



This is a repository copy of *Street DNA: The who, where and what of visual engagement with the urban street*.

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/131652/>

Version: Accepted Version

Article:

Simpson, J. orcid.org/0000-0002-2854-2958 (2018) Street DNA: The who, where and what of visual engagement with the urban street. *Journal of Landscape Architecture*, 13 (1). pp. 50-57. ISSN 1862-6033

<https://doi.org/10.1080/18626033.2018.1476032>

Reuse

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Street DNA: the *who*, *where* and *what* of visual engagement with the urban street

James Simpson, University of Sheffield

What do you look at when walking down a street?

Your answer will likely depend upon your personality – interests and dislikes, outlook and mind-set; the street – wide or thin, interesting or boring, busy or empty; your reason for being there – hurrying to work, taking a lunchtime stroll or meeting friends?

There has been persistent interest in understanding how urban streets are visually experienced to gain insight into how to make them more engaging. Lynch and Rivkin explored how ordinary individuals perceive streets by documenting their reactions to aspects of their surroundings through interviews, plans and perspective sketches. Gehl used mapping and photographic techniques to assess the impact of building façade permeability and transparency upon people's behaviour in streets. More recently, following improvements in digital technology, van Langelaar and van der Spek employed GPS to locate and map patterns of street use in relation to the visual quality of streets. This current investigation used mobile eye-tracking glasses to capture a precise, real-time recording of what people looked at within a range of streets whilst undertaking varied everyday tasks.

Eye-tracking glasses capture gaze distribution allowing for a first-hand, non-verbalised record of what an individual looks at. In total 24 people wore these glasses as they walked along different streets in Sheffield (UK). Tiny cameras, housed within the glasses' frame, recorded the wearer's pupils and the environment before them. The data gathered was then linked providing a video of the environment in front of the wearer on which is superimposed a crosshair highlighting their gaze location. These videos were later interpreted and coded using VideoCoder to create timelines narrating each individual's visual engagement with six street components: ground, sky, building façade, people, objects (furniture and objects, moving and static vehicles) and adjacent realms (visual engagement outside the inhabited street). The timelines were subsequently visualised using MATLAB as "Street DNAs" so named because of their similarity to genetic DNA sequence representations. Each DNA's length signifies the duration a person took to walk down a street and their constituent coloured-coded segments highlight each separate visual engagement with a particular street component. To allow for interpretation by the researcher and reader the DNAs were then reorganised.

The first series groups the DNAs by the different people, the second by the streets and third by tasks. Through exploring subtle variations in the length and colour distributions of DNAs within and across the groupings, a comprehension of the shifting nature of gaze distribution upon the six street components is possible. This comparative reading also allows for insight into how the social and spatial variables that influence what we look at within the street might not be equal – is it *who* we are, *where* we are or *what* we are doing that is significant? Such factors impact how we interact with all of the street components but their experiential influence is most visible across the DNAs in response to the street façades (purple) and the ground (yellow). Commonalities within the dispersal and clustering of these colours across the DNAs allow for a preliminary reading of such socio-spatial interplay. The mobile eye-tracking glasses in combination with the Street DNA enabled an innovative way of recording and articulating the influence of these social and spatial factors upon urban street experience.

References

1. Kevin Lynch and Malcolm Rivkin, 'A Walk Around the Block', *Landscape* 8/3 (1959), 24-33.
2. Jan Gehl, Lotte Johansen Kaefer and Solvejg Reigstad, 'Close Encounters with Buildings', *Urban Design International* 11/1 (2006), 29-47.

3. Tine van Langelaar and Stefan van der Spek, 'Walking Streams and the Plinth', in: Meredith Glaser, Mattijs van 't Hoff, Hans Karssenbergh, Jeroen Laven and Jan van Teeffelen (eds.), *The City at Eye Level: Lessons for Street Plinths* (Delft: Eburon, 2012), 86-93.

