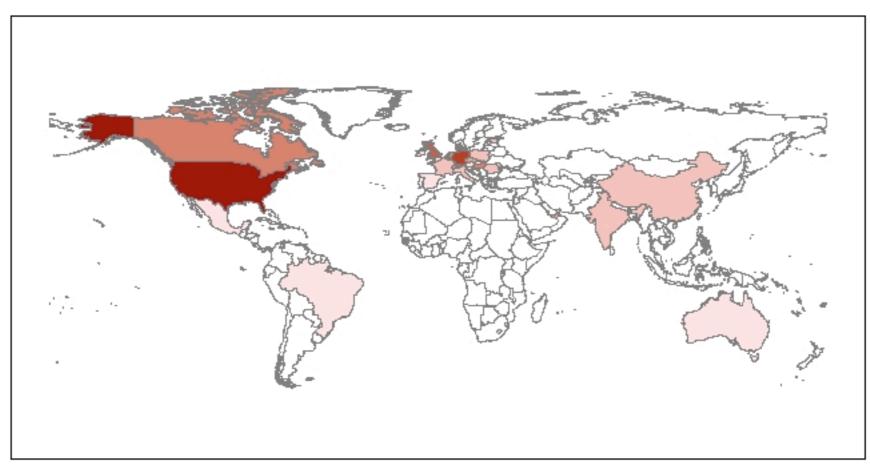
Visualizing Information

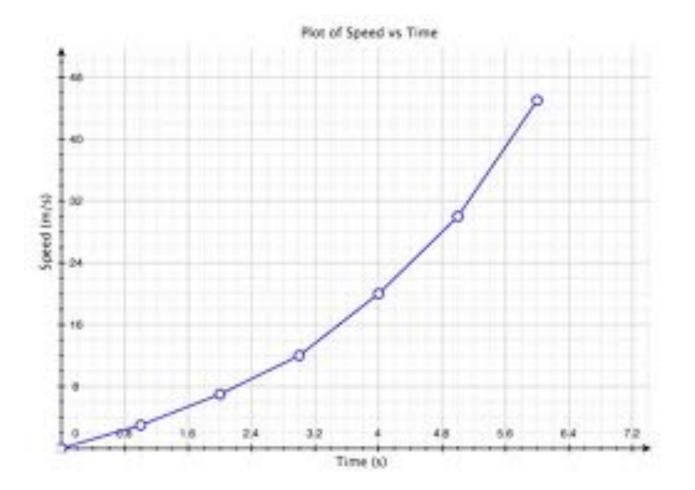
Discovery and Exploration can be Fun!

J. Douglas Willen, Ph.D. Swarthmore College ITS October 26, 2010



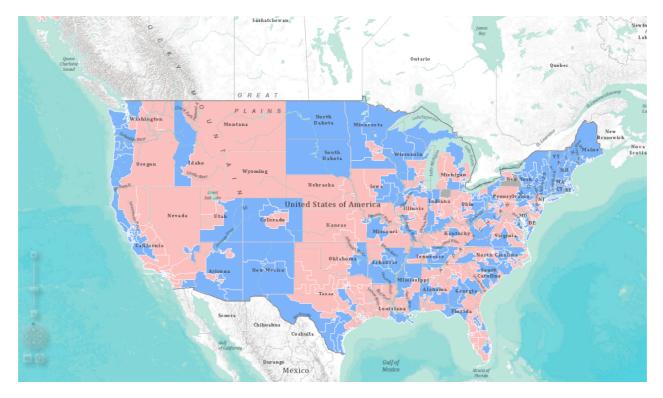
Countries from which people view Swarthmore's Streaming Server content, 2010

What is a Visualization?

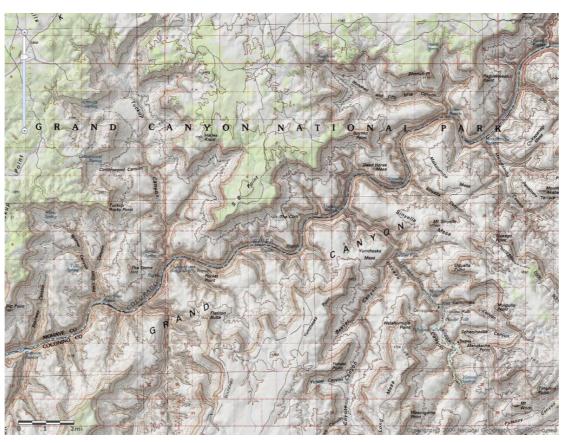


A Scientific Graph?

