

Quantifying the effect of space on encounter

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Space Syntax Symposium, Istanbul, 13 June 2007

Contribution

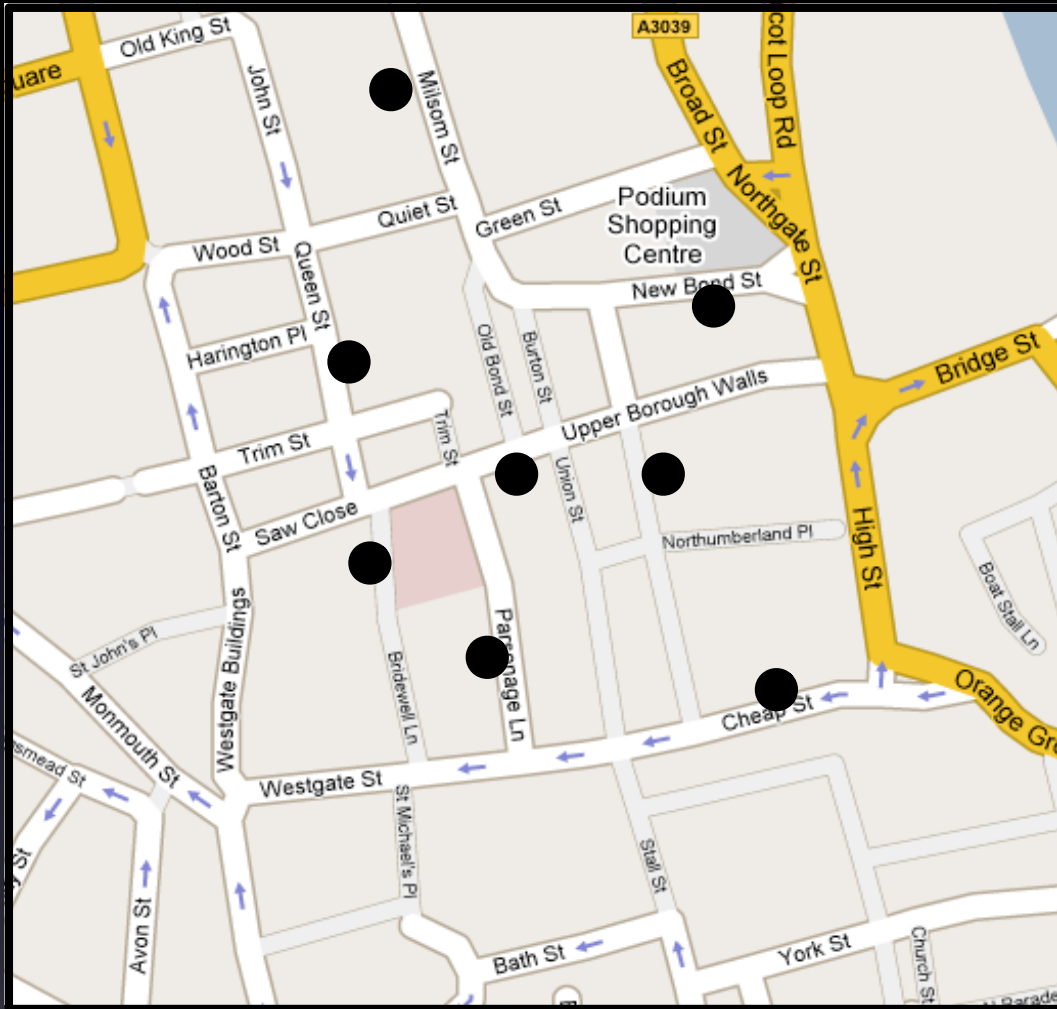
- Quantify the impact of space on human encounter
 - i.e. use numbers to explain / understand
- Automated, large-scale data collection



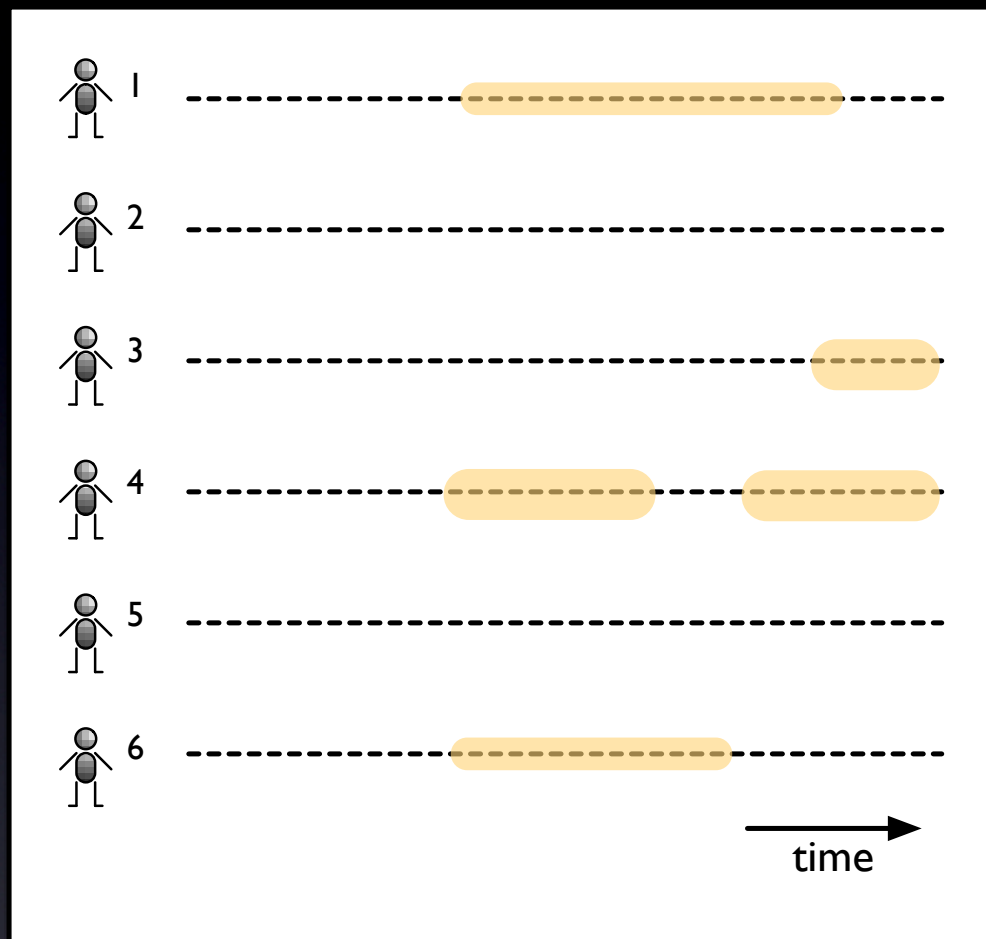
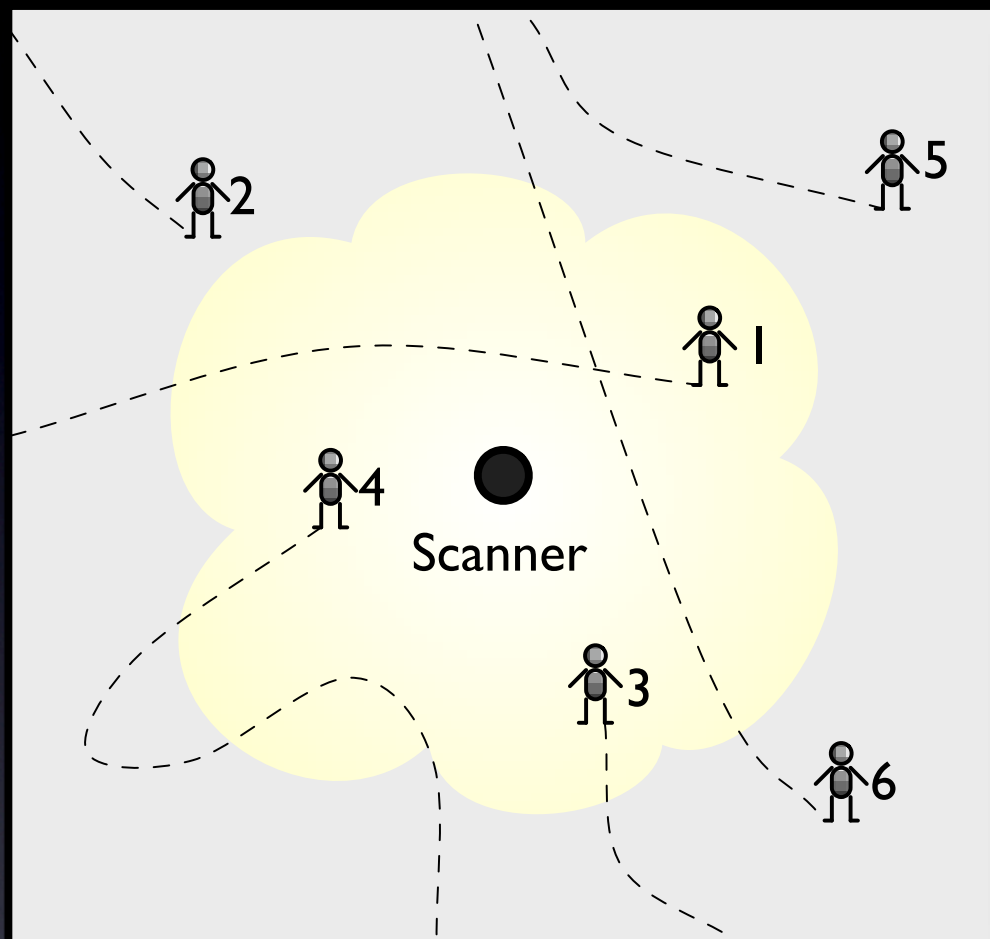
Outline

