



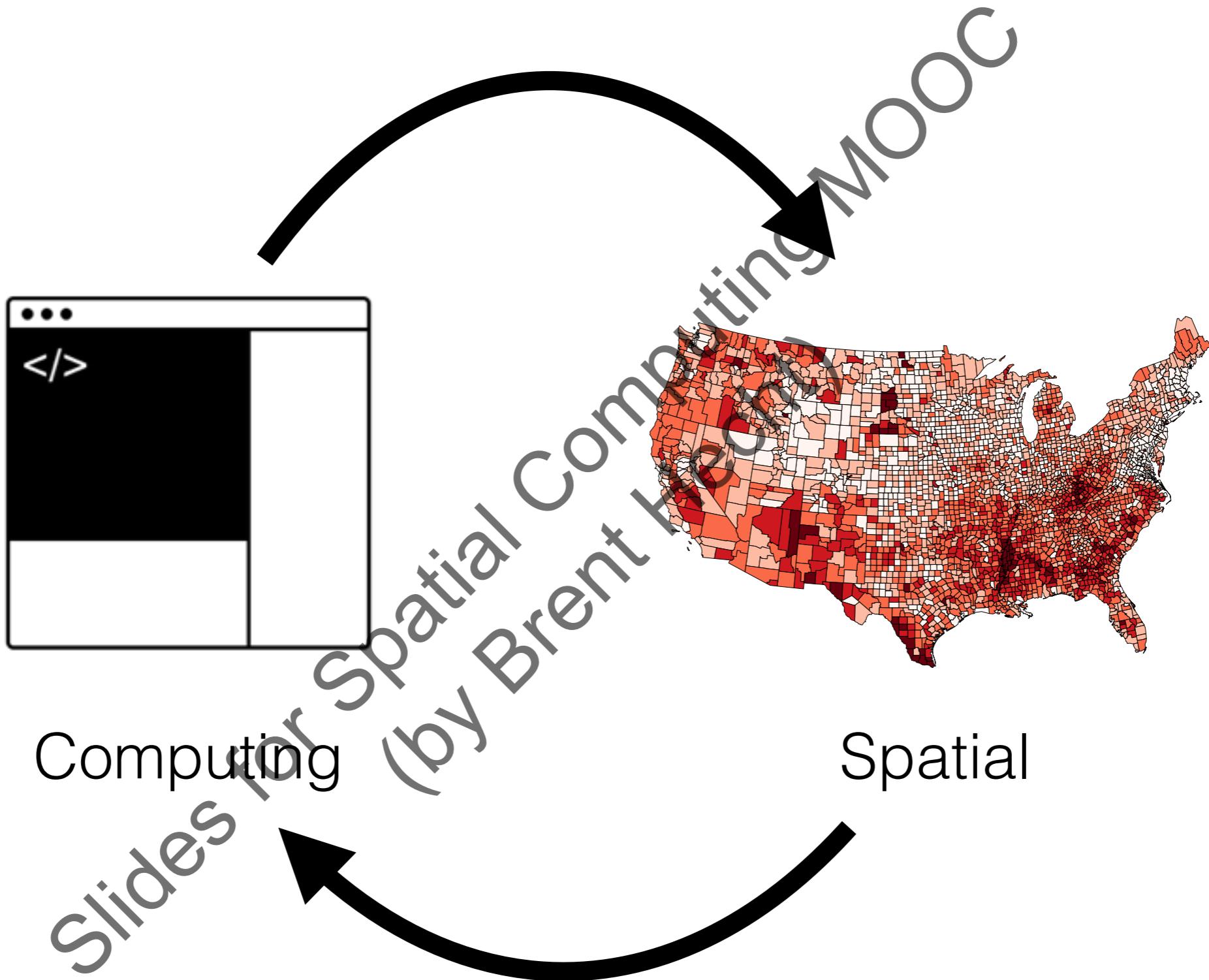
Advances in Cartography

“Explanatory Semantic Relatedness and Explicit Spatialization for Exploratory Search”

Brent Hecht, Samuel Carton, Mahmood Quaderi, Johannes Schöning,
Martin Raubal, Darren Gergle, Doug Downey

Proceedings of ACM SIGIR 2012

Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium





Douglas Downey



Samuel Carton



Johannes Schöning



Martin Raubal



Mahmood Quaderi



Darren Gergle



Brent Hecht

Computer Science

Geographic Information Science

Slides for Spatial Computing MOOC
(by Brent Hecht)



bing mayor of minneapolis, mn

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7,610,000 RESULTS

Any time

Minneapolis mayor

Betsy Hodges

Data from Wikipedia

[Minneapolis Mayor's Office](#)

www.minneapolismn.gov/mayor

We would like to show you a description here but the site won't allow us.

[Minneapolis mayoral candidate bio: Betsy Hodges | The ...](#)

blogs.mprnews.org/.../minneapolis-mayoral-candidate-bio-betsy-hodges

Betsy Hodges enjoys balancing the billion-dollar Minneapolis city budget. And as chair of the City Council's Ways and Means/Budget Committee for the past four years ...

[Editorial endorsement: Betsy Hodges for Minneapolis mayor ...](#)

[www.startribune.com/Opinion › Editorials](http://www.startribune.com/Opinion/Editorials)

Oct 26, 2013 · Minneapolis mayoral hopeful Betsy Hodges. Jeff Wheeler, Star Tribune EDITOR'S NOTE. Over the past several weeks, members of the Star Tribune ...

[Betsy Hodges - Wikipedia, the free encyclopedia](#)

en.wikipedia.org/wiki/Betsy_Hodges

Elizabeth "Betsy" A. Hodges (born September 7, 1969) is the Mayor of Minneapolis, Minnesota. A member of the Minnesota Democratic-Farmer-Labor Party, she ...

Betsy Hodges

Elizabeth "Betsy" A. Hodges is the Mayor of Minneapolis, Minnesota. A member of the Minnesota ... +

en.wikipedia.org



LinkedIn

Born: Sep 07, 1969 (age 45) · Minnesota, United States

Spouse: Gary Cunningham (Since 2011)

Office: Mayor of Minneapolis (2014 - present)

Party: Minnesota Democratic-Farmer-Labor Party

g spatial computing mooc - Go... +

https://www.google.com/search?q=gool&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:offic C Google

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From GPS and Google Maps to Spatial Computing | Coursera
<https://www.coursera.org/course/spatialcomputing> Coursera
From GPS and Google Maps to **Spatial Computing** is a free online class taught by Brent Hecht and Shashi Shekhar of University of Minnesota.

From GPS and Google Maps to Spatial Computing ...
geoawesomeness.com › Career ▾
Sep 23, 2014 - Spatial Computing: Coursera MOOC... Geospatial MOOCs, be it the first Geospatial MOOC (as far as I can recollect) Maps and the Geospatial ...
Oct 26 - Oct 30 URISA's 7th Caribbean GIS
Oct 27 - Oct 29 GeoAlberta 2014 @Calgary

New Geo MOOC: From GPS and Google Maps to Spatial ...
apb.directionsmag.com/entry/new-mooc...spatial-computing/384777 ▾
Feb 18, 2014 - The new course, from the University of Minnesota is titled, "From GPS and Google Maps to Spatial Computing." It's listed on Coursera site as ...

Spatial Computing (@SpatialCompMOOC) | Twitter
<https://twitter.com/SpatialCompMOOC> ▾
The latest Tweets from Spatial Computing (@SpatialCompMOOC). The Twitter account for the University of Minnesota's **Spatial Computing MOOC** taught by Dr.

