Informatics Domain Model

Introducing a core domain model for digital systems

The Decentralised Semantics Working Group maintains the "Informatics Domain Model" assets at Human Colossus Foundation. Comments regarding this document can be provided to:
contact@humancolossus.org

"Accurate Data"

"Data accuracy," as the essential standard of data quality, refers to the consistency of data with reality, and for accurate data, we need to consider the following:

- **Morphological structure**
  Object schemas define how textual attributes contribute to the morphological structure of systemic variables, data structures, functions, and methods.

- **Kinematical causality**
  Event records provide tractual fields of evidence for tracing the stemmatic event sequences and relationships between interconnected vertices, supporting the study of motion and causal connections.

- **Epistemological knowledge**
  Concept frames define how nodal entities, contextual terms, and relationships contribute to the epistemological knowledge of epistemic concepts or abstract ideas.

- **Dynamical intelligence**
  Action packets contain factual information for systematic actioning agents to process dynamical intelligence for value-based life cycle operations.
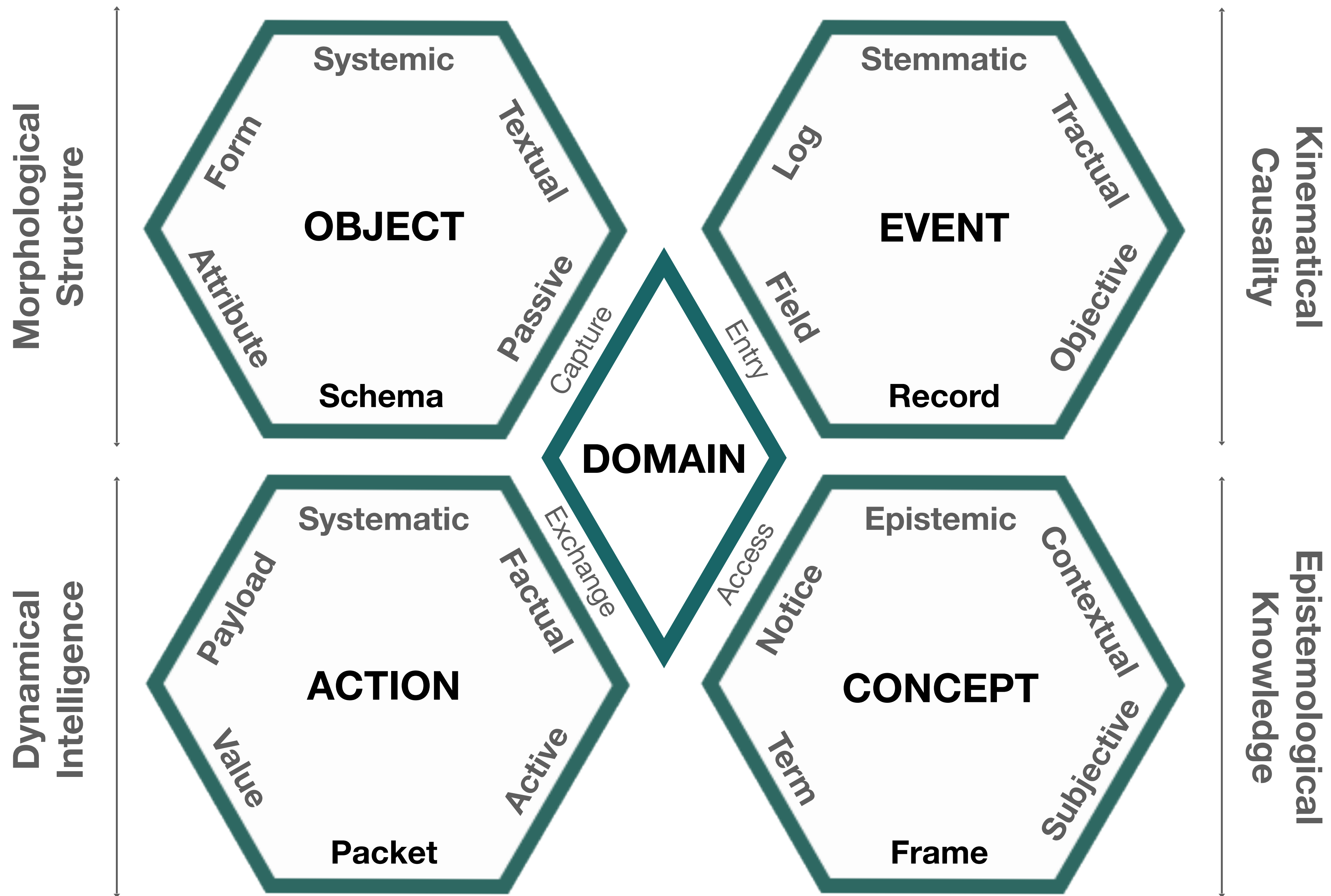
Introducing the Human Colossus Foundation's **Informatics Domain Model**,
a core data domain model for digital systems!
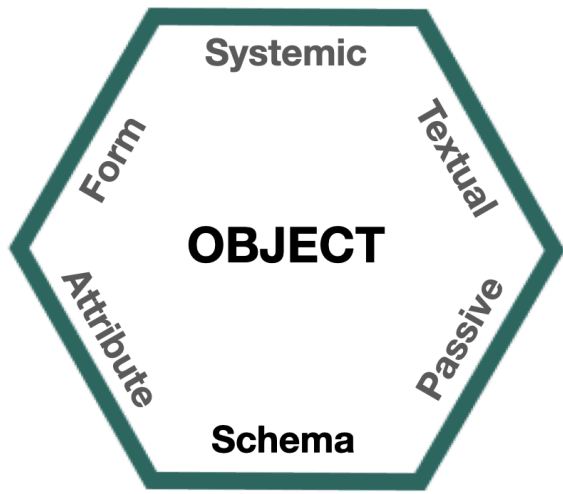
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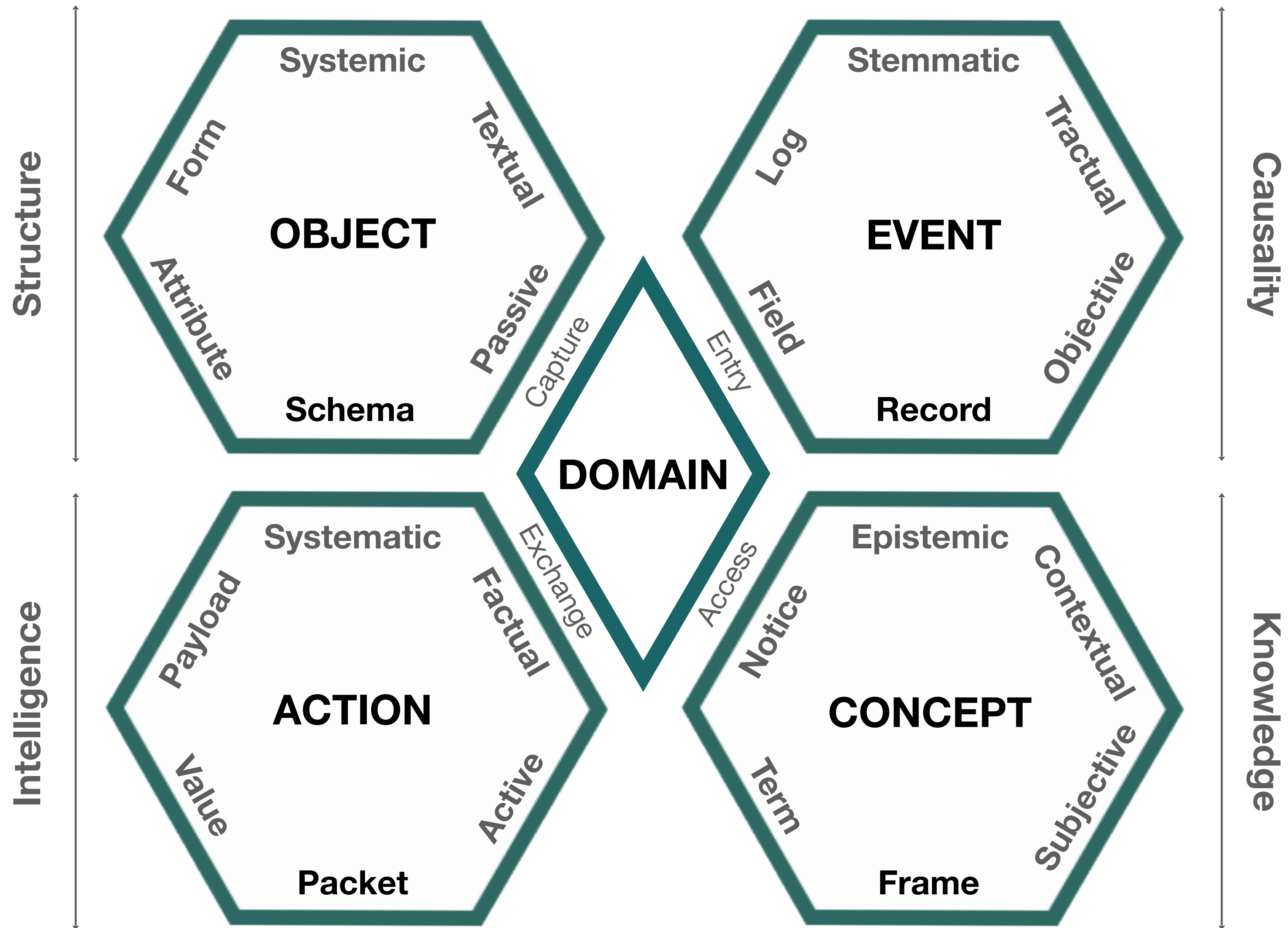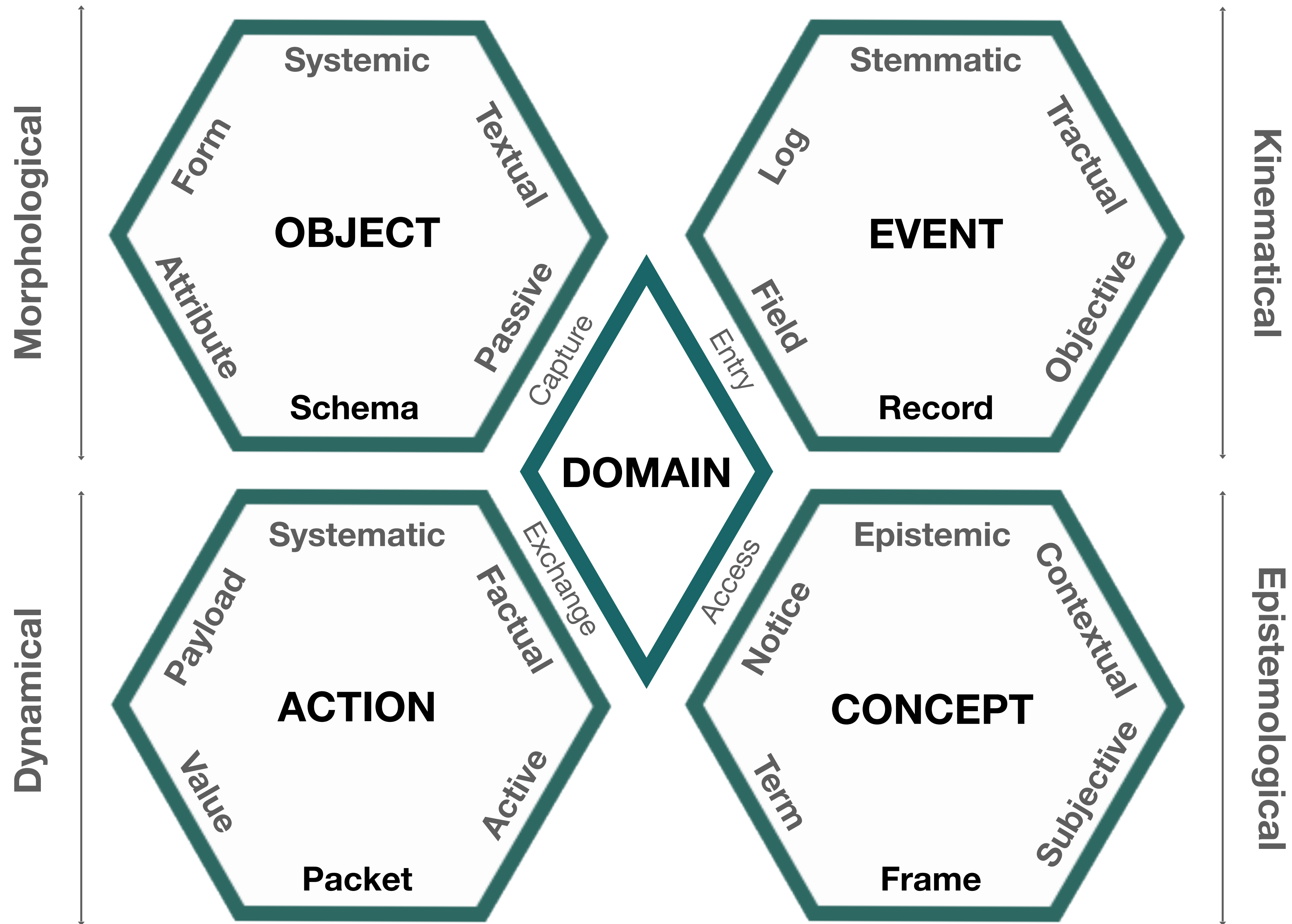
Academic representation

