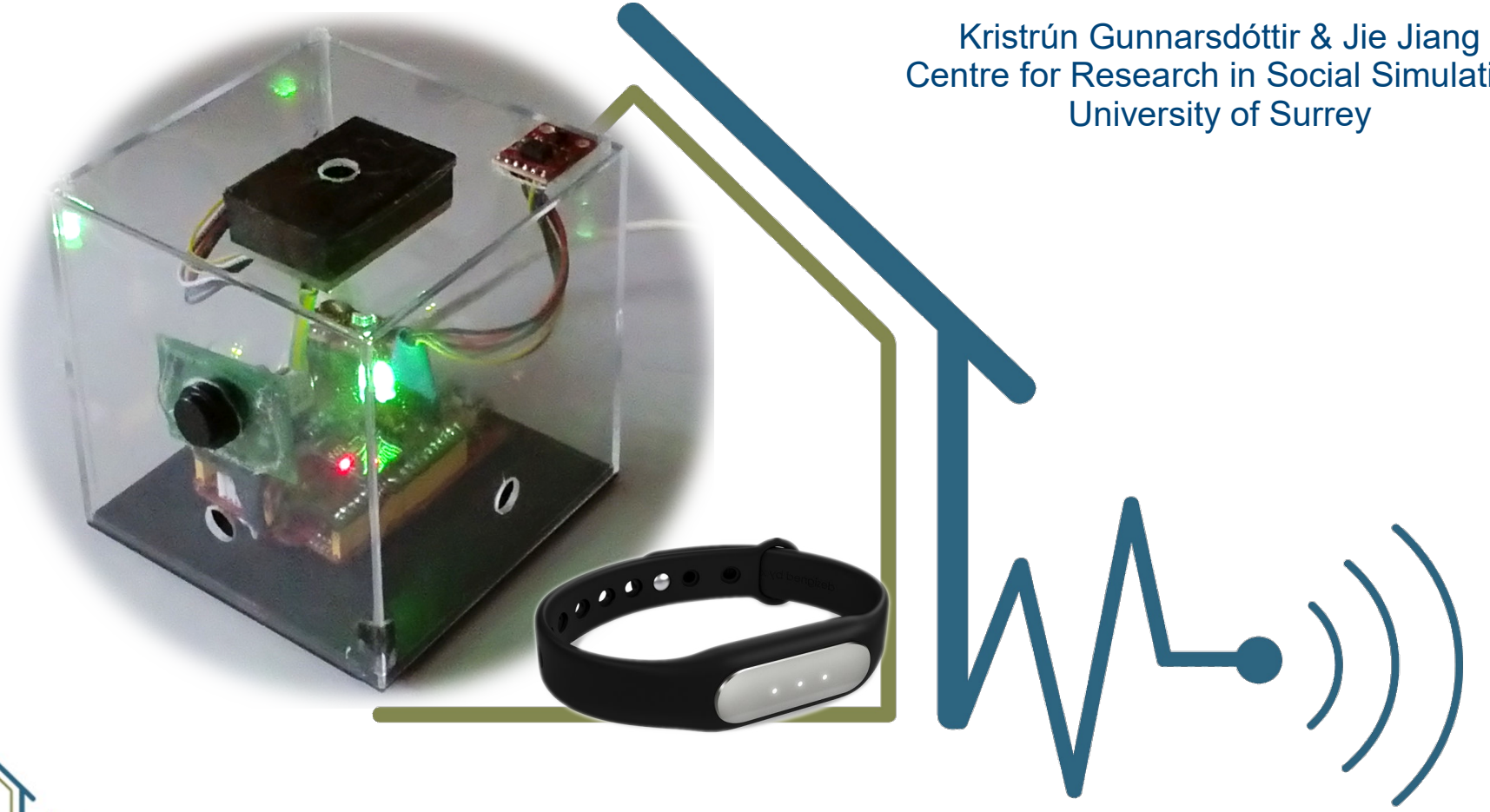
Sensing work at home

Insights from using sensors in household research



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HomeSense
digital sensors in social research

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Sensing work at home

Insights from using sensors in household research

The HomeSense project (a mix of methods)

Learning to 'see' from data streams

Presence, activity and interactions in households

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The HomeSense project

Demonstrate the use of sensors via household trial

Catalogue technical, methodological and ethical issues

Create guidelines for using sensors

Three research strands:

Adapt and develop devices

Develop data collection methods

Create tools for analysing data streams in reference to other data sources

Development and adaptation

Issues of technical reliability and data security

Microphone

Ranging sensor

Particulate sensor

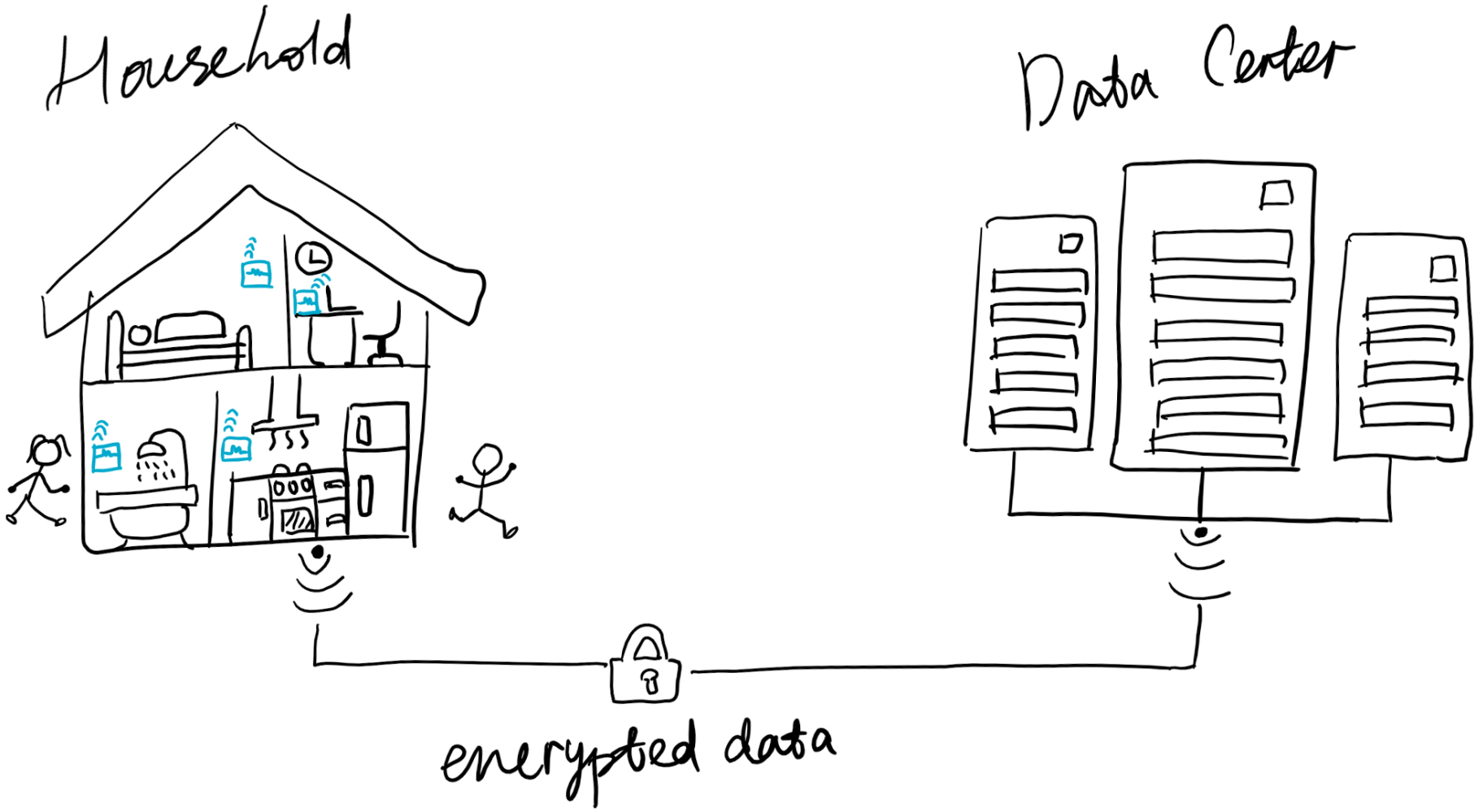
Temperature & humidity

RGBC Light & gesture sensor

WiFi™

