FACILITY METADATA AS RDF

ISWC 2023 – Industry track

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RDF for Facility Design
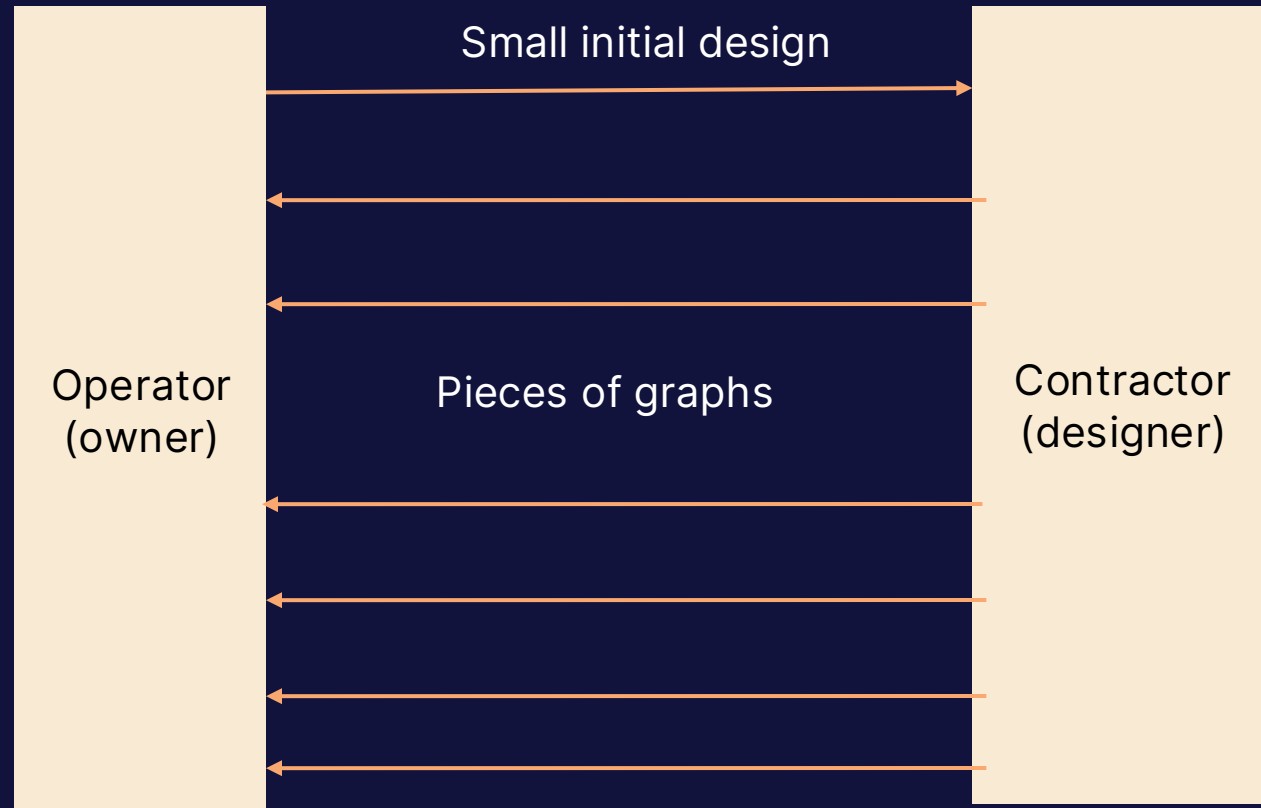
- Facility design
- Change tracking

Operator (owner) → Small initial design → Contractor (designer)

Documents/reports

RDF for Facility Design

- Facility design
- Change tracking
- From Documents to Graphs
- Contractual obligations
- Work and money spent

Operator (owner)

Contractor (designer)

