

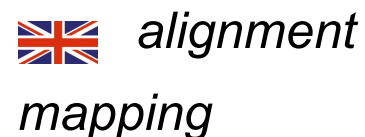
INRAE

➤ Publier des alignements entre vocabulaires avec le standard SSSOM

SSSOM : Simple Standard for Sharing Ontology Mappings



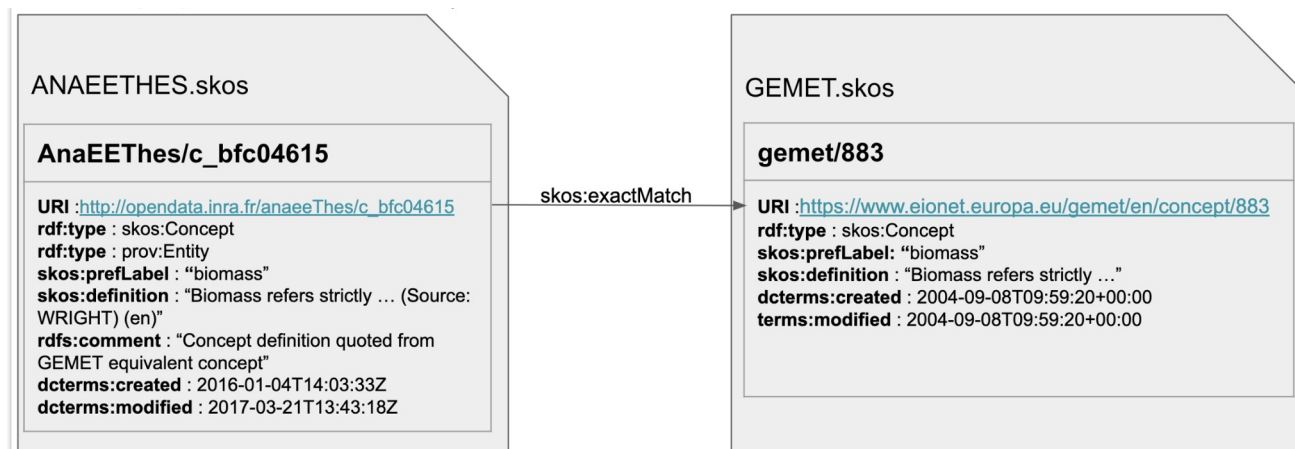
L'alignement d'ontologies



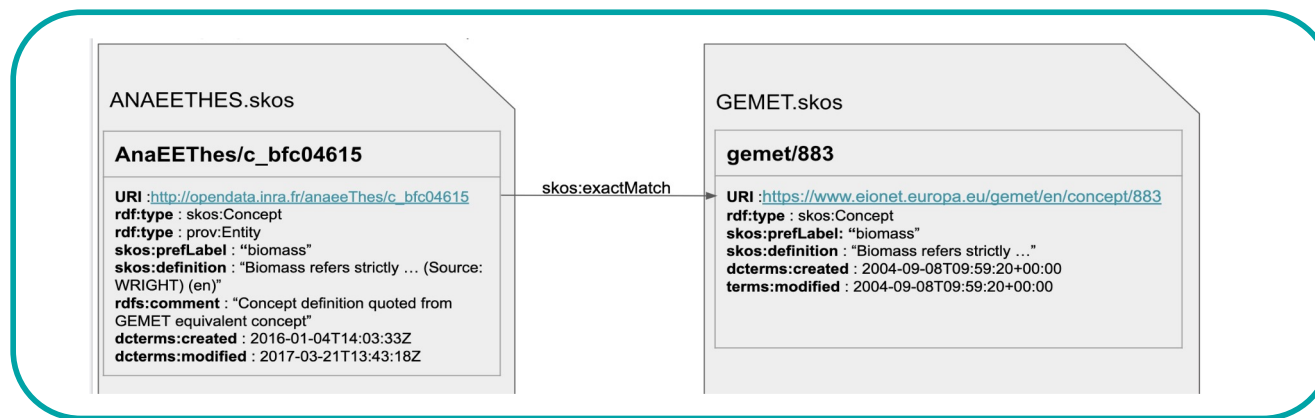
des équivalences entre

- des classes
- des concepts
- des propriétés

présentes dans deux ressources sémantiques.



