

DATA
&

PRIVACY



Privacy: a definition

Pronunciation: /'prɪvəsi/ /'prɪvəsi/

Noun

A state in which one is **not observed or disturbed** by other people: *she returned to the privacy of her own home*

The state of being **free from public attention**: *a law to restrict newspapers' freedom to invade people's privacy*

Source: <http://www.oxforddictionaries.com/definition/english/privacy>



Facebook birthday invite leads to mayhem in Dutch town, authorities say

From Dominique Van Heerden, CNN

🕒 Updated 8:49 PM ET, Sun September 23, 2012



Chairs burn in the Dutch town of Haren late on September 21, 2012 after a teenager's birthday invite on Facebook went viral.

Privacy: It's about control and power

In the Internet and phone connected world we live in now, privacy is a much more complex concept. Because information can be shared both explicitly and tacitly in the blink of an eye, control is much more challenging.

Context Collapse

Now when we share information or data, it is very difficult to exhaustively examine all the different potential users of that information or data. Further it is virtually impossible to determine all the ways it might be re-used by others in different contexts.

Data Collection and Privacy

- As we collect more and more data, the challenge of protecting privacy becomes increasingly complex
- Traditionally privacy has been protected through the anonymisation of data.
- As more and more data becomes publicly available, the challenge to effectively anonymise data increases.



"Your recent Amazon purchases, Tweet score and location history makes you 23.5% welcome here."

Anonymous: a definition

Pronunciation: /əˈnɒnɪməs/
adjective

(Of a person) not identified by name; of unknown name:

‘the donor’s wish to remain anonymous’

‘an anonymous phone call’