Small initial design

Pieces of graphs

Document 2 Rdf

Document 2 Rdf

Options

- Send Excel, receiver translates to RDF

- Sending RDF graph

- Sending update instructions on individual triples

- Sending JSON or other non-RDF structured data

- Text-based version control system

Named graphs

- "Immutable" content

- Append-only metadata
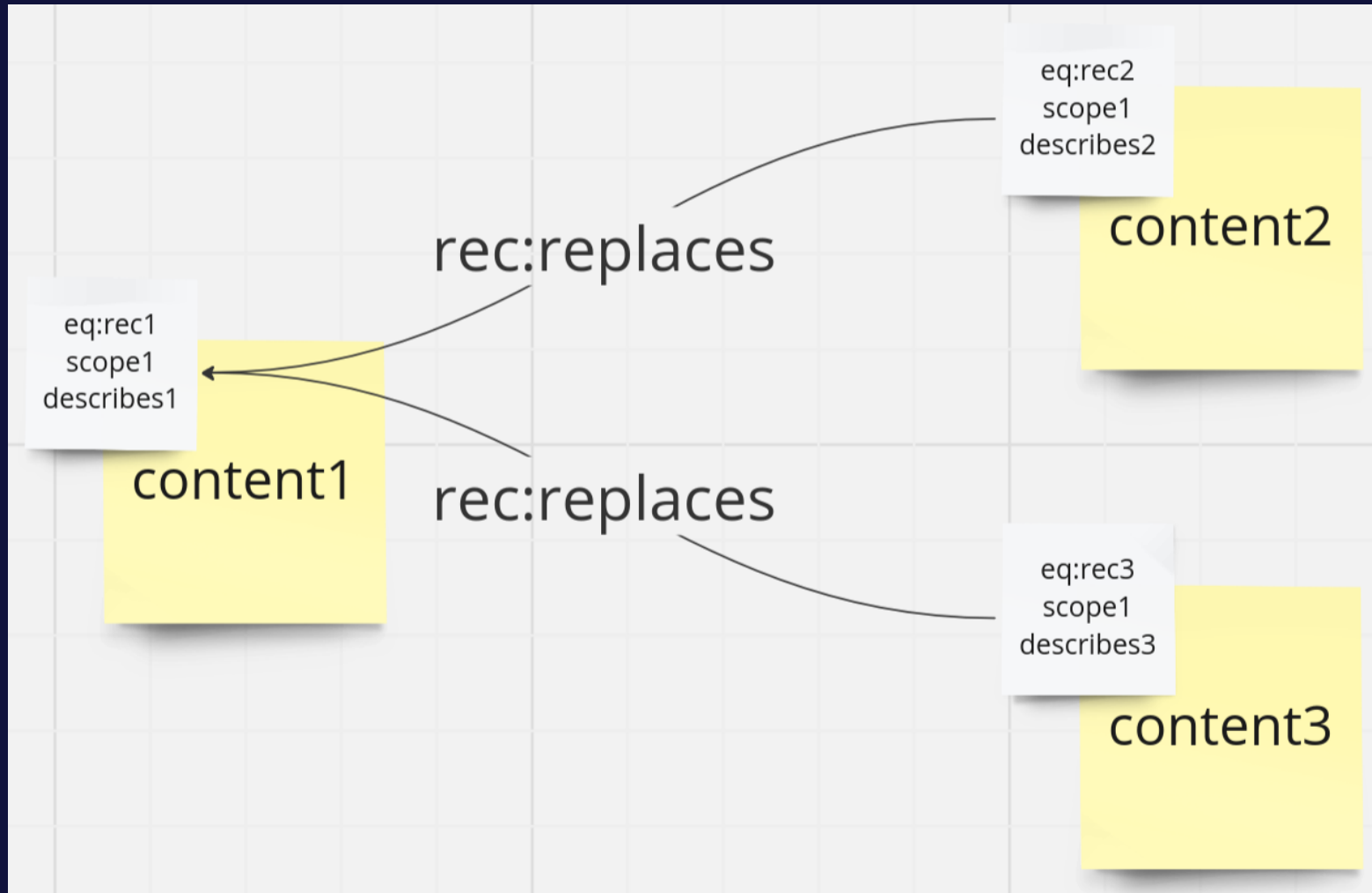
- Record

- Named graphs in content?

Named graphs

- describes: business objects

- isInScope: business scopes: disciplines, facilities, etc.

- replaces: history protection, head

- IsSubRecordOf: modularity and concurrency

```
eq:rec1 {
    eq:rec1 a rec:Record ;
            prov:generatedAtTime  "2023-06-01"^^xsd:date ;
            rec:isInScope         eq:facility1, eq:testproject, eq:en
            rec:describes         eq:pump1 .
    eq:pump1 a eq:WaterPump ;
            rdfs:label            "Pump 1" ;
            eq:partOf eq:pumproom1 .
}
```

Named graphs

- describes: business objects

- isInScope: business scopes: disciplines, facilities, etc.

