Publications

Decipher

2011

An Event-Based Approach to Describing and Understanding Museum Narratives

Paul Mulholland
Knowledge Media Institute, The Open University

Annika Wolff
Knowledge Media Institute, The Open University

Trevor Collins
Knowledge Media Institute, The Open University

See next page for additional authors

Follow this and additional works at: https://arrow.tudublin.ie/decipart

Part of the Arts and Humanities Commons, and the Computer Sciences Commons

Recommended Citation

Authors

Paul Mulholland, Annika Wolff, Trevor Collins, and Zdenek Zdrahal

An event-based approach to describing and understanding museum narratives

Paul Mulholland, Annika Wolff, Trevor Collins, Zdenek Zdrahal

Knowledge Media Institute, The Open University, Walton Hall,
Milton Keynes, MK7 6AA, UK
{p.mulholland|a.l.wolff|t.d.collins|z.zdrahal}@open.ac.uk

Abstract. Current museum metadata tends to be focused around the properties of the heritage object such as the artist, style and date of creation. This form of metadata can index a museum's collection but cannot express the relations between heritage objects and related concepts found in contemporary museum exhibitions. A modern museum exhibition, rather than providing a taxonomic classification of heritage objects, uses them in the construction of curatorial narratives to be interpreted by an audience. In this paper we outline how curatorial narratives can be represented semantically using our Curate Ontology. The Curate Ontology, informed by a detailed analysis of two museum exhibitions, draws on structuralist theories that distinguish between story (i.e. what can be told), plot (i.e. an interpretation of the story) and narrative (i.e. its presentational form). This work has implications for how events can be used in the description of museum narratives and their associated heritage objects.

Keywords: Cultural heritage, curation, story, plot, narrative, event, ontology.

1 Introduction

Currently, museum metadata and content management systems focus predominantly on museum collections that comprise the heritage objects for which the museum acts as custodian. Museum metadata tends to be built around the objects that comprise the collection, indexing them, in terms of properties such as the artist, style, its date of creation, location and the materials used in its construction. In contemporary museum practice, an exhibition is constructed to tell a story that makes use of the displayed heritage objects but expresses relationships beyond the indexing used for collection management. Understanding and describing curatorial narratives involves going beyond the classification of heritage objects toward their interconnection in alternative conceptual and presentational structures.

This work is being carried out within the DECIPHER project, funded by the EU 7th Framework Programme. An objective of DECIPHER is to develop intelligent tools for assisting museum curators and visitors in presenting digital heritage objects within an overall coherent narrative. Within this, our current work is concerned with understanding and formally describing curatorial narratives and their construction.

Some previous research has been carried out related to building conceptual structures and presentations that span multiple heritage objects. These generally make use of event-based ontologies and metadata schemes such as CIDOC CRM [1] to conceptually interconnect heritage objects. Bletchley Park Text [2, 3] used historical interviews described according to CIDOC CRM event-based metadata to assemble an online newspaper in response to a query. Interviews were grouped according to the common people, places and objects mentioned in their constituent events. Hyvonen et al [4, 5] used event-based metadata to assemble related heritage objects around another heritage object that acted as a hub or backbone to the presentation. In one case a movie about the ceramics process was represented as events and linked to other resources related to concepts (e.g. people objects) featured in the events [4]. In the other case, event structures were used to generate links within a poem and also to external resources giving additional information [5].

Wang et al [6, 7] use content metadata and user preferences to suggest related heritage objects of interest. Van Hage et al [8] combine this with a real-time routing system to provide a personalized museum tour guide creating a conceptual path across a number of heritage objects. The personalized tour guide developed by Lim and Aylett [9] associated heritage objects with a metadata structure they termed a story element that comprised events, people, objects, museum location and causal relationships to other story elements. Recommendations were made based on casual relationships and shared items contained in story elements. Finally, van Erp et al [10] describe a prototype system for event-driven browsing. The system suggests related heritage objects based on their associated events. By selecting related heritage objects the user can create a pathway through the heritage objects.

All of these systems aim to go beyond the presentation of a single heritage object by connecting multiple heritage objects within a single conceptual graph. All make interconnections based on common terms or concepts included in metadata schemas associated with the heritage objects. Additionally, Lim and Aylett [9] have an explicit causal property connecting story elements associated with heritage objects. However, none of these systems have an explicit representation of the curatorial narrative, the story it tells, or how heritage objects are employed in the telling of this story.