Spatial Computing MOOC from Univ of Minnesota | GeoNet
<https://geonet.esri.com/thread/108032> ▾
Sep 8, 2014 - https://www.coursera.org/course/spatialcomputing ... Spatial computing - GPS - geotech - **MOOC** from the University of Minnesota.

slides for Spatial Computing MOOC by Brent Hecht



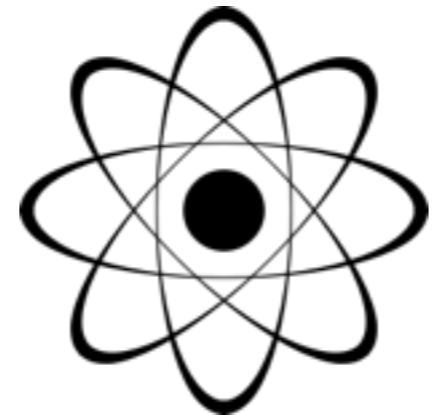
Student



Consultant



Intelligence
Analyst



Nuclear Weapons

Slides for Spatial Competing
(by Brent Hecht)





nuclear weapon



+Brent



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[Nuclear weapon - Wikipedia, the free encyclopedia](#)

en.wikipedia.org/w/index.php?title=Nuclear_weapon&oldid=900000000

A nuclear weapon is an explosive device that derives its destructive force from nuclear reactions, either fission or a combination of fission and fusion.

[Thermonuclear weapon - List of states with nuclear ... - History of nuclear weapons](#)

[List of states with nuclear weapons - Wikipedia, the free encyclopedia](#)

en.wikipedia.org/w/index.php?title=List_of_states_with_nuclear_weapons&oldid=900000000

Other states with nuclear weapons (India, Pakistan, North Korea). Other states ...

[News for nuclear weapon](#)

[Eric Schlosser on US nuclear weapons: 'People are getting sloppy'](#)

The Guardian - 2 days ago

[Q&A: Author of Command and Control discusses recent incidents involving those responsible for the US nuclear arsenal.](#)

[Nuclear group: Time Iran would need to make uranium for a bomb 'too short'](#)

CNN - 3 days ago

[The rise of nuclear bombs: Amazing time-lapse map reveals 2056 WMDs that ...](#)

Daily Mail - 3 days ago

[UNODA - Nuclear Weapons Home](#)

www.un.org/disarmament/WMD/Nuclear/

Nuclear weapons are the most dangerous weapons on earth. One can destroy a whole city, potentially killing millions, and jeopardizing the natural environment ...

[The Nuclear Weapon Archive - A Guide to Nuclear Weapons](#)

nuclearweaponarchive.org/

The most comprehensive guide to nuclear weapons on the Internet.

[Nuclear Bombs - How Stuff Works](#)

www.howstuffworks.com/nuclear-bomb.htm

Nuclear bombs are the most serious looming threat in just about any major conflict.

Closed Information Requests

e.g. “Mayor of
Minneapolis, MN”

Navigational Queries

e.g. “spatial computing
mooc”

Exploratory Search

e.g. “Nuclear weapons”



[White and Roth 2009]

“...an information-seeking problem context that is open-ended, persistent, and multifaceted... Exploratory search systems support this through symbiotic human-machine relationships that provide guidance in **exploring unfamiliar information landscapes.**”

[White and Roth 2009]

Slides for Spatial Computing MOOC
by Bryan Brown



Douglas Downey



Samuel Carton



Johannes Schöning



Martin Raubal



Mahmood Quaderi



Darren Gergle



Brent Hecht

Computer Science

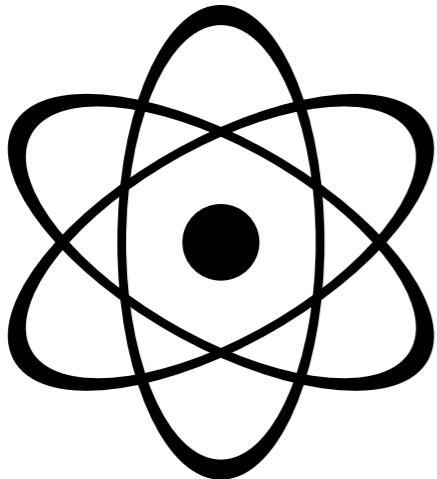
**Geographic Information
Science**

Thematic Cartography to the Rescue?

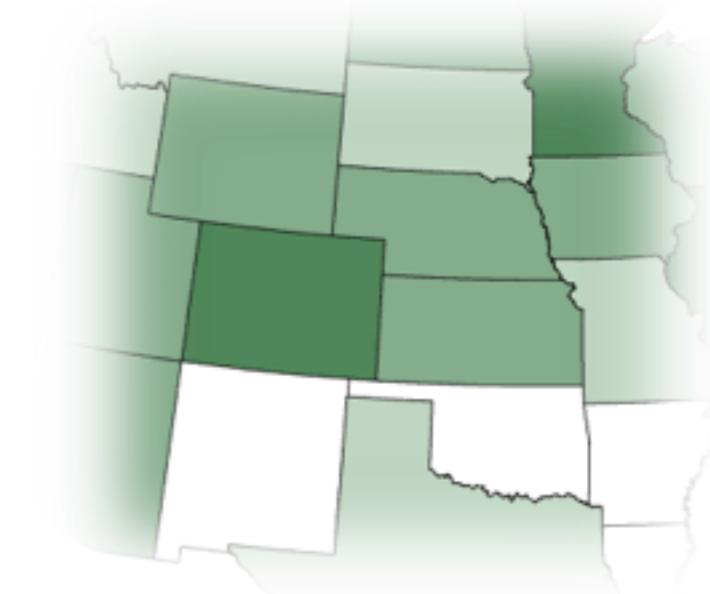
Slides for Spatial Computing MOOC
(by Brenna Hecht)

The BIG question is then...

