

Methodology:	To identify the redundant definitions, we first look at the specific definitions of ids classes and properties that refer to the external classes and properties. Based on the local definition and the added fields (as described in the "Notes" column), we evaluate the local definition as " <i>pr</i> ": <i>probably redundant</i> , " <i>r</i> " <i>redundant</i> , and " <i>nr</i> ": <i>non-redundant</i> . Then, we make the decision to keep the local definition unchanged, or to remove that local definition and directly target the external properties and classes using the corresponding prefix (the specifications can be seen on the "Decisions" column. In addition, we implemented the changes, based on the "Decisions" column and indicate the changes under the column "Implemented?" All changes are included in the "refactorIDSMModel-enhancement" branch of our repository.						
File	IDS class/property name	Relation	External class/property name	Evaluation*	Notes	Decisions	Implemented?
Participant.ttl	ids:Agent	rdfs:subClassOf	odrl:Party	pr	It is not clear why ids:Agent needs to be defined as subclass of two external classes. Based on the information on the ODRL vocabulary, foaf:Agent needs to be used but to describe further details of the party.	Remove ids:Agent Replace it by foaf:Agent	Yes Modified files in Model: Message.ttl, Resource.ttl, Connector.ttl, Participant.ttl. Added @prefix foaf: <http://xmlns.com/foaf/0.1/> . in files, and replace ids:Agent by foaf:Agent In Participant.ttl the definition of ids:Agent is removed.
	ids:Agent	rdfs:subClassOf	foaf:Agent	pr	Additionally to odrl:Party and foaf:Agent, it is defined as a subclass of ids:Described. And adds only label and comment. It is used in Participant.ttl to define ids:Participant, and to define range for ids:publisher, ids:sovereign in Resource.ttl, ids:senderAgent and ids:recipientAgent in Message.ttl, ids:hasAgent in Connector.ttl		
	ids:Participant	rdfs:subClassOf	org:Organization	pr	Additionally to org:Organization, it is also a subclass of ids:Agent, ids:ManagedEntity. And adds label and comment. It is used to define domain for ids:legalName, ids:primarySite, ids:corporateEmailAddress, ids:corporateHomepage, ids:memberParticipant, ids:participantCertification, ids:participantRefinement, ids:businessIdentifier, ids:vatID, ids:legalForm, ids:jurisdiction, ids:memberPerson in Participant.ttl It is use to define range for ids:memberParticipant in Participant.ttl, for ids:user in UsageControlObject.ttl, for ids:assignee and ids:assigner in Rule.ttl, for ids:provider and ids:consumer in Contract.ttl, for ids:maintainer and ids:curator in InfrastructureComponent.ttl, and for ids:member in Catalog.ttl, ids:affectedParticipant, ids:requestedParticipant in Message.ttl Additionally it is used in RuleShape.ttl, UsageControlObjectShape.ttl, ParticipantShape.ttl, ActivityShape, CatalogShape.ttl to define validations	Keep it and extend from foaf:Agent	Yes Added extension from odrl:Party in Participant.ttl Commit ID: 466fec1

	ids:Person	rdfs:subClassOf	foaf:Person	r	<p>It is only defined as a subclass of foaf:Person, and only adds label and comment to it.</p> <p>It is used to define range of ids:memberPerson. And to define domain of ids:familyName, ids:givenName, ids:phoneNumber, ids:emailAddress, and ids:homepage in Participant.ttl</p> <p>It is used in ParticipantShape.ttl to define validations</p>	Discuss more but for now remove ids:Person and replace it by foaf:Person	<p>Yes</p> <p>Modified files in Model: Participant.ttl where ids:Person is removed, and replaced by foaf:Person In Testing: ParticipantShape.ttl where ids:Person is replaced by foaf:Person</p> <p>Commit ID: 7815a93</p>
	ids:Site	rdfs:subClassOf	org:Site	r	<p>It is only used in Participant.ttl where just label and comment are added, and it is used to define the range of ids:primarySite</p>	Remove, use only org:Site	<p>Yes</p> <p>Modified files in Model: Participant.ttl where ids:Site is removed, and replaced by org:Site. In Testing: ParticipantShape.ttl where ids:Site is replaced by org:Site In Examples: PARTICIPANT_1.ttl, PARTICIPANT_2.ttl, PARTICIPANT_3.ttl, PARTICIPANT_1.jsonld where ids:Site is replaced by org:Site</p> <p>Commit ID: 556d9cf and b502c1f</p>
Concept.ttl	ids:Concept	rdfs:subClassOf	skos:Concept	r	<p>It includes idsm:abstract, besides defining label, comment, and seeAlso. It is used in defining the range for ids:theme in DigitalContent.ttl</p>	Remove, instead use skos:Concept in SHACL	<p>Yes</p> <p>Deleted file Concept.ttl as its content was only the definition of ids:Concept</p> <p>Modified files in Model: DigitalContent.ttl where ids:Concept is replaced by skos:Concept, and Described.ttl where commented definition is removed. In Testing: ConceptShape.ttl, DigitalContentShape.ttl where ids:Concept is replaced by skos:Concept</p> <p>Commit ID: fb6e93d</p>
ContentType.ttl	ids:ContentType	rdfs:subClassOf	dct:DCMIType	r	<p>It is used to define the range of ids:contentType in DigitalContent.ttl It only adds idsm:usage, besides label and comment</p>	Remove, instead use dct:DCMIType in SHACL	<p>Yes</p> <p>Deleted file ContentType.ttl in Model, as its content was only the definition of ids:ContentType</p> <p>Modified files in Model: DigitalContent.ttl where ids:ContentType is replaced by dct:DCMIType. In Testing: DigitalContentShape.ttl where ids:ContentType is replaced by dct:DCMIType. Same change in Codes: ContentType.ttl</p> <p>Commit ID: 990b24a</p>

MediaType.ttl	ids:MediaType	rdfs:subClassOf	dct:MediaType	r	<p>It only adds idsm:abstract and idsm:usage, besides label and comment.</p> <p>It is used in MediaType.ttl to define ids: CustomMediaType, ids:IANAMediaType, and domain of ids:filenameExtension.</p> <p>It is used in Representation.ttl to define ids: mediaType and its range.</p> <p>It is used in Endpoint.ttl to define the range of ids: appEndpointMediaType</p>	Remove, instead use dct: MediaType in SHACL	<p>Yes</p> <p>Modified files in Model: MediaType.ttl where ids: MediaType is removed and replaced by dct: MediaType, EndPoint.ttl and Representation.ttl where ids:MediaType is replaced by dct: MediaType.</p> <p>In Testing: EndPonintShape.ttl, MediaTypeShape.ttl, and RepresentationShape.ttl where also ids: MediaType is replaced by dct:MediaType</p> <p>Commit ID: 47100f6 and 9c1b2f2 (after merge 93055ca)</p>
Representation.ttl	ids:Representation	rdfs:subClassOf	dcat:Distribution	r	<p>It only adds idsm:validation for ids:instance, besides label and comment.</p> <p>In DigitalContent.ttl it is used for validation of ids: DigitalContent, to define de range of ids: representation, ids:defaultRepresentation, the domain of ids:language, ids:created, ids:modified</p> <p>In Representation.ttl it is used to define the domain of ids:instance, ids:mediaType, ids: representationStandard</p>	Remove, instead use dcat:Distribution in SHACL	<p>Yes</p> <p>Modified files in Model: Representation.ttl where ids:Representation is removed and replaced by dcat:Distribution, AppRoute.ttl, Asset.ttl, DigitalContent.ttl, and Representation.ttl where ids:Representation is replaced by dcat: Distribution.</p> <p>In Testing: DigitalContentShape.ttl, and RepresentationShape.ttl where also ids: Representation is replaced by dcat:Distribution.</p> <p>Also the ontology serialization files, and crossreference files are modified in documentation, as well as the examples to include same changes as mentioned before.</p> <p>Commit ID: 0c597cb</p>
Asset.ttl	ids:Asset	rdfs:subClassOf	odrl:Asset	r	<p>It only adds idsm:abstract, besides label and comment.</p> <p>It is used in Resource.ttl to define ids:Resourcet</p> <p>In Asset.ttl is used to define ids:AssetCollection</p> <p>In Rule.ttl it is used to define the range of ids: target</p>	Remove, instead use odrl:Asset in SHACL	<p>Yes</p> <p>Modified files in Model: Asset.ttl where ids:Asset is removed and replaced by odrl:Asset, Artifact.ttl, Resource.ttl, Rule.ttl where ids:Asset is replaced by odrl:Asset.</p> <p>In Testing: AssetShape.ttl, and RuleShape.ttl where also ids:Asset is replaced by odrl:Asset.</p> <p>Also the ontology serialization files, and crossreference files are modified in documentation, as well as the json file in webvowl to include same changes as mentioned before.</p> <p>Commit ID: 18da06f</p>

