

# Storyscope: Using setting and theme to assist the interpretation and development of museum stories

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**Abstract.** Stories are used to provide a context for museum objects, for example linking those objects to what they depict or the historical context in which they were created. Many explicit and implicit relationships exist between the people, places and things mentioned in a story and the museum objects with which they are associated. Storyscope is an environment for authoring museum stories comprising text, media elements and semantic annotations. A recommender component provides additional context as to how the story annotations are related directly or via other concepts not mentioned in the story. The approach involves generating a concept space for different types of story annotation such as artists and museum objects. The concept space of an annotation is predominantly made up of a set of events, forming an event space. The story context is aggregated from the concept spaces of its associated annotations. Narrative notions of setting and theme are used to reason over the concept space, identifying key concepts and time-location pairs, and their relationship to the rest of the story. The author or reader can use setting and theme to navigate the context of the story.

**Keywords:** Storytelling, museums, concept space, event space, theme, setting.

## 1 Introduction

Stories are often used in the presentation of museum objects. The story describes a context for the object, describing for example, how the object was created, or how the artwork can be seen as a response to conditions of the time. A story may relate multiple museum objects, describing how the creation of one was in reaction to, or in some way influenced, by another. Stories therefore provide a valuable mechanism for interpreting museum objects and understanding them within a wider context.

Storyscope embodies the narrative concepts of setting and theme to provide a focus and abstraction for how the potentially large knowledge space around the story is explored, in which themes are key concepts of the story and settings are times and places at which events in the story occurred [1].

## 2 Story authoring

Storyscope provides a lightweight authoring environment (see figure 1), in which story text can be associated with media elements (images, videos). The annotations of the story are associated with Freebase topics, using a variant of Freebase Suggest widget. The story is themed for presentation according to a pre-defined template. The authoring component is paired with a recommender component that provides access to the surrounding context of the story. The link between the two components is the set of story annotations. By selecting one of the Story Tags the reader or author can access the concept space for the whole story or one of its constituent annotations. The authoring and recommender components are implemented as modules in the Drupal Content Management System.

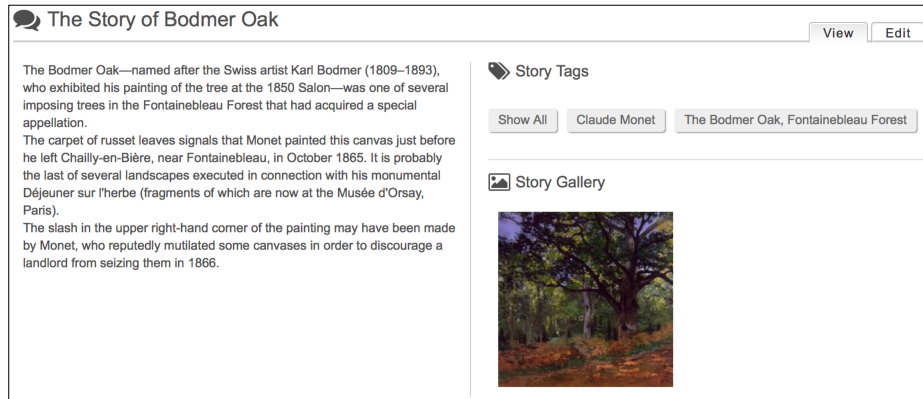


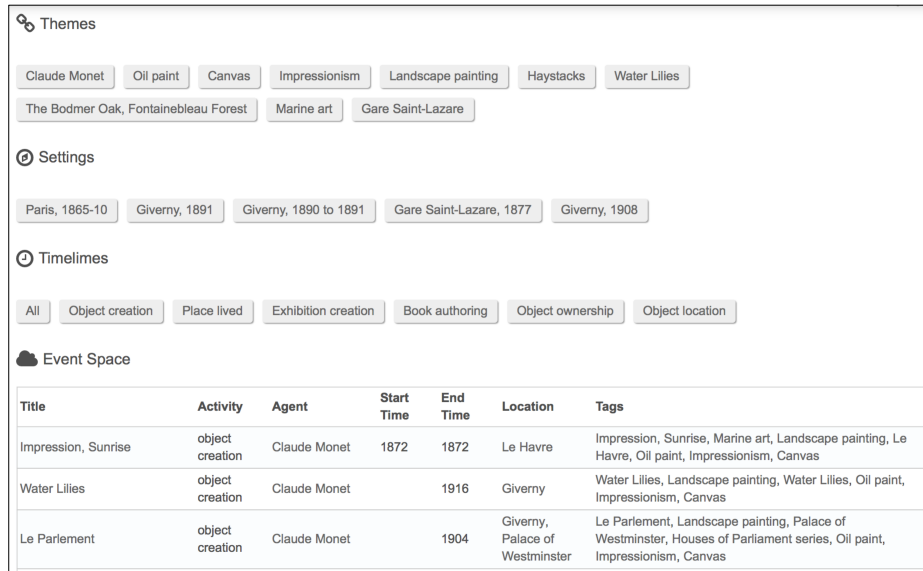
Fig. 1. The authoring environment for writing stories and adding media and annotations.