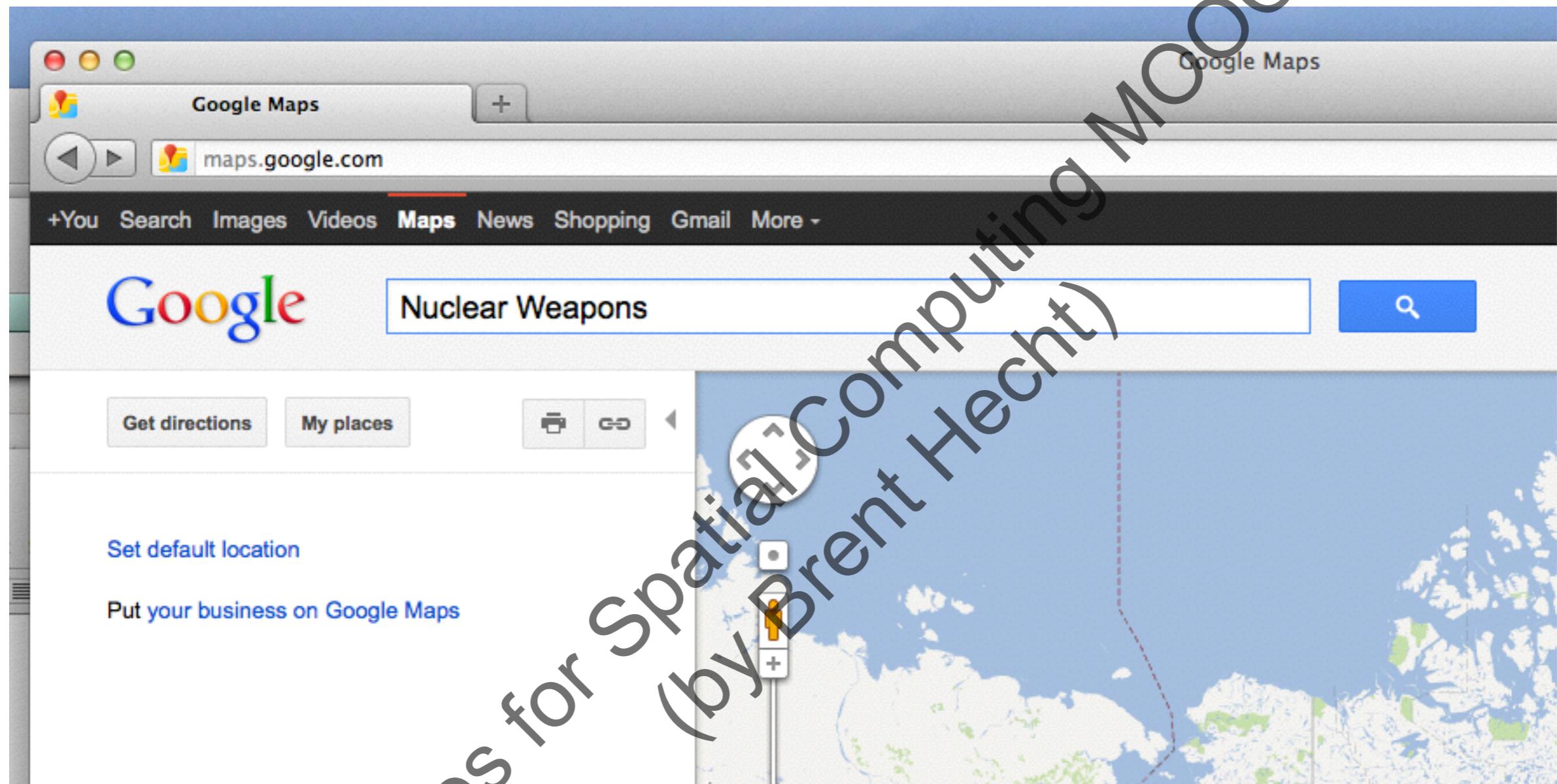
Query Concept
(e.g. “Nuclear weapon”)



Thematic Cartography
(e.g. choropleth maps)



Slides for Spatial Computing MOOC
(by Brent Hecht)



Slides for Spatial Computing MOOC
(by Brent Hecht)

nuclear weapon

Search the web for **nuclear weapon** Top web result shown

[Nuclear weapon - Wikipedia, the free encyclopedia](#)

A **nuclear weapon** is an explosive device that derives its destructive force from nuclear reactions, either fission or a combination of fission and fusion.
en.wikipedia.org

A [National Museum of Nuclear Science & History](#)
601 Eubank Boulevard Southeast, Albuquerque, NM (505) 245-2137 · nuclearmuseum.org



★★★★★ 19 reviews
manhattan project · smithsonian affiliate · atomic cannon · weapons · atomic age
"In many ways, it does an admirable job of introducing young people to the development of nuclear power, its devastating effects as a **weapon** and a threat, ..." - virtualtourist.com

B [Hiroshima Peace Memorial Museum](#)
Japan, Hiroshima Prefecture, Hiroshima, Naka Ward, Nakajimacho, 1-2 +81 82-241-5246 · hiroshima-spirit.jp



★★★★★ 17 reviews
"Whoever won the race and produced the first **nuclear** bomb felt they had to drop it before the others could. The narration carefully deflected blame from ..." - cemeterytravel.com

C [Campaign For Nuclear Disarmament](#)
22A Beswick Street, Manchester, Lancashire M4 7HR, United Kingdom +44 161 273 8283 · cnduk.org



"rudenski, Depleted" Uranium Munitions:
Nuclear Waste as a Weapon rudenski contact
rudenski email rudenski 2/21/2006 6:47:53 PM
- curezone.com

D [Exeter Campaign for Nuclear Disarmament](#)
94 New Bridge Street, Exeter, EX1 2AL

24 New Bridge Street, Exeter, EX1 2AL



ATLASIFY

Slides for Spatial Computing MOOC
(by Brent Hecht)

Thematic Maps **Make Reference System**Concept: **Nuclear_weapon**

Language: English

Atlas of: The Earth

Execute!

Options



Thematic Maps **Make Reference System**

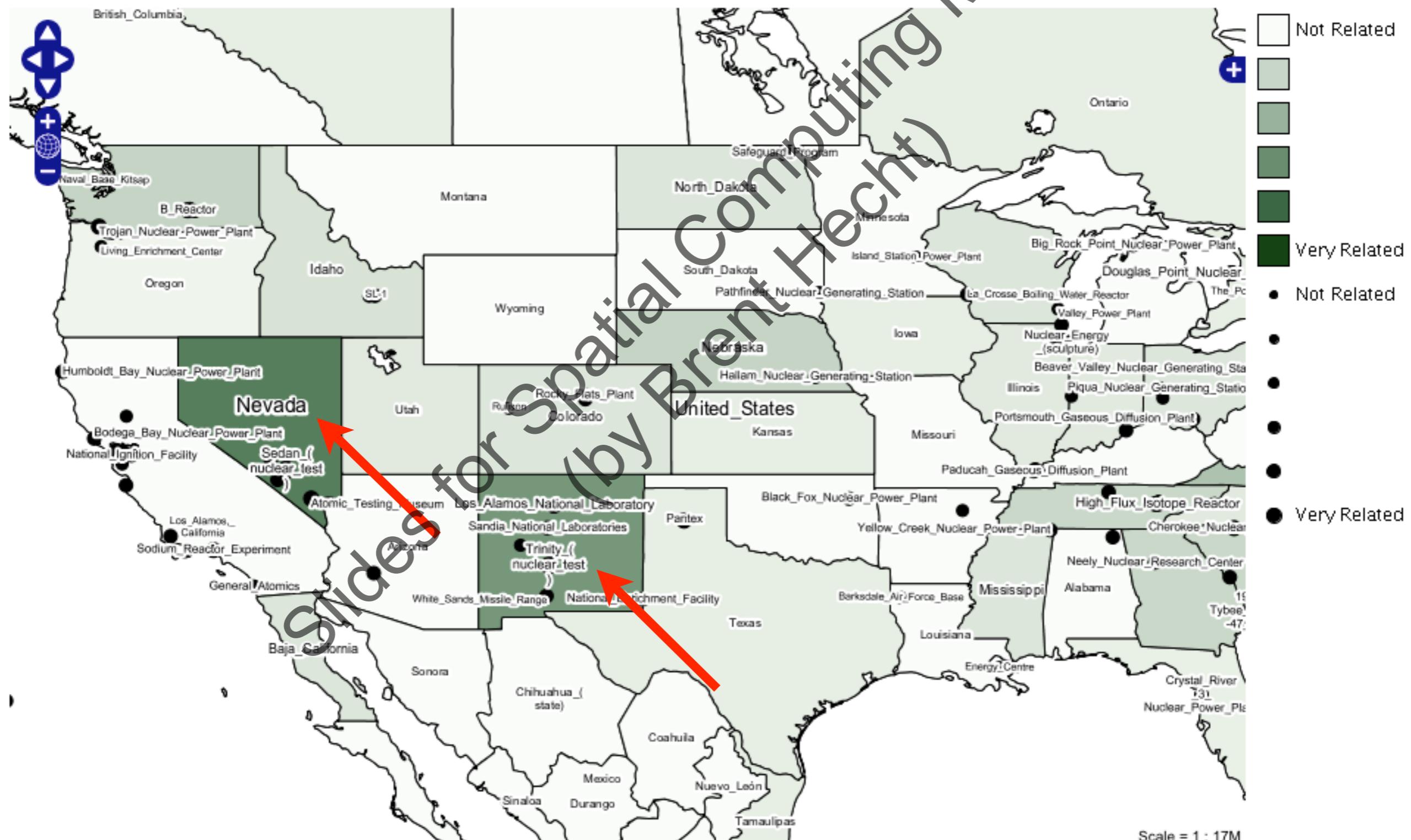
Concept: Nuclear_weapon

Language: English

Atlas of: The Earth

Execute!