- replaces: history protection, head

- IsSubRecordOf: modularity and concurrency

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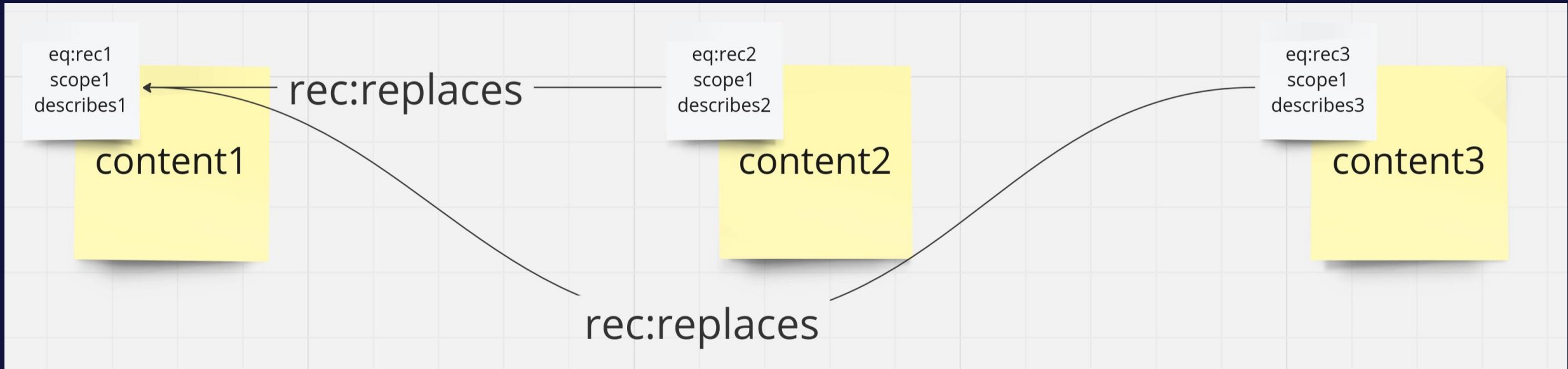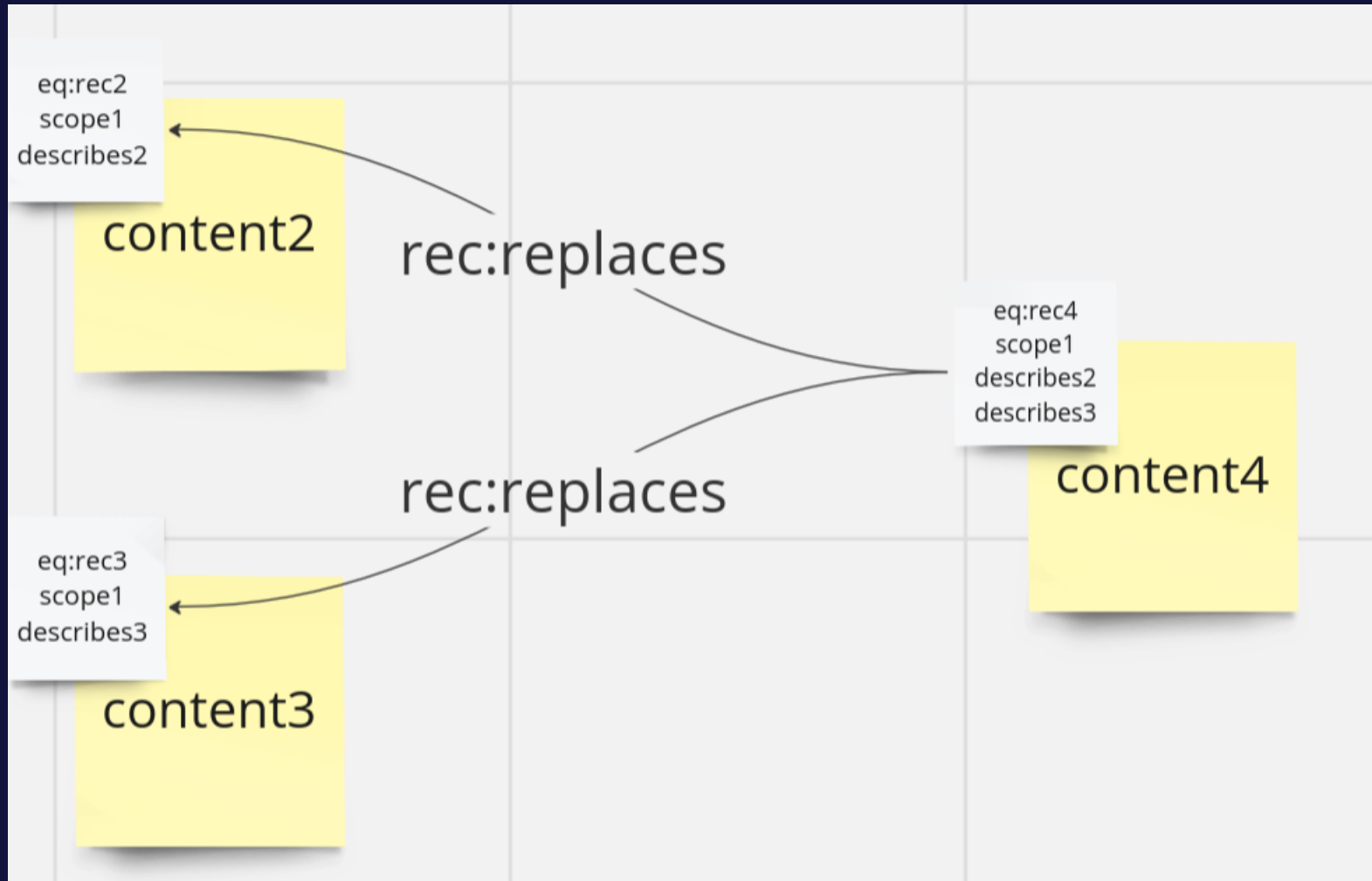