



None: A story of data that isn't there

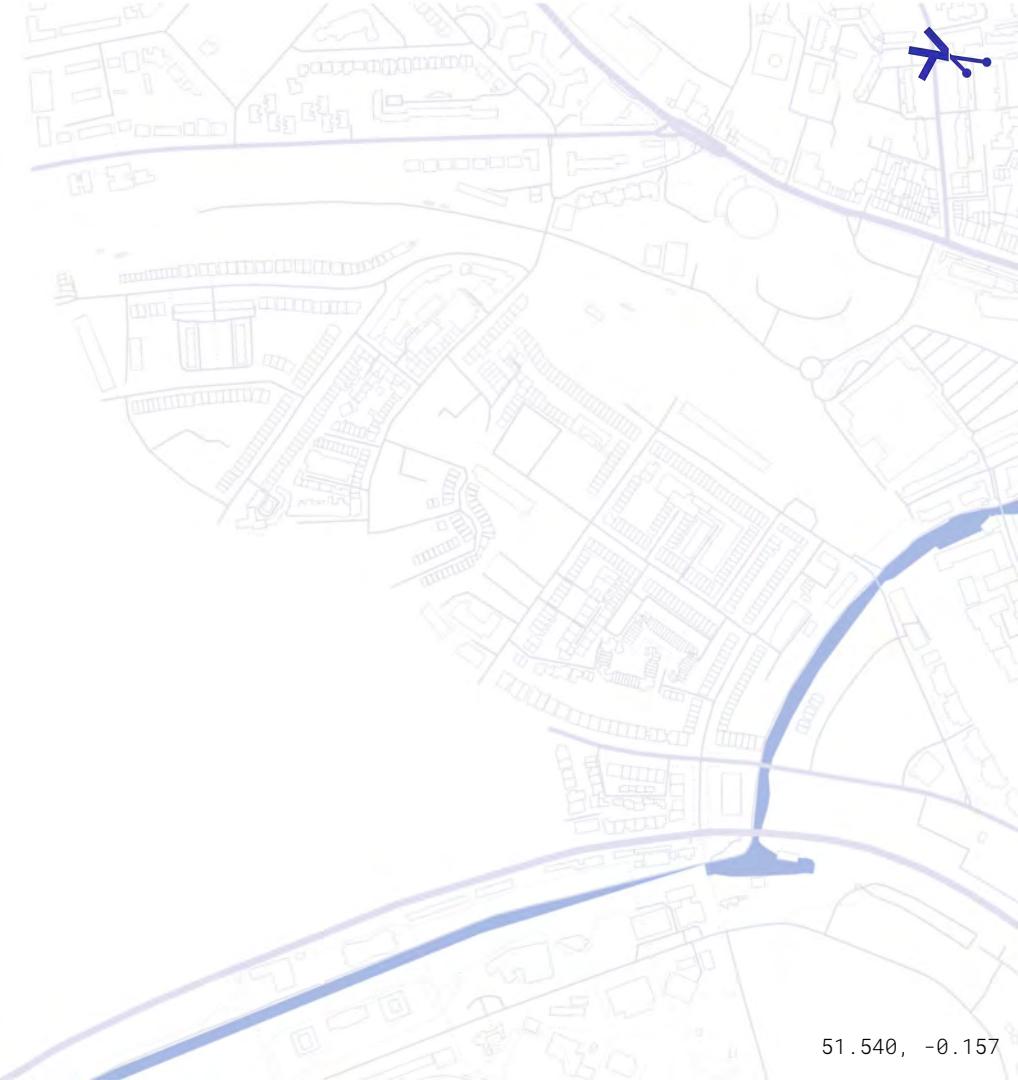
State of the Map - 19 August 2022



0

Today's talk

1. Who we are
2. What we wanted to do
3. What we did
4. What we are doing / want to do next



1

About us



Gala Camacho
Data Scientist



Simona Ciocoiu
UX Designer

At Diagonal

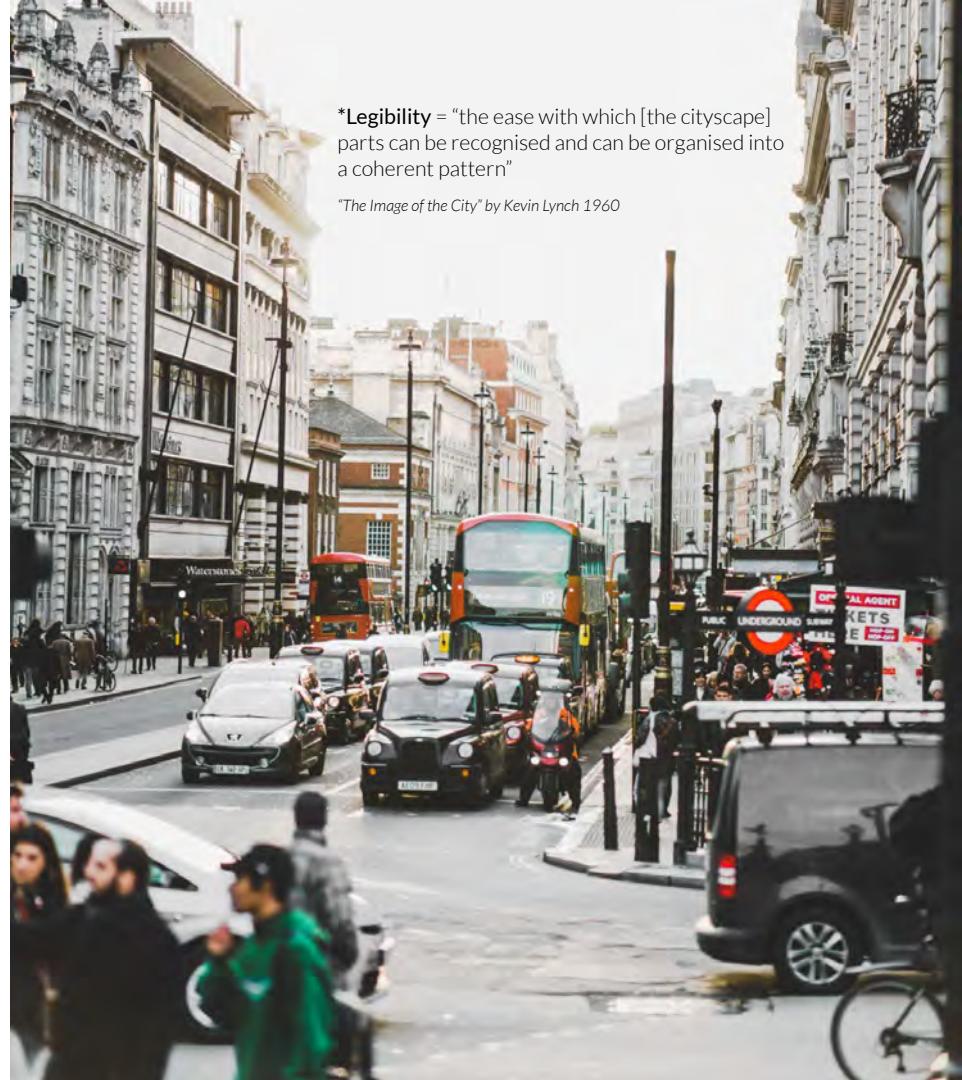


2

What we wanted to do

Help a company understand facets of neighbourhood legibility*

- For a wider area
- For strategic purposes



***Legibility** = “the ease with which [the cityscape] parts can be recognised and can be organised into a coherent pattern”

“The Image of the City” by Kevin Lynch 1960

Neighbourhood legibility question

How hard is it for a pedestrian to cross any particular road in this area?

Our challenge

Could we use OSM data + simple algorithm(s) to give a “rough” guide?

