

Behaviour, Practice – Whatever?

A theory-agnostic framework for describing and informing demand-side response

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ECEEE Summer Study, Hyères, France, 29 May – 2 June 2017



@mikefsway



A theory-agnostic framework for describing and informing demand-side response

...what?

- Allow us to talk more systematically and precisely about the aims of different DSR programmes
- Prompt thinking (and precision) about different ways to obtain or promote DSR
- Accommodate different theoretical perspectives (agnostic = 'not persuaded by or committed to a particular point of view' [OED])
- ...via theoretical physics and evolutionary biology.



past

present

future





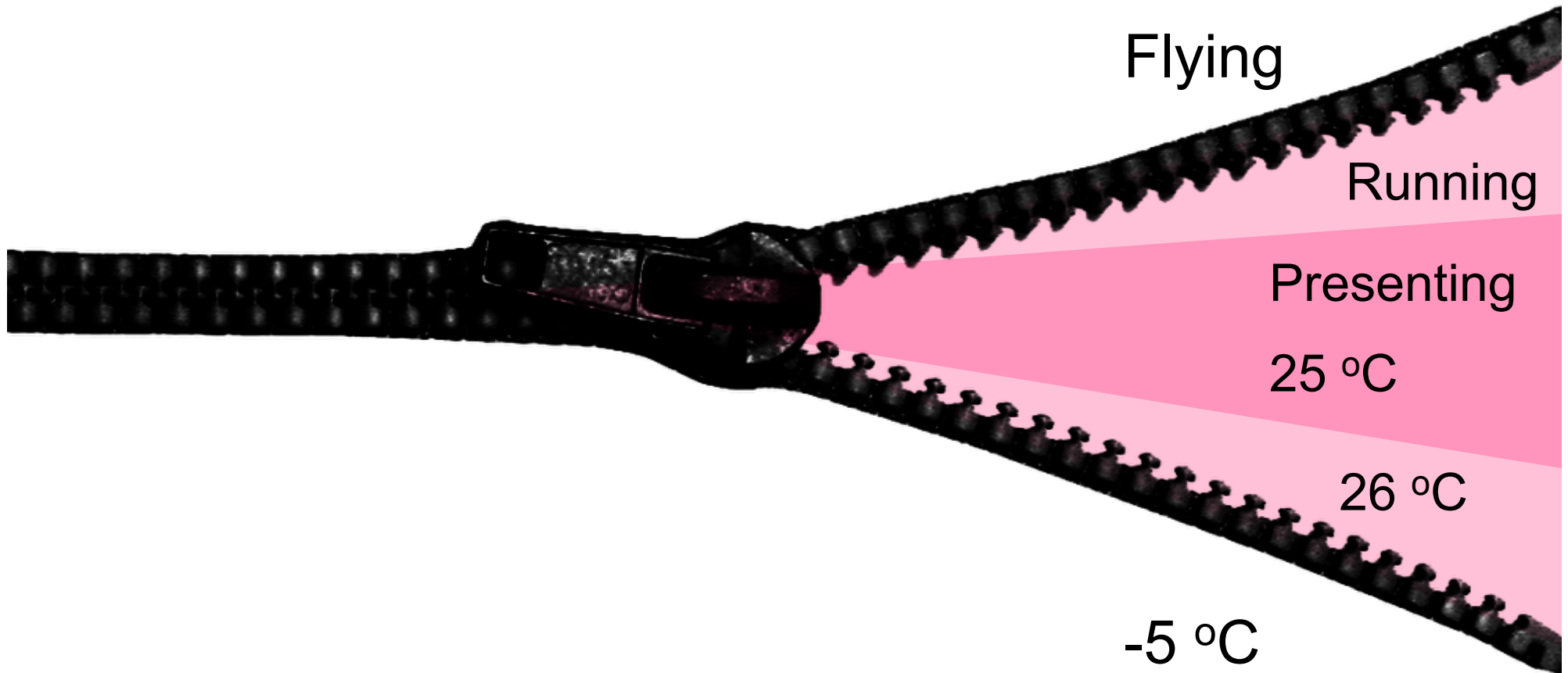
- Weather (temperature, light)
- Number of people
- Location of people
- What people are doing
- Efficiency of appliances
- Level of insulation (on building, on people)
- Mode of energy service provision (electricity, gas, etc.)

