









Table 1: Mapping between Research Graph and Schema.org

## A. Mapping for Research Graph mandatory properties

Research Graph Schema	Schema.org Type	Property
key	Thing/CreativeWork/Article/ScholarlyArticle Thing/Person, Thing/Action Thing/CreativeWork/Dataset Thing/Action	Schema.org/mainEntityOfPage
source	same as above	Schema.org/publisher for Publication and Dataset Schema.org/affiliation for Researcher and Grant
local_id	same as above	Schema.org/disambiguatingDescription
last_updated	same as above	Schema.org/dateModified

## B. Mapping for Research Graph optional properties

Research Graph Schema	Schema.org Type	Property
<b>Publication</b>	Thing/CreativeWork/Article/ScholarlyArticle	
title	same as above	Schema.org/headline
doi	same as above	Schema.org/sameAs
publication_year	same as above	Schema.org/datePublished
url	same as above	Schema.org/url
authors_list	Thing/Person	Schema.org/author
<b>Researcher</b>	same as above	
full_name	same as above	Schema.org/name
first_name	same as above	Schema.org/givenName
last_name	same as above	Schema.org/familyName
url	same as above	Schema.org/url
<b>Dataset</b>	Thing/CreativeWork/Dataset	
title	same as above	Schema.org/headline
doi	same as above	Schema.org/sameAs
publication_year	same as above	Schema.org/datePublished
url	same as above	Schema.org/url
license	Thing/CreativeWork	Schema.org/sameAs
megabyte	Thing/CreativeWork/MediaObject	Schema.org/contentSize
<b>Grant</b>	Thing/Action	
title	same as above	Schema.org/headline
Participant_list	same as above	Schema.org/agent
start_year	same as above	Schema.org/startTime
end_year	same as above	Schema.org/endTime
url	same as above	Schema.org/url
funder	Thing/Organization	Schema.org/funder

identifiers to Schema.org/{ScholarlyArticle, Dataset, Person} can extend the functionality of research infrastructures that leverage JSON-LD. A similar extension has already been proposed by BioSchemas community<sup>13</sup>. Their code is available on GitHub<sup>14</sup>.

## 6. CONCLUSION AND FUTURE WORK

In this paper, we have presented a pilot project for adding JSON-LD support for Research Graph data. This project can enable an improved interoperability of connected Research Graph nodes including but not limited to publications from CERN, Dryad, datasets from figshare, da|ra, NCI, Research Data Australia and grants from Australian funders to third party services. We hope the new capability improves

the discoverability and reusability of the Research Graph database.

Schema.org is a key enabler in transforming various XML files to JSON-LD. However, our preliminary work identifies a need for extending Schema.org to support widely used identifiers such as DOI, ORCID and PURL. As we are at the early stages of this project, we need feedback and direction from the community and collaboration in this domain, particularly from the service providers who have an interest in research metadata and enabling interoperability between research data infrastructures using JSON-LD. If you are interested in this project, please contact us.

It is promising to demonstrate the possibility and values of converting current Research Graph records into the JSON-LD format. We are getting one step closer to making Research Graph semantically accessible, searchable, and actionable across the web. We will develop an API to con-

<sup>13</sup><http://bioschemas.org/community/index.html>

<sup>14</sup><https://github.com/BioSchemas>

vert our existing database into the JSON-LD format if it is endorsed by the community to be a useful practice.

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