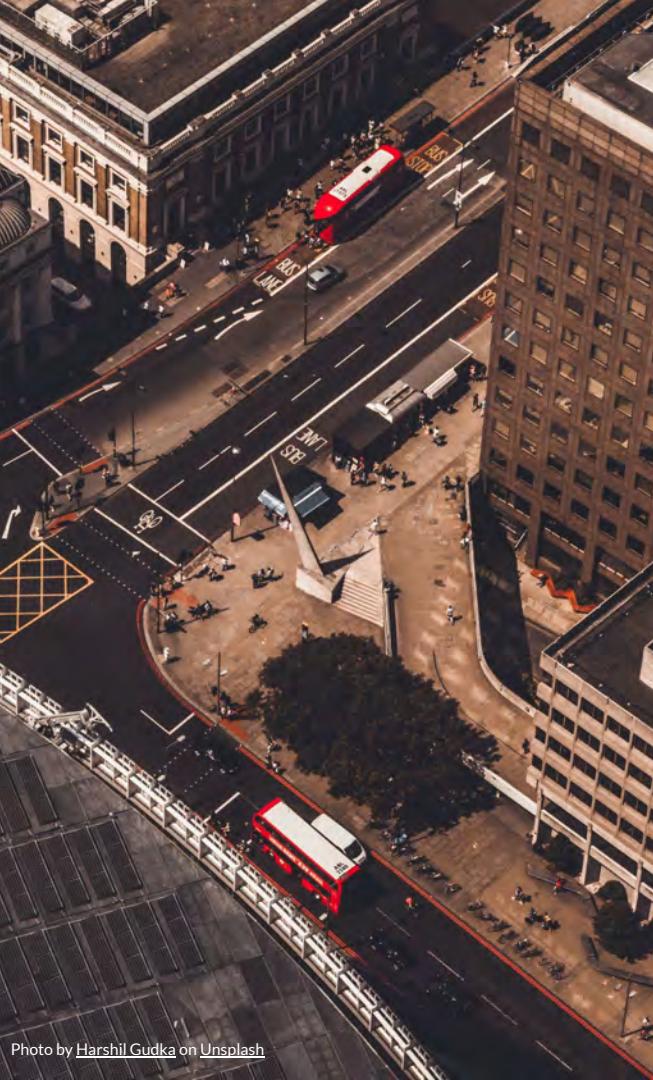


Photo by Harshil Gudka on [Unsplash](#)



3

What we did

We started with the questions of doom for a data scientist

- Does the data have the information we need?
- If so, [yay!] is the information reliable enough to analyse it?



Does the data have the information we need?

- What tags are useful?



Example tags

key value

highway = footway

footway = crossing

crossing = marked



Is the information reliable enough to analyse it?

- Is it there?
- What values does it take?
- Can we trust it?
- Can we fill in missing information?

Missing information is
not uniformly
distributed

- Select the area
you are
interested in

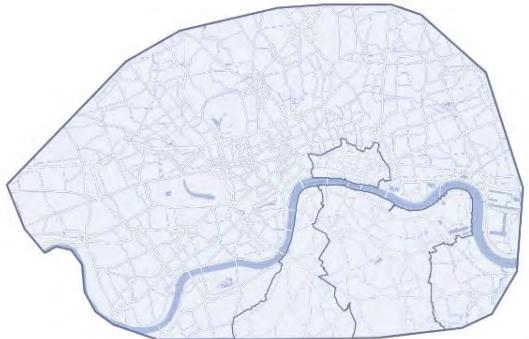
Visualise road
segments which
contain ***only*** the
`highway` tag



A bit more in focus, what if we explore **highway** = **footway**



London (zone 1-2)



30,000

20,000

10,000

5,000

0

27,818
8,714

Total
"Empty"

City of London



Lambeth (zone 1-2)



1,432
479

Southwark (zone 1-2)



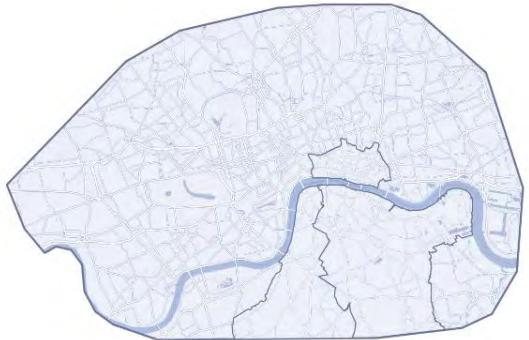
3,405
1,478

Total
"Empty"

A bit more in focus, what if we explore **highway** = **footway**



London (zone 1-2)



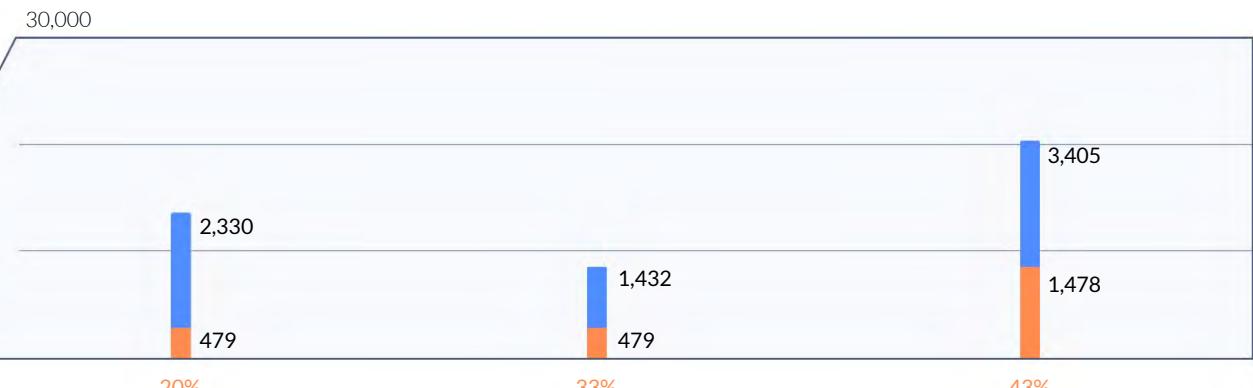
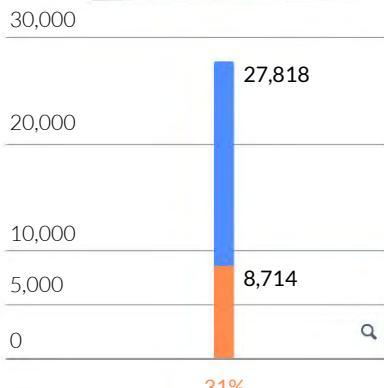
City of London



