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Mapping relationships between research objects

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At Crossref, we started talking about the article nexus in 2016. Providing infrastructure for persistent reference linking has always been at the core of what we do, but this concept needed to evolve to ensure connections between different research objects that may not be captured in traditional reference lists. We are achieving this by providing a standard, machine-readable way to link preprints, peer reviews, datasets and more to articles (and to each other) via our relationships schema. Importantly, we make this information freely available via our open APIs so that it can be analysed, used and integrated into tools and services.

The use of the relationships schema is growing as Crossref members assign identifiers to a range of research outputs. As of June 2018, we can see over 15,000 links between preprints and the publisher accepted manuscript/version of record (this is a requirement for preprint servers registering content with Crossref if they know a publisher version exists), and nearly 12,000 links from the publisher version back to the preprint. Over 13,000 relationships are mapped between research objects and reviews, and nearly 7,000 items have the relationship type 'is supplemented by' i.e. links to a dataset published as part of the research results. Links to a datasets produced by a different set of researchers or previously published can also be mapped using a different relationship type. The relationship types are from a list shared with DataCite to ensure interoperability between mappings. Programmatic queries on supporting materials require proper tagging of their respective relationship types.

We are also looking at better ways to capture data citations in reference lists, and need to encourage journals and publishers to map these links between articles and data, and register them with Crossref and/or DataCite (if the other way round). As Martin Fenner and Kristian Garza point out however, there is still work to do to increase awareness and implement policies around data citation (cit).

This work is coupled with other broader projects, geared towards assigning persistent global identifiers for grants, awards and facilities. Having global identifiers for this type of information will increase the utility of links between research outputs and funding information, and will will support increased discovery, reporting and evaluation for the research community.

References

Glad You Asked: A Snapshot of the Current State of Data Citation. https://doi.org/10.5438/h16y-3d72.
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