→ Electricity-relevant dimensions



present

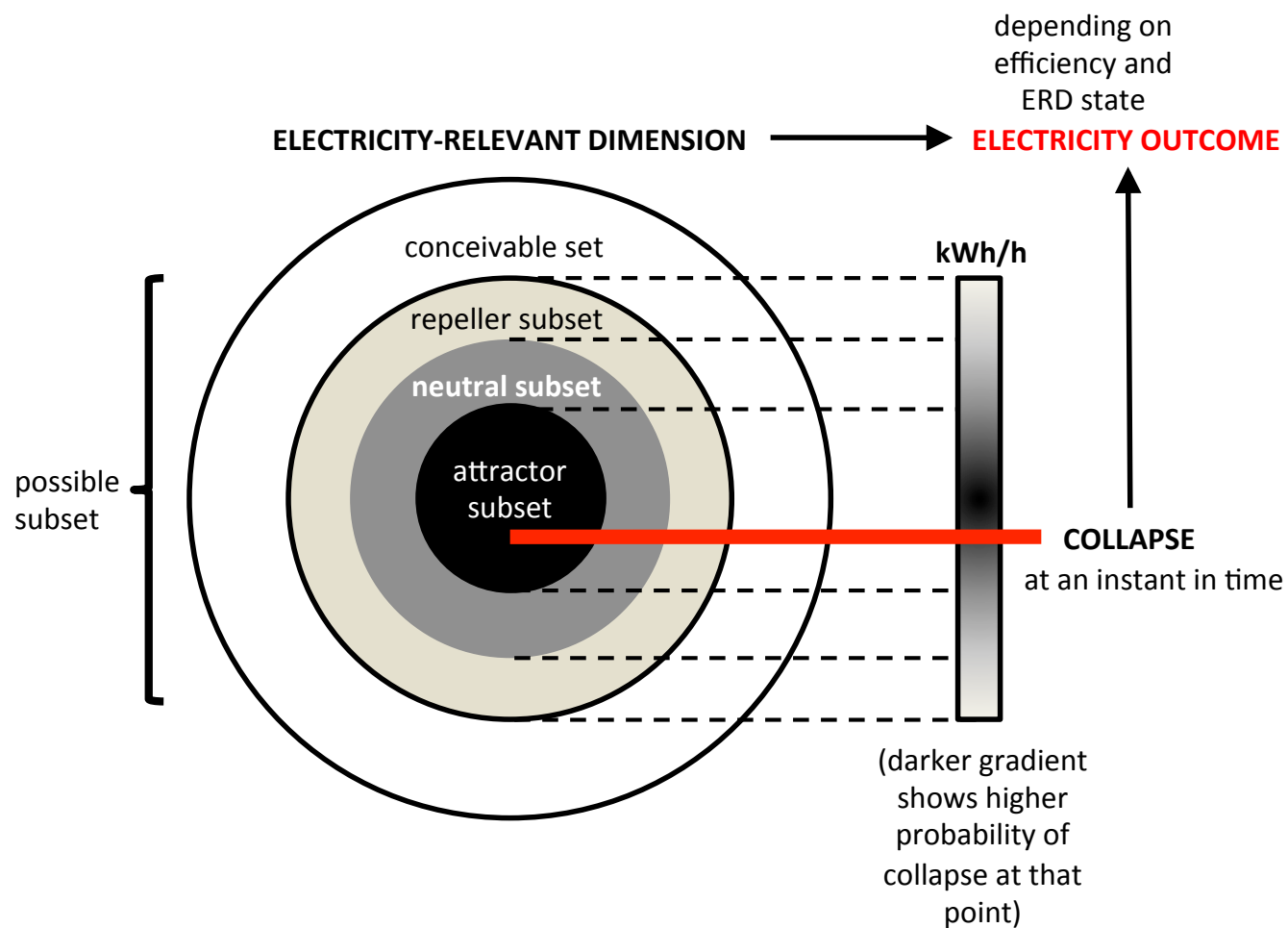
5 mins



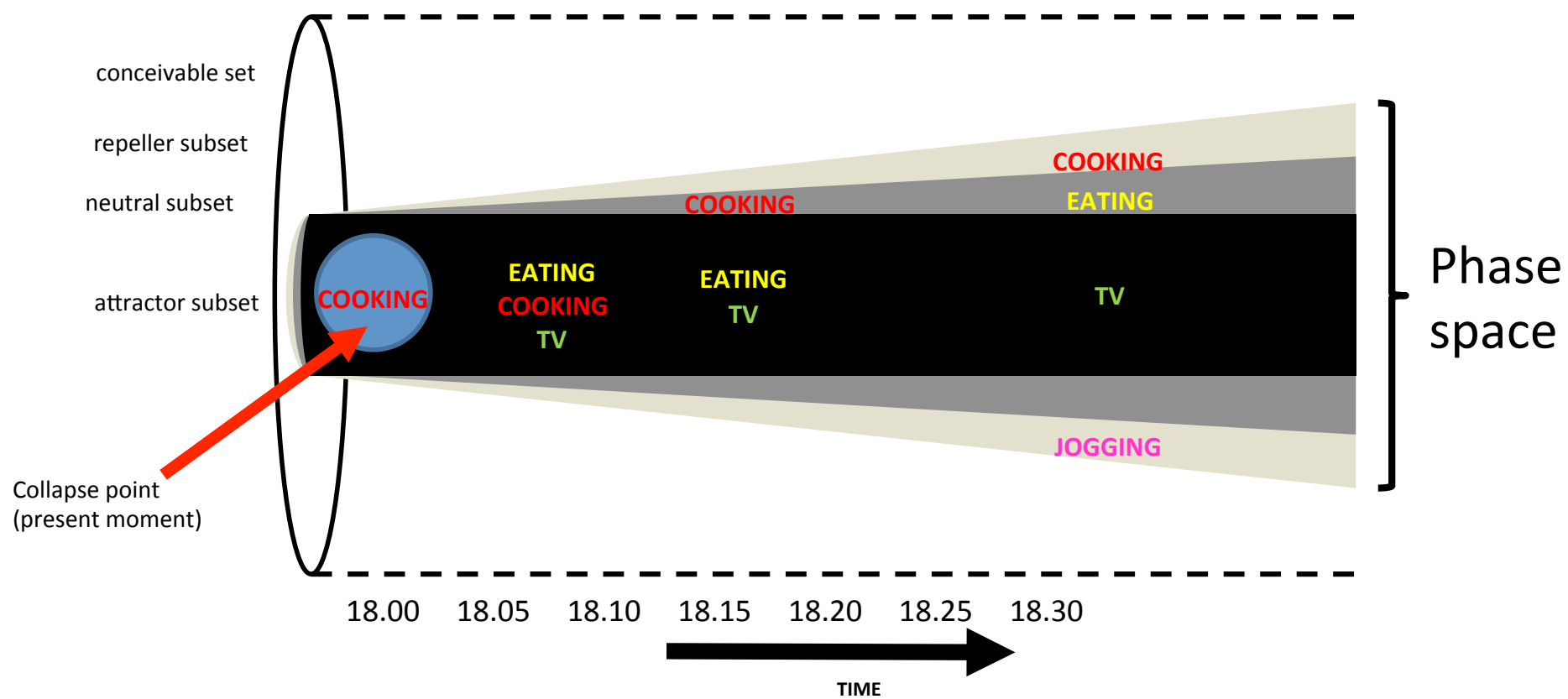
Relevant work and concepts

- Time geography (Hägerstrand 1970)
- ‘how humans allocate scarce time resources among activities in geographic space’ (Miller 2008), and introduces ‘constraints’
- As applied to energy demand (e.g. time use studies, Ellegård and Palm 2011)
- Consideration of ‘potential pathways’ (Hui and Walker 2016)

