

Ethics in modelling

Alec Morton

University of Strathclyde

Overview

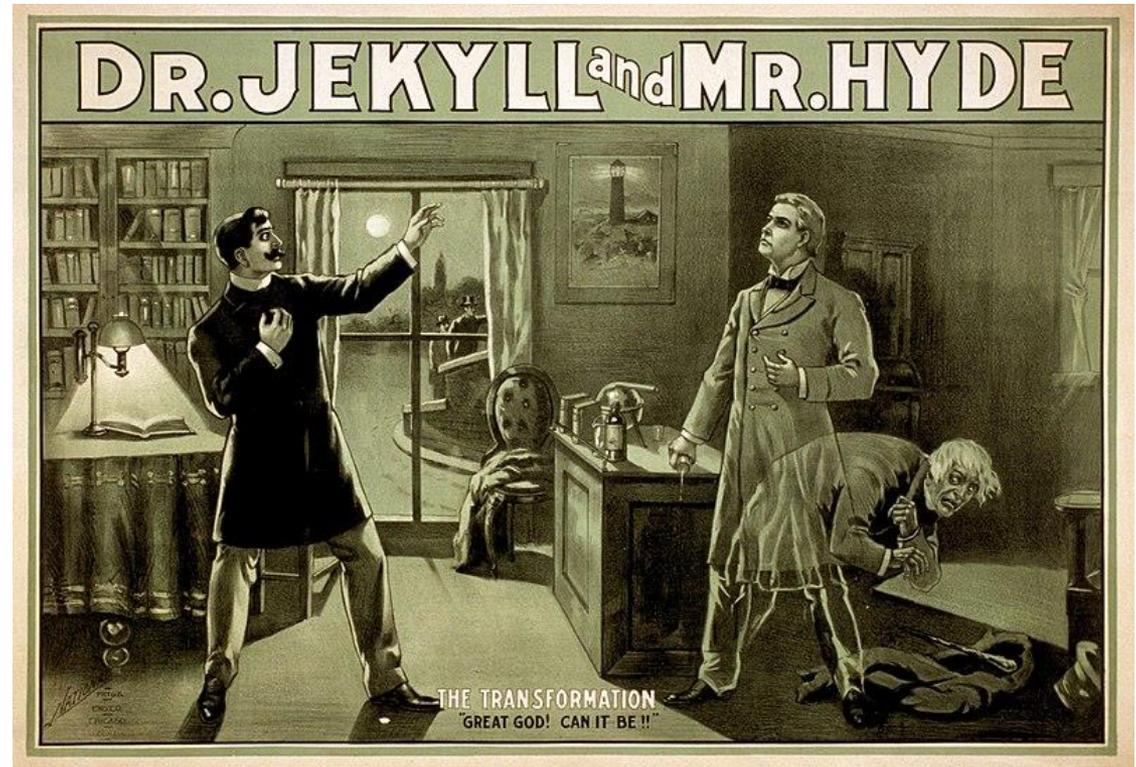
- Why ethics of modelling?
- Substantive fairness
- Procedural fairness

Overview

- **Why ethics of modelling?**
- Substantive fairness
- Procedural fairness

Why study ethics of modelling?

- NOT to make you a better person
- But to support ethical reasoning
 - (assuming you care about being ethical in the first place)



Wikipedia, licensed under Creative Common
https://en.wikipedia.org/wiki/File:Dr_Jekyll_and_Mr_Hyde_poster_edit2.jpg

Brans, J. P. (2002). "OR, Ethics and Decisions:
the OATH of PROMETHEUS." European
Journal of Operational Research **140(2):
191-196.**

The OATH of PROMETHEUS

As an OR researcher, I request the widest possible freedom to collaborate with my colleagues and to investigate without any limits all ideas, all techniques and all methods in any field. However, I shall always keep in mind that the results of my research could possibly be used for Human purposes.