Les alignements existants



La plupart des alignements existants ne sont **pas réutilisables**

- Difficiles à trouver, voire pas publiés
- Non contextualisés
- Non maintenus



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Les besoins pour des alignements calculés manuellement



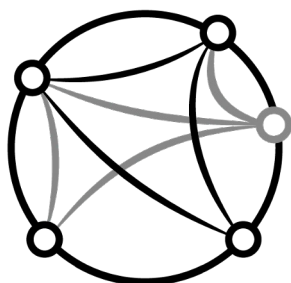
- Des informations sur les ontologies sources (Version, Identifiant...)
- Autour des alignement :
 - Spécifier des classes ou des instances (via URI)
 - Une direction entre les deux objets alignés
 - La cardinalité (1:1, 1:n)
 - La nature d'alignement (exact; broad ; narrow)
 - Des propriétés d'alignement issues de formalismes divers (owl; SKOS)
 - **La méthode utilisée (outil, algorithme...)**
 - Restriction d'application du mapping
 - **Raison du mapping**



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Journées scientifiques D2KAB - 14 mars 2023 - S. Aubin

<https://w3id.org/sssom>



sssom

SIMPLE STANDARD FOR SHARING
ONTOLOGY MAPPINGS



Simple Standard for Sharing Ontological Mappings (SSSOM) - Updates 2023 (FAIR Impact and FAIRCORE4EOSC Life Working Session)

Alex H. Wagner (Nationwide Children's Hospital), Anita Caron (EMBL-EBI), Cassia Trojahn (Universite Toulouse 2), Charlie Hoyt (Harvard Medical School), Chris Mungall (LBNL), Damien Goutte-Gattat (Flybase), David Osumi-Sutherland (EMBL-EBI), Emily Hartley (C-Path), Ernesto Jimenez-Ruiz (City, Univ. of London), Harshad Hegde (LBNL), Henriette Harmse (EMBL-EBI), Hyeongsik Kim (Bosch), Ian Braun (C-Path), Ian Harrow (Pistoia Alliance), James McLaughlin (EMBL-EBI), Jim Balhoff (RENCI), John Graybeal (Stanford), Melissa Haendel (CU Anschutz), Nicolas Matentzoglou (Semanticy), Nicole Vasilevsky (CU Anschutz), Nomi Harris (LBNL), Núria Queralt Rosinach (Leiden University), Simon Jupp (SciBite), Sophie Aubin (INRAE), Thomas Liener (Pistoia Alliance), Tiffany Callahan (Columbia University), Tim Putman (CU Anschutz), Vinícius de Souza (EMBL-EBI), William Duncan (UFlorida)

