

Visualising the »Un-seen«: Towards Critical Approaches and Strategies of Inclusion in Digital Cultural Heritage Interfaces

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Abstract

In recent years, access to cultural heritage has been closely connected to digitisation. We argue the case for recognising this digital shift as an opportunity to create interfaces to cultural heritage that are, first of all, more inviting to the public. Secondly, we want to encourage critical approaches towards the representation of cultural production and allow for alternative or even conflicting narratives and interpretations to surface. We present related work, use cases, and concepts for visualisations and interfaces that invite the reconsideration of modes of categorisation, presentation and clustering. Our intent is to develop ways to scrutinise modes of exclusion, carry out critical evaluations and pursue interventional strategies. We discuss the specific potential of visualisation, annotation and dynamic expansion of digital cultural collections. Building on critical approaches in human-computer interaction, visualisation and cultural theories, we explore how the interface could be a means of reflection, critique and inclusion.

1 Introduction

In the early stages of digitisation, collecting institutions were mainly focusing on making their cultural heritage accessible for researchers, academics and professionals. Accordingly, the prevalent structure and design of many collection interfaces still carry the signs of their origin: they are derived from a database using index cards as textual placeholders that refer to a physical object and carry its metadata and whereabouts. This system is optimised for managing a collection internally and for scholarly use. Thus, digital heritage interfaces tend to perpetuate long-lasting premises of institutionalised collecting in heritage institutions like libraries, museums and archives. Most collection interfaces primarily support targeted search and focus on an item's metadata and retrieval-by-request functionality while neglecting the visual character of the digital object¹. With this paper, we explore the potential of a new class of interfaces that encourage interactions with cultural heritage collections that go beyond the mere retrieval of items. We illustrate how interfaces can carry forward critical discourses, question modes of exclusion and facilitate reconsideration of representational practices.

2 Exclusion, Hegemony and the Aim of Re-writing Narratives

The clustering, categorisation and representation of digitised collections still largely follows rules that have been, and still are, valid in art-historical and cultural discourses that can be summed up as »modernist grand narratives« [Lyo84]. Starting in the late 1960s, critical approaches began to question these orders – artistically, intellectually, socially and politically. Subversive practice, as an example, served as a vehicle through which artists could call out ills by explicitly breaking rules or following an activist visual vocabulary. »Revolutionary« theory and practice do not limit themselves to finding

¹ The dominance of the search paradigm does not only apply to individual collections but expands to large-scale aggregation projects such as Europeana [Euro15].

and operating the loopholes in »the rules of art« or power structures² but aim at establishing a different logic in the field, “so that the current competitive cultural field – with its social function of symbolically legitimating the given power – is no longer needed” [Ray07]. Our discussion pays close attention to the particular case of museum collections, since the canonizing³ space of the museum acts as an authority for recognition and consecration [Bour96] and represents exclusion in society as a whole.

Since the early 1990s, museum practice has been debated with respect to colonial and postcolonial bias in the representation of cultures and the epistemological status of analytical categories [Jones93:201]. Yet, the dichotomy of *art* and *ethnographic artefact* is still in use in most collections. Postcolonial discourses question hegemonial classification that does not consider objects gathered in ethnological museums as *art* but as *artefacts* that inform the ‘West’ about the ‘Other’. Even in a contemporary context, any non-‘Western’ artist is being assessed in regards to their ‘Otherness’, making it possible to render their work invisible as deviant artistic practice. Likewise, feminist discourses have pointed to the exclusionary effects of hegemonial structures that refuse to acknowledge practices perceived as ‘womanly’ as art. Historically, this has been the case with textile work, for example quilting [Poll88]. But even contemporary art has seen similar effects. In the early years of video, it was widely used by female artists and has played a significant role in feminist art [Roll00:8]. Thus, from some perspectives, video art was rendered ‘womanly’ which led to exclusions like those reported by Martha Rosler where “Video was excluded from Documenta VII in 1982 because the director, Rudi Fuchs, had supposedly ruled that video was a women’s form, and therefore not really art” [Rosl05].

In contrast to the comparatively static nature of a museum as a physical space with a long-lasting hegemonial ideology and logic, digitised collections enable us to perceive cultural heritage as being dynamic entities that can be formed, arranged, contextualised and annotated through innovative forms

² Michel Foucault and Pierre Bourdieu describe with their respective analyses how persistent the established orders of truth, knowledge, and a field’s structure and logic are, e.g. Bourdieu’s analysis of masculine domination as a prime example of symbolic violence [Bour01] as well as his concept of “fields” – in this context the cultural field and its social function of symbolically legitimating the given power [Bour96], or Foucault’s writing on knowledge, discursive formations and power [Fouc73] [Fouc12].