Our aim is to propose a conceptual model for curatorial narratives that specifies the structure and types of relationships found within them. This model could then be used to capture the decisions and interpretation implicit in a curator-produced narrative. In the next section we introduce two exhibitions that were analyzed to inform the development of the model. The bulk of the paper outlines the Curate Ontology[1], drawing on examples from the exhibitions we have studied. Finally, we discuss how the work relates to the objectives of the workshop and outline ongoing work.

2 Investigating the curatorial process

The Curate Ontology, our model of the curatorial process, has drawn on an analysis of two exhibitions. Our investigation looked at how the exhibitions were constructed, the

---

[1] http://decipher.open.ac.uk/curate

conceptual structures within them and the use made of heritage objects. The two exhibitions were *The Moderns – The Arts in Ireland from the 1900s to the 1970s* (shown at the Irish Museum of Modern Art) and *Gabriel Metsu – Rediscovered Master of the Dutch Golden Age* (shown at the National Gallery of Ireland).

The Moderns explored Irish art from around 1900 to 1970 [11]. The exhibition, which ran from October 2010 to February 2011, looked at modernity in art, the introduction of continental ideas to Ireland and the development of new art forms. The Moderns exhibition surveyed a large number of artists over a relatively long time period. The exhibition included works in a number of different media including film and photography.

The Gabriel Metsu exhibition ran from September to December 2010 [12]. Unlike the Moderns that surveyed a broad range of artists, the Gabriel Metsu exhibition was monographic, concentrating on the work of a single artist. Gabriel Metsu was a genre painter, specializing in scenes of daily life. He lived and worked during the Dutch Golden Age of the 17th Century.

These two exhibitions were chosen because they differed in terms of their themes, scope, and the nature of the exhibited works. Both were also recent exhibitions held by partners of the DECIPHER project; the Irish Museum of Modern Art and National Gallery of Ireland. This provided first-hand access to how the exhibitions were developed, the range of people involved and the array of supporting materials associated with the exhibition.

Our analysis drew on a visit to the exhibition (in the case of *The Moderns*), discussions with museum staff, analysis of a range of resources (including visitor booklets, museum panels, audio guide transcripts) and participation in workshops organized by the museum partners. A one-day workshop was held at each of the museums focusing on one of the two exhibitions. The first half of each day was devoted to presentations by museum staff whose work had contributed to the exhibition. The functions covered in the presentations included the research and curatorial design of the exhibition space; the design of activities and resources around the exhibition, such as teaching plans, learner resources audio guides and visitor booklets; outreach to other local gallery spaces; and how the museum provides support for museum professionals and others to conduct research related to the exhibition.

For the second half of each workshop we provided a set of scenarios exploring different ways in which technology developed in the DECIPHER project could create new visitor or learner experiences and also support the work of museum curators and researchers. Findings from the workshop were interpreted in terms of existing work related to the nature of narrative and the use of narrative in museums. In the next sections we outline the Curate Ontology drawing on observations from the two exhibitions.

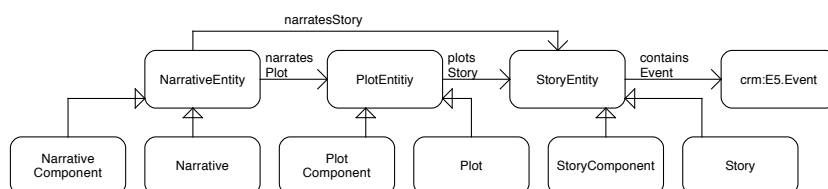## 3 The curatorial process as story, plot and narrative

Our analysis of curatorial narrative drew on two working hypotheses that helped guide our interpretation. First, we hypothesized that curatorial presentations are in the

form of narratives and therefore contain the properties found in other types of narrative such as novels and films. This led us to consider how structuralist accounts of narrative [13] in general could inform the study of curatorial narratives. Second, we hypothesized that curatorial narratives are not only a presentation but also the product of a process of inquiry, in which heritage objects and other materials are sources of evidence. Narrative inquiry suggests how research can be conducted that makes use of, or produces, narratives [14].

Structuralist theories identify story, plot and narrative discourse as components of narrative. Chatman [13] distinguishes between story (what can be told) and narrative (a way of telling the story). One story may be realised in many different narratives. Both story and narrative discourse have their own time. Story time is the actual chronology of the events and narrative time is the order in which the events are revealed to the reader.

