ipam geo-primer

a brief intro to geodata
Points
[34.070258, -118.441851]

Lines:
[[[-73.94042058, 40.7010766],
[-73.94020564, 40.70112431]]]}

Polygons:
[[[[25.54374272, 5.37528025],
[25.56182947, 5.37300649],
[25.57505863, 5.37491852]...]]]
Falsehoods programmers believe about addresses

Perhaps you've read posts like Falsehoods Programmers Believe About Names and Falsehoods programmers believe about time. Maybe you've also read Falsehoods programmers believe about geography.

Addressing is a fertile ground for incorrect assumptions, because everyone's used to dealing with addresses and 99% of the time they seem so simple. Below are some incorrect assumptions I've seen made, or made myself, or had reported to me. (If you want to look up an address for a UK postcode or vice-versa to confirm what I'm telling you, try the Royal Mail Postcode Finder)

- An address will start with, or at least include, a building number.
  Counterexample: Royal Opera House, Covent Garden, London, WC2E 9DD, United Kingdom.

- When there is a building number, it will be all-numeric.
  Counterexample: 1A Egmont Road, Middlesbrough, TS4 2HT
  4-5 Bonhill Street, London, EC2A 4BX

- No buildings are numbered zero
  Counterexample: 0 Egmont Road, Middlesbrough, TS4 2HT

- Well, at the very least no buildings have negative numbers
  Guy Chisholm provided this counterexample: Minusone Priory Road, Newbury, RG14 7QS
  (none of the databases I've checked render this as -1)

- We can put those funny numbers into the building name field, as no buildings have both a name and a funny number
  Counterexample: Icas Court, 4-6 Princes Road, Hull, HU6 2RD

- When there's a building name, there won't be a building number (or vice-versa)
  Counterexample: Flat 1.4, Ziggurat Building, 60-66 Saffron Hill, London, EC1N 8QX, United Kingdom

- A building number will only be used once per street
  The difference between 50 Ammanford Road, Tycroes, Ammanford, SA18 3QJ and 50 Ammanford Road, Llandybie, Ammanford, SA18 3YF is about 4 miles (Google Maps).

- When there's line with a number in an address, it's the building number.
  Counterexample: Flat 18, Da Vinci House, 44 Saffron Hill, London, EC1N 8FH, United Kingdom
  You also get suite numbers, floor numbers, unit numbers, and organisations with numbers in their names.

Adrien Pârand contributes an address from Japan with fifteen digits in six separate numbers (five if you count the zip code as a single number). The format is: 980-0864 (zip code), Miyagi-ken (prefecture) Sendai-shi (city) Aoba-ku (ward) Kokubuncho (district) 4-10-20 (sub-district-number block-number lot-number) Sendai (building name) 401 (flat number).

- OK, the first line starting with a number then
  Counterexample: 3 Store, 311-318 High Holborn, London, WC1V 7BN

http://tinyurl.com/faux-geo
easy cartography

software to support citizen cartographers
Format

CSV files have one line for each feature (record) in the layer (table). The attribute field values are separated by commas. At least two fields per line must be present. Lines may be terminated by a DOS (CR/LF) or Unix (LF) style line terminators. Each record should have the same number of fields. The driver will also accept a semicolon, a tabulation or a space (GDAL >= 2.0 for the later) character as field separator. This autodetection will work only if there’s no other potential separator on the first line of the CSV file. Otherwise it will default to comma as separator.

Complex attribute values (such as those containing commas, quotes or newlines) may be placed in double quotes. Any occurrences of double quotes within the quoted string should be doubled up to “escape” them. By default, the driver attempts to treat the first line of the file as a list of field names for all the fields. However, if one or more of the names is all numeric it is assumed that the first line is actually data values and dummy field names are generated internally (field_1 through field_n) and the first record is treated as a feature. Starting with GDAL 1.9.0 numeric values are treated as field names if they are enclosed in double quotes. Starting with GDAL 2.1, this behaviour can be modified via the HEADERS open option.

All CSV files are treated as UTF-8 encoded. Starting with GDAL 1.9.0, a Byte Order Mark (BOM) at the beginning of the file will be parsed correctly. From 1.9.2, The option WRITE_BOM can be used to create a file with a Byte Order Mark, which can improve compatibility with some software (particularly Excel).

