



2018

## Old rope: Laing's knots and Bateson's double binds in systemic design

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RSD 7, Torino

Dan Lockton  
@danlockton

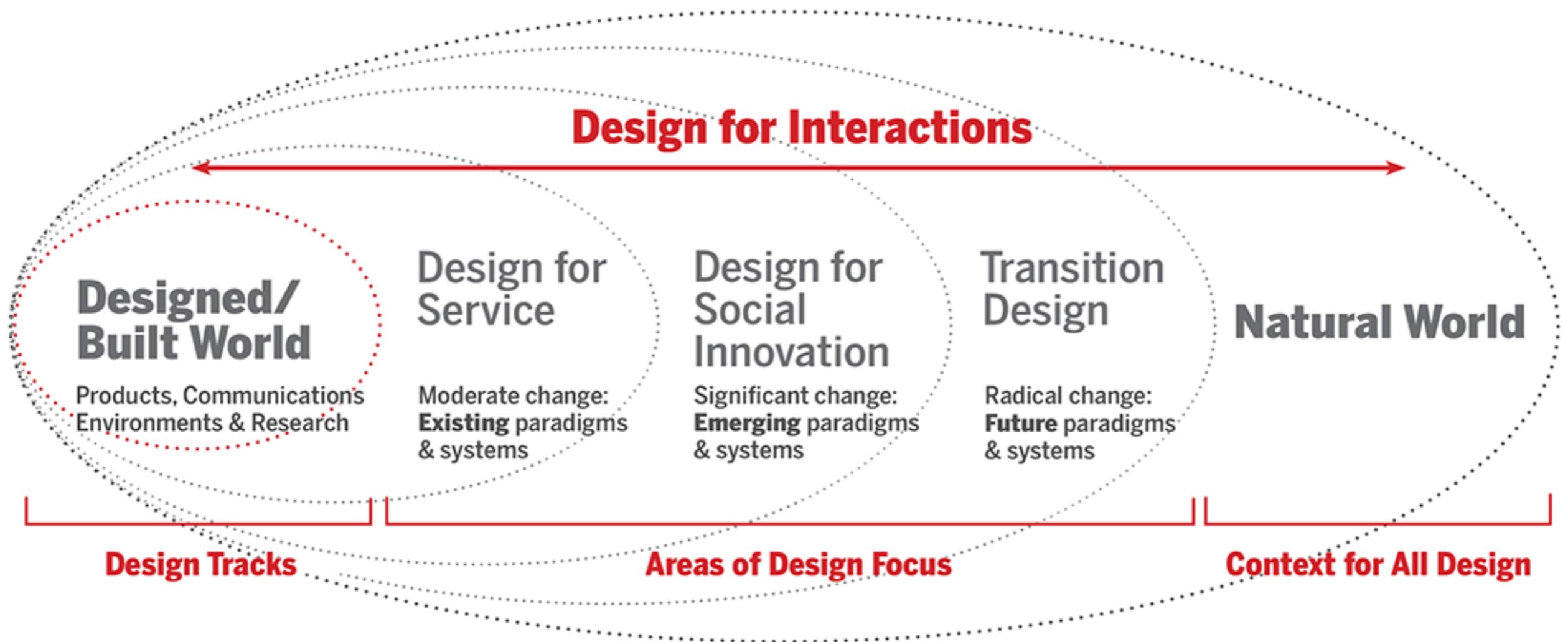
imaginaries lab  
Carnegie Mellon

# Old Rope: Laing's Knots and Bateson's Double Binds in Systemic Design



Carnegie Mellon School of Design, Pittsburgh, Pennsylvania

## Design for Interactions





Royal College of Art, London



Brunel University, London

**Symmetry**

Can you use symmetry to make elements look related, or asymmetry to show difference and focus attention?

The symmetrical faces on this button, even without the text, suggest that it should be gripped with both hands simultaneously.

**Users' expectations or assumptions**

Can you control the reference points they have?

Red round buttons may use anchor items, prominently placed, higher priced items, among other factors, to suggest that they are easy to use.

**Choice editing**

Can you edit the choices presented to users so only the ones you want them to have are available?

Some cigarette tins are sold to authorities using the sliding top as a feature. Also, warning people to watch their step.

**Confirmation**

Can you add an extra 'confirmation' step before an action can be performed?

Some British Rail train doors require passengers to lower the window to get access to the seats, illustrated on the outside.

**Worry resolution**

Can you help users overcome worry about their behaviour (perhaps by helping them reduce feelings of guilt about their behaviour)?

Our coffee won't leave a bitter taste in your mouth. It's Fairtrade.

The average bath implies that one should feel bad about the ethics of coffee production, and offers an easy way to take away the guilt.

**Bundling**

Can you include something you want users to do, along with something they want to do, so both get done?

Cracking up pills or tablets in a special of several bottles can be a good way to get drugs to take medicine they would otherwise refuse.

**Challenges & targets**

What happens if you set people a challenge, or give them a target to reach through what they're doing?

Whenever you set a target for someone, even a bit about influencing people to donate generously and enjoy it.

**Choice editing**

Can you edit the choices presented to users so only the ones you want them to have are available?

Choice editing can be done by regulation, e.g. banned in car parks being phased out in the UK by 2020 (when this photo was taken).

**Coercive atmospherics**

Can you use ambient sensory effects (sound, light, smell, etc) to make it harder for users to behave in certain ways?

Blue lighting is used to some public toilets (e.g. bars, in Edinburgh) to discourage drug injection by making it difficult to see.

**Collections**

What happens if you encourage users to collect a set of things (friends, activities, places, objects, etc) through using your system?

Twitter's Explore encourages users to maintain a regular variety of content activities, in order to collect different types of power.

**Colour associations**

Can you use colour to suggest associations between particular behaviours and outcomes?

This computer keyboard's keyboard has a vibrant language of color-coded groups of functions to aid rapid action-taking.

**Conditional warnings**

Can you give users warnings based on detecting the error they've made, or might be about to make?

The parking brake warning light on a car's dashboard is a warning that the driver shouldn't drive off without releasing the brake!

**Converging & diverging**

Can you channel people so they come together (or split up)?