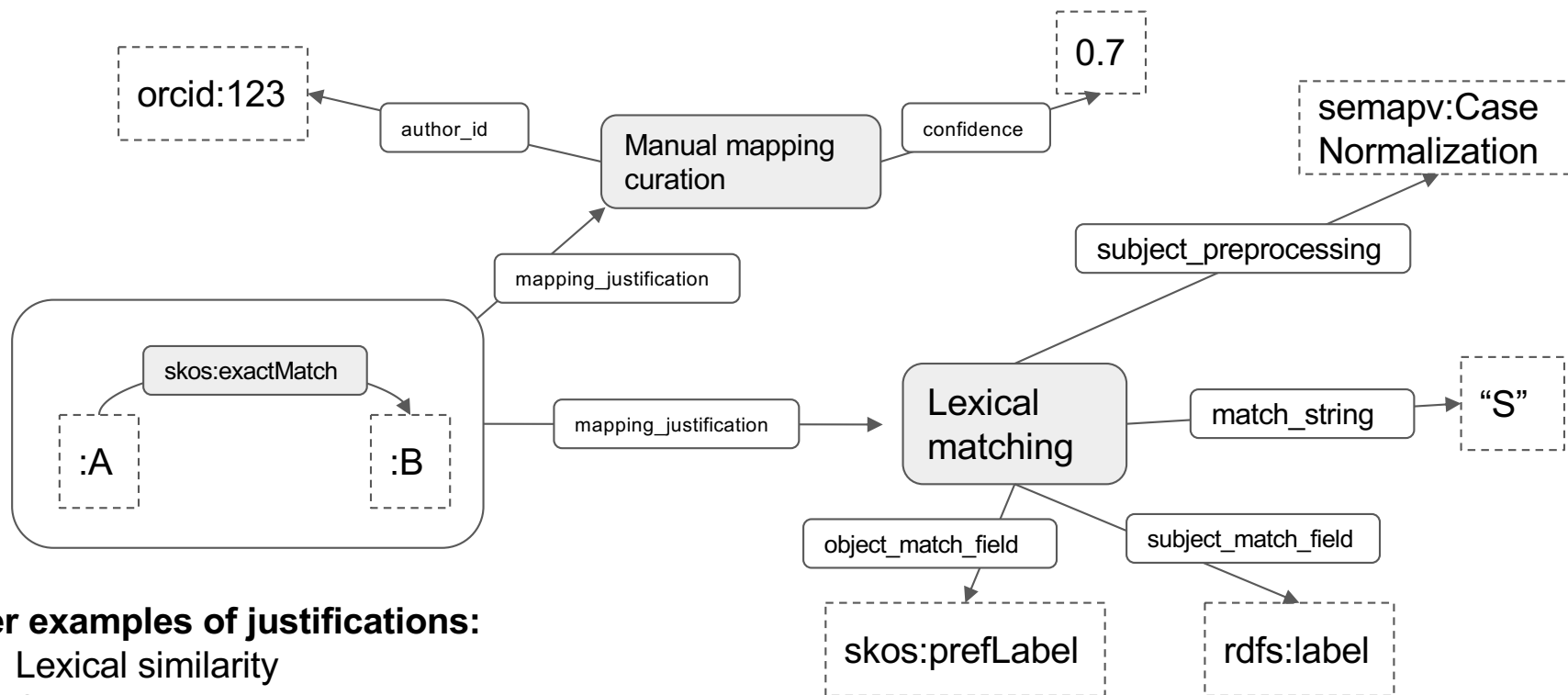


Diapo empruntée à Nicolas Matentzoglou

* SSSOM can be pronounced "sessom"

Recap: What problem do we solve?

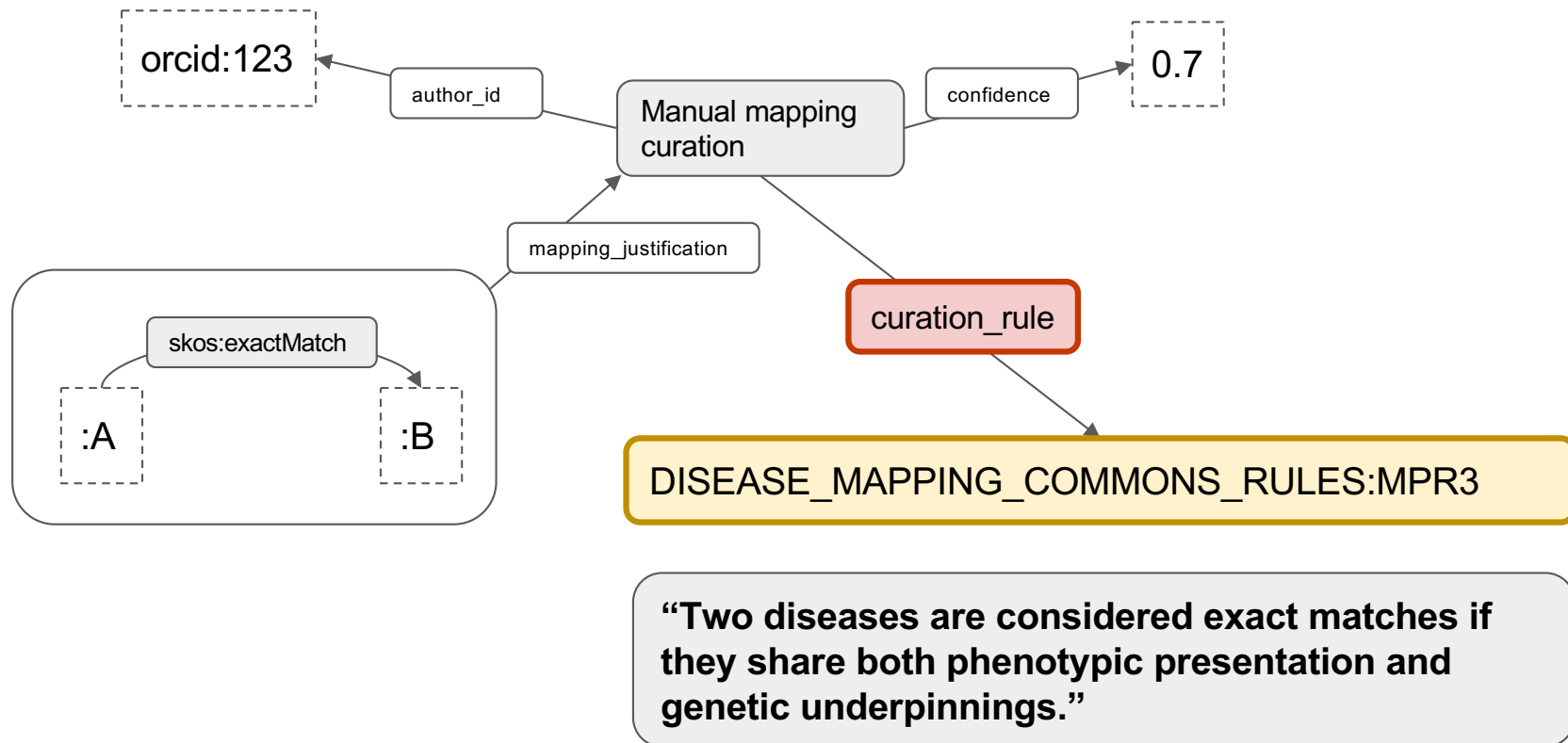
Document mapping rich justifications to facilitate trust across use cases



