



An International Centre for Mouse Genetics



Mammalian Genetics Unit

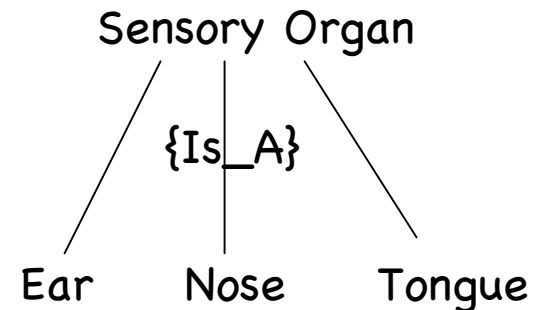
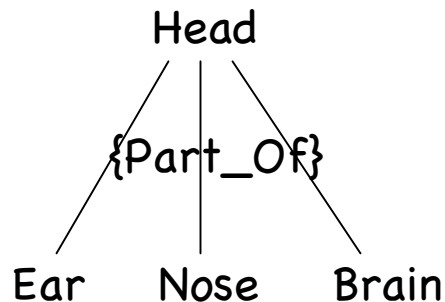
Towards A Behaviour Ontology

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What is an Ontology?

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

- 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



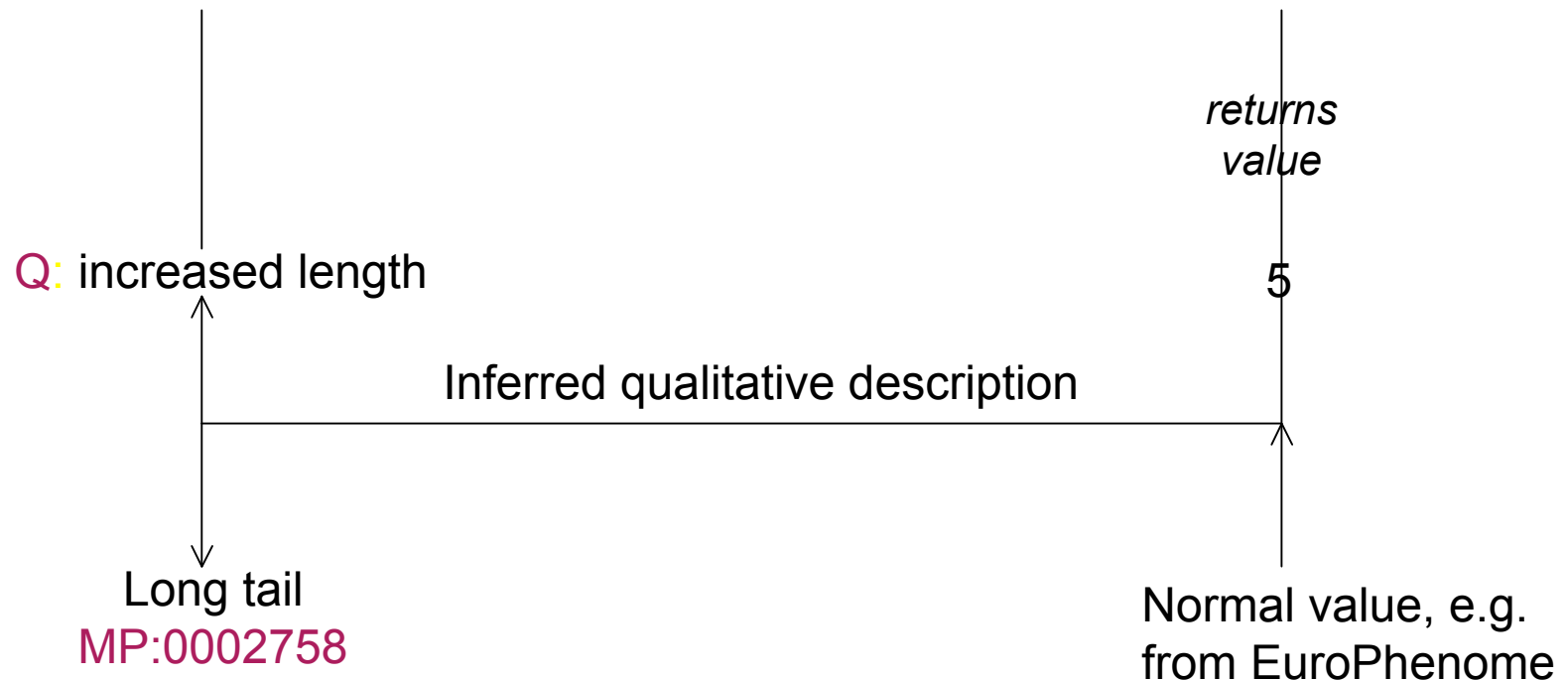
The Alternative - EQ & PATO

- 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

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



Currently in use in EuroPhenome DB



Bahaviour - The Missing E

- 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

- 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

