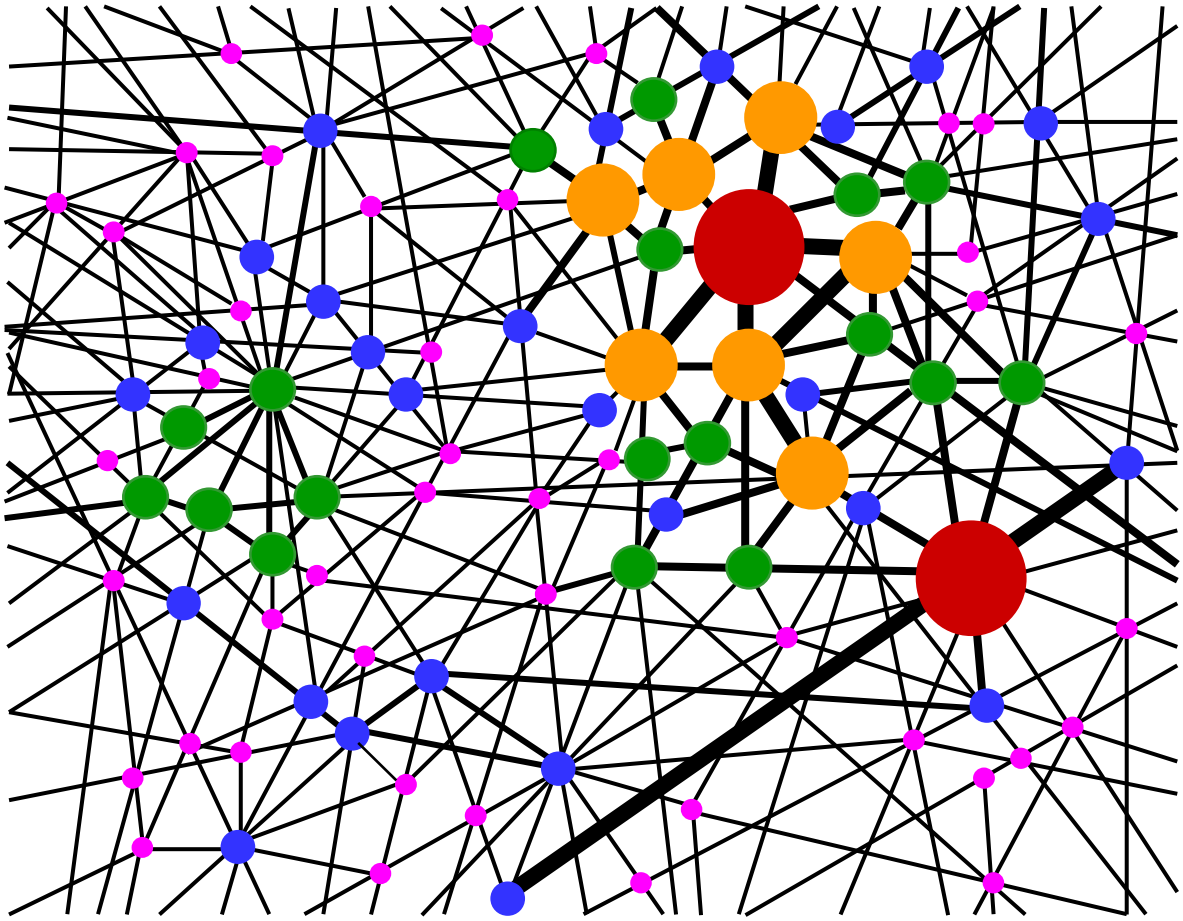
TUTORIAL OF GENERAL SYSTEMS THEORY AND CYBERNETICS WITH GRAPHIC REPRESENTATIONS



Adapted from Hans Selye **“Nets and focal nodes”**

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GESI-GRUPO DE ESTUDIO DE SISTEMAS INTEGRADOS

GENERAL INDEX

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Purpose of the Tutorial

This tutorial aims to convey the concepts and fundamental models of Systemics and Cybernetics, describing and explaining them through their graphical representations.

It is based on an advanced methodology that allows for a better insight and a clearer understanding of complex entities, ie. living beings, ecological systems and human institutions: political entities, companies and cultures.

As such, the methodology is complementary (not contradictory) to specialized disciplines, and to the reductionist approach, integrating them through the most comprehensive and including vision of the systems approach.

The aim is to create graphical representations (synoptic tables and drawings) more accessible to common sense and, if possible, more attractive.

Its application to didactic teaching of Systemics and Cybernetics attempts to answer these concerns.

The paper covers 32 topics distributed over 280 annotated slides.

The set covers all aspects of observation, understanding and managing of the wide variety of situations that often occur in complex entities, and their interactions

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INDEX

THIS INDEX PROVIDES A LIST OF THE 32 TOPICS COVERED IN THE TUTORIAL

SYSTEMICS

- **Physiology and psychology of perceptions**
- **Time perception**
- **Simultaneity and sequentiality**
- **Frames of reference**
- **Taxonomies**
- **Thermodynamics of open systems**
- **Concepts and abstract models**
- **Stability and instability**
- **Autogenesis, Morphogenesis**
- **Recursion and Autopoiesis**
- **The systemic processes: the holon**
- **The system and its environment**
- **Structures**
- **Flows**
- **Qualitative Dynamics**
- **Symbiosis, commensalism, parasitism**
- **Attractors and Fractals**
- **Graphs**
- **Hierarchies**
- **Communication and information**
- **Applications:**
  - **Informatics**
  - **Sociogenesis and social systems**
  - **Overview and planning or other applications**
- **Other: Info significant**

CYBERNETICS

- **Origins and History of Cybernetics**
- **First devices and cybernetic models**
- **The major concepts of cybernetics**
- **Regulation and Control**