Other examples of justifications:

- Lexical similarity
- Semantic similarity
- Mapping Chaining

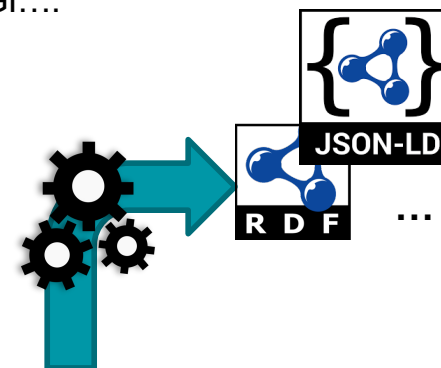
Curation rules: Capture a (potentially) complex (set of) condition(s) executed by an agent (usually human) that led to the establishment of a mapping.



Recap: What problem do we solve?

Provide a simple, spreadsheet-oriented data format to facilitate widespread adoption

```
#mapping_set_id: https://w3id.org/sssom/commons/mouse-human/mappings/mp_hp_mgi_all.sssom.tsv
#mapping_set_title: All mappings of MP terms to HPO terms generated by MGI
#mapping_set_description: "Consolidated list of all HPO to MP mappings done by MGI..."
#creator_id:
# - orcid:0000-0003-4606-0597
# - ror:021sy4w91
#license: https://creativecommons.org/licenses/by/4.0/
#object_source: obo:hp
#subject_source: obo:mp
#curie_map:
# HP: http://purl.obolibrary.org/obo/HP_
# MP: http://purl.obolibrary.org/obo/MP_
```

