

Sensory Mapping

NOKIA Bell Labs

Social Dynamics

NOKIA Bell Labs

Daniele Quercia



Miriam Redi



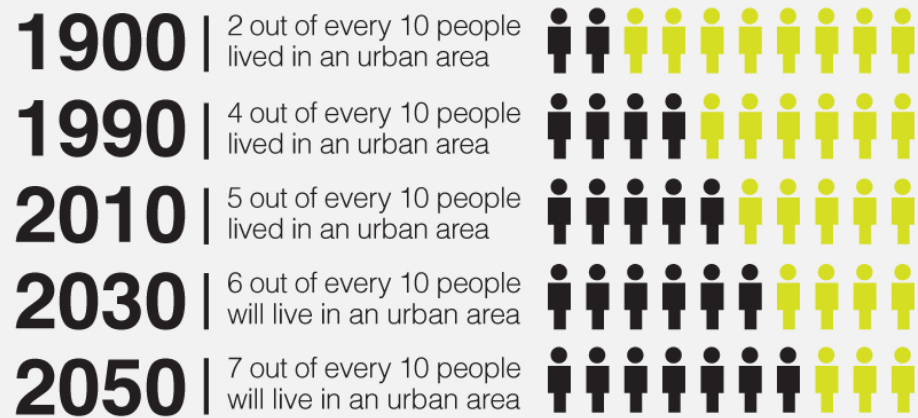
Luca Aiello



Urbanization

smart and efficient cities are crucial for sustainability

Urbanization



Defined by UN HABITAT as a city with a population of more than 10 million



Smart City = Efficiency



Jane Jacobs



Stanley Milgram



Kevin Lynch

Psychological perceptions





The quest for a Good City Life

Collective perception of beauty

A



B



Urbangems.org

[Beautiful Gems](#)[Happy Gems](#)[Quiet Gems](#)[About](#)[sign in](#)[sign up](#)

UrbanGems: Crowdsourcing Quiet, Beauty and Happiness

[Change Question](#)

Which place do you find more beautiful?

Progress: 8/10



Picture Info



Picture Info

Can't Tell

Most
beautiful



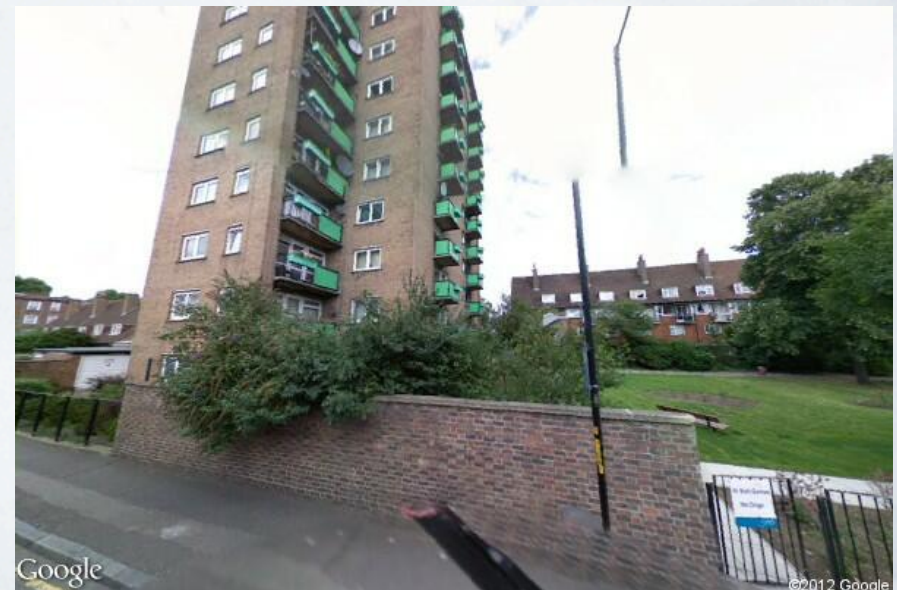
Least
beautiful



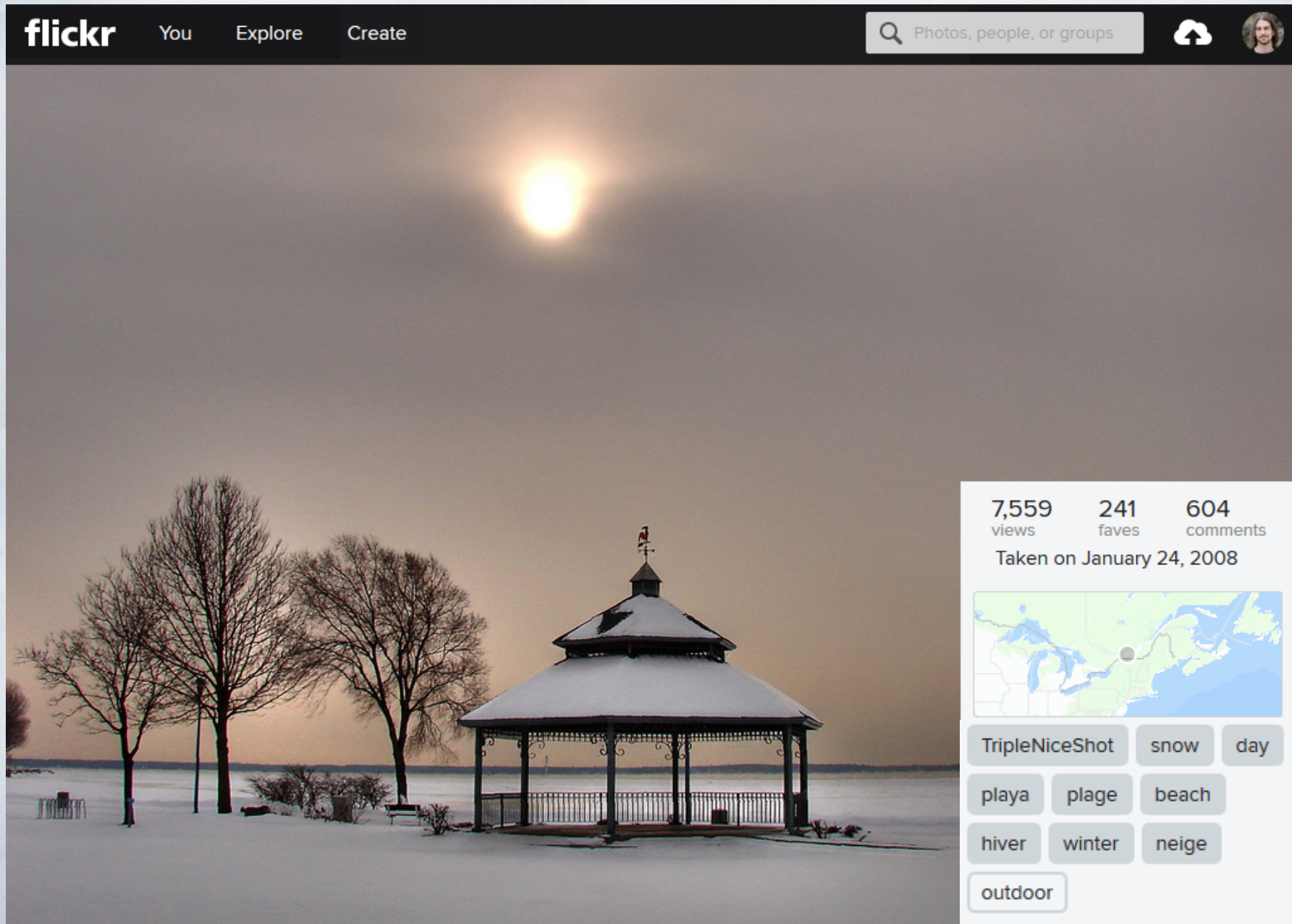
...



Which urban elements make people (un)happy?