Asset.ttl	ids:AssetCollection	rdfs:subClassOf	odrl:AssetCollection	r	It only adds label and comment. In Asset.ttl it is used to define the domain of ids: assetSource, ids:assetRefinement	Remove, instead use odrl:AssetCollection in SHACL	Yes Modified files in Model: Asset.ttl where ids: AssetCollection is removed and replaced by odrl: AssetCollection, and Rule.ttl where ids: AssetCollection is replaced by odrl: AssetCollection. In Testing: AssetShape.ttl where also ids: AssetCollection is replaced by odrl: AssetCollection. Also some examples files were modified to include same changes as mentioned before. Commit ID: 8e50357
DigitalContent.ttl	ids:DigitalContent	rdfs:subClassOf	dcat:Dataset	nr	Additionally to dcat:Dataset, it is defined as a subclass of ids:Described. Label, comment, and seeAlso are defined. In Resource.ttl it is used to define ids:Resource In DigitalContent.ttl it is used to define domain of ids:contentType, ids:contentPart, ids:representation, ids:defaultRepresentation, ids:language, ids:theme, ids:keyword, ids:temporalCoverage, ids:temporalResolution, ids:spatialCoverage, ids:accrualPeriodicity, ids:contentStandard, ids:created, ids:modified. It is also used to define range of ids:contentPart It is used to define validations in ParameterShape.ttl, DigitalContentShape.ttl		No No changes needed
License.ttl	ids:License	rdfs:subClassOf	dct:License	r	Only label and comment are added in the definition.	Remove, instead use dct:License in SHACL	Yes Deleted file License.ttl because it only contains definition of ids:License. Change in TEXT_RESOURCE.jsonld where we replace ids: License by dct:License, and add the context for dct. Commit ID: 9450513
	ids:Location	rdfs:subClassOf	dct:Location	pr	It is defined as subclass of dct:Location and wgs84:SpatialThing. It is not clear to me why we need to use both external classes. Couldn't we just use wgs84:SpatialThing? It only adds label and comment. It is used to define ids:GeoPoint, ids:GeoFeature, ids:Geometry in SpatialEntity.ttl.	Keep it (as discussed with Haydar and	No

SpatialEntity.ttl			wgs84:SpatialThing		<p>It is used to define range of ids:spatialCoverage in DigitalContent.ttl, and ids:physicalLocation in InfrastructureComponent.ttl</p> <p>It is used for validations in DigitalContentShape.ttl, SpatialEntityShape.ttl, ComponentShape.ttl, InfrastructureComponentShape.ttl</p>	Johannes)	No changes needed
	ids:GeoFeature	rdfs:subClassOf	gn:Feature	pr	<p>Additionally to gn:Feature, it is defined as a subclass of ids:Location. It only adds label and comment</p>	Keep it	<p>No</p> <p>No changes needed</p>
	ids:Geometry	rdfs:subClassOf	locln:Geometry	pr	<p>Additionally to locln:Geometry, it is also defined as a subclass of ids:Location. It only adds label and comment in the definition.</p> <p>It is used to define ids:BoundingPolygon</p> <p>It is used for validations in SpatialEntityShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>
TemporalEntity.ttl	ids:TemporalEntity	rdfs:subClassOf	time:TemporalEntity	r	<p>It only adds label and comment to the definition.</p> <p>It is used to define ids:Instant, ids:Interval, ids:DurationEntity in TemporalEntity.ttl</p> <p>It is used to define domain of ids:hasDuration in TemporalEntityShape.ttl</p> <p>It is used to define range of ids:temporalCoverage in DigitalContent.ttl</p> <p>It is used for validations in DigitalContentShape.ttl, TemporalEntityShape.ttl</p>	Remove, instead use time:TemporalEntity in SHACL	<p>Yes</p> <p>Modified file in Model: TemporalEntity.ttl where ids:TemporalEntity is removed and replaced by time:TemporalEntity</p> <p>In Testing: TemporalEntitytShape.ttl, DigitalContentShape.ttl, UsageControlObjectShape.ttl where also ids:TemporalEntity is replaced by time:TemporalEntity</p> <p>In docs and codes: various files are modified to replace ids:TemporalEntity by time:TemporalEntity in the comments and notes</p> <p>Commit ID: cd157ef</p>
	ids:Instant	rdfs:subClassOf	time:Instant	pr	<p>Additionally to time:Instant, it is defined as a subclass of ids:TemporalEntity. It only adds label and comment.</p> <p>It is used to define domain of ids:dateTime in TemporalEntity.ttl</p> <p>It is used to define range of ids:begin, ids:end in TemporalEntity.ttl</p> <p>It is used for validations in TemporalEntityShape.ttl</p>	Remove, instead use time:Instant in SHACL	<p>Yes</p> <p>Modified file in Model: TemporalEntity.ttl where ids:Instant is removed and replaced by time:Instant.</p> <p>In Testing: TemporalEntitytShape.ttl where also ids:Instant is replaced by time:Instant</p> <p>In examples: various files are modified to replace ids:Instant by time:Instant</p> <p>In docs and codes: various files are modified to replace ids:Instant by time:Instant in the comments and notes</p> <p>Commit ID: 0493add and 4b03140</p>

