Evaluating Human-Robot Interaction with Ethology

For each behavior: 4 questions

« On aims and methods of Ethology »
by Niko Tinbergen (1963)

Function

How does the behavior affect the chances of survival and reproduction?

Why does the animal respond that way instead of some other way?

Development

How does the behavior change with age?

What early experiences are necessary for the animal to display the behavior?

Causation

What are the stimuli that elicit the response?

How has it been modified by recent learning?

Evolutionary history

How does the behavior compare with similar behavior in related species?

How might it have begun through the process of phylogeny?

Human is an animal species!

Robot could be considered as an animal species!

Scientific and objective study of animal behavior

Based on non-participative observation

Usually with a focus on behavior under natural conditions

Clear description of behavior units

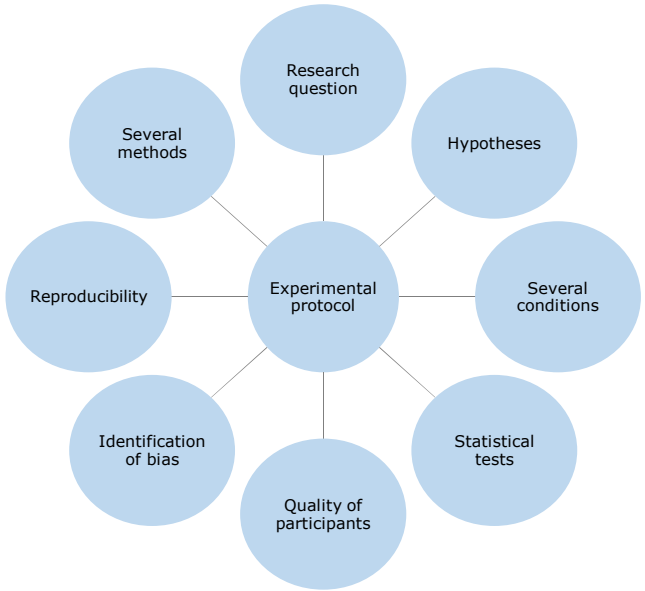
Viewing behavior as an evolutionarily adaptive trait

Different sampling methods to quantify behaviors

Ethology = Ethos + logos

study of behavior *behavior* *science*

Designing an evaluation



Methods

Questionnaire
Interview
Physiological measure
Observation
Performance measure
Data from computer
...

Biases

Laboratory or reality
WoZ or autonomy
Enough participants
Adapted statistics
A few variations between conditions
...

IEEE RO-MAN 2016 – Céline Jost, Brigitte Le Pévédic, Tony Belpaeme, Marine Grandgeorge