Gates (and gateposts) channel visitors through a narrow opening, allowing a lot to be done, or to help control potential crowds.

**Decoys**

Can you add 'decoy' choices, making the others (which you want people to pick) look better in comparison?

Would you choose the \$79.99 option when the other two offer you a free gift AND save you slightly more money?

**Feedback through form**

Can you use the form of your object itself as a kind of interface, giving feedback or suggestive cues?

Real World's 100g/250g Baking Bowls are designed so they fit into public and public when the bowl is a useful when filling.

**Kairos**

Can you give users a suggestion at exactly the right moment for them to change their behaviour?

Automatic warning signs can also provide upcoming dangers at the right point for them to respond and drive more accordingly.

**Leave gaps to fill**

Can you leave deliberate gaps (in a design, message, etc) which users will want to fill, becoming engaged in the process?

Deliberate use of red links on Wikipedia, signifying articles which should be written, 'encourage' new contributors to useful direction.

**Matched affordances**

Can you make parts fit only when the right way round, or only with the products they should do?

The identical corner on ATM cash return cards and X-ray cards means that they can't be inserted the wrong way round.

**Mazes**

Can you get people to follow the path you want them to, on the way to reaching something they want?

Some store layouts make or channel shoppers past impulse purchase items—often snacks—on their way to the checkouts.

**Mimicry & mirroring**

Can your system mirror or mimic a user's behaviour or mood in some way, to increase the engagement a user feels?

Is also a Bingham psychologist, a semi-intelligent chat bot, or just a toy?

**Personality**

Can you give your system a personality or character that engages users, becoming a 'social actor'?

It's not just how they look (they're all yellow), but how they behave, making them more fun, lively and expressive characters.

**Poison pill**

Can you arrange things so that an otherwise attractive option has an unpleasant, self-defeating deterrent side-effect?

Security tags help reduce theft, but if removed, they're an unpleasant side-effect, so they're worth stealing the clothes.

**Positioning**

Can you rearrange things so people interact with them in the locations you want them to?

Positioning pedestrian crossing paths before paths on the right-hand side (RHS) makes it more likely that users turn to enter oncoming traffic.

**Progress bar**

Can you let users know their progress towards achieving a goal?

An alternative to examples from the web and the media, progress bars showing 'nearly complete' can make a goal seem more achievable.

**Sousveillance**

Can you give people 'lower down' a hierarchy the ability to observe and monitor the behaviour of people above them?

TheyWorkForYou allows the public to observe politicians' activities, which is a form of transparency leading to better accountability.

**Social proof**

Can you show people what other users like them are doing in this situation?

Customers who bought this item also bought...

**Summary feedback**

Can you give users a report on what they've been doing, or what they should do next?

Summary feedback can be used to help users understand their progress and what they should do next.

**Transparency**

Can you (perhaps selectively) reveal what's going on under the surface, or what's behind the scenes?

Transparency can be used to help users understand what's going on behind the scenes.

**Unpredictable reinforcement**

What happens if you give rewards or feedback on an unpredictable basis?

Unpredictable reinforcement can be used to keep users engaged and motivated.

**Worry resolution**

Can you help users overcome worry about their behaviour (perhaps by helping them reduce feelings of guilt about their behaviour)?

Worry resolution can be used to help users overcome their fears and concerns.



[designwithintent.co.uk](http://designwithintent.co.uk)

## Design with Intent toolkit

A cross-disciplinary design pattern library for behaviour change with products, services and environments; developed through workshops with industry and academia



**Design  
with  
Intent**

101 patterns for influencing  
behaviour through design

1-0

Obsolescência funcional

Diversidade

Reciprocidade

Proeminência

Ângulos

Você pode  
usuários  
que rece  
favor (p  
ou por  
usuário  
querer

Estes ca  
'grátis'  
buição  
pesso

O b  
con  
No t  
para

rot

A  
in  
pe

1.0

# Design com Intento

101 padrões para influenciar  
comportamentos através do design

Dan Lockton  
com  
David Harrison  
& Neville A. Stanton  
Tradução: Luis Oliveira

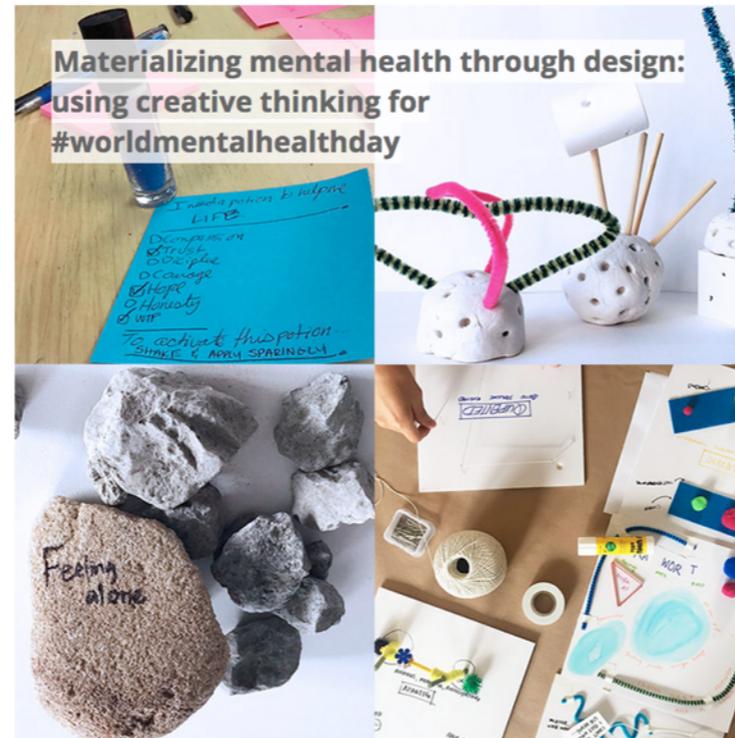


# imaginaries lab

Carnegie Mellon

We're a research studio using design methods to explore and support people's imagining—both new ways to understand, and new ways to live. →