As an OR teacher, I commit myself:

- to transmit honestly my knowledge and my know-how;
- to respect my colleagues and to collaborate with them in a spirit of dialogue;
- to discuss with my students the consequences of the possible decisions proposed by OR models.

As a decision-maker, I commit myself to take into account not only my own objectives but also the social, economic and ecological dimensions of the problems.

As a consultant or an analyst, I commit myself to convincing the decision-makers to adopt a fair ethical behaviour and to assisting them to meet their goals within the limits of sustainable development. I will feel myself free to refuse to provide information or tools, which in my opinion, could bring into danger the social welfare of mankind and the ecological future of Earth



1. Society

... we aspire to be:

- **Accountable** for our professional actions and the impact of our work.
- **Forthcoming** about our assumptions, interests, sponsors, motivations, limitations, and potential conflicts of interest.
- **Honest** in reporting our results, even when they fail to yield the desired outcome.
- **Objective** in our assessments of facts, irrespective of our opinions or beliefs.
- **Respectful** of the viewpoints and the values of others.
- **Responsible** for undertaking research and projects that provide positive benefits by advancing our scientific understanding, contributing to organizational improvements, and supporting social good.

2. Our Organizations

...we aspire to be:

- **Accurate** in our assertions, reports, and presentations.
- **Alert** to possible unintended or negative consequences that our results and recommendations may have on others.
- **Informed** of advances and developments in the fields relevant to our work.
- **Questioning** of whether there are more effective and efficient ways to reach a goal.
- **Realistic** in our claims of achievable results, and in acknowledging when the best course of action may be to terminate a project.
- **Rigorous** by adhering to proper professional practices in the development and reporting of our work.

3. The Profession

...we aspire to be:

- **Cooperative** by sharing best practices, information, and ideas with colleagues, young professionals, and students.
- **Impartial** in our praise or criticism of others and their accomplishments, setting aside personal interests.
- **Inclusive** of all colleagues, and rejecting discrimination and harassment in any form.
- **Tolerant** of well-conducted research and well-reasoned results, which may differ from our own findings or opinions.
- **Truthful** in providing attribution when our work draws from the ideas of others.
- **Vigilant** by speaking out against actions that are damaging to the profession.

2.1 Accuracy and Rigour

Professional Operational Researchers have a duty to ensure that they acquire and use wisely and faithfully the knowledge that is relevant to the analytic skills needed in their work in the service of others.

...

2.2 Honesty and Integrity

Professional Operational Researchers should adopt the highest standards of professional conduct, openness, fairness and honesty.

...

2.3 Respect for Life, Law and the Public Good

Professional Operational Researchers should give due weight to all relevant law, facts and published guidance, and the wider public interest.

...

2.4 Responsible Leadership: Listening and Informing

Professional Operational Researchers should aspire to high standards of leadership in the application of their skills, knowledge and expertise.

My view: ethics is about dilemmas

1. Protagonist is asked, at short notice, to perform an evaluation of the quality of the output produced by a certain a facility, to feed into a Board-level decision about whether the facility will continue to be operated. There is very little data available on which to base an evaluation, for reasons which are understandable but unfortunate. Is it ethical to provide a report which concludes along the lines of “To best of our knowledge, there are no major quality problems”?

My view: ethics is about dilemmas

1. Protagonist is asked, at short notice, to perform an evaluation of the quality of the output produced by a certain a facility, to feed into a Board-level decision about whether the facility will continue to be operated. There is very little data available on which to base an evaluation, for reasons which are understandable but unfortunate. Is it ethical to provide a report which concludes along the lines of “To best of our knowledge, there are no major quality problems”?

2. Protagonist is asked to perform an analysis on whether a social programme is effective in achieving its goals. The headline finding is that the programme is not effective. On his own initiative, Protagonist does some subgroup analysis and finds out that while ineffective at the population level, the programme is effective for some particular vulnerable subgroup. Protagonist thinks this is important and includes this in his report but it is not in the client’s press release summary of findings. Is there anything Protagonist should do? What?

