# GST 21 Organised Configuration

**Formal Description**

This module introduces the concept of organised configuration as a special case of configuration arising from causal interaction between entities. It explains the important distinction between configuration, structure, and organised configuration, showing how recurring or stable spatio-temporal arrangements may emerge from underlying causal organisation. The module also explains that structure does not necessarily generate organised configuration, even where causal connectivity exists.

A configuration describes the arrangement of entities in space-time, while a structure describes a configuration together with the causal relationships connecting entities.

An organised configuration is a configuration arising from causal interaction between entities and therefore represents a special case of configuration more generally. Structure and organised configuration are thus closely related but distinct concepts.

Where causal relationships exist between entities, a network of causal connectivity forms structure. In turn, such structure may generate organised configuration as a manifested spatio-temporal arrangement arising from causal interaction. However, structure does not necessarily produce organised configuration. Causal relationships may exist without generating stable, recurring, or recognisably organised arrangements.

Organised configuration therefore represents a particular manifestation of causal organisation rather than being structure itself.

**Plain English Explanation**

Configuration describes where things are arranged. Structure describes how things are causally connected. Organised configuration describes arrangements that arise because of those causal connections.

For example, consider iron filings around a magnet.

- The filings form a particular arrangement.
- That arrangement arises because magnetic forces influence how the filings position themselves.

The resulting arrangement is therefore an organised configuration.

Similarly:

- planets arrange into orbital systems;
- molecules form crystals;
- cells form tissues;
- and vehicles arrange into traffic patterns.

In each case, the arrangement is not accidental or random. It arises through underlying causal interactions.

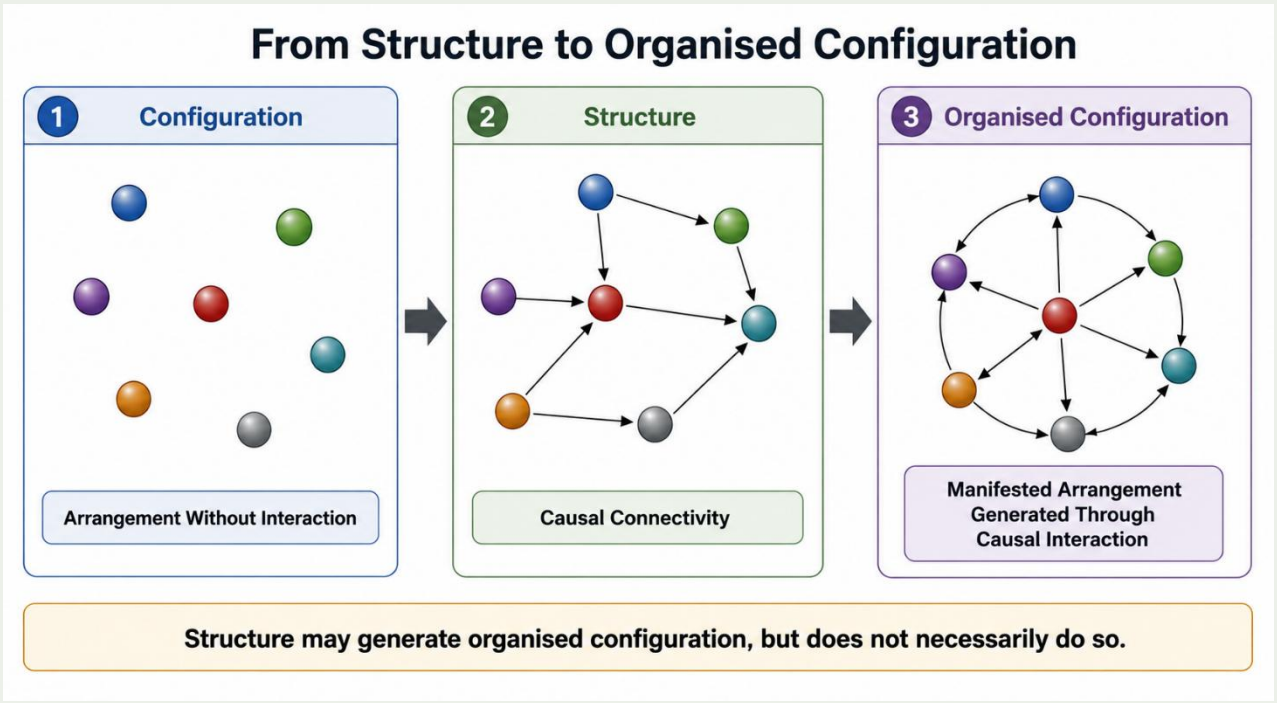
Importantly, however, causal connectivity alone does not always produce organised configuration. For example, gas molecules collide continuously and therefore form causal structures, but their overall arrangement may remain highly variable and non-recurring.

This distinction is important because it shows that:

- structure concerns causal connectivity;

- while organised configuration concerns the visible arrangements generated through that connectivity.




**Example 1 — Iron Filings Around a Magnet**
Iron filings arrange themselves into visible curved lines around a magnet due to magnetic interaction. The resulting arrangement is an organised configuration.
**Example 2 — Crystal Formation**
Atoms within a crystal arrange into repeating geometric configurations due to causal interactions between particles.
**Example 3 — Planetary Orbits**
Planets arrange into relatively stable orbital configurations through gravitational interaction.
**Example 4 — Traffic Flow**
Vehicles moving through a road system may form lanes, queues, or flow patterns arising from repeated interaction between drivers and road constraints.

**Provenance and Links**
The concept of organised configuration developed in this module arises from the distinction between simple arrangement, causal connectivity, and recurring organisation. While configuration describes the arrangement of entities in space-time and structure describes the causal relationships connecting them, organised configuration concerns the visible arrangements generated through causal interaction. This distinction draws particularly upon systems theory, complexity theory, emergence theory, and studies of physical self-organisation. Early systems theorists such as von Bertalanffy (1968) emphasised the importance of organised wholes arising from interacting

components, while cybernetics and complexity science later explored how recurring organisation may emerge from distributed causal interaction (Ashby, 1956; Prigogine & Stengers, 1984; Mitchell, 2009). Related ideas also appear in studies of self-organisation, pattern formation, and emergent order within physical and biological systems. The present framework extends these traditions by distinguishing structure itself from the organised configurations that structure may generate. This distinction prepares the conceptual basis for later discussions of pattern, recurrence, information, landscapes, and attractors.

**Practical Exercise**

- Explain the difference between configuration, structure, and organised configuration.
- Give three examples of organised configuration from nature or society.
- Explain why structure does not necessarily produce organised configuration.
- Describe how causal interactions may generate visible arrangements.