Quadrant Diagrams, Levels of Conceptualization and Requisite Variety

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A model of social change using four methods for describing systems
Designing conceptual systems

• Architecture students are taught to “think with your pencil”

• If one wants to design theories, philosophies, or social movements, how does one “think with one’s pencil”?

• Quadrant diagrams are one possibility
The purposes of quadrant diagrams

• Bring order to a variety of points of view
• Compare personalities, fields of study, cultures, policies, strategies
• Show how organizations or countries or fields of study change
• Add a new dimension to a previous analysis
Rules for making quadrant diagrams

• To conform with common time series graphs, put earlier positions in the lower left quadrant and later positions in the upper right quadrant

• To conform with an optimistic outlook, put less desirable conditions in the lower left quadrant and more desirable conditions in the upper right quadrant
Quadrant diagrams as a way of clarifying a variety of positions
Attitudes toward participation in planning

- Technology is good
  - Participation is good: political scientists
  - Participation is bad: advocates of planning via networked computers
- Technology is bad
  - Participation is good: engineers
  - Participation is bad: left wing campus activists

Attitudes toward participation in planning
Quadrant diagrams in the field of management and business
The "managerial grid"
<table>
<thead>
<tr>
<th>Independent activities</th>
<th>Competition</th>
<th>Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdependent activities</td>
<td>Conflict</td>
<td>Collaboration</td>
</tr>
</tbody>
</table>

**Working relationship taxonomy, Turner**

- **Negative sum**
- **Positive sum**
A taxonomy of corporate cultures

<table>
<thead>
<tr>
<th>Task oriented</th>
<th>Growth oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>guided missile</td>
<td>Eiffel Tower</td>
</tr>
<tr>
<td>incubator</td>
<td>family</td>
</tr>
</tbody>
</table>

Heterarchy
Hierarchy
<table>
<thead>
<tr>
<th>Distributed facilities</th>
<th>Transnational firms</th>
<th>Multinational firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>One, central location</td>
<td>Global firms</td>
<td>International firms</td>
</tr>
<tr>
<td></td>
<td>Single market</td>
<td>Multiple markets</td>
</tr>
</tbody>
</table>

Approaches to international management, Miroshnik
Boston Consulting Group portfolio management
Financial portfolio management

Growth companies

Value companies

Low capitalization

High capitalization
The causes of “normal accidents”
Quadrant diagrams in the field of futures research and forecasting
Possible Y2K outcomes, Marien
Possible Y2K actions and outcomes, Marien
Isolated failures

Interdependent failures

Social chaos

Social cohesion

Social response to y2k outcomes, Carmichael
Organizing Futures Research Methods

Rules
Remove ambiguity
Means of controlling or directing system

Heuristics
Allow ambiguity
Quadrant diagrams in sociology and political science
Four paradigms of social theory, Burrell and Morgan
Western Europe
In 1960s

Socialist countries
In 1950s

United States
in 1920s

Convergence of capitalist and socialist societies
Two paths toward a mixed economy

Democracy

Totalitarianism

Central planning  Free markets

Perhaps Japan

Russia

Western democracies

Stalinist system

China

Some third world countries
Generating additional systems or strategies

Assume differences in capability

Assume equality of opportunity

Distrust with equality
(international system)

Strong authority with secrecy
(USSR)

Distrust

Glasnost

Strong authority with openness
(schools)

Trust

Democracy

Trust with equality

nationalities disputes

Assume equality of opportunity

Assume differences in capability

Generating additional systems or strategies

Distrust

Assume differences in capability

Assume equality of opportunity

Generating additional systems or strategies
Strong government

Weak government

USA

USSR

intended path

actual path

Underdeveloped countries

Developing, socialist countries

Few government services

Many government services

Fukuyama's additional dimension
Quadrant diagrams in understanding the evolution of science
Coherence conception of knowledge

Second order cybernetics

Social construction of reality

Representational conception of knowledge

German Idealism

Vienna Circle

Knowledge as an individual activity

Knowledge as a group activity

Two Paths to a Similar Outcome
<table>
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<th>Incommensurable Definitions</th>
<th>Normal Science</th>
<th>Correspondence Principle</th>
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<tr>
<td>Revolutionary Science</td>
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The Dialectics of Science
<table>
<thead>
<tr>
<th>Author</th>
<th>First Order Cybernetics</th>
<th>Second Order Cybernetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Von Foerster</td>
<td>The cybernetics of observed systems</td>
<td>The cybernetics of observing systems</td>
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<tr>
<td></td>
<td>The purpose of a model</td>
<td>The purpose of a modeler</td>
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<tr>
<td>Pask</td>
<td>Controlled systems</td>
<td>Autonomous systems</td>
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<tr>
<td>Varela</td>
<td>Interaction among the variables in a system</td>
<td>Interaction between observer and observed</td>
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<tr>
<td>Umpleby</td>
<td>Theories of social systems</td>
<td>Theories of the interaction between ideas and society</td>
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<td>Umpleby</td>
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**Definitions of First and Second Order Cybernetics**

*(An example of incommensurable definitions)*
The Correspondence Principle

• Every new theory should reduce to the old theory to which it corresponds for those cases in which the old theory is known to hold

• All the evidence that supported the old theory also supports the new theory

• The principle requires adding a new dimension previously not considered
An Application of the Correspondence Principle
Why quadrant diagrams are useful

- Quadrant diagrams are a way of creating a meta-analysis
- They are a way of thinking abstractly about a large number of special cases
- They focus attention on a few, ideally most important, dimensions
- They help a regulator (manager) achieve requisite variety
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