

Visualising Australian Literary Networks

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INTRODUCTION

Writing and publishing are not solitary activities. To see a work through to publication, authors rely on sometimes large and complex networks of influence depending on various temporal and cultural conditions. Direct influences on an author and their work might include the inspiration of other writers, suggestions from friends and family, the requirements of specific groups of readers or the editorial intervention of publishers. Once published, networks of influence continue to form around a work as it is bought, sold, read, reviewed and criticised by a wide variety of consumers with different uses and gratifications in mind. The judgement of literary critics from journalistic or academic backgrounds can have a significant effect on the reputation of a work and their words can reveal any number of aesthetic or political motivations.

Through AustLit [1], scholars studying Australian literary networks can access detailed Agent records representing more than 120,000 people and organisations including authors, editors, publishers, critics, illustrators, translators and printers. This paper describes the interactive information visualisations that have been developed for AustLit as part of the Aus-e-Lit [2] project to enable literature scholars to explore connections between people and organisations represented by Agent records, including relationships identified through text mining. Relationships inferred from AustLit text fields provide a strong foundation for better definition and subsequent amalgamation with relationships already defined by the AustLit data model. In addition to refining inferred relationships, scholars can use Aus-e-Lit's LORE tool [3] to contribute new relationships and data identified through their own research to enrich the visualised networks. Such activities will contribute to a greater understanding of the networks and individuals that have influenced the writing, publishing and reading of Australian literature on local, national and international levels.

VISUALISING AUSTLIT AGENT NETWORKS

Figure 1 shows an Agent network visualisation based on AustLit data for author and publisher P. R. Stephensen.

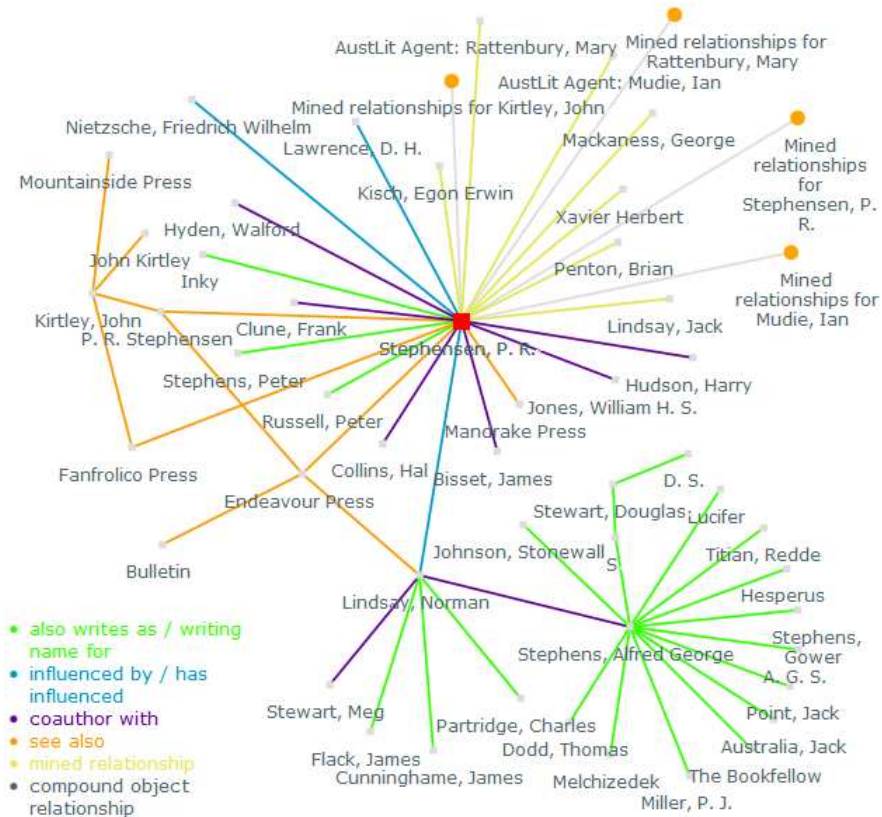


Figure 1: Visualisation of an Agent Network

The visualisation is interactive, to allow scholars to explore the network under investigation: nodes representing Agents can be removed or rearranged via drag and drop, and clicking on an Agent name triggers the visualisation to expand the network to include additional connections for that Agent. Each connection is colour-coded to indicate the nature of the relationship between the Agents. Some of the relationships are directly represented in the AustLit data model such as *see*

also and *writing name for*, while others like *coauthor with* have been inferred using more complex queries. We use basic text mining techniques to identify links between Agents from biographies and other text fields and store these mined relationships as compound objects to allow them to be edited using LORE.