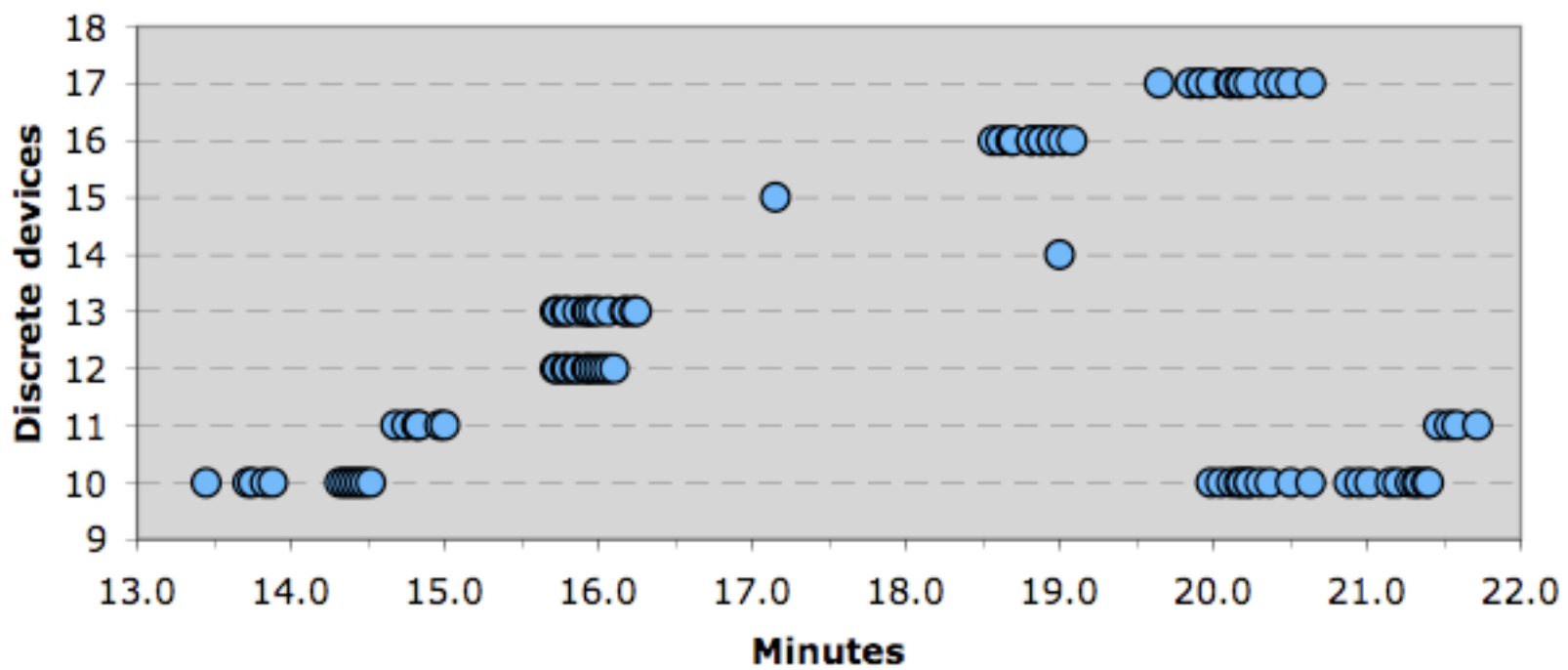
- Data collection
- Data analysis
- Findings / explanation