Biographical Notes

James Simpson is a PhD researcher in Landscape Architecture and Psychology at the University of Sheffield. He holds a BA in Landscape Architecture and Planning, MLA in Landscape Architecture and an MA in Landscape Research. His main research interest is in understanding the relationship between experiential, territorial and material factors that influence the indoor / outdoor street edge interface.

Contact

James Simpson
University of Sheffield
Department of Landscape
Floor 9, Arts Tower, Western Bank,
Sheffield, South Yorkshire, S10 2TN,
UK
ara08js@sheffield.ac.uk
Phone: + +44 (0)114 222 0600

Street DNA: key

Street Components.



Ground.



Sky.



Building Façade.



People.



Objects.

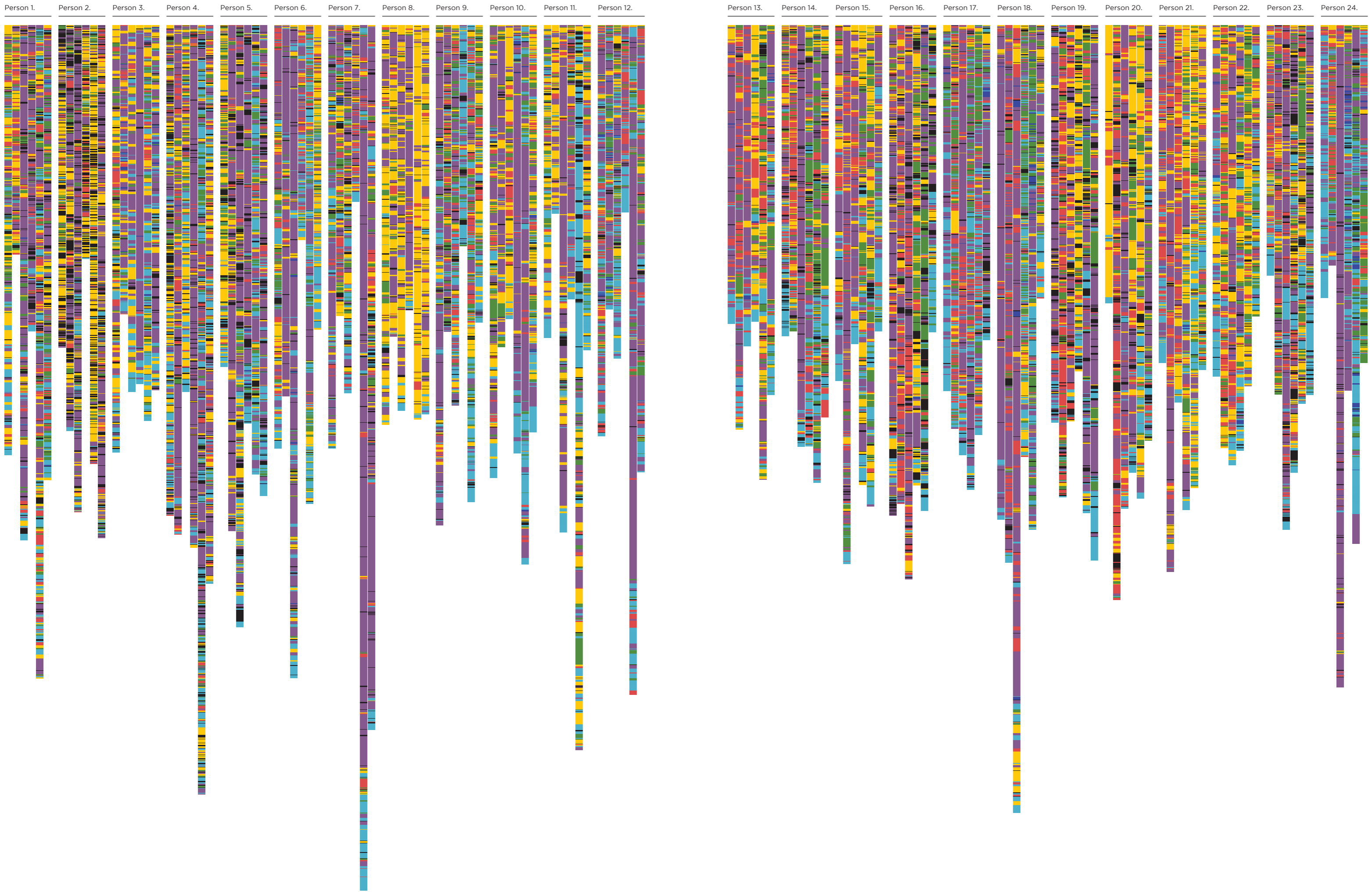


Adjacent realms.



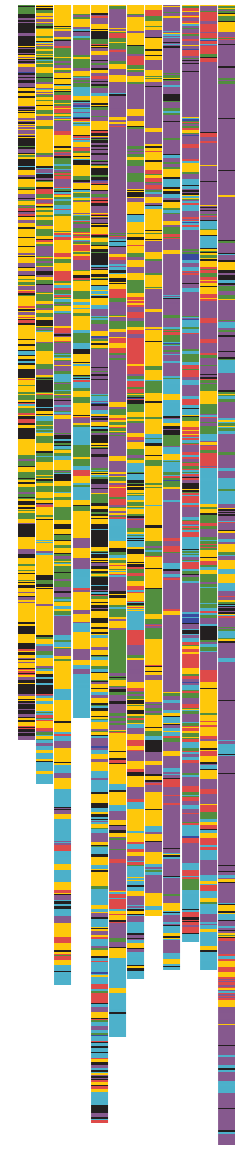
Data loss.

Street DNA: *who we are.*

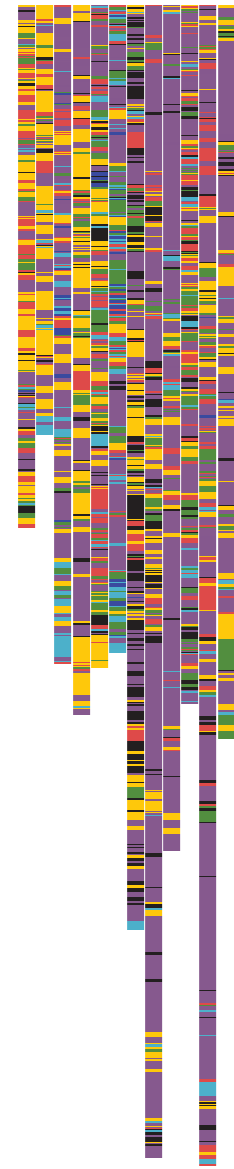


Street DNA: *where we are.*

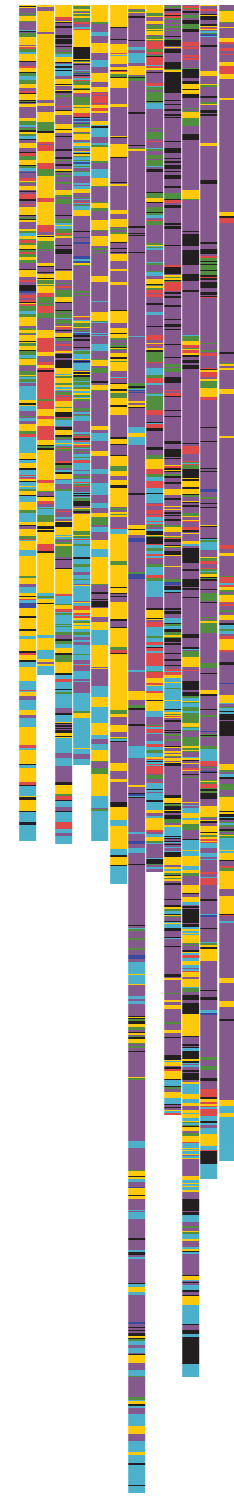
Street 1.



Street 2.