Object

a person or thing to which a specified action or feeling is directed. [Oxford Languages]

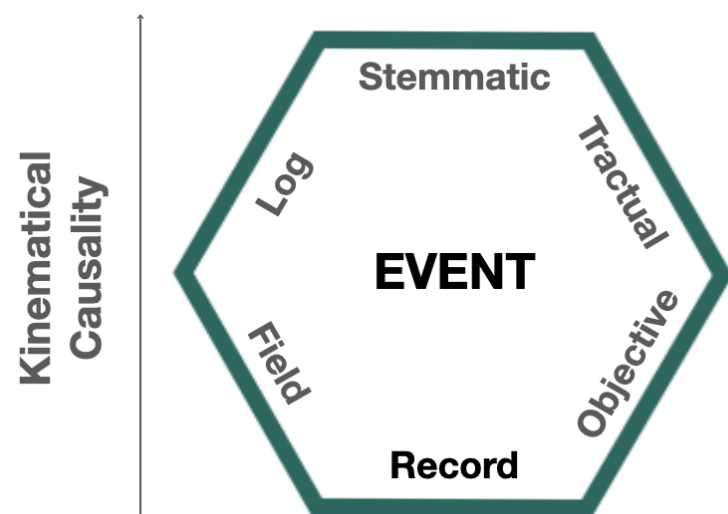| Term	Definition	Reference
Data capture	any method of collecting information and then changing it into a form that can be read and used by a computer.	Cambridge Dictionary