³ Referring to the canon as a manifestation of cultural selection. See e.g. [Poll88].

of participation. We build upon the notion that it is possible to rewrite the meaning and significance of collections by exploiting the potential of digital technologies [Came03:327]. All the while acknowledging the emergence of digital technologies as a “moment of transition and re-evaluation, in which the ground assumptions of the museum and of the knowledge communities devoted to preserving and representing the cultural heritage must be reconsidered, newly theorized, re-imagined” [CaKe07:x].

3 Interface Design and Visualisation as Critical Practice

Collection interfaces tend to focus on targeted-search functionality. The searcher needs to be familiar with the underlying information architecture, or rather the categorisation of a collection, to formulate a valid search query. The visual aspects of the requested items are often limited to thumbnail-sized images in a result list. There is a growing body of research in human-computer interaction (HCI) and information visualisation that expands our perspective on collection interfaces. The research spans theoretical analysis of the impact of power and values in interfaces and in practice the development of novel visualisations that support new ways of engaging with cultural content. Even visualisations that allow a more open access do have an authorising – possibly conflicting – agenda. Oftentimes, visualisations and interfaces are mistakenly perceived as objective algorithm-driven systems. However, they need to be recognized as cultural artefacts that can and should be interpreted, critically evaluated and maybe even resisted [Druc13]. For the purpose of questioning the status quo of digital technologies in our lives, critical methods can help to unearth hidden biases and formulate alternative assumptions [Bard09]. Especially visualisation can be seen as a critical practice that holds the potential to challenge our notions of neutrality and provide space for disruption [Hall08]. More generally, interfaces resemble a dialogue between author/curator and audience during which the selection, description and arrangement of a collection become a »rhetorical expression« [Fein12]. There have been several attempts to highlight the ample opportunities for alternative views and interactions with data that can be applied on cultural collections. Hinrichs et al. [Hinr08], for example, have shown with *EMDialog* how a visualisation of a visual artist’s oeuvre can be carefully designed in order to relate to the collection’s aesthetic qualities and the artist’s own intentions and

convictions. Whitelaw [Whit12] pleads for more »generosity« in collection interfaces, contrasting the inhospitable nature of search interfaces that hide a collection behind a query box and instead providing an inviting perspective on a collection that displays particular items as well as broader patterns. In the following, we will discuss a use case that enables the visual exploration of cultural heritage collections⁴ and later expand it with concepts that support intervention and co-creation as a strategy of inclusion.

4 Overcoming the Search-slot Paradigm

In a first use case⁵, we adapted the »scented widgets« [Will07] approach with data supplied by the Deutsche Nationalbibliothek (DNB, German National Library)⁶ in order to enable visual exploration of data [Meie14]. The current DNB interface resembles what we described earlier as a focus on metadata and retrieval-by-request functionality. In contrast to offering only a search slot that requires a precise search query, we provide the searchers with a sense of the overall collection while allowing them to filter and explore the collection. Figure 1 shows a visualisation of three metadata aspects from the DNB’s Integrated Authority File’s subset of Persons (GND) [DNB15]: spatial distribution, distribution over time as well as a tag-cloud of professions.

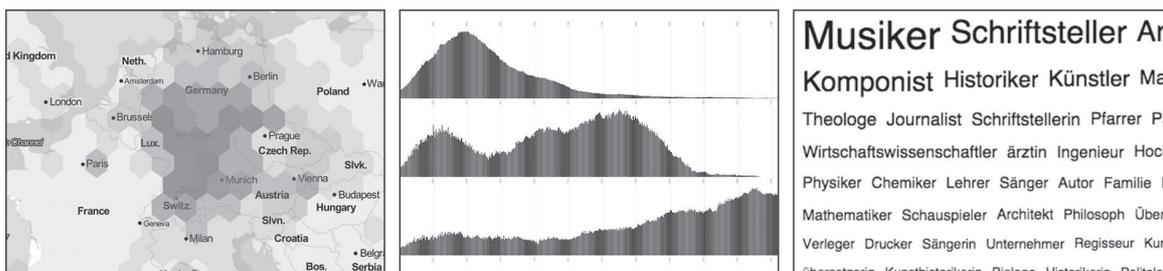


Fig. 1: Scented Filters for the DNB’s GND data set, from left to right:
 1.1 Spatial distribution; 1.2 Time distribution for three cities (Bottom to top:
 Amsterdam, Vienna and Berlin); 1.3 tag cloud visualisation (word size depicts the
 number of occurrences in the data set)

The spatial distribution filters the data by selecting a certain region on the map. The time distribution allows the selection of a specific year or a range

⁴ Collection data often consists of non-visual information such as metadata or text, posing as a challenge when aiming at creating a visual representation.