Data collection



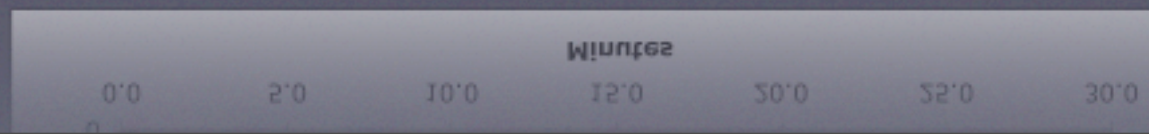
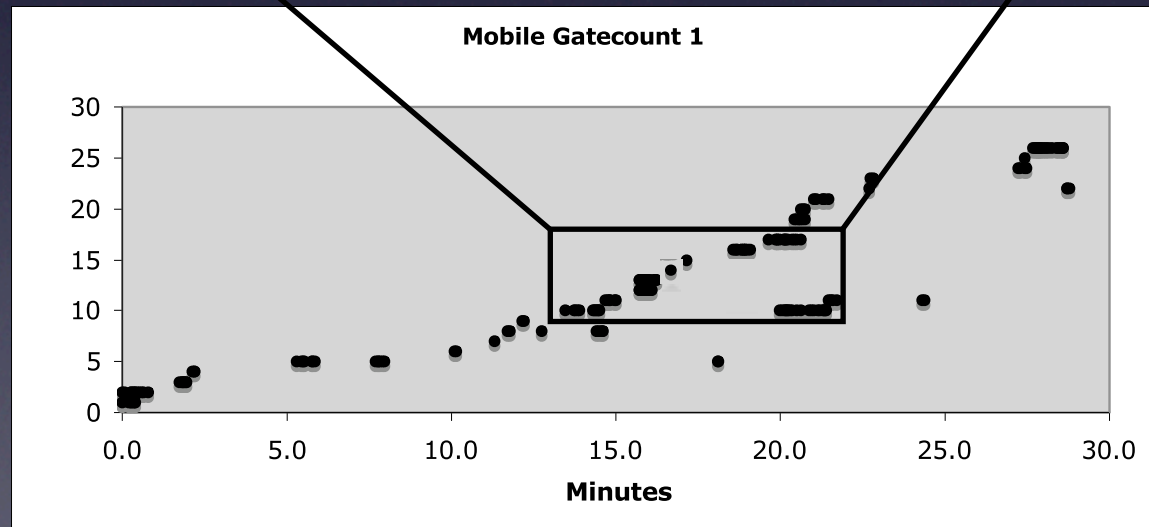
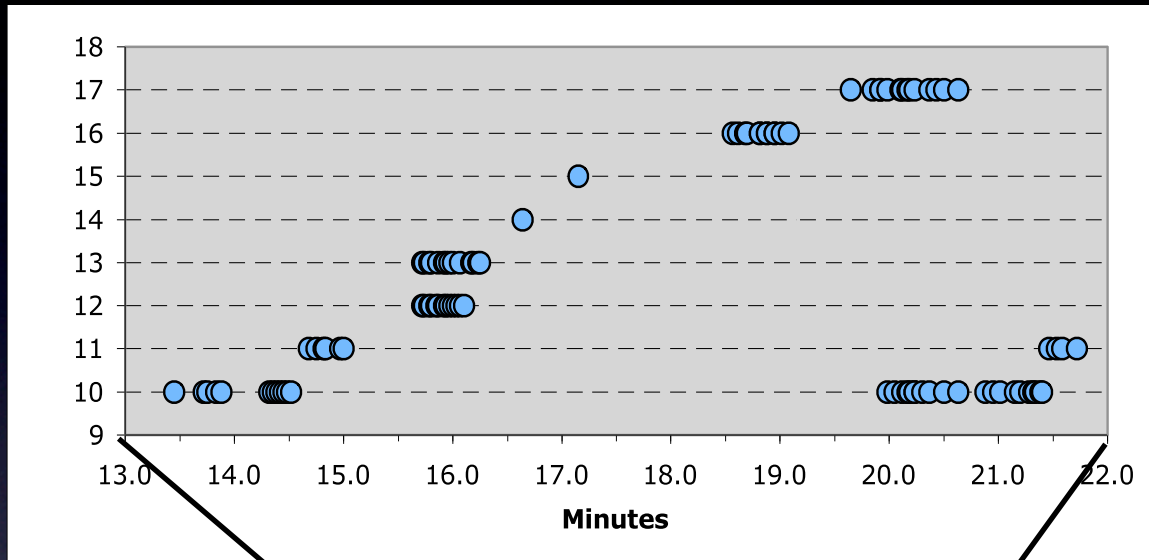




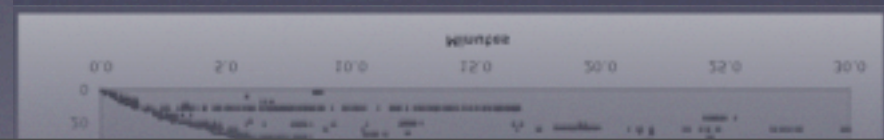
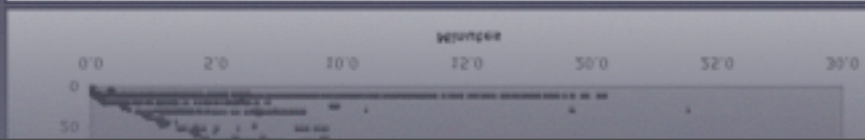
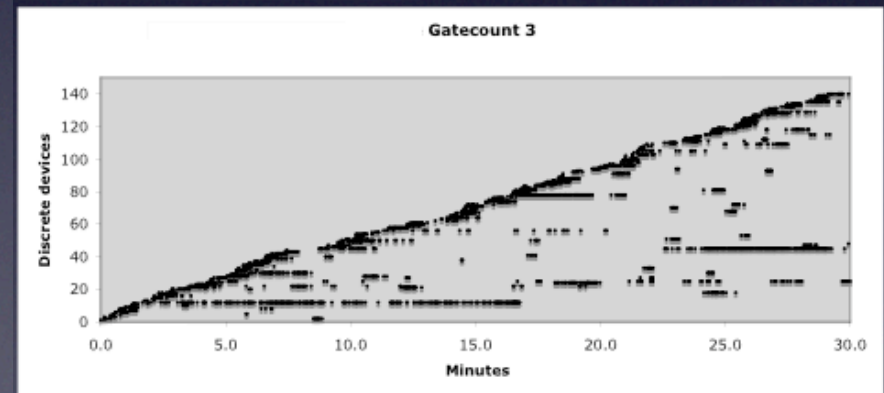
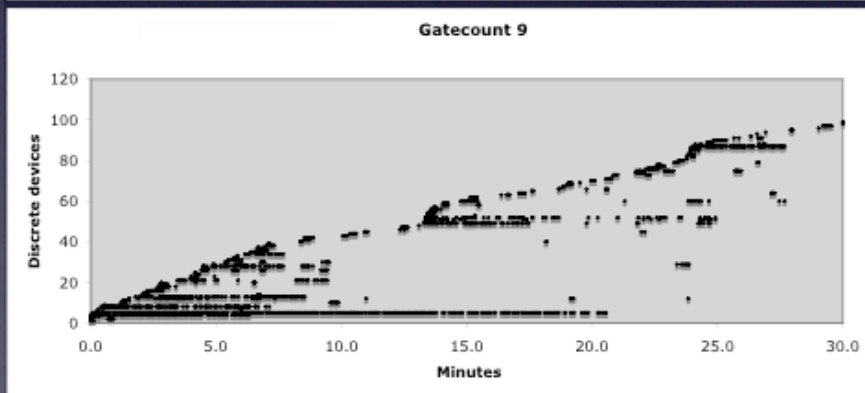
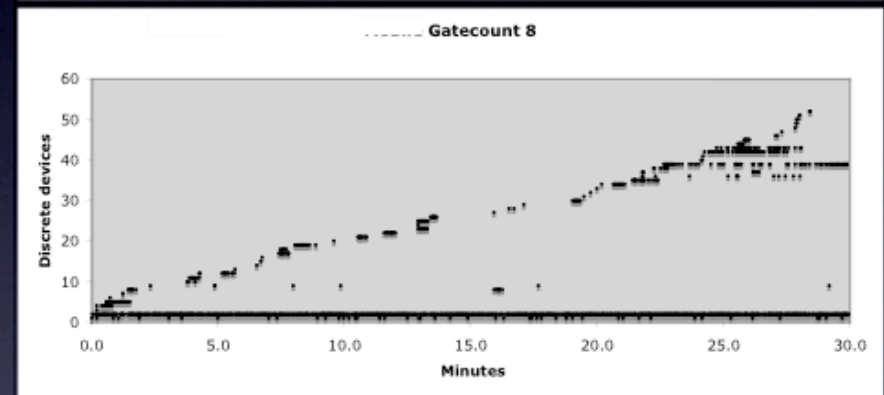
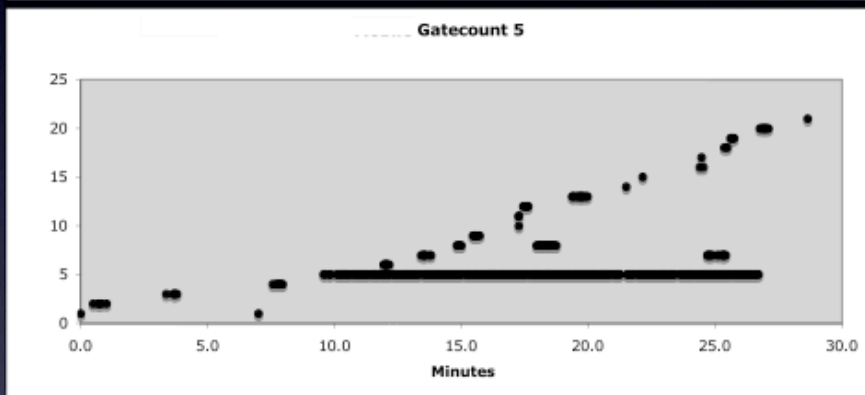
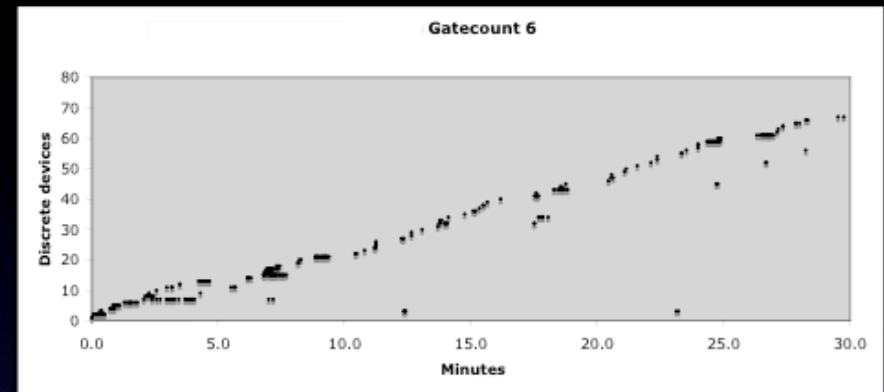
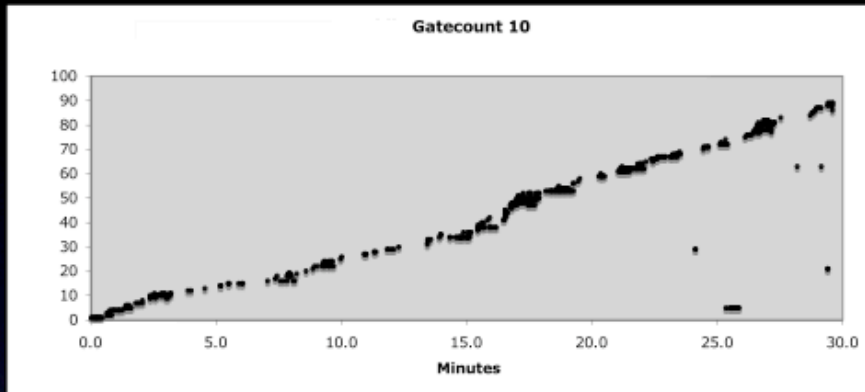