Graph Source: http://commons.wikimedia.org/wiki/File:ScientificGraphSpeedVsTime.jpeg



How about a Map?

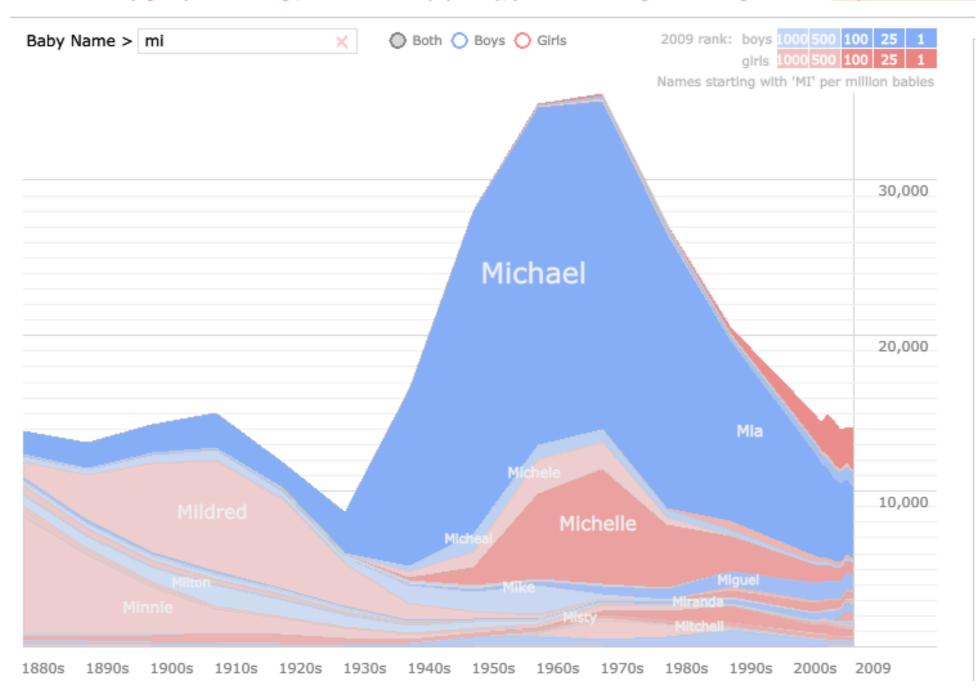


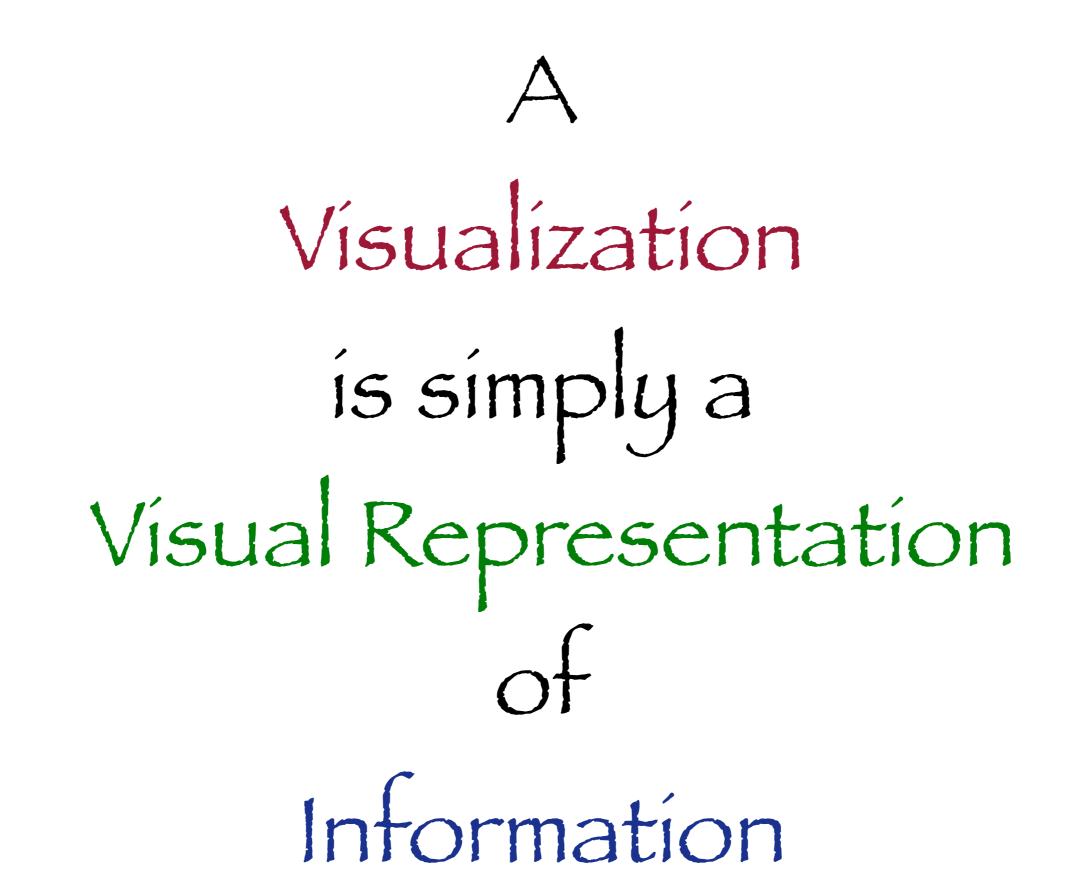
2008? Congressional Elections - <u>http://explorer.arcgis.com/?open=e17842f4dc4b42bb87b291e090215645</u> US Topo Map - <u>http://www.arcgis.com/home/webmap/viewer.html?webmap=931d892ac7a843d7ba29d085e0433465</u>

Baby Name Wizard?

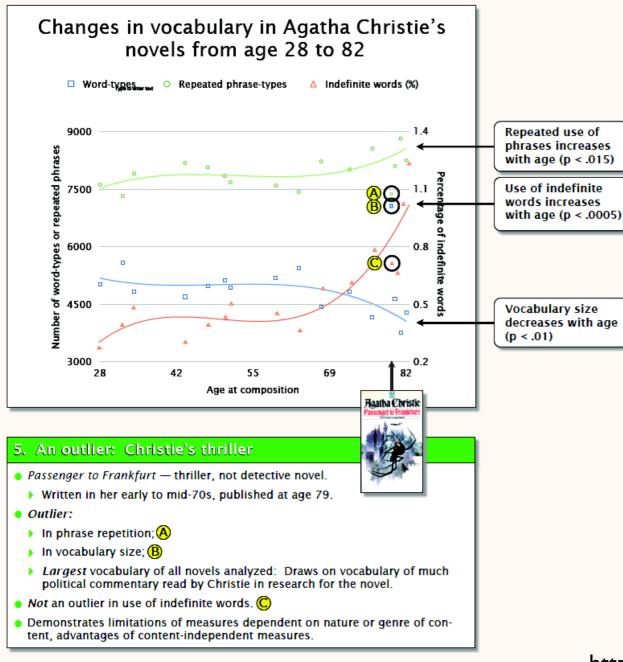
NameVoyager: Explore name trends letter by letter

Surf the NameVoyager by name endings, letter combos & popularity, plus more amazing name finding tools with Baby Name Wizard E





Exploring Information: Tables Vs. Graphs



http://languagelog.ldc.upenn.edu/nll/?p=1957

Novel	Age at com- position	Word- types	Repeated phrase-types	Indefinite words (%)
Styles	28	5027	7623	0.27
Adversary	32	5576	7320	0.39
Ackroyd	34	4833	7905	0.48
Orient	43	4692	8184	0.30
Appointment	47	4985	8071	0.39
Curtain	50	5131	7846	0.43
Towards Zero	51	4941	7680	0.50
Announced	59	5181	7596	0.45
Destination	63	5442	7426	0.36
Ordeal	67	4440	8221	0.58
Clocks	72	4827	8014	0.61
Endless	76	4159	8559	0.78
Frankfurt*	79	5583	7418	0.71
Nemesis	80	4631	8103	0.66
Elephants	81	3762	8821	1.02
Postern	82	4275	8249	1.23

From:

Vocabulary Changes in Agatha Christie's Mysteries as an Indication of Dementia: A Case Study Ian Lancashire* and Graeme Hirst† University of Toronto, *Department of English and †Department of Computer Science Ian.Lancashire, Graeme.Hirst @utoronto.ca

http://www.cs.toronto.edu/pub/gh/Lancashire+Hirst-extabs-2009.pdf

What is "many eyes"

IBM.