imaginari.es

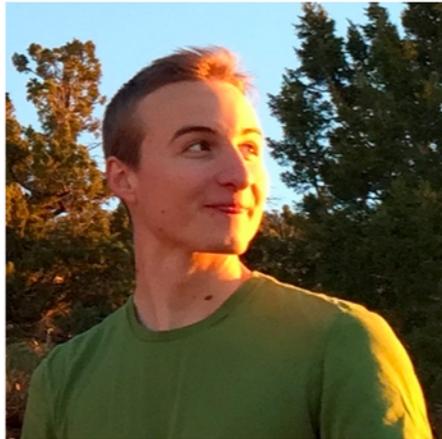


## Who we are

### Current Imaginaries Lab research team



[Devika Singh](#), Research Assistant  
2017-



[Gray Crawford](#), Research Assistant  
2018-; MDes thesis student



[Aadya Krishnaprasad](#), Research  
Assistant 2018-



[Rachel Gray Alexander](#), Research  
Assistant 2018-



[Michelle Chou](#), Research Assistant  
2018-



[Saloni Sabnis](#), Research Assistant  
2018-



[Dan Lockton](#), Assistant Professor



[Bella](#), Friend of the Lab

using design methods to  
understand  
how people  
understand

using design methods to  
help people  
understand  
in new ways

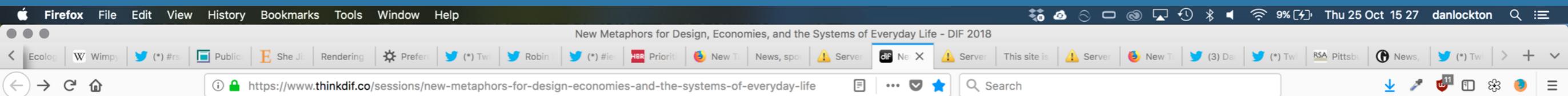
using design methods to  
help people  
imagine new  
ways of living

using design methods to  
enable people to change  
the behaviour of the  
systems they're in

# How can we create new metaphors to help people reframe or understand complex ideas?



# New Metaphors at the Ellen MacArthur Foundation Disruptive Innovation Festival (online), 9 Nov



6 - 23 Nov, 2018

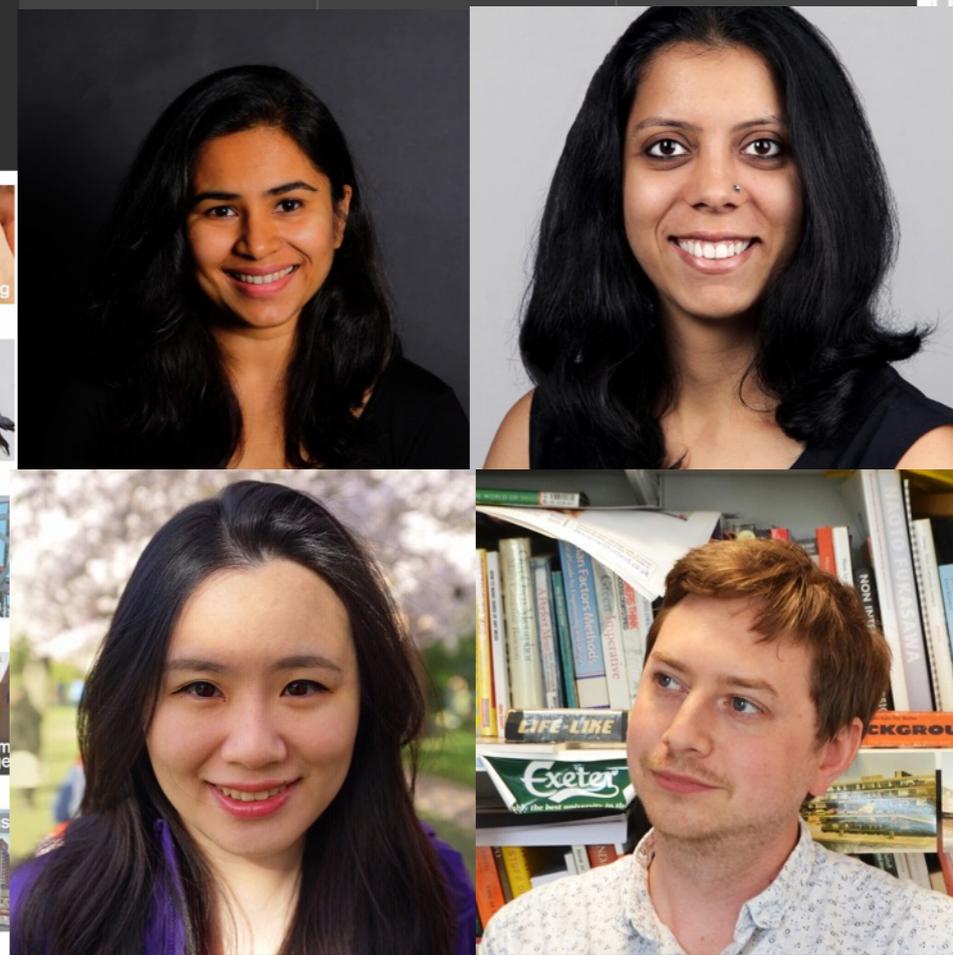
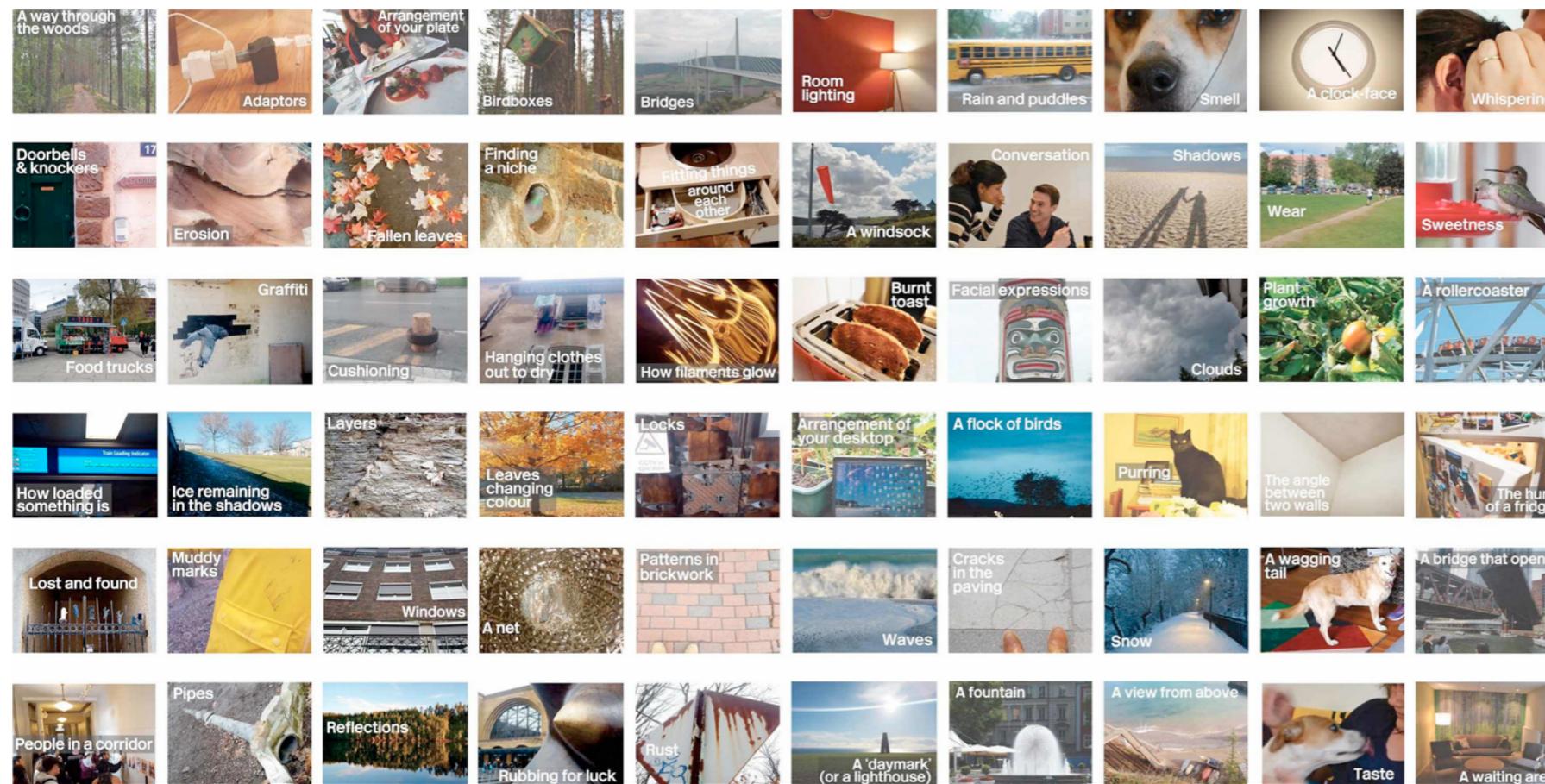
About Schedule Topics