Source: <http://www.oxforddictionaries.com/definition/english/anonymous>



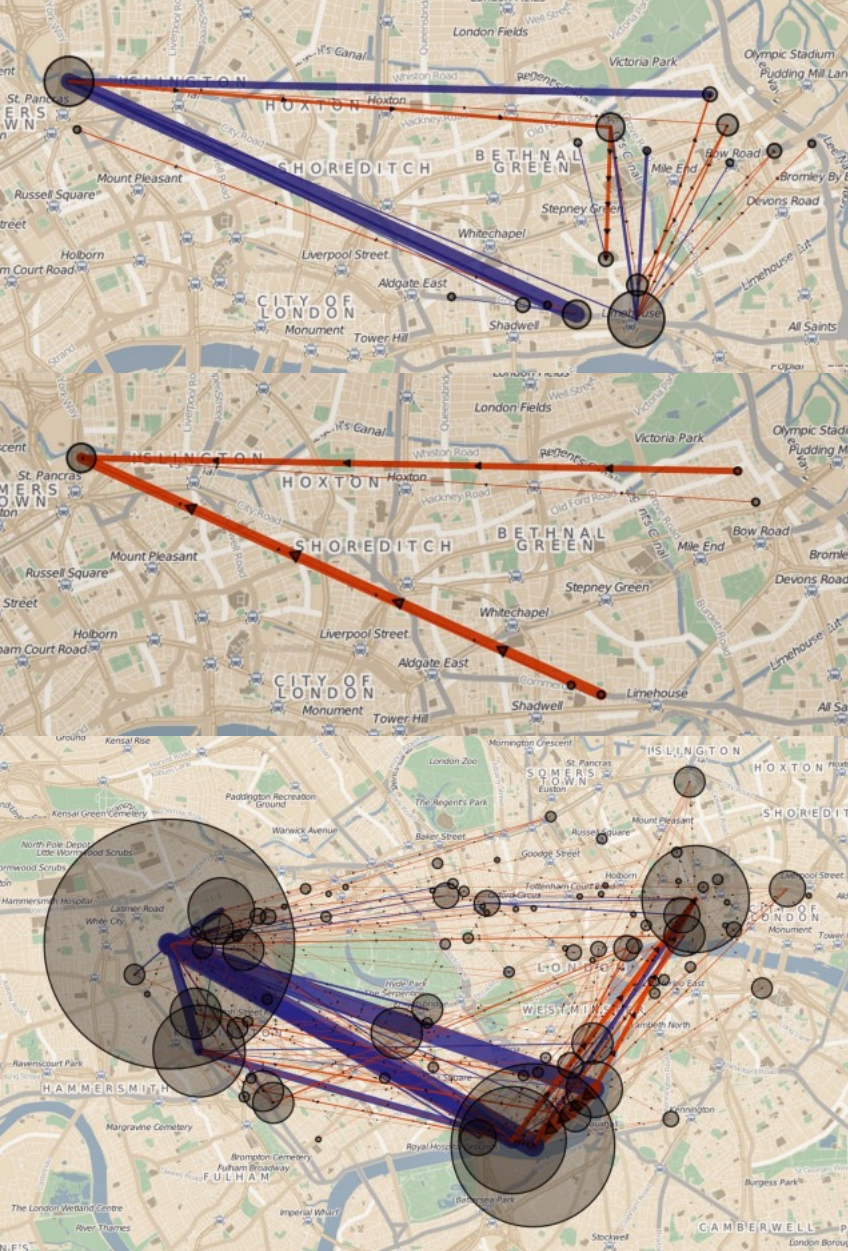
History of De-Anonymisation



In 2000, Latanya Sweeney found that **87% of the population** in the United States could likely be uniquely identified by their five-digit **ZIP code, combined with their gender and date of birth**

In 2007, Arvind Narayanan and Vitaly Shmatikov de-anonymize **Netflix Prize data**





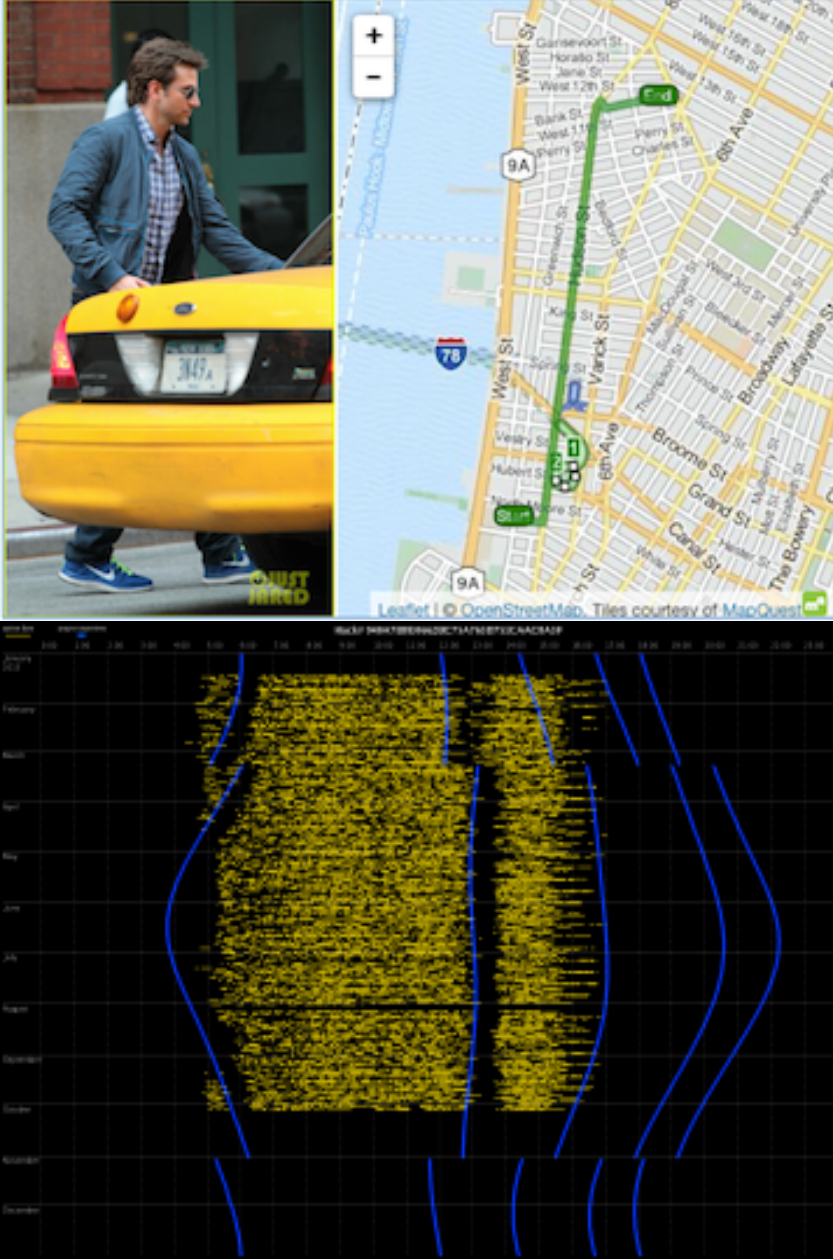
Anonymous public data from London's bike-share program proved vulnerable to de-anonymisation techniques

