

## A Draft Framework of the Primer for Teaching-learning of Conceptual Structures

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As a framework for the primer, we have sketched a draft plan of the units which comprises of learning objectives (LOs).

Units	Learning Objectives
1 Propositions	Identify propositions Distinguish propositions from sentences Identify premisses and conclusions
2 Structure of Propositions	Identify the subject in propositions Identify the predicates in propositions Noun Phrases Verb Phrases Relations Attributes Monadic propositions Dyadic propositions
3 Individuals are Members of Class	Identify class names Identify individuals or tokens MemberOf
4 Genus and Species	Identifying generic classes Identifying specific classes SubtypeOf
5 Logical Relations	And Or Not If then
6 Truth and Validity	Truth Tables
7 Network of Propositions	A subject with two or more attributes A subject with two or more relations Representing a network of

		propositions
		Representing propositions as triples
		Representing propositions as graphs
8	Properties of Relations	Transitivity
		Symmetry
		Reflexivity
9	Other Relations	Part-whole
		Composition
		Containment
		Spatial
		Location
		Surrounding
		North South
		Between
		Adjacent to
		Role
		Function
		Negative Relations
		Opposition and Antonyms
10	Structure of Attribution	Class or Individuals
		Domain
		Range of values of a domain
		Negative Attribution
11	Best Practices	Choice of Relations
		Qualities as Attributes
		Quantities as Attributes
		Eliminating Ambiguity
		Parsimony
		Consistency
		Rigor
12	Nesting Propositions	Sequencing
		Temporal
		Structural
		Hierarchy
13	Quantifiers	All
		Some
		None
		Most
		At most
		Few
14	Modalities	Necessity
		Possibility
		Impossibility
15	Representing Change	Events
		Process
		States
		Structure of State
		Change in State
		Change in Attribution
		Change in Relations
		Cause Effect
		Agency
16	Triples	Propositions as Triples
		Triples as Building Blocks of a Network
		Knowledge as Triples
17	Characterizing Conceptual	As Graphs

	structures	
		As Lattices
		As Tree
		As Network
18	Applications and Implications	Semantics
		Semiotics
		Linguistics
		Knowledge Representation (Ontology Engineering)
		Databases
		Knowledge Management
		Semantic Web
		Education
		Content Analysis
		Teaching-learning

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Note: The framework is proposed in the paper submitted to the CSLTA 2011 workshop.