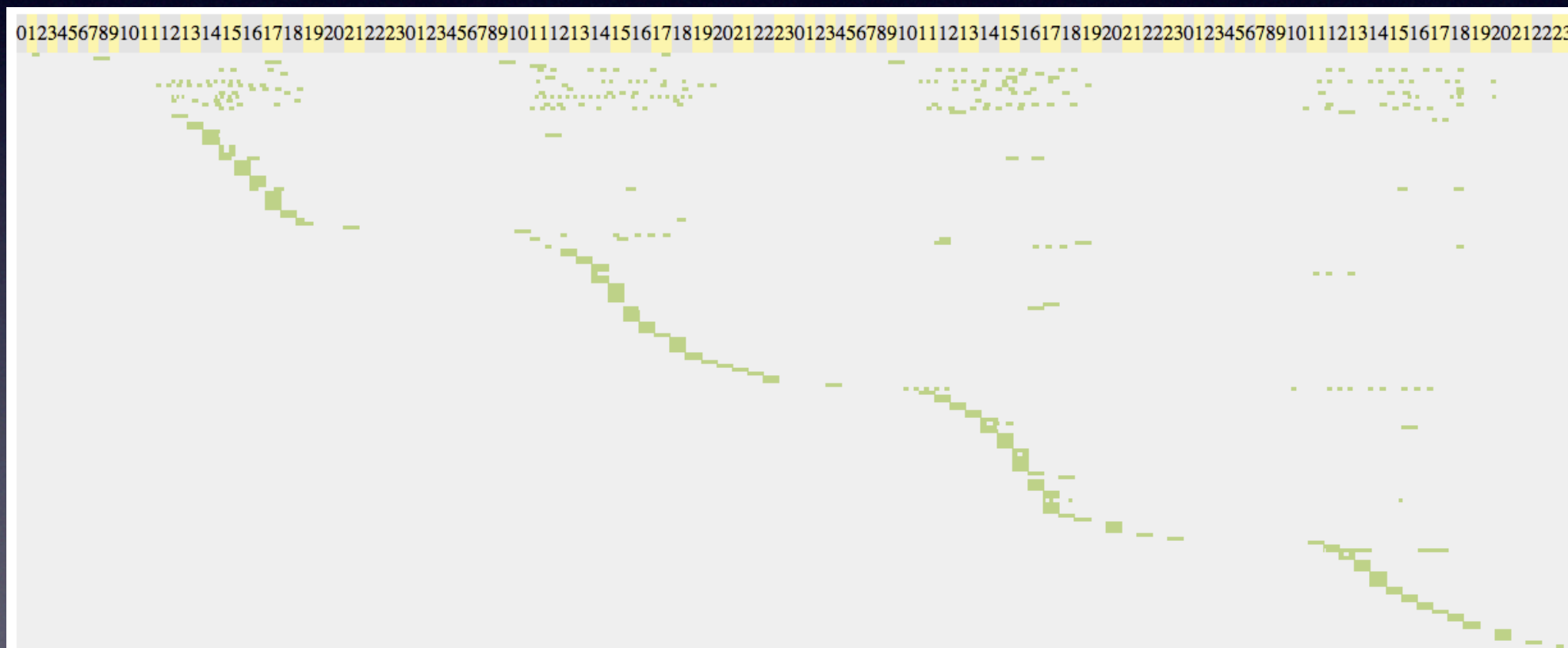
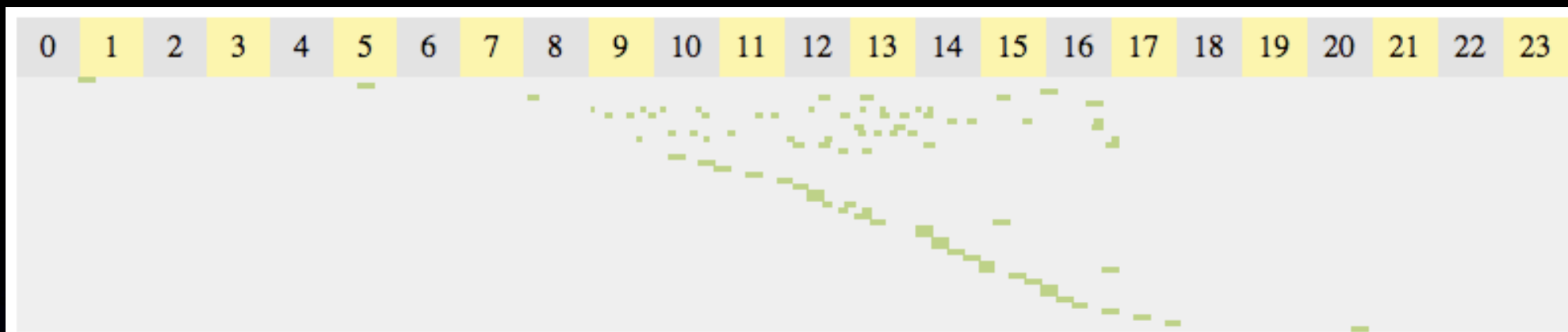
Data analysis

