

# Faceted Navigation

## An Alternative to Search and Browse

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## Agenda

- Introduction: What is Faceted Navigation?
- When to Use Faceted Navigation
- How to Develop Facet Classifications
- Implementation of Faceted Navigation
- Future of Faceted Navigation

## What is Faceted Navigation?

- Faceted navigation will change enterprise search!
- Faceted navigation will change the way business works!
- Faceted navigation means the end of taxonomies!
- Faceted navigation means no more metadata!
- Faceted navigation will eventually replace search!
- Faceted navigation will remove rust, polish your silver, feed the hungry, clothe the poor, and bring world peace!
  
- To All the Above – NAH!

## What are Facets?

- Facets are not categories
  - Entities or concepts belong to a category
  - Entities have facets
- Facets are metadata - properties or attributes
  - Entities or concepts fit into one category
  - All entities have all facets – defined by set of values
- Facets are orthogonal – mutually exclusive – dimensions
  - An event is not a person is not a document is not a place.
  - A winery is not a region is not a price is not a color.

## **What are Facets?**

### **Internal Organization**

- Taxonomies – parent – child
  - Animal – Mammal – Zebra
- Browse Classification – cluster
  - Food and Dining – Catering - Restaurants
- Facets – variety – of units, of structure
  - Date or price – numerical range
  - Location – big to small (partonomy)
  - Winery - alphabetical

## What is Faceted Navigation?

- Not a Yahoo-style Browse
  - Computer Stores under Computers and Internet
  - One value per facet per entity
- Faceted Navigation is not hierarchical
  - Tree – travel up and down, not across
  - Facets are filters, multidimensional
- Facets are applied at search time – post-coordination, not pre-coordination [Advanced Search]
- Faceted Navigation is an active interface – dynamic combination of search and browse

## When to Use Faceted Navigation

### Advantages

- More intuitive – easy to guess what is behind each door
  - Simplicity of internal organization
  - 20 questions – we know and use
- Dynamic selection of categories
  - Allow multiple perspectives
  - Ability to Handle Compound Subjects
- Trick Users into “using” Advanced Search
  - wine where color = red, price = x-y, etc.
  - Click on color red, click on price x-y, etc.
- Fewer = simple, can use auto-classification better

## **When to Use Faceted Navigation Disadvantages**

- **Implementation Disadvantages:**
  - Loss of Browse Context
    - Difficult to grasp scope and relationships
  - Difficulty of expressing complex relationships
- **Essential Limit of Faceted Navigation**
  - Limited Domain Applicability – type and size
  - Entities not concepts, documents, web sites

## When to Use Faceted Navigation

- Type of Collections
  - Small to medium sized sets of things
  - Homogenous set of entities
- Arbitrary Categorization of Domain
  - Taxonomy of Office Supplies – yes
  - Taxonomy of Life, Life Insurance – no.
- Nature of the domain and tasks
  - Multi-dimensional area – no single hierarchy
  - Nature of Important distinctions
- Can Create a Complete Set of Facets
  - 3 or more mutually exclusive dimensions

## **Developing Facet Structure: Selection of Facets - Complete Model of a domain Bliss Bibliographic Classification (BC2)**

- Thing / Entity
- Kind
- Part
- Property
- Material
- Process
- Operation
- Patient
- Product
- By-product
- Agent
- Space
- Time

## **Developing Facet Structure: Selection of Facets: Practice Wine.com**

- Region
  - Australia, California
- Type
  - Red Wine, White, Bubbly
- Winery
  - Alphabetical listing
- Price
  - \$25 and below
  - \$25-\$50
- Top Rated Wines
  - 90+ under \$20
- Top Sellers
  - Cabinet Sauvignon
  - Pinot Noir
- Hot Features
  - Wine outlet
  - Sideways collection

## **Developing Facet Structure: Selection of Facets: Practice Flamenco Architecture Search**

- **Periods**
  - 17<sup>th</sup>-18<sup>th</sup> century
- **Locations**
  - Africa, Western Europe
- **Source**
  - Person, catalog, schools
- **Materials**
  - Chalk, clay
- **View Types**
  - City views, drawings
- **Building Names**
  - White House
- **Concepts**
  - Cultural, Economic
- **People**
  - Artist, Developer
- **Styles**
  - Ancient, Mediterranean
- **Structure Types**
  - Building, Human Settlements

## **Developing Facet Structure: Selection of Facets**

- Two Sources – domain and users model of domain
- Domain
  - Mutual Exclusivity
  - Homogeneity
  - Automatic Software, entity extraction
- User's Model of the Domain
  - Suitability of Facets and Facet Labels
  - Support for user tasks
    - Surveys, search log analysis

## Developing Internal Facet Structure

- Reflect current usage – expert community and user community
- Flexibility – allows for additions of new subject, facets, entities at any point in the system
- General: chronological, alphabetical, spatial, simple to complex, size or quantity, hierarchical, canonical
- Match the structure to domain and task
  - Users can understand different structures
- Precision of unit values – very important!