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## DIF ON AIR New Metaphors for Design, Economies, and the Systems of Everyday Life

STARTS: 12:00 GMT ON 09 NOV



**Devika Singh, Saloni Sabnis, Michelle Chou, Dan Lockton**

Stay tuned! This DIF on Air session will be available here at the time and date specified above.

# How do people understand local government? (Systems mapping through story construction)





If you could see  
(and hear)  
electricity in  
different ways,  
would you  
understand it  
differently?

(New types of  
'qualitative'  
interface design)

Shengzhi Wu, Gray Crawford, Devika Singh,  
Dan Lockton (2018). 'Electric Acoustic'

# Can you use model landscapes to explore how you think about your own life? ('Personal' systems mapping using metaphors)

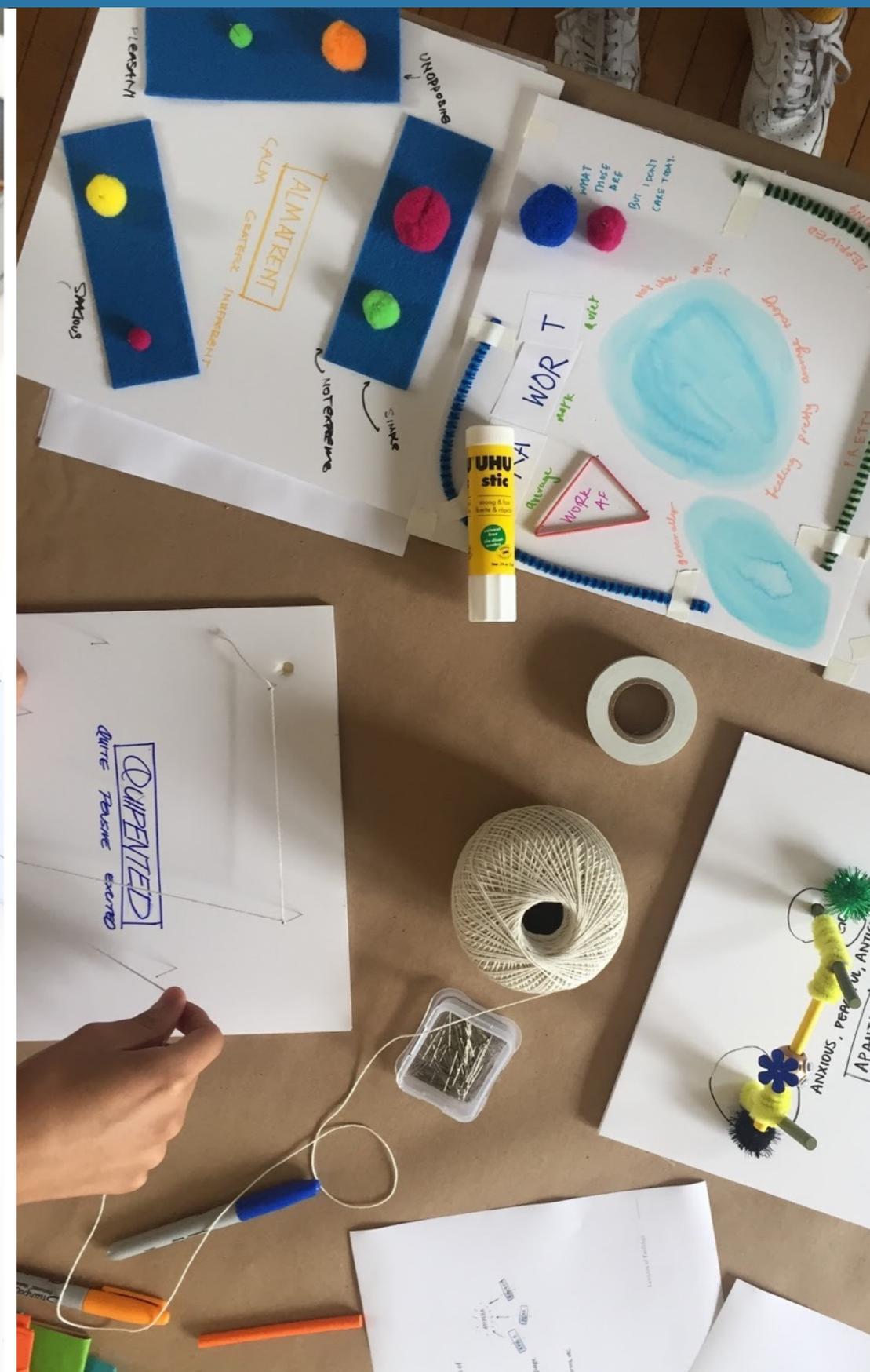


Delanie Ricketts & Dan Lockton (2019).  
Mental Landscapes: Externalizing Mental  
Models Through Metaphors,  
ACM Interactions, to appear

# How can we use design methods to enable people to materialise and share their own experiences of mental health?



Laura Rodriguez, Josh LeFevre,  
Nowell Kahle, Arden Wolf, Katie Herzog,  