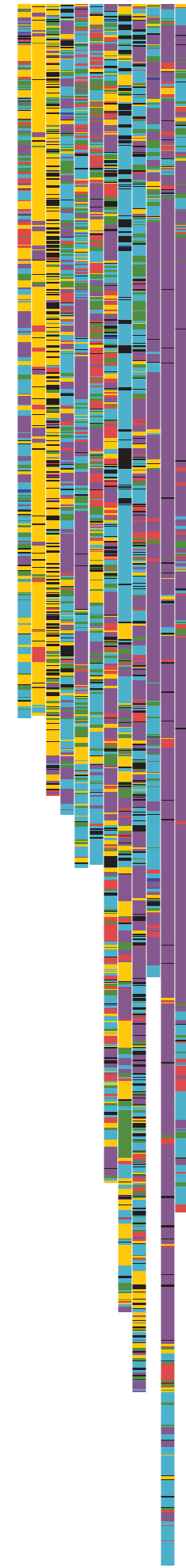
Street 3.



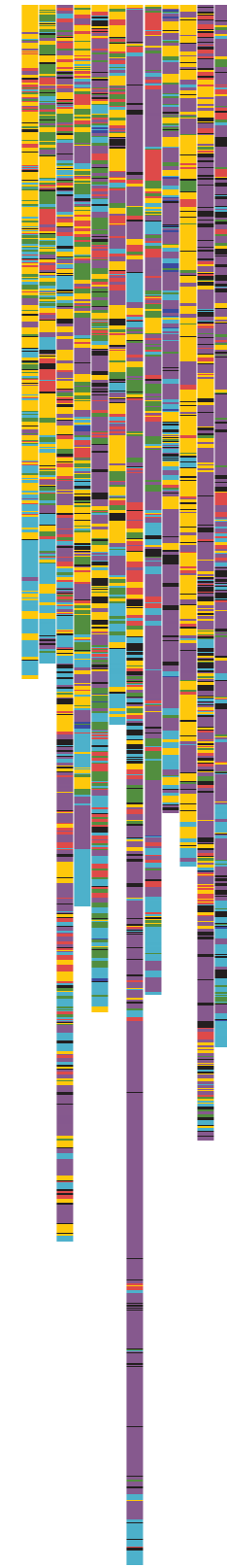
Street 4.



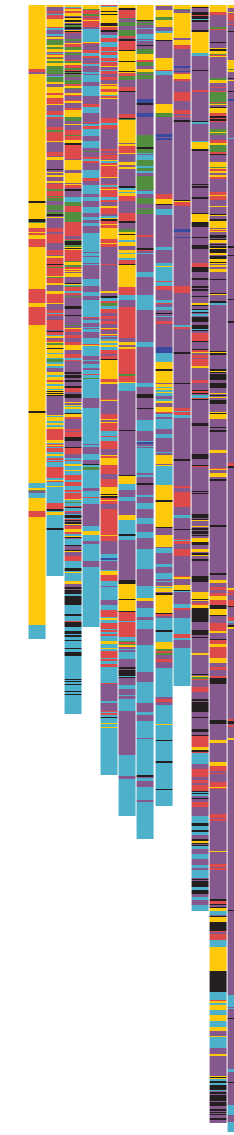
Street 5.



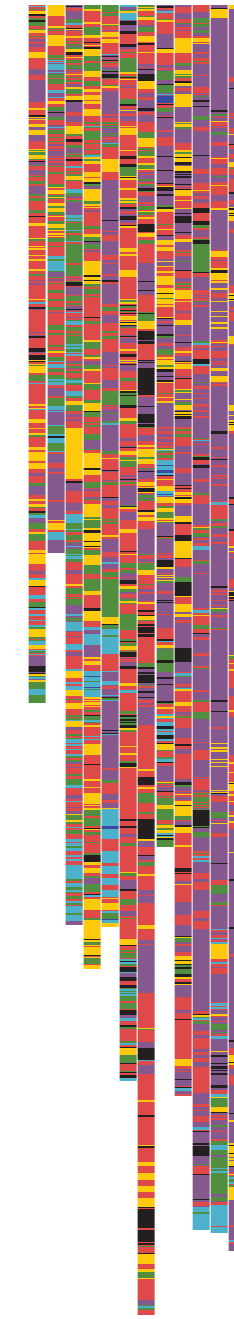
Street 6.