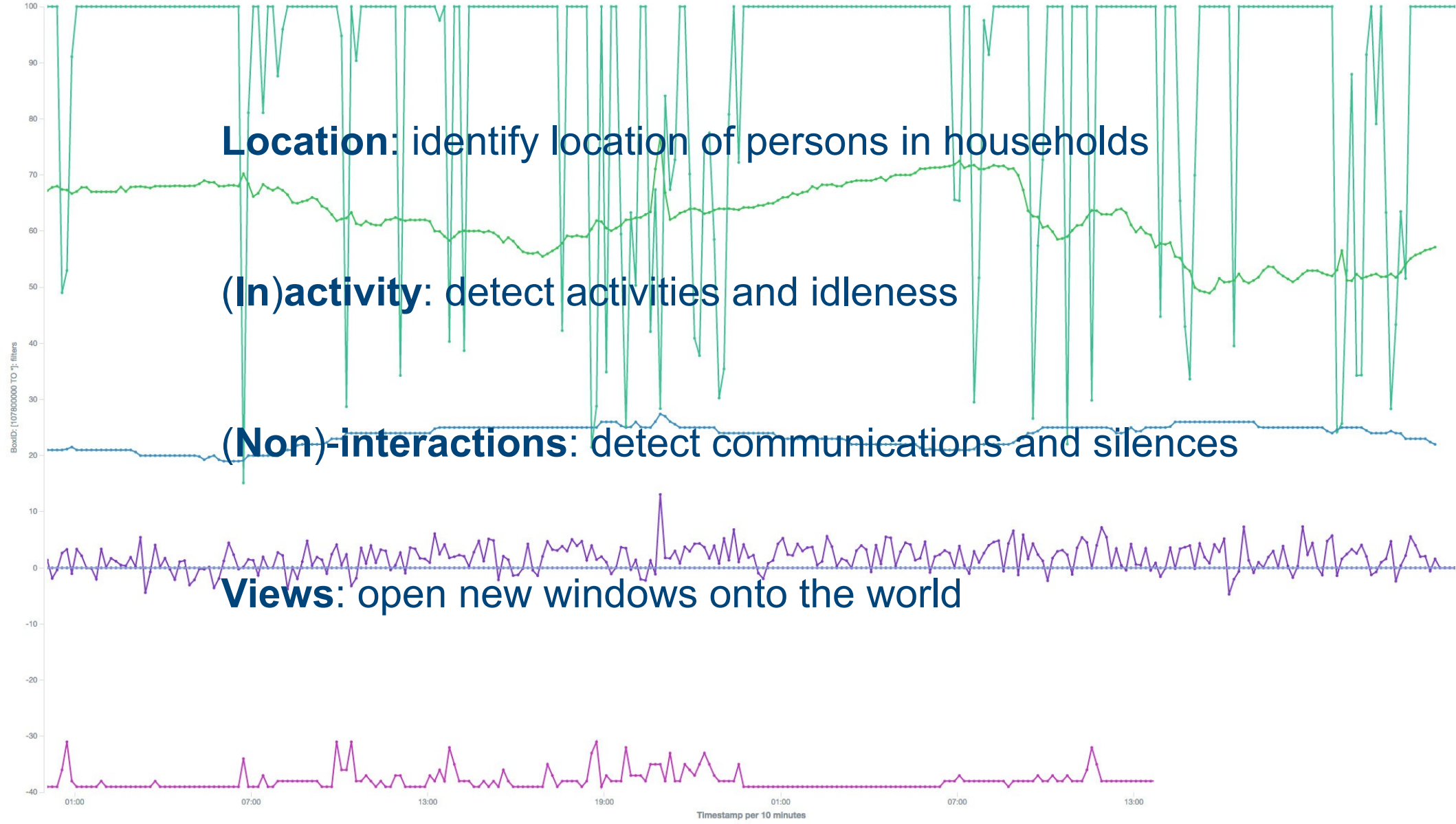
Development and adaptation

Issues of technical reliability and data security



Using sensors in households

Persons and practices



Location: identify location of persons in households

(**In**)**activity**: detect activities and idleness

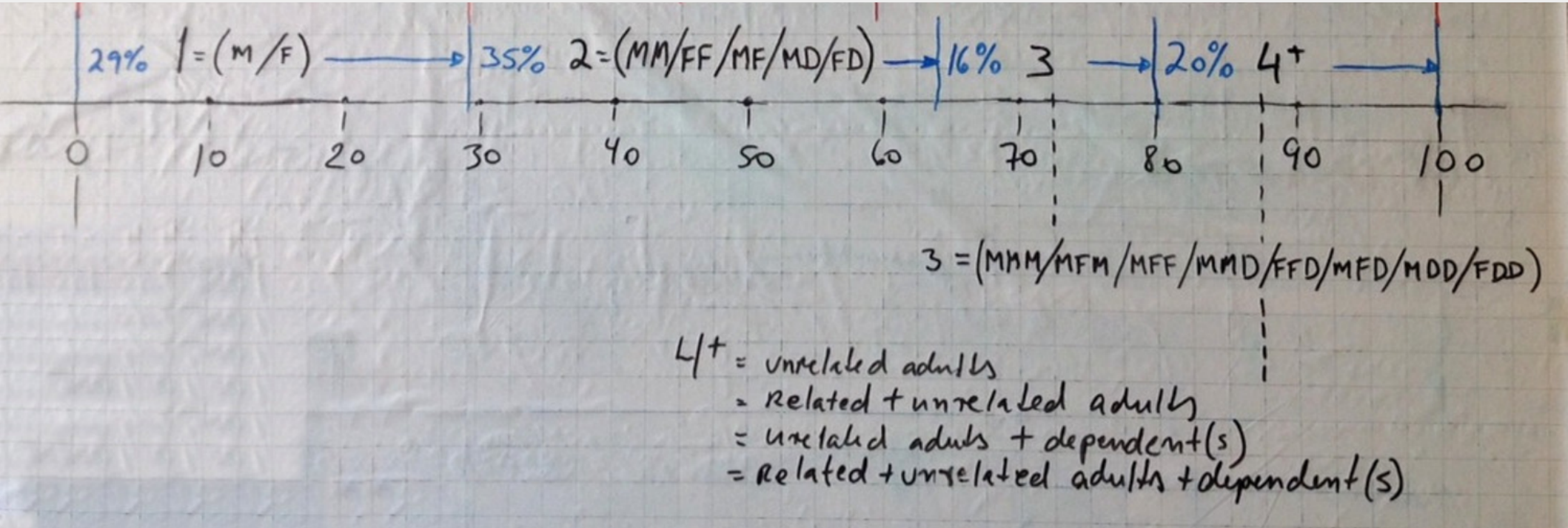
(**Non**)-**interactions**: detect communications and silences

