Taxonomies for E-Commerce Best practices and design challenges

Heather Hedden Taxonomy Consultant Hedden Information Management

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About Heather Hedden

- Independent taxonomy consultant, Hedden Information Management
- Continuing education online workshop instructor, Simmons College Graduate School of Library and Information Science
- Author of *The Accidental Taxonomist* (Information Today, Inc., 2010)
- Previously
 - employed taxonomy consultant
 - in-house taxonomy manager
 - publishing company vocabulary editor
 - taxonomist for enterprise search tool vendor
 - indexer

Introduction to Taxonomies

A Taxonomy...

- An authoritative, restricted list of terms/names/labels/categories
- Each term is for a single unambiguous concept
- Governed by policies for who, when, and how new terms can be added
- Arranged in some (hierarchical) structure or groupings
- Supports indexing/tagging/categorizing/metadata management of content
- Facilitates retrieval/findability in both browsing and searching

Introduction to E-Commerce Taxonomies

Typical characteristics of retail/ecommerce taxonomies:

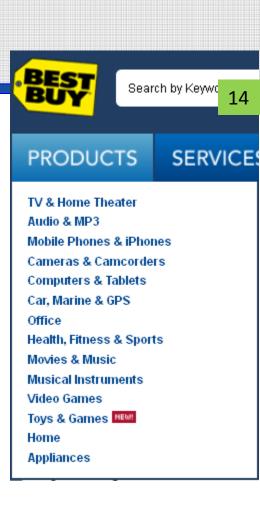
- Separate hierarchy for each department or broad product category.
 - ➤ Typically 5 20 top categories/hierarchies
 - Typical hierarchy depth of 3-4 levels
 - Typically 3 20 terms/subcategories per level
- May also have facets, typically at deeper hierarchy levels.
- Ordering is not always alphabetical, rather popular or logical.

Hierarchies



See All Departments

Electronics & Office	2
Movies, Music & Books	Ş
Home, Furniture & Patio	Ş
Apparel, Shoes & Jewelry	Ş
Baby & Kids	>
Toys & Video Games	5
Sports, Fitness & Outdoors	2
Auto & Home Improvement	S
Photo	>
Gifts, Craft & Party Supplies	2
Pharmacy, Health & Beauty	5
Grocery & Pets	ş



amazon 16 Join Prime Shop by Sea Department -Unlimited Instant Videos MP3s & Cloud Player 20 million songs, play anywhere Amazon Cloud Drive 5 GB of free storage Kindle Appstore for Android Get Velocispider for free today Digital Games & Software Audible Audiobooks Books Movies, Music & Games Electronics & Computers Home, Garden & Tools Grocery, Health & Beauty Toys, Kids & Baby Clothing, Shoes & Jewelry Sports & Outdoors

sears 17 Departments Appliances Automotive & Tires Baby Beauty & Health Bed, Bath & Home Books & Magazines Clothing, Shoes & Jewelry Christmas & Gifts Electronics, TVs & Office Fashion Fitness & Sports Lawn & Garden Music, Movies & Gaming Outdoor Living Parts & Services Tools Toys



Departments				Luggage	e Sale	women	en baby ki	ids h	ome	kitchen	fu
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ordered over the

Facets

Facets

= Attributes = Dimensions = Refinements = Filters = Limit by

- Facets are for narrowing category sets that are similar and support the same kinds of attributes.
- Facets work well for retail products that are sufficiently similar: all shoes, all luggage, all laptop computers.
- Facets may:
 - be the only type of taxonomy on a specialized retail site
 - appear at lower (more specific) category hierarchy levels of a general retail site.
 - appear after executing a search



Advanced Search

Please select one or more dropdowns below and then click the Search button. The more selections you make, the fewer items will appear.

