



A meaningful ontology of location

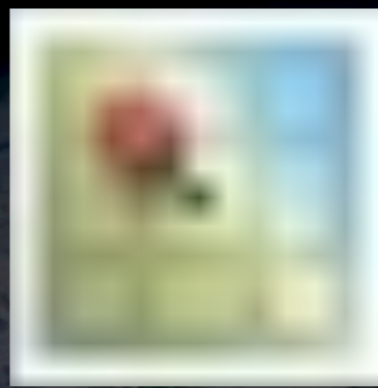
From (37.852,-122.252) to home
and back again

Re-iteration of the concept: the dwindling of devices that don't have geolocation and how the numbers aren't very useful to me.

Agenda:

Look at existing work at different levels of “meaning”.

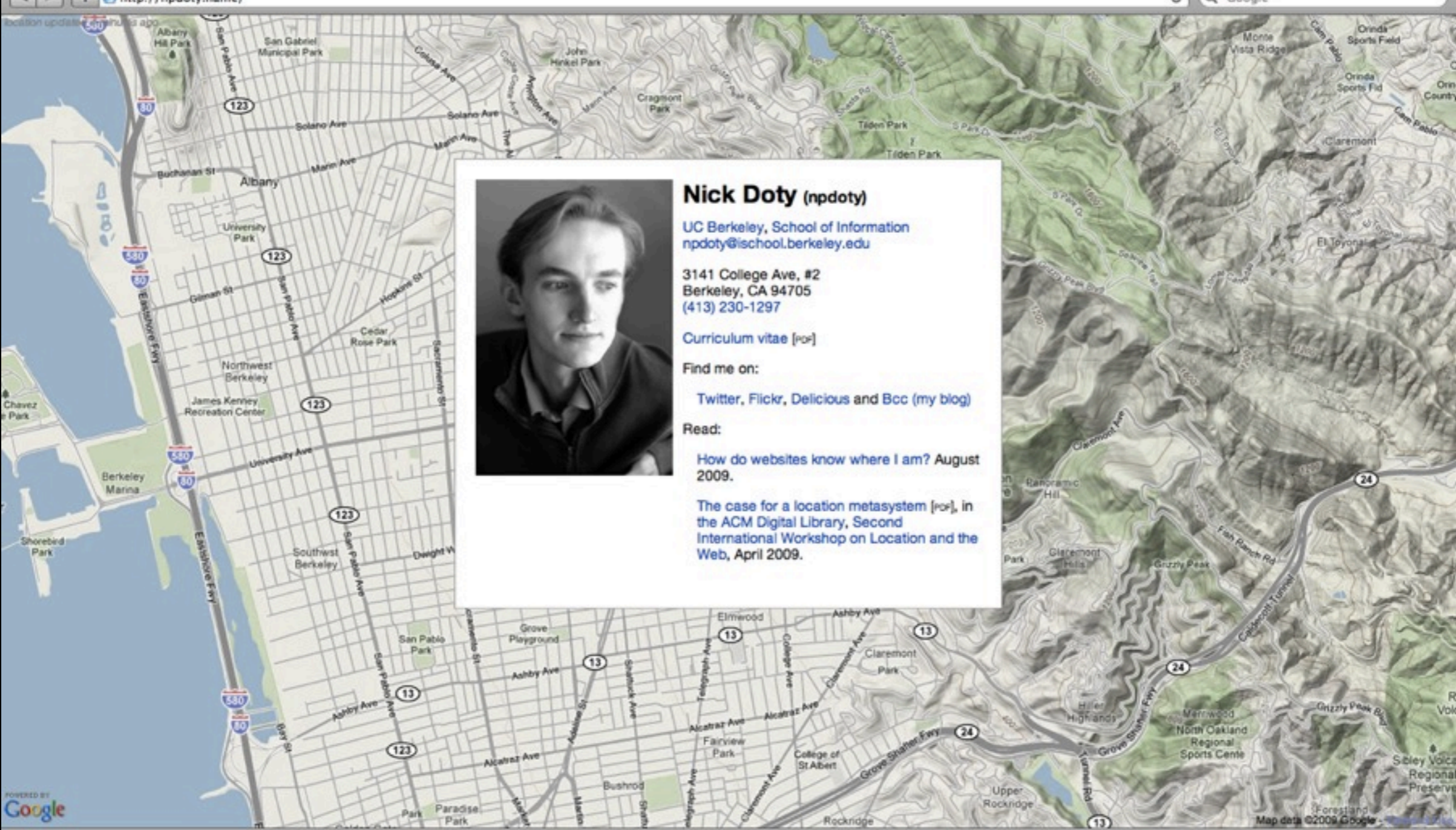
Describe some of the uses that will drive how we use these different concepts.




