RECENT ADVANCES TOWARDS A META-TYPOLOGY OF HUMAN RELATIONSHIPS

Robert RAVICH
Northside Center for Child Development, New York, USA

Summary. - After less than four decades, the field of family therapy has largely abandoned the search for a typology of interaction between persons or between groups. Granted no single typology can conceivably fathom the hyper-dimensionality of human interaction. However, mankind’s earliest recorded efforts to explicate the structures of human family systems are perceived by examining two of the earliest books known to man. These documents, The Book of Genesis of The Old Testament and the ancient Chinese Book of Changes or I Ching, can be viewed as loosely integrated modules of a single framework that help explain one another. The author suggests that these linked, family oriented sources also were the basis of modern symbolic logic and information (or switching) theory. Together they can provide the foundation of a hyper-dimensional metatypology of human interaction. This could integrate interactions at and between levels of neuronal synapses and networks, the cerebral hemispheres, self and other, family and disparate social systems, and various human groups, national, racial, ethnic or religious.

KEY WORDS: hyperdimensionality, meta-typology, hexagrams, figurists, family corpus, chinese rites.

I Ching possono essere considerati come parti slegate di una unica struttura nella quale possono contribuire a spiegarsi a vicenda. L’autore suggerisce che queste fonti collegate e riguardanti la famiglia sono state anche la base della moderna logica simbolica e della teoria dell’informazione. Insomma esse possono costituire le fondamenta di una meta-tipologia iperdimensionale dell’interazione che può aver luogo a e tra livelli di sinapsi neuronali e sistemi di comunicazione, tra gli emisferi cerebrali, tra l’io e l’altro, tra la famiglia e i diversi sistemi sociali, i vari gruppi umani, nazionali, razziali, etnici e religiosi.

PAROLE CHIAVE: iperdimensionalità, metatipologia, esagrammi, figuristi, corpus familiare, riti cinesi.

The most pervasive of all human groups, it is uncertain whether the family is generic to mankind with formal variants in and between different cultures, or an invention common to every racial and ethnic group.

Gregory Bateson [1] introduced concepts derived from Shannon’s information (or switching) theory [2] that led him to apply Whitehead and Russell’s work on modern symbolic logic [3] to account for certain strange male/female customs of a primitive New Guinea tribe he had observed 20 years earlier. He wrote that he eagerly awaited “a typology of the processes of interaction as these occur between persons or between groups” [4]. Bateson anticipated that such a typology would contain “messages about the system... so constructed that they can be mapped in a complex diagram of logical types... Each message... would have its location on this map, and the topological relationship between various locations would represent the typological relationship between messages. It is of the nature of all communication, as we know it that some such mapping be possible” [5].
Other pioneers in family therapy believed a typology of families to be essential. However, after more than three decades, the field of family therapy and research has largely abandoned the search for a "typology of the processes of interaction as these occur between persons or between groups". There are good reasons for this, since no single typology is adequate to deal with the hyper-dimensionality of human interaction processes.

The debate on typology has been organized around and by a small group that believes that a meta-typology capable of integrating multiple typologies is a core problem worth pursuing. For the past 15 years Dr. Fredrick Ford and I have been working together trying to understand how his typology of family rule systems and my typology of marital rule systems fit together. The two of us participated in the formation of the American Family Therapy Association (AFTA) and have been the co-leaders of AFTA’s Typology Study Group from its earliest days to the present. The group of men and women who are active members of the Typology Study Group come together from all parts of the United States and other countries twice a year for one and two day meetings. They have been bound together in an exciting adventure. (See Note 1 for names of members of the Typology Study Group).

It was in this context that Professor Piero De Giacomo of the University of Bari brought to our attention the work that he and his colleagues have done, using Boolean algebra and Venn’s Diagrams as aids in distinguishing 16 types of human interactions in order to choose specific intervention strategies to change them [6, 7].