<http://qz.com/199209/londons-bike-share-program-unwittingly-revealed-its-cyclists-movements-for-the-world-to-see/>



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Passenger Privacy in the NYC Taxicab Dataset

<http://research.neustar.biz/2014/09/15/riding-with-the-stars-passenger-privacy-in-the-nyc-taxicab-dataset/>

<http://theiii.org/index.php/997/using-nyc-taxi-data-to-identify-muslim-taxi-drivers/>



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Massive Open Online Course (MOOC) services like Coursera and others use keystroke dynamics to establish biometric IDs

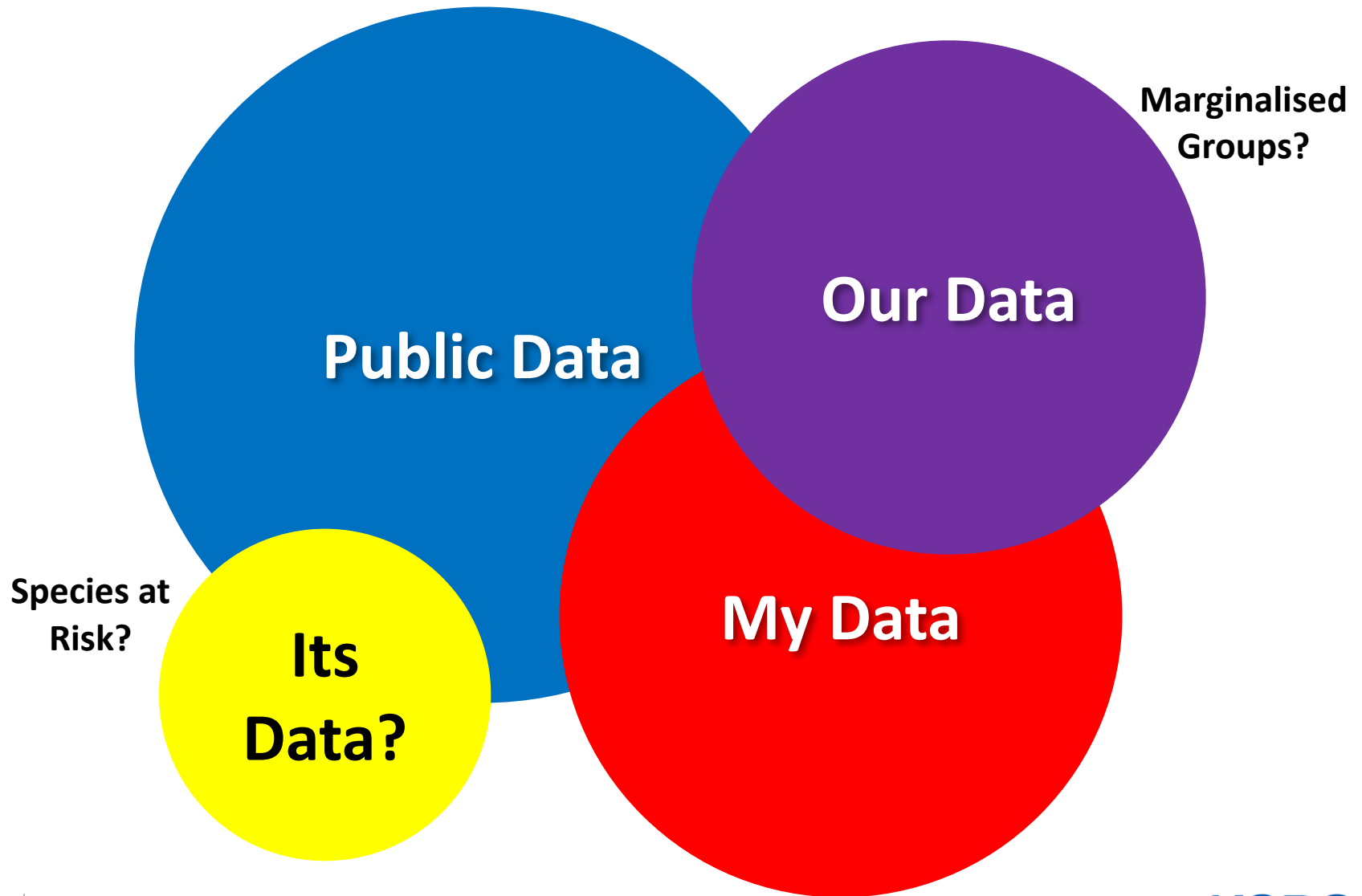
<http://www.biometricupdate.com/201301/coursera-looks-to-verify-online-student-identity-with-photo-keystroke-dynamics>



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Privacy Is Not Just Individual



Absence of data is a kind of data.

