* Wrapper<? super Embeddable>
* URN / Embeddable: Registry / Factories. Prompts / placeholders. Naming, Index Services.
* Embedding
* Context (Kind / Instance)
* Next Embedding
* Contains Embedding
* Add Embedding
* Meet
* Join
* Concepts / Subsumption
* Inference Association Rules
* Embeddable
* URN
* Embedding (calc from State)
* Statements : Occurrences / Contexts:
* Events: context / occurrence (from Statement events): Update service layers models.
* Service layers:
* Models (for streams). Statement events.
* Augmentation
* Consumes / Produces: onStatement
* Aggregation Service
* Consumes: Resource
* Produces: Kinds
* Activation Service
* Consumes: Kinds
* Produces: Templates
* Alignment Service
* Consumes: Templates
* Produces: Inferred Statements. Entailments. Feedback Aggregation.
* Occurrence statements:
* (Kind, Instance, kindAttribute, kindValue). (Employee, aPerson, Employment, anEmployment);
* Embedding: Kind Context, Instance Objects, discretized attributes. Data. Concepts hierarchy.
* Context Statements:
* (Instance, Kind, kindAttribute, kindValue). (anEmployment, Employment, Employee, aPerson);
* Embedding: Instance Context, Kind Objects, discretized attributes. Schema. Concepts hierarchy.
* Instance : Embeddable;
* Kind : Instance;
* kindAttribute : Instance;
* kindValue : Instance;
* Order, Shapes
* Ontology Matching
* Getters/ Setters
* Available Transforms
* Resource : Embeddable
* Statement : context
* Kind : role
* Statement : Resource
* Context : Context
* Subject : Subject
* Predicate : Predicate
* Object : Object
* Kind : Statement
* Kind<INST super Resource, ATTR super Resource, VAL super Resource>
* Context : Resource (Wrapper)
* Statement : context
* ContextKind : role
* player : Resource
* ContextKind : Context, Kind
* extends Kind<Context, Subject, Predicate>
* Subject : Resource (Wrapper)
* Statement : context
* SubjectKind : role
* player : Resource
* SubjectKind : Subject, Kind
* extends Kind<Subject, Predicate, Object>
* Predicate : Resource (Wrapper)
* Statement : context
* PredicateKind : role
* player : Resource
* PredicateKind : Predicate, Kind
* extends Kind<Predicate, Subject, Object>
* Object : Resource (Wrapper)
* Statement : context
* ObjectKind : role
* player : Resource
* ObjectKind : Object, Kind
* extends Kind<Object, Subject, Predicate>
* Resource embeddings: Resource.of Resource Types (C, S, P, O, Statement, Kind parameterized class). Order. Ontology Matching.
* Resource types implements functional Embeddings (FCA) Interface: (URN, Occurrence: Statement, Kind): EmbeddingID, Aggregated EmbeddingID.
* Resource Types: (URN, Statement, Kind);
* Statement : SK, PK, OK : C, S, P, O : URN : Embedable;
* Kinds; SK, PK, OK.
* Resource Types Transforms:
* ::getKinds / ::getKind (over Context).
* ::getOccurrences : Kinds / Statement of Resource context.
* :: getResource : for Kind in Occurrence Context.
* Statement: getURN/CSPO(Kind) : URN/CSPO;
* Resource(? super Embedable);
* URN : Embeddable.
* Statement : URN
* Context context
* Subject subject
* Predicate predicate
* Object object
* SubjectKind : URN
* Kind ID (SK URN scheme)
* Subject
* Predicate
* Value
* (idem PredicateKind, ObjectKind). Aggregated by Kind ID.
* Subject : URN
* Context : SubjectKind
* URN
* Set(Statement) occurrences
* (idem Predicate, Object). Aggregated by URN.
* Resources Embeddings Registry / Index, Naming (prompts, placeholders). Resolvable URNs.
* URN ID: Contexts. FCA Contexts Prime ID Embedding.
* Augmentations Facade: onStatement feed / stream from DB. Sync RDF4J Models. SaILS / Endpoints layers. Invokes Services.
* Aggregation Service: merge Statements feed with onResource (CSPO, Statement, Kind) parameterized Resource(T) Service feeds. Returns Populated CSPO, Kind, Statements Resources. Repeated invocation augments Resources Embedding.
* Consumes: onResource (C / S / P / O) events stream;
* Creates / Updates CSPOs / Statements Occurrences Kinds Aggregation.
* Produces: Resource(Kind) stream;
* Activation Service: merge Statements feed with onResource Populated Kind Resources (CSPO, Statement, Kind). Returns Statements Kind Resources (Statement Templates: Aggregate Kind Resources by Statements Occurrences). Available Transforms.