Lambeth (zone 1-2)



Southwark (zone 1-2)





Here are some tags that felt promising - within London Zone 1+2

"sidewalk"

- "both"
- "left"
- "separate"
- "right"
- "none"
- "no"
- "shared"
- "crossing"
- "yes"
- "both; right"
- "separate;right"
- "right;both"
- "half"
- "j"
- "l"

"lit"

- "yes"
- "no"
- "24/7"
- "automatic"
- "yes; no"

"wheelchair"

- "yes"
- "no"
- "limited"
- "private"
- "designated"

"crossing:island"

- "no"
- "yes"

"crossing"

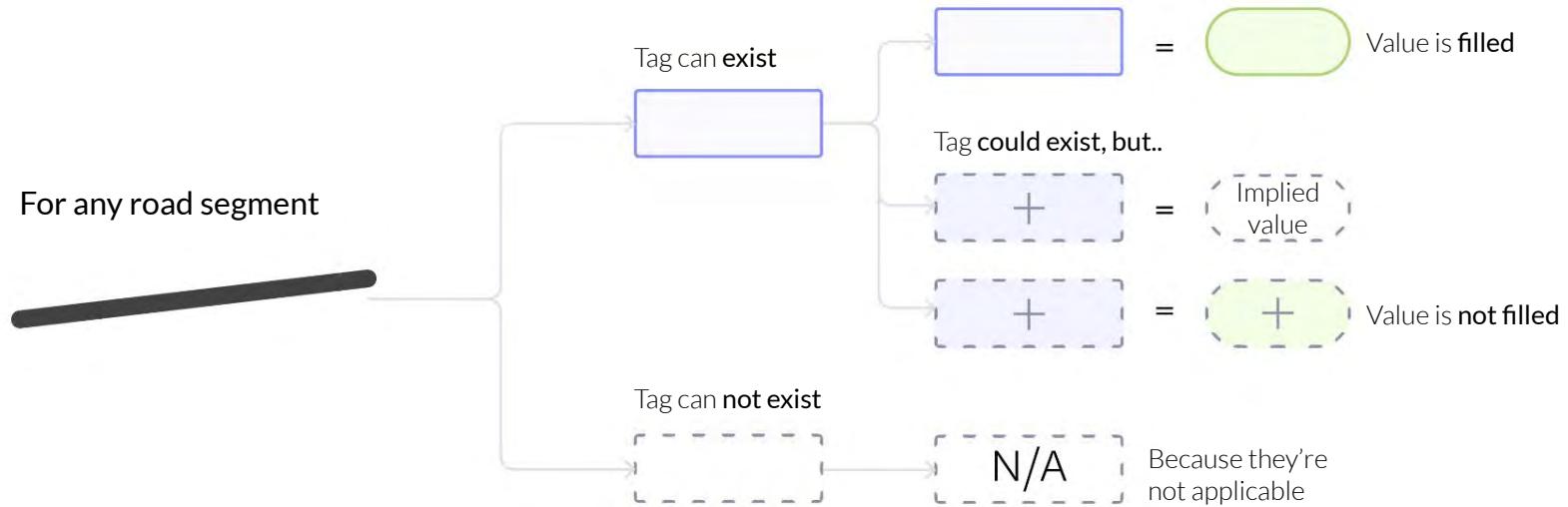
- "marked"
- "unmarked"
- "zebra"
- "uncontrolled"
- "toucan"
- "pelican"
- "tiger"
- "island"
- "zebra,_parallel"
- "raised"

"stroller"

- "yes"