Search Women's Shoes

OVER 1,400 BRANDS

Aerosoles

<u>Anne Klein</u>

Birkenstock

Allen-Edmonds

Any Brand	*
Any Type	*
Any Category	*
Any Size	*
Any Width	*
Any Color	*
Any Heel Height	*
Any Country	*
Any Price	*
Search	

Crocs

Donald J Pliner

Dr. Martens

Easy Spirit

Search Men's Shoes

Search

Rockport	*
Casual	*
Any Category	*
10	*
Regular	*
Brown	*
Imported	*
\$65 - \$100	*

Search Children's Shoes

	Any Brand	*
	Any Type	*
	Any Category	*
	Any Category	^
	6 Inch	=
	8 Inch	
	Active Sandals	
	Adjustable Strap Sandals	
	Adjustable Strap Shoes	
	Adjustable Width Sandals	
	Adjustable Width Shoes	
	After Sport Sandals Airport Friendly Boots	
	Alpargatas	
	Amphibious Sandals	
	Animal Slippers	
	Ankle Strap Sandals	
	Ankle Straps	
	Aqua Socks	
<u>New Balar</u>	Athlatia Shaaq	
Patagonia		
Propet	Ballet Shoes	
<u>PUMA</u>	Ballroom Shoes	~

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K-Swiss

<u>Keds</u>

<u>Keen</u>

Johnston & Murphy

Format	Narrow Your Results					
Paperback (386,973)		narrow by:				
Hardcover (240,008)	Price			Face	ots	
Kindle Edition (17,788)	\$200 - \$249.99 (2)	category		1 400		
Audible Audio Edition (151) HTML (15,520)	\$250 - \$499.99 (8) \$500 - \$749.99 (19)	Banquet Table	(3)			
PDF (13,078) Audio CD (529)	\$750 - \$999.99 (17) \$1000 - \$1249 (2)	Bistro Table	(9)			
Board Book (296)	\$1500 - \$1999(1)	Counter- height Table	(7)	[]	Sleepwear	for (
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School Binding (481) MP3 CD (27)	15" - 16" (9)	Dining Table	(66)	SWEATERS »	Nightgowns	
Author	14" and Under (37) Processor Brand	Kitchen Table	(4)	Cardigan »	Nightshirts Slippers	
Any Author	AMD (4)	Nook Table	(2)		Sleep Sets	
David S. Moore (525)	Intel® (45)	Pub Table	(31)	NARROW SELECTION BY:		
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Deborah Hughes-Hallett (221)	4GB (31)			Specific Size		_
E. John Hornsby (219)	6GB (8)	Oval	(2)	Show All	\$9	\$20
> See more	8GB (4)	Rectangle	(47)		·	
Series	16GB (1)	Round	(53)	Color Show All	Characters	Clear
Any Series	Laptop Features	Square	(21)		All Characters	~
Unleashed (94)	Touchscreen (4)	- finish		Sleeve Length		
Sams Teach Yourself (81)	Backlit Keyboard (13) Built-in Webcam (50)			Show All 🔶	Clothing Sizes	Clear
Apogee Books Space (56)	Blu-ray (2)	Chrome	(10)		C	
Essentials (51)	HDMI Output (44)	Distressed	(7)	Fabric	All Clothing Sizes	~
Mathstart (48)	Wireless Capability (5)			Show All 🔶	Sleep Body Style	Class
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· See more	ENERGY STAR Certified (41)	Lacquered	(9)	SHOW AIL	Colore	
Shipping Option (<u>What's this?</u>) Any Shipping Option	3D-Ready (1)	Natural	(7)	Featured Collection	Colors	<u>Clear</u>
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	Windows (48)					

E-Commerce Taxonomy Design Challenges

- 1. Distinguishing a subcategory from a facet value
- 2. Different categorization methods and category cross-overs
- 3. Related items and accessories
- 4. Sort order options: alphabetically or not
- 5. Competitor website comparisons
- 6. Web site vs. physical store organization
- 7. Business needs vs. taxonomy standards/best practices

Challenge 1. Subcategory vs. Facet Value

Categories and subcategories are:

- Things, products, nouns, items that can stand by themselves
- e.g. Sweater

Facets and their values are:

- Characteristics, descriptions, adjectives, dimensions of things, which do not stand by themselves
- e.g. *Blue*

Challenge 1. Subcategory vs. Facet Value

Problem: Modifier + Noun

Should it be: Category: Noun Subcategory: Modifier + Noun

OR should it be: Category: Noun Facet value: Modifier Example: Flannel Shirts

Shirts > Flannel Shirts

Category: Shirts Fabric (facet): Flannel

Challenge 1. Subcategory vs. Facet Value

Considerations:

- Is the modifier an obvious value of an facet?
 Do customers consider Flannel a kind of fabric or a subtype of shirt?
- Are there other products (other than shirts) in the same website that also have this modifier (such as flannel sleepwear)?
- Is the list of facets already quite long?
- Are the levels of subcategories already deep enough?

Challenge 2. Categorization and Cross-Overs

Multiple categorization examples:

- Women's Shoes in Women's Clothing; in Shoes
- Office Furniture in Office Products; in Furniture

Cross-over product examples:

- Home Theater in TV/Video; in Audio/Stereo
- Printer-Scanner-Faxes in Printers; in Scanners; in Fax Machines

Challenge 2. Categorization and Cross-Overs

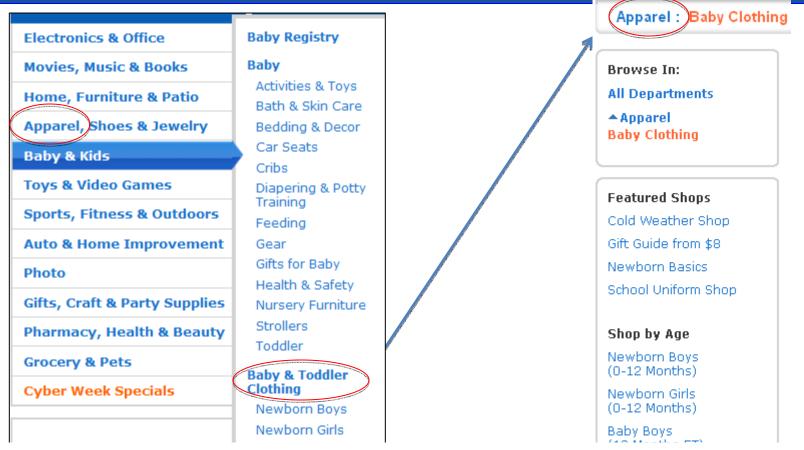
Put in both locations – *Polyhierarchy* OK, but...

• Too much polyhierarchy confuses the tree structure.

Polyhierarchies work better for specific terms/categories at the lowest level or second-lowest with small sub-hierarchies, (e.g. Fitness GPS Watches in GPS Systems, in Portable Fitness Electronics, and in Watches), not large hierarchy branches.

- Systems may not fully support polyhierarchy
- Breadcrumb trail may be only a fixed path, not dynamic/not user's path.

Challenge 2. Categorization and Cross-Overs



Breadcrumb trail may not reflect the user's navigation path, but rather only the other, one fixed hierarchy, path of the polyhierarchy.

- E-Commerce Taxonomies tend to be simple hierarchical. They usually don't have "related terms" relationships.
- Individual products (SKUs) can be manually related.
- Product *categories* (taxonomy terms) are usually not related.

Special cases:

- Accessories to products
- Related services

Examples:

- Accessories to Products: Camera Accessories
- Related Services: Delivery and Setup/Installation Services

Issue:

Where to put related items in an hierarchical-only taxonomy

- As narrower terms
- In a separate hierarchy
- Both

Related accessories narrower terms:

Whether to rename the parent category to include related accessories

Computers

- . Laptop Computers
- . Desktop Computers
- . iPad, Tablet & eReaders
- . Monitors
- . Mice & Keyboards
- . Printers & Scanners
- . Computer Memory
- . Computer Components

Computer Accessories

or

Computers & Accessories

- . Laptop Computers
- . Desktop Computers
- . iPad, Tablet & eReaders
- . Monitors
- . Mice & Keyboards
- . Printers & Scanners
- . Computer Memory
- . Computer Components