* Consumes: Resource(Kind) stream;
* Populates Kinds CSPOs / Occurrences.
* Produces: Kinds CSPO Statements stream;
* Alignment Service: merge Statements feed with Statements Kinds Resources (Kinds Statement Templates). Returns inferred / augmented Statements.
* Consumes: Kinds CSPO Statements stream;
* Populates Statements with matching Statements available Kinds / CSPOs.
* Produces: Resource(Statement) stream.
* Embeddings State: Layers Augments / Updates Resource Embeddings: Aggregation example, Resource(Subject). Multiple invocation of onSubject for same URN returns Augmented Resource(Kind) Kind.
* Feedback Aggregation.
* Layers (RDF4J Sails):
* Semiotic Layer: Verbs, Relationships.
* DOM Layer: Dynamic Object Model. CSPO Materialized Semiotic Layer.
* Sets Layer: DOM Layer CSPO Resource Arrangement.
* Augmentations / FCA Layer: Sets Layer FCA / Embeddings.
* Functional Layer: API.
* Semiotic Layer:
* Verbs: action (rel end: amante) / passion (rel end: amado) / state (rel: amor: ama / amado). Relation parts attributes.
* Semiotics: CSPO Schema. DOM Statements Source.
* Occurrences: Objects.
* Concepts: Non Terminals.
* Signs: Terminals.
* Semantics / Pragmatics:
* (Context, Occurrence, Sign, Concept);
* (Context, Occurrence, Concept, Sign);
* Grammar:
* (Context, Concept, Occurrence, Sign);
* (Context, Concept, Sign, Occurrence);
* Syntax:
* (Context, Sign, Concept, Occurrence);
* (Context, Sign, Occurrence, Concept);
* DOM Layer:
* (Class, Instance, Attribute, Value);
* Sets Layer:
* Sets Encoding / Arrangements:
* Subject, Predicate, Object Sets inside Context Set (CSPO Statements Resources Populated)
* SubjectKind Set: Statements Predicates / Objects intersection.
* PredicateKind Set: Statements Subjects / Objects intersection.
* ObjectKind Set: Statements Predicates / Subjects intersection.
* Kinds Population (Subject Example): Aggregate Subjects Occurrences with same Predicates (type), same Objects (instance).
* Kind Reification (Subject Example): S: (SubjectKind, Subject, Predicate, Object);
* Resource Monad: For each input SPO URNs, prime sequence identifying each new Resource. Resource registry.
* Resource Embeddings: set of Resources Occurrences (Statements) Contexts / Attributes products.
* Statements: SPO / FCA (Object, Context, Attribute) Resource triples.
* Kind Monad: For each Kind set of matching Attributes / Values, set of matching Resources. Identifier (reification) Resource: Embedding URN.
* CSPO quads Statements Context: Kind (inheritance).
* Resource<URN>
* Resource<Statement>
* Resource<Kind>
* SubjectKind: Kind;
* PredicateKind: Kind;
* ObjectKind: Kind;
* Resource<URN>::map(ctx::getSubjectOccurrences) : Set<Resource<Statement>>;
* Resource<URN>::map(ctx::getPredicateOccurrences) : Set<Resource<Statement>>;
* Resource<URN>::map(ctx::getObjectOccurrences) : Set<Resource<Statement>>;
* Resource<Statement>::map(ctx::getSubjectKind) : Resource<Kind>;
* Resource<Statement>::map(ctx::getPredicateKind) : Resource<Kind>;
* Resource<Statement>::map(ctx::getObjectKind) : Resource<Kind>;
* Resource<Kind>::map(ctx::getKindContexts) : List<Resource<URN>>;
* Resource<Kind>::map(ctx::getKindAttributes) : List<Resource<URN>>;
* Resource<Kind>::map(ctx::getKindValues) : List<Resource<URN>>;
* Augmentations / FCA Layer:
* FCA:
* FCA Attributes: Primes / one-hot Bitstring Encoding.
* FCA Context: Concepts / Objects Attributes.
* Embeddings: CSPOs FCA Contexts Objects URNs Attributes Primes Product / Bitstring OR.
* Vector Space Model: CSPO Dimensions. CSPO Points: Objects URN Embeddings.
* Similarity / Distance: Common FCA Embedding Attributes Factors. Common Super Concept / Object. VSM Vector Similarity.
* Transforms / Translation: Object, Object. Merge Attributes, extract Similarity on merged Subject and merged Objects (Transforms).
* State (flow): Attributes index (hasAddress), values (address: xyz) masks browsing (Concepts / Objects).
* Ontology Matching: Concept Lattice shape.
