Representation of assays in the context of the Virtual Liver Project –

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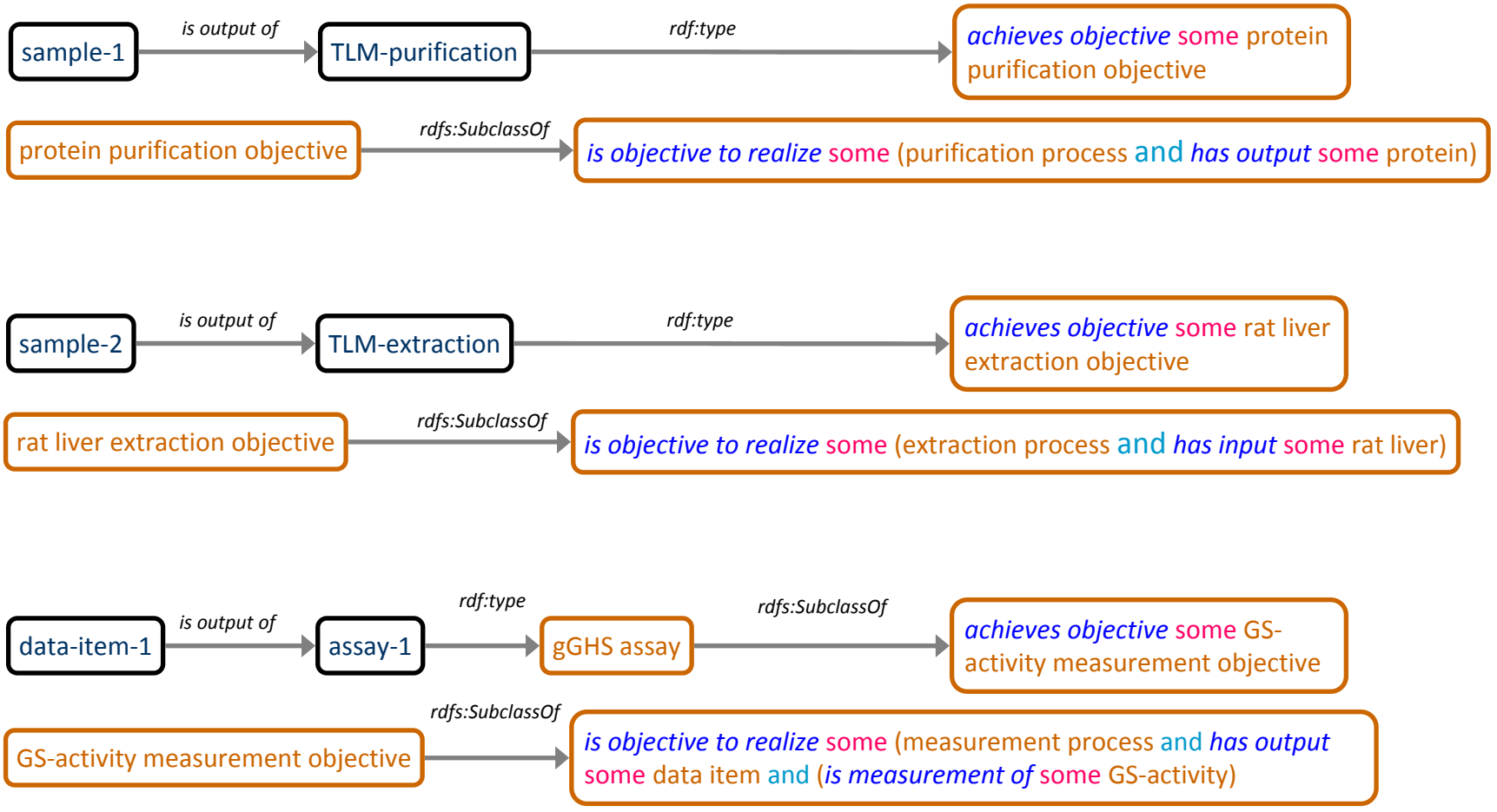
need to query in a consistent way for:

- **data/materials** as inputs and outputs of planned processes
- the types of these processes i.e. types of scientific **techniques** (the *what* and *how* of the experiment)
- the **objectives** of these processes (the *why* and *what for* of the experiment)

Main design pattern by example:

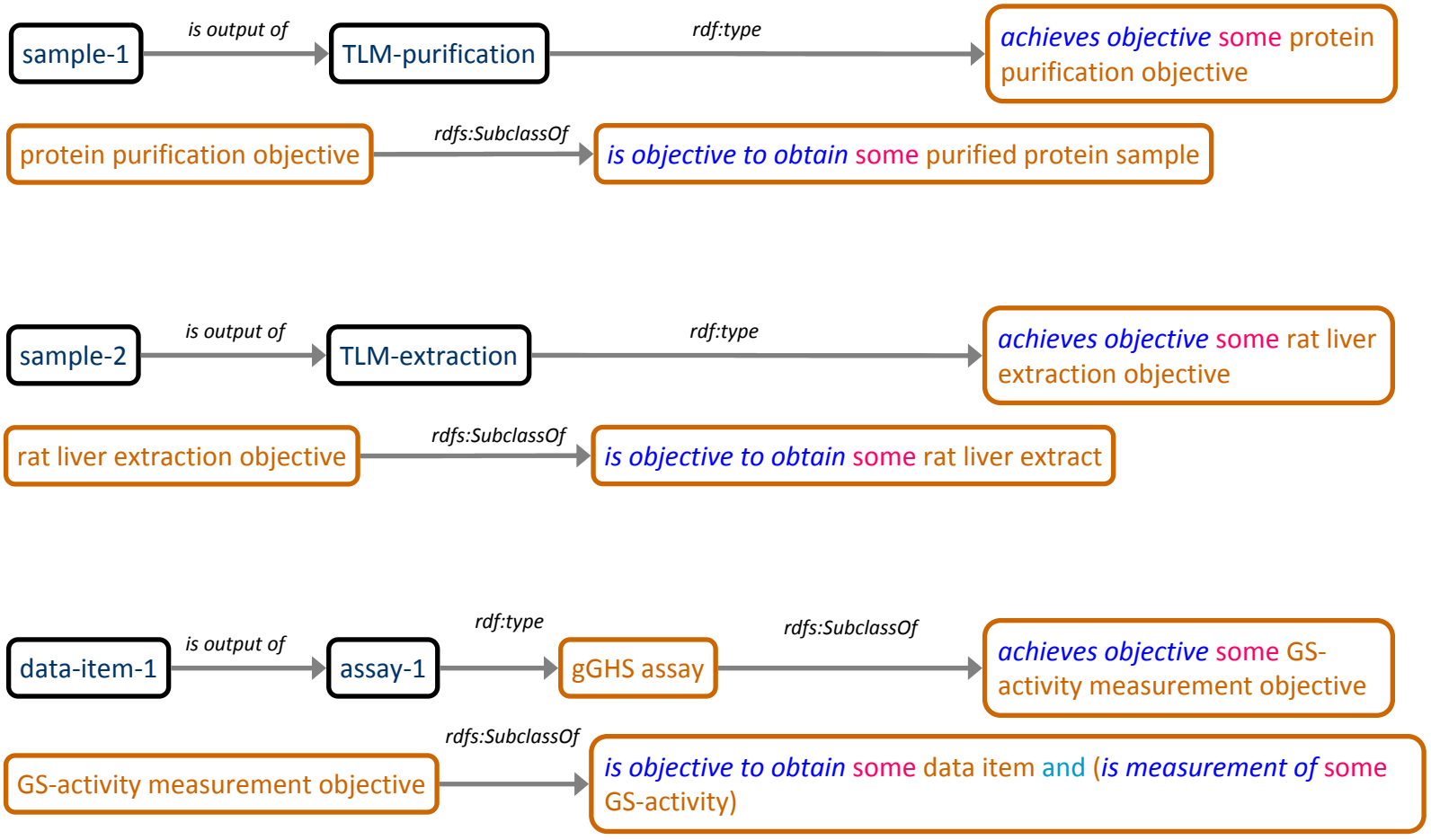


Main design pattern by example:

- **1st & 2nd example:** material processing by a particular experimental process, an „unnamed method“ in ex-1 the objective bears on characteristics of the output, in ex-2 on characteristics of the input material
- **3rd example:** assay using a certain type of assay (a „named method“)
- can **easily be queried** for the outputs, the techniques used to obtain them and the relevant characteristics of the outputs (e.g. what the data item is about)
- **consistent** patterns for assays (input material entity > data) and material processing (input material > output material)
- pattern requires proliferation of process types (extraction, purification, measurement etc.)

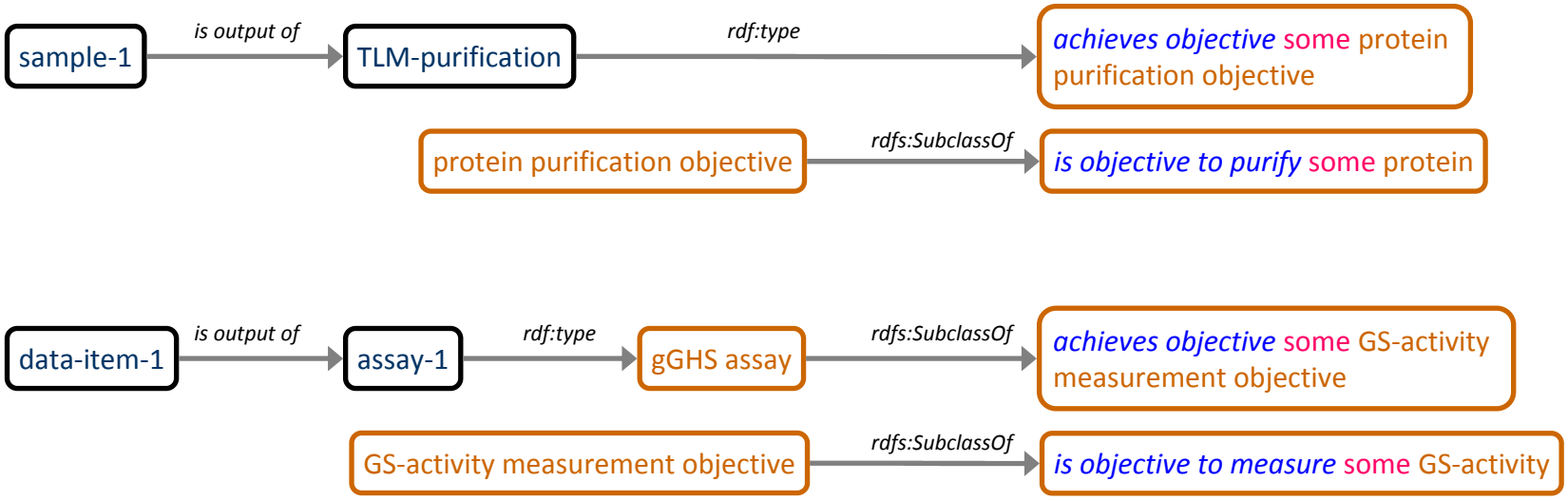
Variation 1

- puts emphasis on the things obtained by pursuing a given objective



Variation 2

- simpler class expressions through proliferation of properties rather than process types



Conclusions & Recommendations

- OBI constructs exist for most entities in this pattern. Add those which aren‘t.
- Objectives need, as in this pattern, tied to the relevant characteristics of the output or (sometimes) input entities for logical consistency and consistent graph patterns to query. Specifically, the objective of an assay bears on the aboutness of a data item that is the output of that assay.