Let's imagine you know the aggregate income for a town. If one person moves away, by re-calculating the aggregate income, you now know the income of the person who moved.

In a development context, choosing to gather data in one area may result in different outcomes for areas where data is not gathered.

These days, choosing not to participate in a social network reveals information about a person. As a recruiter, would you trust anyone without any online profiles? Perhaps the answer is still 'yes' now but in the future?



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Taken Out of Context

Tuesday, December 3, 2013
12:48 PM EST

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News / GTA

Disabled woman denied entry to U.S. after agent cites supposedly private medical details

A Toronto woman is shocked after she was denied entry into the U.S. because she had been hospitalized for clinical depression.

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BERNARD WEIL / TORONTO STAR Order this photo

Ellen Richardson was prevented from going on a March of Dimes organized cruise because the U.S. border agent said she was hospitalized for mental health issues in 2012 and she needed special clearance. Richardson was treated for clinical depression but she wonders how he accessed her medical records.

Updated Getting ready to say goodbye to the condo parking spot | [🔒](#)
Updated Bad decision to kill Scarborough LRT may help GTA transit: James | [🔒](#)
NEW Woman loses ticket, but OLG tracks her down as \$50M winner | [🔒](#)
NEW RCMP just offered 'cookies and Timbits,' injured officer says | [🔒](#)
NEW Detroit eligible for bankruptcy protection, judge rules | [🔒](#)
Updated Ontario tightens rules governing unregulated daycare | [🔒](#)
Updated Durham officer demoted for nine months for offensive Tweets
Doug Ford accuses Mayor impersonator of "stalking" mother | [🔒](#)



Bridge the divide with a U.S.-currency card

In Canada in 2013, a woman was denied entry into the United States based on medical data that ought to have been private.

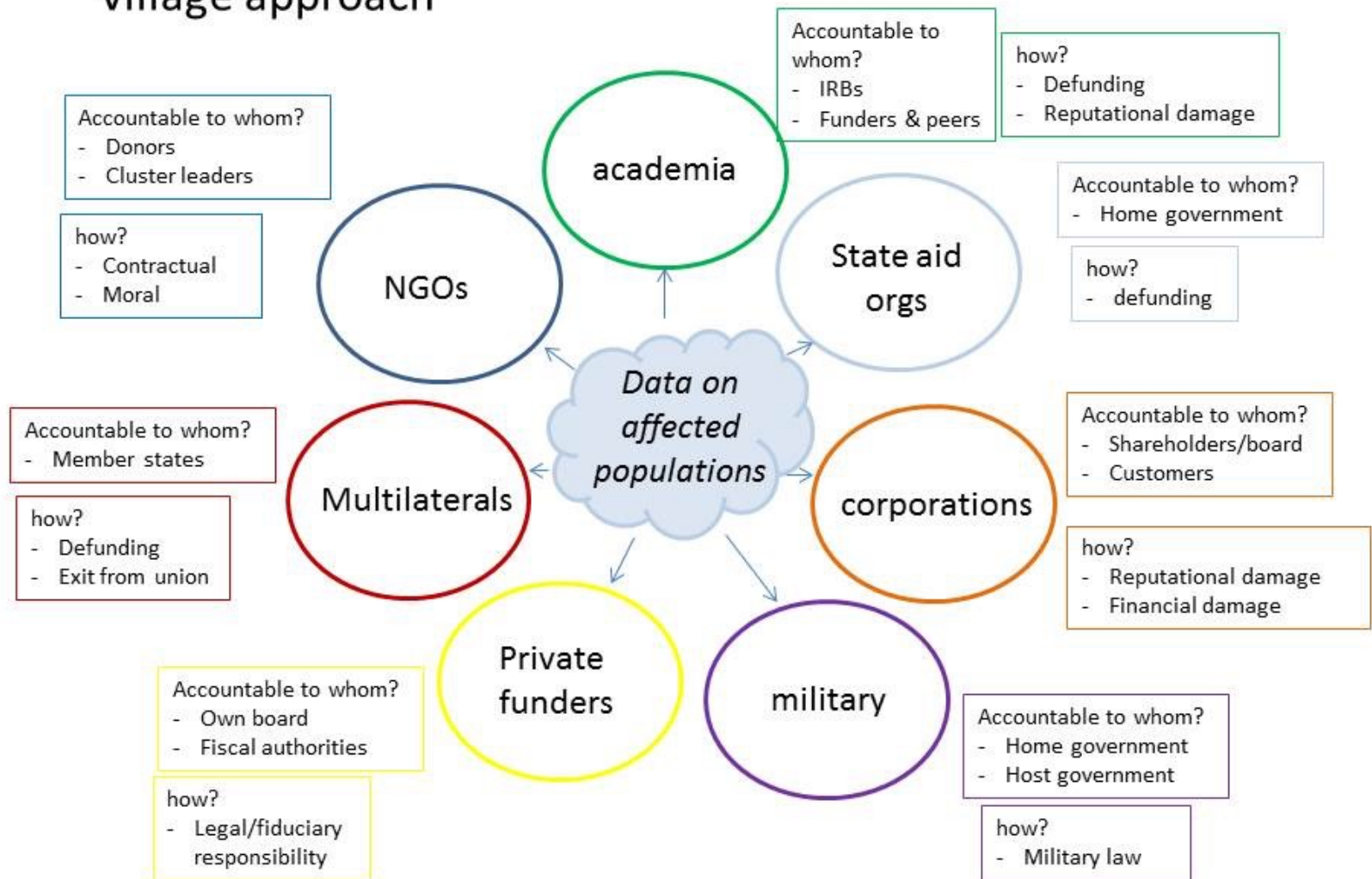
We can imagine other scenarios:

What if Open Data resources from a country like Kenya were used by the United Kingdom to profile immigration applications?

What if data from an air quality sensor network were used by an insurance company to raise rates in a marginalised community?

All data collection requires thought about potential consequences.

Data users' accountability in the humanitarian sphere: a village approach



Responsible data for humanitarian response; Den Haag Feb 24-25 2015

<https://linnettaylor.wordpress.com/2015/02/26/data-governance-in-the-humanitarian-sphere-the-small-challenge-part-ii/>

Shooting our hard drive into space
and other ways to practise
responsible development data



Ways to Practise Responsible Development Data

Produced by the
Responsible Data Forum

<https://responsibledata.io/ways-to-practise-responsible-development-data/>



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Questions?



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Resources

What is privacy?

by danah boyd

<https://medium.com/message/what-is-privacy-5ed72c66aa86>

Robust De-anonymization of Large Datasets

(How to Break Anonymity of the Netflix Prize Dataset)

Arvind Narayanan and Vitaly Shmatikov (February 5, 2008)

<http://arxiv.org/pdf/cs/0610105.pdf>

London's bike-share program unwittingly revealed its cyclists' movements for the world to see

<http://qz.com/199209/londons-bike-share-program-unwittingly-revealed-its-cyclists-movements-for-the-world-to-see/>

Riding with the Stars: Passenger Privacy in the NYC Taxicab Dataset

<http://research.neustar.biz/2014/09/15/riding-with-the-stars-passenger-privacy-in-the-nyc-taxicab-dataset/>

Coursera looks to verify online student identity with photo, keystroke dynamics

<http://www.biometricupdate.com/201301/coursera-looks-to-verify-online-student-identity-with-photo-keystroke-dynamics>

In the Age of the Web, What Does “Public” Mean?

by David O'Brien

<https://medium.com/internet-monitor-2014-data-and-privacy/in-the-age-of-the-web-what-does-public-mean-ee74df403174>

Data Governance in the Humanitarian Sphere: Divide and Rule?

by Linnet Taylor

<https://linnettaylor.wordpress.com/2015/02/26/data-governance-in-the-humanitarian-sphere-the-small-challenge-part-ii/>

Privacy Tools for Sharing Research Data

Harvard School of Engineering and Applied Sciences

<http://privacytools.seas.harvard.edu/>

Ways to Practise Responsible Development Data

<https://responsibledata.io/ways-to-practise-responsible-development-data/>





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Cartoon: Big Data by Thierry Gregorius

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