

# Maps for faceted search

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Libraries, commercial sites and other large information sources on the web support their users through faceted search and navigation. A facet corresponds to a dimension in a multidimensional information space. The users are offered values of the facets to refine the query. As the number of results is displayed with each option, the users know in advance how strongly the query will be constrained.

Web portals have started to combine facet browsing with interactive maps and other visualizations. Although they can be “fascinating”, [Hearst 2008] wonders, they “... are visually engaging but take up a lot of screen space, so it is unclear what their ultimate uptake will be.” The poster will discuss further issues that arise when facets shall be combined with interactive geographic maps.

The key issue is consistency between the geospatial facets, the content of the map, and the last query with its results.

1. As facets facilitate the users’ orientation and offer an alternative input mode when they depend on screen readers or can only use the keypad, facets should always reflect the last query.
2. Facets can only present metadata, their values must be concise and intelligible. Coordinates of places and bounding boxes of maps are not suitable values for facets. Thus, geospatial facets would use a standardized geospatial vocabulary, which should designate a hierarchy of regions and named places in the map. The users should be able to navigate (click through) the map along this hierarchy and, on their way, constrain the query to the selected area, which would then be reflected in the geospatial facets.
3. However, can the users navigate only along this hierarchy, or can they explore the map further? Wouldn’t they want to pan and zoom the map or get it placed to an input address?
4. Such arbitrary movements cannot be reflected in the standardized vocabulary of the geospatial facets. So, should navigation in the map and submission of new queries be connected? How else should new queries be submitted from the map?

This issue needs further consideration. Take into account that processing a query may require significant response times due to linked displays. The web page may not only show the facets and an interactive map, but a result list and other interactive graphics. When the user points to any visual object in any display, corresponding elements in the other displays should also be highlighted. Response times for this brush and link behavior must be extremely fast, therefore, the correspondences between the visual elements must be computed directly with the results of a new query.

5. As another requirement, all results should be presented equally. Some may be indexed only with a region, and they should be accessible through this region on the map. The others are indexed by some named places. As places are presented by symbols on the map, nearby symbols may obscure or completely hide each other. As a typical solution, nearby places are represented by a “group symbol” that displays further information when selected. But again, this information should not suppress any results and make them accessible along the standardized hierarchy.

The poster will compare examples to discuss the pros and cons of different design decisions. Some combine facets and maps (Springer’s Authormapper [www.Authormapper.com](http://www.Authormapper.com), HRS’ hotel reservation system [www.hrs.com/web3/](http://www.hrs.com/web3/), Tagesschau’s Atlas [atlas.tagesschau.de](http://atlas.tagesschau.de)), while others avoid it but combine maps with other linked displays (Visgets, [Dörck et al 2008] [pages.cpsc.ualgary.ca/~mdoerk/view](http://pages.cpsc.ualgary.ca/~mdoerk/view), Europeana 4D – e4D developed by Fakultät für Informatik der Universität Leipzig and Niedersächsische Staats- und Universitätsbibliothek Göttingen).

## REFERENCES

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- [2] Hearst, M. (2008) UIs for Faceted Navigation: Recent Advances and Remaining Open Problems. In the Workshop on Human-Computer Interaction and Information Retrieval, HCIR, Redmond, WA.