Structuralist theorists such as Tomashevsky [15] also make a distinction between story and plot. The story (or fabula) and plot (or sjuzhet) contain the same events. In the story, the events are ordered chronologically. In the plot the events are reorganized in order to explain the relationships between them and structure them as a coherent whole. The plot therefore transforms a pure chronology of events to a form that highlights for example the conflicts in the story, how they came about and how they are resolved by the characters. A similar distinction is found in narrative inquiry in which the process of research, in particular historical research, can involve imposing some interpretation on the chronology of events [14] and then presenting the result as a narrative. Story, plot and narrative are therefore not only types of description but also stages in a narrative-based process of research.

Hazel [16] argues that story, plot and narrative discourse constitute three primary elements of narrative in which a story constitutes the events, the plot is their organization that imposes some interpretation on events, and the narrative discourse (or narrative) is the communication of the story and plot to the reader.

Fig.1. The relationships between narrative, plot, story and event.

As will be described later, our analysis of curatorial narrative has characteristics that can be usefully interpreted as story, plot and narrative. This distinction between story, plot and narrative allows us to introduce the first part of the Curate Ontology (see figure 1), in which a narrative narrates a plot and story, and a plot plots a story. A story contains events, which we illustrate here with the event class (E5) from the CIDOC CRM ontology. Finally, narratives (and plots and stories) can be divided into components. For example, a narrative (in the form of a book) may be divided physically into chapters, a plot can have sub-plots, and the story itself can be divided into components (as we shall discuss in section 5 on story structure).

4 Heritage object narratives and curatorial narratives

From the workshops, discussions with museum staff and analysis of materials it became clear that we needed to distinguish two types of narrative: heritage object narratives and curatorial narratives.

A heritage object narrative tells a story about a heritage object. Narratives can be found in the descriptions accompanying a heritage object when included in an exhibition. These may be, for example, in the exhibition catalogue, on a label displayed in the physical or virtual museum space, or in the audio guide description of the object. The Metsu exhibition website [17] shows some examples of what can be interpreted as heritage object narratives.

A heritage object may have multiple heritage object narratives. These heritage object narratives may draw on different aspects of the heritage object such as how the object was created, some insight it gives about the life of the artist, what is depicted in the heritage object or who has owned it. Heritage object narratives can also draw on different metaphorical uses of the heritage object. Pearce [18] gives an example of how an army jacket can be used to tell stories related to the Battle of Waterloo, in which it was worn or the Peterloo massacre in which the same jackets were worn.

Heritage object narratives may also be prepared for different audiences. For example, as part of The Moderns exhibition specially written descriptions of some of the included heritage objects were provided for older school children that matched their school curriculum.

These multiple narratives associated with individual heritage objects already start to move beyond schemas and management systems oriented around collections and start to provide some interpretation for the object, even situating it in the context of other objects in the same exhibition.

The second form of narrative identified is the curatorial narrative. We propose that a curatorial narrative threads across a number of heritage object narratives to create a narrative for the exhibition or some part of the exhibition space. Rowe et al [19] distinguish big and little narratives told by the museum to the visitor. An experience in the life of an individual could be a small narrative within the big, overarching narrative of the museum exhibition. Peponis et al. [20] in investigating the spatial design of science museums identify a narrative that makes conceptual relationships across a set of exhibits, yielding more complex insights than could be made from the exhibits individually.
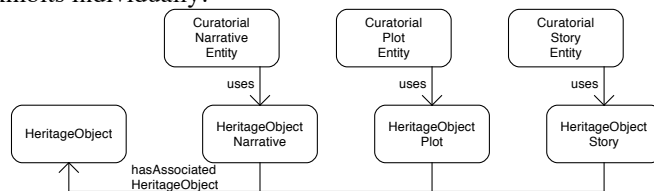
Fig. 2. The relationships between curatorial narratives, heritage object narratives and heritage objects.

In Gabriel Metsu, The Moderns and other exhibitions, examples can be found that can be interpreted as curatorial narratives. For example, in The Moderns, textual

narratives were associated with particular rooms or sub-sets of rooms within the exhibition. These constructed narratives concerned with, for example, Irish women modernists, that spanned a number of heritage objects and their individual narratives. The exhibition itself constitutes a narrative of which the narrative concerned with Irish women modernists is a component.