⁵ accessible on <http://www.sebastianmeier.eu/2014/06/21/deutsche-nationalbibliothek-data-explorer>

⁶ The technical solutions and design approaches in the use case presented in this section could also be applied to other types of collections, e.g. museums or archives.

of years. The tag cloud illustrates all existing professions named in the data set and weights the descriptors by number of occurrences. The visualisations are interrelated: upon selecting, for example, a time range, the professions update accordingly and the visualisation shows the occurrences for the specified time, enabling exploration of data items and their relations⁷. Interfaces that offer more flexible or dynamic access can support scholars to develop new perspectives and epistemological interest, as well as help non-experts to navigate a given collection of digital cultural heritage.

5 Visualising the »Un-seen« – Intervention and Curation

The otherwise important aspect of curation in museums vanishes almost completely in the digital representation. In the case of ethnological museums, this includes discussing the need to cautiously engage with topics like provenance, restitution, the history of collections and how this can be addressed in actual exhibitions [DeMu15]. Such a critical approach towards displaying a collection has not yet been addressed for web interfaces. When publishing collections through web interfaces, the opportunity to contribute to an ongoing, historical and critical discourse should be used. The idea of acknowledging the digital object in its own right has brought forward a frame of reference that does not limit the digital historical object to being a copy or the complement of the »real« or tangible object [Came07:64]. Following Cameron's argument in rethinking the digital object and its status, we can indulge new concepts that embrace the notion that the digital object embodies its own material and aesthetic properties. Consequently, the categories of value accorded to it enable a different relationship between subject and object to emerge, affording greater democratised access to collections [Came07:54]. We will now elaborate on three concepts for critical interventional approaches and curation in collection interfaces and visualisations.

⁷ Similar approaches have, for example, been used by Dörk et al. (2014) for more than 10 million data items in the Deutsche Digitale Bibliothek (German Digital Library).

5.1 Visualising the »Un-seen«

The concept of »scented filters« can be refined and thus used to explicitly highlight the un-seen, that is: the blank spots, concentrations and potential biases within the dataset. We illustrate this by example of the use-case visualisation of the DNB data set. The visualisation (Fig. 1.1) shows where, according to the DNB data set, people of a certain occupation (e.g. writers, musician, composers or visual artists) lived within a defined time range. Not only the highest density (dark areas) of data items can be identified, but also the blank spots (bright areas) that hint at missing data and also might represent the unseen. Hence, the visualisation highlights canonical structures and points to exclusionary effects in action. This concept can be applied to more dimensions than the spatial distribution: from a time-series visualisation that highlights the distribution of data items across the time dimension (Fig. 1.2) to a visualisation of gender attributes within data sets to highlight gender-biases.

5.2 Annotation, Co-creation and Curation

Our intent is to go beyond the representation of the status quo, and thus to encourage the public and domain experts to use such visualisations to fill blank spots with their knowledge. This leads to our second approach that is focused on annotation and content creation. When engaging with community co-creation, institutions must expand their curatorial mission from the exhibition of their collections to the “remediation of cultural narratives and experiences” [Russ07]. The role of the curator in this new sense could include structuring and providing models of collaboration, which then allow multiple points of view to coexist. By implementing interfaces that are open to annotation, commenting, co-creation, referencing and contextualisation, the canon itself can be differentiated and scrutinised. An interface for annotation and content creation would allow users to visually identify missing data and add new items to the data set. In our example, a geographic location can be selected on a map (Figure 2.1) (or a timespan, gender or other attribute within the scope of the visualisation), which then opens an interface that allows the addition of information to the existing data set (Figure 2.2). Such an interface should not only allow users to add information to the existing structures, but to extend it by, for example, adding new attributes, metadata or to suggest other categorisations (Figure 2.3).

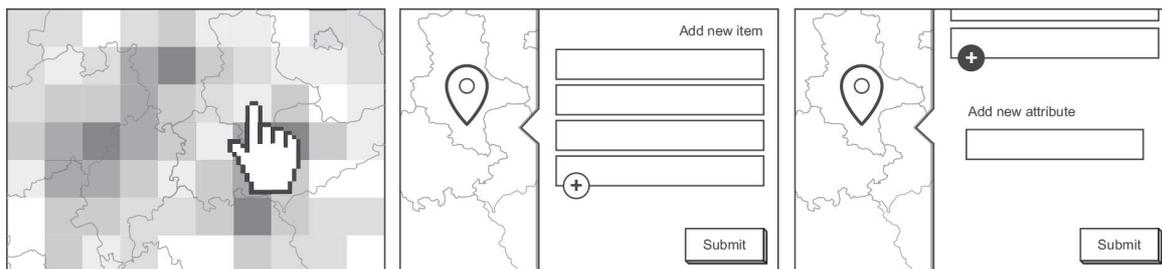


Fig. 2: Simplified process of annotation and creation: 2.1: Identify missing data by e.g. interlacing expert knowledge with the visual blank spots; 2.2 By selecting a region, an interface for annotation or creation appears; 2.3 It is possible to extend existing structures by adding custom attributes