	ids:Interval	rdfs:subClassOf	time:Interval	pr	Additionally to time:Interval and dct:PeriodOfTime, it is defined as a subclass of ids:TemporalEntity. It only adds label and comment to the definition.	Remove, instead use time:Interval in SHACL	Yes Modified file in Model: TemporalEntity.ttl where ids:Interval is removed and replaced by time:Interval. In Testing: TemporalEntitytShape.ttl where also ids:Interval is replaced by time:Interval In examples: various files are modified to replace ids:Interval by time:Interval In docs and codes: various files are modified to replace ids:Interval by time:Interval in the comments and notes Commit ID: 948140e
	ids:Interval	rdfs:subClassOf	dct:PeriodOfTime		It is used to define domain of ids:begin, ids:end It is used for validations in TemporalEntityShape.ttl		
Event.ttl	ids:Event	rdfs:subClassOf	schema:Event	r	It only adds label, comment and seeAlso to the definition.	Remove, instead use schema:Event in SHACL	Yes Removed file Event.ttl from model/context as it only contains definition of ids:Event No further changes, as ids:Event was not in use Commit ID: abf0554
Constraint.ttl	ids:Constraint	rdfs:subClassOf	odrl:Constraint	r	It only adds label and comment to the definition	Remove, instead use odrl:Constraint in SHACL	Yes Modified file in Model: Constraint.ttl where ids:Constraint is removed and replaced by odrl:Constraint, and Action.ttl where ids:Constraint is replaced by odrl:Constraint. In Testing: AssetShape.ttl, ActionShape.ttl, ConstraintShape.ttl, RuleShape.ttl, ParticipantShape.ttl where also ids:Constraint is replaced by odrl:Constraint In examples: various files are modified to replace ids:Constraint by odrl:Constraint In docs: various files are modified to replace ids:Constraint by odrl:Constraint in the comments Commit ID: 3aed178
	ids:AbstractConstrai	rdfs:subClassOf	odrl:Constraint	r	It only adds label and comment to the definition. It is used to define ids:Constraint and ids:LogicalConstraint in Constraint.ttl It is used to define range of ids:participantRefinement in Participant.ttl, ids:constraint and ids:assetRefinement in Rule.ttl It is used for validations in ConstraintShape.ttl, RuleShape.ttl, AssetShape.ttl, ParticipantShape.ttl	Remove, instead use odrl:Constraint in SHACL	Yes Modified file in Model: Constraint.ttl where ids:AbstractConstraint is removed and replaced by odrl:Constraint. In Rule.ttl and Participant.ttl ids:AbstractConstraint is replaced by odrl:Constraint. In Asset.ttl commented code is removed. In Testing: AssetShape.ttl, ConstraintShape.ttl, RuleShape.ttl, ParticipantShape.ttl where also ids:AbstractConstraint is replaced by odrl:Constraint In examples: AssetTemplateShape where ids:AbstractConstraint is replaced by odrl:Constraint Commit ID: cefdaee

	ids:LogicalConstraint	rdfs:subClassOf	odrl:LogicalConstraint	pr	<p>Additionally to odrl:LogicalConstraint, it is defined as a subclass of ids:AbstractConstraint. It only adds label and comment to the definition.</p> <p>It is used to define domain of ids:and, ids:or, ids:xone</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:LogicalConstraint in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:LogicalConstraint is removed and replaced by odrl:LogicalConstraint.</p> <p>In Testing: AssetShape.ttl, ConstraintShape.ttl, RuleShape.ttl, ParticipantShape.ttl where also ids:LogicalConstraint is replaced by odrl:LogicalConstraint</p> <p>In examples and docs also ids:LogicalConstraint is replaced by odrl:LogicalConstraint</p> <p>Commit ID: 9ba0c3f</p>
LeftOperand.ttl	ids:LeftOperand	rdfs:subClassOf	odrl:LeftOperand	r	<p>It only adds label and comment to the definition</p> <p>It is used to define domain of ids:broader in LeftOperand.ttl</p> <p>It is used to define the range of ids:leftOperand in Constraint.ttl, ids:broader in LeftOperand.ttl</p> <p>It is used to define validations in ConstraintShape.ttl, LeftOperandShape.ttl</p>	Remove, instead use odrl:LeftOperand in SHACL	<p>Yes</p> <p>Modified file in Model: LeftOperand.ttl and Constraint.ttl where ids:LeftOperand is removed and replaced by odrl:LeftOperand.</p> <p>In Testing: LeftOperandShape.ttl, and ConstraintShape.ttl where also ids:LeftOperand is replaced by odrl:LeftOperand</p> <p>In examples: TEXT_RESOURCE.jsonld and codes: LeftOperand.ttl also ids:LeftOperand is replaced by odrl:LeftOperand</p> <p>Commit ID: b630500</p>
Rule.ttl	ids:Rule	rdfs:subClassOf	odrl:Rule	pr	<p>Additionally to odrl:Rule it is defined as a subclass of ids:Described. It only adds label and comment to the definition.</p> <p>It is used to define ids:Permission, ids:Prohibition, ids:Duty</p> <p>It is used to define domain of ids:action, ids:assignee, ids:assigner, ids:target, ids:constraint, ids:assetRefinement in Rule.ttl</p> <p>It is used to define validations in RuleShape.ttl</p>	Remove, instead use odrl:Rule in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:Rule is removed and replaced by odrl:Rule, and UsageControlObject.ttl where ids:Rule is replaced by odrl:Rule.</p> <p>In Testing: RuleShape.ttl where also ids:Rule is replaced by odrl:LeftOperand</p> <p>In docs: ids:Rule is removed and replaced by odrl:Rule</p> <p>Commit ID: 52ddd57</p>
	ids:Permission	rdfs:subClassOf	odrl:Permission	r	<p>Additionally to odrl:Permission, it is defined as a subclass of ids:Rule. It only adds label and comment.</p> <p>It is used to define domain of ids:preDuty, ids:postDuty in Rule.ttl</p> <p>It is used to define range of ids:permission in Contract.ttl</p> <p>It is used to define validations in ContractShape.ttl, RuleShape.ttl</p>	Remove, instead use odrl:Permission in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:Permission is removed and replaced by odrl:Permission, and Contract.ttl where ids:Permission is replaced by odrl:Permission.</p> <p>In Testing: RuleShape.ttl and ContractShape.ttl where also ids:Permission is replaced by odrl:Permission</p> <p>In examples various files are modified to replace ids:Permission by odrl:Permission</p> <p>Commit ID: de7c5d2</p>

	ids:Prohibition	rdfs:subClassOf	odrl:Prohibition	r	<p>Additionally to odrl:Prohibition, it is defined as a subclass of ids:Rule. It only adds label and comment.</p> <p>It is used to define range of ids:prohibition in Contract.ttl</p> <p>It is used to define validations in ContractShape.ttl</p>	Remove, instead use odrl:Prohibition in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:Prohibition is removed and replaced by odrl:Prohibition, and Contract.ttl where ids:Prohibition is replaced by odrl:Prohibition.</p> <p>In Testing: ContractShape.ttl where also ids:Prohibition is replaced by odrl:Prohibition</p> <p>Commit ID: 570f39a</p>
	ids:Duty	rdfs:subClassOf	odrl:Duty	r	<p>Additionally to odrl:Duty, it is defined as a subclass of ids:Rule. It only adds label and comment.</p> <p>It is used to define range of ids:preDuty, ids:postDuty in Rule.ttl, ids:obligation in Contract.ttl</p> <p>It is used to define validations in ContractShape.ttl, RuleShape.ttl</p>	Remove, instead use odrl:Duty in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:Duty is removed and replaced by odrl:Duty, and Contract.ttl where ids:Duty is replaced by odrl:Duty.</p> <p>In Testing: RuleShape.ttl and ContractShape.ttl where also ids:Duty is replaced by odrl:Duty</p> <p>In examples various files are modified to replace ids:Duty by odrl:Duty</p> <p>Commit ID: c288d66</p>
BinaryOperator.ttl	ids:BinaryOperator	rdfs:subClassOf	odrl:Operator	pr	<p>It only adds label and comment to the definition.</p> <p>It is used to define idsc:EQUALS, idsc:SAME_AS and others in codes/ BinaryOperators.ttl</p> <p>It is used to define range of ids:operator in Constraint.ttl</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>
	ids:Contract	rdfs:subClassOf	odrl:Policy	nr	<p>It only adds label and comment to the definition.</p> <p>It is used to define ids:ContractAgreement, ids:ContractRequest, ids:ContractOffer</p> <p>It is used to define domain of ids:contractStart, ids:contractEnd, ids:contractDate, ids:provider, ids:consumer, ids:contractDocument, ids:contractAnnex, ids:permission, ids:prohibition, ids:obligation in Contract.ttl</p> <p>It is used to define range of ids:transferContract in Message.ttl</p> <p>It is used to define validations in ContractShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>