As heritage object narratives and curatorial narratives are both types of narratives they both have associated plots and stories. This provides us with the relationships in figure 2 where the curatorial narrative, plot and story layers make use of the heritage object narrative, plot and story layers, which in turn are associated with heritage objects.

5 Stories as conceptual organizations of events

As described earlier, a story is a collection of events that can be told within a narrative. Polkinghorne [14], in his study of narrative inquiry, describes how a story starts off as a chronological ordering of events (i.e. fabula, see section 3). A story can then be further organized into a storyline were the events are also classified according to specified themes, such as the type of activity or its location. This allows the story author to perceive the nature and frequency of different events over time. This is the definition of story adopted in the Curate Ontology.

This type of organization into a storyline could be seen from the two exhibitions investigated and the processes through which they were constructed. While the story is reflected in the final narrative it is not necessarily completely explicit and was therefore clarified in discussion with the curators.

Thematic and chronological organizations of the story were found in the two exhibitions. In the Gabriel Metsu exhibition, the story was divided into a number of sub-components that were organized chronologically, thematically or both. The first part of the exhibition was devoted to Metsu's early works. These were organized chronologically to show his progression as an artist. The other components were organized primarily according to themes. Some themes related to topics depicted in the works such as "taverns", "ladies and gentlemen"). One theme related to the use of the Amsterdam fine painting technique. Another set of works formed a group responding to Vermeer who was Metsu's contemporary.
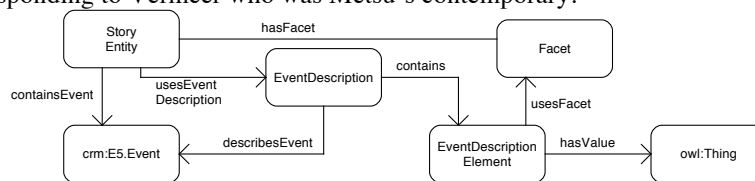

Fig. 3. Describing an event according to facets of the story.

Each of these story structures can be interpreted as a set of events organized by time and other dimensions. In some cases, such as the chronological organization of early works, the events of interest are those concerned with the creation of the heritage objects. For the story component responding to Vermeer, a broader set of

events is of relevance, concerned with how they may have influenced each other and changes in their relative standing as artists.

Within the Curate Ontology, we represent the organization of a story or story component as shown in figure 3. As in Event-Model-F [21] a distinction is made between an event and descriptions of that event. An event description contains event description elements that associate values according to different facets that have been assigned to the story or story component. Facets could be for example time, themes or location. The structure of the event description is, therefore determined by the facets of the story with which it has been associated.

When considered in combination with how heritage object stories are represented (section 4) we see that the relationship between a heritage object and an event is mediated by the heritage object story. This plays the role of the *illustrate* property in the LODE ontology [22, 23] that associates an object with an event. The mediating role of the heritage object story allows us to represent through which story the event is associated with the object.

6   Interpretation as emplotment of a story

Within the story, interpretation is limited to the selection and organization of events by time or other specified themes. Emplotment (the process of imposing a plot on the story) identifies a significant network of relationships between the events [24]. The plot is therefore more subjective and controversial than the story, placing a particular perspective on the events. A story could therefore be emplotted in multiple ways. Hazel [16] describes the plot as charting a path across the events of the story. The structure charted by the plot may be of different types such as tragedy, comedy and satire [14]. A plot also has a premise, moral or point that draws together the elements of the plot [19].

We have identified three types of plot element that express relationships between events, between story components, or between both events and story components. These will be considered in turn.

Plot relationships are expressed between events in order to place the events of the story into a coherent whole in which each included event has a role to play in the overall progression of the narrative. Possibly the most widely reported plot relationship between events is cause-effect, where the events of the story are organized into a causal sequence [25]. However, within narratology there is a recognition that plot relationships between events are not purely cause-effect. Chatman [13] highlights "happenings" that have no cause within the narrative. Many of the relationships identified in the two exhibitions were subtler than cause-effect. A good example is the part of the Metsu exhibition that explored the relationship between the work of Metsu and Vermeer. The reputation of the two artists has fluctuated wildly over the last 300 years and this has been reflected in varying accounts offering complex relationships between the artists and events in their lives, more nuanced than *cause-effect* or a general *influence* relationship between the artists.