Many Eyes

Cognos software group.

An experiment brought to you by IBM Research and the IBM

Pepulat tas: Costante Costante Cestore Cesto

About many eyes:

Many Eyes was created in 2007 by the <u>Visual Communication Lab</u>, part of <u>Collaborative User Experience group</u>, at IBM Research. It is brought to you now jointly by the Visual Communication Lab and <u>the IBM Cognos software group</u>.

		Communication Lab and the IBM Cognos software group.	Licensed Materials - Property of IBM Corp. © Copyright IBM Corporation and its licensors 2007, 2010. IBM, IBM logo, ibm.com, Many Eyes and Cognos are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/leal/copytrade.shtml. This Research is licensed under the terms of the IBM Research Labe Sequipes
An experiment brow	ight to you by IBM Research and the IBM Cognos software group		This Program is licensed under the terms of the IBM Research Labs Services Use Agreement "Agreement", for its terms and conditions cilckhere. Please read the agreement carefully before using the Program. By using the Program you agree to these terms.
			unese terms.
	Visualization Options Availab Finding the right way view your data is as much an art		
plore sualizations			
ata sets priments	See relationships among data points		
pic centers stuff y topic centers	Scatterplot	Visualization Types:	
vatchlist contributions essages to me	Matrix Chart	<i>,</i> ,	
icipate	Compare a set of values	<u>http://manyeyes.alphaworks.ibm.com/</u>	
ate a visualization ad a data set	Block Histogram		
te a topic center n more	Bubble Chart	<u>manyeyes/page/Visualization_Options.html</u>	
k start alization types	Track rises and falls over time		
a format and style ut Many Eyes	Stack Graph		Anny Spes: Tour Anny Spes: Tour C Or Couple Couple C Or Couple
	Stack Graph for Categories		Image:
ct us	See the parts of a whole Pie Chart		Many Eyes Welcome , wilen Log e
act rt a bug			An experiment (structure to group by BM Research and the BM Coppens software group Vsualization)
l s of use	Treemap for Comparisons		Tour
y le Feedback	Analyze a text		The heart of the site is a collection of data visualizations. You may want to begin by browsing through these collections—If you'd rather explore than need decicions, as a load. Visualizations Cate ans On Many Eyes you can:
ar tags:	■< Word Tree tag Tag Cloud	many eyes tour:	Variations The force space concentration Data sing Def long space concentrations Data sing Def long space concentrations Variations 1. Value and discuss distributions Variations 2. Oranis value concentrations distributions Variations 3. Oranis value concentrations Variations 4. Bits data site and insultations Variations 4. Bits data site and insultations Variations 4. Bits data site and insultations
zations Data sets			7. Select items to watch
8 2009 2010	Phrase Net	<u>http://manyeyes.alphaworks.ibm.com/</u>	Deals a visualization 4. rate your comments that opin: centers Upload acts ar Deals acts ar Create a spo center
DFactbook na Patent US	See the world Massachusetts Map		Learn more View and discuss visualizations All the visualizations or Many Eyes have an attached discussion forum. As you explore a visualization, you may find a view that you'd like to tak about or share. If Vusuatization topic a comment, you'rew' is sand along with your comments to others can see what you're teeling.
TO budget	World Map	<u>manyeyes/page/Tour.html</u>	One home part of type Each visualization is you select data term by cloiding. Your selection will be highlighted in a bright color, so that you can note to those items in your comments.
da CENSUS y crime	US County Map	manyeyes/page/ 1001.11011	Contact us Usually leads Contact = Contact Section - Contact Capacities of Family International US of Other Contact Section - Contact Sect
cation election			Legal Bridger style
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"many eyes" is a bet on the power of human visual intelligence to find patterns. The goal is to "democratize" visualization and to enable a new social kind of data analysis. "many eyes" exemplifies the design goal of transforming visualization from a solitary activity into a collaborative one, utilizing interactive visualizations to help people see and exchange information in novel ways.

