

What is this?

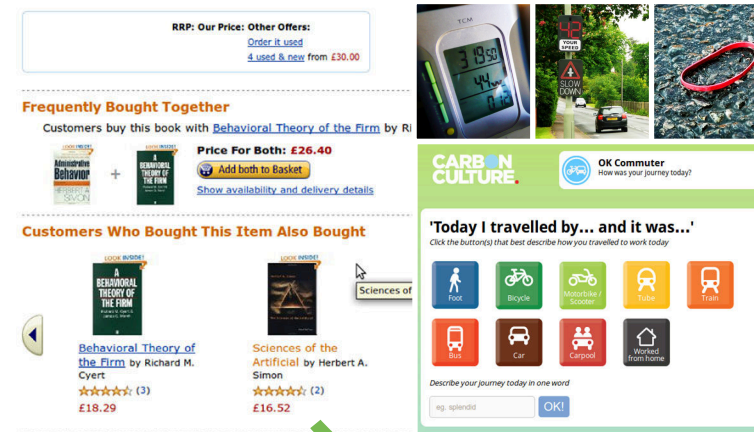
Behavioural decomposition is a way of modelling and understanding users' choices as they interact with a system, in a way which could be useful when designing new systems.

When designing with the aim of influencing users' behaviour, designers inevitably make assumptions about how users will act and respond to products, services and environments as they interact with them.

The aim of behavioural decomposition is to help understand some of those assumptions by gently pulling them apart, to give us 'rules' which can be built up into possible specifications, better matching the choices users make.

This is a new approach, still being developed, and is not yet validated, but it is hoped that it could become a useful part of a future version of the Design with Intent toolkit.

Start with an existing system



Ask: What are the assumptions?

List assumptions that if true, would explain how the system 'works' at influencing users' behaviour.

So, taking the example here of Amazon's recommendation system, we could have:

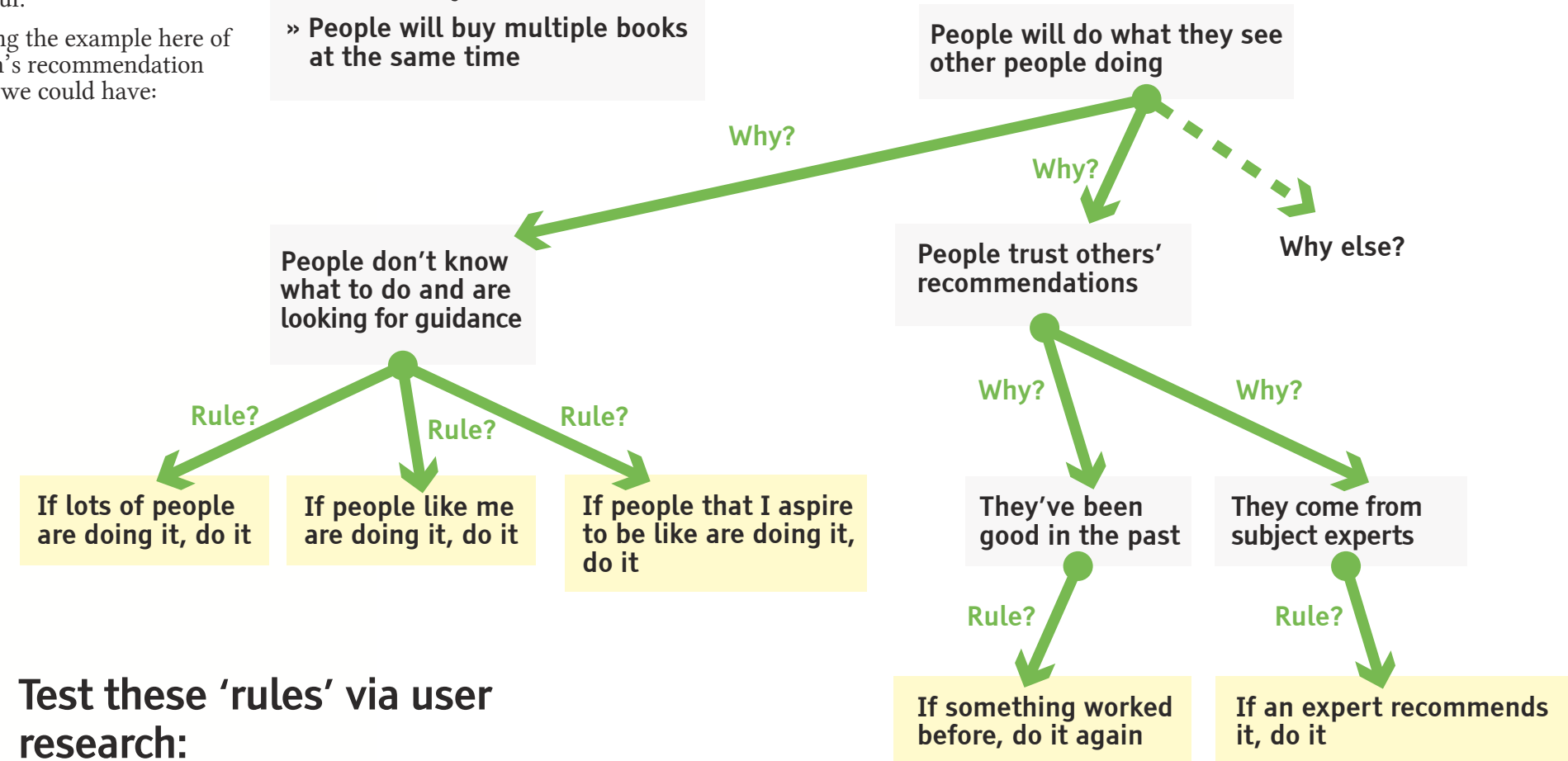
- » People will do what they see other people doing
- » People want to learn more about a subject
- » People will buy multiple books at the same time