For any road segment

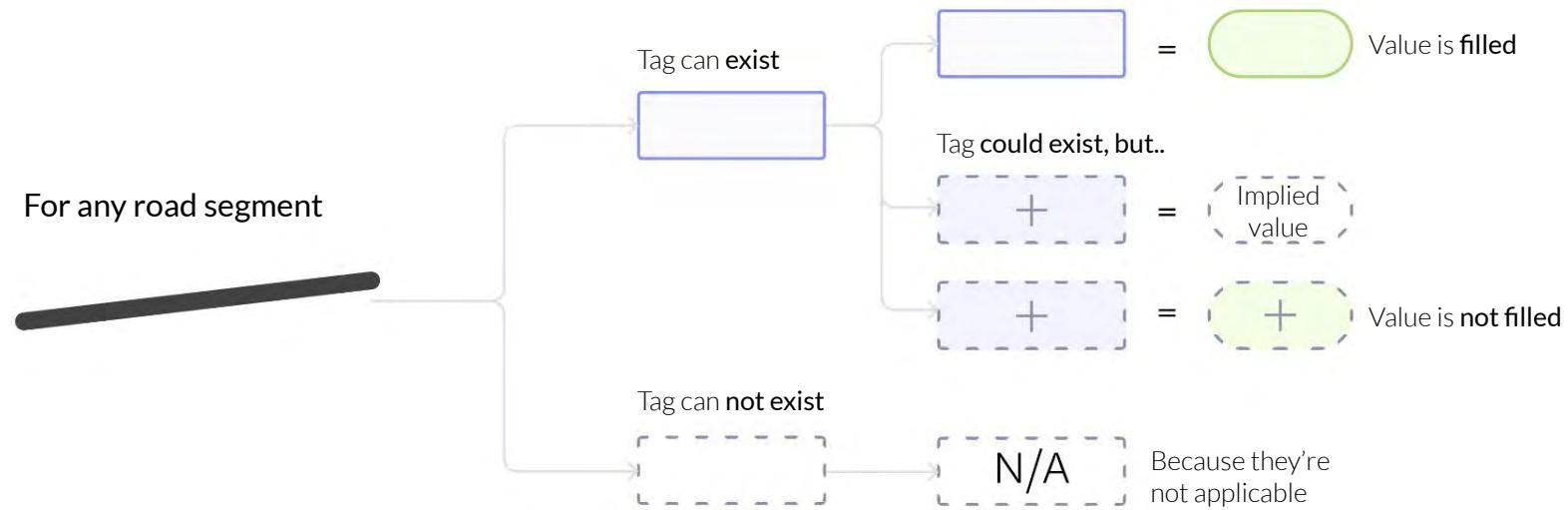




Consider the “lit” tag

27818 features have the tag
Its missing in 20607 features

Can we use it?

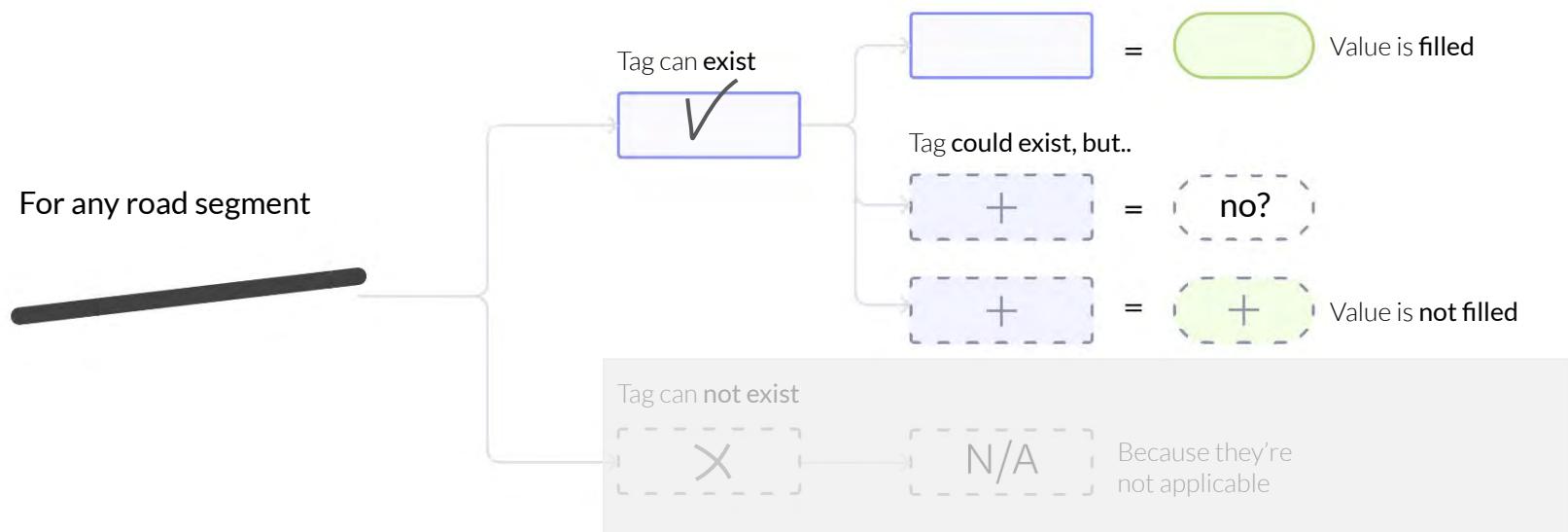




"lit"