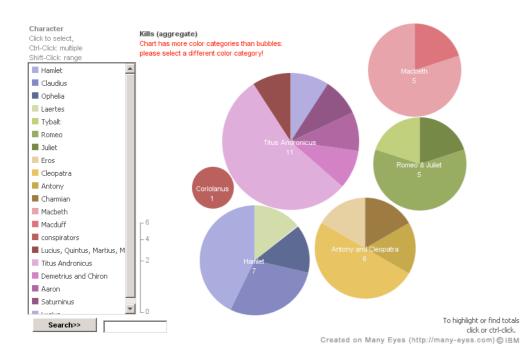
Literature

Tag Cloud of 600+ Poems by William Butler Yeats

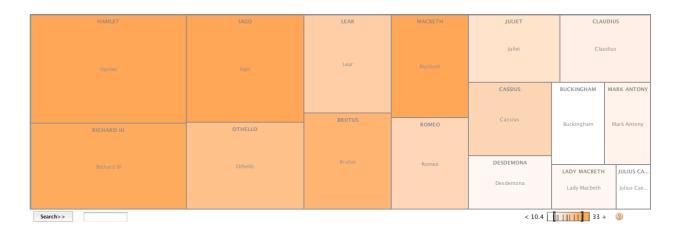
age albricair amidancient arms back beautiful beauty bed beloved bid bird birds bitter blind blood body book born break breast breath bring broken brought call cast changed child children cold country cried crydance dark dawn Cay days dead dear death dectora deep died dim dream dreamed dreams drop earth end eye eyes face feet fell find fire fool forgael found friend full gave girl give god gold golden good grass great green grew grey grow grown hair half hand hands head hear heard heart hearts high holy horn horse hour house hundred image joy king kiss knew laid lay leaves left lie life light lips live lived long looked lost love loved lovers made make man's memory men mind moon mother mountain music niamh night pale pass passed passion peace place play poor praise pride proud put ran red restrode rose found run sad Sail Or sang seas set shadows shore side sigh silver sing sky Sleep song sorrow SOUL sound stars stone stood sun sweet sword thing things thought tide till time told tomb tower turn turned voice wandering waters white wild wind winds

winewisdomWOmanwomenwoodwoodswordsworkWOrldyearsyOUNgyouth

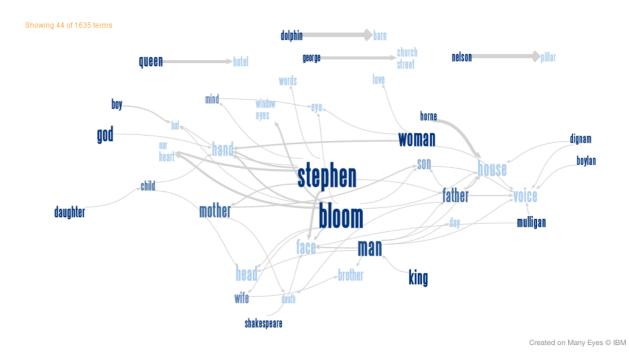
"Kills" per Character in Shakespeare's Plays