Street 7.



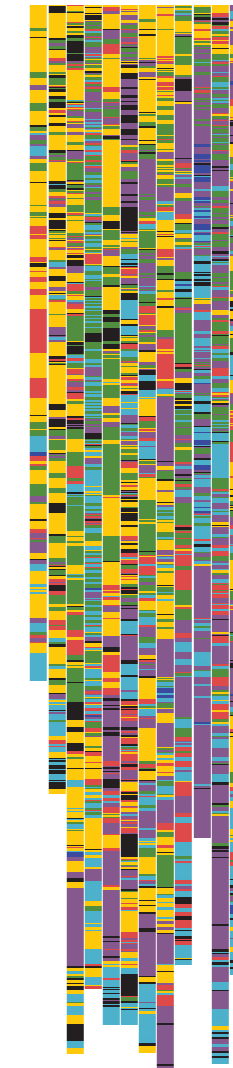
Street 8.



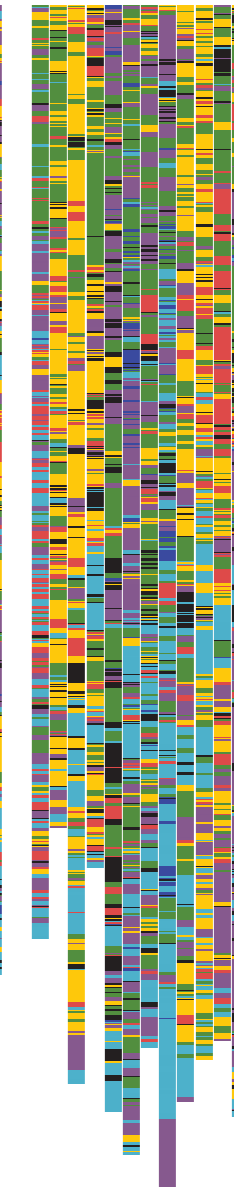
Street 9.



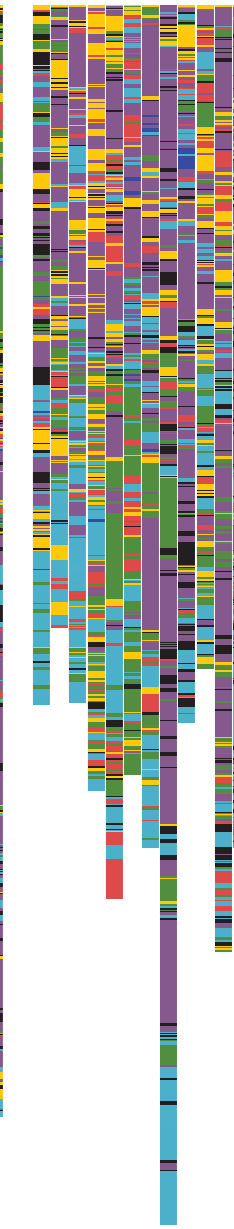
Street 10.



Street 11.



Street 12.



Street DNA: *what we are doing.*

Rush to work - You are close to being late for work. Hurry to make sure you don't miss the meeting you had planned.