Options





Thematic Maps Make Reference System

Concept: Nuclear_weapon

Language: English

Atlas of: The Earth

Execute!

Options



- + Not Related
- + Very Related
- Not Related
- Very Related

Thematic Maps Make Reference System

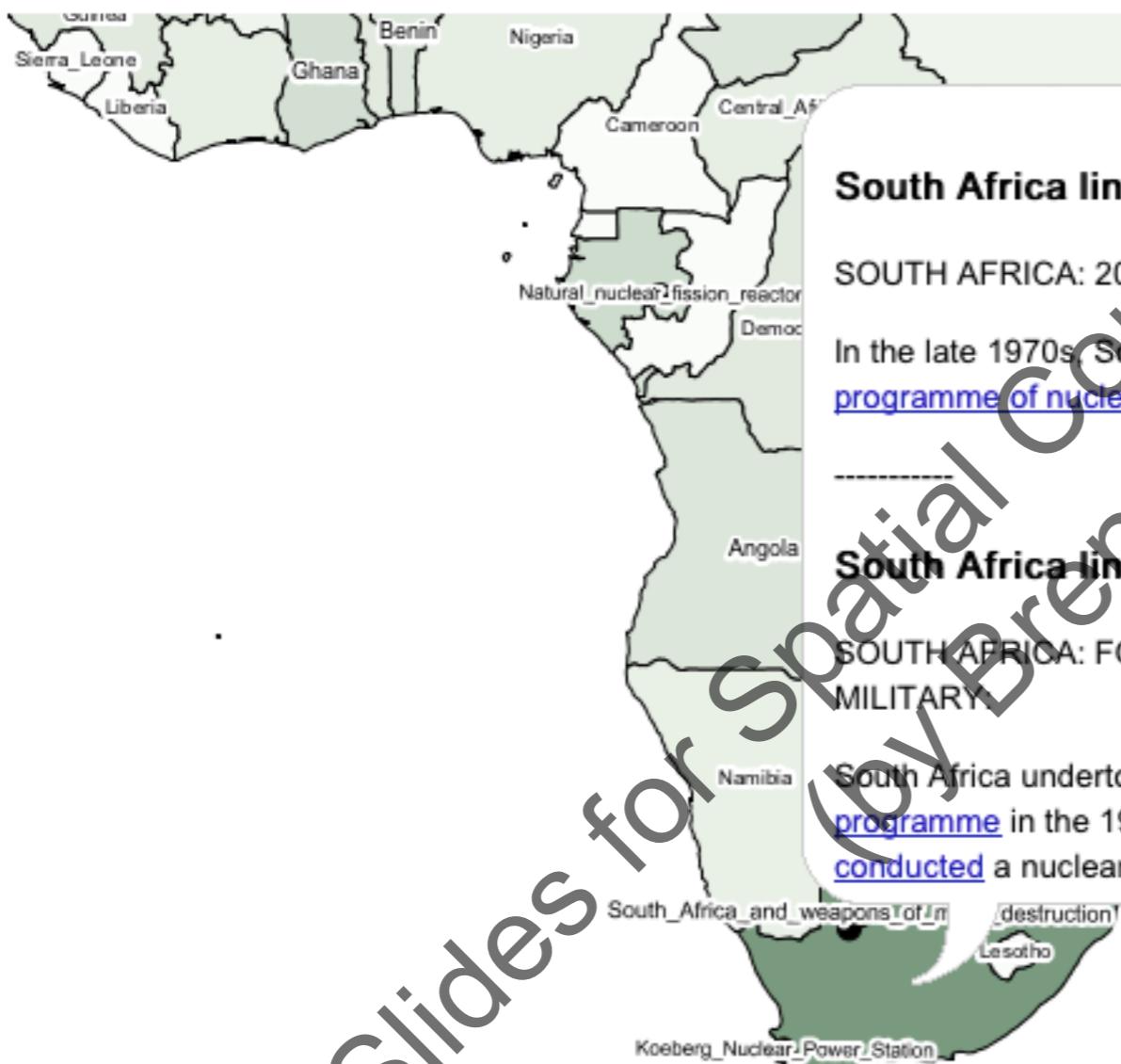
Concept: Nuclear_weapon

Language: English

Atlas of: The Earth

Execute!

Options



- Not Related
- + (light green)
- (medium green)
- (dark green)
- Very Related
- Not Related
-
-
-
-
- Very Related