Contract.ttl	ids:ContractAgreement	rdfs:subClassOf	odrl:Agreement	nr	<p>Additionally to odrl:Agreement, it is defined as a subclass of ids:Contract. Label and comment are defined, and also owl:disjointWith ids:ContractRequest, ids:ContractOffer.</p> <p>It is used to define disjointness of ids:ContractRequest, ids:ContractOffer in Contract.ttl</p> <p>It is used in taxonomies, in file Contract.ttl to define ids:SalesAgreement, ids:PurposeAgreement, ids:SecurityAgreement, ids:NotMoreThanNAgreement, and others.</p> <p>It is used to define range of ids:contract in UsageControlObject.ttl</p> <p>It is used to define validations in ContractShape.ttl, UsageControlShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>
	ids:ContractRequest	rdfs:subClassOf	odrl:Request	nr	<p>Additionally to odrl:Request, it is defined as a subclass of ids:Contract. Label, comment, and owl:disjointWith ids:ContractAgreement, ids:ContractOffer are defined.</p> <p>It is used to define disjointness of ids:ContractAgreement, ids:ContractOffer in Contract.ttl</p> <p>It is used in taxonomies in file Contract.ttl to define ids:SalesRequest, ids:PurposeRequest, ids:SecurityRequest, and others.</p>	Keep it	<p>No</p> <p>No changes needed</p>
	ids:ContractOffer	rdfs:subClassOf	odrl:Offer	nr	<p>Additionally to odrl:Offer, it is defined as a subclass of ids:Contract. Label, comment and owl:disjointWith ids:ContractAgreement, ids:ContractRequest are defined.</p> <p>It is used to define disjointness of ids:ContractAgreement, ids:ContractRequest in Contract.ttl</p> <p>It is used to define range of ids:contractOffer in Resource.ttl</p> <p>it is used in taxonomies, in file Contract.ttl to define ids:SalesOffer, ids:PurposeOffer, and others.</p> <p>It is used to define validations in ResourceShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>

Action.ttl	ids:Action	rdfs:subClassOf	odrl:Action	r	<p>It only adds label and comment to the definition.</p> <p>It is used to define domain of ids: actionRefinement, ids:includedIn in Action.ttl</p> <p>It is used to define range of ids:action in Rule.ttl, ids:includedIn in Action.ttl</p> <p>It is used in codes, in file Action.ttl to define idsc: ANONYMIZE, idsc: AGGREGATE_BY_CONSUMER and others.</p> <p>It is used to define validations in ActionShape.ttl, RuleShape.ttl, UsageControlObject.ttl</p>	Remove, instead use odrl:Action in SHACL	<p>Yes</p> <p>Modified file in Model: Action.ttl where ids:Action is removed and replaced by odrl:Action, and Rule.ttl where ids:Action is replaced by odrl:Action. In Testing: RuleShape.ttl, ActionShape, and UsageControlObjectShape.ttl where also ids: Action is replaced by odrl:Action</p> <p>In examples, codes, and docs various files are modified to replace ids:Action by odrl:Action</p> <p>Commit ID: 63a9d7f</p>
Catalog.ttl	ids:Catalog	rdfs:subClassOf	dcat:Catalog	r	<p>It only adds label and comment in the definition.</p> <p>It is used to define ids:ResourceCatalog, ids: ParticipantCatalog, ids:ConnectorCatalog, ids: AppResourceCatalog, ids:ClearingHouseCatalog in Catalog.ttl</p> <p>It is used to define validations in CatalogShape.ttl</p>	Remove, instead use dcat:Catalog in SHACL	<p>Yes</p> <p>Modified file in Model: Catalog.ttl where ids: Catalog is removed and replaced by dcat:Catalog. In Testing: CatalogShape.ttl, where also ids: Catalog is replaced by dcat:Catalog</p> <p>In examples, and version mapping various files are modified to replace ids:Catalog by dcat: Catalog</p> <p>Commit ID: 7d36724 and 91970d7</p>
Described.ttl	ids:title	rdfs:subPropertyOf	dct:title	r	<p>It adds label, comment, domain (ids:Described), and range (xsd:string). There is a comment: "how does it relate to "name", is "title" a functional property?"... Maybe we can just use ids:name</p> <p>It is used to define validations in DescribedShape.ttl</p>	Remove, instead use dct: title in SHACL	<p>Yes</p> <p>Modified file in Model: Described.ttl where ids:title is removed and replaced by dct:title. In Testing: DescribedShape.ttl, where also ids:title is replaced by dct:title</p> <p>In examples, and version mapping various files are modified to replace ids:title by dct:title</p> <p>Commit ID: 8450bea and e70e4fe</p>
	ids:description	rdfs:subPropertyOf	dct:description	r	<p>It adds label, comment, domain (ids:Described), and range (xsd:string).</p> <p>It is used to define validations in DescribedShape.ttl</p>	Remove, instead use dct: description in SHACL	<p>Yes</p> <p>Modified file in Model: Described.ttl where ids: description is removed and replaced by dct: description. In Testing: DescribedShape.ttl, where also ids: description is replaced by dct:description</p> <p>In examples, and version mapping various files are modified to replace ids:description by dct: description</p> <p>Commit ID: cf105d7</p>

DescribedSemantically	ids:shapesGraph	rdfs:subProperty	sh:shapesGraph	r	<p>It adds label, comment, domain (ids:DescribedSemantically), and range(xsd:anyURI)</p> <p>It is used to define validations in DescribedSemanticallyShape.ttl</p>	Remove, instead use sh:shapesGraph in SHACL	<p>Yes</p> <p>Modified file in Model: DescribedSemantically.ttl where ids:shapesGraph is removed and replaced by sh:shapesGraph. In Testing: DescribedSemanticallyShape.ttl, where also ids:shapesGraph is replaced by sh:shapesGraph In examples, files are modified to replace ids:shapesGraph by sh:shapesGraph</p> <p>Commit ID: e7c3300 and cd3bcdd</p>
	ids:primarySite	rdfs:subProperty	org:hasPrimarySite	r	<p>It adds label, comment, domain (ids:Participant), and range (ids:Site)</p> <p>It is used to define validations in ParticipantShape.ttl</p>	Remove, as we are going to use org:hasPrimarySite instead of ids:Site	<p>Yes</p> <p>Modified file in Model: Participant.ttl where ids:primarySite is removed. In Testing: ParticipantShape.ttl, where ids:primarySite is replaced by org:hasPrimarySite In examples, files are modified to replace ids:primarySite by org:hasPrimarySite</p> <p>Commit ID: 6dcb926</p>
	ids:corporateEmailAddress	rdfs:subProperty	foaf:mbox	r	<p>It adds label, comment, domain (ids:Participant), and range (xsd:string)</p> <p>It is used to define validations in ParticipantShape.ttl</p>	Remove, instead use foaf:mbox in SHACL	<p>Yes</p> <p>Modified file in Model: Participant.ttl where ids:corporateEmailAddress is removed. In Testing: ParticipantShape.ttl, where ids:corporateEmailAddress is replaced by foaf:mbox In examples, files are modified to replace ids:corporateEmailAddress by foaf:mbox</p> <p>Commit ID: fdd9ead</p>
	ids:corporateHomepage	rdfs:subProperty	foaf:homepage	r	<p>It adds label, comment, domain (ids:Participant), and range (xsd:anyURI)</p> <p>It is used to define validations in ParticipantShape.ttl</p>	Remove, instead use foaf:homepage in SHACL	<p>Yes</p> <p>Modified file in Model: Participant.ttl where ids:corporateHomepage is removed. In Testing: ParticipantShape.ttl, where ids:corporateHomepage is replaced by foaf:homepage In examples, files are modified to replace ids:corporateHomepage by foaf:homepage</p> <p>Commit ID: 9517276</p>
	ids:memberParticipant	rdfs:subProperty	org:hasMember	pr	<p>It adds label, comment, domain (ids:Participant), and range (ids:Participant)</p> <p>It is used to define validations in ParticipantShape.ttl</p>	Keep it. Eventhough is not in use at the moment, could be relevant to differenciate between participant in general and a person who is a participant	<p>No</p> <p>No changes needed</p>