Generalization with social media



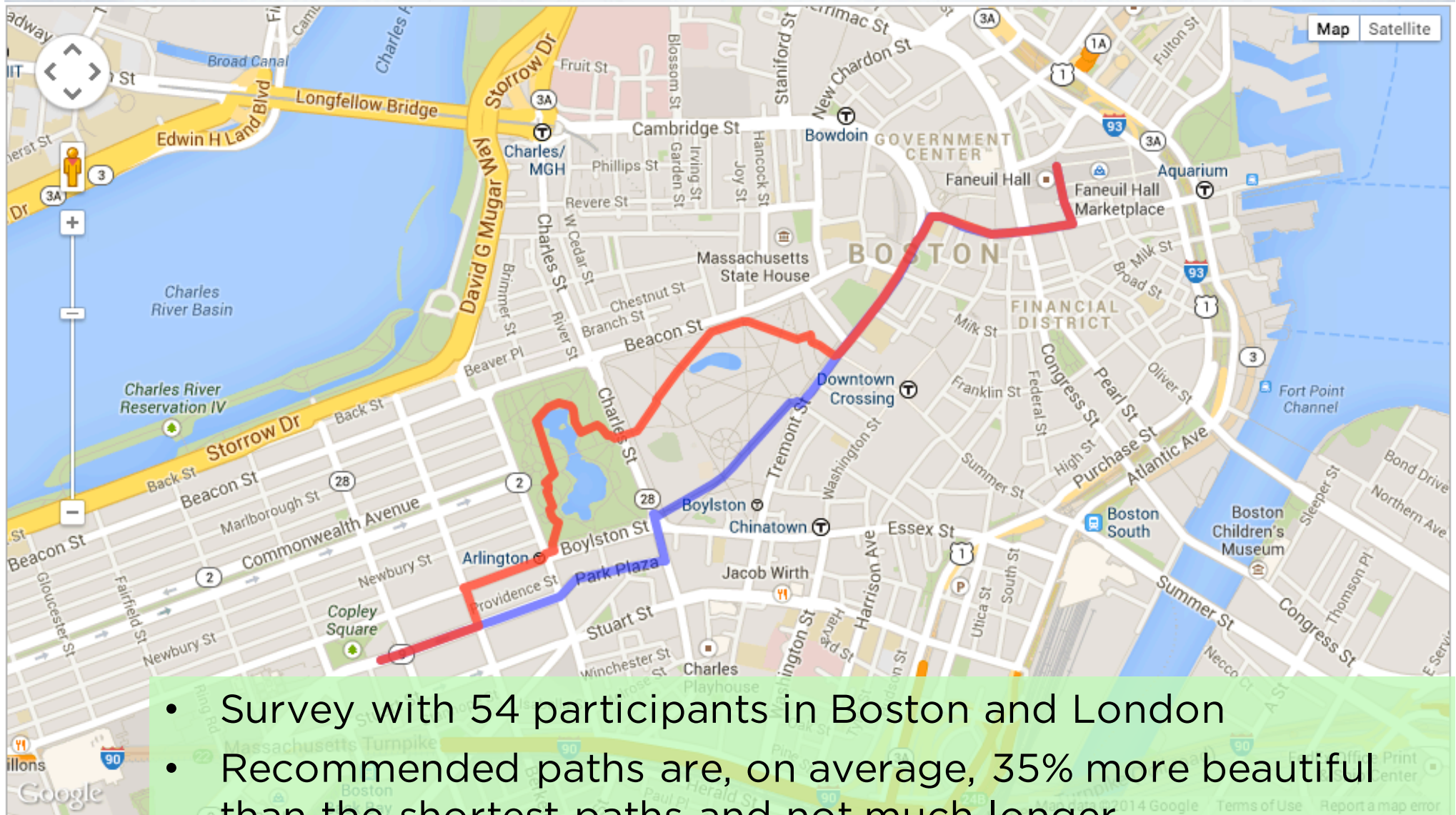
Beauty and the machine





"The Shortest Path to Happiness" ACM Hypertext'14

Faneuil hall – Trinity church



- Survey with 54 participants in Boston and London
- Recommended paths are, on average, 35% more beautiful than the shortest paths and not much longer