Thematic Maps Make Reference System

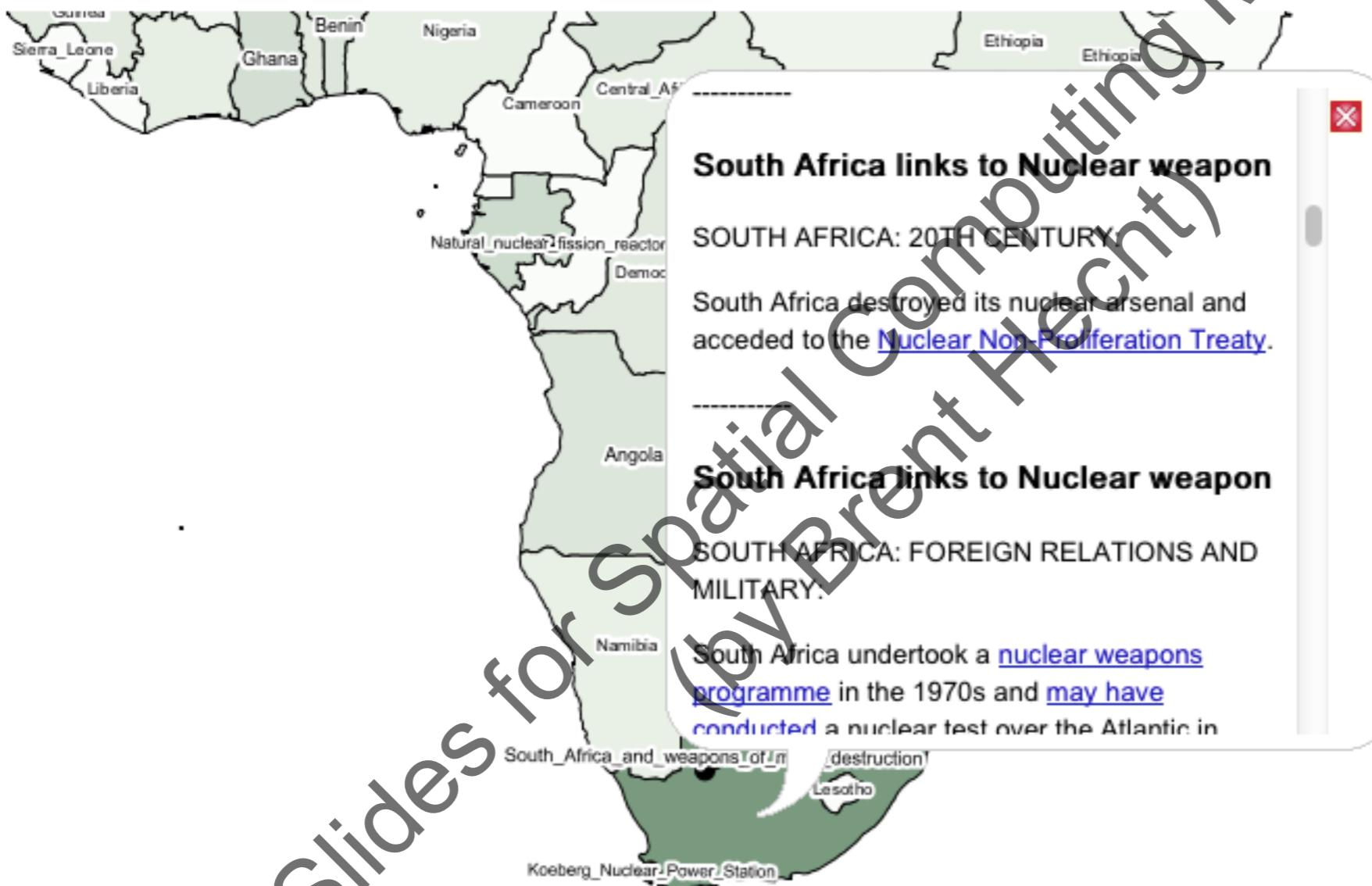
Concept: Nuclear_weapon

Language: English

Atlas of: The Earth

Execute!

Options



- Not Related
- + (light green)
- (medium green)
- (dark green)
- Very Related
- Not Related
-
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- Very Related



ited in one
important

Slides for a spatial...
(by Brecht Heege)

Computing MOOC



Thematic Maps Make Reference System

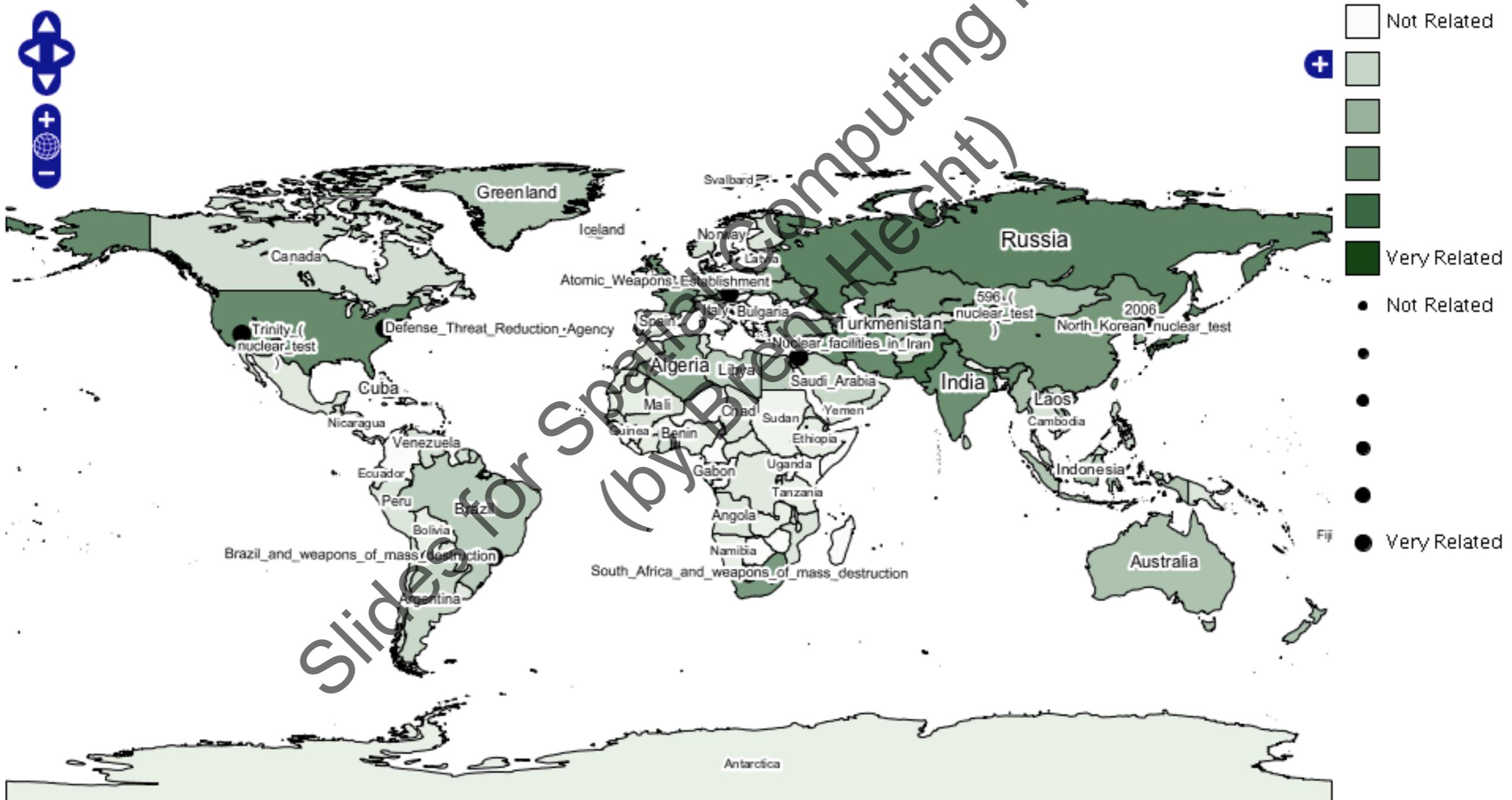
Concept: Nuclear_weapon

Language: English

Atlas of: The Earth

Execute!

Options



[Thematic Maps](#) [Make Reference System](#)