"yes"	→	6044
"no"	→	1117
"24/7"	→	42
"Automatic"	→	7
"yes; no"	→	1

For any road segment

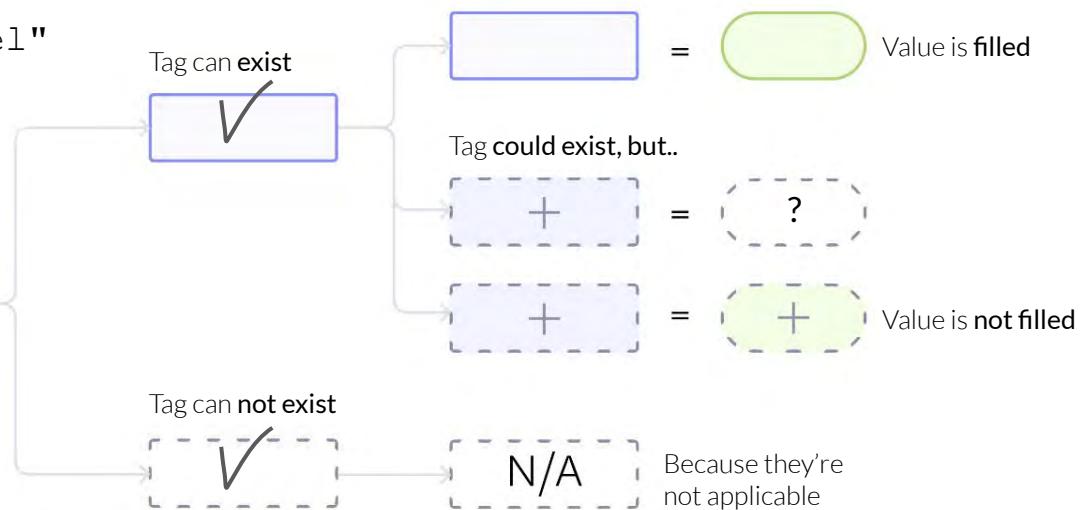




"crossing"

- "marked"
- "traffic_signals"
- "unmarked"
- "zebra"
- "uncontrolled"
- "toucan"
- "pelican"
- "tiger"
- "island"
- "zebra_parallel"
- "raised"