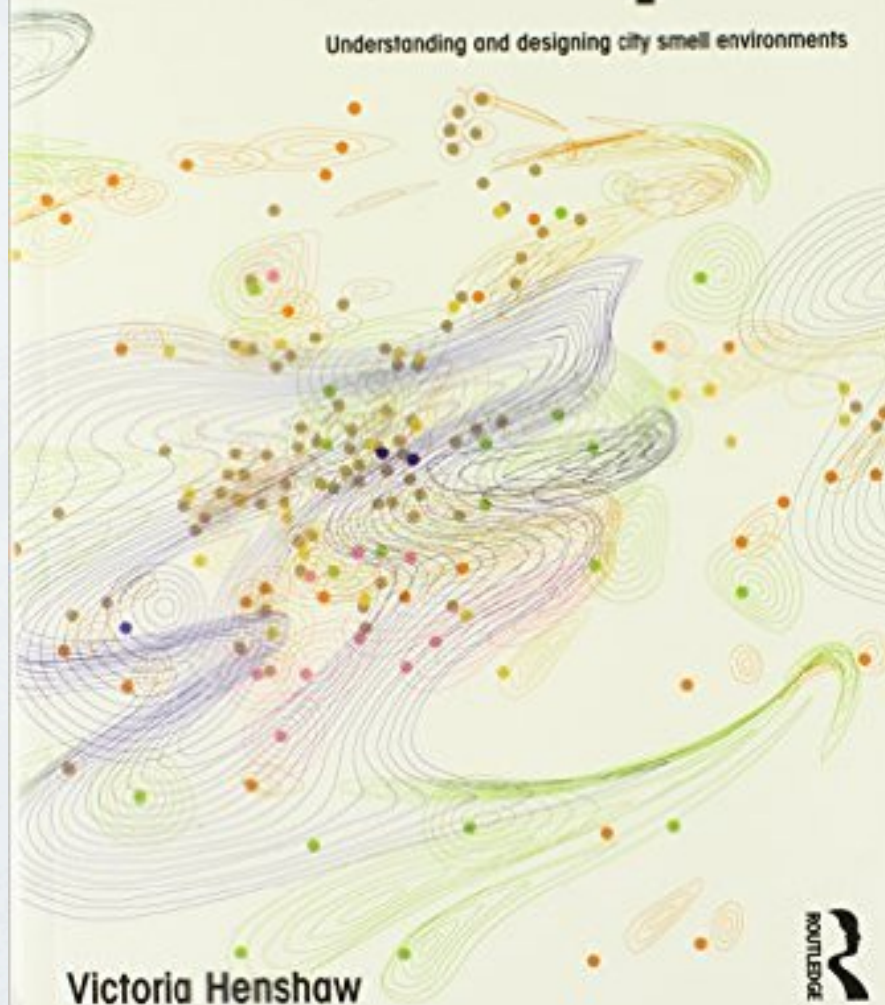






Urban Smellscapes

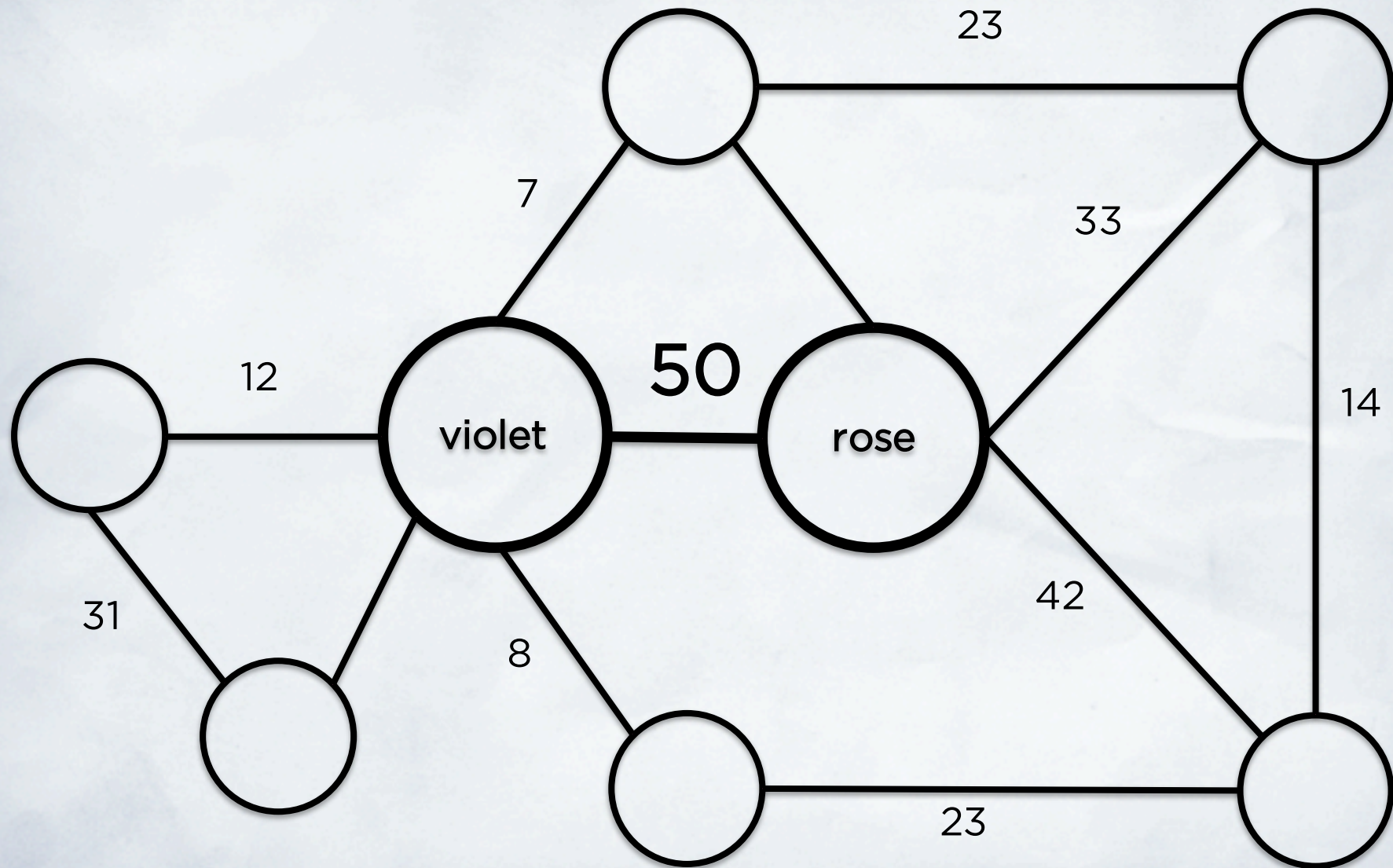
Understanding and designing city smell environments