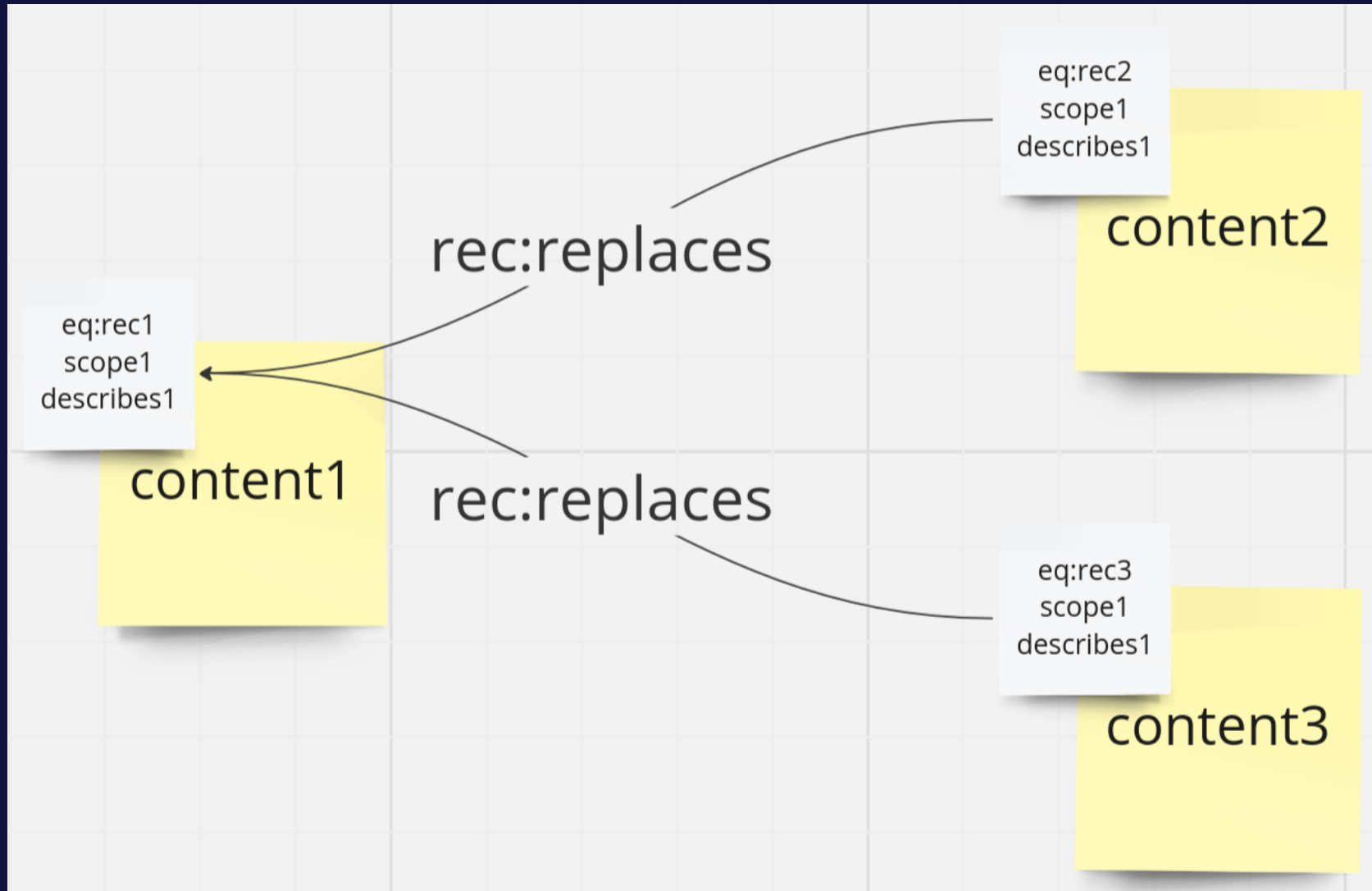
Replaces and "Head"
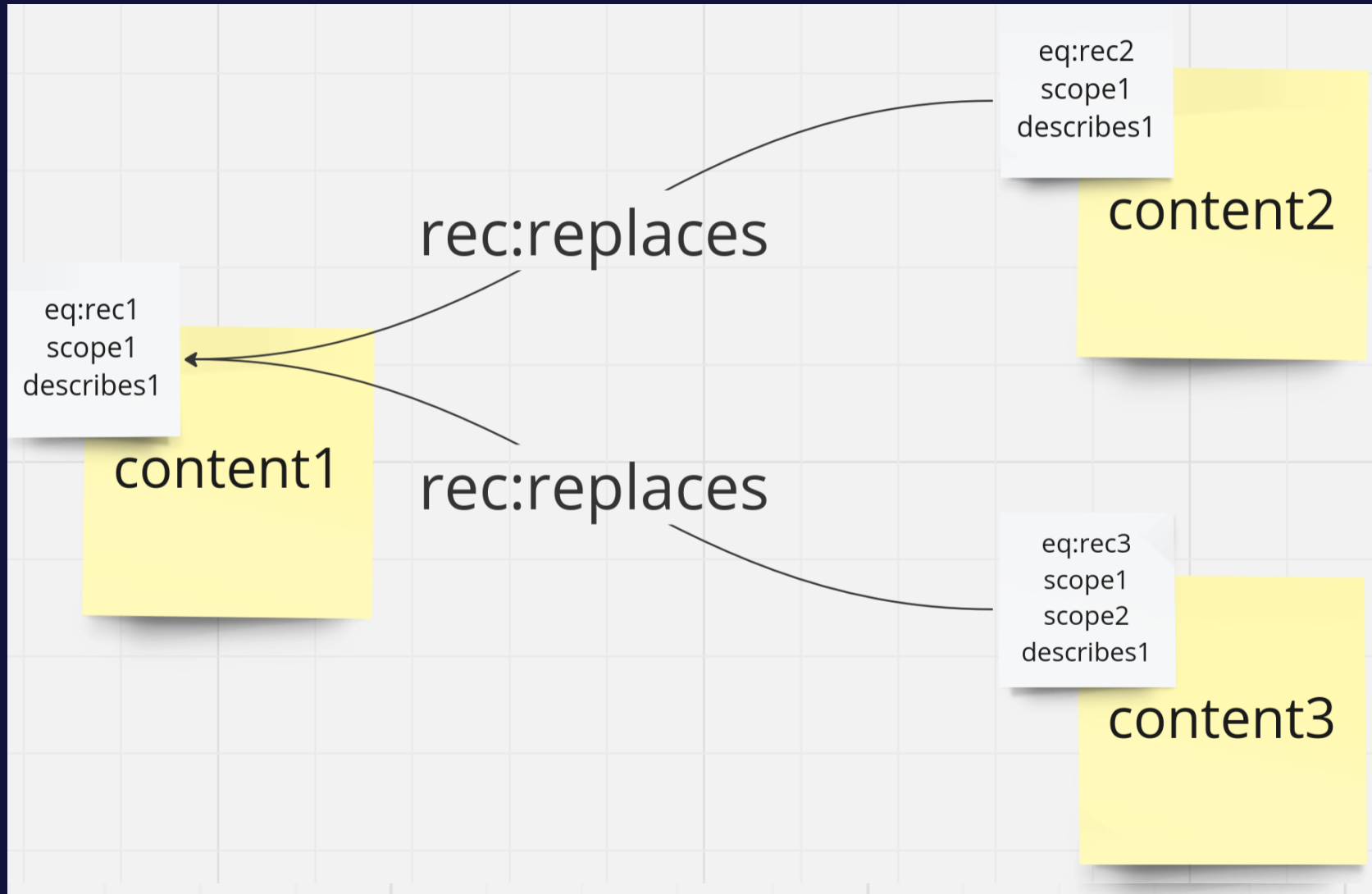
Splitting objects

