**Completeness**

Completeness of the data can be judged in the presence of a task where the ideal set of attributes and objects are known.

Entity level

* An instance is complete if it contains all the attributes needed for a given task (objective but can be measured by sieve) sWIQA rdf:alert
* Incomplete language coverage \cite{ Mader2012} qSKOS flemming
* The existence of documentation properties \cite{w3c\_skos\_rec} qSKOS cite{ Mader2012} flemming

Dataset level

* If it contains all the necessary objects for a given task (objective but can be measured by sieve)
* Availability of structured data [pedantic]
* Correct MIME-type reported for the content [pedantic] flemming
* Meta data about technical features of the dataset such as available serializations -> void:TechnicalFeature flemming
* Appropriate volume of data for a particular task \cite{Framework2012} -> number of triples, instances per class, internal and external links in a dataset -> flemming tool, Prolod
* has different queryable endpoints to access the data (i.e. SPARQL endpoint, RDF Dump, REST API ... etc.) flemming

Linking level

* De-referencability issues: The existence of or broken in-links and out-links so that we will not be able to retrieve relevant information for a particular task [pedantic] [rdf:alert .. Vapour] \cite{ Mader2012} assessed by qSKOS zcite{Gueret2012}

Modeling level

* Existence of disconnected concept clusters: since vocabularies can be split into clusters because of deprecated terms, incomplete data acquisition or accidental deletion of terms cite{ Mader2012} query expansion or suggestion of related terms can be affected. qSKOS
* Omitted Top concepts in vocabularies \cite{ Mader2012} qSKOS Skosify
* Unidirectionality related concepts \cite{Suominen2013} qSKOS Skosify
* Incomplete values for properties \cite{ Mader2012} SWIQA

**Correctness**

Entity level

* invalid entities due to missing or empty values or labels (crowd sourcing) cite{ Mader2012} PoolParty, Skosify SWIQA rdf:alert -> blank nodes hogan
* RDF/XML syntax error [validators]
* Incorrect data type for typed literals xsd:gYear instead of xsd:dataTime (crowd sourcing) [pedantic] they can be fixed by simple syntactic fixed using validators
* Interpret linked data as expected [pedantic]
* Omitted or invalid language tags \cite{ Mader2012}\cite{ Suominen:2012:IQS:2413941.2413985} PoolParty, qSKOS and Skosify
* Existence of “orphan terms” \cite{journals/ires/Living10} which are terms without any associative or hierarchical relationships \cite{organization2005guidelines} qSKOS

Linking level

* Correctness of links to external data sources so that they actually show related content to the subject of the RDF triple ((crowd sourcing) \cite{ Suominen:2012:IQS:2413941.2413985} qSKOS
* Meta-data about outgoing and incoming links represented using void:linkPredicate property
* HTTP URI Scheme violation \cite{Suominen2013} qSKOS

Modeling level

* Unmarked top concepts \cite{Suominen:2012:IQS:2413941.2413985} PoolParty, Skosify
* Top concepts having broader concepts \cite{ Mader2012} qSKOS

**Conciseness**

Extensional conciseness measures the number of unique objects in relation to the overall number of object representation in the data set \cite{Bleiholder:2009} . Intensional conciseness measures the number of unique attributes of a dataset in relation to the overall number of attributes in a target schema. \cite{ Bleiholder:2009} ->

Entity level

* If an entity does not contain redundant attributes (two equivalent attributes with different names) (sieve)
* Keeping URI short

Dataset level

* If the dataset doesn’t contain redundant objects) two equivalent objects with different identifiers). (sieve)

**Consistency**

If it is free on conflicting information

Entity level

* Overlapping labels such as “two concepts have the same preferred lexical label in a given language when they belong to the same scheme” \cite{skosprimer} qSKOS cite{ Mader2012} SWIQA
* Inconsistent preferred labels per language tag and no more than one value of skos:prefLabel without a language tag \cite{ Mader2012} }\cite{ Suominen:2012:IQS:2413941.2413985} poolparty qSKOS and Skosify
* Extra white spaces in Labels }\cite{ Suominen:2012:IQS:2413941.2413985} qSKOS
* Disjoint labels validation \cite{ Mader2012}

Dataset level

* free of conflicting information (sieve) ->

Modeling

* Atypical use of collections, container and reification [pedantic]
* Existence of asserted members for owl:Nothing [pedantic]
* Overlapping Usage of owl:sameAs and owl:differentFrom in the predicate [pedantic] SWIQA
* Overlapping Usage of owl;AllDifferent and owl:distinctMembers [pedantic]
* Inference checks for memberships of disjoint classes [pedantic] \cite{ flemmin Suominen:2012:IQS:2413941.2413985} poolchecker skosify pellet