For each assumption, ask: **Why?**
... iterate if needed
... then ask:
What rules are being followed for each choice being made?

There's likely to be more than one possible answer as to 'why' people would behave as the assumptions assume, and the aim isn't to be exhaustive, but to start a process of teasing apart some of the nuances of the behaviours involved. Not all the assumptions will be important; you can prioritise.

A bit like the 'Five Whys' technique originally developed by Toyota for understanding the root causes of defects, this is a kind of *possible* root cause analysis for behaviour.

The aim is to get to a stage where you can formulate a 'rule', algorithm or heuristic which is being followed for each kind of choice that a user is making.



Test these 'rules' via user research:

Can you segment your users by which rules they follow?

Can you create 'behavioural personas' based on rules?

Each of the rules suggests possible design solutions, which ought to help inspire possible ways of addressing problems analysed in this way. For example, if research shows that a segment of your users follow an 'expert recommendation' rule, make use of this via features which highlight the expertise behind the recommendations you give.

The rules are not necessarily a one-to-one mapping with the Design with Intent patterns at present, but they could be in the future.

Going further

If you're interested in this kind of approach to understanding and influencing behaviour, see also work by Dean Eckles, Maurits Kaptein and Arjan Haring on 'persuasion profiling' (persuasionapi.com) and Dan Goldstein and Gerd Gigerenzer's work on 'fast and frugal heuristics' (dangoldstein.com). I will be continuing to develop the behavioural decomposition idea and incorporating it into future versions of the Design with Intent toolkit.

Behaviour decomposition

An approach to modelling users' choices

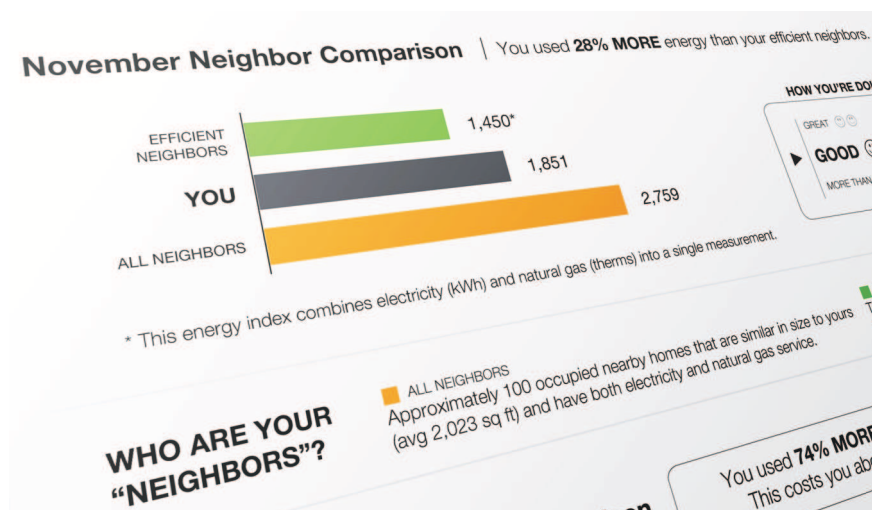
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Example: Home energy



