GST 44 – Entities

Formal Description

An entity is any identifiable portion of reality that can be distinguished from its surroundings or from other portions of reality. Entities may be concrete, such as a person, a tree or a bridge, or abstract, such as a number, a property or a relationship. General Systems Theory treats entities as the fundamental building blocks from which more complex concepts, including relationships, processes and systems, are developed.

Plain English Explanation

Everything we observe or think about begins with recognising something as a distinct "thing". We naturally distinguish one object from another, identify individual people, recognise places and describe ideas. General Systems Theory refers to each identifiable portion of reality as an entity.

Some entities are easy to recognise because they have a physical form. A chair, a mountain, a river and a mobile phone are all concrete entities. They occupy space and can usually be observed directly.

Other entities are abstract. They do not exist as individual physical objects but are instantiated across one or more concrete entities, relationships or processes. Examples include numbers, colours, ownership, friendship and velocity. Because these instantiations are often distributed, we cannot usually observe the entire abstract entity directly. Nevertheless, abstract entities are real because they are instantiated within physical reality and can therefore be recognised, investigated and used in explanation.

The distinction between concrete and abstract entities is important because both play essential roles in systems science. Physical systems are composed of concrete entities, while understanding those systems requires many abstract entities, such as properties, relationships, functions and purposes. Throughout this course we shall therefore treat both concrete and abstract entities as legitimate objects of study.

Recognising entities is the first step in understanding any system. Before we can investigate how things interact, change or become organised, we must first identify what the relevant entities are.

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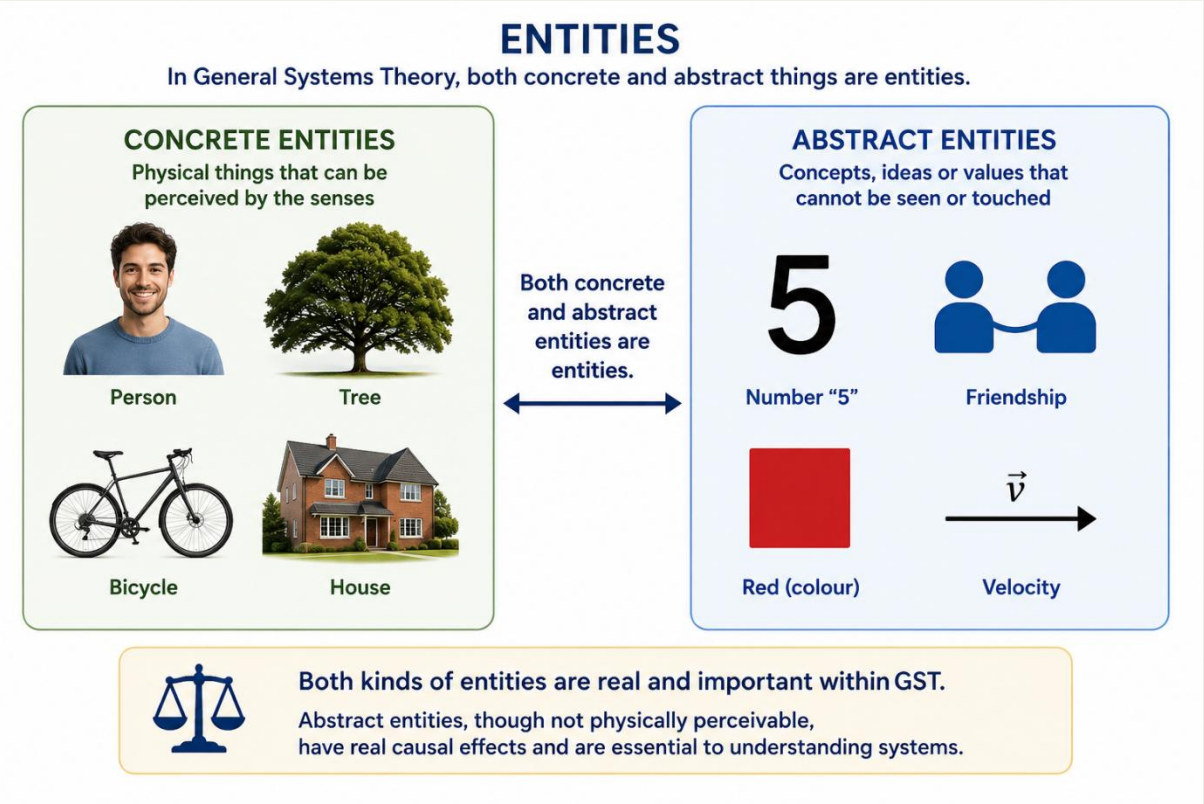

Examples

A bicycle is a concrete entity because it exists as a physical object that can be observed and used. Its colour, however, is an abstract entity representing one of its properties. The ownership of the bicycle is also an abstract entity describing a legal relationship between the bicycle and a person.
Similarly, a university is often recognised as a single entity, even though it consists of many buildings, people and activities. Its reputation, policies and organisational structure are abstract entities instantiated in the relationships, behaviours and organisation of the university. Although they are not individual physical objects, they are nevertheless real features of the university that can be recognised, investigated and used in explanation.

Provenance and Links

The concept of an entity has its roots in classical philosophy, particularly Aristotle's work on substances and attributes. Modern ontology has continued to investigate what kinds of things exist and how they should be classified. Within Critical Realism, Roy Bhaskar argued that reality contains entities that exist independently of our knowledge of them, while recognising that our understanding develops through investigation. Prototype Theory, developed by Eleanor Rosch, has also influenced the study of how people recognise and categorise entities, particularly concrete ones.
General Systems Theory builds upon these traditions by treating identifiable entities as the starting point for the study of relationships, interactions, processes and systems.

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Practical Exercise

Look around the room in which you are sitting and identify ten entities. Include at least five concrete entities and five abstract entities.

For each entity, write a brief explanation of why you regard it as an identifiable portion of reality. If you found the abstract entities more difficult to identify than the concrete ones, explain why you think this was the case.

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