. Through the channel of this communication process, I saw the *map of intellectual cognition*.

Since, I have added the 'thinking versus feeling' polarity to become the third dimension of a 'global' thought model. The first and second dimensions are the 'abstract versus concrete' and 'pure (theoretical) versus applied' polarities. Now, 4 February 1985, I am becoming convinced that the abstract thinking represents the mentality of Northern people and concrete thinking represents the realism-consciousness of the Southern people. Most aptly, the pure and theoretical represents Eastern thought, and the applied represents Western action.

One thing I have identified of a particular interest to me is the fourth dimension — the rotation of the 'globe' in quest of the synthesis between the sense of eternity and the zeal for novelty. This happens to be the current concern of our profession. More philosophically and optimistically, perhaps we may go one step further and say the serendipity could assume the architectural role of the fifth dimension, the dimension of uncertainty.

The specific section used from *The Modern American College* (edited by Arther W. Chickering and Associates and published by Jersey-Bass Publishers in 1981) was the article on "Learning Styles and Disciplinary Differences" by David A. Kolb.