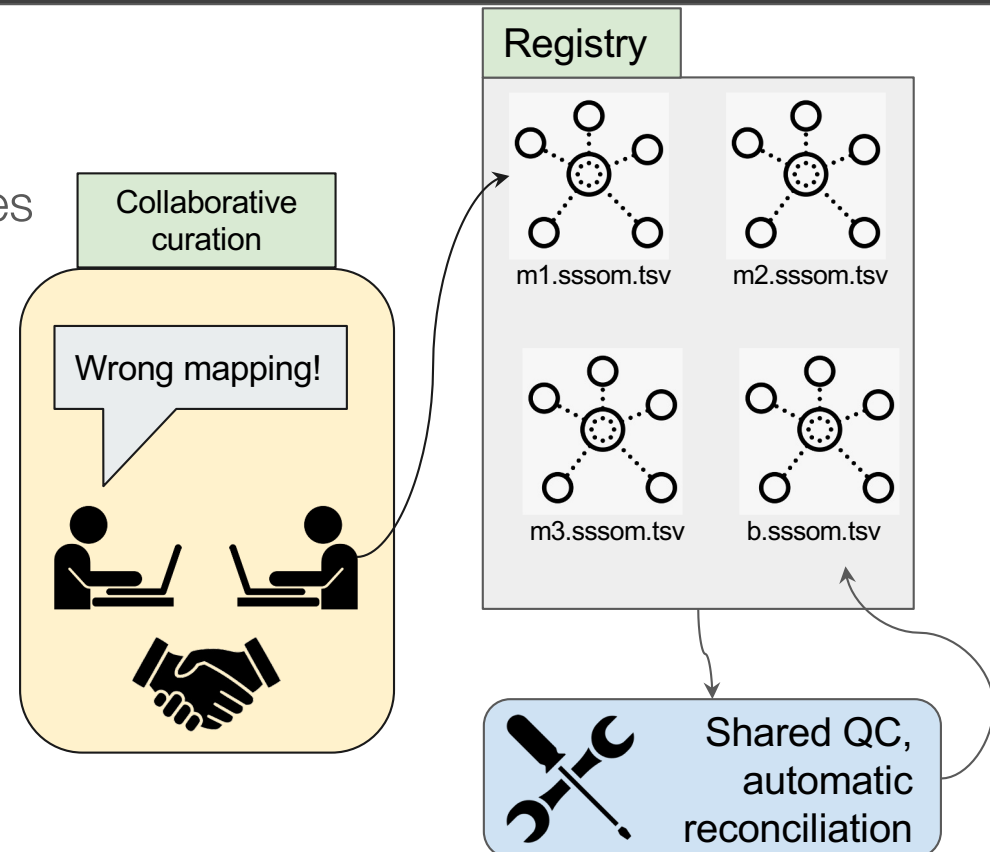


Mapping Table

object_id	object_label	predicate_id	confidence	subject_id	subject_label	mapping_justification	author_id	mapping_date	comment
HP:0000016	Urinary retention	skos:exactMatch	1	MP:0003622	ischuria	semavp:ManualMapp	orcid:0000-0003	2022-08-02	scoliosis
HP:0000023	Inguinal hernia	skos:exactMatch	1	MP:0006077	inguinal hernia	semavp:ManualMapp	orcid:0000-0003	2021-05-27	KidsFirst
HP:0000028	Cryptorchidism	skos:exactMatch	1	MP:0002286	cryptorchism	semavp:ManualMapp	orcid:0000-0003	2021-05-27	KidsFirst
HP:0000033	Ambiguous genital	skos:narrowMatch	1	MP:0009198	abnormal male	semavp:ManualMapp	orcid:0000-0003	2022-02-07	KidsFirst; e
HP:0000034	Hydrocele testis	skos:narrowMatch	1	MP:0003623	hydrocele	semavp:ManualMann	orcid:0000-0002	2021-05-27	KidsFirst: M

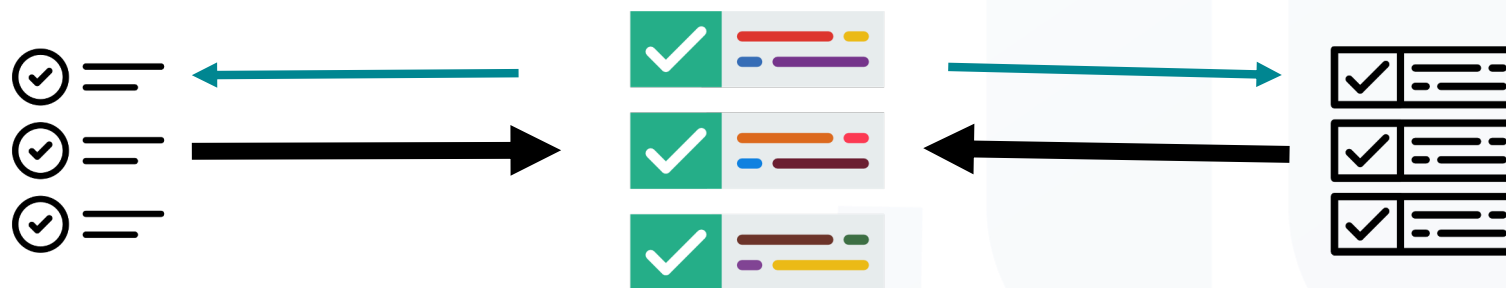
Recap: What problem do we solve? Promoting the creation of interoperable FAIR mapping registries