Views: open new windows onto the world

Households for HomeSense

The ONS on families and households in 2015 (Nov 2015):

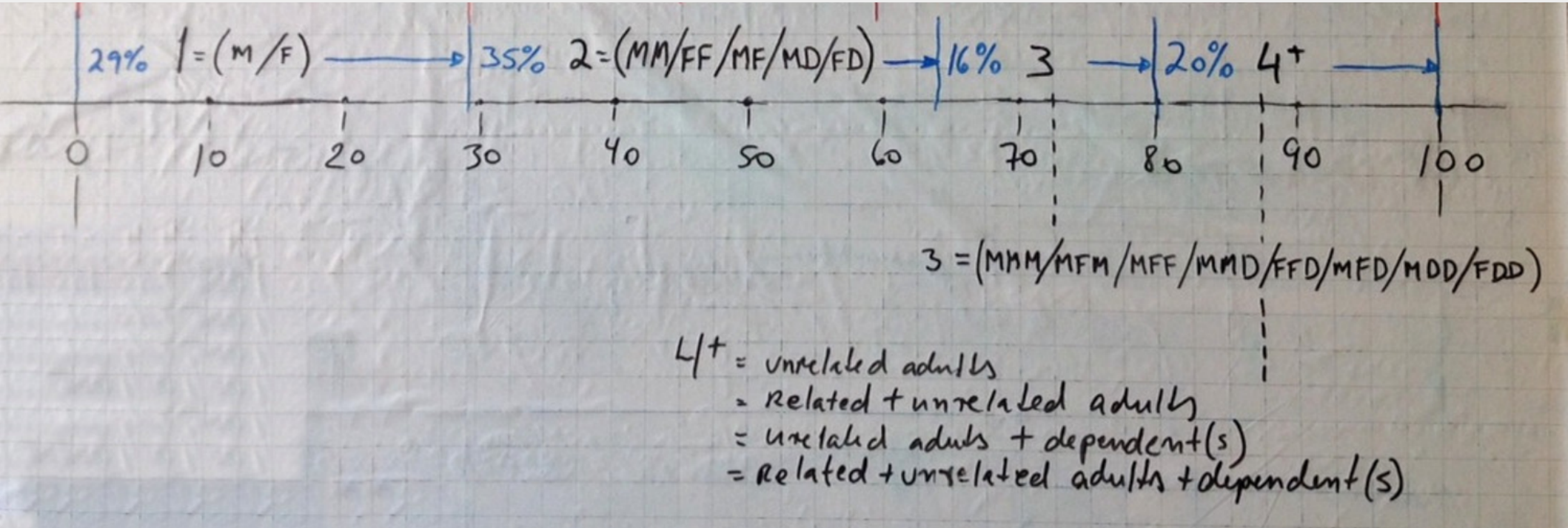
- 27.0 million households
  - 18.7 million families (69%)
    - 12.5 million married/civil partners with/without dependent children
    - 3.2 million cohabiting couples with/without dependent children
    - 3 million lone parents with/without dependent children
  - 7.7 million households with one person
  - 1 million households with two or more unrelated adults



Households for HomeSense

The ONS on families and households in 2015 (Nov 2015):

- 27.0 million households
  - 18.7 million families (69%)
    - 12.5 million married/civil partners (without dependent children, 7.8)
    - 3.2 million cohabiting couples (without dependent children, 1.95)
    - 3 million lone parents (without dependent children, 1.05)
  - 7.7 million households with one person
  - 1 million households with two or more unrelated adults