Participant.ttl	ids:memberPerson	rdfs:subProperty	org:hasMember	pr	It adds label, comment, domain (ids:Participant), and range (ids:Person) It is used to define validations in ParticipantShape.ttl	Keep it. Eventhough is not in use at the moment, could be relevant to differenciate between participant in general and a person who is a participant	No No changes needed
	ids:familyName	rdfs:subProperty	foaf:familyName	r	It adds label, comment, domain (ids:Person), and range (xsd:string) It is used to define validations in ParticipantShape.ttl	Remove, instead use foaf:familyName in SHACL	Yes Modified file in Model: Participant.ttl where ids:familyName is removed. In Testing: ParticipantShape.ttl, where ids:familyName is replaced by foaf:familyName Commit ID: 97a83de
	ids:givenName	rdfs:subProperty	foaf:givenName	r	It adds label, comment, domain (ids:Person), and range (xsd:string) It is used to define validations in ParticipantShape.ttl	Remove, instead use foaf:givenName in SHACL	Yes Modified file in Model: Participant.ttl where ids:givenName is removed. In Testing: ParticipantShape.ttl, where ids:givenName is replaced by foaf:givenName Commit ID: ad08532
	ids:phoneNumber	rdfs:subProperty	foaf:phone	r	It adds label, comment, domain (ids:Person), and range (xsd:string) It is used to define validations in ParticipantShape.ttl	Remove, instead use foaf:phone in SHACL	Yes Modified file in Model: Participant.ttl where ids:phoneNumber is removed. In Testing: ParticipantShape.ttl, where ids:phoneNumber is replaced by foaf:phone Commit ID: b81fdd6
	ids:emailAddress	rdfs:subProperty	foaf:mbox	r	It adds label, comment, domain (ids:Person), and range (xsd:string) It is used to define validations in ParticipantShape.ttl	Remove, instead use foaf:mbox in SHACL	Yes Modified file in Model: Participant.ttl where ids:emailAddress is removed. In Testing: ParticipantShape.ttl, where ids:emailAddress is replaced by foaf:mbox Commit ID: 16cc6da
	ids:homepage	rdfs:subProperty	foaf:homepage	r	It adds label, comment, domain (ids:Person), and range (xsd:string) It is used to define validations in ParticipantShape.ttl	Remove, instead use foaf:homepage in SHACL	Yes Modified file in Model: Participant.ttl where ids:homepage is removed. In Testing: ParticipantShape.ttl, where ids:homepage is replaced by foaf:homepage Commit ID: 6458710
BusinessIdentifier.t	ids:identifierNumber	rdfs:subProperty	dct:identifier	pr	It adds label, comment, domain (ids:BusinessIdentifier), and range (xsd:string) It is used to define validations in BusinessIdentifierShape.ttl	Remove, instead use dct:identifier in SHACL	Yes Modified file in Model: BusinessIdentifier.ttl where ids:identifierNumber is removed. In Testing: BusinessIdentifierShape.ttl, where ids:identifierNumber is replaced by dct:identifier Commit ID: 681d430

Resource.ttl	ids:publisher	rdfs:subProperty	dct:publisher	pr	<p>It adds label, comment, domain (ids:Resource), and range (ids:Agent)</p> <p>It is used to define validations in ResourceShape.ttl</p>	Remove, instead use dct:publisher in SHACL	<p>Yes</p> <p>Modified file in Model: Resource.ttl where ids:publisher is removed. In Testing:ResourceShape.ttl, where ids:publisher is replaced by dct:publisher. In Examples: TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl and 1_LIFE_EXPECTANCY_RESOURCE.ttl are modified to replace ids:publisher is replaced by dct:publisher.</p> <p>Commit ID: 345b51f</p>
Representation.ttl	ids:mediaType	rdfs:subProperty	dcat:mediaType	pr	<p>It adds label, comment, domain (ids:Representation), and range (ids:MediaType)</p> <p>It is used to define validations in RepresentationShape.ttl</p>	Remove, instead use dcat:mediaType in SHACL	<p>Yes</p> <p>Modified file in Model: Representation.ttl where ids:mediaType is removed. In Testing:RepresentationShape.ttl, where ids:mediaType is replaced by dcat:mediaType. In Examples: TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl and 1_LIFE_EXPECTANCY_RESOURCE.ttl, DATA1.ttl, DATA2.ttl, APP_RESOURCE.ttl and APP_RESOURCE_old.jsonld are modified to replace ids:mediaType is replaced by dcat:mediaType.</p> <p>Commit ID: 09b192d and ee3157b</p>
	ids:representationShape	rdfs:subProperty	dct:conformsTo	pr	<p>It adds label, comment, domain (ids:Representation), and range (xsd:anyURI)</p> <p>It is used to define validations in RepresentationShape.ttl</p>	Keep it as it is more specific than dct:conformsTo	<p>No</p> <p>No changes needed</p>
Asset.ttl	ids:assetSource	rdfs:subProperty	odrl:source	pr	<p>It adds label, comment, domain (ids:AssetCollection), and range (xsd:anyURI)</p> <p>It is used to define validations in AssetShape.ttl</p>	Keep it as it is more specific than odrl:source	<p>No</p> <p>No changes needed</p>
	ids:byteSize	rdfs:subProperty	dcat:byteSize	pr	<p>It adds label, comment, domain (ids:Artifact), and range (xsd:integer)</p> <p>It is used to define validations in ArtifactShape.ttl</p>	Keep it for now, unless there is another decision based on conversation with other group	<p>No</p> <p>No changes needed</p>

Artifact.ttl	ids:creationDate	rdfs:subPropertyOf	dct:created	r	<p>It adds label, comment, domain (ids:Artifact), and range (xsd:dateTimeStamp)</p> <p>It is used to define validations in ArtifactShape.ttl</p>	Remove, instead use dct:created in SHACL	<p>Yes</p> <p>Modified file in Model: Artifact.ttl where ids:creationDate is removed.</p> <p>In Testing:ArtifactShape.ttl, where ids:creationDate is replaced by dct:created.</p> <p>In Examples: TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl and 1_LIFE_EXPECTANCY_RESOURCE.ttl, DATA1.ttl, DATA2.ttl, APP_RESOURCE.ttl are modified to replaceids:creationDate is replaced by dct:created.</p> <p>In version mapping: UpgradeShapes-3.0.0-to-3.1.0.ttl where same change is made.</p> <p>Commit ID: 99d04b7</p>
	ids:contentType	rdfs:subPropertyOf	dct:type	pr	<p>It adds label, comment, domain (ids:DigitalContent), and range (ids:ContentType)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Keep it as it is more specifict than dct:type	<p>No</p> <p>No changes needed</p>
	ids:standardLicense	rdfs:subPropertyOf	dct:licence	pr	<p>It adds label, comment, seeAlso, domain (ids:Resource), and range (xsd:anyURI)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dct:licence in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids:standardLicense is removed.</p> <p>In Testing: DigitalContentShape.ttl where ids:standardLicense is replaced by dct:licence.</p> <p>In Examples: TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl, and conn_self_description.ttl are modified to replace ids:standardLicense by dct:licence</p> <p>Commit ID: 823a639</p>
	ids:customLicense	rdfs:subPropertyOf	dct:licence	r	<p>It adds label, comment, domain (ids:Resource), and range (xsd:anyURI)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dct:licence in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids:customLicense is removed.</p> <p>In Testing: DigitalContentShape.ttl where ids:customLicense is replaced by dct:licence.</p> <p>In Examples: APPSTORE.ttl, APPSTORE.jsonld, APP_RESOURCE_old.jsonld, APP_RESOURCE.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl, 1_LIFE_EXPECTANCY_RESOURCE.ttl, and conn_self_description.ttl are modified to replace ids:customLicense by dct:licence</p> <p>Commit ID: 4b6cb39</p>