Despite the opportunity that can be seen in extending collections and refining the metadata of collections through co-creation [Ridg13], participation within digital communities still remains a problem and the social and demographic disparity within the group of active contributors has to be critically acknowledged [Hill13]. When institutions integrate collaborative content generation, they need to assure that this new layer of information supports diversity and does not only present a shift from one exclusionary process to another. This could be done by, for example, not only providing a structure that invites the audience to create more diverse content, but also offering media expertise and taking a proactive role in developing new literacy⁸.

5.3 Reassembling the Collection – Exhibit A: Ethnological Museums

Processes for assembling, categorising, comparing, classifying and ordering in museums have long been in the centre of critical approaches. Attention has been drawn to the ways in which the categories they employ are not »natural«, but actively formed out of particular systems of value [Harr13]. Instead of reproducing traditional structures and modes of categorisation, we suggest more dynamic and flexible systems for clustering and presenting a collection and thereby also creating new semantic contexts in which the items and their relationships are presented.

⁸ as seen in e.g. Wikipedia's Art+Feminism edit-a-thons [Wiki15]



Fig. 3: Using Computer Vision to highlight connections: 3.1. query origin (*Mantel eines Derwisch*⁹); 3.2: Using Shape Detection (*Tsarskii stanovoi kaftan*¹⁰); 3.3: Colour Detection (*Schlitzgobelin Rot-Grün*¹¹); or 3.4 Visual Pattern Detection (*Einsendung zum Wettbewerb für ein Bürogebäude der Chicago Tribune*¹²)

To give an example, the *coat of a Derwisch*, presented in Figure 3.1, is part of the collection of the Ethnologisches Museum (Ethnological Museum) of Berlin and is first of all classified by its collector in the current system. More descriptive attributes of the item such as region of origin or fabric are subordinated¹³. The object-related descriptive parameters could be used to contextualise the object and relate it to other objects, for example by size, materiality, geographic or temporal origin. But in order to go beyond those traditionally used categorising parameters, we can also use computer vision algorithms [Resi14] to create further properties, for example to extract a palette of colours, the shape or structure of the item. Additional algorithms could relate or cluster multiple items based on these extracted properties. This points to the fact that the classification of objects as artefact, art, design or architecture and their respective sub-categories limits our way of perceiving cultural heritage as a sanctioned, hegemonically structured logic of traditional museum classification and categorisation. By introducing more object-related properties, we can explore collections in a way that does not fall back to a restricted structure of metadata and categorisation, but allows correlating objects more dynamically. In our example, this allows us to relate the *coat of a Derwisch* in its visual appearance with a range of different objects on the basis of shape, colour or structure, leading us, for example, to historical

⁹ Ethnologisches Museum Berlin [smb15]

¹⁰ Royal Kaftan from the Slavic and East European Collections [NYPL15]

¹¹ Gunta Stölzl (1927-1928), (Bauhaus-Archiv 2015)

¹² Walter Gropius and Adolf Meyer (1922) [Bauh15a]

¹³ The “index-card” of the item reads: Julius Heinrich Petermann, Mantel eines Derwisch, Ident. Nr.: I B 180, Staatliche Museen zu Berlin, Preußischer Kulturbesitz, Ethnologisches Museum.

lithographs of antiques of the Russian State, Bauhaus-textiles or architectonic structures (see Fig. 3).

6 Conclusion

As cultural heritage is increasingly mediated through digital interfaces, there is an opportunity to challenge long-standing assumptions and biases embedded in cultural collections. We argued that current digital cultural heritage interfaces perpetuate historically inherited institutional structures. These structures can be identified as exclusionary and have been specifically questioned in feminist and postcolonial discourses, artistic practice and institutional critique. We have elaborated on the inclusionary effects that interfaces could unfurl. We believe that we need to overcome the search-slot paradigm by implementing visualisations and interfaces that enable non-expert users to explore a collection through more visual and dynamic means as demonstrated by our use cases. Using such visualisations, we hope to support interventionist concepts in digital cultural heritage interfaces that pay tribute to approaches focusing on representational imbalances. We believe that novel interfaces can encourage curatorial practice and critical discourses, already validated for the physical space of the museum, in the digital realm. Our approach to visualise the »un-seen«, to support annotation, co-creation and curation and to question traditional modes of categorisation should create awareness and foster a discussion that mirrors the growing importance of digital access to cultural heritage.

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