Households for HomeSense

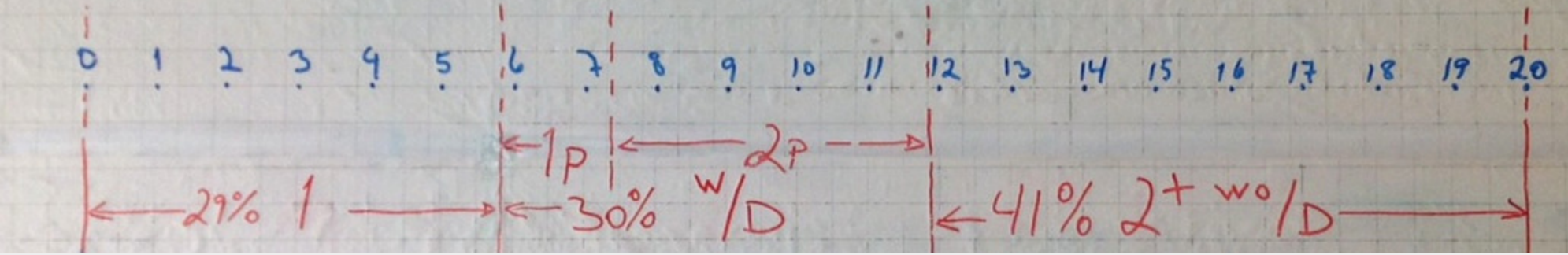
6 — 5-6 w/ 1 person

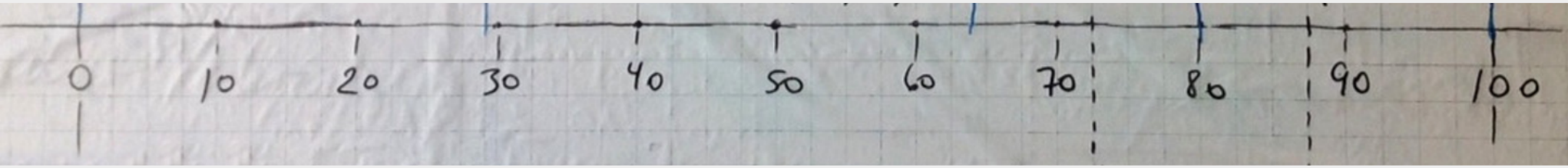
(1/2) — 1-2 w/ lone parent + dependent(s)

(5/4) — 4-5 w/ 2 parents + dependent(s)

8 — 8-9 w/ 2+ adults of any configuration

break up





Using sensors in households

Testing the instruments and sorting out ethical issues

Assuming sociological interest:

- Work, chores, hobbies, entertainment
- Meals: practices surrounding food and drink
- Sleep: when households sleep
- Care: healthcare, self care, family care

Technical / methodological considerations:

- Overcome practical problems of installing sensors
- Simplify assembly and configurations of sensor suites
- Overcome uncertainty in sensor measurements

Wearability / acceptability:

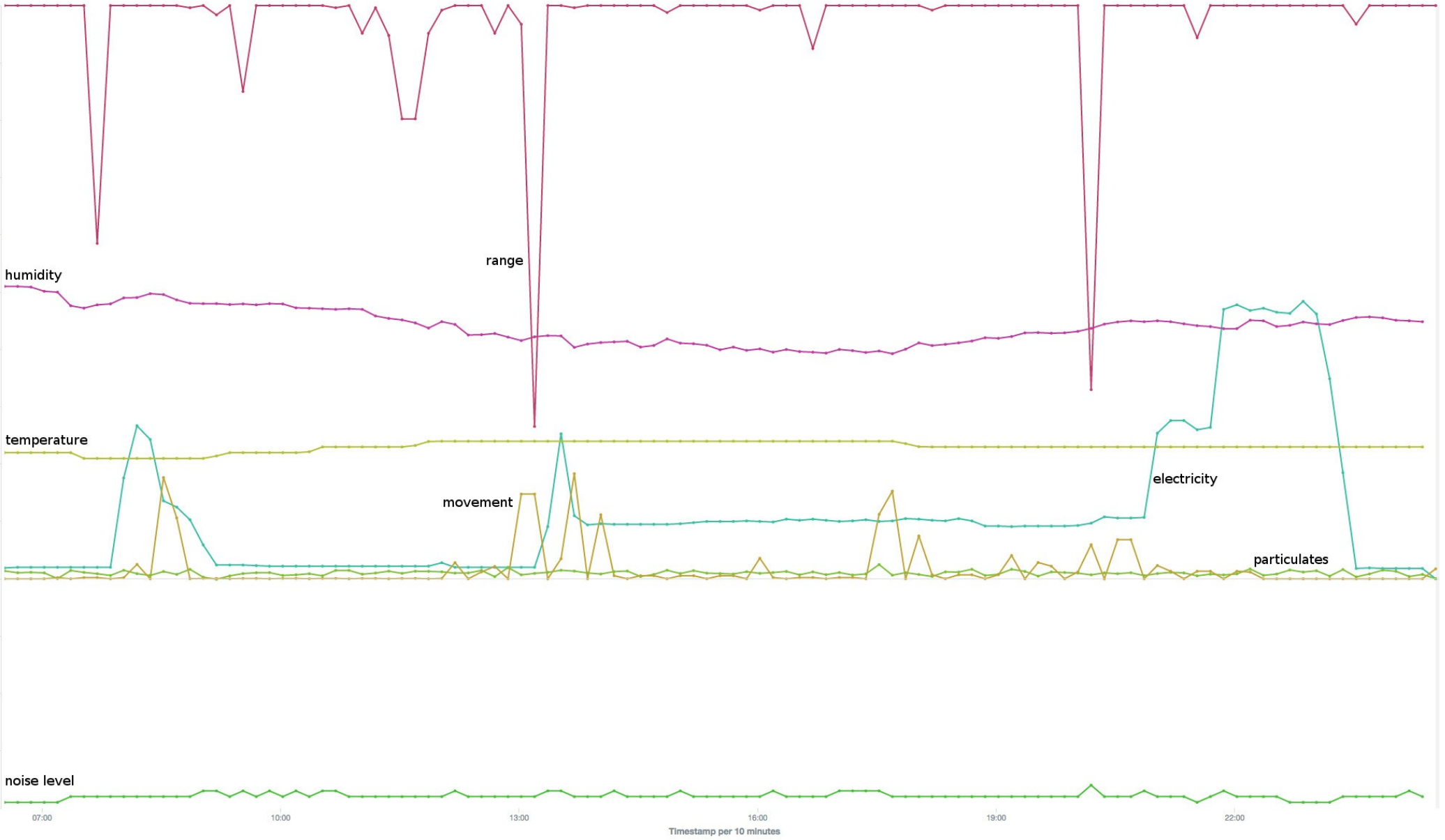
- Comfort and easiness
- Assurances
- Motivation