**Coherence**

The ability to interpret data as expected by the publisher or vocabulary maintainer [pedantic]

Modeling

* Usage of undefined classes and properties [pedantic] many errors that are due to spelling or syntactic mistakes can be resolvable through minor fixes via ontology checkers tools. However, for new terms [pedantic] suggests to have them defined in a separate namespace in order to allow reuse. \cite{ Mader2012} qSKOS
* Misplaced classes/properties [pedantic]
* Misuse of owl:DatatypeProperty/owl:ObjectProperty [pedantic] pellet
* Existence of deprecated classes/properties [pedantic]
* Validity of inverse-functional values [pedantic]
* Incompatible literals with datatype range [pedantic] pellet
* Relation and mapping clashes \cite{ Suominen:2012:IQS:2413941.2413985} poolparty qsko and skosify
* Redefining existing vocabularies instead of reusing them [pedantic] by encouraging modular ontology designs and avoid terms cross definition.
* Metadata about the kind and number of used vocabulaires -> void:vocabulary peoperty value
* Existence of cyclic hierarchical relations \cite{ conf/jcdl/Soergel05} \cite{ Suominen:2012:IQS:2413941.2413985}\cite{ Mader2012} QSKOS SKOSIFY
* Valueless associative relations \cite{ Mader2012} qSKOS
* Solely transitively related concepts \cite{ Mader2012} qSKO

**Efficiency**

dataset level

How fast a data set can be identified [ding]

Usage of datasets descriptions using voacbulaires like DCAT or VOID. The existence of metadata to describe

* The size of the dataset (void:statItem, void:numberOfTriples, void:numberofDocuments
* Categorization using dcterms:subject to help decrease search space

& No usage of slash-URIs where large amounts of data is provided \cite{Framework2012}.

& Delay between the request and response is acceptable \cite{citeulike:2925559}.

& Low Latency for HTTP requests (average answer time of one second) \cite{Framework2012}.

& The time to answer an amount of ten requests divided by ten is not longer than the time it takes to answer one request \cite{Framework2012}.

**Effectiveness / Relevancy**

How well the dataset fulfills the stated requirement in a certain conctext [ding]

**Freshness/Timeliness**

How recent the data is, with the basic assumption that old information is more likely to be outdated and unreliable [provenance \cite { Flouris2012}

entity

* Existence of timestamp for last modification of data -> Timestamp comparson to identidy potential obsolescence of data SWIQA

**Accuracy**

Accuracy describes the proximity of data value representations of an object related to their real world states (swiqa)

A dataset is considered to be accurate when it does not contain outliers and attributes that do not contain useful values for data entries are detected

**Provenance**

Dataset level

* Meta-data describing authoritative information (title, content and URI of dataset (flemming tool)
* Reliability and trustworthiness of the publisherPerceived trustworthiness of the data source cite\{ Flouris2012}
* **Verifying if the dataset uses a provenance vocabulary like PROV \cite{** **w3c-prov-o} -> flemming tool**
* **Usage of digital signatures \framework20120} -> fllemming tool**

Modeling level

* Trustworthiness of RDF statement \cite{Hartig09usingweb}

Entity level

* Computing the trust of an entity \cite{framework2012} -> construction of decision networks informed by orivenance graphs \cite{ Gamble2011}
* Accuracy of computing trust between two entities {framework} -> combination of propagation and aggregation algorithms on weighted mechanism to calculate an aggregate trust value \cite{ j.websem208}

Licensing

* The availability of machine readable license information in the dataset description { Hogan:2012:ESL:2263498.2264570} and flemming
* The availability of a license in the documentation of the dataset or its source { Hogan:2012:ESL:2263498.2264570} and flemming
* Indication of permisions, copyrights and attributions specified by the attributor or the author {framework} -> flemming

Comprehensibility

Comprehensibility is identified if the publisher indicates at least one exemplary URI and SPARQL query and a regular expression pattern that matches the URIs of a dataset \cite{Framework2012}. Moreover, comprehensibility is identified if the publisher provides a list of vocabularies used in the dataset and whether there is an active mailing list or message boards \cite{flemming2010}.

\subsection{Security}

Security is a quality attribute that is measured on the dataset level. It is identified if the publishers use login credentials, SSL or SSH to provide access to their dataset, or if they only grant access to specific users \cite{Framework2012}.