ids:language	rdfs:subProperty	dct:language	pr	<p>It adds label, comment, domain (owl:unionOf (ids: DigitalContent ids:Representation ids: AppEndpoint)), and range (ids:Language)</p> <p>It is used to define validations in EndpointShape.ttl, DigitalContentShape.ttl, RepresentationShape.ttl</p>	Remove, instead use dct:language in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids: language is removed. In Testing:EndpointShape.ttl, RepresentationShape.ttl, and DigitalContentShape.ttl where ids:language is replaced by dct:language. In Examples: TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl and 1_LIFE_EXPECTANCY_RESOURCE.ttl, DATA1.ttl are modified to replace ids:language by dct: language.</p> <p>Commit ID: 8e5c01f</p>
ids:theme	rdfs:subProperty	dcat:theme	pr	<p>It adds label, comment, domain (ids: DigitalContent), and range (ids:Concept)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dcat:theme in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids: theme is removed. In Testing:DigitalContentShape.ttl where ids: theme is replaced by dcat:theme.</p> <p>Commit ID: 57b1f15</p>
ids:keyword	rdfs:subProperty	dcat:keyword	pr	<p>It adds label, comment, domain (ids: DigitalContent), and range (xsd:string)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dcat:keyword in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids: keyword is removed. In Testing:DigitalContentShape.ttl where ids: keyword is replaced by dcat:keyword. In Examples: TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl, DATA1.ttl, DATA2.ttl, APP_RESOURCE.ttl, APP_RESOURCE_old.jsonld, APPSTORE.jsonld, APPSTORE.ttl, conn_self_description.ttl are modified to replace ids:keyword by dcat:keyword. In version mapping: UpgradeShapes-3.0.0-to-3.1.0.ttl where ids:keyword is replaced by dcat: keyword.</p> <p>Commit ID: ee6691e and 8d22cad</p>

DigitalContent.ttl						
ids:temporalCoverage	rdfs:subProperty	dct:temporal	pr	<p>It adds label, comment, domain (ids: DigitalContent), and range (ids:TemporalEntity)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dct:temporal in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids:temporalCoverage is removed, and replaced by dct:temporal.</p> <p>In Testing:DigitalContentShape.ttl where ids:temporalCoverage is replaced by dct:temporal.</p> <p>In Examples: DATA1.ttl, DATA2.ttl, TEMP_RESOURCE.ttl, Ob_LIFE_EXPECTANCY_DATA_RDF.ttl, 1_LIFE_EXPECTANCY_RESOURCE.ttl, TEXT_RESOURCE.ttl are modified to replace ids:temporalCoverage by dct:temporal.</p> <p>In docs: various files are modified to replace ids:temporalCoverage by dct:temporal in the comments.</p> <p>Commit ID: ef9f099</p>
ids:temporalResolution	rdfs:subProperty	dcat:temporalResolution	r	<p>It adds label, comment, domain (ids: DigitalContent), and range (ids:Frequency)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dcat:temporalResolution in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids:temporalResolution is removed.</p> <p>In Testing:DigitalContentShape.ttl where ids:temporalResolution is replaced by dcat:temporalResolution</p> <p>Commit ID: 5caa381</p>
ids:spatialCoverage	rdfs:subProperty	dct:spatial	r	<p>It adds label, comment, domain (ids: DigitalContent), and range (ids:Location)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dct:spatial in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids:spatialCoverage is removed.</p> <p>In Testing:DigitalContentShape.ttl where ids:spatialCoverage is replaced by dct:spatial</p> <p>Commit ID: bb46fb7</p>
ids:accrualPeriodicity	rdfs:subProperty	dct:accrualPeriodicity	r	<p>It adds label, comment, domain (ids: DigitalContent), and range (ids:Frequency)</p> <p>It is used to define validations in DigitalContentShape.ttl</p>	Remove, instead use dct:accrualPeriodicity in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids:accrualPeriodicity is removed.</p> <p>In Testing:DigitalContentShape.ttl where ids:accrualPeriodicity is replaced by dct:spatial</p> <p>In Examples: DATA2.ttl commented code related to ids:accrualPeriodicity is removed</p> <p>Commit ID: c461a12</p>
ids:contentStandard	rdfs:subProperty	dct:conformsTo	pr	<p>It adds label, comment, domain (ids: DigitalContent), and range (xsd:anyURI)</p> <p>It is used to define validations in DigitalContentShape.ttl</p> <p>What about ids:representationStandard ?</p>	Keep it as it is more specific than dct:conformsTo	<p>No</p> <p>No changes needed</p>

	ids:created	rdfs:subProperty	dct:issued	pr	<p>It adds label, comment, seeAlso, domain (owl: unionOf (ids:DigitalContent, ids:Representation, ids:UsageControlObject)), and range (xsd: dateTimeStamp)</p> <p>It is used to define validations in DigitalContentShape.ttl, RepresentationShape.ttl, UsageControlObjectShape.ttl</p>	Remove, instead use dct: issued in SHACL... What is the difference between ids:created and ids: creationDate	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids: created is removed.</p> <p>In Testing:RepresentationShape.ttl, UsageControlObjectShape.ttl, DigitalContentShape.ttl where ids:created is replaced by dct:issued</p> <p>Commit ID: f8a365b</p>
	ids:modified	rdfs:subProperty	dct:modified	pr	<p>It adds label, comment, seeAlso, domain (owl: unionOf (ids:DigitalContent ids:Representation ids:UsageControlObject)), and range (xsd: dateTimeStamp)</p> <p>It is used to define validations in DigitalContentShape.ttl, RepresentationShape.ttl, UsageControlObjectShape.ttl</p>	Remove, instead use dct: modified in SHACL	<p>Yes</p> <p>Modified file in Model: DigitalContent.ttl where ids: modified is removed.</p> <p>In Testing:RepresentationShape.ttl, UsageControlObjectShape.ttl, DigitalContentShape.ttl where ids:modified is replaced by dct:modified</p> <p>Commit ID: 6d366e6</p>
Message.ttl	ids:issued	rdfs:subProperty	dct:issued	pr	<p>It adds label, comment, domain (ids:Message), and range (xsd:dateTimeStamp)</p> <p>It is used to define validations in MessageShape.ttl</p>	Remove, instead use dct: issued in SHACL	<p>Yes</p> <p>Modified file in Model: Message.ttl where ids: issued is removed.</p> <p>In Testing: MessageShape.ttl where ids:issued is replaced by dct:issued</p> <p>In Examples: CONNECTOR_UPDATE_MESSAGE.jsonld, CONNECTOR_UPDATE_MESSAGE.ttl, CONTRACT_MESSAGES.ttl, QUERY_MESSAGE.ttl, README.md, RESULT_MESSAGE.ttl where ids:issued is replaced by dct:issued</p> <p>In UpgradeShapes-3.0.0-to-3.1.0.ttl also ids: issued is replaced by dct:issued</p> <p>Commit ID: a300fb7</p>
ManagedEntity.ttl	ids:version	rdfs:subProperty	dct:hasVersion	pr	<p>It adds label, comment, domain (ids: ManagedEntity), and range (xsd:string)</p> <p>It is used to define validations in ManagedEntityShape.ttl</p>	Remove, instead use dct: hasVersion in SHACL	<p>Yes</p> <p>Modified file in Model: ManagedEntity.ttl where ids:version is removed.</p> <p>In Testing: ManagedEntityShape.ttl where ids: version is replaced by dct:hasVersion</p> <p>In Examples: conn_self_description.ttl where ids: version is replaced by dct:hasVersion</p> <p>Commit ID: 0e580bf</p>