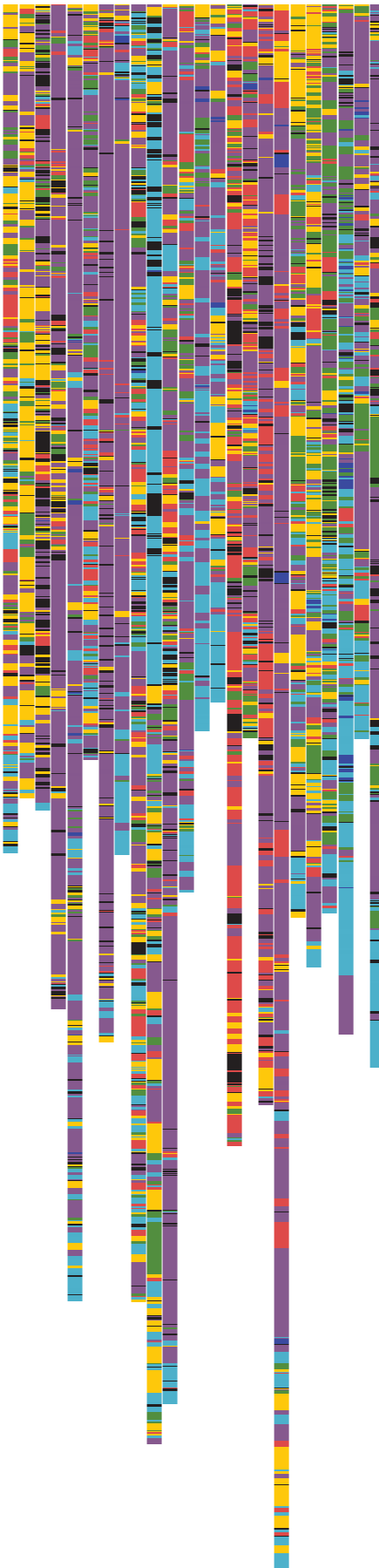
Drop off - A friend has asked to borrow something and you have agreed to drop it off with them. They said they would be waiting for you on the street corner.



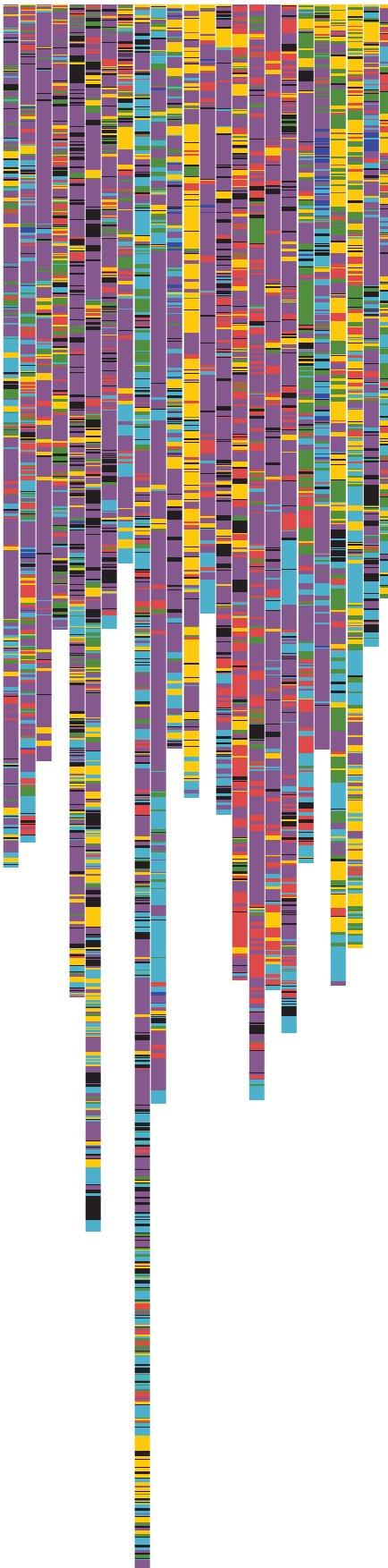
Wander to the bus - You have finished all you need to do in the city centre and are on the way to catch the bus. You don't know when it will leave but you are not in any hurry as you know they depart regularly.



Break-time stroll - You are dawdling on your hour break and have decided to take a stroll to get some fresh air.



Coffee with a friend - You are on your way to meet a friend, who is always late, for coffee and cannot remember if you said to meet in a certain place.



Window-shopping - You have kindly been given some money for your birthday and are out window-shopping to find something to spend it on.