## 3 Concept space of a story annotation

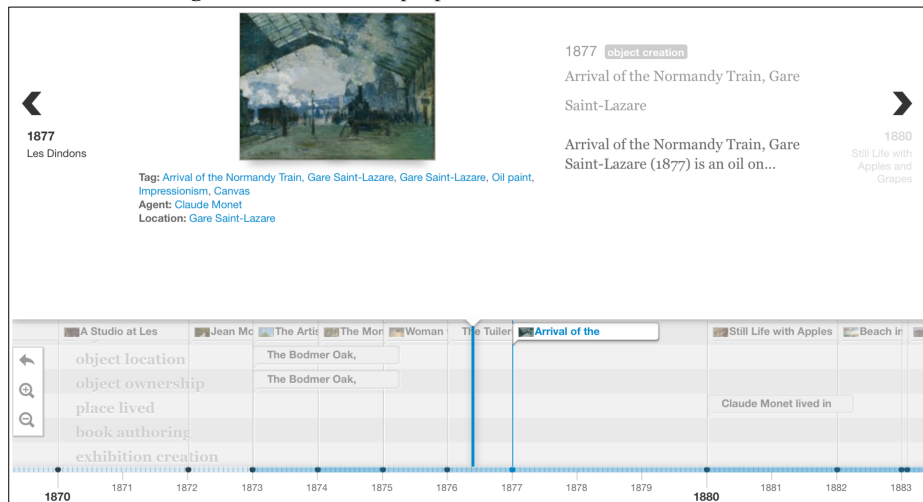
The recommender component produces a concept space from the Freebase annotations associated with the story (figure 2). The recommender component can be used both by the author to assist in story development and by the reader to explore beyond the story. Annotations are used to generate a concept space comprising associated attributes (e.g. name and description of an artwork) and events (e.g. creation, ownership and exhibition events of an artwork) of the annotation. Events are modeled using a simple schema focused around agents, times, locations and other associated concepts (termed Tags). Narrative notions of setting and theme are then used to extract elements from the concept space of potential greater relevance to the author or reader. Settings are calculated from time and location event attributes (i.e. start time, end time, location) and themes from other event attributes (e.g. agent, tags) and direct attributes of the annotation (e.g. associated movement of the artist).

Themes can be generated for any single or multi-annotation concept space. The concepts contained in the concept space are scored in terms of: (i) *Coverage* - How many story annotations they are associated with either as direct attributes of the

annotation (e.g. art movement or an artist) or through co-occurring in an event with the annotation (e.g. tag of an event in which the artist is an agent); and (ii) *Frequency* - How many times the concept appears in the concept space as either an attribute of a story annotation or attribute of an event. The candidate themes of the event space are then ordered primarily in terms of coverage and secondarily in terms of frequency.



**Fig. 2.** Part of the concept space for the Bodmer Oak annotation.



**Fig. 3.** Timeline of the event space of the Bodmer Oak annotation.

Settings indicate both when and where something happened in a story. Setting is important as it identifies a point in time and space where characters or other objects in the story intersected. The candidate settings of an event space are all the times and locations associated in an event. A setting may include a time point (for events that have only a start or end time) or a time span (for events that have both a start and end

time). Candidate settings are ranked using a similar approach to theme ordering. Settings are primarily ordered according to coverage, defined as the number of annotations associated with events featuring that particular setting. Frequency is again used as the secondary ordering principle, defined as the number of times the setting features in the event space.

The entire event space or events of one activity (e.g. object creation) can be visualized on a timeline (excluding events for which there is no time information) (see figure 3).

## 4 Themes of a story setting

A setting can be used to generate a further space of events related to that setting (figure 4). Events are retrieved that match as well as contain the setting in terms of location and time. This gives the user a view of larger scale events that may, but not necessarily, have had an influence on the events directly associated with the setting. So for example, if a setting was derived from the creation of an artwork and that setting fell during a national or global event then details of that event are included in the event space of the setting.

About : Paris, 1873 to 1900

Location: Paris

Paris is the capital and most populous city of France. Situated on the Seine River, in the north of the country, it is at the heart of the Île-de-France region, also known as the région parisienne. Within its administrative limits largely unchanged since 1860, the city of Paris has a population of 2,249,975 inhabitants, but its metropolitan area is one of the largest population centres in Europe, with 12,292,895 inhabitants at the January 2011 census. Archeological evidence shows that the site of Paris has been occupied by man since between 9800 and 7500 BC. In the 3rd century BC, it became the site of a town of a Celtic people called the Parisii, for whom the modern city is named. In the 1st century BC, it was conquered by the Romans and became a Gallo-Roman garrison town called Lutetia. It was Christianised in the 3rd century and became the capital of Clovis the Frank in the 5th century. In 987, under King Hugh Capet, it became the capital of France.

Themes

Impressionism Oil paint Paris Canvas The Bodmer Oak, Fontainebleau Forest

Timelines

All Object creation Olympic games Event Award ceremony Object location Military conflict

Event space

| Title                   | Activity        | Agent               | Start Time | End Time   | Location | Tags  |
|-------------------------|-----------------|---------------------|------------|------------|----------|---|
| The House at Rueil      | object creation | Édouard Manet       |            | 1882       | Paris    | The House at Rueil, Cityscape, Paris, Oil paint, Impressionism, Canvas      |
| 1900 Summer Olympics    | olympic games   |                     | 1900-05-14 | 1900-10-28 | Paris    |   |
| Exposition Universelle  | event           |                     | 1900-04-15 | 1900-11-12 | Paris    |   |
| Exposition Universelle  | event           |                     | 1878-05-01 | 1878-11-10 | Paris    |   |
| Paris Street; Rainy Day | object creation | Gustave Caillebotte | 1877       | 1877       | Paris    | Paris Street; Rainy Day, Genre art, Paris, Oil paint, Impressionism, Canvas |

**Fig. 4.** Settings derived from the event space of three story annotations.

## References

1. Mulholland, P., Wolff, A., Kilfeather, E., McCarthy, E.: Using event spaces, setting and theme to assist the interpretation and development of museum stories. EKAU (2014).