Example (employee.csv):

```
ID,Salary,Name,Comments
132,55000.0,John Walker,“the "big" cheese.”
133,11000.0,Jane Lake,Cleaning Staff
```

Note that the Comments value for the first data record is placed in double quotes because the value contains quotes, and those quotes have to be doubled up so we know we haven’t reached the end of the quoted string yet.

Many variations of textual input are sometimes called Comma Separated Value files, including files without commas, but fixed column widths, those using tabs as separators or those with other auxiliary data defining field types or structure. This driver does not attempt to support all such files, but instead to support simple .csv files that can be auto-recognised. Scripts or other mechanisms can generally be used to convert other variations into a form that is compatible with the OGR CSV driver.

Reading CSV containing spatial information

Building point geometries

Consider the following CSV file (test.csv):

```
Latitude,Longitude,Name
48.1,0.25,”First point”
49.2,1.1,”Second point”
47.5,0.75,”Third point”
```

Starting with GDAL 2.1, it is possible to directly specify the potential names of the columns that can contain X/longitude and Y/latitudes with the X_POSSIBLE_NAMES and Y_POSSIBLE_NAMES open option.

```
ogr2ogr -ro -al test.csv -oo X_POSSIBLE_NAMES=Lon* -oo Y_POSSIBLE_NAMES=Lat* -oo KEEP_GEOM_COLUMNS=NO
```

This will return:

```
ogrinfo test.csv
```

```
```
### CartoDB / cartodb

Geospatial database for the cloud [http://www.cartodb.com](http://www.cartodb.com) — Edit

- **20,566** commits
- **501** branches
- **49** releases
- **47** contributors

#### Code

- **Merge pull request #2054 from CartoDB/fixed-stalled-upgrade-script**

<table>
<thead>
<tr>
<th>File</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>app</td>
<td>Merge pull request #2054 from CartoDB/fixed-stalled-upgrade-script</td>
<td>14 hours ago</td>
</tr>
<tr>
<td>config</td>
<td>Merge pull request #2055 from CartoDB/1.5.1-Google_signin</td>
<td>15 hours ago</td>
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<tr>
<td>db</td>
<td>Merge pull request #2056 from CartoDB/1.5.1-Google_signin</td>
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<tr>
<td>doc</td>
<td>Add start skeleton for frontend docs</td>
<td>19 days ago</td>
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<tr>
<td>engines</td>
<td>Add engines dir</td>
<td>2 years ago</td>
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<tr>
<td>lib</td>
<td>Merge pull request #2057 from CartoDB/fixed-stalled-upgrade-script</td>
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<tr>
<td>public</td>
<td>changes location of alpha marker to assets</td>
<td>2 days ago</td>
</tr>
<tr>
<td>script</td>
<td>Activating more features for local/dev users</td>
<td>2 months ago</td>
</tr>
<tr>
<td>services</td>
<td>Merge branch <code>master</code> of github.com:CartoDB/cartodb into 1.7.8-Import...</td>
<td>19 hours ago</td>
</tr>
<tr>
<td>spec</td>
<td>Automated password-protected file test</td>
<td>18 hours ago</td>
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<tr>
<td>tmp</td>
<td>Add tmp folder to the repo and fix wrong javascript filenames in assets</td>
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<td>.gitignore</td>
<td>State variable dependencies explicitly</td>
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<tr>
<td>.gitmodules</td>
<td>Replace lib/sql by the cartodb-postgresql submodule</td>
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<td>cartodb_id</td>
<td>the_geom</td>
<td>address</td>
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<td>TBA</td>
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<td>Mozilla Community Space Bangalore, No 10, A C...</td>
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<tr>
<td>14</td>
<td>-78.4767,38.0293</td>
<td>Center for Open Science, 210 Ridge McIntire</td>
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</tbody>
</table>
NEXRAD torque visualization, cartodb, tinyurl.com/cdb-nexrad
ZUI from abstract to street view
CartoDB + Cesium for globe view
Global forest watch, http://www.globalforestwatch.org
Global Forest Watch

Global Forest Watch (GFW) is an interactive online forest monitoring and alert system designed to empower people everywhere with the information they need to better manage and conserve forest landscapes. Global Forest Watch uses cutting edge technology and science to provide the timeliest and most precise information about the status of forests globally.
WHERE ON MARS

...should the first European rover land?