Term	Definition	Reference
Morphological	relating to the form or structure of things.	Oxford Languages
Structure	the arrangement of and relations between the parts or elements of something complex.	Oxford Languages

Term	Definition	Reference
Systemic	relating to a system, especially as opposed to a particular part.	Oxford Languages
Textual	relating to a text or texts.	Oxford Languages
Passive	accepting or allowing what happens or what others do, without active response or resistance.	Oxford Languages
Schema	a representation of a plan or theory in the form of an outline or model.	Oxford Languages
Form	the visible shape or configuration of something.	Oxford Languages
Attribute	a quality or feature regarded as a characteristic or inherent part of someone or something.	Oxford Languages

Event

a thing that happens or takes place, especially one of importance. [Oxford Languages]

Kinematical Causality

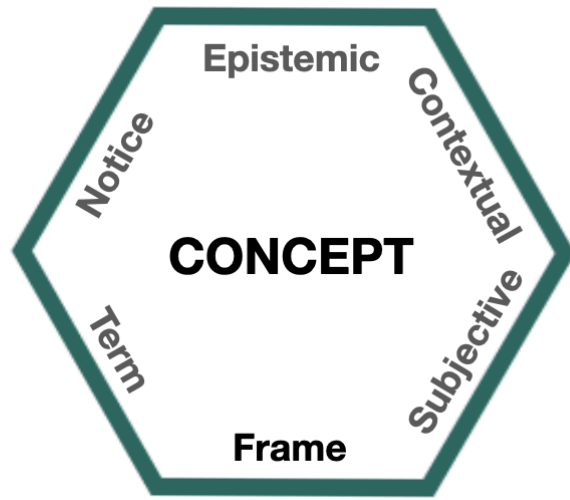| Term	Definition	Reference
Data entry	the process of transcribing information into an electronic medium such as a computer or other electronic device.	Techopedia

Term	Definition	Reference
Kinematical	relating to the motion of a body or a system of bodies without consideration given to its mass or the forces acting on it.	American Heritage Dictionary
Causality	the relationship between cause and effect.	Oxford Languages

Term	Definition	Reference
Stemmatic	of or relating to a textual stemma.	Collins English Dictionary
Tractual	connected with or contained in the trail or movements of (someone or something), typically in order to find them or note their course.	Derived from: (i.) **trahe** an inflection of "trahō", with origin from Proto-Indo-European *tragʰ- ("to draw, drag") or Proto-Indo-European *dʰerāgʰ-. Related to Ancient Greek τρέχω, English *drag*, *draw*, *trigger*, *track*. [WordSense] (Ii.) **track**: follow the trail or movements of (someone or something), typically in order to find them or note their course. [Oxford Languages]
Objective	(of a person or their judgement) not influenced by personal feelings or opinions in considering and representing facts.	Oxford Languages
Record	a thing constituting a piece of evidence about the past, especially an account kept in writing or some other permanent form.	Oxford Languages
Log	a regular or systematic record of incidents or observations.	Oxford Languages
Field	a space or range within which objects are visible from a particular viewpoint or through a piece of apparatus.	Oxford Languages

Concept

an abstract idea.
[Oxford Languages]

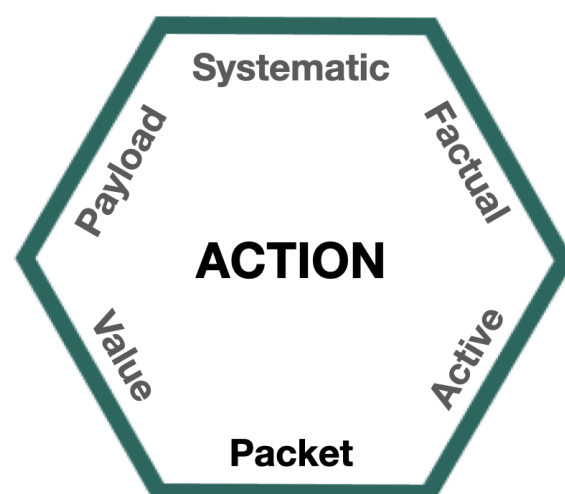| Term	Definition	Reference
Data access	a user's ability to access or retrieve data stored within a database or other repository.	Techopedia

Term	Definition	Reference
Epistemological	relating to the theory of knowledge, especially with regard to its methods, validity, and scope, and the distinction between justified belief and opinion.	Oxford Languages
Knowledge	facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.	Oxford Languages

Term	Definition	Reference
Epistemic	(philosophy) relating to knowledge or to the degree of its validation.	Oxford Languages
Contextual	depending on or relating to the circumstances that form the setting for an event, statement, or idea.	Oxford Languages
Subjective	based on or influenced by personal feelings, tastes, or opinions.	Oxford Languages
Frame	formulate (a concept, plan, or system)	Oxford Languages
Notice	the fact of observing or paying attention to something.	Oxford Languages
Term	a word or phrase used to describe a thing or to express a concept, especially in a particular kind of language or branch of study.	Oxford Languages

Action

the fact or process of doing something, typically to achieve an aim. [Oxford Languages]

Term	Definition	Reference
Data exchange	the process of taking data structured under a source schema and transforming it into a target schema, so that the target data is an accurate representation of the source data.	Wikipedia

| Term	Definition	Reference
Dynamical	relating to forces producing motion.	Oxford Languages
Intelligence	the ability to acquire and apply knowledge and skills.	Oxford Languages

Term	Definition	Reference
Systematic	done or acting according to a fixed plan or system; methodical.	Oxford Languages
Factual	concerned with what is actually the case.	Oxford Languages
Active	engaging or ready to engage in physically energetic pursuits.	Oxford Languages
Packet	(computing) a block of data transmitted across a network.	Oxford Languages
Payload	the actual information or message in transmitted data, as opposed to automatically generated metadata.	Oxford Languages
Value	(computing) the information assigned to a data element in a record, field, or variable.	The Dictionary of Archives Terminology