Concept: Nuclear_weapon

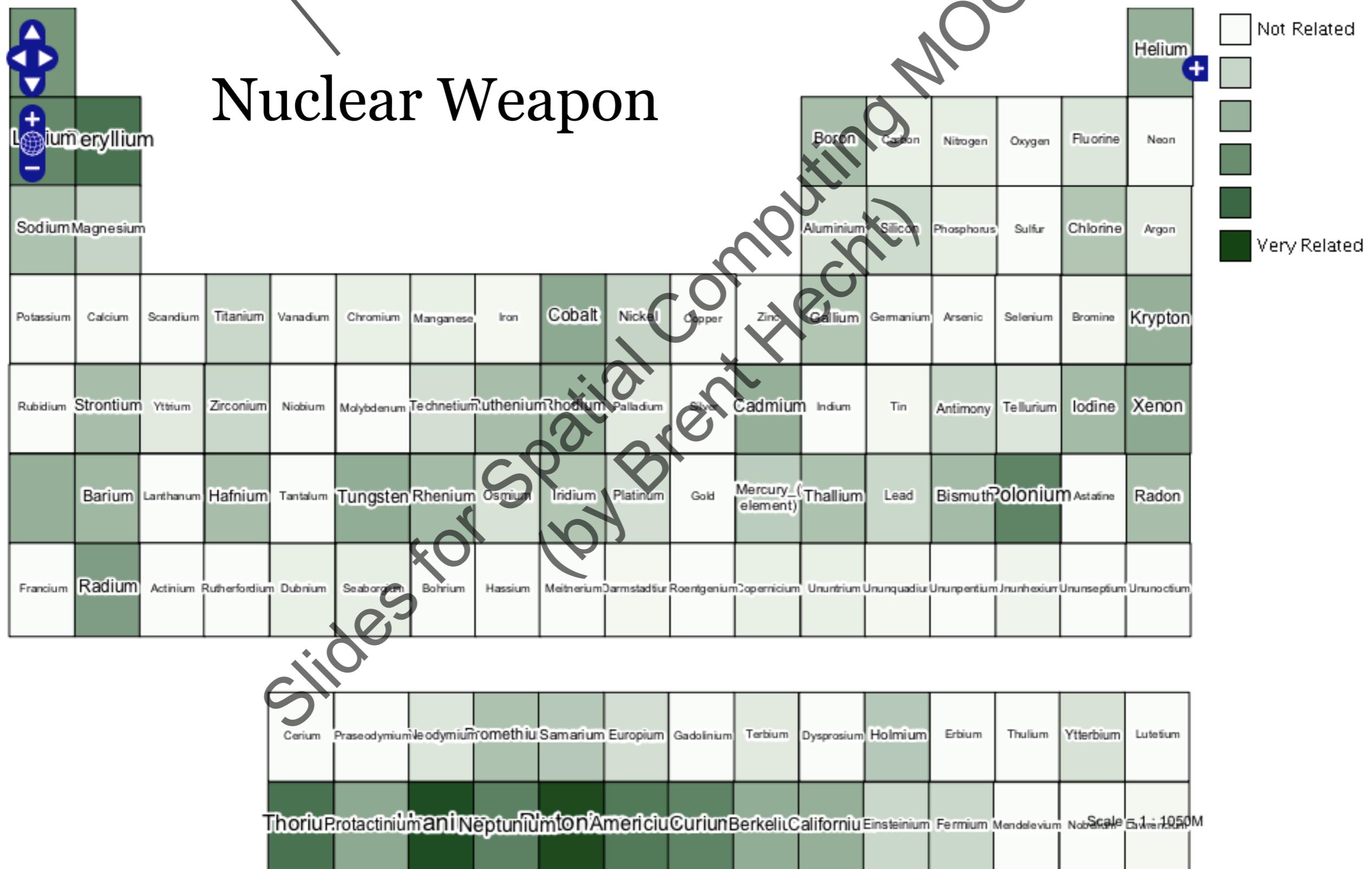
Language: English

Atlas of: The Periodic Table

Execute!

Options

Nuclear Weapon



Thematic Maps Make Reference System

Concept: Nuclear_weapon

Language: English

Atlas of: The Periodic Table

Execute!

Options



Thematic Maps Make Reference System

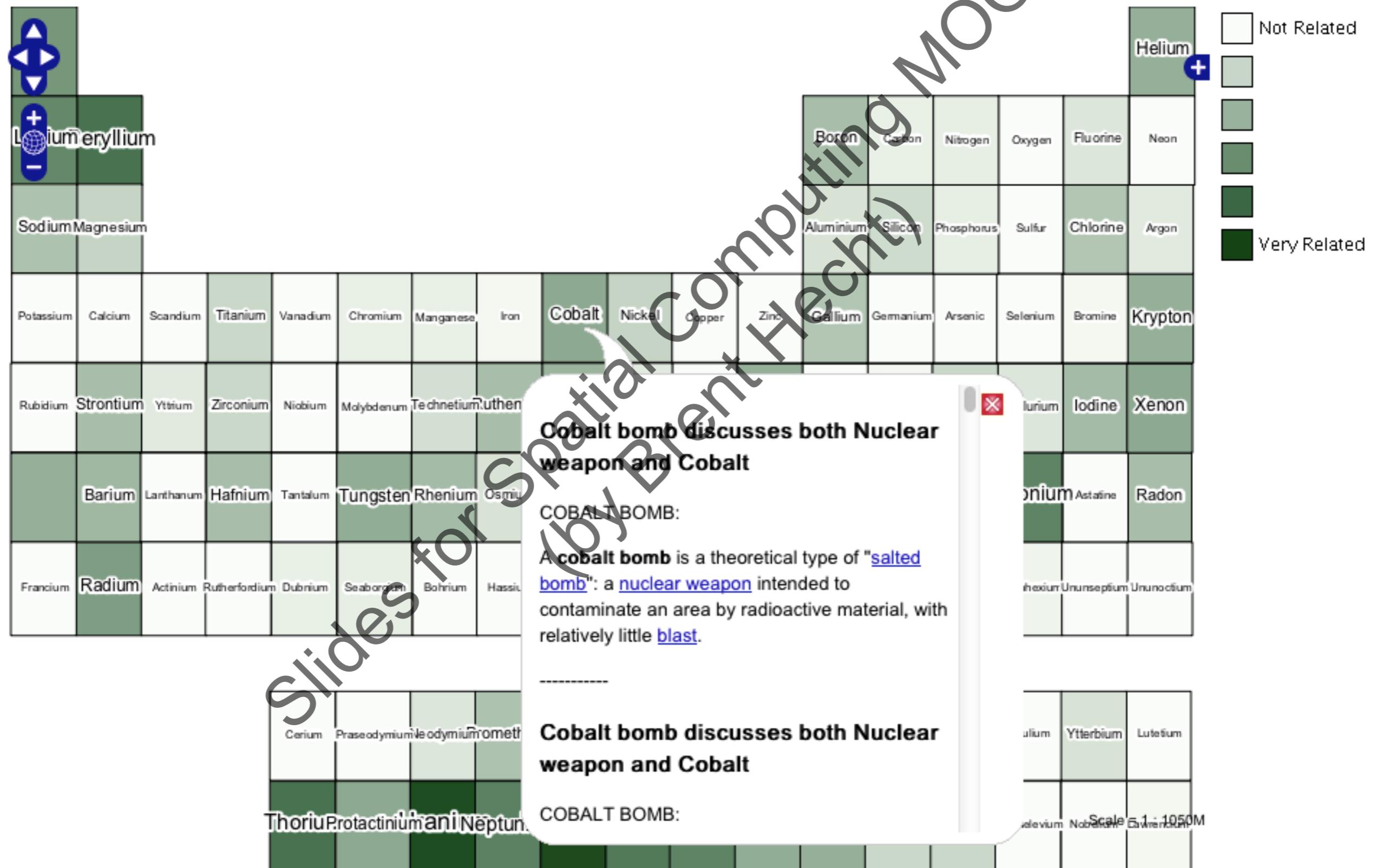
Concept: Nuclear_weapon

Language: English

Atlas of: The Periodic Table

Execute!