Boole’s algebra and Venn’s Diagrams evolved in mid-19th Century England as sources of modern symbolic logic that led to the theory of logical types of Russell and Whitehead which influenced Bateson. In the course of my own studies on human interaction that derived from Lewinian “field theory” [8-12], I have explored the largely unknown, but quite extraordinary history of the connection between family and the theory of logical types. This led me to the view that the very earliest written descriptions of the human family provided the basis of modern symbolic logic and the theory of logical types.

In setting forth this proposal to you, I am merely restating an idea that was first brought to the attention of Jesuit missionaries in China in 1527 by the great German astronomer, Johann Kepler (1571-1630). Though a Protestant, Kepler was greatly impressed by artefacts that Jesuit missionaries were sending to Europe from China and their reports regarding them.

According to Chinese history, Fu Hsi taught the Chinese to intermarry, to live in families, to make homes, to bring up their children and to stay together in groups that could help each other. Fu Hsi also taught the rudiments of calligraphy, the earliest symbols of which were the PaKua appearing on many Chinese artefacts with the interactive yin-yang symbol in the center surrounded by the eight “trigrams”, made up of solid yang lines and broken yin lines. These trigrams represent the eight members of the model family (Fig. 1).

Kepler communicated his views that this model family of the Chinese and the family of Noah that constructed the ark which enabled them to survive the great flood were remarkably similar structures [13, 14] (Table 1).

Kepler in 1627, wrote a letter to Johann Turrenze Schreck (1576-1630) a Jesuit astronomer in China, in which he made some comments that bear a remarkable similarity to the “Noachide theory” that became vitally important to the Jesuits. The core of his idea was that a grandson of Noah, Javan, a son of Japheth was one and the same person as the earliest legendary Chinese leader. This would have been Fu Hsi. The Jesuit missionaries took these observations of Kepler’s very seriously. There were religious and political reasons for them to emphasize correspondences between the Bible and the most ancient Chinese classic, known as the I Ching, or Book of Changes.

![Fig. 1 - Model 8-membered Chinese family of Fu Hsi represented by trigrams (the Fu Kua).](image)

Table 1 - The 8-membered model families of Noah and Fu Hsi: The Noachide theory

<table>
<thead>
<tr>
<th>The Book of Genesis</th>
<th>The Book of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Old Testament</em></td>
<td><em>I Ching</em></td>
</tr>
<tr>
<td>Noah</td>
<td>Father</td>
</tr>
<tr>
<td>Noah’s wife</td>
<td>Mother</td>
</tr>
<tr>
<td>Japheth</td>
<td>Elder son</td>
</tr>
<tr>
<td>Japheth’s wife</td>
<td>Elder daughter</td>
</tr>
<tr>
<td>Shem</td>
<td>Middle son</td>
</tr>
<tr>
<td>Shem’s wife</td>
<td>Middle daughter</td>
</tr>
<tr>
<td>Ham</td>
<td>Youngest son</td>
</tr>
<tr>
<td>Ham’s wife</td>
<td>Youngest daughter</td>
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A small group of Jesuits became proficient in reading Chinese. They sought to confirm Kepler’s hypothesis through in-depth study of the I Ching “figures”, i.e. the “trigrams” and the “hexagrams”, which are the structural basis of the I Ching. These scholars came to be known as the “Figurists”, because they believed that they had found evidence supportive of the Jesuit-adopted view that the Chinese shared Christian concepts of a single Diety and of Heaven since ancient times [15].

The Jesuits found favor in the court of the Chinese Emperor Kangxi. They were in charge of Kangxi’s astronomy bureaus, advisors on map-making and engineering, and teachers of his sons. In 1692 the emperor granted toleration to the Christian religion and the Jesuits saw that they had a chance for mass conversions among the Chinese [16]: “Kangxi insisted, however, that the Jesuits agree to abide by his stipulation that the Chinese rites of ancestor worship and public homage to Confucius were civil rather than religious ceremonies and thus could continue to be practiced by Christian converts”. Most Jesuits agreed, but “many Catholic churchmen in East Asia and in Rome disagreed profoundly and claimed that the Jesuits were weakening the integrity of the Christian faith”.