Semantics correlation

"*Morphological*" vs "*Epistemological*" semantics

Morphological semantics

A *schema* defines how textual attributes contribute to the morphological structure of a systemic variable, data structure, function, or method.
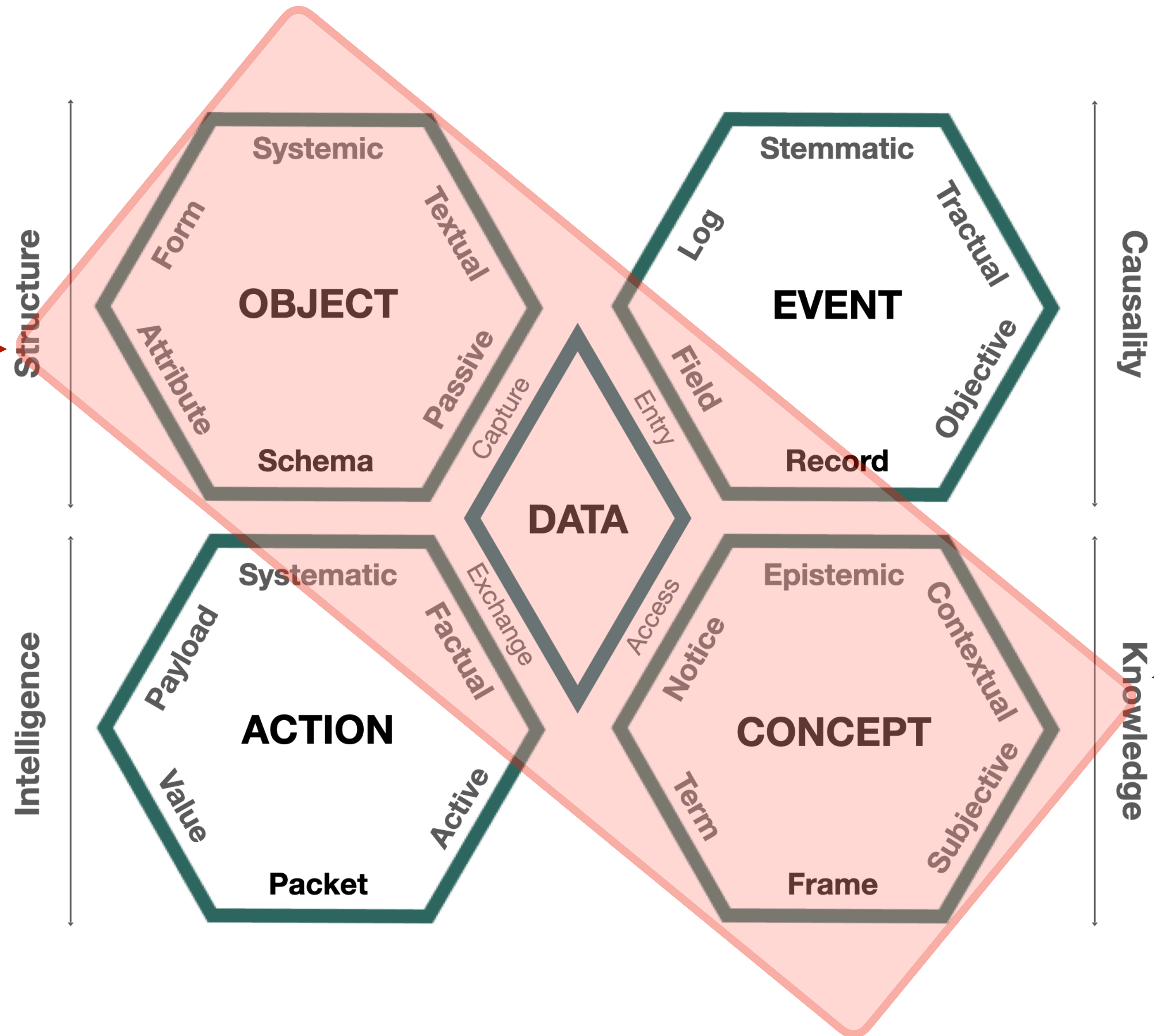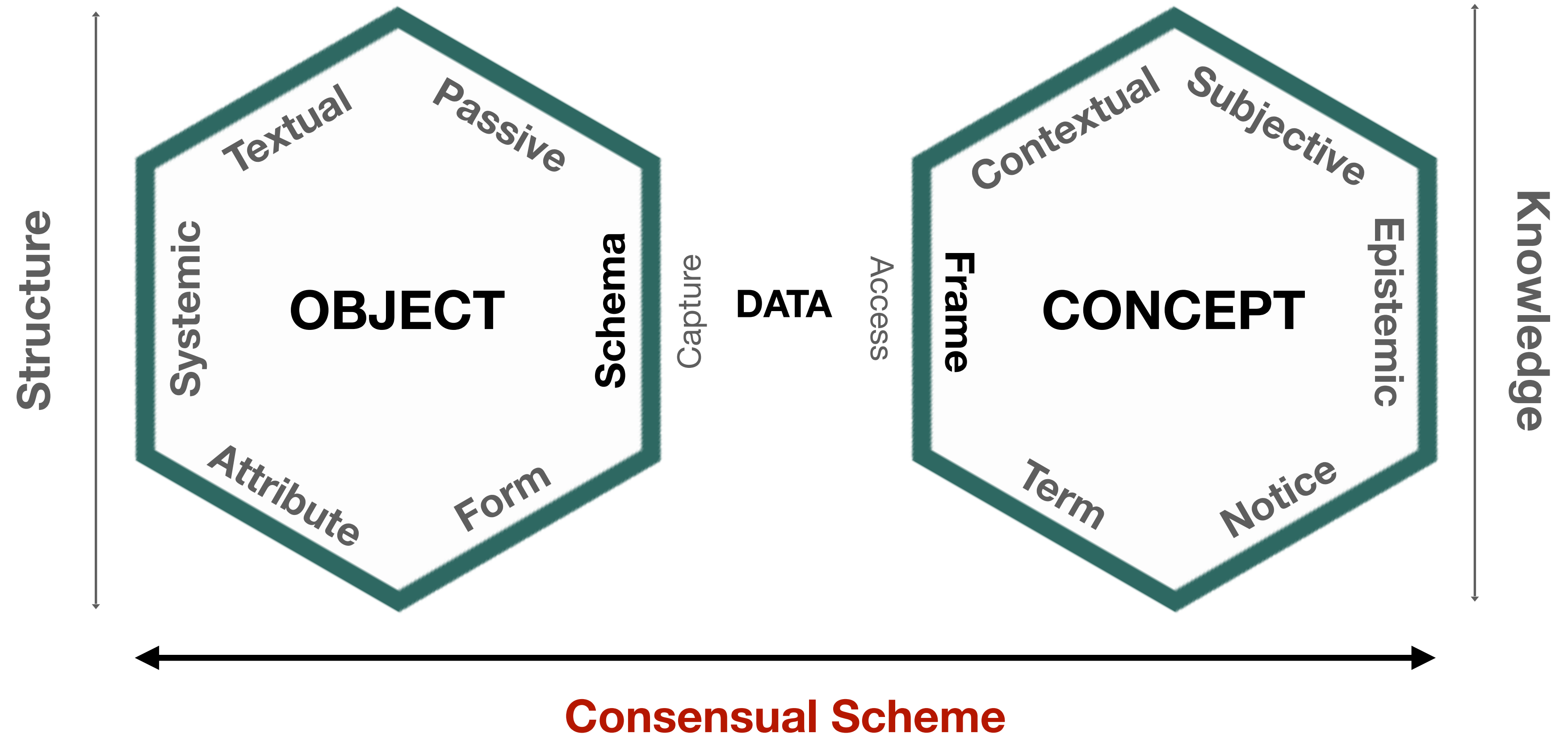
Epistemological semantics

A *frame* defines how nodal entities, contextual terms, and relationships contribute to the epistemological knowledge of an epistemic concept or abstract idea.

