Detailed Comments:

The paper describes the development of a modular ontology (WePROV) to address workflow evolution requirements and improve reuse. The ontology design process includes the identification of functional requirements (as competence questions), analysis of current ontologies and the implementation of WePROV. The paper also discusses the phases of the workflow lifecycle, the definition of four ontology design patterns to describe evolution provenance, and a dataset annotated with WePROV to demonstrate the use of the ontology. The ontology is validated through SPARQL queries over this dataset.

The topic on "workflow evolution ontologies" is extremely important and requires further research. Also, the paper is well written and covers (partially) the literature in this topic. However, I have concerns that lead me to reject this paper, I think it requires many changes:

- I think that workflow evolution provenance is few explored too, but not overlooked. It is strange to see that you didn't mention the roevo ontology from wf4ever, even though you cite the paper (Belhajjame et al., 2015) and states "they are unable to specify workflow evolution provenance".

- The Motivation section (2) lists 3 use cases (tracking effects, attribution and version comparison) and their general requirements. Then, in section 3 you describe the methodology you used for ontology engineering (a very good one btw). I think this is a bit mixed up, the motivation section should show how important is evolution provenance (not only for workflows, but also how software engineering and project management research address this topic) and identify a gap particularly in workflow evolution ontologies.

- It would be interesting to see a systematic literature review on the theme. For example, if you execute a query ["workflow evolution" and "ontology"] in ScienceDirect it gives 18 results, e.g., this ProVersion ontology for maintenance and evolution (https://doi.org/10.1016/j.procs.2016.09.194). I believe that these approaches might address (some of) your competence questions. I don't think it is a problem as long as you discuss how your approach is different from the others and if each CQ can be answered with the others and what are the pros/cons.

- During "Knowledge Acquisition and Reuse" I was expecting some exploration about existing solutions for capturing evolution provenance, also looking for input from application (software) lifecycle management concepts like change management, version control, continuous integration, etc. Also, look how other data models used by Wfl systems work: for example what are the workflow evolution capabilities of Jupyter Notebooks in GitHub? Are there APIs with services like change management and versioning? I believe that most of your RQs can be addressed with some workflow systems (as you mentioned about Taverna too).

- "During the Ontology Capture and Formalisation phase, we conceptualise the domain using a foundation ontology and represent it in a graphic model" ==> this is an important phase of the ontology engineering methodology, but nothing was described about it. Which foundational ontology was used and how? It should guide your design decisions before the formalization (RDF).

- It is not clear why ProvONE was chosen as a core ontology for workflow specification. "ProvONE supports a minimal level of evolution provenance" because it uses wasDerivedFrom, however, wasDerivedFrom is a PROV-O property. There are other ontologies that address workflow specification besides the ones you cited (e.g., SPAR FaBiO, reproduce-me, SIO, PlEx, etc), I believe that the methodology applied prescribes the execution of an ontological analysis (based on a foundational ontology) to support your design decisions before the formalization (RDF). For example, if you used ontology-driven conceptual modeling (with UFO), you could discuss the existing patterns for phases to represent the workflow lifecycle phases.

- The ontology seems sound and well modularized, but it seems that many of the concepts are already addressed in other works, like Modification (Change), Agent, Revision, Generation, Usage, etc. In addition, it's difficult to identify which terms are reused from other ontologies and which are new ones (figs 11 and 12).

- The ontology evaluation lacks on describing how ontology consistency was checked. Also: "dataset has a collection of workflows which were retrieved by crawling a seed set of workflow Ids derived from myExperiment platform along with their specification and evolution provenance derived using WePROV model" ==> I think it's fundamental to describe how this transformation from myExperiment to WePROV was performed and what this crawler does, where the data are stored and how the SPARQL are executed (is there an endpoint available?). It would also be intersting if this code of this crawler is available.

- I was expecting that the Evaluation (or a Discussion) section to present a comparison of the WePROV with others wrt how they address the RQs, listing the pros/cons of using each approach.

- A suggestion: submit this current manuscript to a conference (or workshop) related to workflow systems (like ICWSD).