Appendix 1: Ontology Engineering Tools

This appendix contains links for each category presented in Figure 2. These classifications and definitions have been taken from Poveda-Villalón et al. (2022).

* Concept extractor
  + Word cloud systems: https://www.wordclouds.com/
  + Entity recognition: https://huggingface.co/dslim/bert-large-NER
* Test specification / Test executor
  + THEMIS: http://themis.linkeddata.es/
  + TDD Onto2: https://github.com/kierendavies/tddonto2
* General docs
  + Tables
    - OpenOffice http://www.openoffice.org/
    - Google Drive https://www.google.com/drive
    - MS Office https://www.office.com/
  + Documents
    - OpenOffice http://www.openoffice.org/
    - Google Drive https://www.google.com/drive
    - MS Office https://www.office.com/
  + Mindmaps
    - Miro https://miro.com/mind-map/
    - Mural https://www.mural.co
    - Coggle <https://coggle.it/>
* Ontology editor
  + Protégé: https://protegewiki.stanford.edu/wiki/ProtegeDesktopUserDocs
  + WebProtégé: https://protegewiki.stanford.edu/wiki/WebProtege
  + Fluent Editor: https://www.cognitum.eu/semantics/FluentEditor/
  + TopBraid Composer: https://archive.topquadrant.com/topbraid-composer-install/
  + PoolParty: https://www.poolparty.biz/
  + CAMEO: https://www.3ds.com/products-services/catia/products/no-magic/cameo-systems-modeler/
  + SousLeSens: https://souslesens.enit.fr
* (Visual) Drafting
  + Chowlk: https://chowlk.linkeddata.es/
  + crowd-tool: https://crowd-app.fi.uncoma.edu.ar/
  + Menthor Editor: https://ontouml.org/ontouml/tooling/
  + OntoPanel: https://github.com/yuechenbam/yuechenbam.github.io
  + OWBO: https://github.com/mdaquin/OWBO
  + DiTTO: https://essepuntato.it/ditto/
  + Gra.fo: https://gra.fo/
* Ontology Design Pattern Reuse
  + Reasonable Ontology Templates (OTTR): https://ottr.xyz/
  + ODP Portal: http://ontologydesignpatterns.org/wiki/Main\_Page
* Modularizer
  + Ontofox: https://ontofox.hegroup.org/
* Matcher
  + Alignment Cubes: https://www.ida.liu.se/%7Epatla00/research/AlignmentCubes/
* Visualizer
  + WebVOWL: http://vowl.visualdataweb.org/webvowl.html
* Repository
  + IndustryPortal: http://industryportal.enit.fr/
  + LOV: https://lov.linkeddata.es
  + BARTOC: https://bartoc.org/
  + Ontohub: https://ontohub.org/
  + LOV4IoT: https://lov4iot.appspot.com/
  + BioPortal: https://bioportal.bioontology.org/
  + OntoBee: https://ontobee.org/
  + AgroPortal: http://agroportal.lirmm.fr/
  + ODP Portal: http://ontologydesignpatterns.org/wiki/Main\_Page
  + DBpedia Archivo: https://archivo.dbpedia.org/list
  + Ontology Lookup Service (OLS) : https://www.ebi.ac.uk/ols/index
* Validator
  + OOPS!: https://oops.linkeddata.es/
  + ASTREA: https://astrea.linkeddata.es/
  + Shaclgen: https://pypi.org/project/shaclgen/
  + Shape designer: https://gitlab.inria.fr/jdusart/shexjapp
* Reasoner
  + Pellet: https://github.com/stardog-union/pellet
  + Fact++: http://owl.cs.manchester.ac.uk/tools/fact/
  + Hermit: http://www.hermit-reasoner.com/
  + Konclude: https://www.derivo.de/en/produkte/konclude.html
  + ORMiE: https://gitlab.inf.unibz.it/franconi/ormie-release/
  + Hets: https://github.com/spechub/Hets
* Documenter
  + WIDOCO: https://dgarijo.github.io/Widoco/doc/tutorial/
  + LODE: https://essepuntato.it/lode/
  + pyLODE: https://github.com/RDFLib/pyLODE
* Publication Server
  + Web servers: General web server to manage web domains.
