

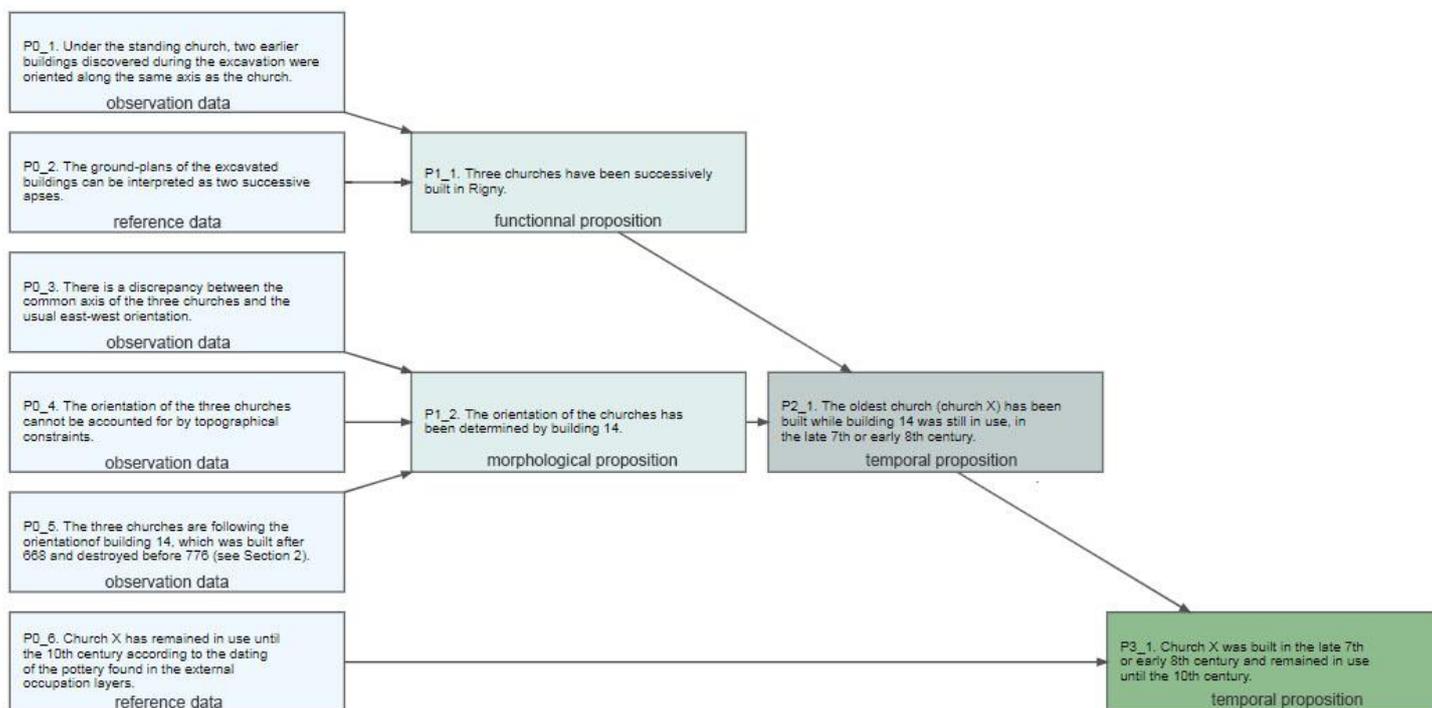
# Using CRMinf to model the inference process of Rigny's logicist publication

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## Rigny publication.