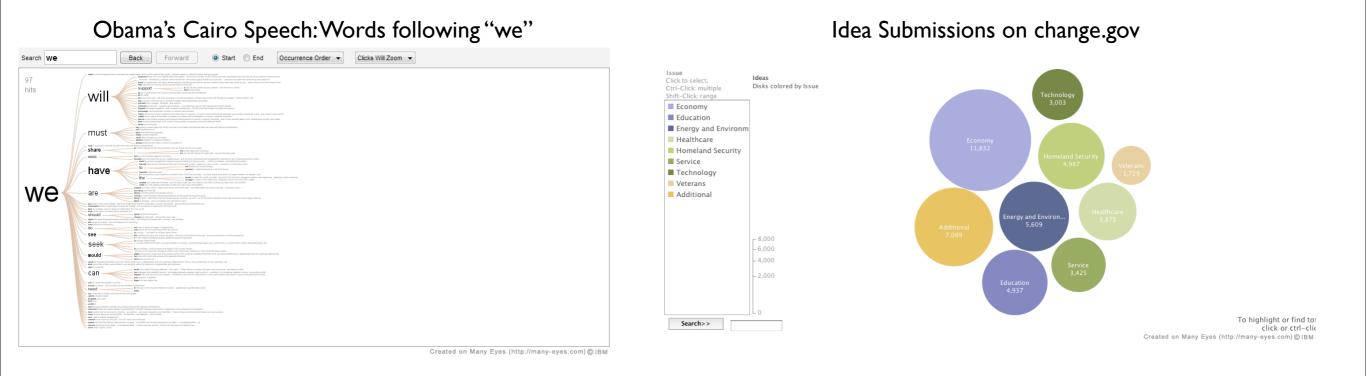
Number of Lines per Character in Shakespeare's Plays