Aisha Dev, Kailin Dong, Katie Glass,  
Nicole Jin, Soonho Kwon, Jessica Nip



**imaginaries**

**‘If [people] define situations as real, they are real in their consequences’**

William Thomas & Dorothy Swaine Thomas  
The Child In America, 1928

mental models

heuristics

folk theories

assumed cause & effect links

metaphors

stories

people often act  
on imaginaries

people often act on  
their models of the  
systems they're in

**artificial intelligence**

**automation**

**algorithmic decision-  
making**

**personal data and privacy**

**social media**

**'the Internet'**

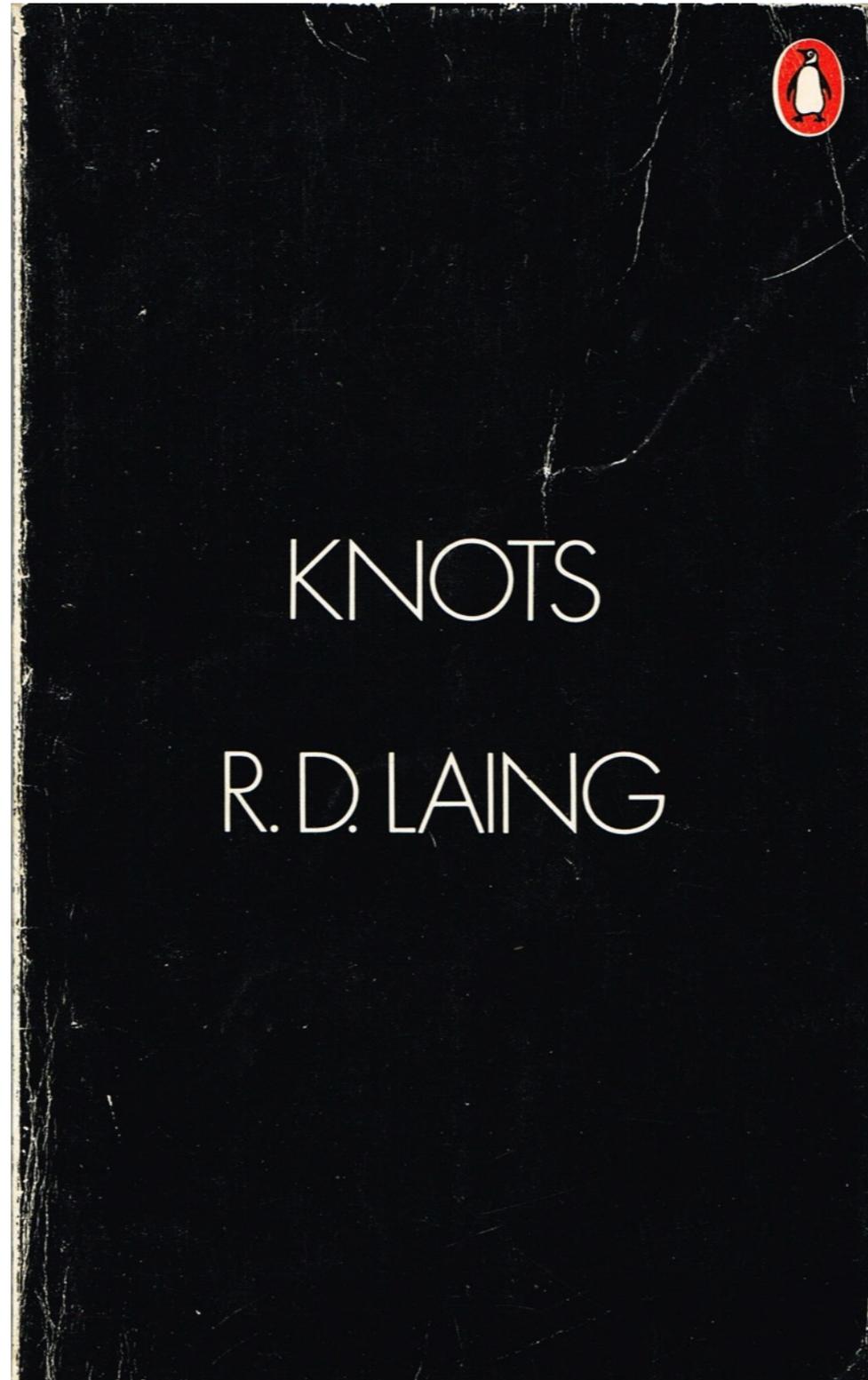
**public health  
climate change  
energy  
resources  
social equity  
the law  
the government  
the economy  
quality of life**

using design methods to  
understand  
how people  
understand

using design methods to  
help people  
understand  
in new ways

I

*They are playing a game. They are playing at not playing a game. If I show them I see they are, I shall break the rules and they will punish me. I must play their game, of not seeing I see the game.*



1970



R D Laing  
Photo: Daily Mail

I get what I deserve  
I deserve what I get.