In expressing plot relationships between events we make use of the Event-F-Model design pattern [21] used to express, for example, causal and correlational relationships

between events. As shown in figure 4, a plot contains plot descriptions. The subclass EventRelationDescription classifies events from within the story. A justification can be provided for each plot description.

We employ a similar pattern to express relationships involving components of the story. Within The Moderns exhibition there were story components related to the works of two brothers; the artist J. B. Yeates and the poet and playwright W. B. Yeates. Although plot relationships could be expressed between events in each of those two components, it was also useful to express a broader comparison relationship between the two story components, indicating their role within the overall story.
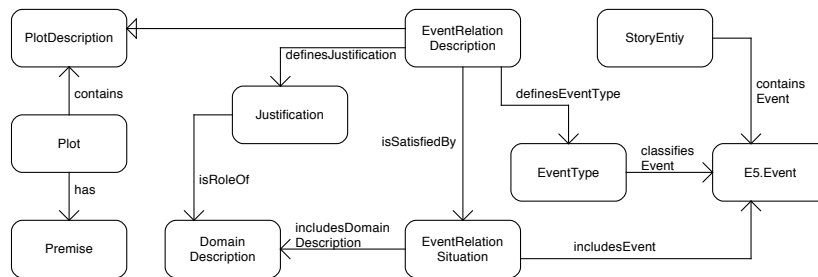

Fig. 4. Specifying plot relationships between events.

Finally, a similar pattern can be used to express relationships involving both events and story components. This could be used for example to express how an event was pivotal between two story components related to different time periods. For example, in The Moderns exhibition, the summer J. M. Synge spent on the Isle of Aran is seen as transforming the later representation of Irishness, which is taken up in other components of the story.

7 Narrative presentation of a story and a plot

The Curate Ontology can also be used to describe the contents of the narrative and its relationship to the underlying plot and story. This allows us to capture variations between the underlying conceptual structure and the narrative presentation in physical or digital form. A curatorial narrative within a physical museum space may vary considerably from the underling story due to different types of physical constraint. First, differences may be due to the fixed structure of the museum space. For example, the exhibition space at IMMA is made up of a number of relatively small rooms and interconnecting doors and corridors. This can result in a story component spanning a number of physical spaces, with the organization of heritage objects and interpretation panels across those spaces being as much determined by aesthetic and size constraints as the conceptual organization of the story.

Some differences between story and narrative organization may result from preservation constraints of the exhibits. For example, pencil sketches need to be displayed in darker conditions than are used for displaying paintings, therefore need to be separated in a physical museum space. Another obvious difference is that

heritage objects can be duplicated in the story space but not in the physical museum space. A number of examples were found of heritage object narratives that referred to not only to other works in the same physical area but also to works some distance away in the exhibition. Some, not due to preservation constraints, could be seen as reflecting alternative story structures that were not privileged in the physical space.

The Curate Ontology can represent the structure of the narrative again using a pattern similar to the Event-F-Model [21] though this time to classify components of the narrative and provide a justification for the structure. Example structures that can be defined include a linear structure (to represent a sequence of rooms in a physical or online gallery) or a hub and spoke structure (in which a central space has a number of offshoots). Work on rhetorical patterns in hypertext [26] indicates a number of candidate structures that can be described.

8 Discussion and further work

We have discussed our work developing the Curate Ontology, drawing on narratology, narrative inquiry, an analysis of museum exhibitions and event modelling research. Our work addresses the themes of the workshop in the following ways:

(i) We have identified how heritage objects can be associated with events mediated by the heritage object stories that can be told around a heritage object. Heritage object stories may highlight different perspectives such as the artist, how the object was made or what it depicts, or what has happened to it since its creation.

(ii) We have outlined how curatorial narratives can be described, distinguishing the presented narrative from the conceptual structure of the story and the role of events within that conceptual structure.

(iii) Our approach to representing event descriptions is consistent with existing patterns and shows how these descriptions can be tied to story entities and facets to create the storylines found in narrative inquiry research.

(iv) We have described how plots can be represented within museum narratives and how this builds on existing research related to the formal description of causal or correlational relationships between events.

Our current work is focussed on testing the Curate Ontology against cases offered by our museum partners. To facilitate this we have been developing an API and web interface to the Curate Ontology using the Drupal CMS. This makes mappings from content types and fields of the Drupal CMS to classes and properties of the ontology, similarly to Corlosquet et al [27]. In testing the model we are particularly interested in elaborating the types of story, plot and narrative structure required to express the decisions made in curatorial practice.