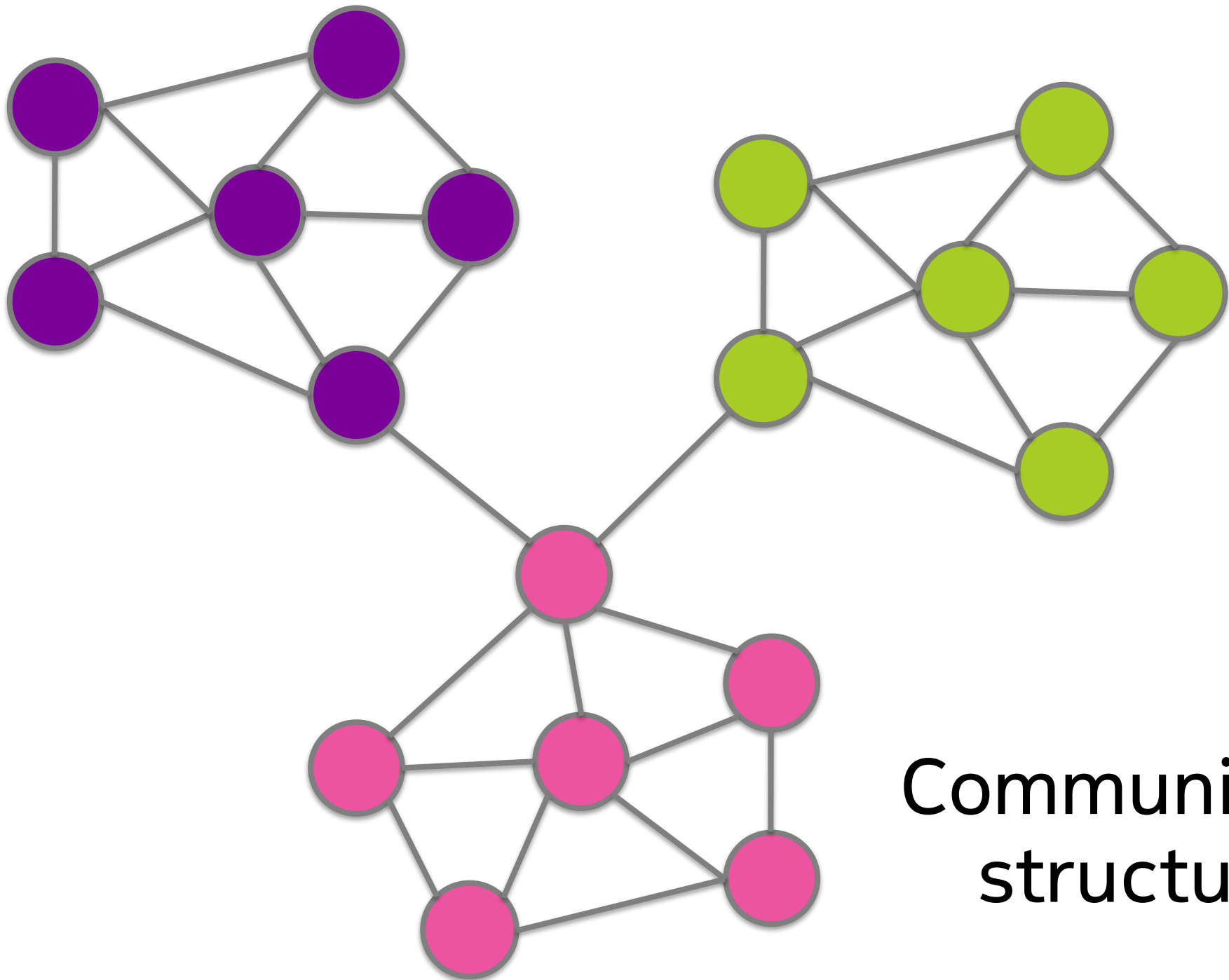


Victoria Henshaw

ROUTLEDGE

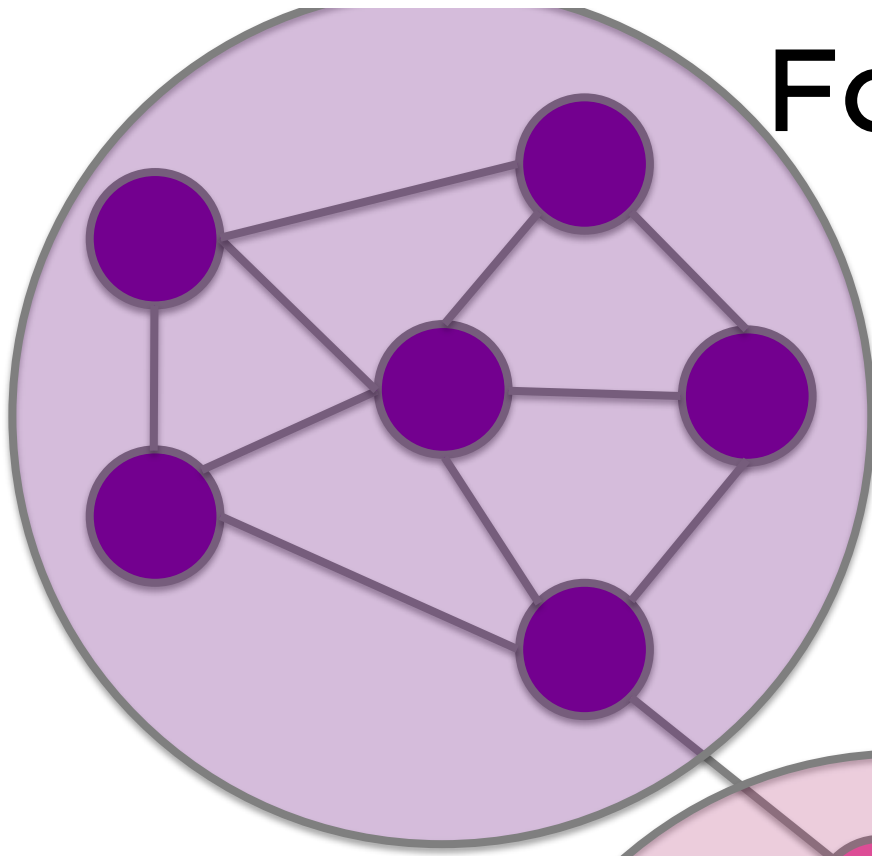

Clustering over tag co-occurrence graph



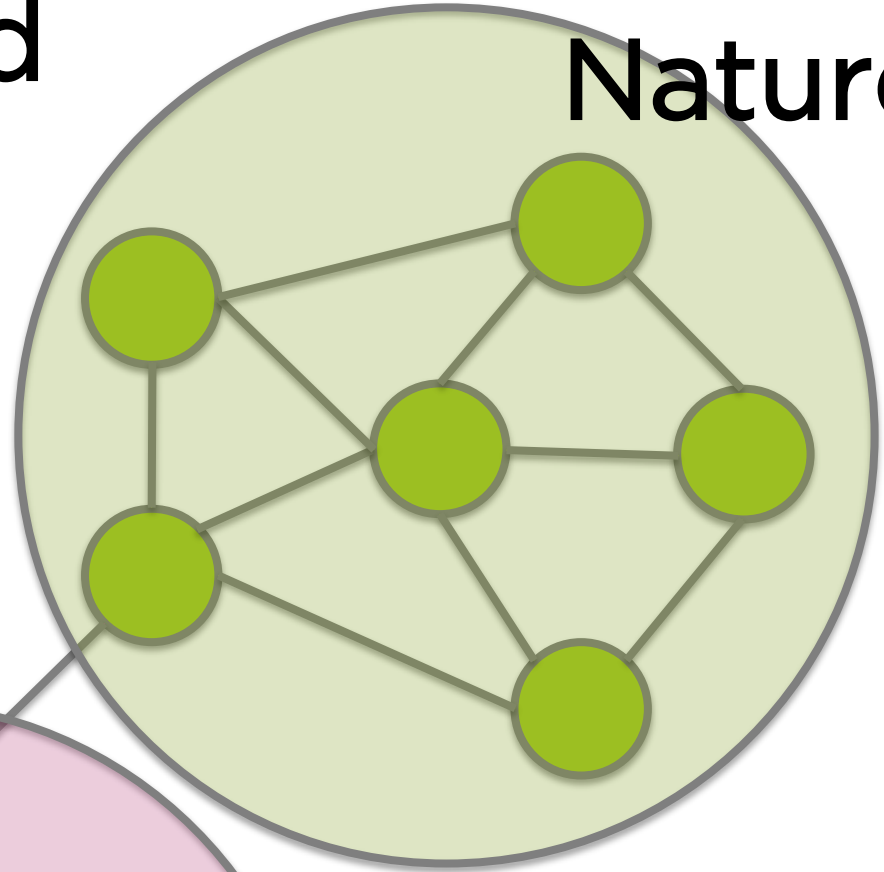


Community
structure

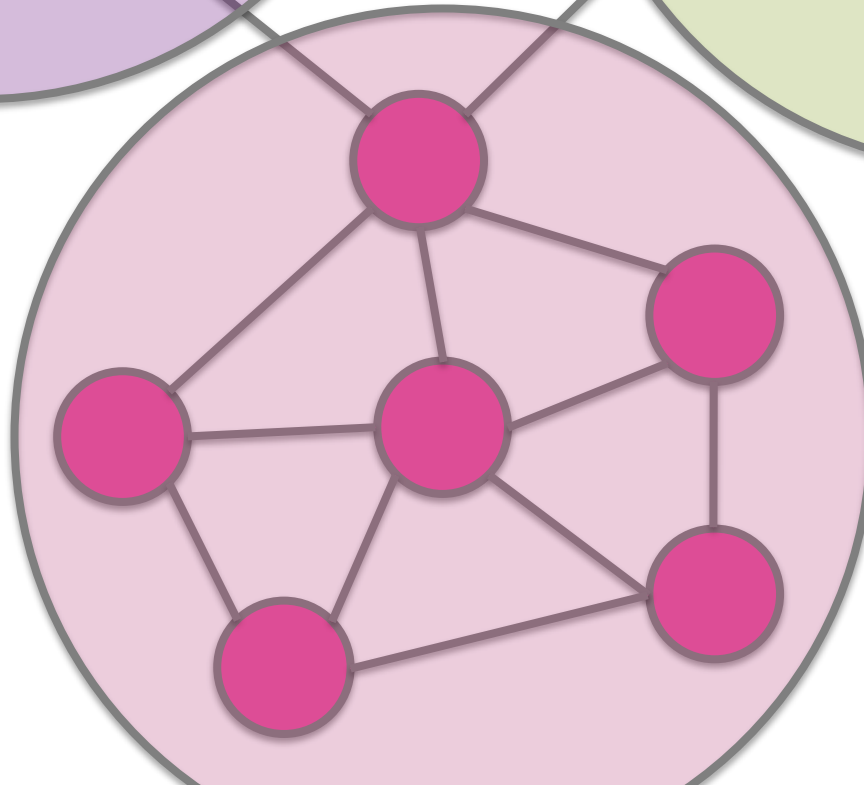
Food

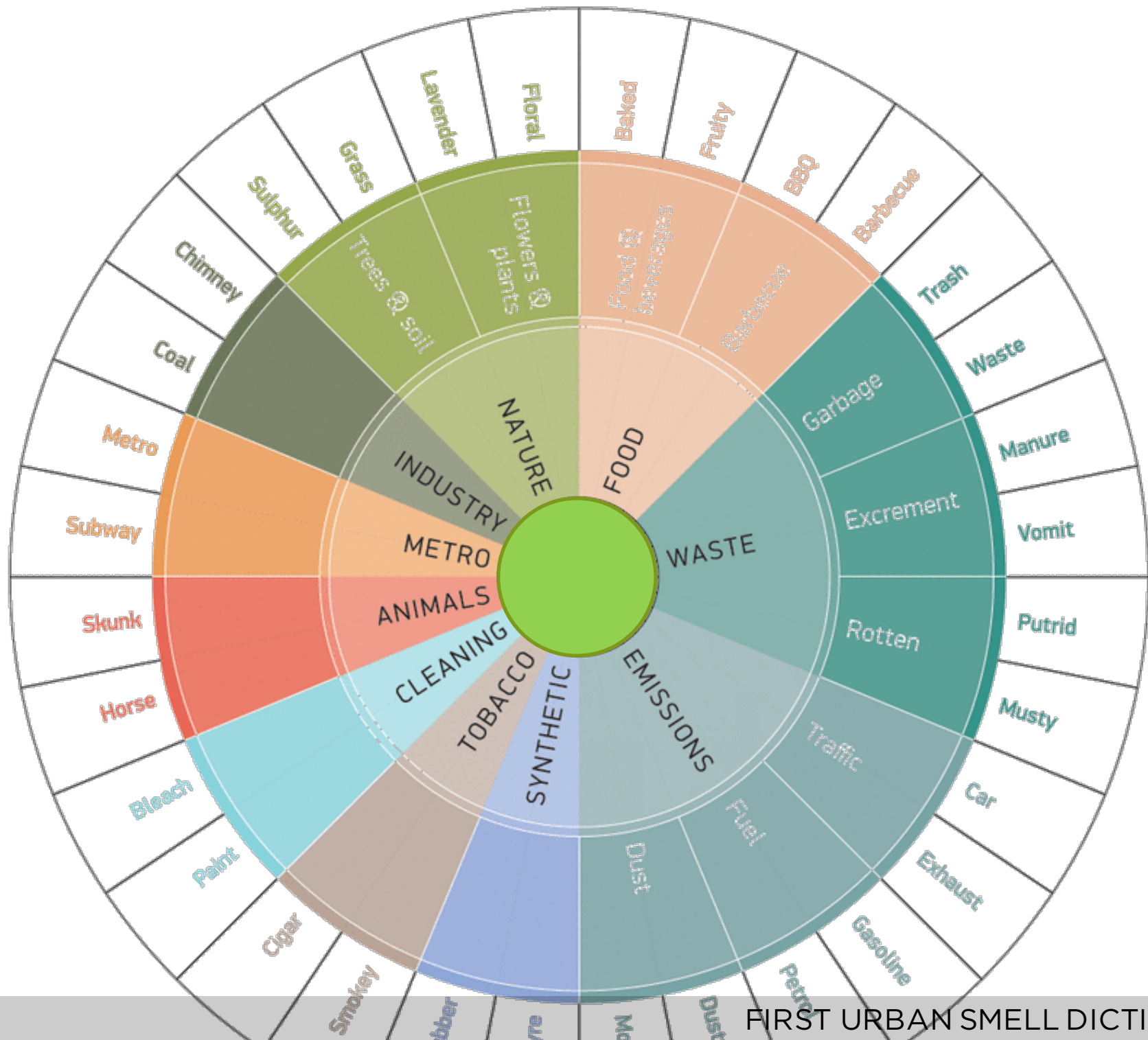


Nature



Trash







Enn.Li

+ Follow

63
views

0
faves

0
comments

Varanasi street food-Aloo Chaat

Aloo Chaat being prepared on a street stall in Varanasi

Taken on June 18, 2013



Cooking Oil

Deep Fried

Preparing Food

Market

Day

Pan

Cooking