* Augmentations:
* Generate Embeddings from DOM SPO URNs FCA Contexts (Context(Attributes, Objects)).
* FCA Contexts: Map Attributes URNs with primes sequence / one-hot bitstring and Objects URNs with theirs Attributes product / bitstring OR Embedding. Embed Context (SPO / Kinds) into Contexts Attributes (product).
* SPO URNs Resources Wrapper (Contexts Attributes / Objects Embeddings Population / Encoding). Subject URN Embedding Encoding Example: Aggregate all Subject Embedding Contexts Occurrences Concept Attributes Primes Product.
* Subject Embeddings: Contexts: Predicates; Attributes: Objects; Objects: Subjects;
* Predicate Embeddings: Contexts: Objects; Attributes: Subjects; Objects: Predicates;
* Object Embeddings: Contexts: Subjects; Attributes: Predicates; Objects: Objects;
* SubjectKind Embeddings: Contexts: Subjects; Attributes: Predicate Contexts (occurrences for Subject); Objects: Object Contexts (occurrences for Subject);
* PredicateKind Embeddings: Contexts: Predicates; Attributes: Subject Contexts (occurrences for Predicate); Objects: Object Contexts (occurrences for Predicate);
* ObjectKind Embeddings: Contexts: Objects; Attributes: Predicate Contexts (occurrences for Object); Objects: Subject Contexts (occurrences for Object);
* Schema Aggregation: Type (Kind) in Context / Role Inference. Align Attributes with existing Kinds. CSPO Embeddings Clustering. Kinds Naming / Labels: Alignment Embedding Encoded Placeholders.
* Data Alignment: Align / Reify Instances with Kinds. Complete (align) Type (Kind) Instance Attributes Values in Context / Role Inference. Embeddings Features zero-shot Classification (Aggregation Kinds Embedding Encoded Labels). Missing Values (links) Prediction: Placeholder Embeddings with resolvable context metadata.
* Behavior Activation: Performed / Available Resource State (DIDs) Transforms. Perform Prompt: Aggregate / Align. Response: Embeddings Context Facts / Next Available Prompts (Alignment). Embeddings Features Regression (Prompts Suggestions).
* Embeddings Features Average (User Embedding, Product Embedding) Predictions.
* Functional API:
* Runtime: RDF4J.
* REST Browsing State Based Dialog Wizard. DOM / DCI / CDI / Augmentations (FCA). Structured Prompts / Responses (Statements Flow, Relationships / Roles).
* URNs: Semantic Identifiers. Encoding. DIDs (Distributed IDs). Angular Encoding.
* Conversational State Transfer (COST): Distributed (P2P).
* Node.js: JSON-LD. Functional Resources (Monads, run-at: request client / server peer. Context State available Functors / Transforms).
* Parsing: Transforms.
* Resource URN Monads: Activation, Alignment, Aggregation. Class / Instance State (Embeddings) Statements.
* URNs Class Statements (Instance, Class, Attribute, Value). Instance in this Class (role, Object Statement) Attributes / Values.
* (Person, Employee, Employer, Enterprise);
* (aPerson, Addressable, Address, anAddress);
* URNs Object Statements (Class, Instance, Attribute, Value). Class in this Instance (occurrence, Class Statement) Attributes / Values.
* (Employee, aPerson, Employer, anEnterprise);
* (Addressable, aPerson, Address, anAddress);
* Layers:
* Schema Activation
* Each URN has its own Class / Instance Attribute / Value Mapping Statements. Parse / Materialize CSPO (Schema / Template). I/O / Activation
* Sets Aggregation
* Each URN has its own Kinds Class / Occurrences Instances Sets Statements.
* FCA Contexts Alignment
* Alignment: Each URN has its own Class / Instance FCA Contexts. Attributes / Values / Concepts: Classes / Instances
* Attributes / Values: Classes / Instances. Singleton Class, class with only one Instance Member. Class : Instance.
* Object Statements Attributes / Values: Role / Player
* Class Statements Attributes / Values: Context / Occurrence
* Data flow:
* Activation, Aggregation, Alignment, Aggregation, Activation.
* Monad Functional: Resource (Resource): Resource (Context). Statements state (Embeddings):
* Object (Attribute): Concept (Kind) / Object (Context)
* Pedro (Empleador): José (Empleo)
* Pedro (José): Empleador (Empleo)
* Empleador (Pedro): José (Empleo)
* José (Empleado): Pedro (Empleo)
* José (Pedro): Empleado (Empleo)
* Empleado (José): Pedro (Empleo)
* Empleado (Posición): Líder (Empleo)
* Líder (Empleado): Posición (Empleo)