OPOWER offers a service to electricity and gas suppliers where customers receive 'Home Energy Reports' featuring comparisons with the average energy used by neighbours (with similar size homes) and by the most efficient comparable neighbours.

The bills then suggest improvements that customers can make in order to improve their performance. Note that the focus of the graphics isn't financial. The energy quantities given are *normative*—comparisons with a customer's 'peer group'.

The graphs are paired with a smiley face or two, giving an alternative way of interpreting performance—shying away from criticism, only neutral or positive terms are used (and no sad faces).

A 2011 randomised controlled trial based on 600,000 households in the US, reported by Hunt Allcott (MIT / NYU), found an average 2% reduction in energy use among households receiving the OPOWER reports.

Example: Learning to code

The screenshot shows the Codecademy website. At the top is a navigation bar with links for Courses, Jobs, Profile, Edit Account, and Sign Out. The main header reads 'Getting Started with Programming » Section 8'. Below this is a progress bar with steps 1 through 8, where step 3 is highlighted. The section title is 'While You Wait'. On the left, there are three numbered steps: 1. Keep It Going, 2. Take a While, and 3. Not So Fast. Step 3 is currently selected. Below the steps, there is explanatory text about the 'while' loop condition and a prompt to 'Run this code now to see that "the loop ran" is never logged to the console.' To the right of the text is a code editor with the following JavaScript code:

```
1 var times = 0;
2 while (times > 0 && times < 3) {
3   console.log("the loop ran");
4   times++;
5 }
```

Below the code editor are buttons for 'Run', 'Reset', 'Versions', a timestamp '11:14:25 pm', and a 'Save' button. At the bottom of the code editor, there are two yellow feedback boxes, each containing the text 'That's correct! Next Exercise'. At the very bottom of the screenshot, there is a 'Send feedback' link with thumbs up and down icons.

Codecademy offers interactive tutorials in Javascript, using a range of design techniques to encourage participants to sign up and remain motivated and engaged. There is gamification in terms of badges and points, but as Sebastian Deterding notes, it's not the main focus of the user experience: instead, rapid feedback and the way that progress is structured which maintains engagement.

As part of the Code Year initiative (which received 300,000 sign-ups in the first week), other mechanisms come into play, including commitment & consistency and social proof as participants share their commitment.