Timeline view

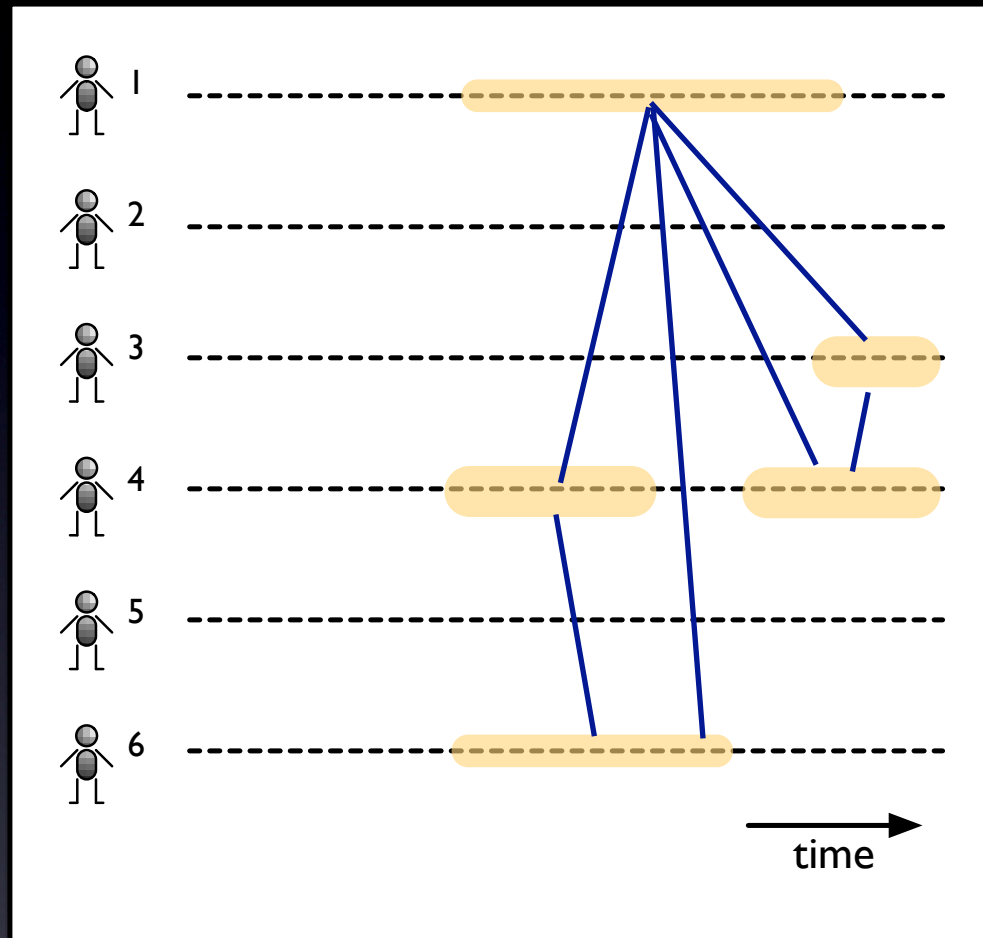


Gatecount timelines





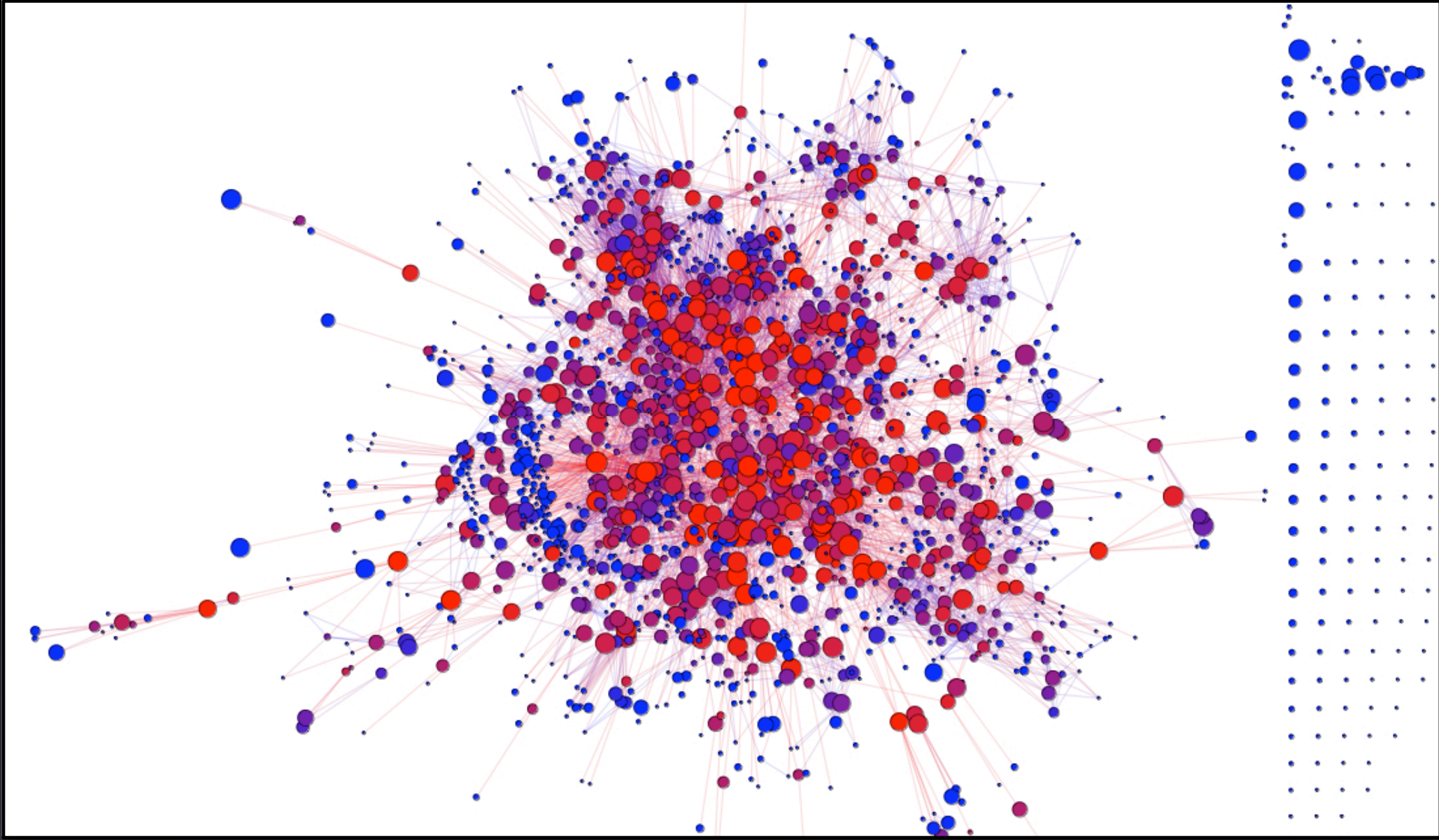
[illegible]



