



## GST 37 – Hidden Convergence and Systems Linguistics

### Formal Description

Hidden convergence refers to the existence of recurring structures, relationships, and causal organisations that persist beneath the diverse terminologies, concepts, and representations developed by different individuals, disciplines, and cultures. Systems linguistics is an approach that seeks to identify, compare, and translate these underlying commonalities in order to improve understanding, communication, and productive coordination.

### Plain English Explanation

At first sight, different disciplines often appear to be talking about completely different things. Economists discuss markets, incentives, and exchange. Psychologists discuss cognition, motivation, and behaviour. Sociologists discuss institutions, culture, and social structures. Biologists discuss organisms, ecosystems, and evolution.

The terminology is different. The methods are different. The questions being asked are often different. Yet beneath these differences there are frequently important similarities.

Many disciplines study systems composed of interacting components. Many examine flows of information, resources, or influence. Many investigate feedback, adaptation, cooperation, competition, learning, and stability. Although the language differs, the underlying patterns often resemble one another.

This phenomenon may be described as hidden convergence.

Hidden convergence occurs because reality contains recurring forms of organisation that appear across many different contexts. Different observers may develop different ways of describing these forms, yet the underlying structures remain similar.

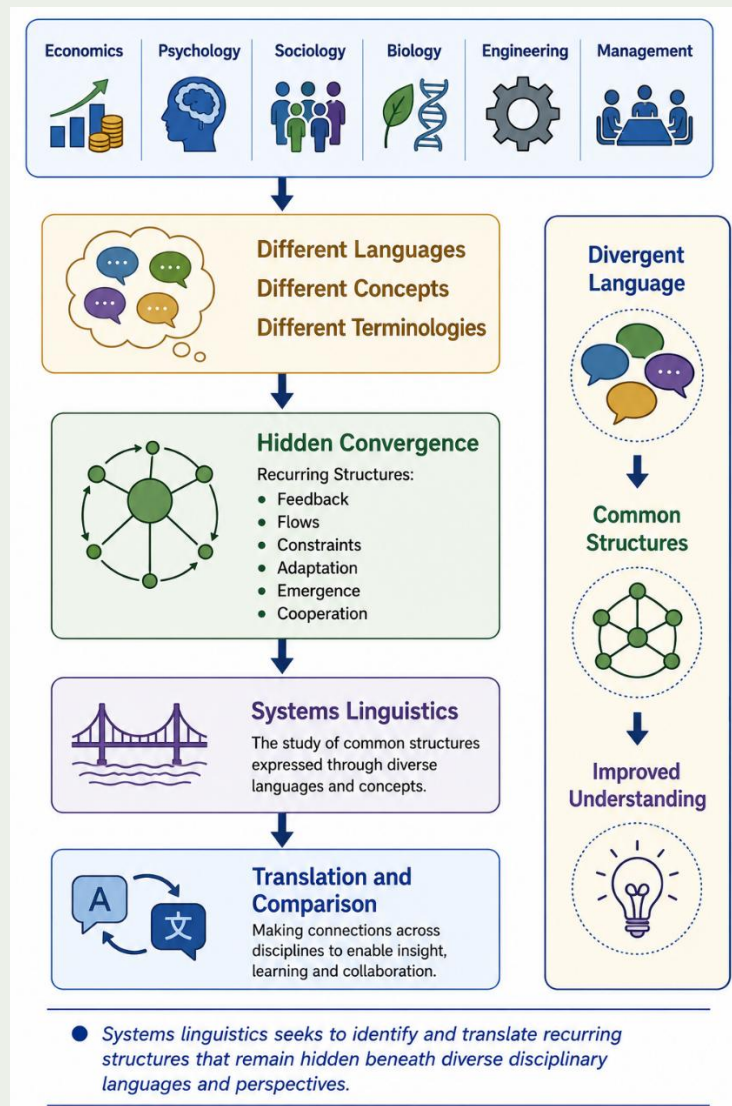
For example, a biologist studying ecosystems, an economist studying markets, and a sociologist studying institutions may all be examining systems that exhibit feedback, adaptation, competition, cooperation, and emergence.

Recognising these similarities can significantly improve communication between disciplines.

Systems linguistics is an attempt to support this process. Rather than replacing existing disciplinary languages, it seeks to identify common patterns and provide a framework for comparing and translating different forms of description.

In this sense, systems linguistics functions as a bridge. It helps reveal common structures hidden beneath diverse terminologies and perspectives.

The goal is not uniformity. Different perspectives remain valuable because they highlight different aspects of reality. Instead, the objective is productive translation between perspectives so that knowledge can be shared, compared, and integrated more effectively.



### Example 1 – Feedback

Engineers, ecologists, economists, and psychologists all study feedback processes, although they often use different terminology and examples.

### Example 2 – Competition

Competition occurs in biological evolution, commercial markets, political systems, and sporting contests. The details differ, but many underlying causal patterns are similar.

### Example 3 – Learning

Individuals learn, organisations learn, scientific communities learn, and artificial intelligence systems learn. Each involves adaptation based upon experience.

### Example 4 – Constraints

Physical constraints influence engineering systems, social constraints influence behaviour, and ecological constraints influence populations. The contexts differ, but the underlying idea remains recognisable.



### Provenance and Links

The search for recurring patterns across disciplines has a long history within systems science and related fields.

Relevant contributors include:

- Ludwig von Bertalanffy – General Systems Theory.
- Kenneth Boulding – levels of system organisation.
- Gregory Bateson – patterns that connect.
- Ervin Laszlo – systems philosophy and integration.
- Len Troncale – universal systems properties and linkage propositions.
- Herbert Simon – hierarchy and complexity.

Related topics include systems theory, interdisciplinarity, translation, emergence, feedback, complexity, and productive coordination.

### Practical Exercise

Choose a concept that appears in more than one discipline.

Examples might include:

- feedback,
  - competition,
  - learning,
  - cooperation,
  - adaptation,
  - resilience.
1. Identify at least three disciplines that use the concept.
  2. Describe how each discipline defines or discusses it.
  3. Identify similarities and differences between the descriptions.
  4. Consider whether the different disciplines are describing a common underlying structure.
  5. Write a short "systems translation" that captures the shared idea in language understandable across all three disciplines.

Reflect on whether communication improved once the common structure was identified.