Splitting objects

And merging them

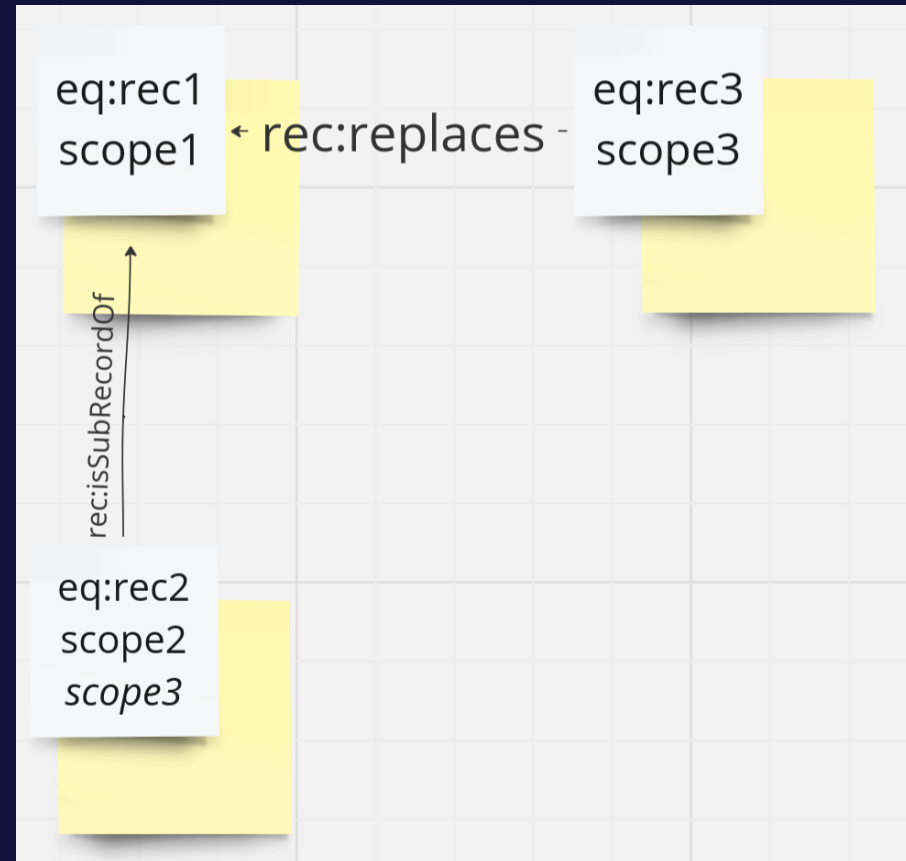# Invalid splitting...