Options





Thematic Maps Make Reference System

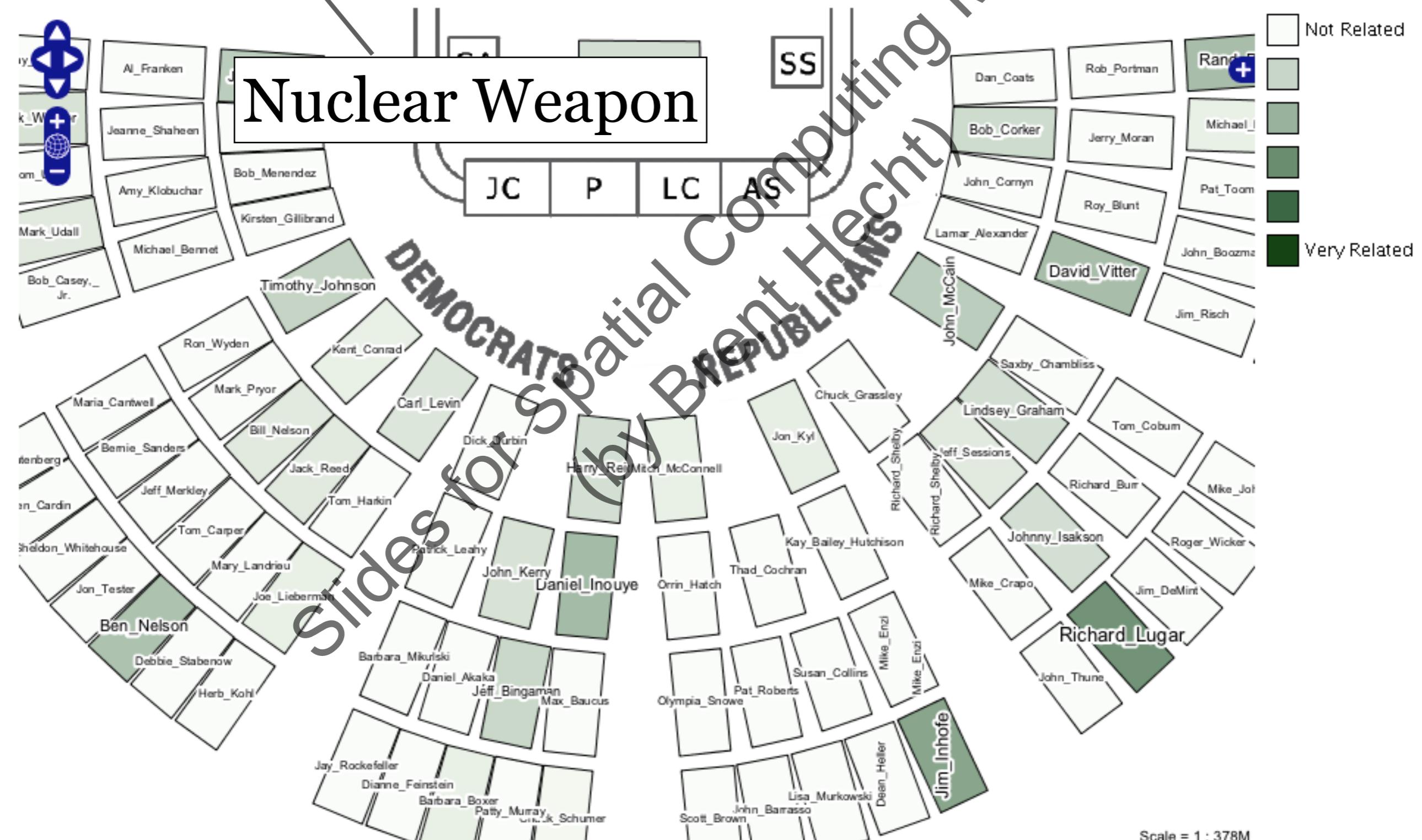
Concept: Nuclear_weapon

Language: English

Atlas of: The U.S. Senate Chamber (Senators)

Execute!

Options



Thematic Maps Make Reference System

Concept: Nuclear_weapon

Language: English

SR Measure: Atlasify353

Atlas of: History



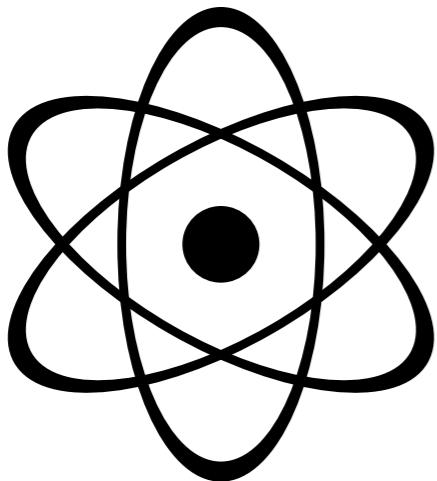
Nuclear Weapon



Slides for Spatial Computing MOOC
(by R. Hecht)

The BIG question is then...

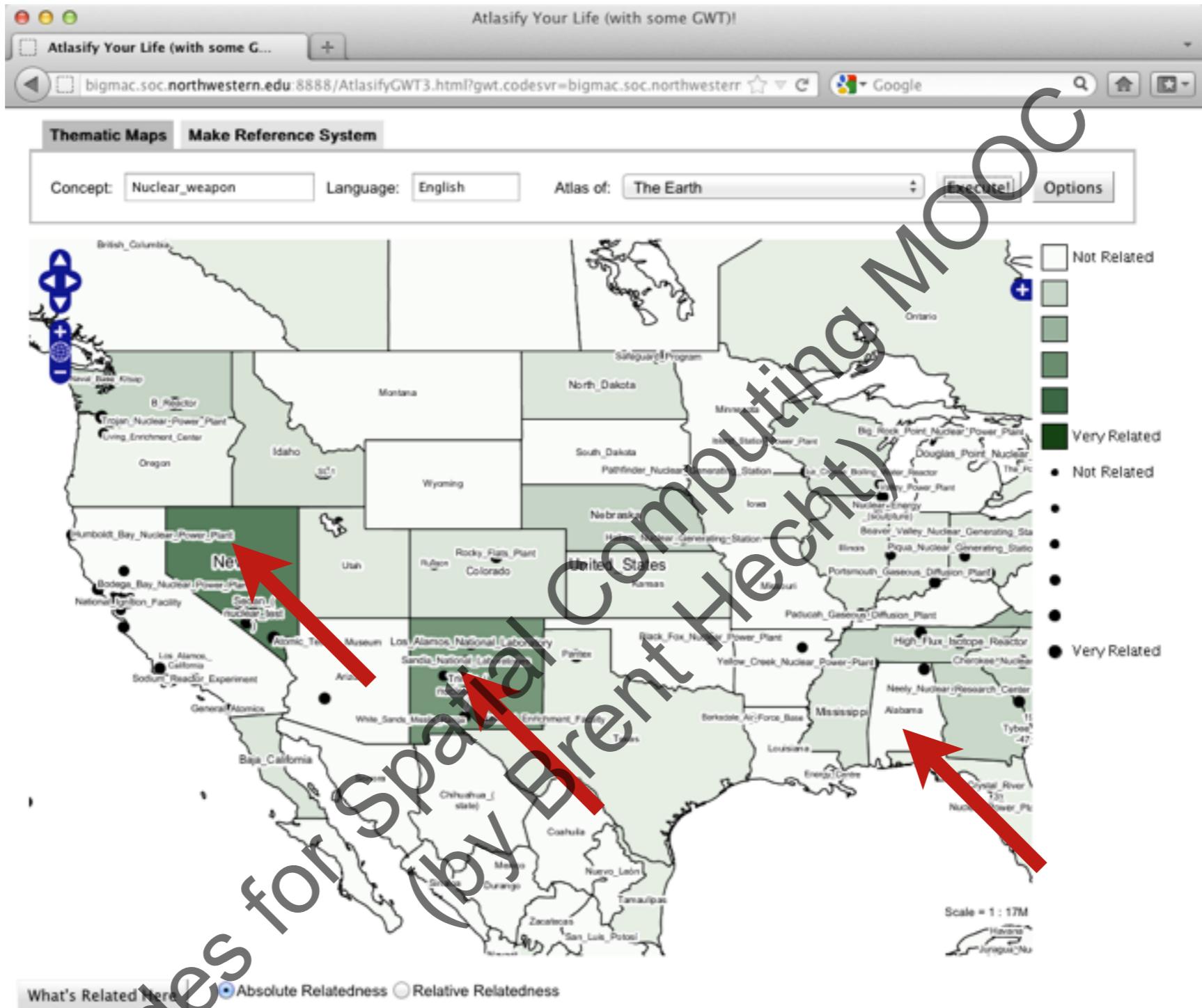
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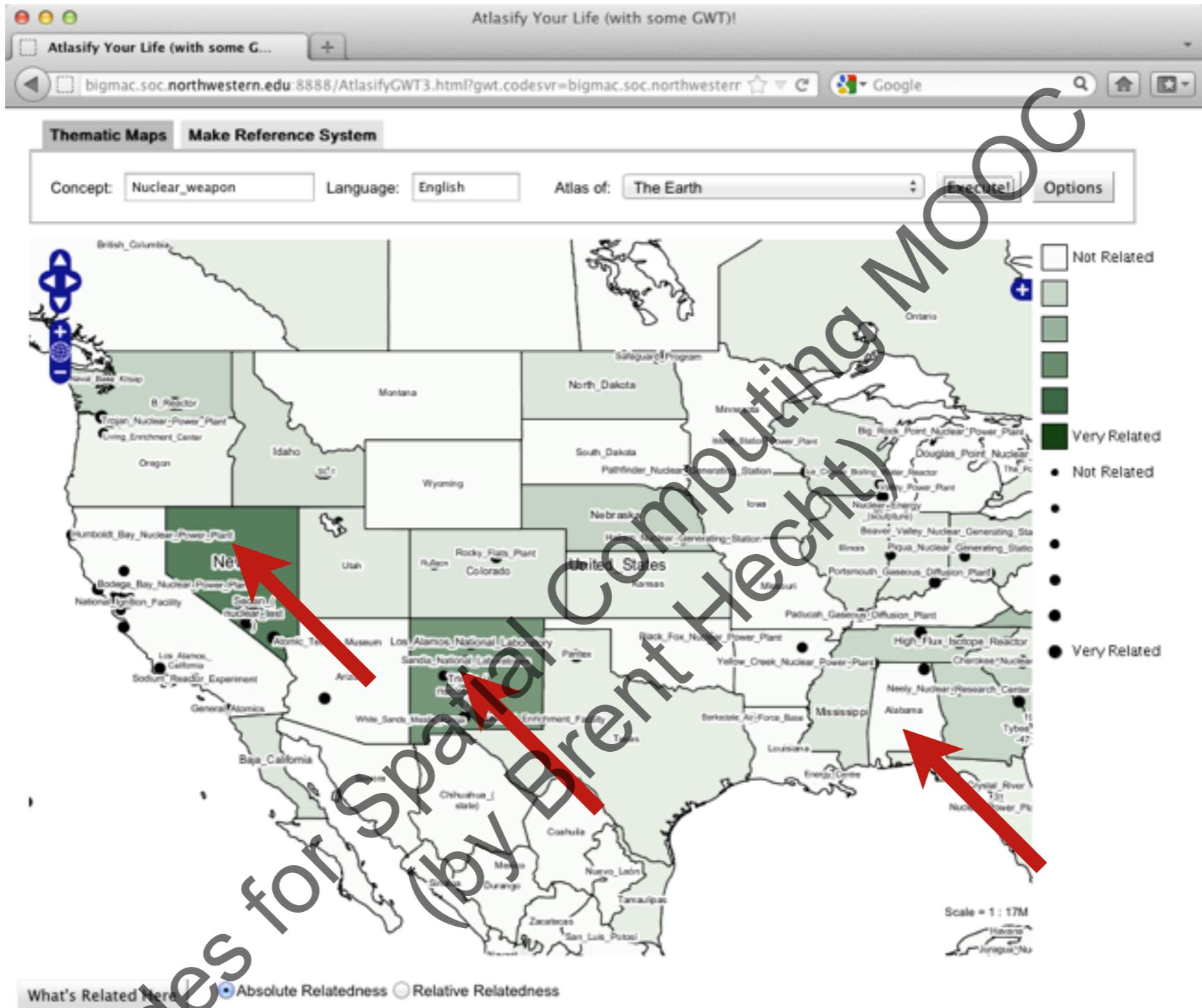
Thematic Cartography
(e.g. choropleth maps)



