GST 51 – Relationships

Formal Description

A relationship exists when two or more entities are connected in some identifiable way. Relationships may arise through physical arrangement, similarity, ownership, dependency, communication, or many other forms of association. Relationships do not necessarily imply causal interaction, but they establish the connections from which interactions and more complex forms of organisation may emerge. Relationships therefore provide the foundation for understanding configurations, interactions and systems.

Plain English Explanation

Until now we have considered entities individually. In reality, however, very few entities exist in complete isolation. People belong to families, buildings occupy particular locations, rivers flow through landscapes, and planets orbit stars. Understanding these connections is the next step in understanding systems.

A relationship simply describes an identifiable connection between two or more entities. Some relationships are based upon physical arrangement. A book may be on a table, a bridge may span a river, or two houses may stand next to one another. Other relationships are social, such as friendship, employment or membership of an organisation. Still others are logical or mathematical, such as equality, inclusion or sequence.

Relationships do not necessarily involve one entity affecting another. Two mountains may be separated by a valley without interacting in any significant way. Two books may stand side by side on a shelf simply because they have been placed there. These relationships describe how entities are connected, not whether they influence one another.

Relationships therefore provide information about the structure of reality. They tell us how entities are arranged, associated or connected. In later modules we shall distinguish between relationships that simply describe configurations and those that involve the transfer of matter, energy or information. Those transfers give rise to interactions, which are the basis of processes and systems.

Understanding relationships is therefore an essential foundation for systems theory. Before we can explain how systems behave, we must first understand how their components are connected.

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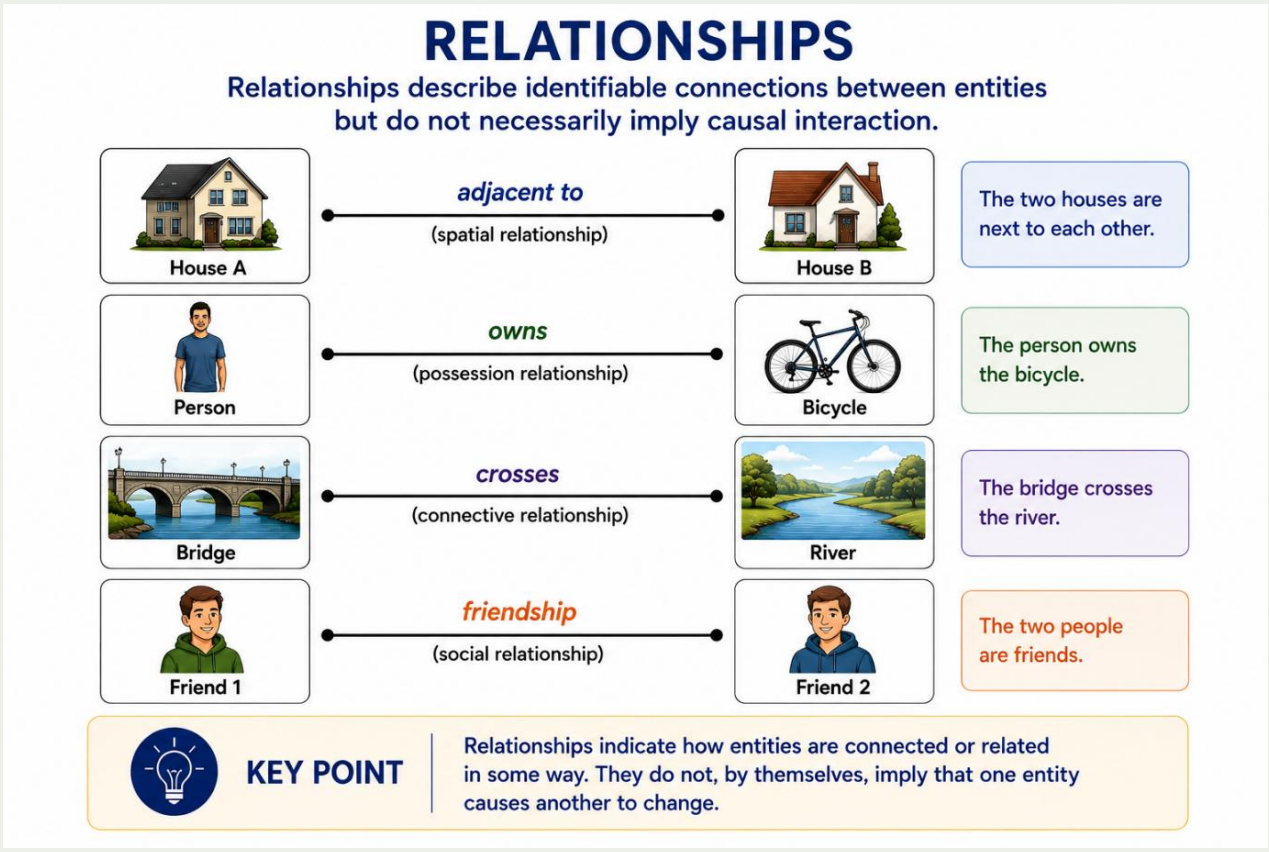

Examples

A town is related to a river because it is located beside it. This geographical relationship helps describe the town's location but does not, by itself, imply that the river is currently affecting the town. Similarly, two people may be members of the same sports club. Their shared membership is a relationship that exists whether or not they interact regularly. It describes a connection rather than an ongoing process.

Provenance and Links

Relationships have been studied in philosophy, mathematics and logic for centuries. Set theory and graph theory provide formal methods for representing relationships between entities, while ontology investigates the different kinds of relationships that may exist. Within General Systems Theory, relationships form the basis for describing configurations, structures and systems. Later developments in systems science, network theory and knowledge representation have extended the study of relationships to increasingly complex forms of organisation.

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Practical Exercise

Choose a familiar place, such as your home, workplace or a local park.

Identify at least ten entities and describe the relationships that exist between them. Try to include several different kinds of relationship, such as spatial, social, ownership or organisational relationships.

Finally, consider whether any of the relationships you identified also involve ongoing interaction. If they do, explain why. If they do not, explain why not.

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