Certification.ttl	ids:includedCertifica	rdfs:subProperty	dct:isPartOf	nr	<p>It adds label, comment, seeAlso, domain (ids: CertificationLevel), and range (ids: CertificationLevel)</p> <p>In codes, it is used to define idsc: PARTICIPANT_ENTRY_LEVEL_MANAGEMENT_SYSTEM, idsc: PARTICIPANT_MEMBER_LEVEL_MANAGEMENT_SYSTEM, and others.</p> <p>It is used to define validations in CertificationShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>
SpatialEntity.ttl	ids:latitude	rdfs:subProperty	wgs84:lat	pr	<p>It adds label, comment, domain (ids:GeoPoint), and range (xsd:float)</p> <p>It is used to define validations in SpatialEntityShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>
	ids:longitude	rdfs:subProperty	wgs84:long	pr	<p>It adds label, comment, domain (ids:GeoPoint), and range (xsd:float)</p> <p>It is used to define validations in SpatialEntityShape.ttl</p>	Keep it	<p>No</p> <p>No changes needed</p>
TemporalEntity.ttl	ids:dateTime	rdfs:subProperty	time:inXSDDateTime	pr	<p>It adds label, comment, seeAlso, domain (ids: Instant), and range (xsd:dateTimeStamp)</p> <p>It is used to define validations in TemporalEntityShape.ttl</p>	Remove, instead use time: inXSDDateTimeStamp in SHACL	<p>Yes</p> <p>Modified file in Model: TemporalEntity.ttl where ids:dateTime is removed.</p> <p>In Testing: TemporalEntityShape.ttl where ids: dateTime is replaced by time: inXSDDateTimeStamp</p> <p>In Examples: DATA1.ttl, DATA2.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl, 1_LIFE_EXPECTANCY_RESOURCE.ttl, TEXT_RESOURCE.ttl where ids:dateTime is replaced by time:inXSDDateTimeStamp</p> <p>Commit ID: 679fb29</p>
	ids:begin	rdfs:subProperty	time:hasBeginning	pr	<p>It adds label, comment, domain (ids:Interval), and range (ids:Instant)</p> <p>It is used to define validations in TemporalEntityShape.ttl</p>	Remove, instead use time:hasBeginning in SHACL	<p>Yes</p> <p>Modified file in Model: TemporalEntity.ttl where ids:begin is removed.</p> <p>In Testing: TemporalEntityShape.ttl where ids: begin is replaced by time:hasBeginning</p> <p>In Examples: DATA1.ttl, DATA2.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl, 1_LIFE_EXPECTANCY_RESOURCE.ttl, TEXT_RESOURCE.ttl where ids:begin is replaced by time:hasBeginning</p> <p>Commit ID: 4e9e216</p>

	ids:end	rdfs:subProperty	time:hasEnd	pr	<p>It adds label, comment, domain (ids:Interval), and range (ids:Instant)</p> <p>It is used to define validations in TemporalEntityShape.ttl, EndpointShape.ttl, ProxyShape.ttl, ActivityShape.ttl</p>	Remove, instead use time:hasEnd in SHACL	<p>Yes</p> <p>Modified file in Model: TemporalEntity.ttl where ids:end is removed. In Testing: TemporalEntityShape.ttl where ids:end is replaced by time:hasEnd In Examples: DATA1.ttl, DATA2.ttl, 0b_LIFE_EXPECTANCY_DATA_RDF.ttl, 1_LIFE_EXPECTANCY_RESOURCE.ttl, TEXT_RESOURCE.ttl, TEMP_RESOURCE.ttl where ids:endis replaced by time:hasEnd</p> <p>Commit ID: 980b821</p>
	ids:leftOperand	rdfs:subProperty	odrl:leftOperand	pr	<p>It adds label, comment, domain (ids:Constraint), and range (ids:LeftOperand)</p> <p>In codes, it is used to define constraints for idsc: RequestTemplate in RequestTemplate.ttl</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:leftOperand in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:leftOperand is removed In Testing: ConstraintShape.ttl where ids:leftOperand is replaced by odrl:leftOperand In Examples: many files are modified to replace ids:leftOperand by odrl:leftOperand In codes: RequestTemplate.ttl where ids:leftOperand is replaced by odrl:leftOperand</p> <p>Commit ID: f4fa012</p>
	ids:operator	rdfs:subProperty	odrl:operator	pr	<p>It adds label, comment, domain (ids:Constraint), and range (ids:BinaryOperator)</p> <p>In codes, it is used to define constraints for idsc: RequestTemplate in RequestTemplate.ttl</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:operator in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:operator is removed In Testing: ConstraintShape.ttl where ids:operator is replaced by odrl:operator In Examples: many files are modified to replace ids:operator by odrl:operator In codes: RequestTemplate.ttl where ids:operator is replaced by odrl:operator</p> <p>Commit ID: 2ad08d8</p>
	ids:rightOperand	rdfs:subProperty	odrl:rightOperand	pr	<p>It adds label, comment, domain (ids:Constraint), and range (rdfs:Resource)</p> <p>In codes, it is used to define constraints for idsc: RequestTemplate in RequestTemplate.ttl</p> <p>It is used to define validations in ConstraintShape.ttl</p>		<p>No</p> <p>No changes</p>

Constraint.ttl	ids:rightOperandReference	rdfs:subProperty	odrl:rightOperandReference	pr	<p>It adds label, comment, domain (ids:Constraint), and range (ids:Resource)</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:rightOperandReference in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:rightOperandReference is removed In Testing: ConstraintShape.ttl where ids:rightOperandReference is replaced by odrl:rightOperandReference In Examples and serializations: many files are modified to replace ids:rightOperandReference by odrl:rightOperandReference In codes: RequestTemplate.ttl where ids:operator is replaced by odrl:operator</p> <p>Commit ID: cf1de1a</p>
	ids:unit	rdfs:subProperty	odrl:unit	pr	<p>It adds label, comment, domain (ids:Constraint), and range (xsd:anyURI)</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:unit in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:unit is removed In Testing: ConstraintShape.ttl where ids:unit is replaced by odrl:unit In Examples: many files are modified to replace ids:unit by odrl:unit</p> <p>Commit ID: 913268f</p>
	ids:and	rdfs:subProperty	odrl:and	r	<p>It adds label, comment, domain (ids:LogicalConstraint), and range (ids:Constraint)</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:and in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:or is removed In Testing: ConstraintShape.ttl where ids:or is replaced by odrl:or In Examples and serializations: many files are modified to replace ids:or by odrl:or</p> <p>Commit ID: 2e80228</p>
	ids:or	rdfs:subProperty	odrl:or	r	<p>It adds label, comment, domain (ids:LogicalConstraint), and range (ids:Constraint)</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:or in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:and is removed In Testing: ConstraintShape.ttl where ids:unit is replaced by odrl:and In Examples and serializations: many files are modified to replace ids:and by odrl:and</p> <p>Commit ID: f15e85c</p>
	ids:xone	rdfs:subProperty	odrl:xone	r	<p>It adds label, comment, domain (ids:LogicalConstraint), and range (ids:Constraint)</p> <p>It is used to define validations in ConstraintShape.ttl</p>	Remove, instead use odrl:xone in SHACL	<p>Yes</p> <p>Modified file in Model: Constraint.ttl where ids:xone is removed In Testing: ConstraintShape.ttl where ids:xone is replaced by odrl:xone In Examples: AssetTemplateShape.ttl. In serializations: many files are modified to replace ids:xone by odrl:xone</p> <p>Commit ID: 84aa0e3</p>