EXTENDING THE NETWORK: COMMUNITY CONTRIBUTION

LORE allows scholars to attach metadata to and relationships between digital resources, and to publish their data as OAI ORE [4] compliant compound objects which can be ingested into AustLit. Compound objects that express relationships between Agents are indicated in the network visualisation by orange circles. These compound objects may represent relationships identified through the Aus-e-Lit text mining tool or new data contributed by members of the research community. Mined relationships are represented using the Dublin Core relation property. Figure 2 shows a compound object representing mined Agent relationships in the LORE editor. Scholars can provide additional information about these mined relationships, and can contribute new Agent relationships to the visualised networks using LORE. For example, scholars might replace a generic *relation* property with a more specific relationship chosen from the drop down menu on the arc representing the relationship in the editor. The types of relationships that can be selected are configured from an ontology specified in LORE's user preferences. We developed an ontology that extends the existing AustLit data model to provide some of the more common types of relationships of interest when studying Agent networks; however scholars may select other standard ontologies or develop their own terms to describe more specialised research data.

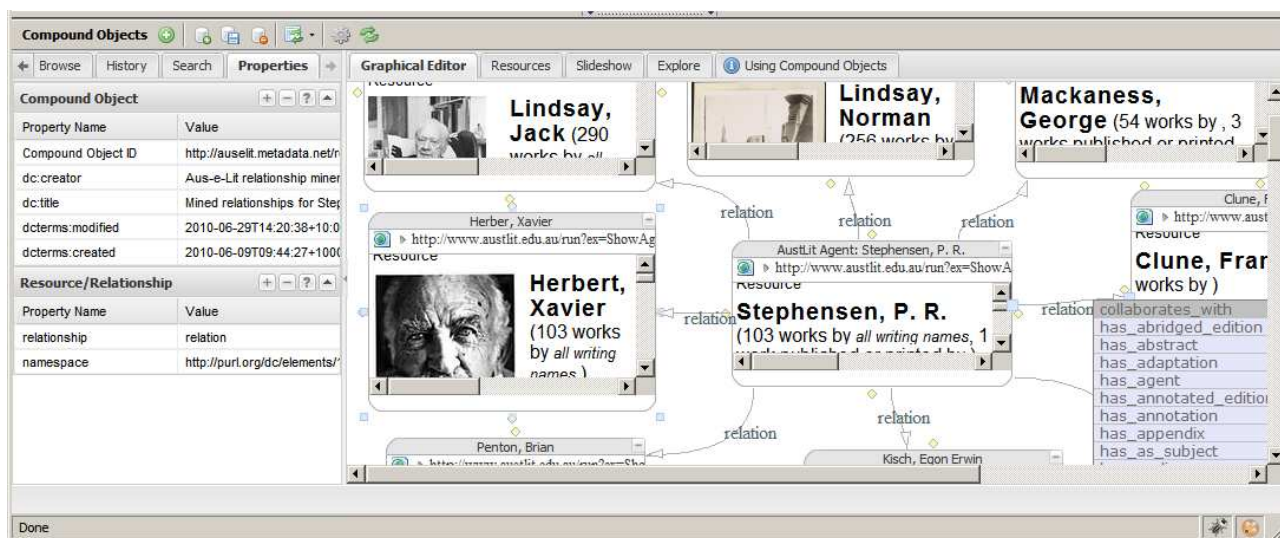


Figure 2: Editing mined relationships using LORE

FUTURE WORK

We are prototyping an enhanced user interface to provide our users with more control over the visualisations, for example, allowing them to hide or show relationships by type. We can use the hierarchy from the relationships ontology to assist, for example, if a user chooses to hide all *collaborates_with* relationships, all *is_coauthor_with* relationships will also be hidden, as *is_coauthor_with* is a sub-property of *collaborates_with* according to our relationship ontology. We are also working on extending the visualisations with more inferred relationships obtained from querying AustLit to discover connections between authors, publishers and critics, and on improving our text mining process to identify more relationships from AustLit text fields. Finally, we are interested in adding a temporal aspect to the visualisation, to allow scholars to explore how literary networks change over time.

ACKNOWLEDGEMENTS

Aus-e-Lit is funded by The Department of Innovation, Industry, Science and Research (DIISR) through the National eResearch Architecture Taskforce (NeAT), part of the National Collaborative Research Infrastructure Strategy (NCRIS).

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