For any road segment



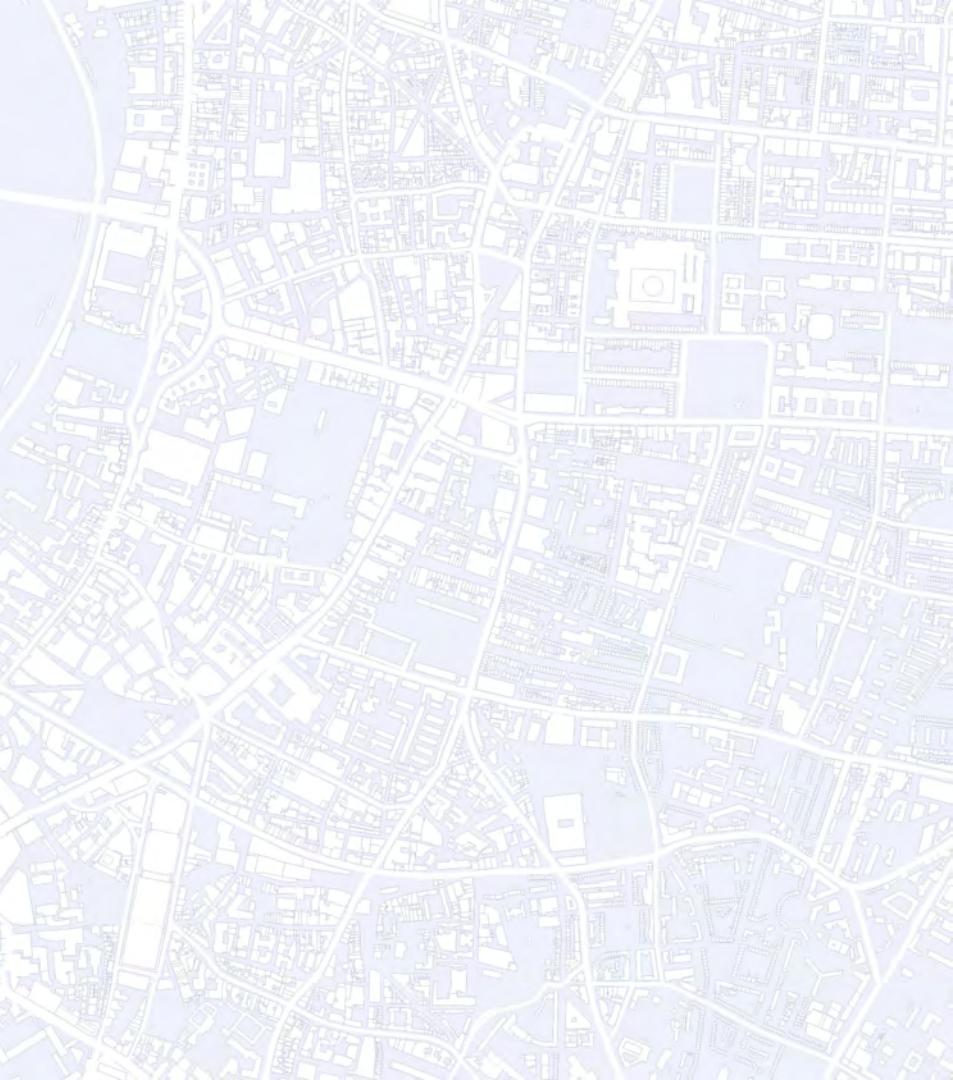
Taking a step back



Taking a step back

What are we actually interested in?

- Exploration
- Abstraction
- Collaborative work
- Collaborative decision making
- Experimentation



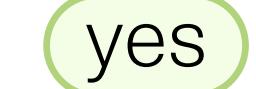


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What we want to do next

London zone 1+2

Filter by tags

`crossing:island` =  yes



+ other tags

+ none

features

57 / 228 



0

We are exploring

What tools would allow data scientists to explore the completeness of tagging in their area of study?

London

change area

 Search for places, streets, latlongs or IDs

London zone 1+2

Filter by tags

crossing:island = yes

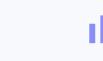
57 / 228



+

+ other tags

+ none



0



features

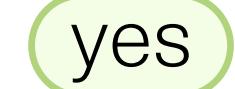


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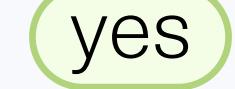
London zone 1+2

Filter by tags

crossing:island = 

features

57 / 228 

= 

25%

= 

75%

Explore the values of
that particular tag,
and their distribution.

 London zone 1+2

Filter by tags

crossing:island = yes

features

57 / 228 

+

+ other tags


0

+ none

See if features with this tag have other tags and if there are some that don't have any other tags.



London zone 1+2

Filter by tags

features

crossing:island = yes

57 / 228

Tag tree

looks for next tag with most features

collapse all

crossing:island = yes 57

- ▼ highway = footway 53
- ▼ highway = cycleway 3
- ▼ highway = primary 1

See what other tags these features have, by following a tag tree that looks for the next tag with the most features

←



London zone 1+2

Filter by tags

features

crossing:island = yes

57 / 228

Tag tree

looks for next tag with most features

[collapse all](#)

crossing:island = yes 57

highway = footway 53

footway = crossing 51

crossing = marked 29

surface = asphalt 24

tactile paving = yes 3

lit = yes 1

tactile paving = no 1



Collapse the tag tree to see all the tags included in each branch and the number of features they are found in.

London

change area

 Search for places, streets, latlangs or IDs

London zone 1+2

Filter by tags

features

crossing:island = yes 57 / 228

Tag tree looks for next tag with most features

collapse all

- crossing:island = yes 57
 - highway = footway 53
 - footway = crossing 51
 - crossing = marked 29
 - surface = asphalt 24
 - tactile paving = yes 3
 - lit = yes 1
 - tactile paving = no 1
 - surface = paved 1
 - crossing = unmarked 5
 - surface = asphalt 4
 - tactile paving = yes 2
 - traffic_calming = yes 1
 - tactile paving = no 1
 - crossing = traffic_signals 2
 - surface = asphalt 2
 - tactile paving = yes 1
 - crossing = zebra 3
 - surface = asphalt 3
 - tactile paving = yes 2
 - traffic_calming = table 1
 - crossing = uncontrolled 5
 - lit = yes 3
 - surface = asphalt 2
 - tactile paving = yes 1
- ▼ highway = cycleway 3
▼ highway = primary 1





London zone 1+2

Filter by tags

features

crossing:island = yes

57 / 228

Tag tree

looks for next tag with most features

[collapse all](#)

crossing:island = yes 57

highway = footway 53

footway = crossing 51

crossing = marked 29

surface = asphalt 24

tactile paving = yes 3

lit = yes 1

tactile paving = no 1

Select a set of tags to see the road segments on the map

London

change area

 Search for places, streets, latlongs or IDs

London zone 1+2

Filter by tags

<input type="checkbox"/> crossing:island	= <input checked="" type="radio"/>	yes
<input type="checkbox"/> highway	= <input checked="" type="radio"/>	footway
<input type="checkbox"/> footway	= <input checked="" type="radio"/>	crossing
<input type="checkbox"/> crossing	= <input checked="" type="radio"/>	marked
<input type="checkbox"/> surface	= <input checked="" type="radio"/>	asphalt

features

57 / 228 
53
51
29
24

+ other tags

 0

+ none

run on 

City of London

Southwark



run on ►

City of London

Southwark



Once you have an interesting selection of tags, you can run it on other areas of interest.