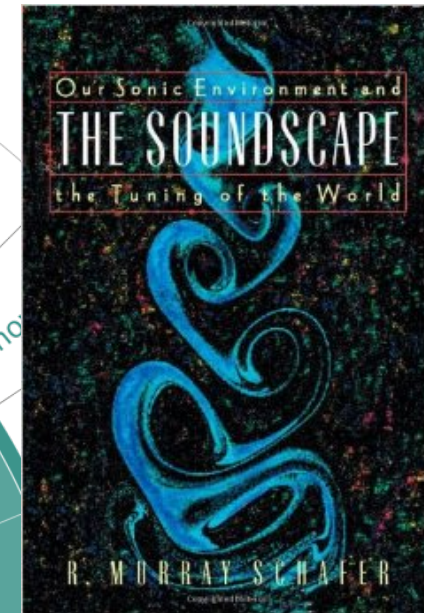
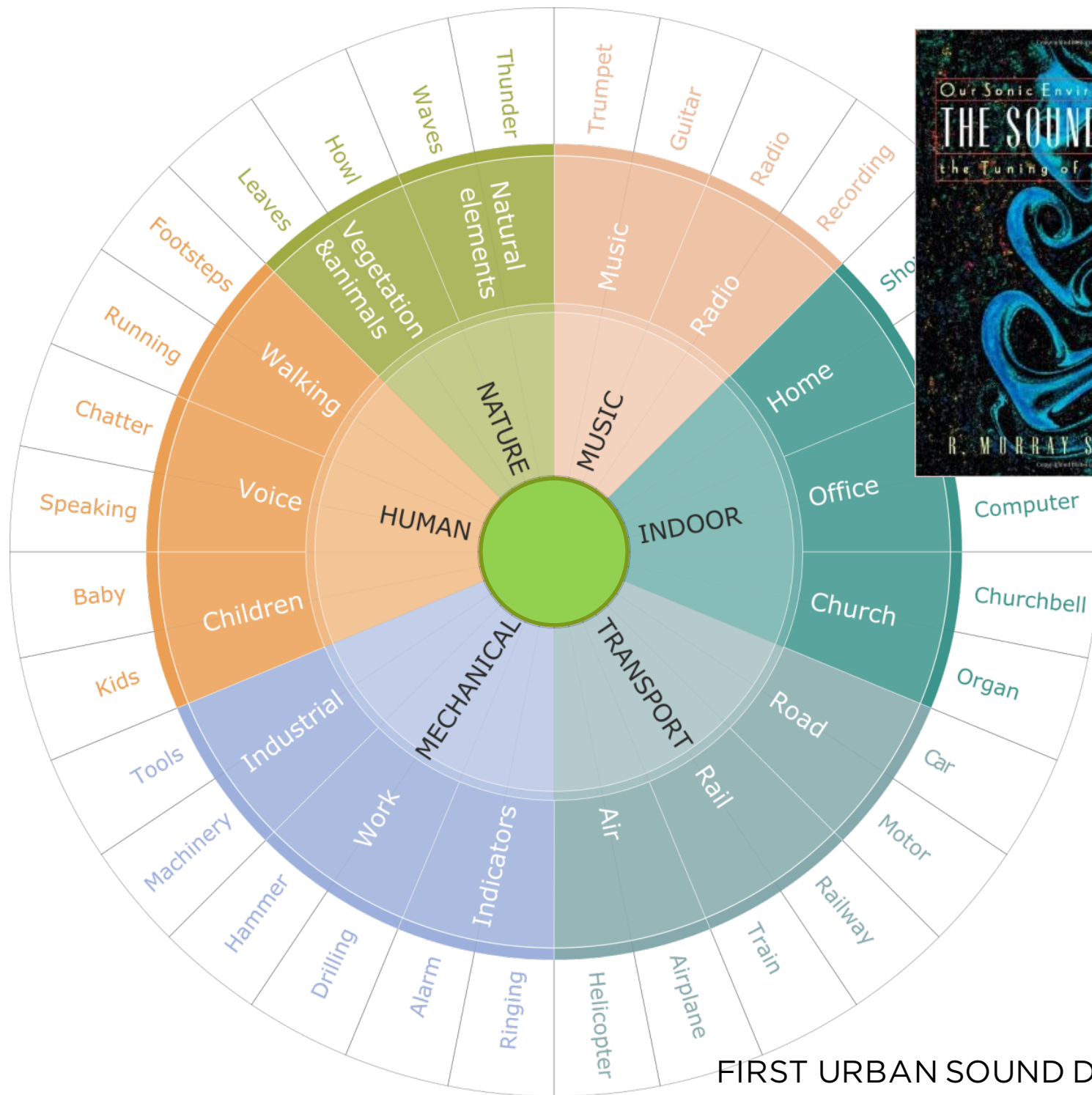
50m

Smelly Maps

Sound profile:
60% emissions
30% food
10% waste



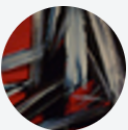




FIRST URBAN SOUND DICTIONARY



© Scott Johnson on Flickr



Scott Johnson

[+ Follow](#)

1,579
views

44
faves

13
comments

Taken on April 29, 2015

[Some rights reserved](#)

New Orleans Street Musicians ...

PRO

This violinist literally played with such feeling and beauty that 'grown men' were tearful in the audience.

French Quarter, New Orleans, Louisiana, USA

(Please View Full Screen ...)