My view: ethics is about dilemmas

1. Protagonist is asked, at short notice, to perform an evaluation of the quality of the output produced by a certain a facility, to feed into a Board-level decision about whether the facility will continue to be operated. There is very little data available on which to base an evaluation, for reasons which are understandable but unfortunate. Is it ethical to provide a report which concludes along the lines of “To best of our knowledge, there are no major quality problems”?
2. Protagonist is asked to perform an analysis on whether a social programme is effective in achieving its goals. The headline finding is that the programme is not effective. On his own initiative, Protagonist does some subgroup analysis and finds out that while ineffective at the population level, the programme is effective for some particular vulnerable subgroup. Protagonist thinks this is important and includes this in his report but it is not in the client’s press release summary of findings. Is there anything Protagonist should do? What?
3. The budget for a social programme for needy individuals is based on a particular dataset. Protagonist becomes aware that the data in question is unreliable, perhaps fabricated. The responsible official does not seem to regard this as a matter of priority. Highlighting the data problems publicly would strengthen the hand of political forces who would wish to terminate the social programme. Should Protagonist say anything? What, and to whom?

Overview

- Why ethics of modelling?
- **Substantive fairness**
- Procedural fairness

Share this page

Sector(s): [Welfare, Pensions and Employment](#)

Minimising the cost of administrative errors in the benefit system

DWP has not reduced the mistakes made by staff processing benefits. In 2009-10 it overpaid an estimated £1.1 billion and made underpayments of £500 million. However, the scale of the challenge facing the Department should not be underestimated.

"The Department is clearly committed to reducing the cost of administrative error and it is frustrating that there has been no discernible reduction since 2007. Progress will depend on developing a better understanding of the costs and benefits of different interventions, so that they can be targeted more effectively and are able to achieve a significant reduction in the cost of administrative error."

Amyas Morse, head of the National Audit Office

A report today by the NAO has highlighted that the Department for Work and Pensions has not reduced the mistakes made by its staff in processing benefits. In 2009-10, it overpaid its customers by an estimated £1.1 billion and made underpayments of £500 million.

However, the scale of the challenge faced by the Department should not be underestimated. The benefits system is large, encompassing over 27 different benefits and a total caseload of around 20 million people. The scale of this task increases further when changes in family circumstances and financial conditions are also taken into account. Mistakes occur when processing such a large volume of payments.

In addition, the Department has had to respond to the recent recession in which Jobseekers Allowance caseload almost doubled between 2008 and 2009. To date there does not appear to any discernible deterioration in performance, which may represent progress.

The report notes that the Government's recent announcement of the introduction of Universal Credit is an opportunity to simplify many of the regulations, but such changes will take a long time to implement.

Downloads

[Full report \(pdf - 597KB\)](#)[Executive summary \(pdf - 97KB\)](#)[Press Release](#)

Related Publications

- [Universal Credit: early progress](#)
(Sep 2013)
- [Child Maintenance and Enforcement Commission Client Funds Account 2011-12](#)
(Dec 2012)

Sector(s): [Welfare, Pensions and Employment](#)
 Department(s): [Department for Work and Pensions](#)



Investigation into overpayments of Carer's Allowance

Background to the report

The Department for Work & Pensions (the Department) pays £66.15 a week in Carer's Allowance to people who earn less than £123 a week and provide at least 35 hours of care a week to someone who receives a qualifying disability benefit. In 2017-18, the Department paid £2.9 billion in Carer's Allowance to 826,000 carers. The number of people in receipt of Carer's Allowance has increased by 50% since 2010-11, in part due to the growth in the number of people receiving qualifying benefits, such as Personal Independence Payment.