Vulnerabilities:

- *Privacy concerns*
- *Who consents, and to what?*
- *Data and security protection*

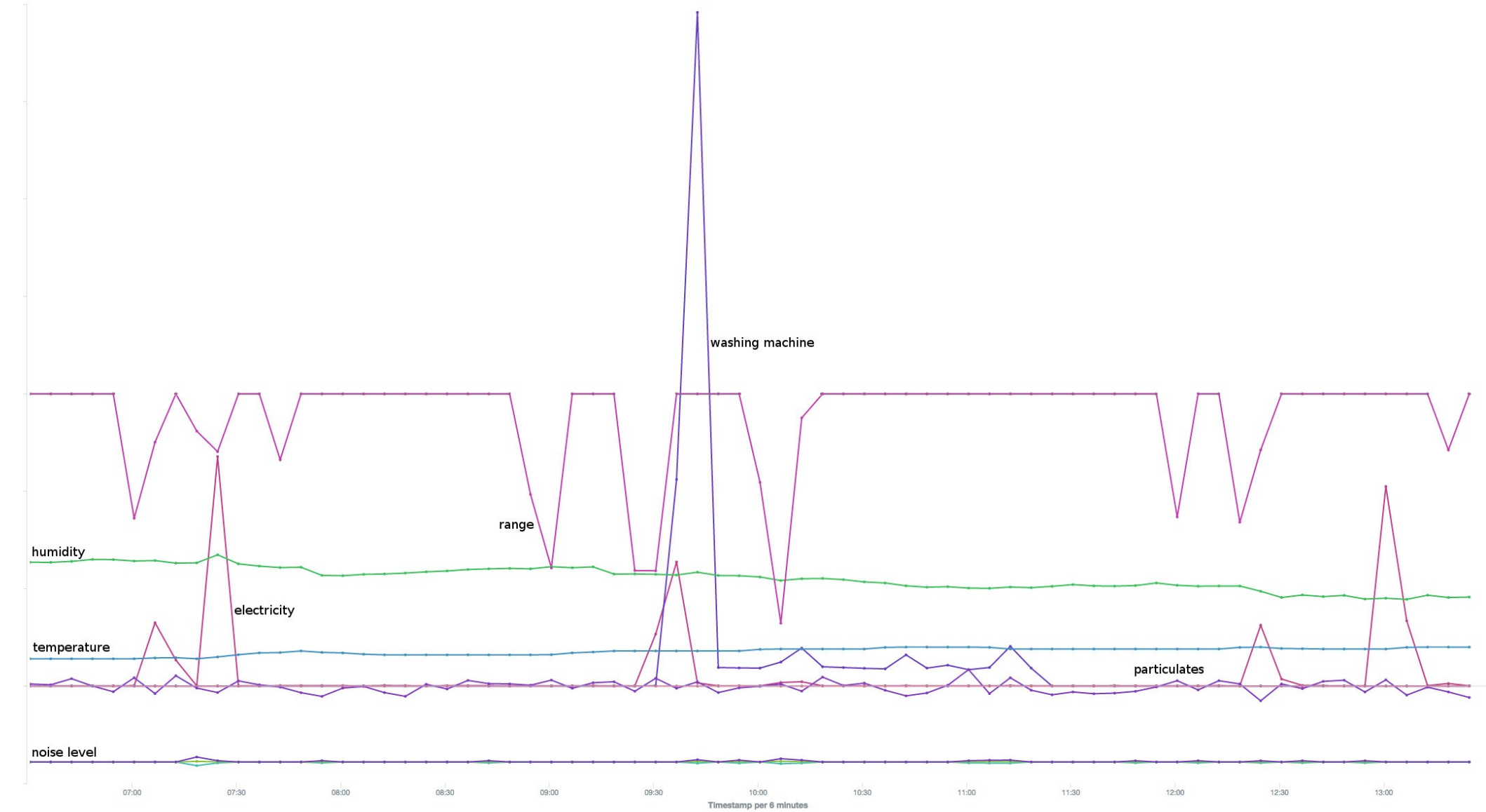
Testing: in a bedroom + study

*From **23 Sept** 6:30am until **24 Sept** 0:30am*



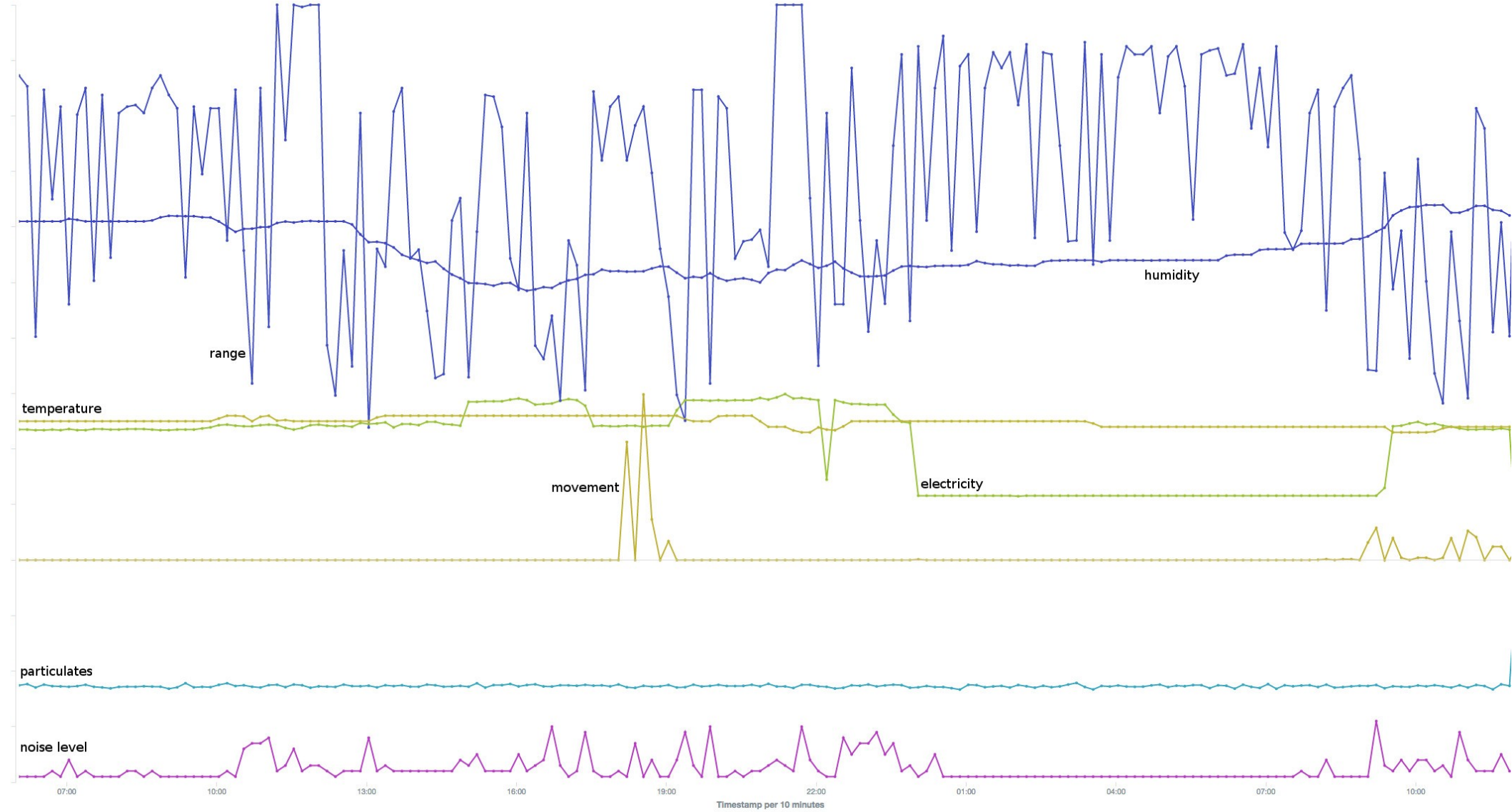
Testing: in the kitchen

***23 Sept**, between 6:30 am and 1:30 pm*



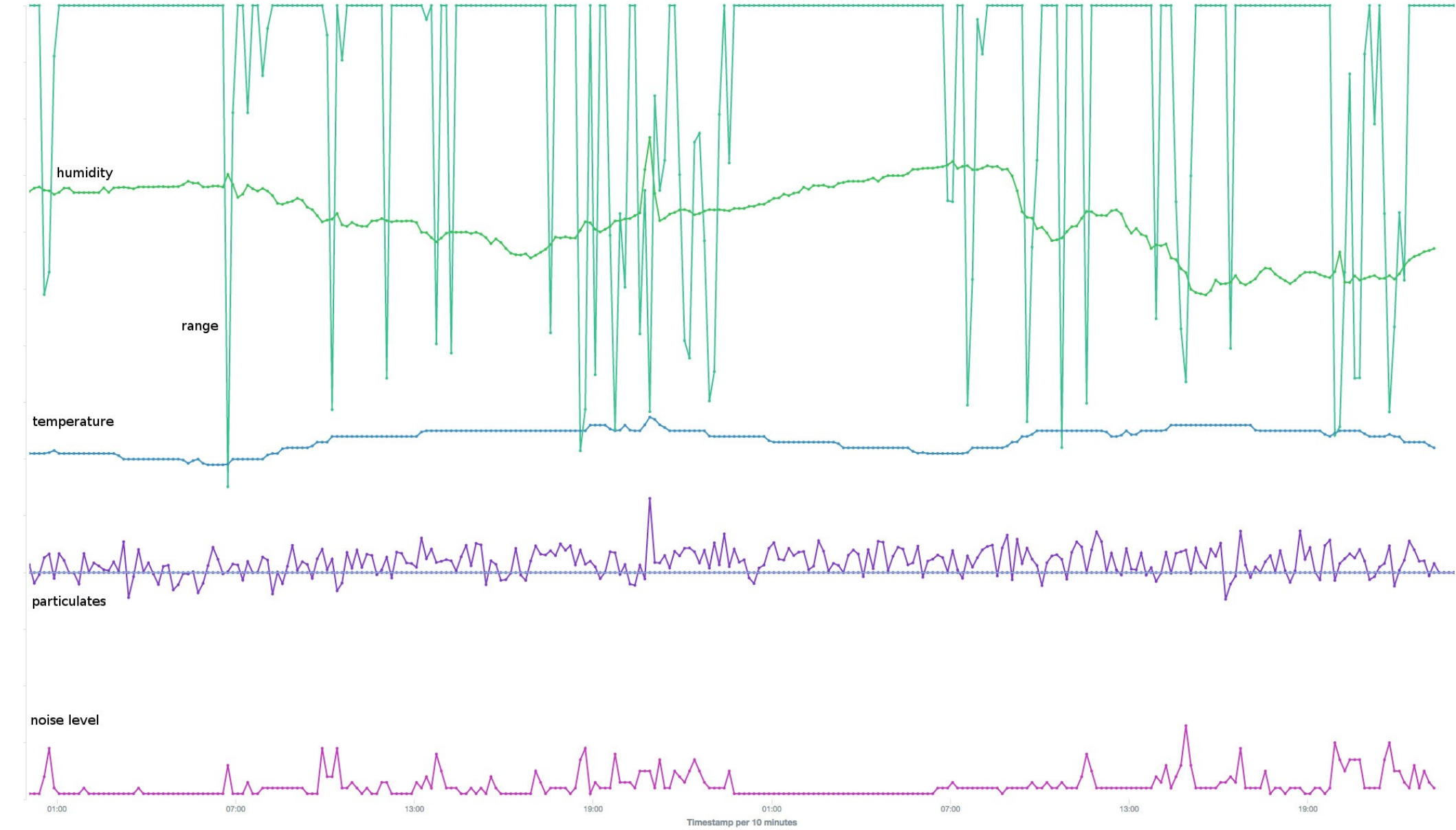
Testing: working from home

*From **14 Sept** 6:00am until noon **15 Sept***



Testing: 48 hrs in the kitchen

***13 & 14 Sept**, midnight to midnight*



Sensors in social research

What next ?

Understanding the limitations of sensor-generated data

- Qualitative in-depth studies rely on the support of qualitative data
- The importance of time use records and walking interviews

Understanding the potential for sensor-generated data

- Enriching our understanding of household utility and home life
- Accessing trends and changes in everyday practices that are not otherwise reported.

Capacity building among researchers of social practice:

- Build supports to researchers in a modular fashion
- Continue the development of collection techniques, visualisation and analytic techniques
- Keep up with new products in the market
- Knowledge sharing, data sharing

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Using sensors in social research

Beyond the house and the household

Observe activities in neighbourhoods?

Observe energy waste in neighbourhoods?

Study shopping activities or commuter habits?

Observe activities around major operations?

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Using sensors in social research

Beyond the house and the household

Study group problem-solving activities?

Observe management/administration activities?

Observe communication and networking trends?

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