



An International Centre for Mouse Genetics



Mammalian Genetics Unit

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# Towards A Behaviour Ontology

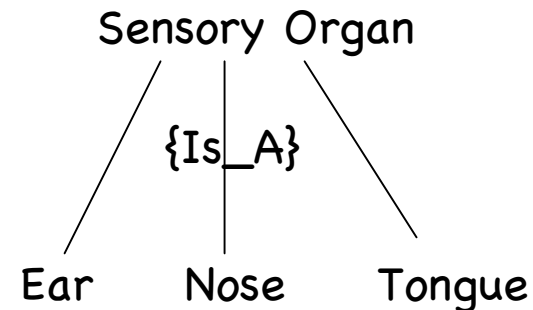
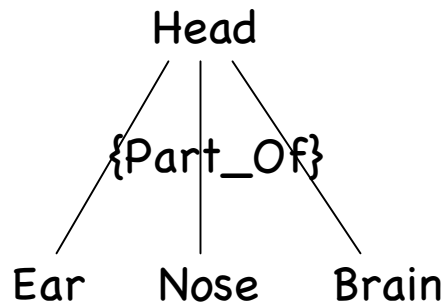
**John Hancock**

MRC Harwell

# What is an Ontology?

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Essentially a controlled vocabulary with defined relationships and definitions, e.g.:



Allows us, for example, to identify other parts of the head that might be affected



# Two Styles of Phenotype Ontology

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- Pre-composed - Mammalian Phenotype
- Composite - E+Q system

# Mammalian Phenotype Ontology



## Advantages of the MP:

- Allows rapid annotation of mouse lines for their abnormal phenotypes
- Uses terms readily understandable by mouse biologists
- Is widely accepted by the mouse community



# Mammalian Phenotype Ontology



## Drawbacks of the MP:

- Everything is “abnormal” (most observations are normal)
- Not well structured
- Records interpretation not data
- Cannot be used to record quantitative information



# The Alternative - EQ & PATO

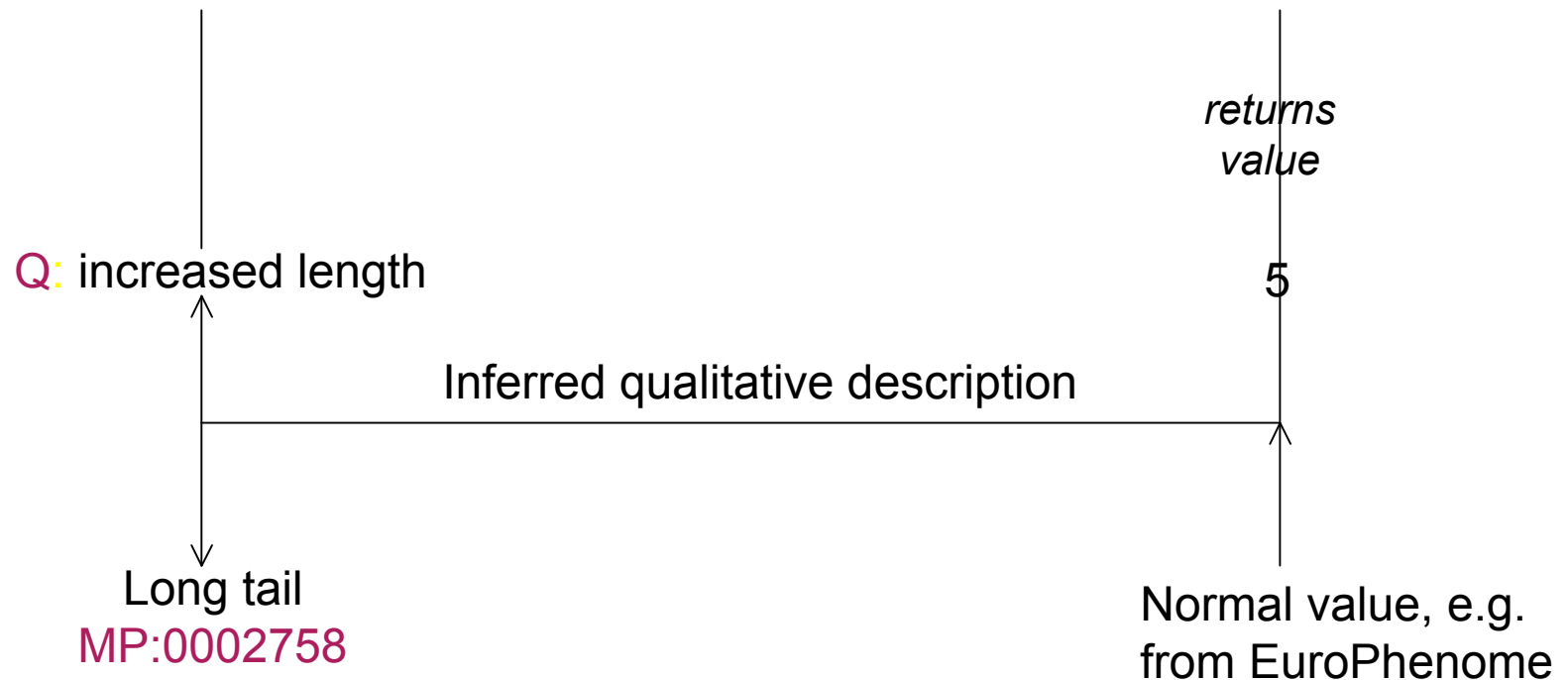
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- E = Entity, e.g. tail, derived from an ontology such as anatomy
- Q = Quality, derived from the Quality Ontology PATO
- Can be used to build up a description of an atom of phenotypic data...

# E+Q - An Example

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E: tail + Q: length [assayed by] measurement of tail length by ruler [unit] cm



Currently in use in EuroPhenome DB



# Bahaviour - The Missing E

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- We don't have a behavioural ontology for the laboratory mouse
- How do we make one?
  - *Terms*
    - *Need a non-redundant set of terms commonly understood by the community*
  - *Relationships*
    - *Is\_a, part\_of...others?*
  - *Structure*
    - *Hierarchy should reflect our understanding of the field*
    - *Should also assist with computation*
    - *The most difficult part*





# The Plan

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- Form groups of 2-3
- 20 mins
  - Make lists of terms
  - Think about relationships
  - Think about structure
- Remaining 20 mins
  - Groups report back
  - We can try to construct a draft ontology