Networks of encounter







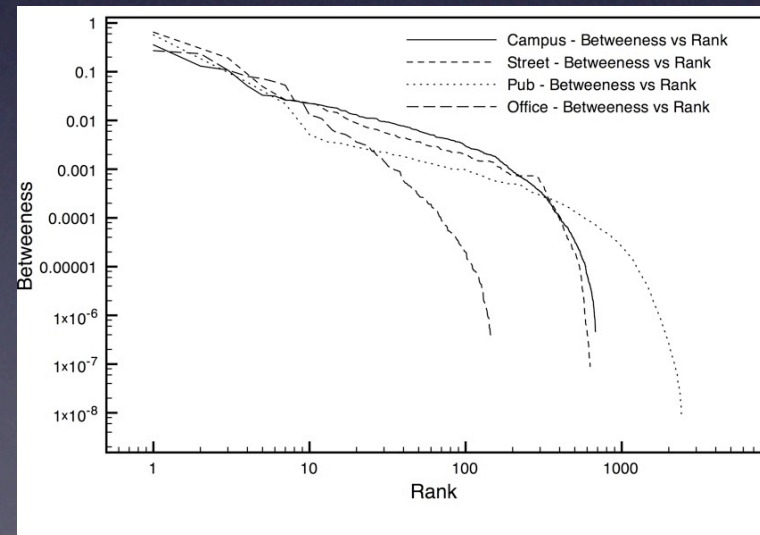
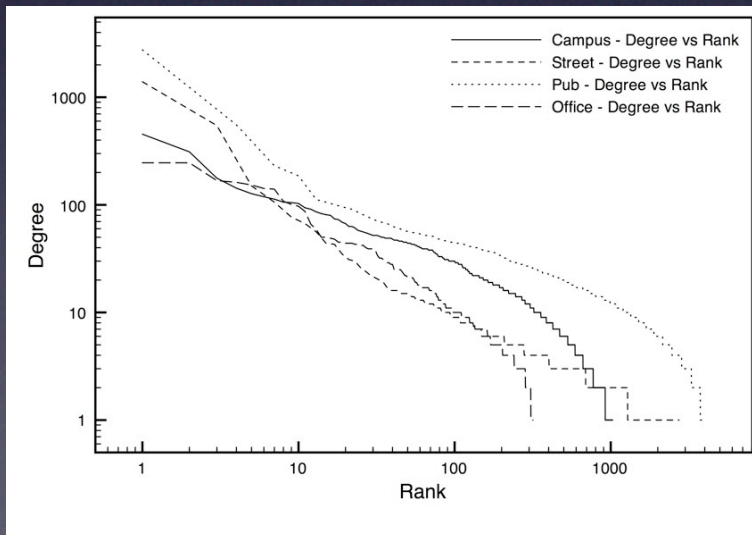
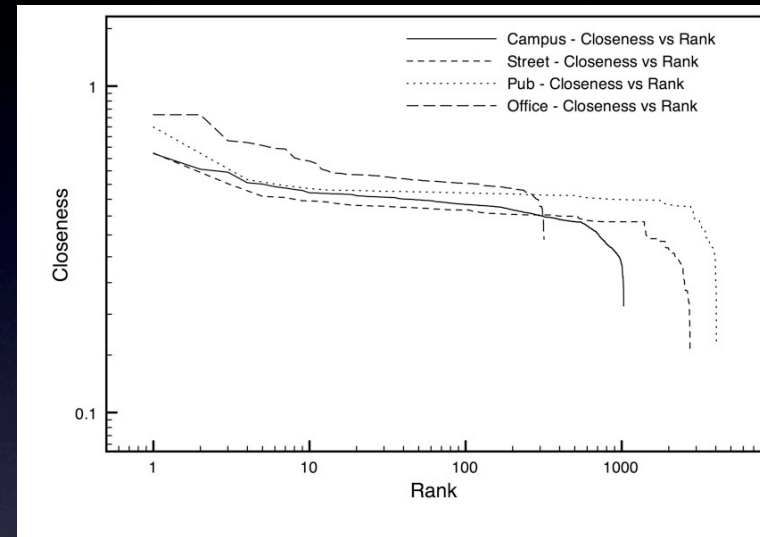
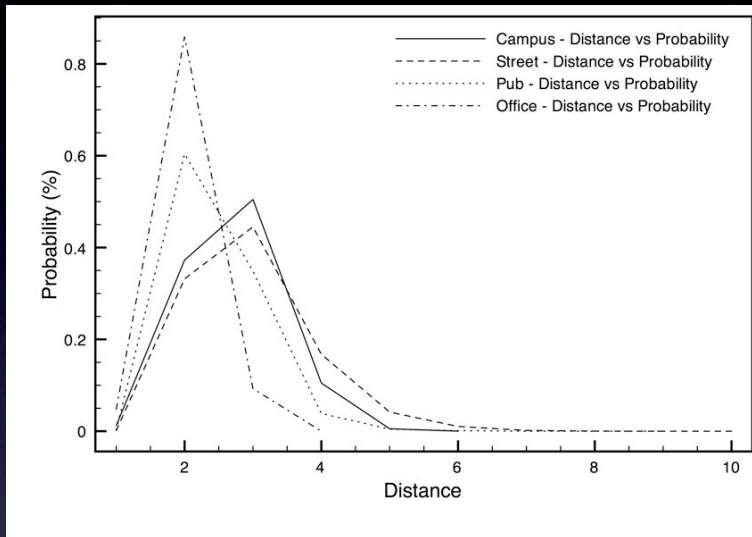
Focus on 4 locations