I have it,  
*therefore* I deserve it

I deserve it  
*because* I have it.

You have not got it  
*therefore* you do not deserve it

You do not deserve it  
*because* you have not got it

You have not got it  
*because* you do not deserve it

You do not deserve it  
*therefore* you have not got it.

You are frightened of being boring, you  
try to be interesting by not being interested,  
but are interested only in not being boring.

You are not interested in me.  
You are only interested that I be interested in you.

You pretend to be bored  
because I am not interested  
that you are frightened  
that I am not frightened

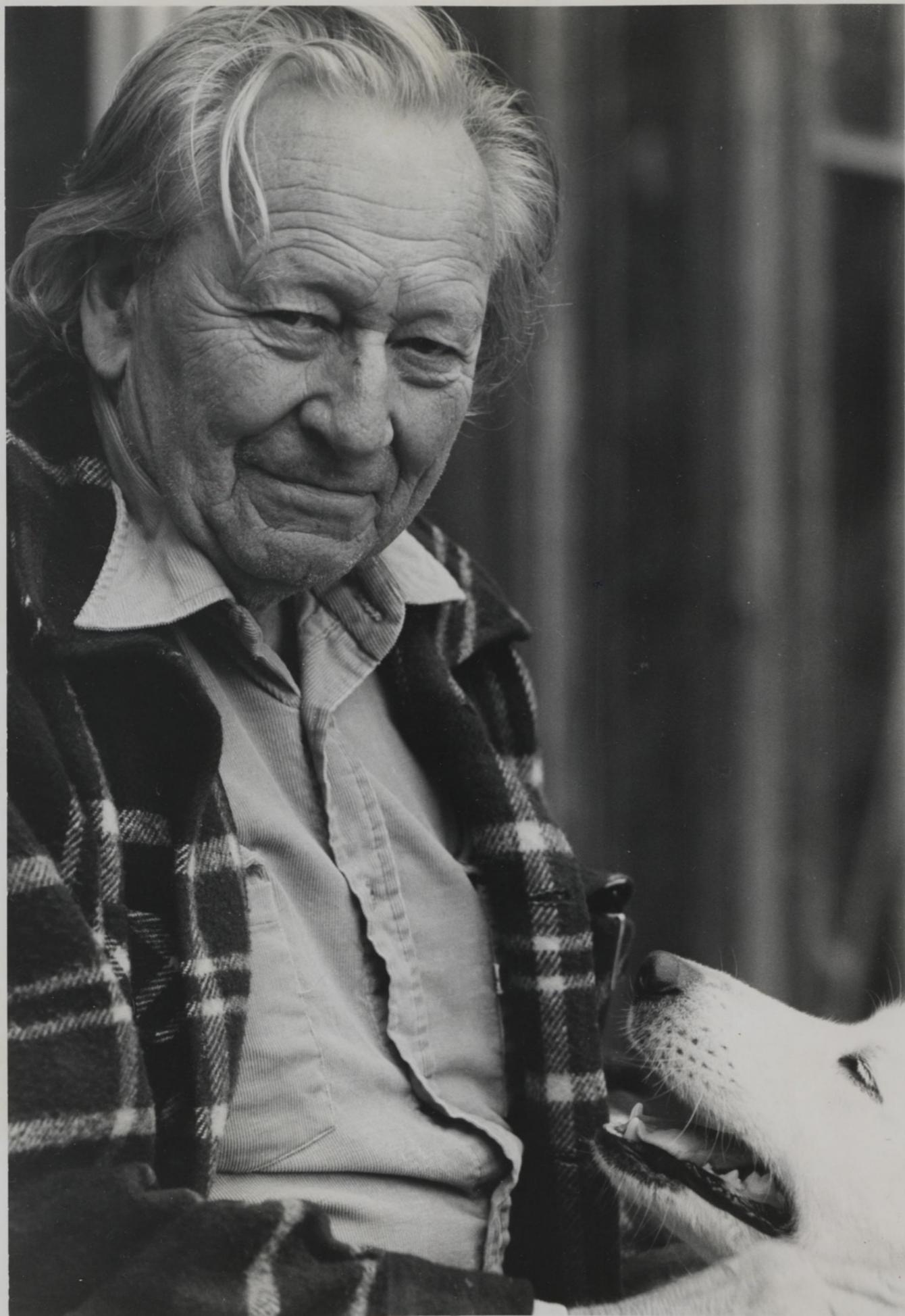


Gordon Pask's 'mind model'  
Image: Cybernetics Society

Many of Laing's knots are essentially about **people trying to understand what someone else understands about them**

Or about **how someone understands their relationship with a system**

**But that understanding changes how they relate to the system, and the system in turn then changes the relationship**



# Double binds

(Gregory Bateson)

Contradictory injunctions on a person, often acting at different 'levels' of a system

No right answer; fulfilling one demand means you fail to fulfil the other

Can't opt out, can't resolve it

I am not entitled to what I have

therefore

everything I have  
is stolen

because

I'm not entitled to it

therefore

I've stolen it

because

# How are knots relevant to design?

One application is in doing user research around **people's understandings of artificial intelligence, algorithmic profiling, and 'smart' technologies** (whatever that means to people)