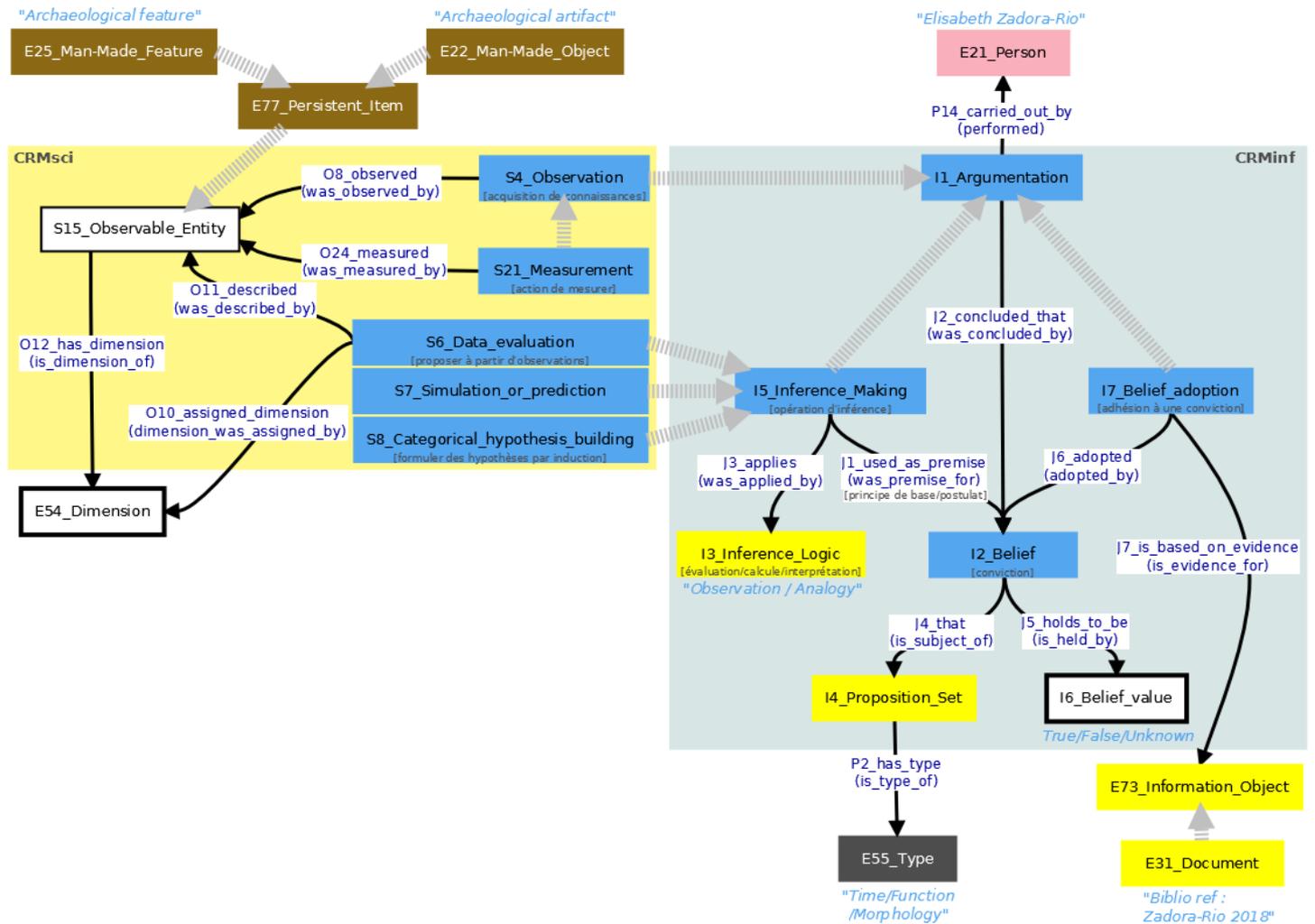
The logicist programme is a long-term research project launched by Jean-Claude Gardin in the late 1970s (Gardin 1979; Gardin 2003). Archaeological constructs are considered in the logicist approach as computational structures made up of two constituents: 1) a set of declarative propositions {P0} relating to empirical facts (linked to database); 2) an inference tree expressing the steps leading from the initial set of propositions {P0} to the conclusions {Pn} through a succession of leaps from one or several levels of the inference tree to the next. Such a tree can be read in two alternative directions: empirico-inductive, from the initial propositions linked to database {P0} to the conclusions {Pn}, or hypothetico-deductive, from the hypotheses {Pn} to the initial propositions {P0}.

The evidence is of three types: evidence from field observation data, evidence from analogy comparison and evidence of reference (disciplinary knowledge, bibliographic reference). The reasoning resulting from the use of these evidences can be divided into three categories: functional, morphological and temporal.



Extract from the logicist diagram in section 1 of Rigny's publication: "The three churches of Rigny (from 7th/8th century to 1859)".

Here is a diagram representing the CRMInf model as it can be used for Rigny's publication.



Model structuration

**Preuves (P0)**

- **Observation and comparison data :**

S15\_Observable\_Entity → *O11\_was\_described\_by* → S6\_Data\_evaluation (IsA I5\_Inference\_Making IsA I1\_Argumentation) → *J2\_concluded\_that* → I2\_Belief → *J4\_that* → I4\_Proposition\_Set

I5\_Inference\_Making → *J3\_applies* → I3\_Inference\_Logic

- **Reference data :**

E31\_Document (IsA E73\_Information\_Object) → *J7\_is\_evidence\_for* → I7\_Belief\_Adoption (IsA I1\_Argumentation) → *J6\_adopted* → I2\_Belief → *J4\_that* → I4\_Proposition\_Set

**Inferences (from P0 to Pn)**

I4\_Proposition\_Set → *J4\_is\_subject\_of* → I2\_Belief → *J1\_was\_premise\_for* →  
S8\_Categorical\_hypothesis\_bulding (*IsA* I5\_Inference\_Making *IsA* I1\_Argumentation) →  
*J2\_concluded\_that* → I2\_Belief → *J4\_that* → I4\_Proposition\_Set

## Mapping proposal

Currently, the TEI file is structured as follows :

```
<div type="chapitre" xml :id="main_div">
  <div type="section1" xml :id="sec1_1">
    <div subtype="proposition" xml :id="section1P0_1">
      <head>proposition title</head>
      <figure>illustration</figure>
      <p>comment
        <ref><!-- link to arsol data --></ref>
      </p>
      <div type="relation">
        <ptr subtype="is_based_on ">premise</ptr>
      </div>
    ...
```

Pierre-Yves Buard (MRSH Caen) wishes to modify the file to improve mapping with CRMInf:

```
<div type="chapitre" xml :id="main_div">
  <div type="section1" xml :id="sec1_1">
    <div type="i4_proposition_set" xml :id="section1P0_1" subtype="evidence:observation">
      <head>proposition title</head>
      <figure>illustration</figure>
      <p>comment
        <ref><!-- link to arsol data --></ref>
      </p>
      <div type="i5_inference_making" subtype="inference:function/time/morphology">
        <ptr subtype="j1_used_as_premise">premise</ptr>
      </div>
    ...
```

Once this work has been done, it will be possible to test the mapping in 3M.