- Campus
- Street
- Pub
- Office

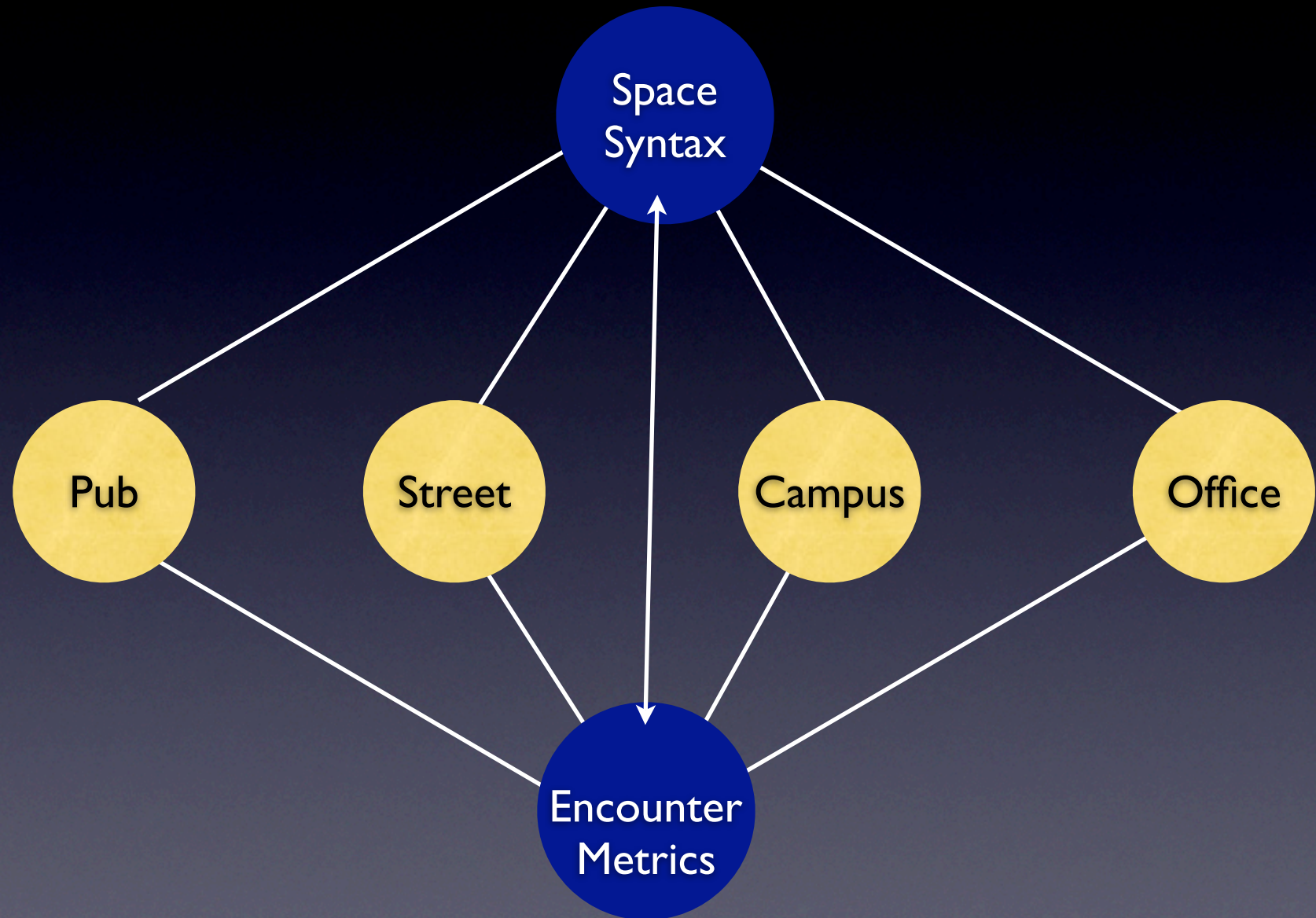
Findings

	Campus	Street	Pub	Office
Unique devices	1162	8450	4175	329
Largest core	1028	2738	4036	318
2nd largest core size	2	4	2	1
Edges in largest core	6434	5060	23919	2419
Density	0.5%	0.007%	1.4%	2.2%
Network Degree Centralisation	0.43	0.51	0.68	0.73
Network Closeness Centralisation	0.49	0.55	0.66	0.65
Network Betweenness Centralisation	0.36	0.65	0.57	0.27
Max degree	454	1394	2758	246
Average degree	12.26	3.70	11.85	15.21
Max distance (diameter)	6	10	9	4
Average distance	2.72	2.96	2.44	2.04
Average clustering coefficient	0.50	0.32	0.68	0.82

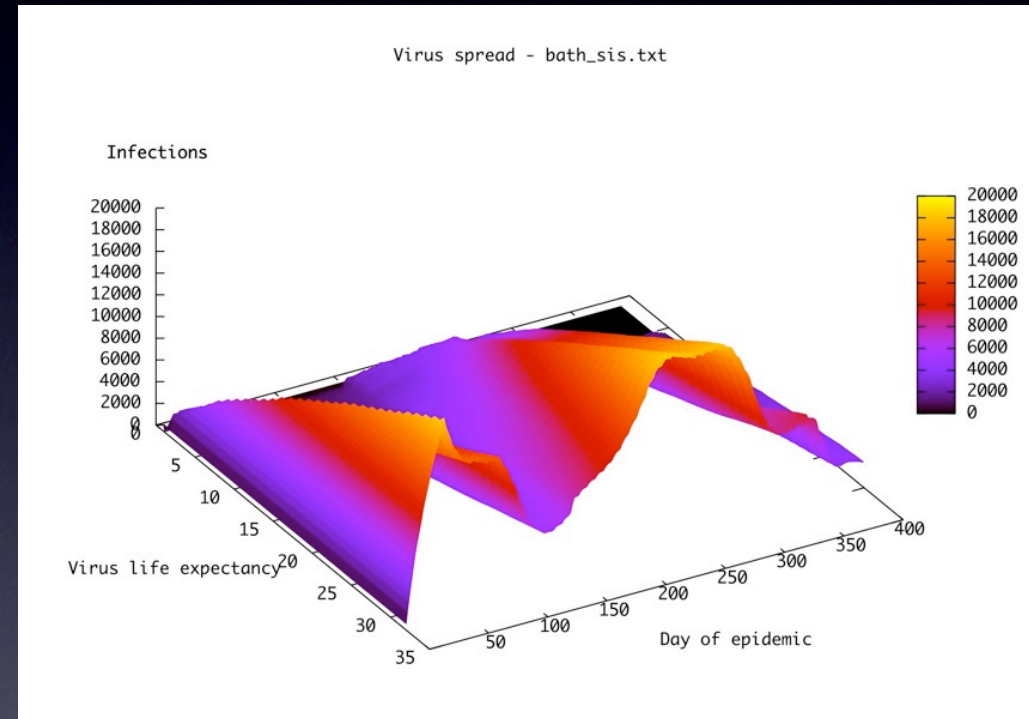
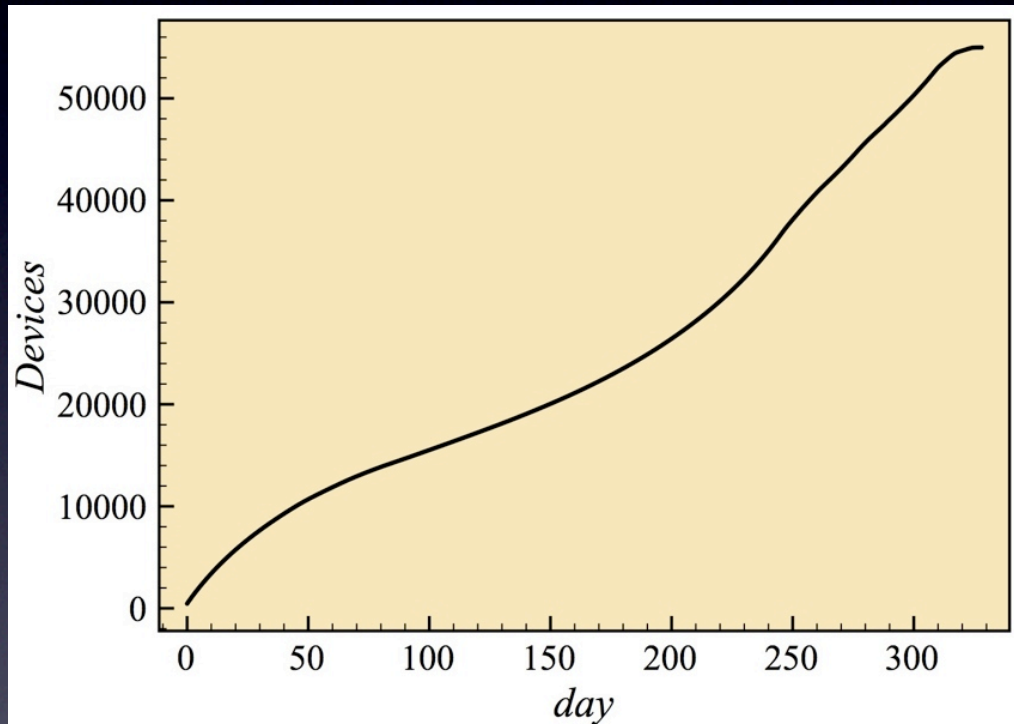
Power laws and exponential decays