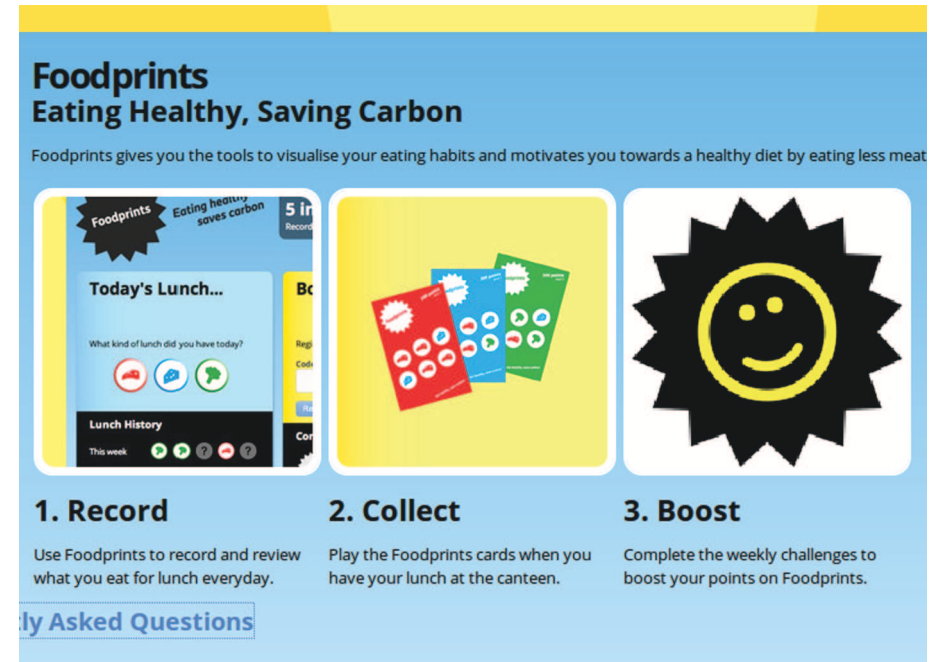
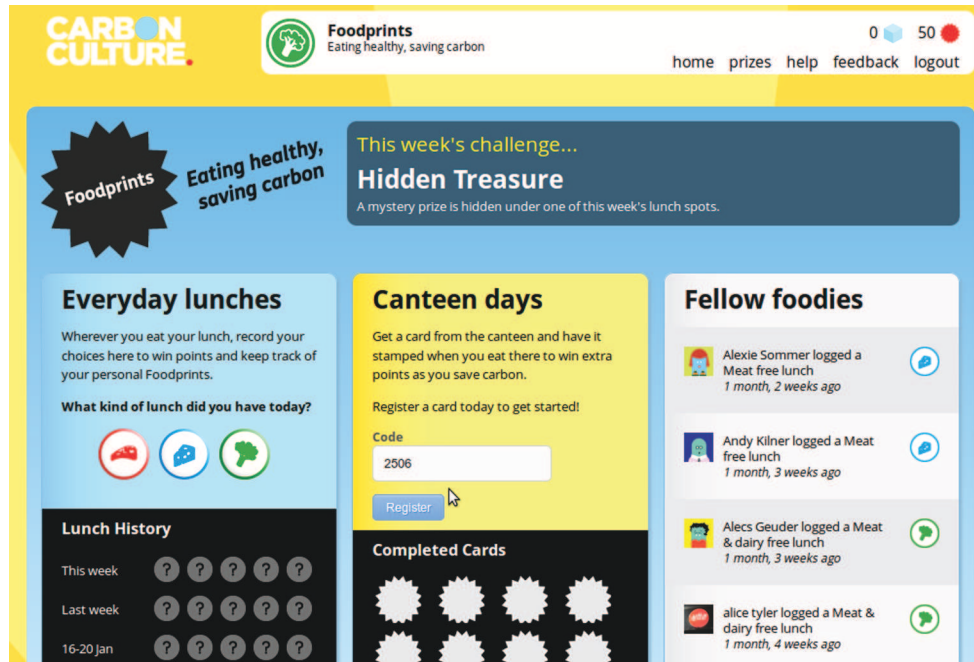


This section shows a user profile for 'whatever@whatever.com' with a score of 160, 17 points, and 2 trophies. Below the profile is a section titled 'Achievements 2' with a '2' in a circle. To the right, a dark box says 'Achievements completed'. Below this are two circular achievement icons: one with a '1st' badge and another with the number '10'.

A tweet from @dingstweets (Sebastian Deterding) dated 11 Jan via web. The text of the tweet is: 'I think @Codecademy is really, really nailing it: real action-feedback loop + structured flow; badges/points are accidental. #gamification'. The tweet has 11 Jan via web, Favorite, Retweet, and Reply icons.

The banner features the 'Code Year 17' logo. The main text reads: 'There's still time! Learn to code in 2012.' Below this, it states: '375,021 people are learning to code this year. Why not you?'. At the bottom, there is a sign-up prompt: 'Sign up for Code Year to start receiving a new interactive programming lesson every Monday. You'll be building apps and websites before you know it!'. Below the prompt is an email input field and a red 'Start learning!' button.

Example: Sustainable food



Foodprints (by More Associates) combines a web app / dashboard and physical loyalty cards and stamps in company canteens to help staff reduce their meat and dairy intake, for both environmental (carbon footprint) and health reasons.

The app uses some gamification elements (points, 'hidden treasure', etc) and a 'social proof' ticker showing the meals that colleagues have recorded. The points contribute towards winning prizes, though not in competition with other users.