OBJECT — Systemic, Textual, Form, Attribute, Passive, Schema

EVENT — Stemmatic, Tractual, Log, Objective, Record

ACTION — Systematic, Factual, Payload, Value, Active, Packet

CONCEPT — Epistemic, Contextual, Notice, Term, Subjective, Frame

DATA — Capture, Entry, Field, Exchange, Access

Structure / Causality / Intelligence / Knowledge

"Consensual scheme"

Consensual Scheme

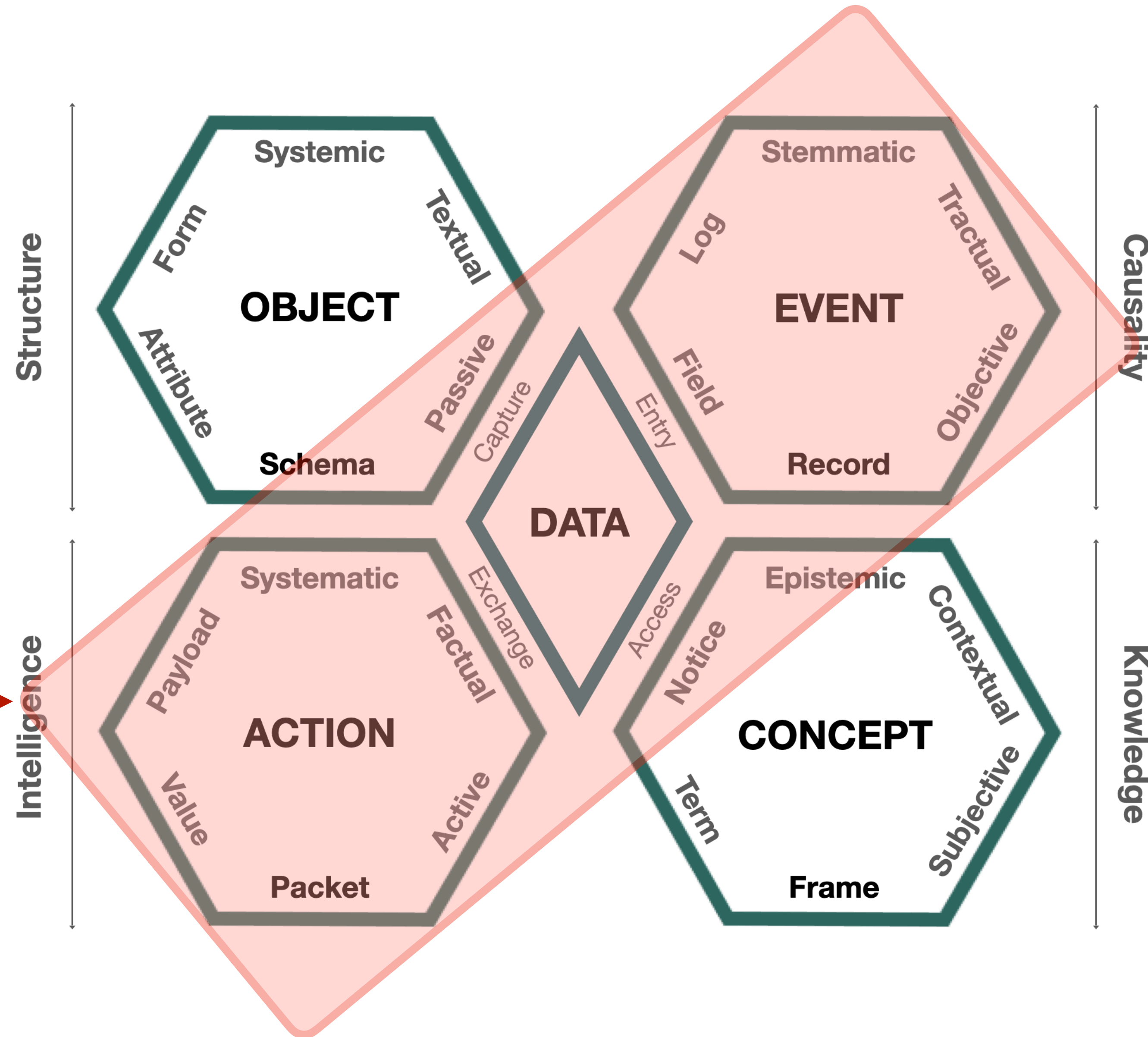| Term	Definition	Reference
Consensual	relating to or involving consent or consensus.	Oxford Languages
Scheme	a large-scale systematic plan or arrangement for attaining a particular object or putting a particular idea into effect.	Oxford Languages

Mechanics correlation

"*Dynamical*" vs "*Kinematical*" mechanics

Kinematical mechanics

A *record* provides a stemmatic node of tractual evidence supporting the kinematical causality of an interrelated event and its causal action.