... is branching

Subrecords

Modularity and concurrency

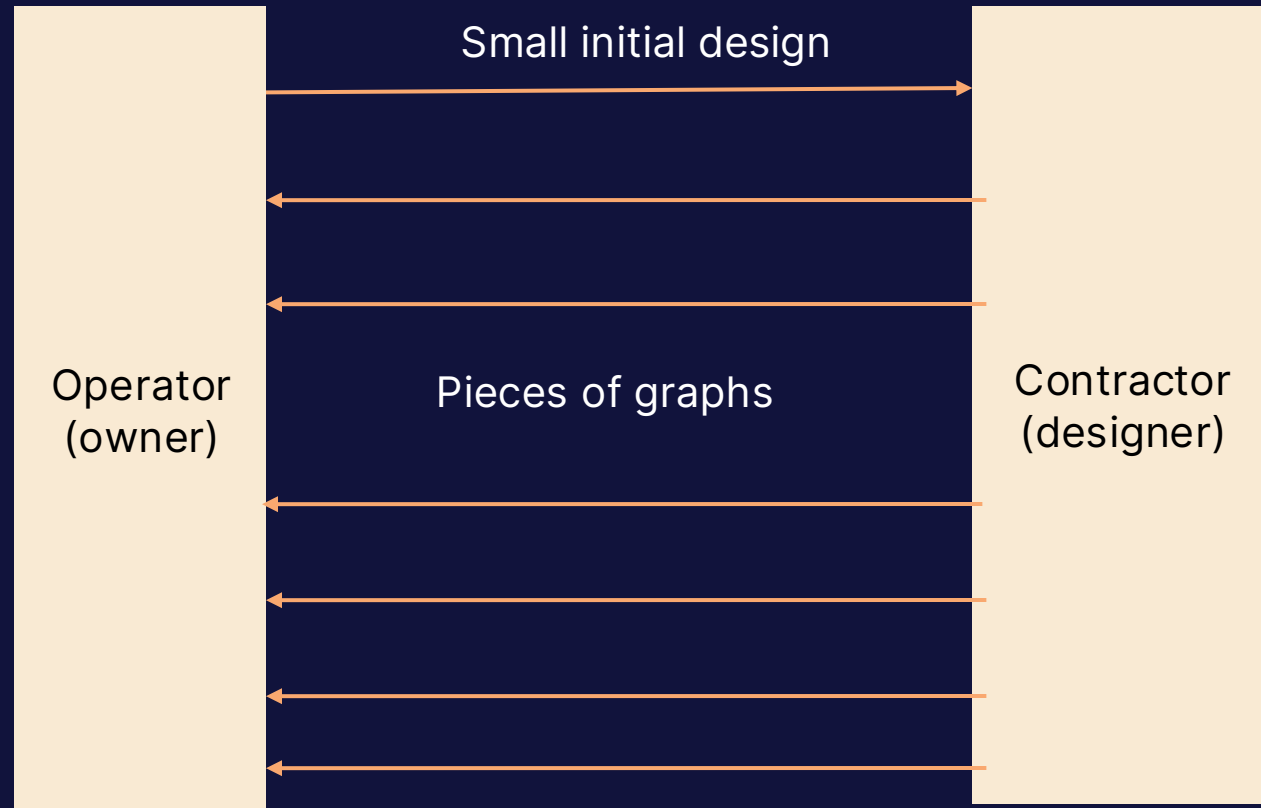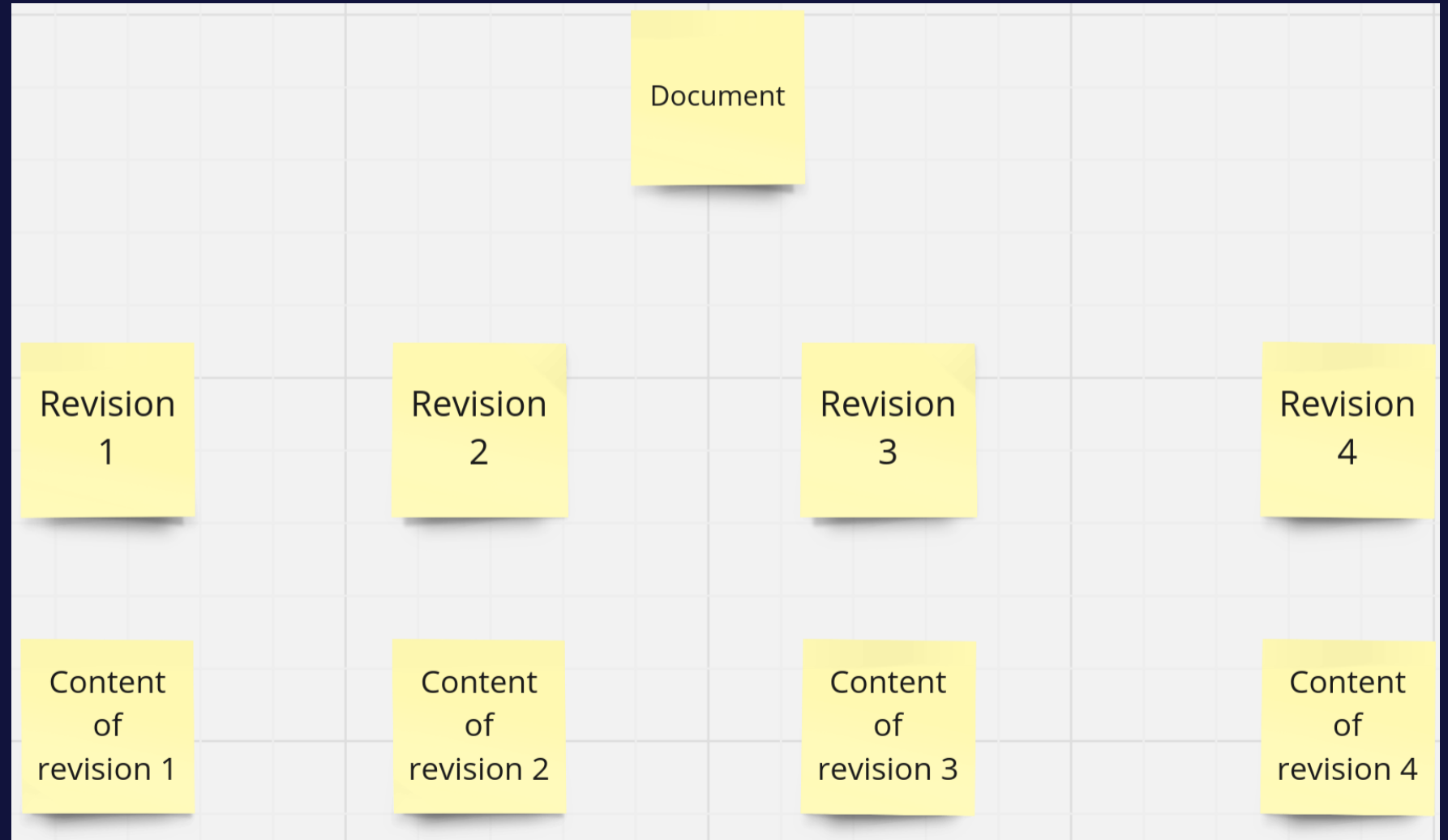# Subrecords
Modularity and concurrency