Word Network for Ulysses by James Joyce

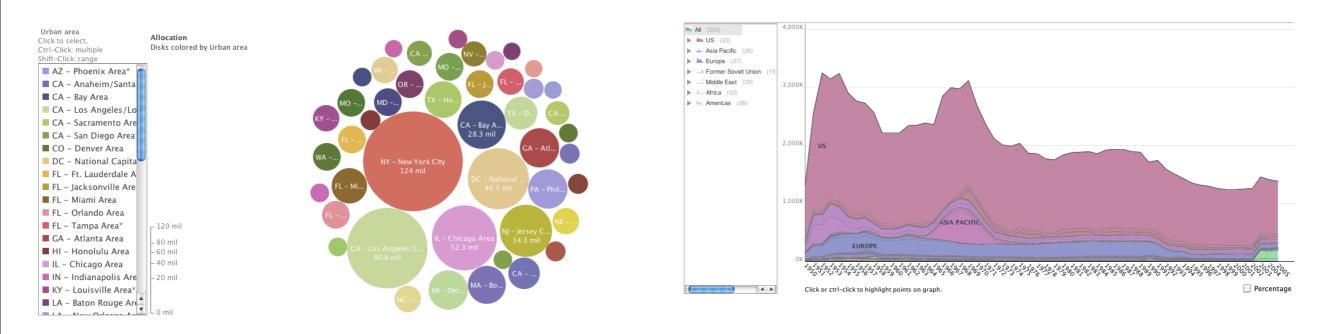


Politics / Economics



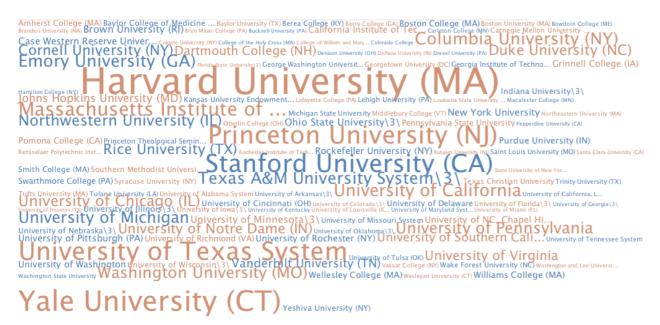
Homeland Security Urban Area Grants

US Troop Deployments: 1950 - 2005

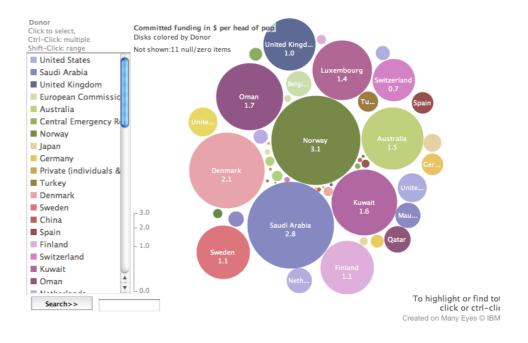


Economics / Social Policy

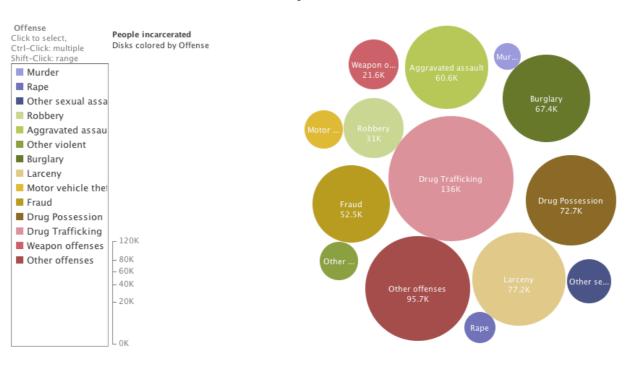
Leading College & University Endowments



Pakistan Food Aid (Per Capita)

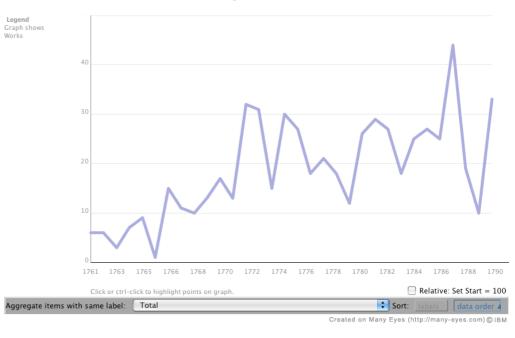


Felons in Jail in the US, 2002



Beatles Lyrics Word Cloud away leave dance much men **10W** One hold blue toldhome old _{came} look man sa e hey g ello things need mine gonna ant g said S ee good call Yes veh something jus bac _{glad} eyes ong night mine et feel wanna Created on Many Eyes © IBM

Mozart Compositions Per Year





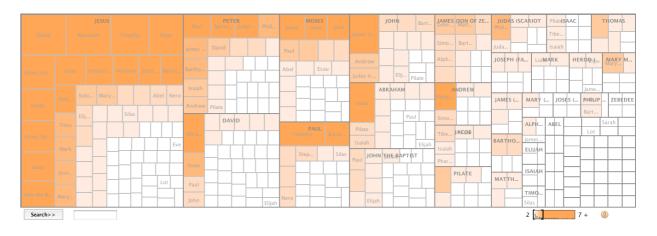
Miscellaneous Examples

Baby Name Tag Cloud

Aaliyah Aaron Abigail Adam Addison Adrian Aidan Aiden Alejandro Alex Alexa Alexander Alexandra Alexis Allison Alyssa Amelia Andrea Andrew Angel Angelina Anna Anthony Antonio Ariana Arianna Ashley Aubrey Audrey Austin Autumn Ava Avery Benjamin Blake Brandon Brayden Brian Brianna Brooke Brookin Bryan Caden Caleb Cameron Carlos Caroline Carson Carter Charles Chase Chloe Christian Christop per claire Cole Connor Daniel David Destiny Devin Diego Dominic Dylan Elijah Eliza beth Emily Emma Eric Ethan Evan Evelyn Faith Gabriel Gabriella Gabrielle Gavin Gianna Grace Hailey Haley Hannah Hayden Henry Hunter Ian Isaac Isabel Isabella Isabelle Isaiah Jack Jack son JacOD Jada Jaden James Jasmine Jason Jayden Jayla Jenna Jennifer Jeremiah Jessica Jesus Jocelyn John Jonathan Jordan Jordan Jose Joseph Joshua Juan Julia Julian Justin Kaden Kaitlyn Katelyn Katherine Kayla Kaylee Kevin Kimberly Kyle Kylie Landon Lauren Layla Leah Liam Lill Logan Lucas Luis Luke Mackenzie Madeline Macison Makayla Maria Mariah Mary Mason Mattheev Maya Megan Melanie Michael Miguel Morgan Natalia Natalie Nathan Nathaniel Nevaeh Nicholas Nicole Noaholivia Owen Paige Rachel Rebecca Richard Riley Robert Ryan Samantha Samuel Sarah Savannah Sebastian Sofia Sophia Stephanie Steven Sydney

scale: TaylorThomasTimothyTrinityTristanTylerValeriaVanessaVictoriaWilliamWyattXavierZachary

New Testament Name Co-Occurrences



Gun Ownership (%) Vs. Murder by Firearms