Dynamical mechanics

A *packet* contains factual information for a systematic actioning component to process dynamical intelligence for a value-based life cycle operation.
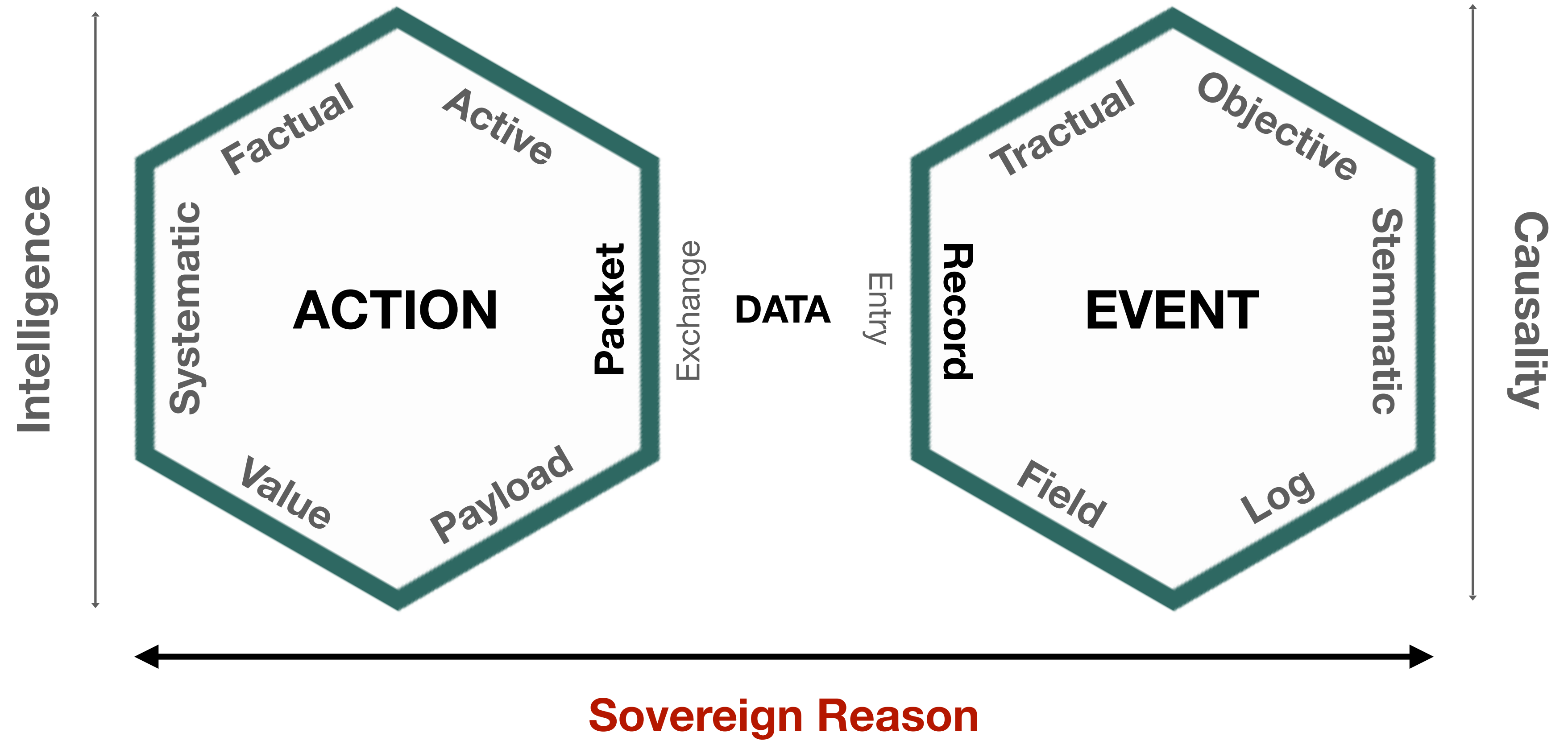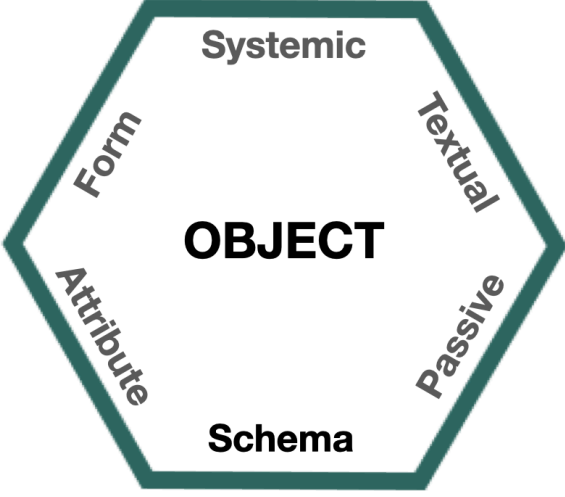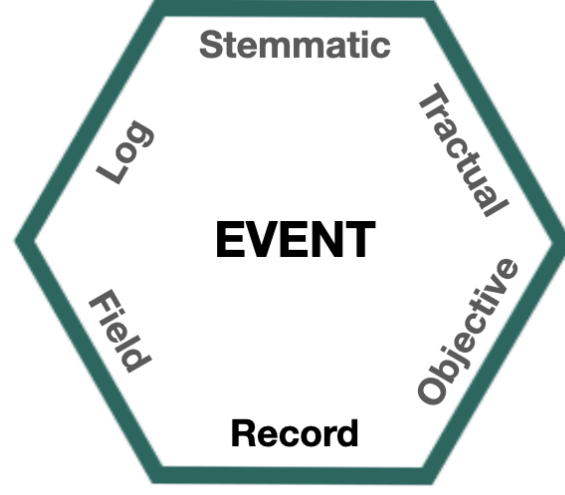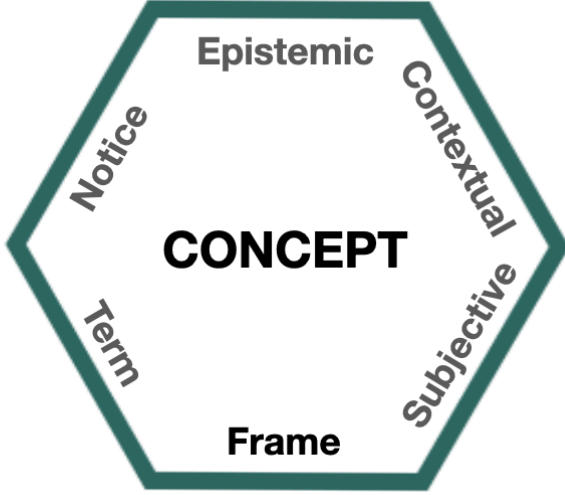
"Sovereign reason"
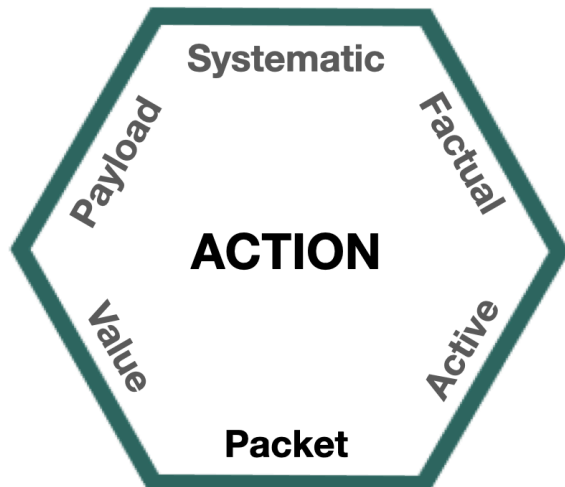
> "It is a habit of mankind to entrust to careless hope what they long for and to use **sovereign reason** to thrust aside what they do not fancy."
>
> - Thucydides (c.455-c.400 BC)

Intelligence

Causality

ACTION — Factual, Active, Systematic, Packet, Value, Payload

DATA — Exchange, Entry

EVENT — Tractual, Objective, Stemmatic, Record, Field, Log

Sovereign Reason

Term	Definition	Reference
Sovereign	possessing supreme or ultimate power.	Oxford Languages
Reason	a cause, explanation, or justification for an action or event.	Oxford Languages

