

# 1. Modelling

## 1.1 Overview

A. What is a model?

B. What is a good model?

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**B. What is a good model?**

**A. A model:**

- a simplified picture of a part of the real world.
- has some of the real world's attributes, but not all.
- a picture simpler than reality.

**We construct models in order to explain and understand.**

## ***Three Rules of Thumb for Model Building:***

- Think “process”.
- Develop interesting implications.
- Look for generality.

**Judge models using: truth, beauty, justice.**

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**Example: The firm —**

***Prices, Costs, and Values* → *Profits***

**We use verbal, graphical, and algebraic models of how consumers, firms, and markets work.**

**We assume rationality: that economic actors (consumers and firms) will not consistently behave in their worst interests.**

**Not a predictive model of how individuals act, but robust in aggregate.**

## 1.2 Modelling

**Speculations about human behaviour/social and organisation interactions.**

**Explore the arts of**

- **developing**
- **elaborating**
- **contemplating**
- **testing**
- **revising**

**models of behaviour.**

## What is a model?

- We can have several models of the same thing, depending on which aspects we want to emphasise, how we will use the model.
- Models are constructs to explain and appreciate the real world.

**So ...**

**Need *skills* of:**

- *abstracting* from reality
- squeezing *implications* out
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**We can produce more complex behaviour than we are capable of understanding:**

**the behaviour of a baby baffles a psychologist (and vice versa)**

**If we cannot understand individual behaviour, then how are we to understand systemic/social/bureaucratic behaviour?**

## **Six familiar models in the social sciences:**

- **individual choice under uncertainty**
- **exchange**
- **adaptation**
- **diffusion**
- **transition**
- **demography**

**Each is treated by March & Lave.**

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— from the model: “If the speculated process is correct, what else would it imply?”
4. Are these *true*? If not, speculate on other models/processes.

## ***Case 1: Contact and Friendship.***

**Why are some people friends and not others?**

**e.g. In a hall of residence,  
lists of friends**

**Observe: friends live close together.**

**Process?**

*What is a possible process that might produce the observed result?*



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**observe this? yes.**

## Generalisation

*We want to include earlier predictions but find a more general model that predicts new behaviours as well, more widely.*

**Can we generalise this?**

- **beyond the university?**
- **communication → friendship?**
- **enemies as well as friends?**

## ***Case 2: Responsibility Changes***

**If, in a committee, people in authority tend to moderate their beliefs and actions as a result of confrontation with the actual consequences of their beliefs and of exposure to alternative ideas, then**

- politically good to include “extremists”**
  - seen to represent faction**
  - moderate own views**



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(1) ⇒ less forgetful with graduate students/research assistants
3. Generalise: busy people forget things

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Ordinarily, the more situations a model applies to, the better it is and the greater the variety of possible implications.

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### Beauty:

- Simplicity, or parsimony
- Fertility (many predictions/assumptions)
- Surprise!

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**A Surprise —**

**→ for society: more girls than boys,**

**but —**

**for most couples: more sons than daughters.**

**Truth:**

- **correct (or more correct) models**
- **requires clever, responsible detective work to find the truth**  
**(aim for objectivity, but face subjectivity if it exists)**
- **test derivatives, not assumptions**
- **predicting is not equivalent to understanding, necessarily**

## **Beware Circular Models:**

- a. “when the rain-dance ceremony is properly performed, and all the participants have pure hearts, then it will rain” — testable?**
- b. “people pursue their own self-interest”  
— don’t predict values from behaviour and then predict the same behaviour from the values just derived.**
- c. Monty Python’s “the man who claims he can send bricks to sleep”**

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### ***4. The Case of the Stupid Question***

**e.g. “a surfer asked a stupid question in class”**

**Speculations:**

## ***Critical Experiments:***

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## ***4. The Case of the Stupid Question***

**e.g. “a surfer asked a stupid question in class”**

**Speculations:**

- A. not enough time to study**
- B. success on the board is sufficient for her**
- C. jealous of her prowess at surfing, the rest of us look down on her classroom performance and interpret her questions as “stupid”**

## How do the Implications Differ?

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<b>Q3: will athletes who don't look like athletes ask stupid questions?</b>	<b>yes</b>	<b>yes</b>	<b>no</b>

## ***The Importance Of Being Wrong***

- evaluate rather than defend (avoid “falling in love” with your model)**
- delight in finding fault — be skeptical and playful**
- always think of alternative models**