Acknowledgements

References

1. Crofts, N., Doerr, M., Gill, T., Stead, S., Stiff, M. (eds.): Definition of the CIDOC Conceptual Reference Model, (2010).
2. Collins T., Mulholland, P. and Zdrahal, Z.: Semantic browsing of digital collections. In: ISWC (2005).
3. Mulholland, P., Collins, T. and Zdrahal, Z.: Bletchley Park Text. In: Journal of Interactive Media in Education, http://jime.open.ac.uk/2005/24 (2005).
4. Hyvönen, E., Makela, E., Kauppinen, T., et al: CultureSampo: A national publication system of cultural heritage on the semantic Web 2.0. In: ESWC (2009).
5. Hyvönen, E., Palonen, T., Takala, J.: Narrative semantic web - Case National Finnish Epic Kalevala. In: 7th Extended Semantic Web Conference (2010).
6. Wang, Y., Aroyo, L. and Stash, N.: Interactive User Modeling for Personalized Access to Museum Collections: The Rijksmuseum Case Study. In: User Modeling (2007).
7. Wang, Y., Aroyo, L. and Stash, N., et al: Cultivating Personalized Museum Tours Online and On-site. In: Interdisciplinary Science Reviews, 32 (2), pp. 141-156, (2009)
8. van Hage, W. R., Stash, N., Wang, Y., Aroyo, L.: Finding Your Way through the Rijksmuseum with an Adaptive Mobile Museum Guide. In: ESWC (2010).
9. Lim, M. Y. and Aylett, R.: Narrative construction in a mobile tour guide. In: International Conference on Virtual Storytelling (2007).
10. van Erp, M., Oomen, J., Segers, R., van den Akker, C. et al: Automatic Heritage Metadata Enrichment with Historic Events. In: Museums and the Web (2011).
11. Arnold, B., Cass, B., Dorgan, T. et al: The Moderns - The Arts in Ireland from the 1900s to the 1970s. Irish Museum of Modern Art (2011).
12. Waiboer, A. E.: Gabriel Metsu, Rediscovered Master of the Dutch Golden Age. National Gallery of Ireland (2010).
13. Chatman, S.: Story and Discourse: Narrative structure in fiction and film. Cornell U. (1980).
14. Polkinghorne, D.: Narrative knowing and the human sciences. State Univ. NY Press (1988).
15. Tomashevsky, B.: Thematics. In: Lemon, L. T., Reis, M. J. (eds.): Russian Formalist Criticism: Four Essays. University of Nebraska Press (1965).
16. Hazel, P.: Narrative and New Media. In: Narrative in Interactive Learning Environments (2008).
17. Gabriel Metsu: Selected Works, http://www.gabrielmetsuexhibition.com/galleryIndex.php
18. Pearce, S. M.: On collecting: An investigation into collecting in the European tradition. Routledge: London (1995).
19. Rowe, S., Wertsch, J., Tatyana, K.: Linking Little Narratives to Big Ones: Narrative and Public Memory in History Museums. Culture and Psychology, 16 (2), pp. 96-112 (2002).
20. Peponis, J., Dalton, R., Wineman, J., Dalton, N.: Path, theme and narrative in open plan exhibition settings, International Space Syntax Symposium (2003).
21. Scherp, A., Franz, T., Saathoff, C., Staab, S. F—A Model of Events based on the Foundational Ontology DOLCE+DnS Ultralite. In: K-CAP (2009).
22. Shaw, R., Troncy, R., Hardman, L.: LODE: Linking Open Descriptions of Events. In: Asian Semantic Web Conference (2009).
23. Troncy, R., Malocha, B., Fialho, A.: Linking events with media. In: I-Semantics (2010).
24. Roberts, G.: The history and narrative reader. Routledge (2001).
25. Allen, R. B. Acheson, J.: Browsing the structure of multimedia stories. In: ACM Digital Libraries (2000).
26. Bernstein, M.: Structural patterns in hypertext rhetoric. In: ACM Computing Surveys, 31 (4) (2000).
27. Corlosquet, S., Renaud, D., Clark, T., Polleres, A., Decker, S.: Produce and Consume Linked Data with Drupal! In: International Semantic Web Conference (2009).