# AN ANALYSIS OF THE CHALLENGE OF DATA COMPLETENESS OF EVENTS FOR CULTURAL HERITAGE INSTITUTIONS

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**Problem Definition.** Databases of cultural heritage institutions currently often contain limited object-related event data. Providing this data is necessary for adding historical context to objects. However, the current structure of the data makes it difficult to measure the data completeness.

**Research Objective.** In a cooperation with the Rijksmuseum Amsterdam, we attempt to enhance the structure and completeness of the historical context which cultural heritage institutions add to their objects within a data model.

Dijkshoorn et al. (2018) van den Akker et al. (2011) de Boer et al. (2017)

## 1. FINDING A DEFINITION OF THE HISTORICAL EVENT

**Challenges.**
Lack of historical consensus on events.

Need for both a theoretical and practical foundation.

**Works regarding Event & Models**

**Table 1. Prototypical Data Model**

| Information Features | Domain | Range |
|---|---|---|
| hasName | Event | Name |
| hasDescription | Event | Description |
| hasParticipant | Event | Actor |
| hasLocation | Event | Place |
| hasRegion | Event | Place |
| hasEventDate | Event | Date |
| isObservableAt | Event | Time Interval |
| hasType | Event | Type |
| knownAs | Event | Event/Name |
| wasInfluencedBy | Event | Event |
| fallsWithin | Event | Event |
| consistsOf | Event | Event |

**An event** is (1) a unique interpretation of a phenomenon which has (2) occurred at a place or region in (3) a limited extent in time. An event is (4) described in causes which result in change in the course of history. This interpretation needs (5) to be acknowledged by a contemporary.

## 2. ANALYSING DATA COMPLETENESS W.R.T THIS DEFINITION

**Challenges.**
Mapping to current RMA database.

Extracting values from Adlib/XML.

**Events stored in Database Rijksmuseum Amsterdam**

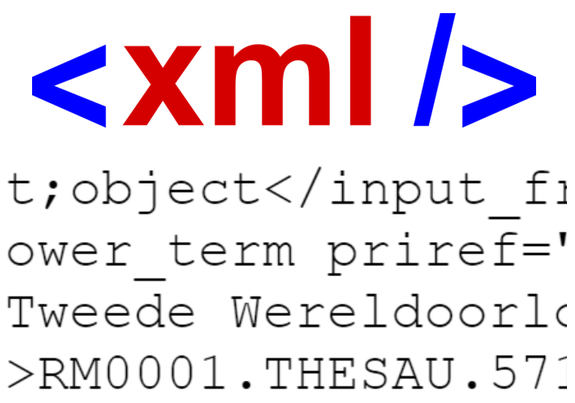


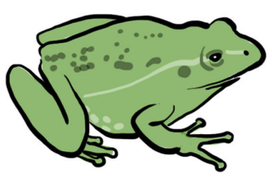

**Table 2. Current Data Completeness (32 Events)**

| Relation | Number of Occurences |
|---|---|
| hasDescription | 18 |
| hasName | 32 |
| fallsWithin | 29 |
| consistsOf | 31 |
| hasParticipant | 0 |
| hasLocation | 0 |
| hasRegion | 0 |
| hasEventDate | 0 |
| isObservableAt | 0 |
| hasType | 0 |
| knownAs | 0 |
| influencedBy | 0 |

## 3. ENHANCING COMPLETENESS USING NLP TECHNOLOGY

**Challenges.**
Extracting labels from event descriptions using NLP Technology.

**FROG NLP (developed for Dutch)**



**TextRazor**

**Table 3. Comparison of labelled entities by FROG NLP and TextRazor (32 Events)**

| Label | FROG NLP | Correct Label | TextRazor | Correct Label |
|---|---|---|---|---|
| Location | 60 | 17 | 45 | 19 |
| Time Interval | | | 22 | 12 |
| Participant | 22 | 15 | 20 | 17 |
| Event | 11 | 8 | 15 | 15 |

## FUTURE STEPS

1. Visualizing the model.
2. Increasing the number of analysed events.
3. Interpreting the results

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POSTER & REFERENCES