The Pope, Clement XI, sent an emissary to China who after a series of meetings with the Emperor, “forbade Catholic missionaries to follow Kangxi’s orders under pain of excommunication. The emperor responded with an order of expulsion against all those who refused to sign a certificate accepting Kangxi’s position. Though most of the China Jesuits signed, more than a dozen Franciscan, Dominican and other missionaries refused to do so and were expelled from China. This mutual hard line wrecked the power base of the missions in China and effectively prevented the spread of Western teaching and science.”

The reverse is also true. The Jesuits’ Neachide Theory-based missionary approach became involved in the “Chinese Rites controversy” which raged in much of Europe for 75 years. By 1742 the Pope felt compelled to decree the end of further discussion, to dishord the order and impound its records. The Society of Jesus was not reactivated until 70 years later.

The leader of the Figurists, Fr. Joachim Bouvet, had been introduced to the philosopher-mathematician Gustave Leibnitz in 1699 by a letter. This was a contact of considerable significance to the transmission of Bouvet’s Figurist theories to Europe via Leibnitz.

Leibnitz was familiar with Kepler’s theory about a family relationship between Javan and Fu Hsi. He was excited to learn from Bouvet that the binary arithmetic he had been working on was already known to the very earliest Chinese philosopher-sage. Eager to find a basis for a “universal characteristic”, i.e. language, Leibnitz was also fascinated to learn of Bouvet’s belief that the lines of the trigrams composed by Fu Hsi were the basic linguistic units of the Chinese language and culture... implying a common denominator for both their arithmetical and linguistic system.

In Bouvet’s view Fu Hsi’s diagrams “represent in a very simple and natural manner the principles of all the sciences. The diagrams are vestiges of the pre-delinic ancients that allow us to look into the creations of their minds”.

According to Bouvet, Fu Hsi’s hexagrams contain the principles of arithmetic, music, astronomy-astrology, and medicine. The shape of the system of Fu Hsi was like a universal symbol invented by some extraordinary genius of antiquity... in order to represent to the eyes the most abstract principles of all the sciences.

Leibnitz incorporated Bouvet’s ideas in several writings, including his Explication de l’arithmétique binaire, which appeared in 1705.

“The essay begins with a brief presentation of the dyadic or binary mathematics, followed by a description of the similarities between his dyadic and the 4000 year old lines of Fu Hsi, the first legendary emperor of China. As a matter of fact, Leibnitz’s material is taken almost entirely from Bouvet’s letters” [15].

Von Collani [17], a foremost researcher on Bouvet and the Figurists, states, “Figurism, though it did not achieve conversion of the Chinese Emperor and his people, had significant effects on European scholarship and influenced (our) whole epoch.... Some of our contemporary thinking goes back to this small group of Jesuit missionaries who were true pioneers in intercultural relations between Europe and Asia”.

Leibnitz is generally credited with anticipating modern symbolic logic as it was developed 150 years after his death by George Boole (1815-1864) [18]. Boole and Venn did not know that they were drawing upon ideas derived from Kepler’s speculations on the possible convergence of the family models of two ancient surviving cultures.

When Bouvet wrote to Leibnitz of a scientific method deriving from a “double geometrical progression” of numbers, linked in such a way as to yield all the harmonies of music, “the harmonies of celestial movement with all the necessary principles that explain the nature of all things and the causes of generation and corruption” [15], he must have been analyzing at a matrix similar to, or the same as, the one that I developed in the course of the organizing the complex data obtained in studies of human relationship patterns by means of the Train Game (See below).

The elaborate symmetry in Fig. 2 derived from viewing the hexagrams from the space between their component trigrams. The remarkable patterning can be seen along the various diagonals, as described in Note 2.