The Department sometimes overpays or underpays Carer's Allowance, so the claimant receives more or less than they are entitled to. This can be due to claimant fraud or error, or error by the Department, known as official error. The Department detected 93,000 overpayments in 2018-19 compared with an average of 41,000 a year detected in the previous five years.

The NAO undertook this investigation because Members of Parliament have expressed concerns about the level of Carer's Allowance overpayments and the impact on claimants of the Department's attempts to recover them.

Content and scope of the report

This investigation examines both the concerns about the recent increase in identified errors and attempts to recover overpayments, and how the Department has managed fraud and error in Carer's Allowance over time. It sets out:

- the recent increase in detected overpayments and how the Department is attempting to recover overpayments (Part One);
- the Department's understanding of the causes of overpayments in Carer's Allowance (Part Two); and
- the Department's progress in improving detection and prevention of overpayments (Part Three).

Publication details:

ISBN: 9781786042569 [[Buy a hard copy of this report](#)]
 HC: 2103, 2017-19
 Published date: April 26, 2019

Downloads

-  [Investigation-into-overpayments-of-Carer's-Allowance \(pdf - 835KB\)](#)
-  [Investigation-into-overpayments-of-Carer's-Allowance-Summary \(pdf - 71KB\)](#)
-  [Investigation-into-overpayments-Carer's-Allowance-HC2103-NAO \(epub - 4502KB\)](#)
-  [Press Release](#)

Report Images

Full details of these images can be found in the report. Click on the thumbnails to share on social media.



Substantive fairness in modelling

- Who should get priority for medical treatment?
 - The 25 year old struck down by illness at a young age
 - The 65 year old who has worked hard all her life
 - The 45 year old whose job has exposed them to toxic chemicals

Horizontal versus vertical equity

- Horizontal equity
 - Like treatment of likes
- Vertical equity
 - Unlike treatment of unlikes
- But what is like and what is unlike?

For discussion

- You are designing a crew scheduling system for an airline. The company hopes to use the crew scheduling system to reduce cost. The scheduling has to respect industry rules about minimum rest times. Payments to staff consist of a fixed base salary, trip pay (based on number of trips), sales commission and subsistence pay when staying away from homebase.
- What might be important in coming up with fair schedules?

- Staff preferences
- Age
- Family commitments
- Seniority
- Friendship

Equality of what?

- “Every normative theory of social arrangement that has at all stood the test of time seems to demand equality of something” – Amartya Sen
- Equality of
 - Money?
 - Money – effort?
 - Happiness?
 - Satisfaction of needs?
 - Opportunity?

Overview

- Why ethics of modelling?
- Substantive fairness
- **Procedural fairness**

Accountability for reasonableness

- “Key elements of fair process will involve
 - transparency about the grounds for decisions;
 - appeals to rationales that all can accept as relevant...;
 - and procedures for revising decisions in light of challenges to them.”
- Norman Daniels

For discussion

- Imagine... It is 2035 and your university announces that all PhD dissertations will now be assessed by AIs to cut down on the workload of busy professors... How do you feel?

How would you feel if the AI could keep you in jail?

- <https://advances.sciencemag.org/content/4/1/eaao5580.full>
- <https://arxiv.org/pdf/1811.00731.pdf>
- <https://journals.sagepub.com/doi/pdf/10.1177/0093854808326545>

Transparency as an essential attribute of good procedure

- “Transparency to whom?”
 - “Upwards” or “downwards” (D Heald)
- Transparency of what?
 - provenance of the data
 - structure of the model
 - sensitivity of modelling outputs to uncertainty

Reprise: why ethics?

- Volunteers!

- I offer A £10 (=1000p) on condition X^*
- A offers B part of that £10
- B accepts or rejects A's offer

- I offer A £10 (=1000p) on condition X^*
- A offers B part of that £10
- B accepts or rejects A's offer

* B accepts A's offer

Conclusion

- Who decides what is ethical?
 1. Your teacher
 2. Your boss
 3. The government
 4. Your religious or spiritual adviser
 5. You