Rule.ttl	ids:action	rdfs:subProperty	odrl:action	pr	<p>It adds label, comment, domain (owl:unionOf (ids:Rule ids:UsageControlObject)), and range (ids:Action)</p> <p>It is used in codes, in RequestTemplate.ttl to define idsc:RequestTemplate</p> <p>It is used to define validations in ActionShape.ttl, RuleShape.ttl, UsageControlObjectShape.ttl</p>	Keep it as it is more specific than odrl:action	<p>No</p> <p>No changes needed</p>
	ids:assignee	rdfs:subProperty	odrl:assignee	r	<p>It adds label, comment, domain (ids:Rule), and range (ids:Participant)</p> <p>It is used to define validations in RuleShape.ttl</p>	Remove, instead use odrl:assignee in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:assignee is removed</p> <p>In Testing: RuleShape.ttl where ids:assignee is replaced by odrl:assignee</p> <p>In Examples: many files are modified to replace ids:assignee by odrl:assignee</p> <p>Commit ID: 8527ed1</p>
	ids:assigner	rdfs:subProperty	odrl:assigner	r	<p>It adds label, comment, domain (ids:Rule), and range (ids:Participant)</p> <p>It is used to define validations in RuleShape.ttl</p>	Remove, instead use odrl:assigner in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:assigner is removed</p> <p>In Testing: RuleShape.ttl where ids:assigner is replaced by odrl:assigner</p> <p>In Examples: many files are modified to replace ids:assigner by odrl:assigner</p> <p>Commit ID: d8da9b1</p>
	ids:constraint	rdfs:subProperty	odrl:constraint	pr	<p>It adds label, comment, domain (ids:Rule), and range (ids:AbstractConstraint)</p> <p>It is used in codes, in RequestTemplate.ttl to define idsc:RequestTemplate</p> <p>It is used to define validations in RuleShape.ttl</p>	Remove, instead use odrl:constraint in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:constraint is removed</p> <p>In Testing: RuleShape.ttl where ids:constraint is replaced by odrl:constraint</p> <p>In Examples, serializations, and codes: many files are modified to replace ids:constraint by odrl:constraint</p> <p>Commit ID: 2168253</p>
	ids:assetRefinement	rdfs:subProperty	odrl:refinement	pr	<p>It adds label, comment, domain (owl:unionOf (ids:Rule ids:AssetCollection)), and range (ids:AbstractConstraint)</p> <p>It is used to define validations in RuleShape.ttl, AssetShape.ttl</p>	Remove, instead use odrl:refinement in SHACL	<p>Yes</p> <p>Modified file in Model: Rule.ttl where ids:assetRefinement is removed</p> <p>In Testing: AssetShape and RuleShape.ttl where ids:assetRefinement is replaced by odrl:refinement</p> <p>In Examples: AssetTemplateShape.ttl and ASSET_TEMPLATE.ttl are modified to replace ids:assetRefinement by odrl:refinement</p> <p>Commit ID: ac5c3ee</p>
	ids:preDuty	rdfs:subProperty	odrl:duty	pr	<p>It adds label, comment, domain (ids:Permission), and range (ids:Duty)</p> <p>It is used to define validations in RuleShape.ttl</p>	Keep it as it is more specific than odrl:duty	<p>No</p> <p>No changes needed</p>

	ids:postDuty	rdfs:subProperty	odrl:duty	pr	It adds label, comment, domain (ids:Permission), and range (ids:Duty) It is used to define validations in RuleShape.ttl	Keep it as it is more specific than odrl:duty	No No changes needed
Contract.ttl	ids:permission	rdfs:subProperty	odrl:permission	pr	It adds label, comment, domain (ids:Contract), and range (ids:Permission) It is used in codes, in RequestTemplate.ttl to define idsc:RequestTemplate It is used to define validations in ContractShape.ttl	Remove, instead use odrl:permission in SHACL	Yes Modified file in Model: Contract.ttl where ids: permission is removed In Testing: ContractShape.ttl is modified to replace ids:permission by odrl:permission In Examples, serializations, and codes, various files are modified to replace ids:permission by odrl: permission Commit ID: 9d8b81e
	ids:prohibition	rdfs:subProperty	odrl:prohibition	pr	It adds label, comment, domain (ids:Contract), and range (ids:Prohibition) It is used to define validations in ContractShape.ttl	Remove, instead use odrl:prohibition in SHACL	Yes Modified file in Model: Contract.ttl where ids: prohibition is removed In Testing: ContractShape.ttl is modified to replace ids:prohibition by odrl:prohibition Commit ID: 1766900
	ids:obligation	rdfs:subProperty	odrl:obligation	pr	It adds label, comment, domain (ids:Contract), and range (ids:Duty) It is used to define validations in ContractShape.ttl	Remove, instead use odrl:obligation in SHACL	Yes Modified file in Model: Contract.ttl where ids: obligation is removed In Testing: ContractShape.ttl is modified to replace ids:obligation by odrl:obligation Commit ID: a6f54c1
Action.ttl	ids:includedIn	rdfs:subProperty	odrl:includedIn	pr	It adds label, comment, domain (ids:Action), and range (ids:Action) It is used to define validations in ActionShape.ttl	Remove, instead use odrl:includedIn in SHACL	Yes Modified file in Model: Action.ttl where ids: includedIn is removed In Testing: ActionShape.ttl is modified to replace ids:includedIn by odrl:includedIn In Examples: various files are modified to replace ids:includedIn by odrl:includedIn Commit ID: a8a1a1a
InfrastructureComponent.ttl	ids:curator	rdfs:subProperty	dct:publisher	pr	It adds label, comment, domain (ids: InfrastructureComponent), and range (ids: Participant) It is used to define validations in ComponentShape.ttl, InfrastructureComponent.ttl	Keep it as it is more specific than dcat:dataset	No No changes needed
	ids:offeredResource	rdfs:subProperty	dcat:dataset	pr	It adds label, comment, domain (ids: ResourceCatalog), and range (ids:Resource) It is used to define validations in CatalogShape.ttl	Keep it as it is more specific than dcat:dataset	No No changes needed

Catalog.ttl	ids:requestedResource	rdfs:subProperty	dc:dataset	pr	It adds label, comment, domain (ids: ResourceCatalog), and range (ids:Resource) It is used to define validations in CatalogShape.ttl	Keep it as it is more specific than dc:dataset	No No changes needed
	ids:member	rdfs:subProperty	dc:dataset	pr	It adds label, comment, domain (ids: ParticipantCatalog), and range (ids:Participant) It is used to define validations in CatalogShape.ttl	Keep it as it is more specific than dc:dataset	No No changes needed
	ids:listedConnector	rdfs:subProperty	dc:dataset	pr	It adds label, comment, domain (ids: ConnectorCatalog), and range ids:Connector) It is used to define validations in CatalogShape.ttl	Keep it as it is more specific than dc:dataset	No No changes needed
	ids:listedClearingHouse	rdfs:subProperty	dc:dataset	pr	It adds label, comment, domain (ids: ClearingHouseCatalog), and range (ids: ClearingHouse) It is used to define validations in CatalogShape.ttl	Keep it as it is more specific than dc:dataset	No No changes needed
	ids:listedAppResource	rdfs:subProperty	dc:dataset	pr	It adds label, comment, domain (ids: AppResourceCatalog), and range (ids: AppResource) It is used to define validations in CatalogShape.ttl	Keep it as it is more specific than dc:dataset	No No changes needed

* **"redundant"(r) or "non-redundant"(nr) or "partially redundant" (pr)**