I.E. Sutherland (1977), Professor of computer science at the California Institute of Technology, wrote of Fig. 2: “you have noticed one of the many symmetries which exist in binary codings of various kinds. I would have couched the pictures in ones and zeros instead of solid and broken bars, but the symmetry would be the same... All integrated circuits which we design here have striking symmetry, and they often start out from an observation such as yours... Only a small percentage of such observations result in anything useful. It is clear that symmetry is important; it is
not (evident) that any particular symmetry will be... It seems important to me to get people thinking about symmetry”. Bouvet wrote of the lost music as containing three systems or scales, the diatonic, chromatic and enharmonic. The diatonic scale consisted of five whole tones and two semitones. The chromatic scale employed half-tones to yield an octave with twelve tones. Bouvet noted that the enharmonic scale was obscure and was unknown in his own day[19]. The combined term “enharmonic-symmetric” seems to fit the striking patterning of Fig. 2, described in Note 2.

In my view, the startling possibility exists that 5 millenia ago, an ancient sage in China conceptualized the processes of two-party interactions that we today have yet to rediscover and understand.

I had no knowledge of these historical events, nor their significance in the mid-1960s when I began to study two person interacting systems by means of the instrument generally known as the “Train Game” (or Ravich Interpersonal Game-Test) I developed for exploring interactional behaviors in marital, family and other human relationships.

The data collected by the Train Game was often huge and unwieldy. The idea of using the hexagrams of the I Ching to transform this complex data came to me from reading a biographical novel by Hermann Hesse [20].

In one episode the central character seeks out a Master of the I Ching in order to integrate the hexagrams into his developing strategy for playing the Glass Bead Game. This enables him to win the coveted title and rank of “Magister Ludi”.

In another episode this central character meets an historian member of a different monastic order who is an advisor to the Pope. His Superiors hope to achieve a rapprochement with the Papal hierarchy. Hesse indicates that the subject of his novel is the Jesuit suppression when he has this Papal advisor say, “I spent some years studying the various attempts at reconciliation among the hostile Christian denominations and churches, especially those of the period around 1700, when we find such people as the philosopher and mathematician Leibnitz... endeavoring to reunite the warring brothers”.

When Professor Piero De Giacomo presented his “Elementary Pragmatic Model” based upon Venn’s diagrams of Boolean algebra and Shannon’s theory of information it seemed to be important to place these models into a panoramic context. This was especially so since the members of the Typology Study Group had reached a consensus that the aim of its work was to arrive at a meta-typology that would include a significant number of typologies in order to encompass the hyper-dimensionality that characterizes the family corpus.

Fig. 2. - An enharmonic-symmetric matrix of the processes of interaction occurring between persons or between groups.
This term has been included in the Glossary of the Transcripts of Typology Study Group of AFTA (1987-1991) developed by Frederico R. Ford.

The typology of the Venn Diagrams used by De Giacomo is a subset within the enharmonic-symmetric matrix as shown in Fig. 3. The characteristics of this important subset are explained in Note 3. The Venn Diagrams as used by De Giacomo and their corresponding hexagrams and addresses in the Enharmenym-symmetrical Matrix are shown in Fig. 4.

That the Elementary Pragmatic Model is a subset of the enharmonica-symmetric matrix may illustrate a general phenomenon of all of the typologies that have been developed based upon "logical types" [3].

These include those binary typologies that use dichotomies such as Bowen’s "fusion/detriangulation", Minuchin’s "enmeshed/disengaged", Sterlin and Beaver's "centripetal/centrifugal", as well as Olsen's "circumplex model".

These may all have a common base in spite of their apparent discontinuities. If that is found to be so, the development of a useful clinical and research meta-typology would be greatly facilitated.

Bateson himself seems to have been seeking a matrix such as that in Fig. 2. It is remarkable to find that it has existed for five millenia, that it may have been linked to early attempts of human beings to evolve a scheme of order for marital and family relationships based upon analysis of two-party interactions from the perspective of a conceptualized "sphere of between" [21] as described by Martin Buber.