Visualise on an interactive map the candidate landing sites that scientists are studying for the ESA's ExoMars rover to search for life!

where on mars?: http://whereonmars.co
Elevation constraint

First, in order to have a successful landing, the elevation of the landing site must be lower than -2 km.

All landers use a parachute to slow themselves down as they come through the thin atmosphere of Mars. To make sure that the parachute has enough time to do its job, the landers need to touch down at as low an elevation as possible.

On this altimetry map, derived from the Mars Orbiter Laser Altimeter (MOLA), areas ruled out for a safe landing are shown dimmed.
bird watching + satellite comparative comparison
torque.js to visualize murmurations: http://www.tinyurl.com/cdb-murmur
Star Wars Galaxy Map

mythic maps

star wars galaxy map: http://www.swgalaxymap.com/
morbid maps
cemetery mapping, tinyurl.com/carto-coffins
Plotting a moment of the Clippers vs Rockets game on May 12, 2015

NBA data: http://tinyurl.com/clip-v-rock
2014-15 NBA Regular Season: Field Goal Shooting Patterns
Top 5 Playoff Leaders

NBA data: http://kronista.co/projects/2015/nba/

heat maps
geo[logic] maps

mine slope analysis: tinyurl.com/mining-maps
Sad Topographies

Follow @sadttopographies on Instagram for more!

road to nowhere

sad topographies: http://tinyurl.com/sad-topo
flag score: http://tinyurl.com/flag-rank
Urban CO2

Challenge

https://github.com/joeyklee/urbanco2
Mozilla Science Lab

Repositories:

- **site**
  Making research collaborative, accessible, and usable
  Updated 13 hours ago

- **working-open-workshop**
  A repo to collect all materials and resources related to Mozilla Science Lab's Working Open Workshop
  Updated 4 days ago

- **studyGroup**
  Updated 5 days ago

- **learning**
  Repository for planning and working on Science Lab learning materials
  Updated 5 days ago

- **fellows-class-2015**

People:

- Invite someone
Richard Smith-Unna (@obhan404) is a computer scientist at Cambridge. He is currently focused on understanding C++ and recent trends. He develops and contributes to a wide array of open-source projects, including ContentMine, Sober, and more. Learn about these projects and more on his blog.

Christio Bahls (@obahls) is an insect ecologist at the University. She works with the NSF-funded Long Tails project, investigating how we can use English ecological data and open agricultural systems. She’s an instructor for Open Science and Data Management called OSF and more. Learn about these projects and more on her blog.

Joey Lee (@joseyj) is a geographer and computational tooling enthusiast. He is passionate about technological literacy and the emerging ecosystem of tools and software. His co-authored books: *The Big Atlas of Open Data*, *The Big Atlas of Open Data*, and *The Big Atlas of Open Data*. Learn about these projects and more on his blog.

Jason Boba (@jasonboba) is Associate Professor in the Department of Computer Science at Mount Sinai. He has founded and contributed to a wide array of open-source projects, including ContentMine, Sober, and more. Learn about these projects and more on his blog.

Abigail Cabunoc Mayes

Biosurveillance using Social Media: Development of Curation Tools
Public Health, Epidemiology

A project to curate social media feeds related to infectious disease outbreaks. This tool is used for real-time monitoring of traditional public health signals. Learn about this project and more on her blog.

Contributorship Badges
Publishing, Credit

A tool that visualizes the use of digital badges in the academic community. Learn about this project and more on her blog.

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**Collaborate**

*Study Groups*

*Fellowships*
AERIAL BOLD: A CLEVER TYPEFACE CRAFTED FROM SATELLITE SHOTS OF BUILDINGS

http://wired.com/2016/03/aerial-bold-clever-typeface-crafted-satellite-shots-buildings
links to workshop:

http://tinyurl.com/ipam-16-maps

http://github.com/auremoser/ipam-16