Thinking about things that think about how we think



**What does it look like when we start having these kinds of thoughts about other actors – not just humans?**

**And when they start having these kinds of ‘thoughts’ about us?**

**(What ‘models of people’ are being designed into algorithms?)**



**More generally,  
though:**

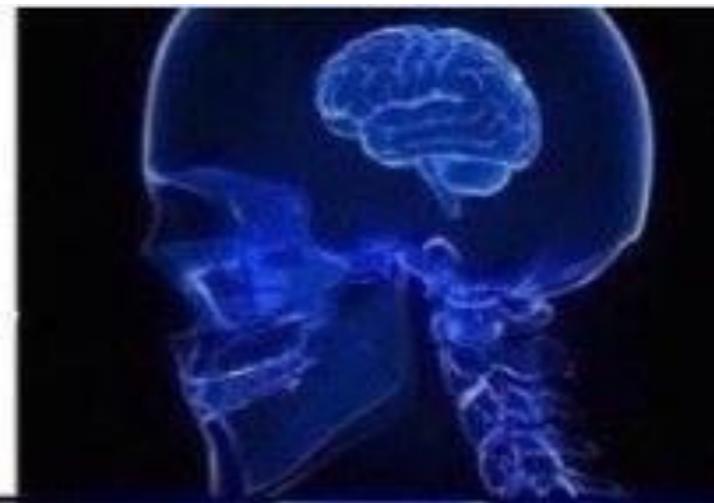
**Knots offer a way of  
enabling recursion,  
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order effects in  
systems to be  
explored through a  
variety of narrative  
formats**

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formats



**Opening a  
snapchat from  
someone you're  
interested in  
romantically**



**Waiting to open  
the snapchat to  
seem like you don't  
care**



**Opening their  
snapchat and not  
responding for days  
to seem like you  
don't care**

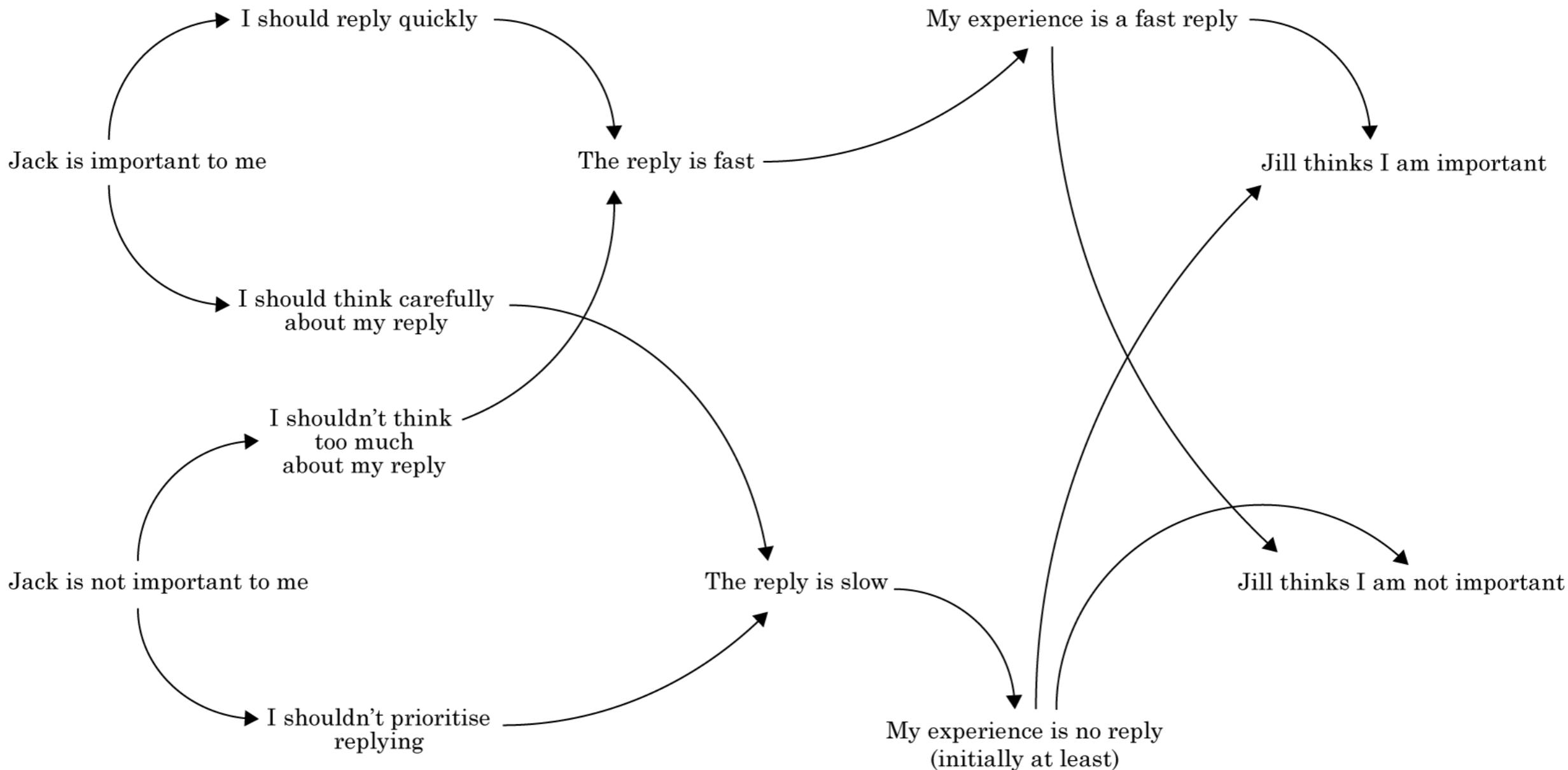


**Opening their snapchat and typing in  
the text block so that they get a  
notification saying that you're typing  
but then erasing your text and not  
responding for days so that they  
think you were going to respond but  
changed your mind and decided not  
to and they overanalyze it**



JILL'S EXPERIENCE

JACK'S EXPERIENCE



‘Your experience of me is invisible to me  
and my experience of you is invisible to  
you...

[but] I cannot avoid trying to understand  
your experience, because although I do  
not experience your experience...