Academic references

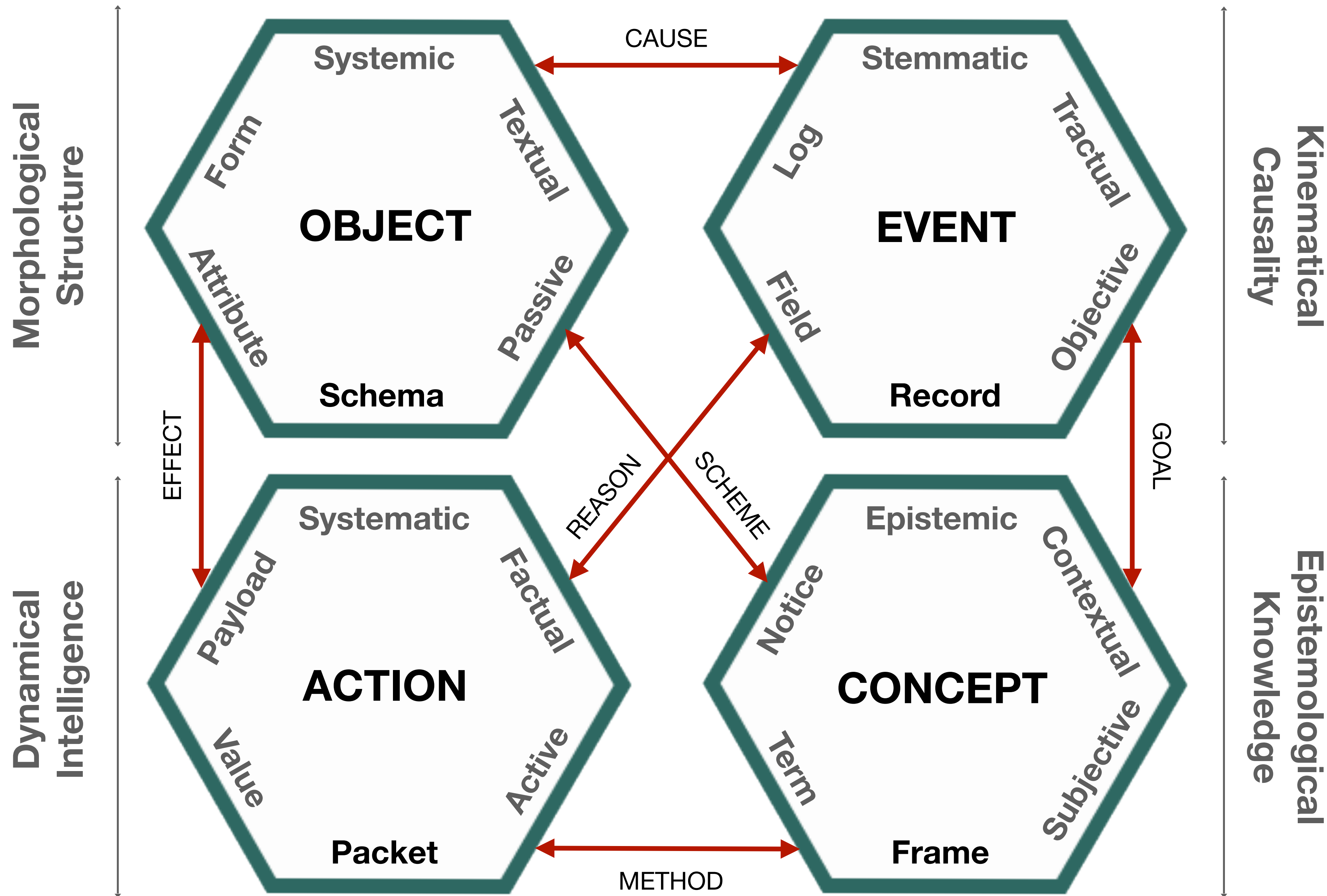| Term	Reference	DOI
Morphological Semantics	Acquaviva, P. (2016). **Morphological Semantics**. In A. Hippisley & G. Stump (Eds.), *The Cambridge Handbook of Morphology* (Cambridge Handbooks in Language and Linguistics, pp. 117-148). Cambridge: Cambridge University Press. doi:10.1017/9781139814720.006	10.1017/9781139814720.006 *[link]*
Kinematical Mechanics	Zhijiang Du, Wenlong Yang, Wei Dong, Kinematics modeling and performance optimization of a **Kinematic-Mechanics** coupled continuum manipulator, Mechatronics, Volume 31, 2015, Pages 196-204, ISSN 0957-4158. doi:10.1016/j.mechatronics.2015.09.001	10.1016/j.mechatronics.2015.09.001 *[link]*
Epistemological Semantics	Rattan, G., and Journal of Philosophy Inc. (2014). **Epistemological Semantics** beyond Irrationality and Conceptual Change. Journal of Philosophy 111, no. 12: 667–88. doi:10.5840/jphil20141111244.	10.5840/jphil20141111244 *[link]*
Dynamical Mechanics	Cauller, L. (2003). The Neurointeractive Paradigm: **Dynamical Mechanics** and the Emergence of Higher Cortical Function. 1-23. doi:10.1007/978-1-4471-0085-0_1.	10.1007/978-1-4471-0085-0_1 *[link]*