Space syntax?

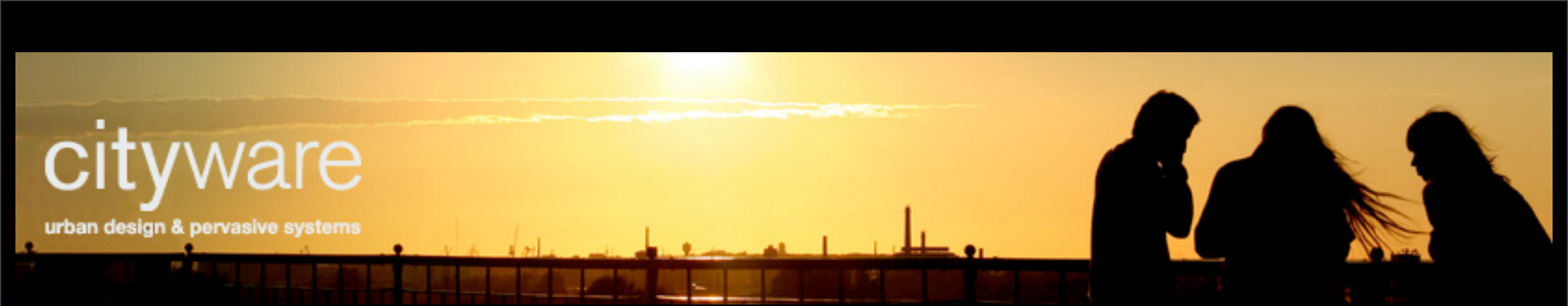


Outlook



Thanks to

- Alan Penn
- Ava Fatah gen. Schieck
- Shinichi Iida
- Chiron Mottram
- Alidstair Turner
- Bill Hillier



cityware

urban design & pervasive systems

Thank you

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vk @ cs. bath. ac. uk

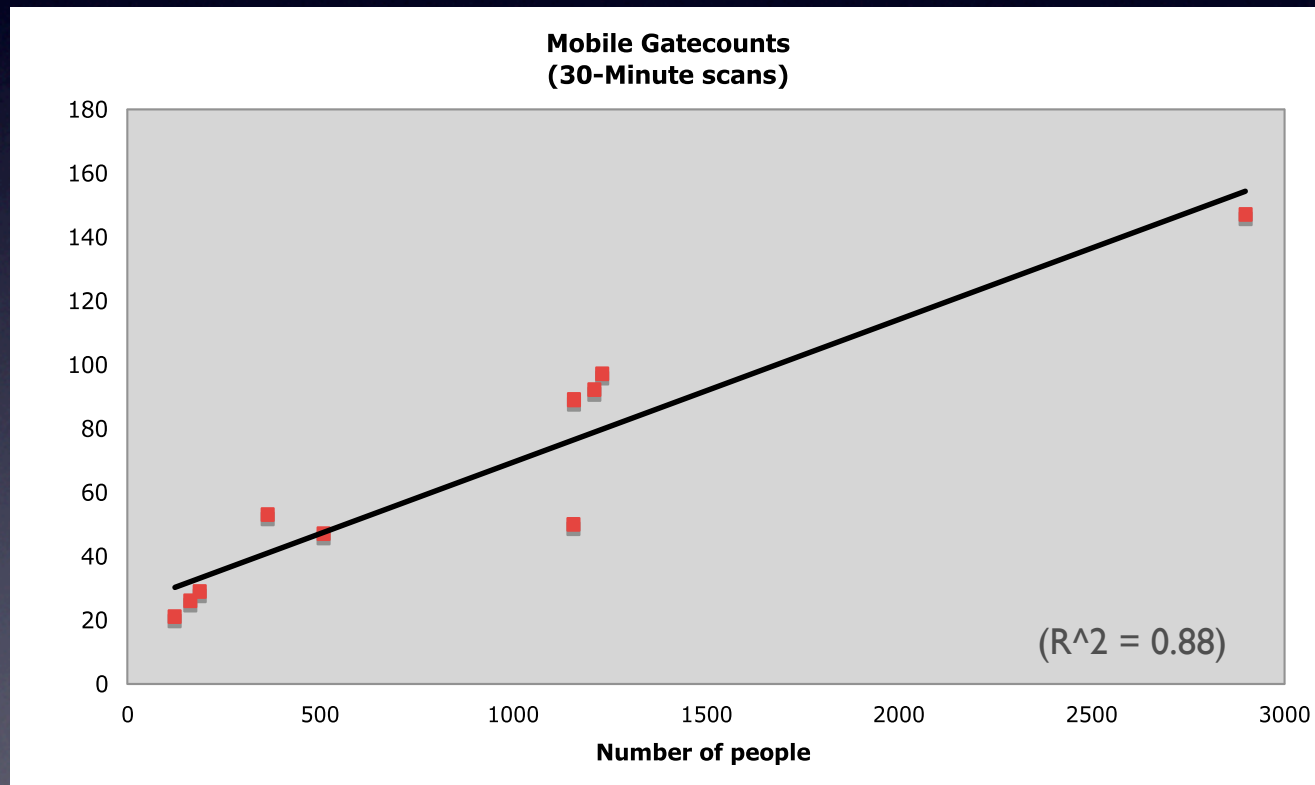
<http://www.cityware.org.uk>

Gatecounts



Bluetooth visibility

- Around 7.5% of observed pedestrians had discoverable Bluetooth devices



Privacy

- We are actively working on it
 - Increasing people's awareness
 - Suggested improvements to the Bluetooth protocol
 - Suggested improvements to usability of mobile devices