. Computer Accessories

Related services listed as a narrower term under products

Cameras + Camcorders	Cell Phones + Phones	Computers	GPS	iPod + Audio	Movies
Bestsellers Brands Canon Flip Video Fujifilm Kodak Nikon Olympus Polaroid Sony	Camcorders Compact DVD Flash Memory Hard Drive High Definition MiniDV Camera Accessori Bags + Cases Lenses Photo Printers Tripods	es	9 Meg 10–12 14+ M Comp Digital Digital Secur Memo Portal Card I Digital Service Electr Photo	I SLRs Memory e Digital (SD) ory Stick ole USB Drives Readers Photo Frames	-

Related items and services listed in a separate hierarchy

nop By Category	DEPARTMENTS WEEKLY AD & D	DEALS GIFTS SERVICES S
Accessories		IN-STORE SERVICES
Camcorders		Automotive
Digital Picture Frames	HOME SERVICES	Layaway
Digital Point & Shoot Cameras	Repair	Optical Portrait Studio
Digital SLR Cameras	Home Improvement Cleaning	HOME SERVICES
Memory & Media Photo Printers	Installation	Cleaning
Security Cameras	BY PRODUCT	Home Improvement
Web Cams	Appliances	Installation
Other Cool Links	Home electronics	BLUE Repair
Learn about Internet Connectable Devices	Lawn and garden	PARTS Parts Direct
TV Matchmaker	BY ROOM	Faits Direct
Camera Matchmaker	Bathroom	My scheduled services
GPS Matchmaker	Bedroom Servi	ices for Home elect ronics
Electronics Trade In Program	Exterior/Outdoors Family Room	
Battery Finder	Garage	
Clearance Electronics	Kitchen	

Challenge 4. Display Sort Order Choice

Could be alphabetical

Shop By Category

Accessories Camcorders Digital Picture Frames Digital Point & Shoot Cameras Digital SLR Cameras Memory & Media Photo Printers Security Cameras Web Cams Cameras & Camcorders Accessories Camcorders Digital Cameras DSLR Cameras Film Cameras Web Cameras

or could be "logical"

Digital Cameras Compact System Cameras Digital SLR Cameras Camera Lenses Camcorders Memory Cards Photo Printers Digital Photo Frames Webcams

Binoculars & Optics

Accessories

Digital Cameras

Camera Bundles Digital SLR 14+ Megapixels 10-12 Megapixels 9 Megapixels + Under Long Zoom Film Cameras Waterproof

Camcorders

Compact Digital DVD Flash Memory Digital Hard Drive + Memory Card High Definition MiniDV

Shop by Brand

Canon FUJIFILM Flip Video JVC Kodak Nikon Olympus Polaroid Samsung Sony

<u>Camera Accessories</u> <u>Bags + Cases</u> <u>Flashes + Lights</u>

Challenge 5. Comparing with Competitors

- 1. Need to distinguish comparing design with comparing content organization.
- 2. There may not be a 100% identical competitor. Each retailer has a slightly different focus.
 - Target general, but no major appliances
 - Sears general, plus automotive parts
 - Walmart general, plus pharmacy
 - Best Buy electronics focus, plus appliances, furniture, etc.
 - Sam's Club general, no clothing; plus pharmacy & grocery
 - Amazon book and media focus; plus everything else
- 3. Brand retailers (e.g. clothing) *try* to differentiate themselves.

Challenge 6. Comparing with Physical Stores

There may be a push to organize the product taxonomy in conformity with store layout and organization.

- Loyal customers might understand it.
- But are customers divided by store loyalty or by physical store vs. online shoppers?