Morphological Structure

Systemic
Form — Textual
OBJECT
Attribute — Passive
Schema

Kinematical Causality

Stemmatic
Log — Tractual
EVENT
Field — Objective
Record

Epistemological Knowledge

Epistemic
Notice — Contextual
CONCEPT
Term — Subjective
Frame

Dynamical Intelligence

Systematic
Payload — Factual
ACTION
Value — Active
Packet

Functional correlations

Morphological Structure

Dynamical Intelligence

Kinematical Causality

Epistemological Knowledge

CAUSE

OBJECT
Systemic
Form
Textual
Attribute
Passive
Schema

EVENT
Stemmatic
Log
Tractual
Field
Objective
Record

ACTION
Systematic
Payload
Factual
Value
Active
Packet

CONCEPT
Epistemic
Notice
Contextual
Term
Subjective
Frame

EFFECT

GOAL
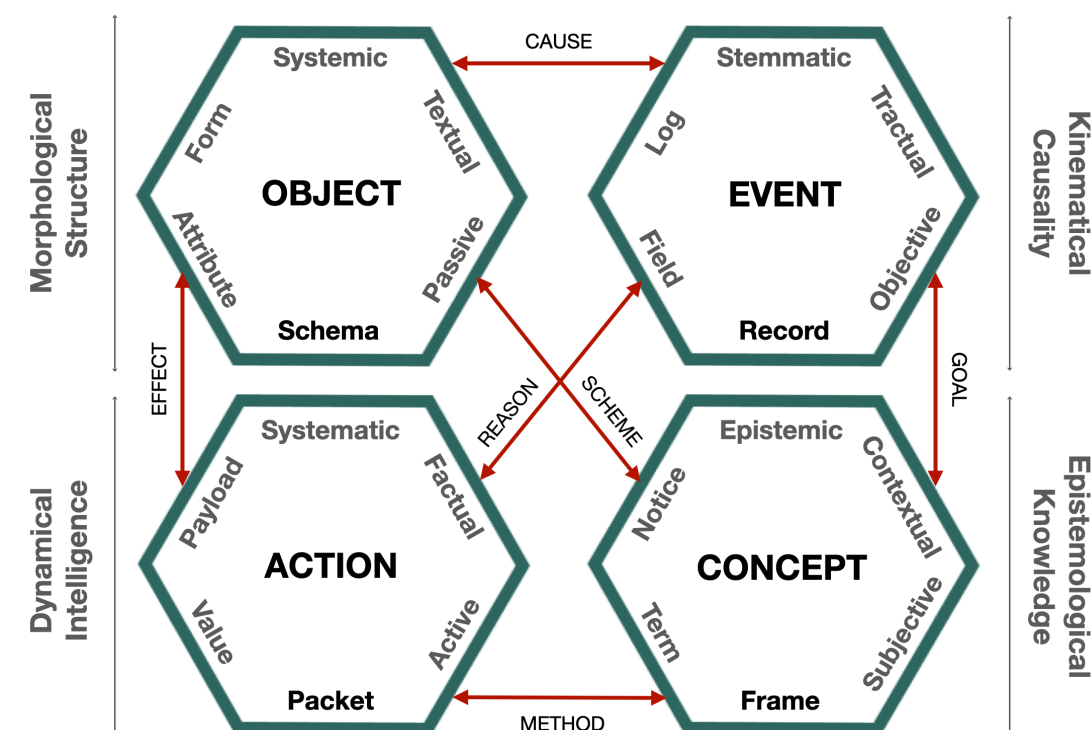
REASON

SCHEME

METHOD

Informatics

the science of processing data for storage and retrieval; information science.
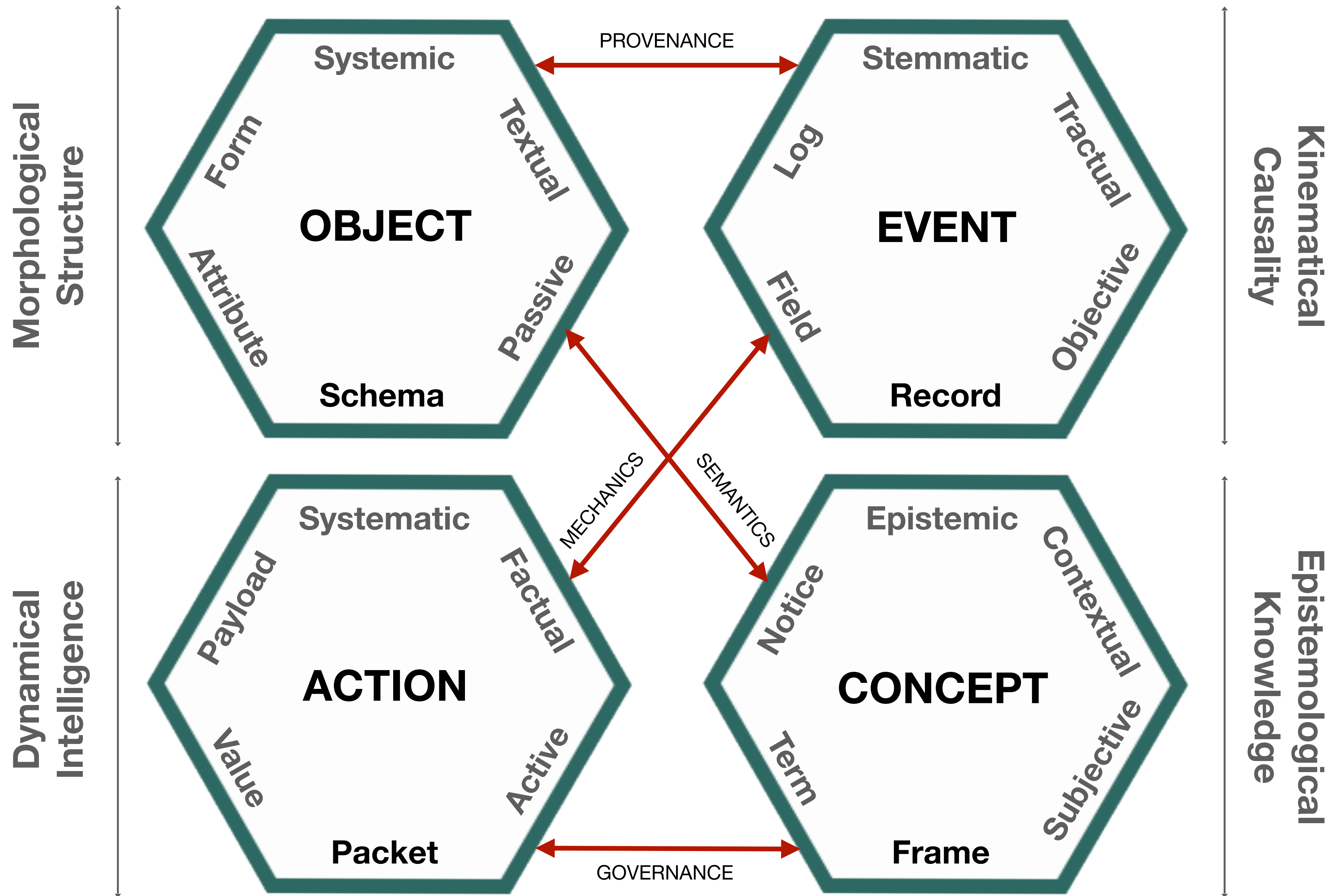[Oxford Languages]

Functional correlations describe the **practical, cause-and-effect relationships** between objects, concepts, actions, and events in the domain. These correlations focus on how elements interact to achieve specific outcomes or purposes.

Term	Definition	Reference	Correlation
Scheme	a large-scale systematic plan or arrangement for attaining a particular object or putting a particular idea into effect.	Oxford Languages	Object + Concept
Reason	a cause, explanation, or justification for an action or event.	Oxford Languages	Action + Event
Cause	a person or thing that gives rise to an action, phenomenon, or condition.	Oxford Languages	Object + Event
Effect	a change which is a result or consequence of an action or other cause.	Oxford Languages	Action + Object
Goal	the object of a person's ambition or effort; an aim or desired result.	Oxford Languages	Concept + Event
Method	the quality of being well organized and systematic in thought or action.	Oxford Languages	Concept + Action

The **Informatics Domain Model** showcases how domain correlations between objects, events, concepts, and actions give rise to different aspects of planning, reasoning, and executing in digital systems.
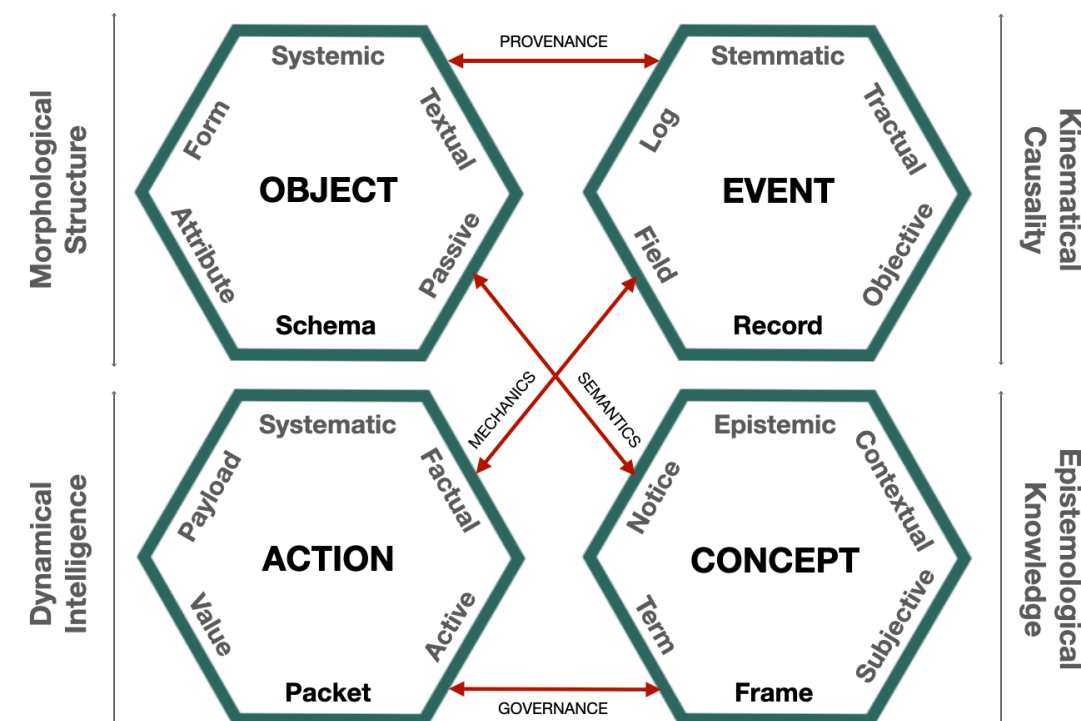
Theoretical correlations

Informatics

the science of processing data for storage and retrieval; information science.
[Oxford Languages]

Theoretical correlations represent the **abstract, academic relationships** that define areas of study within the domain. These correlations highlight the structural or semantic nature of the connections between objects, concepts, actions, and events.

Term	Definition	Reference	Correlation
Semantics	the branch of linguistics and logic concerned with meaning..	Oxford Languages	Object + Concept
Mechanics	the branch of applied mathematics dealing with motion and forces producing motion.	Oxford Languages	Action + Event
Provenance	a record of ownership of a work of art or an antique, used as a guide to authenticity or quality.	Oxford Languages	Object + Event
Governance	the action or manner of governing a state, organization, etc.	Oxford Languages	Concept + Action

The **Informatics Domain Model** showcases how domain correlations between objects, events, concepts, and actions give rise to different aspects of planning, reasoning, and executing in digital systems.

▶ E-mail contact@humancolossus.org