I experience you as **experiencing**”

RD Laing, The Politics of Experience, 1967

Jill likes Jack

Jill *hopes* Jack likes Jill

Jill *hopes* Jack thinks Jill likes Jack

Jill *worries* Jack thinks Jill doesn't like Jack

Jill *worries* Jack thinks Jill likes Jack too much

Jack doesn't like Jill

Jack *hopes* Jill doesn't like Jack

Jack *hopes* that Jill likes Jack

even though he doesn't like her

Jack doesn't like Jack

Jill likes Jack

Jill *hopes* Jack likes Jill

Jill hopes Jack thinks Jill likes Jack

Jill *worries* Jack thinks Jill doesn't like Jack

Jill worries Jack thinks Jill likes Jack too much

Jack doesn't like Jill

Jack hopes Jill doesn't like Jack

Jack hopes that Jill likes Jack

even though he doesn't like her

Jack doesn't like Jack

**thinks**  
**hopes**  
**worries**

## KNOTS IN BEHAVIOUR CHANGE

My attitude must be wrong

because my behaviour is wrong

because my attitude is wrong

How can I change?

I want to change

does that mean my attitude is right?

then I don't need to change

but I want to

I will change my behaviour

when everyone else does

otherwise there's no point

## KNOTS IN THE SMART HOME

YOU I don't want you to know more about me

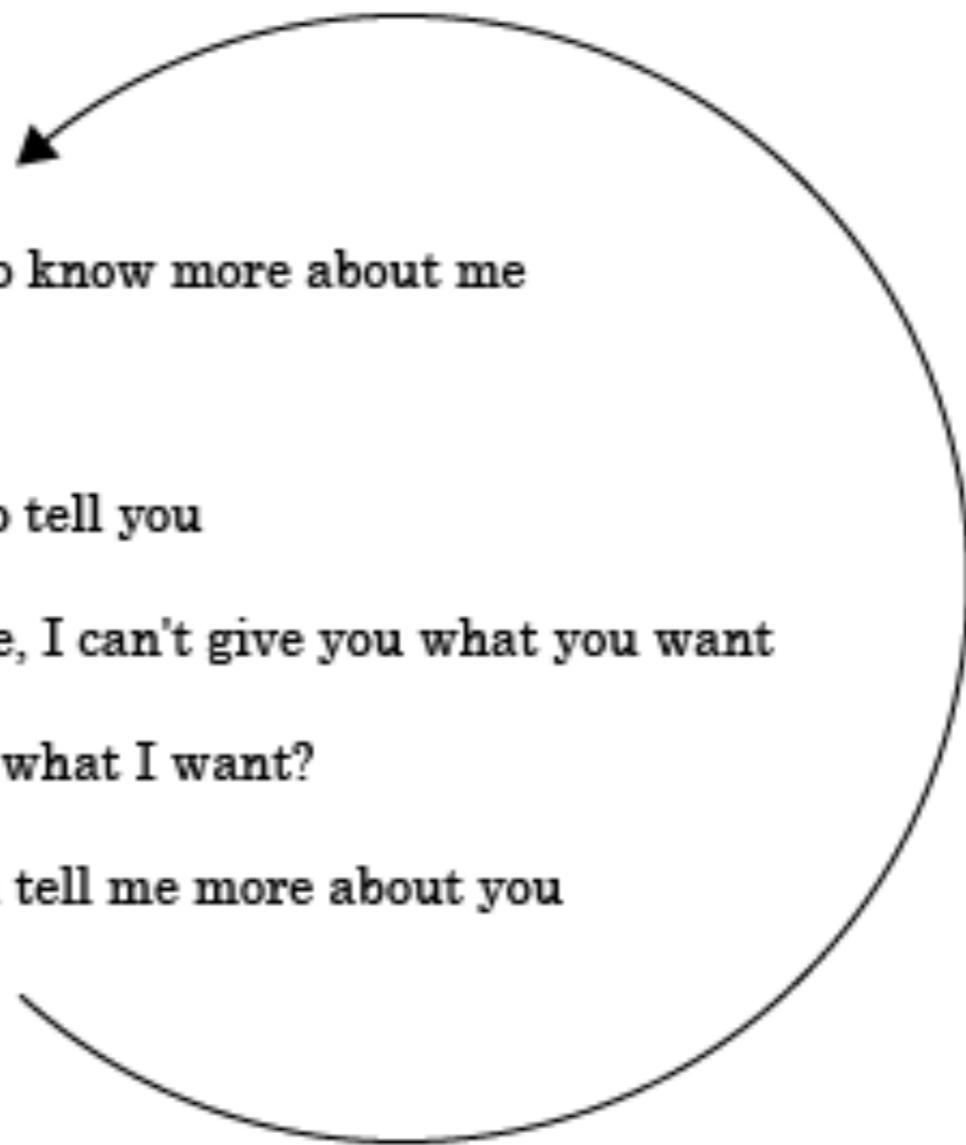
YOUR HOME Why?

YOU I shouldn't have to tell you

YOUR HOME If you don't tell me, I can't give you what you want

YOU How do you know what I want?

YOUR HOME I don't, unless you tell me more about you



# KNOTS AND CLICKBAIT

It's shocking  
so I click on it

It's shocking  
so I click on it

|  
|  
|  
|  
|  
|  
|

It's not shocking  
any more

We want them to click

It's shocking  
They click on it

It's shocking  
They click on it

|  
|  
|  
|

so show them shocking  
things

**Teaching this to design students is a way of adding to their conceptual vocabulary, but what about research with people?**

**How can we use knots (and double binds) as a concept to help people explore their relationships with systems?**

**Can we untangle them Should we? (Is it inherently 'wicked'?)**

**What could it look like to turn knots into a form of probe or interview tool?**

**Could we actually physicalise it with string?**

# Data Physicalisation



## KNOTS AND THE SMART FRIDGE, OR THE OLD SAUSAGE\*

I am vegetarian  
I don't like sausage  
My friend is not  
She came to stay  
She brought sausage  
She left some

My fridge has sausage in it  
I don't eat it

My fridge has sausage in it  
I don't eat it

My fridge has sausage in it  
I don't like sausage

Your fridge has sausage in it

Your fridge has sausage in it

Your fridge *always* has sausage in it  
You must really like sausage

Let me order you some more



**Thank you!**

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