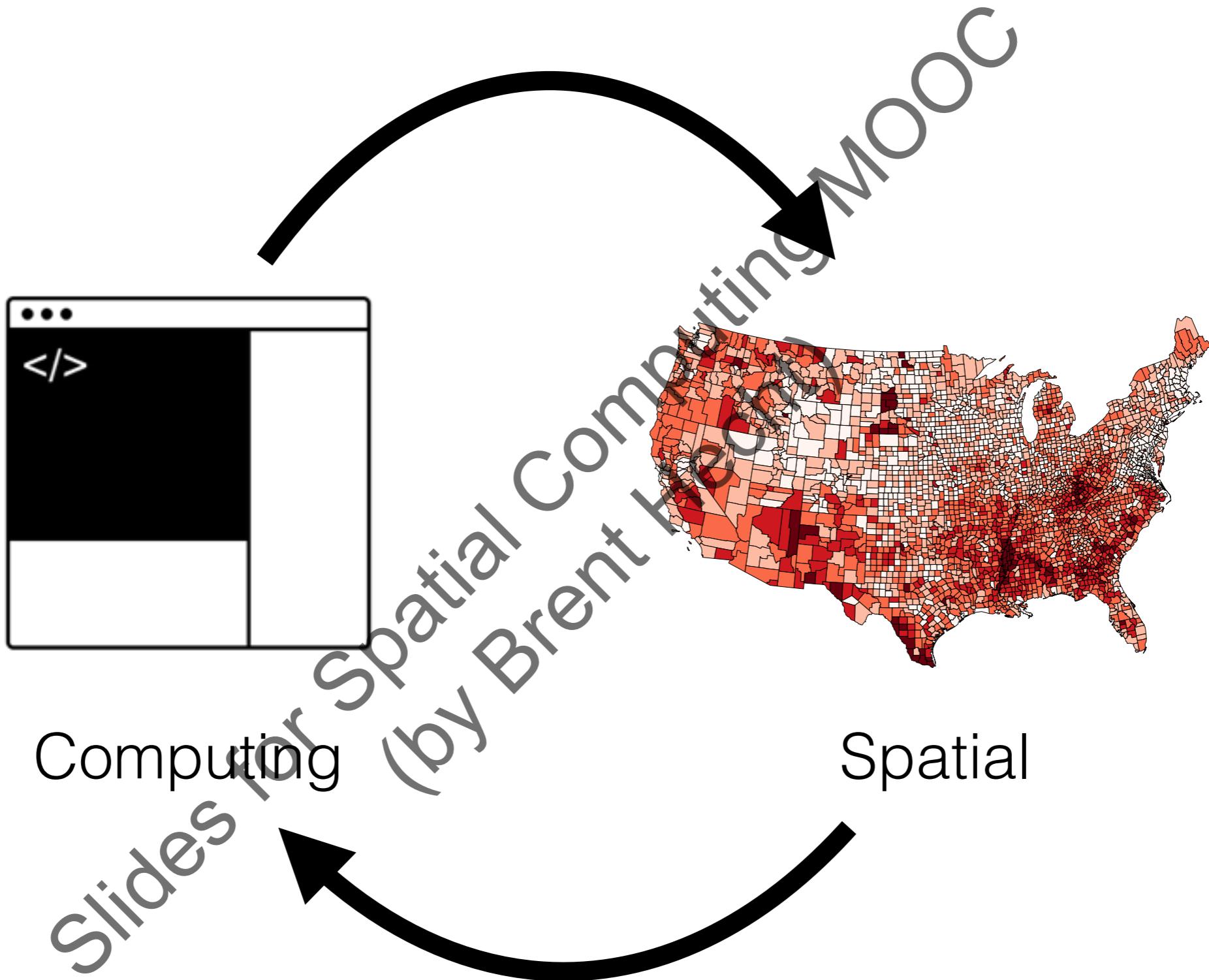
Slides for Spatial Computing
(by Brent Hecht)



Semantic relatedness estimates



Semantic relatedness estimates



Advances in Cartography

“Explanatory Semantic Relatedness and Explicit Spatialization for Exploratory Search”

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