London

change area

 Search for places, streets, latlangs or IDs

London zone 1+2

Filter by tags

crossing:island = yes	57 / 228
highway = footway	53
footway = crossing	51
crossing = marked	29
surface = asphalt	24

+

+ other tags

+ none

features

57 / 228	
53	
51	
29	
24	

City of London

Filter by tags

crossing:island = yes	10 / 102
highway = footway	10
footway = crossing	10
crossing = marked	6
surface = asphalt	6

+

+ other tags

+ none

features

10 / 102	
10	
10	
6	
6	

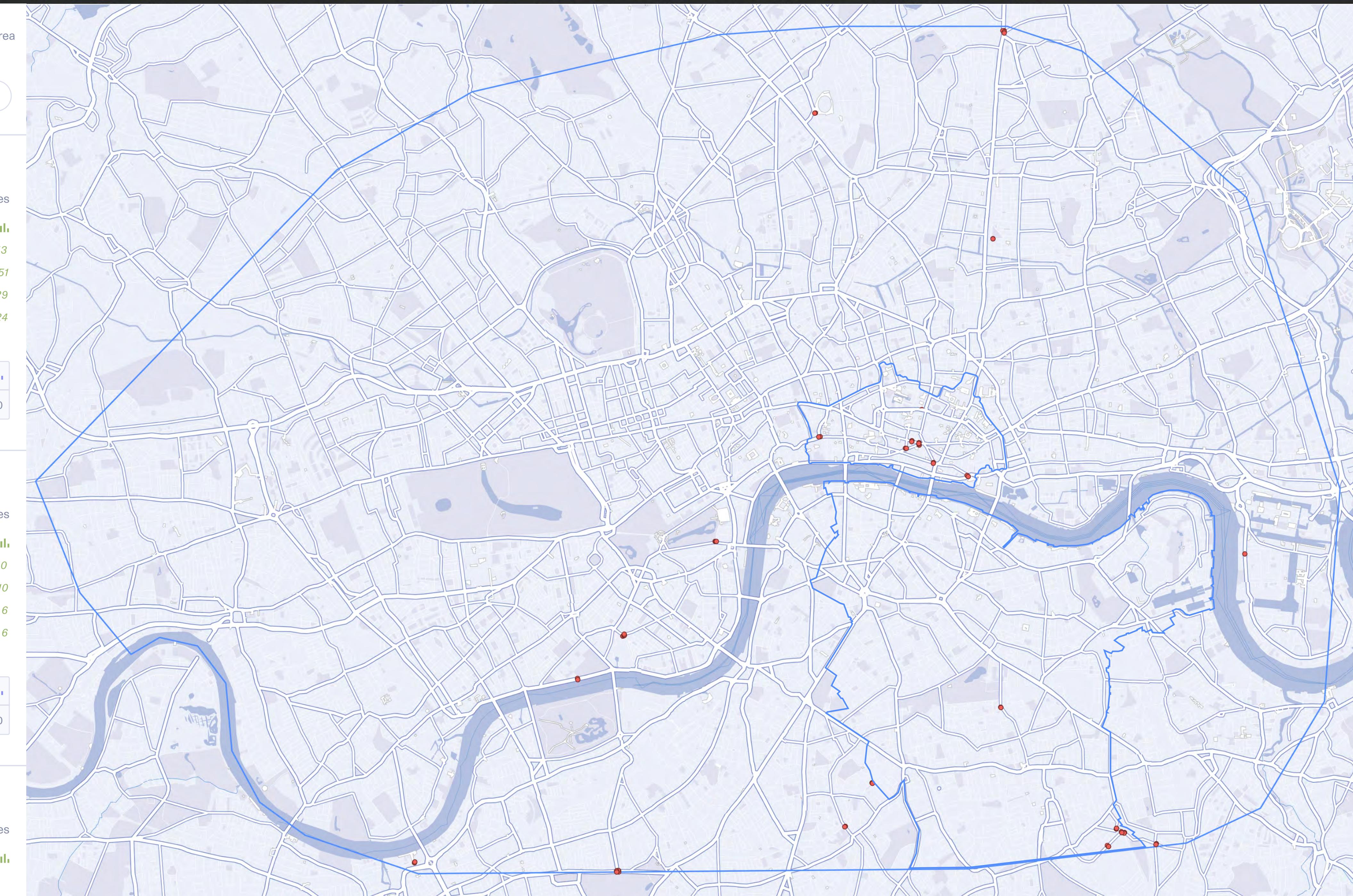
Southwark

Filter by tags

crossing:island = yes	10 / 12

features

10 / 12	



Thank you

We work on geospatial crunchy problems.
Are there any you are keen to address?

Work with us hello@diagonal.works