Factors may be unique to physical stores:

- Newest/hottest products at the entrance
- Small accessories in the checkout lines
- Larger items in the back
- Use of aisle end-caps for featured items
- Creative use of physical space

Challenge 7. Business Needs vs. Best Practices

Possible taxonomy requests for "business needs" that challenge taxonomy standards or best practices:

- Creating new top level categories for relatively small, hot categories, that belong under existing top categories
- Creating multiple polyhierarchies for a product category to help promote it
- Creating intermediate level categories to group and promote related subcategories, not to serve navigation

Challenge 7. Business Needs vs. Best Practices

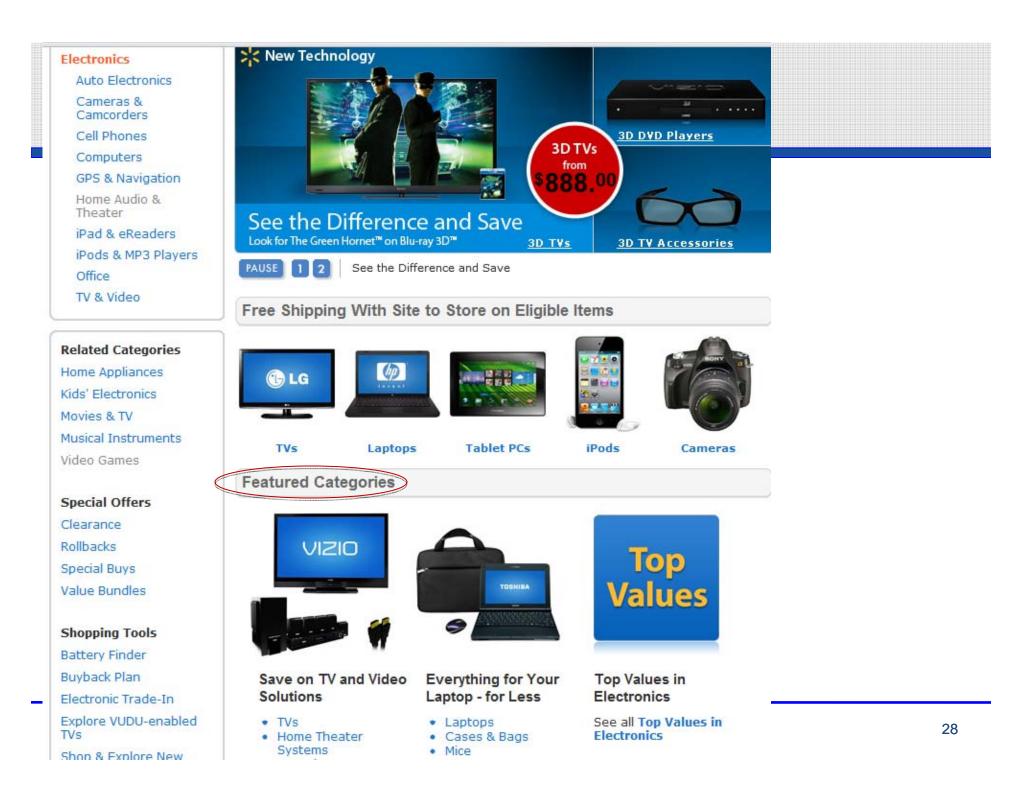
Solution to taxonomy requests for "business needs" that challenge taxonomy standards or best practices:

- Create more than one navigation path
 - 1. Accurate hierarchies (such as in left-hand margin)
 - 2. Promotional categories (in central space)
- > Create a "featured" category that is manually maintained

Challenge 7. Business Needs vs. Best Practices

• List of next level categories may differ in the true taxonomy of the left hand navigation, compared with the central area.





Conclusions

- Product taxonomies are not as simple to create as expected.
- Taxonomy design may be under constraints.
- Business needs can challenge taxonomy standards.
- Creative solutions may be needed.
- Consider customer perspectives, use cases, and scenarios.

Questions/Contact

Heather Hedden Hedden Information Management Carlisle, MA heather@hedden.net <u>www.hedden-information.com</u> <u>www.accidental-taxonomist.blogspot.com</u> <u>www.linkedin.com/in/hedden</u> Twitter: @hhedden 978-467-5195