The discussion on human relations and their changes is timely and long overdue. This subject has enormous social implications at every level of human existence. The possibility of exploring the space betweens of human relations can be pragmatic rather than a mystical enterprise.

Notes

Note 1. The American Family Therapy Association has a Typology Task Force in 1985. This subsequently was renamed the Typology Study Group (TSG). The members of the TSG are: Jean P. Barr, Ann Chastain, Piero De Giacomo, Frederico R. Ford, Stephen Fleck, Charlotte Kahn, Bruce Lackie, Raymundo Macias, Carolyn Perla, Phoebe S. Prosky, Robert A. Ravich, Stephen Rubin, Robert Ryder and Betty Vos.

Note 2. The Enharmenym-Symmetric Patterning of Fig. 2.

1) The main diagonal of the matrix, 00/63, contains the symmetrical pair of hexagrams. In the original I Ching, the complementary symmetrical hexagrams are paired; i.e. 00/63, 09/54, 18/45, 27/56.

2) The other main diagonal, 07/56, contains the complementary hexagrams composed of two trigrams that are complements of each other; i.e. 07/56, 14/49, 21/42, 28/55.

3) The minor diagonals orthogonal to 1) contain all of the other pairs of hexagrams that are mirror images of each other; i.e. 01/62, 02/61, 03/60, 04/59, 05/58, 06/57, and 07/56.

Fig. 3. - The topology of Venn diagrams in the enharmonica-symmetric matrix of Fig. 2.
4) The minor diagonals orthogonal to 2) contain hexagram pairs that are phantoms of each other analogous to the relationship between black and white photographic negatives and prints, i.e. 06/15, 05/23, 04/31, 13/22, etc.

The Enharmonic-Symmetric Binary Numbers of Fig. 2.

5) The numbered topological locations of hexagrams in this matrix are defined by the values of each line

multiplied by 2 to the powers of 0 to 5:

\[ 2^0 = 1, \ 2^1 = 2, \ 2^2 = 4, \ 2^3 = 8, \ 2^4 = 16, \ 2^5 = 32 \]

The lines are read from the space between the two trigrams. The trigrams to the right of the space between is read first, and the trigram to the left of the space between is read second. The order of significance of the values of the lines are consistent with this. Thus the middle line in each trigram is the most significant, the line closest to the space between the trigrams is the least significant number, and the line furthest from the space between is of intermediate significance the ratios of the two trigrams are the same.

In the enharmonic-symmetric matrix the location and the number of each hexagram are determined on the basis of the following line values:

\[ 2^4 = 16, \ 2^3 = 32, \ 2^2 = 8, \ space \ 2^0 = 1, \ 2^1 = 4, \ 2^2 = 2 \]

between

Examples:

16+32=48 1*4+2=63

Leibnitz had not seen this type of matrix. Bouvet's use of the phrases "double geometrical progression" and "enharmonic scale" suggest that he had come across or developed a matrix of this type. Their correspondence was broken off after an exchange of 15 letters dating from 1697-1707 or shortly thereafter. (See Mungello, 1977, pp. 156-157, footnote 3).

Note 3. The location of the hexagrams corresponding to Venn diagrams in the enharmonic-symmetric matrix (Fig. 3).

1) The solid lines of the hexagrams and the shaded areas of the diagrams are analogous; their broken lines are analogous to the clear areas.

2) The outer lines of the component trigrams correspond to the world external to the interacting pair in De Giacomo's diagrams. The inner lines represent the portions shared by the two partners. The middle lines represent the unshared portion, that is the inner world of each member of the pair.
Acknowledgements

I would like to express my appreciation to Douglas G. Flemons, who provided the very important suggestion of rotating the hexagrams by 90 degrees.

This opened up the space between the component trigrams so that the enharmonic-symmetric matrix achieved its present appearance.

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