RDF for Facility Design

- Revisions
- Named "versions"
- Not records....

Operator
(owner)

Contractor
(designer)

Small initial design
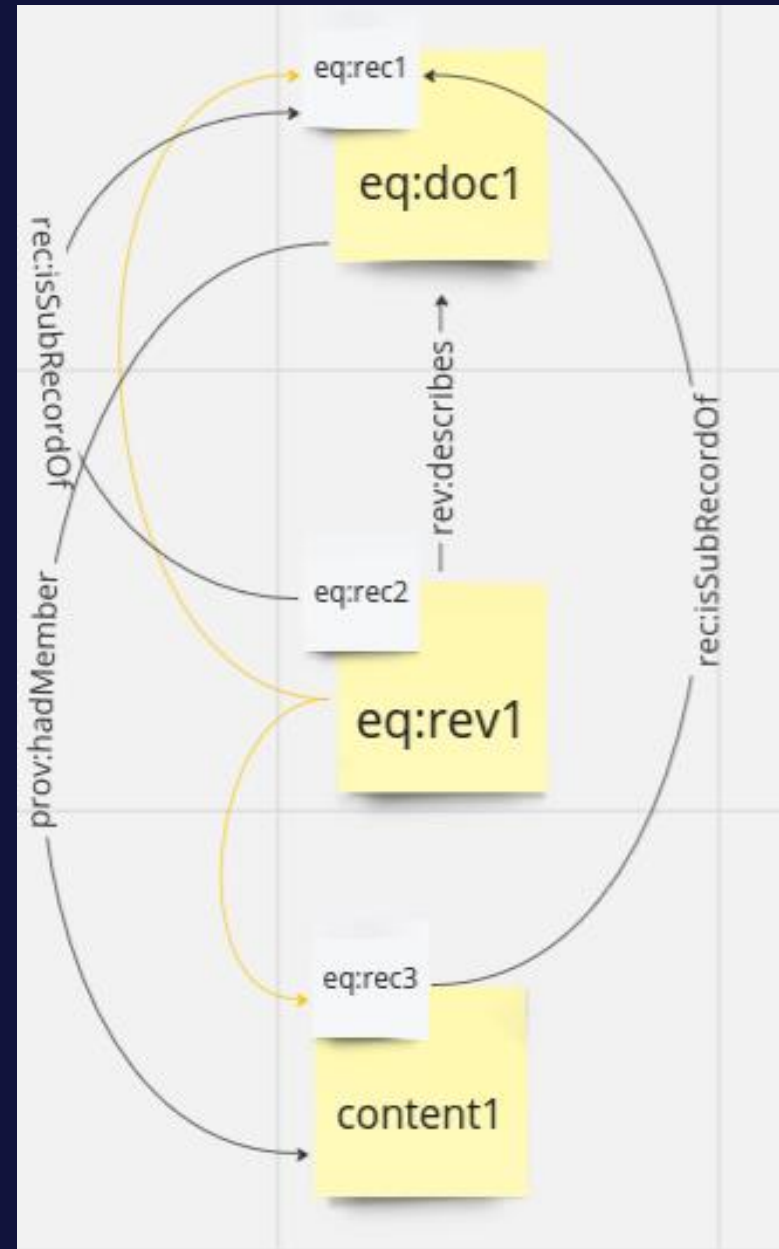
Pieces of graphs

Revisions

- Revisions
- Document
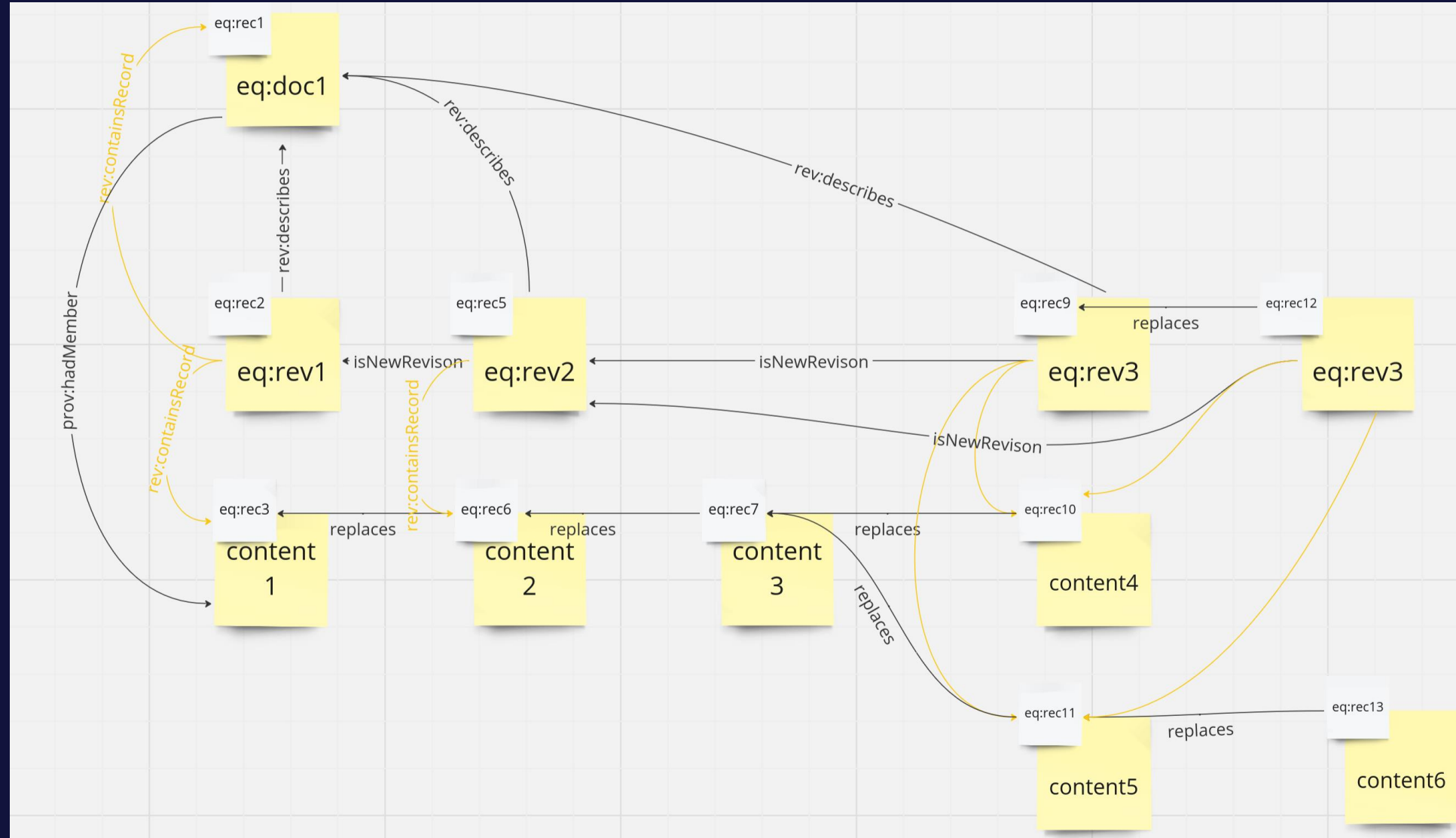- Content
- Reviews and comments

Revisions

- Revisions
- Document
- Content

Revisions

- Revisions
- Document
- Content

Revisions

```
eq:rec2 {
    eq:rec2 a rec:Record ;
            prov:generatedAtTime   "2023-06-01"^^xsd:date ;
            rec:isSubRecordOf   eq:doc1 ;
            rec:describes        eq:rev1 ;
            rec:isInScope           ex-data:document-iri, ex-data:revision-iri, TR:MelReportingTe
    ex-data:revision-iri a rev:DocumentRevision, tie:OfficialRevision, tie:RevisionForInformat
            rdfs:label              "Rev1" ;
            prov:generatedAtTime    "2023-02-27"^^xsd:date ;
            tie:wasIssuedForReason  "Issued for review" ;
            rev:containsRecord      eq:rec1, eq:rec3 ;
            rev:describes           eq:doc1 ;
            skos:related            commonlib:doctype-iri, commonlib:discipline-iri ;
            rev:revisionNumber      "01" .
}
```

Implementation

- https://github.com/equinor/records

- https://github.com/equinor/revisions

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