musicians

guitar

violin

music

natural light

Louisiana

Nikon



50m

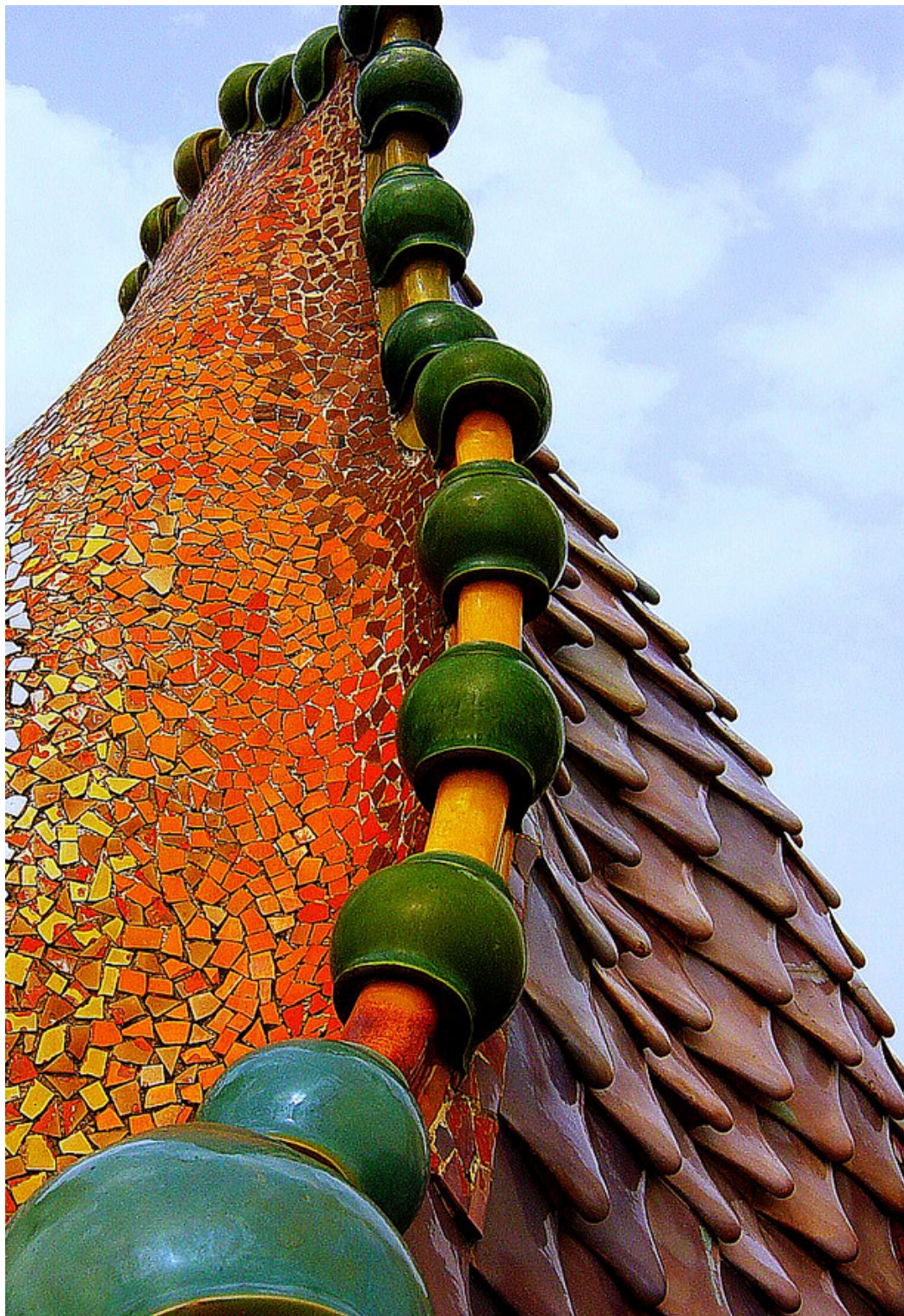
Chatty Maps

Sound profile:
75% transport
20% human
5% music

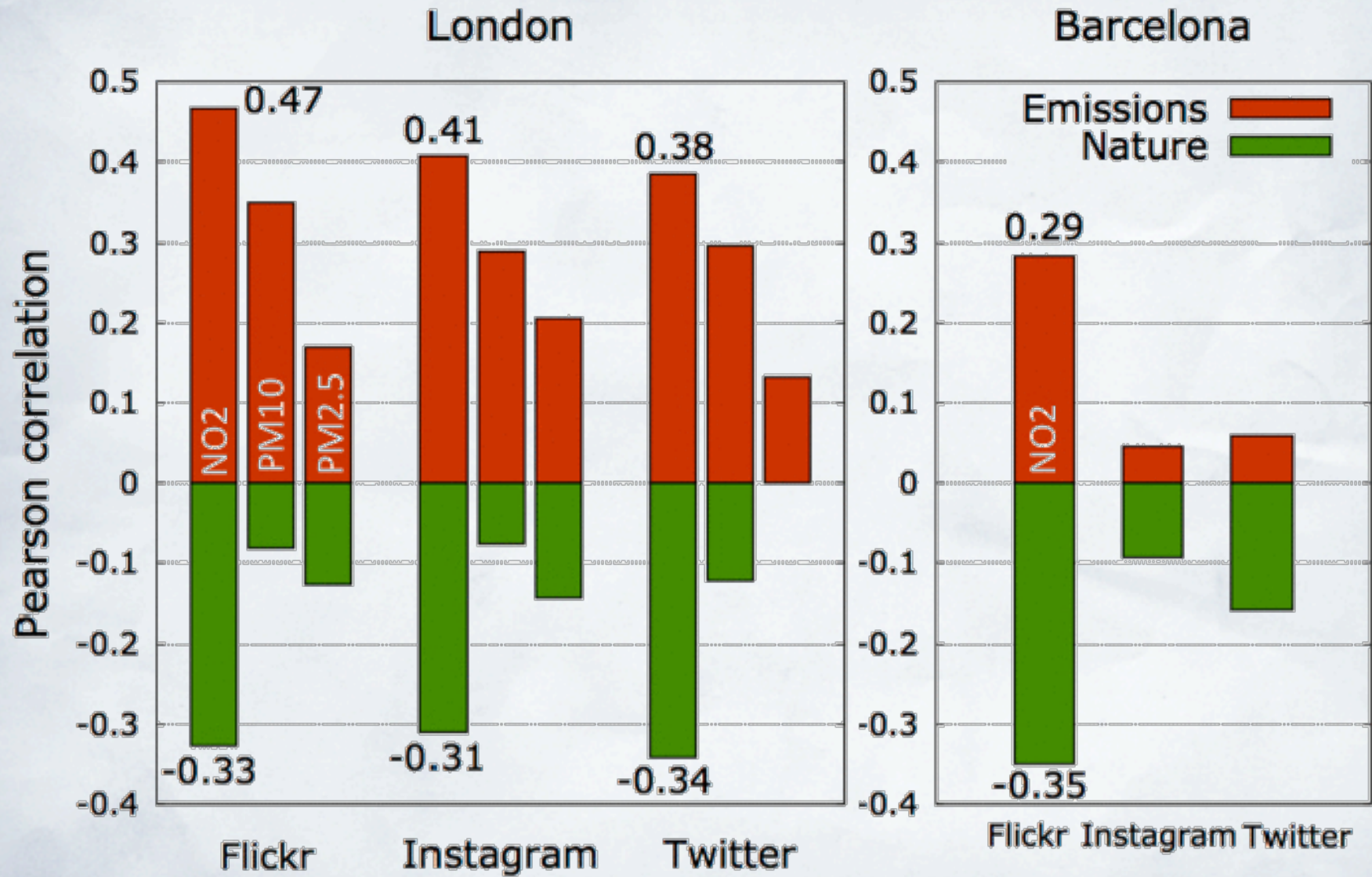


"Chatty maps" Royal Society Open Science'16

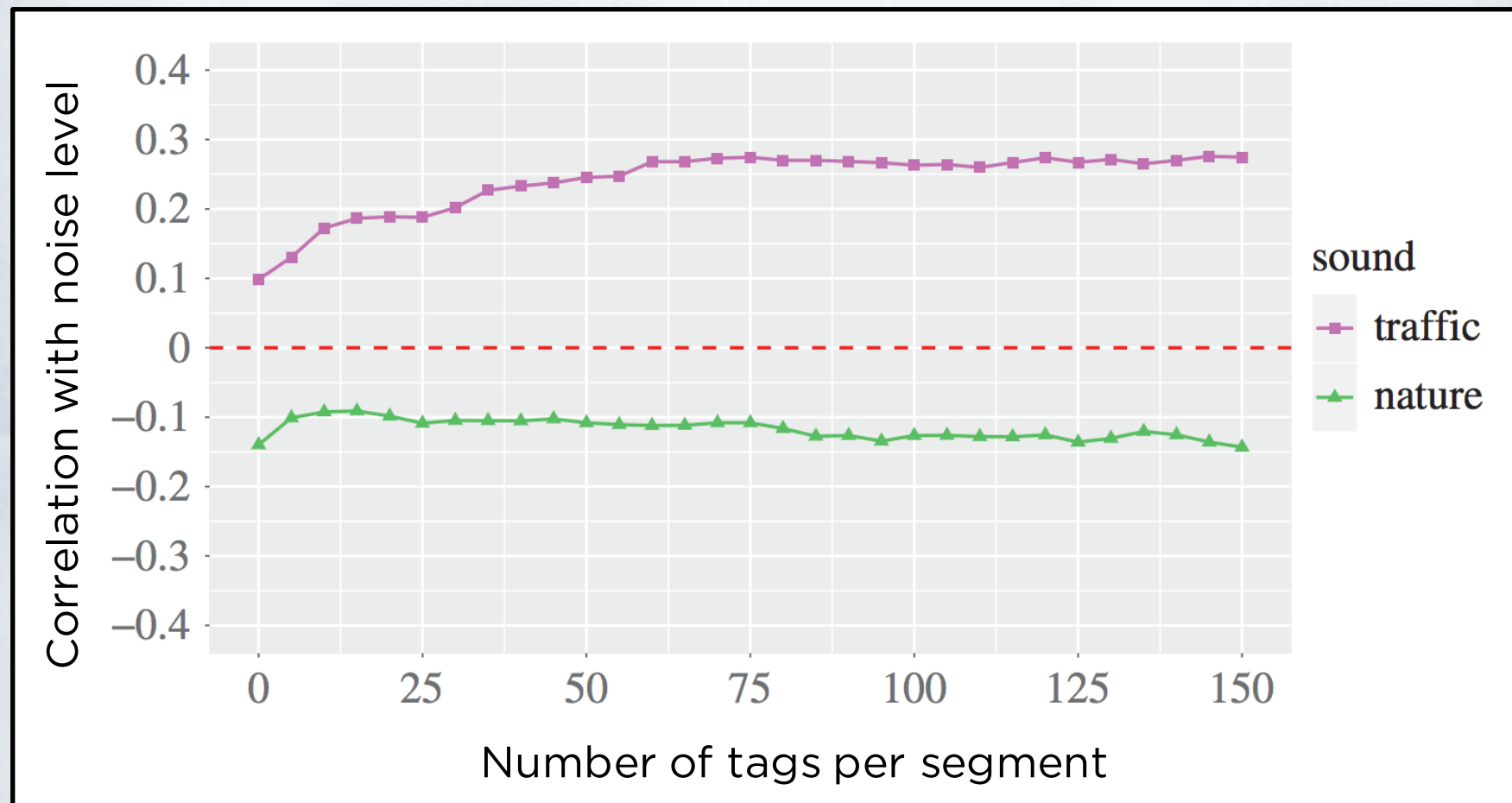




Smell and air quality indicators