- Increased organisation-level mapping commons development
- Initial template for mapping registries is under development and will be published around June
- Advanced metadata model



Targeted outputs of the task 4.4

- **Specifications/Requirements** for FAIR Mappings
- Common **exchange model** based on SSSOM (Matentzoglou et al., 2022), that would enable sharing simple and complex mappings
- **Cookbook** with practical guidelines showing the various ways of doing mapping supported by concrete examples



Why Mappings Matter and how to make them FAIR?

- **Requirements for developing the framework and for FAIR mapping**
Link to the video: https://youtu.be/d_NxQHJR-4c
 - 120 registered participants**
 - 24 countries
 - 24 organisations and communities
 - 32 domains of knowledge
- **4 discussed topics:**
 - Specification for FAIR mapping connected to FAIR principles
 - Types of mappings
 - Existing tools and requirements for tools
 - Mapping methodologies



Why Mappings Matter and how to make them FAIR?

Funded by the European Union

14.00 - 18.00 CEST
13 April 2023 *Online*

Organised jointly by  **eosc** | **FAIR-IMPACT**
Expanding FAIR solutions across EOSC

 **SSSOM**
Sustainable Software Systems

Next steps: upcoming workshops

- **Additional workshop organised in various events (scidatacon, RDA,...)**
- **2nd Workshop** for another step in the task in **Autumn**
 - How the mapping is done in different communities?
 - What are the approaches?
 - What are the methodologies?

Join us for the workshop!

<https://fair-impact.eu/events/fair-impact-events>



En résumé

- ❑ SSSOM permet de documenter les alignements : provenance, confiance, justifications...
- ❑ SSSOM est indépendant du formalisme (RDF, OWL, SKOS, BDD orientée graphe) et du type de prédicat choisi (exact, broad...)
- ❑ SSSOM est pratique pour travailler avec les expert (tableur)
- ❑ SSSOM bénéficie d'une communauté active et du soutien de projets d'envergure
- ❑ SSSOM est encore en développement : rejoignez la communauté !



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en savoir plus sur SSSOM

Matentzoglou, N., et al. (2021). A Simple Standard for Sharing Ontological Mappings (SSSOM). arXiv, 2112.07051.

<https://mapping-commons.github.io/sssom/spec/>

<https://github.com/mapping-commons/sssom>



Amardeilh, F., Aubin, S., Bernard, S., Bravo, S., Bossy, R., Faron, C., Michel, F., Raphel, J., & Roussey, C. (2023). Combining different points of view on plant descriptions: mapping agricultural plant roles and biological taxa. In *Frontiers in Artificial Intelligence* (Vol. 6). Frontiers Media SA. <https://doi.org/10.3389/frai.2023.1188036>

ROUSSEY, Catherine, 2023, "Alignment of French Crop Usage Thesaurus and French National Taxonomic Repository TAXREF-LD", <https://doi.org/10.57745/LVRFWJ>, Recherche Data Gouv, V1



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Décrire les mappings, ce qui nous a posé question

- La cardinalité des mappings

mapping_cardinality	A string indicating whether this mapping is from a 1:1 (the subject_id maps to a single object_id), 1:n (the subject maps to more than one object_id), n:1, 1:0, 0:1 or n:n group. Note that this is a convenience field that should be derivable from the mapping set.	N:N
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- habitude de penser en monde ouvert
- information dépendante d'autres lignes du mapping set, évolutif

FCU : 1:1, 1:N, N:1, N:N



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Décrire les mappings, ce qui nous a posé question

- Le score de confiance

confidence	A score between 0 and 1 to denote the confidence or probability that the match is correct, where 1 denotes total confidence.	1
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Peut-on indiquer un score dans le cas de mappings créés manuellement ?

Quelle utilisation de mappings manuels dont la confiance serait inférieure à 1 ?