  + w3id: https://w3id.org/
  + purl: https://purl.archive.org/
* Ontology FAIR validator
  + FOOPS!: https://w3id.org/foops/
  + O’FAIRE: https://github.com/agroportal/fairness
* Issue tracking
  + GitHub: https://github.com/
  + GitLab: https://about.gitlab.com/
  + Jira: https://www.atlassian.com/software/jira
  + Mantis: https://www.mantisbt.org/
* Versioning
  + ontology-toolkit: https://github.com/semanticarts/ontology-toolkit
* Populator
  + LinkML : https://linkml.io/
  + OpenRefine: https://github.com/OpenRefine/OpenRefine
  + LODRefine: https://github.com/sparkica/LODRefine
  + OntoRefine: https://www.ontotext.com/products/ontotext-refine/
  + R2RML: https://www.w3.org/TR/r2rml/
  + RML: https://rml.io/specs/rml/
  + YARRML: https://rml.io/yarrrml/
  + Matey: https://rml.io/yarrrml/matey/
  + Helio: https://oeg-upm.github.io/helio/
  + Karma: https://usc-isi-i2.github.io/karma/
  + MORPH: https://morph.oeg.fi.upm.es/
  + SPARQL-generate: https://ci.mines-stetienne.fr/sparql-generate/
  + excel2RDF: https://pypi.org/project/excel2rdf/
  + mimir: https://github.com/mimir-org
* Constraints validator
  + ASTREA: https://astrea.linkeddata.es/
  + Shaclgen: https://pypi.org/project/shaclgen/
  + Shape designer: https://gitlab.inria.fr/jdusart/shexjapp
* Triple Store / Publisher
  + AllegroGraph: https://allegrograph.com/products/allegrograph/
  + GraphDB: https://graphdb.ontotext.com/
  + Virtuoso: https://virtuoso.openlinksw.com/
  + GRUFF: https://allegrograph.com/products/gruff/
  + IntelligentGraph: https://github.com/peterjohnlawrence/com.inova8.intelligentgraph/tree/master/olgap
  + Helio: https://oeg-upm.github.io/helio/
  + LUPOSDATE: https://github.com/luposdate/luposdate
  + Ontop: https://ontop-vkg.org/
  + RDFox: https://www.oxfordsemantic.tech/
  + Stardog: https://www.stardog.com/
  + WIMU: http://wimu.aksw.org/
  + YASGUI: https://github.com/TriplyDB/Yasgui
* Data FAIR validator
  + F-UJI: https://www.f-uji.net/
* APIs
  + Apache Jena: https://jena.apache.org/
  + OData2SPARQL: https://inova8.com/bg\_inova8.com/offerings/odata2sparql/
  + Ontospy: http://lambdamusic.github.io/Ontospy/
  + OWL API: http://owlcs.github.io/owlapi/
  + Owlready2: https://owlready2.readthedocs.io/en/v0.35/
  + EMMOntoPy: https://emmo-repo.github.io/EMMO-python
  + Pronto: https://github.com/althonos/pronto
  + RDF4J: https://rdf4j.org/
  + RDFLib: https://rdflib.readthedocs.io/en/stable/
  + ROBOT: http://robot.obolibrary.org/
* Project management, version management and issue tracking
  + Ontology development oriented
    - OnToology: http://ontoology.linkeddata.es/
    - VocBench: https://ec.europa.eu/isa2/solutions/vocbench3\_en
    - VoCol: https://vocol.iais.fraunhofer.de//
    - CENtree: https://www.scibite.com/platform/centree-ontology-management-platform/
  + General or software-oriented
    - GitHub : https://github.com/
    - GitLab: https://about.gitlab.com/
    - Jira: https://www.atlassian.com/software/jira
    - Mantis: https://www.mantisbt.org/
  + Communication tools
    - Zoom: https://zoom.us/
    - Google Meet: https://meet.google.com/
    - Jitsi Meet: https://meet.jit.si/
    - Teams: https://www.microsoft.com/en/microsoft-teams/group-chat-software
    - Skype: https://www.skype.com
    - Webex: <https://www.webex.com/>
    - GoToMeeting: https://www.goto.com/