## Developing Internal Facet Structure

- Balance – number of items vs. complete model
  - 12<sup>th</sup> cent – 3 items
  - 17<sup>th</sup> cent – 3,058
- Level of Structure related to size of domain
  - Alphabetical – list, range
- Number of Facets vs. Internal structure
  - People – list or sub-structure – organizations, functions, etc.
- Labeling
  - Systematic coherence vs. user labels, tasks

## **Developing Facets: Tools and Techniques**

### **Software Tools**

- Entity / Noun Phrase Extraction
  - Inxight – 50+ predefined classified dimensions
    - Controlled Vocabulary
    - Classification of all entities
  - Revision, testing, maintenance
- Implementation
  - XFML – Subset of Topic Maps, Facetmap
  - Database – SQL – Endeca, Siderean

## Implementation of Faceted Navigation Sample Sites

- Bad
  - Single set of facets, select and browse
    - It's just another category
  - “Faceted” Search
    - It's just advanced search
- Better
  - Combination of single facet browse and search
- Good
  - Multiple facet browse and search

## Implementation of Faceted Navigation Usability Issues

- Equal facets or Main and Secondary facets
  - Number of facets, user population
- Links, Pull down Menus, Child Pages
  - Size of element set, granularity
- Mixed paths or dedicated facet interface
  - Wine.com – specials, time sensitive facets
  - Facets within taxonomy – browse by wine type, then apply price, region facets

## Future of Faceted Navigation

- E-commerce Sites – Biggest Growth
- Enterprise Applications
  - Selected areas: supplies, forms, software libraries etc.
    - Yellow Pages, Faceted Site Map
  - Combining subject matter and facets
    - Geography facet and terrorism taxonomy
  - Business Rules and Facet Relationships
    - If <People = X> AND <Product = Y> THEN tag the story for text mining, Fact Extraction

## Faceted Taxonomy – Example KAPS Group Enterprise Taxonomy

- Basic Six Dimensions
  - People
    - individuals and communities
  - Event
  - Location
  - Time
  - Entities/ Things
  - Information Resource – types
- Custom
  - Products / Services
    - Applications / Technologies
- Rules
  - Attributes – credit limit
  - Function – credit management
- Combine with subject matter taxonomies

## Conclusion

- Faceted Navigation is not the answer, but it's a good additional tool for the right domains
- Easy to use and understand, but needs to be done right
- Limited enterprise use, but growing – site maps, etc.
- Increasing importance of Mixed Methods – facets and subject matter taxonomies and search
- Faceted Navigation means more structure, taxonomies, metadata, not less – and that is a good thing

# Questions?

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## Faceted Navigation Resources

### ■ Articles

- Faceted Classification Resource Collection
  - <http://deyalexander.com/resources/faceted-classification.html>
- A Simplified Model for Facet Analysis
  - [http://iainstitute.org/pg/a\\_simplified\\_model\\_for\\_facet\\_analysis.php](http://iainstitute.org/pg/a_simplified_model_for_facet_analysis.php)
- Mailing List for Faceted Classification
  - <http://www.poorbuthappy.com/fcd/>
- Study – Facets on the Web (75 ecommerce sites)
  - <http://mypage.iu.edu/%7Eklabarre/facetstudy.html>

## Faceted Navigation Resources

- Example Implementations
  - Berkeley SIMS – Flamenco  
<http://bailando.sims.berkeley.edu/flamenco.html>
  - Facetmap – demo's – [www.facetmap.com](http://www.facetmap.com)
  - Commercial – Wine.com (and 75 others– see articles)
- Tools
  - Inxight – entity and fact extraction – [www.inxight.com](http://www.inxight.com)
  - ClearForest - <http://www.clearforest.com/>
  - Verity – <http://www.verity.com>
  - Convera – Facet Taxonomies - [www.convera.com](http://www.convera.com)

## Faceted Navigation Resources

- Vendors

- Atomz - <http://www.atomz.com>
- Dieselpoint – <http://www.dieselpoint.com>
- EasyAsk – <http://www.easyask.com>
- Endeca – <http://www.endeca.com>
- iPhrase – <http://www.iphrase.com>
- Siderean Software - <http://www.siderean.com/>
- Aduna – <http://aduna.biz/index.html>
- I4ii – <http://www.i411.com>

## Faceted Navigation Resources

- Articles
  - How to Make a Faceted Classification and Put It On the Web
    - <http://www.misatonic.org/library/facet-web-howto.html>
  - Putting Facets on the Web: An Annotated Bibliography
    - <http://www.miskatonic.org/library/facet-biblio.html>
  - Ecommerce – cooking and kitchen – Faceted Navigation  
<http://www.>
  - Extended Faceted Taxonomies for Web Catalogs
    - [http://www.ercim.org/publication/Ercim\\_News/enw51/tzitzikas.html](http://www.ercim.org/publication/Ercim_News/enw51/tzitzikas.html)
  - Webdesignpractices – study of ecommerce use of faceted navigation – Use of Faceted Classification
    - <http://www.webdesignpractices.com/navigation/facets.html>