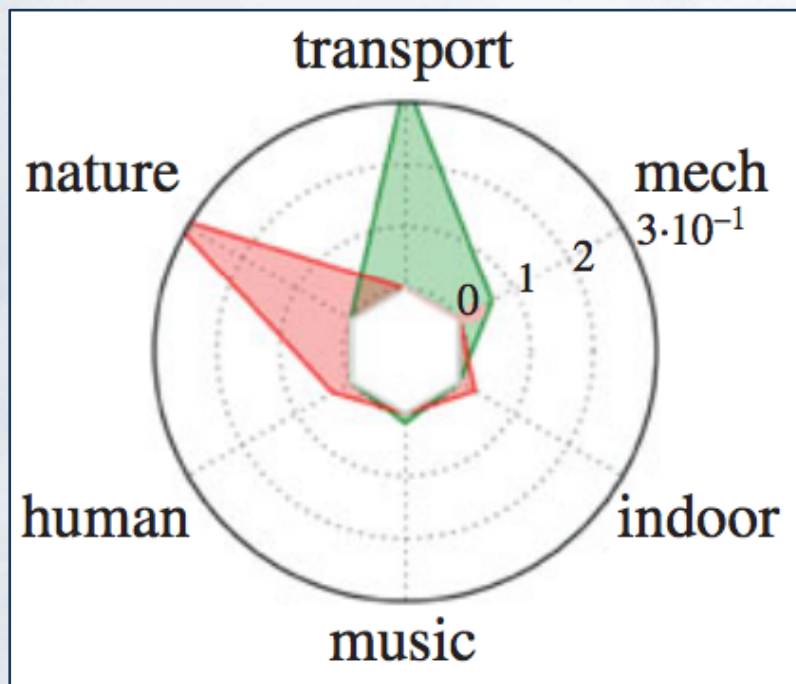


Sound and noise levels

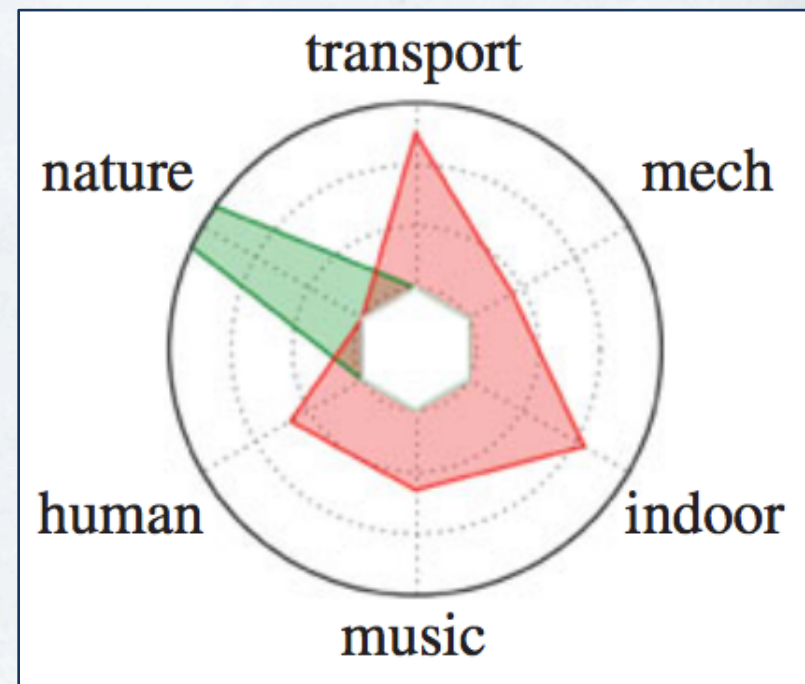


Sounds and Open Street Map types

Primary



Track





Beyond senses

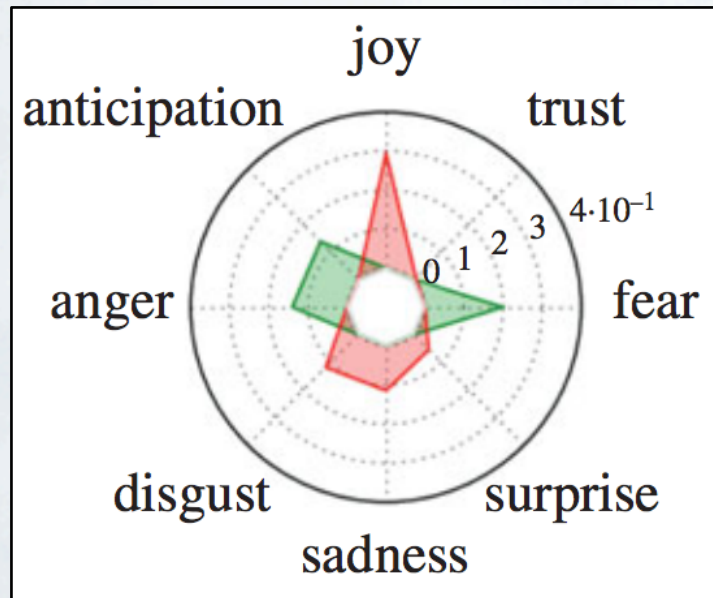
Sounds and emotions



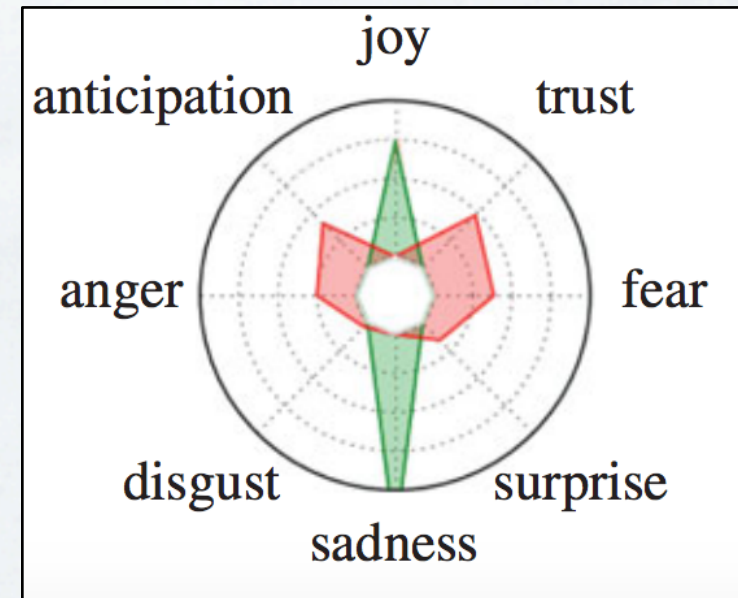
Plutchik's primary emotions wheel

Senses and emotions (Emolex)