Nick Doty (npdoty)

http://npdoty.name/ Google

Location updated 15 minutes ago





Nick Doty (npdoty)
UC Berkeley, School of Information
npdoty@school.berkeley.edu
3141 College Ave, #2
Berkeley, CA 94705
(415) 230-1297
[Curriculum vitae \[pdf\]](#)
Find me on:
[Twitter](#), [Flickr](#), [Delicious](#) and [Bcc \(my blog\)](#)
Read:
[How do websites know where I am? August 2009.](#)
[The case for a location metasystem \[pdf\]](#), in the ACM Digital Library, Second International Workshop on Location and the Web, April 2009.

POWERED BY Google

Map data ©2009 Google

Neogeography



Personal data

Military and political

Light-weight tools

Traditional GIS tools

Good enough

Precise

Neogeographers as opposed to, jokingly, paleogeographers. Differences are not well-defined (besides age), but:

I'm coming from the Neogeography side, both since that's my background and since I'm focused on the personal data aspect, but I'll try to integrate some "paleo" concepts.

The current state of location on the Web: [lat/lon](#)

- ✦ W3C Geolocation
- ✦ GeoRSS
- ✦ geo: URI scheme
- ✦ Geo microformat
- ✦ iPhone CoreLocation
- ✦ Win7 Location Platform

The current state of location on the Web: lat/lon

Why?

- ✦ Unambiguous
- ✦ Convenient for data storage
- ✦ No interoperability problems
- ✦ Obvious how to use it

Not actually unambiguous (World Geodetic System 1984) but in mailing list discussions, often neogeographers don't even realize it could be ambiguous.

Are coordinates meaningful?

Personal ontology

At home

Geographic ontology

In Berkeley, in California,
near San Francisco

Named location /
civic address

3141 College Ave, Berkeley

Latitude/longitude

(37.852,-122.252)

Are they meaningful? Different levels of meaning which I'll roughly sketch out here.

But keep in mind that this ordering of meaning bottom to top might be reversed depending on your point of view.

Gazetteers

“Vocabulary control is the *sine qua non* of information organization.” – Elaine Svenonius

- ✦ United Nations Conferences on the Standardization of Geographical Names (UNCSGN)
- ✦ ISO 3166
- ✦ GeoNames
- ✦ Geocoding & reverse-geocoding

We talked last week about these large books of geographic names for atlases along with coordinates.

Sometimes we just need to specify the spelling (vocabulary control): a big issue in the developing world like Thailand.

A more recently developed tool is GeoNames: an open gazetteer with millions of names.

And Yahoo!/Google/etc. provide Geocoding/Reverse-geocoding services to translate between coordinates and these names.

Gazetteers?

The Foursquare logo, featuring the word "foursquare" in a white, lowercase, sans-serif font with a blue outline, set against a background of a blue and white globe.The Gowalla logo, featuring the word "Gowalla" in a yellow, lowercase, sans-serif font with a blue outline, set against a background of a blue and white globe.

Games, and how they work.

Useful for self-reflection.

Are these gazetteers as well? In a way, they're building up their own list of authoritative named locations which is one of their main challenges and their main outputs, despite being a game.



Geographic ontologies

What is an ontology?

I assume that most of us have an idea of what “ontology” means in the information organization context, but just to re-cap (and from a philosophical bent): an ontology is a way of dividing up the world (or a particular domain) into different types and describing the relationship between those types.

In geography, this is pretty clear, cities are parts of states are parts of countries. But also, I can be within this zipcode which borders other zipcodes, but also within this county which borders other counties.

Not all geographic ontologies are straightforward -- neighborhoods and the like have fuzzy borders and different meanings to different people.

GEOPLANET



- ✦ Where-on-Earth IDs (WOEIDs)
- ✦ Hierarchy of official and informal places
- ✦ Relationships to neighbors, parents, children
- ✦ Freely available for download and web services

Useful for Geographic Information Retrieval: expanding queries

Personal ontologies

- ✦ At home, at school, at work
- ✦ On Bart, on the bus, on a plane
- ✦ With my co-workers, my friends, my family
- ✦ Where we first met, where I was at this time yesterday

Use cases

- ✦ self-reflection
- ✦ sharing and privacy
- ✦ contextual triggers





Next steps

Matching up use cases to those different levels of meaning
What features does an ontology need to support these?

As a final project, build a version of this ontology, and services to contribute and consume



Questions?

npdoty@ischool.berkeley.edu

<http://npdoty.name>