Traffic



Music



Human perception of sound



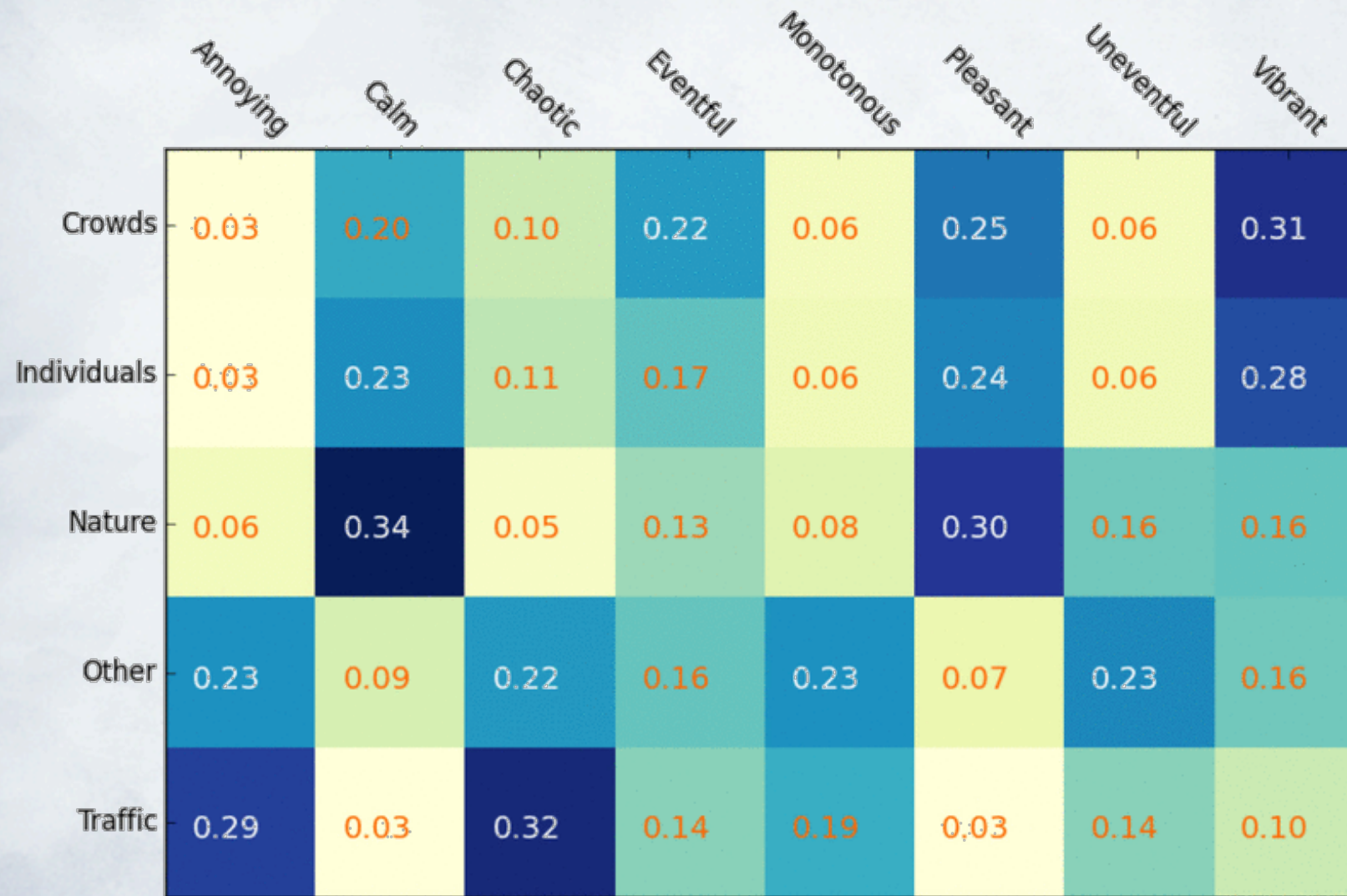
Soundwalks in Brighton and Sorrento



Aletta et al. "Soundscape approach integrating noise mapping techniques"
UK noise mapping 2015

Human perception of sounds

e.g., $p(\text{calm} \mid \text{nature})$



E
M
O
T
I
O
N
S

PERCEPTION
MODELS

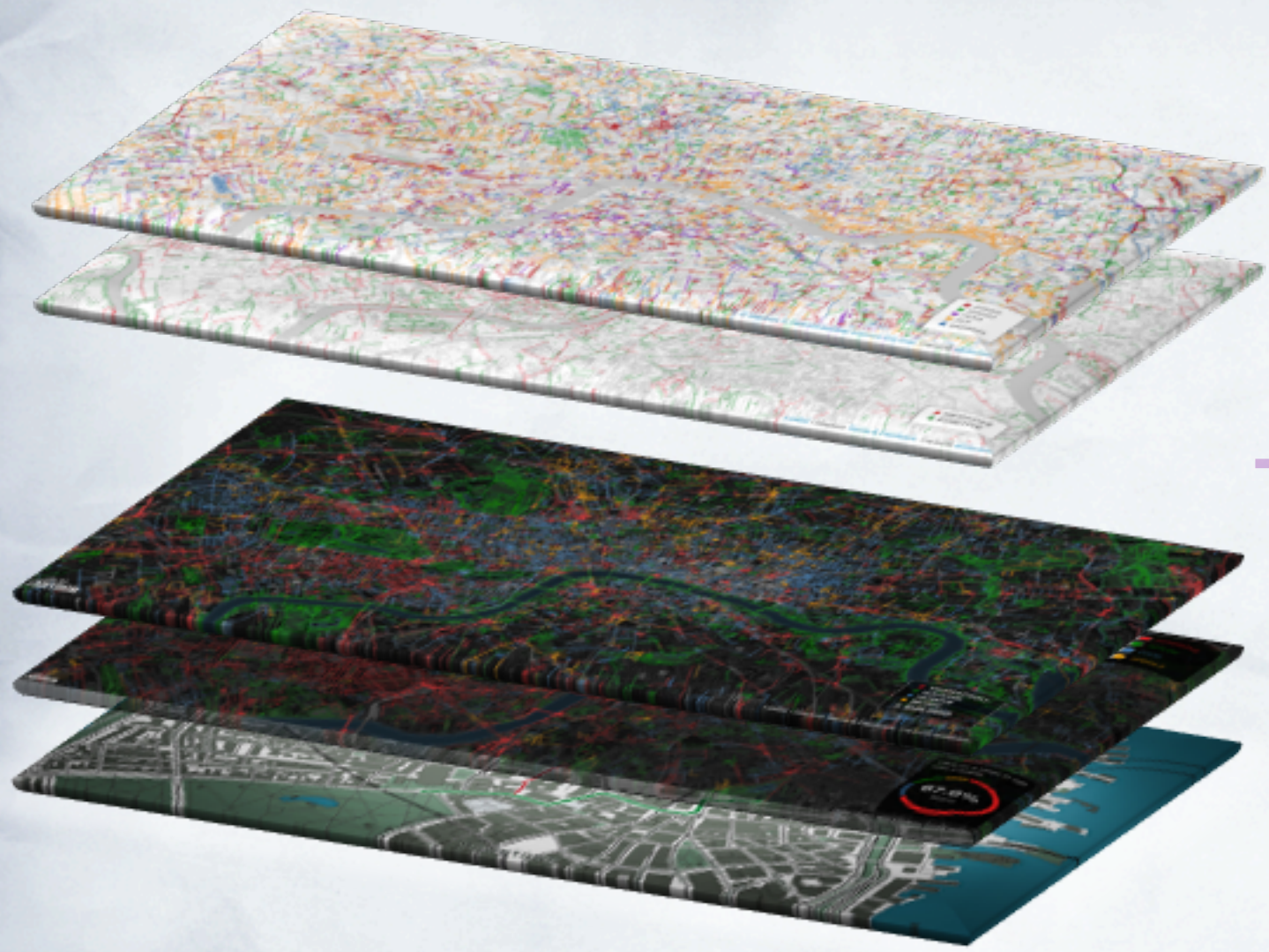
EMOLEX

S
E
N
S
E
S

SOUND

SMELL

SIGHT





GIZMODO ★ StarTribune **VB** HUFFPOST TECH

WIRED

FAST COMPANY

BBC

The
Economist

Forbes

Bloomberg
Technology

BBC
RADIO

Y!

CITYLAB

The Boston Globe

CTV
NEWS

MIT
Technology
Review

TECH TIMES

TED



Thank you!

@lajello 
www.lajello.com 