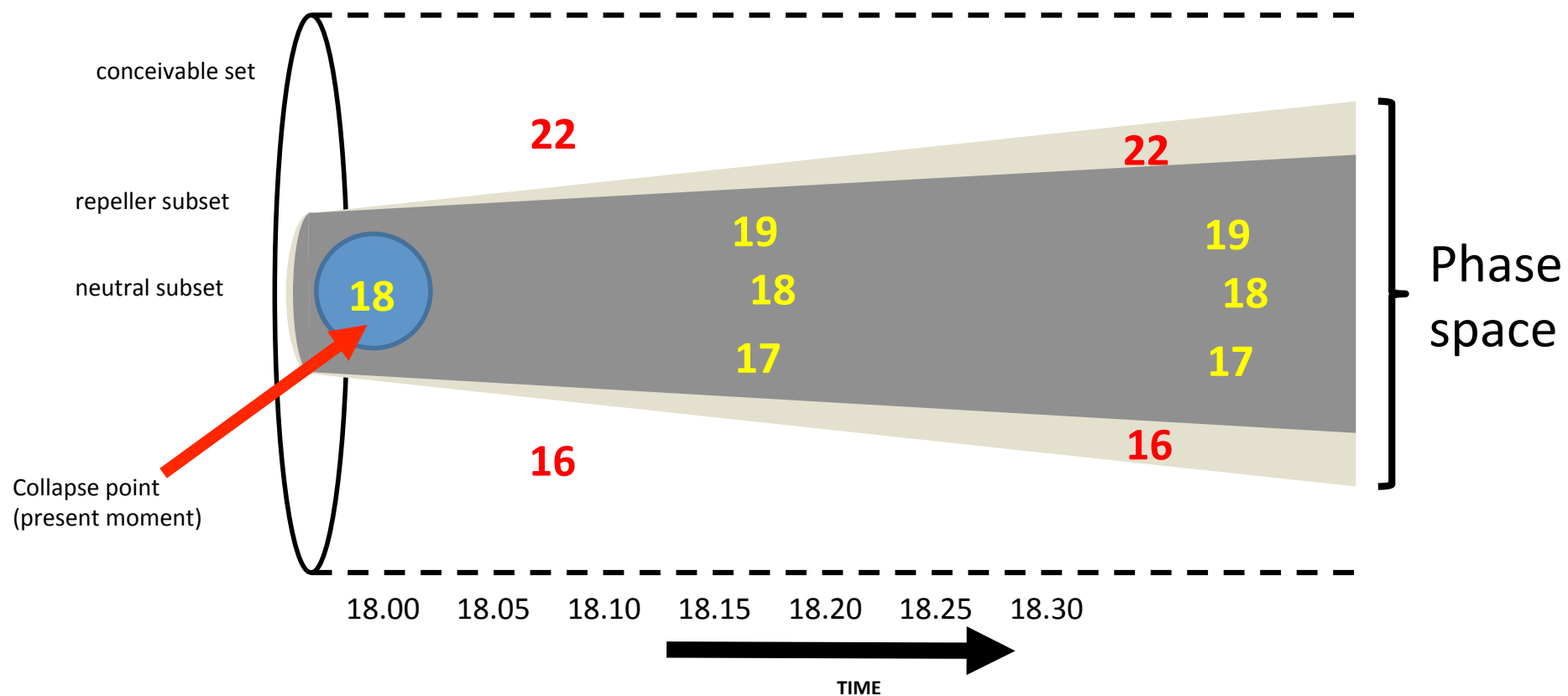




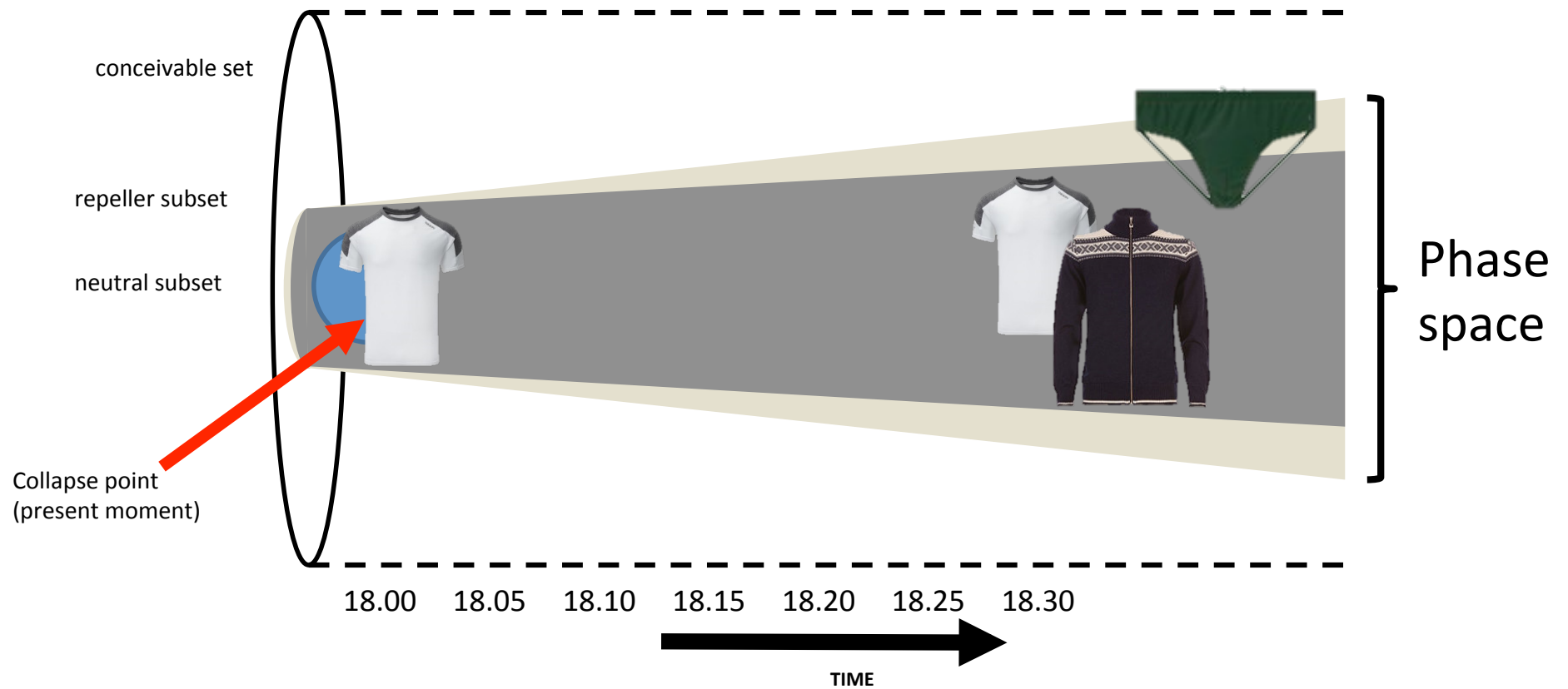
Activities

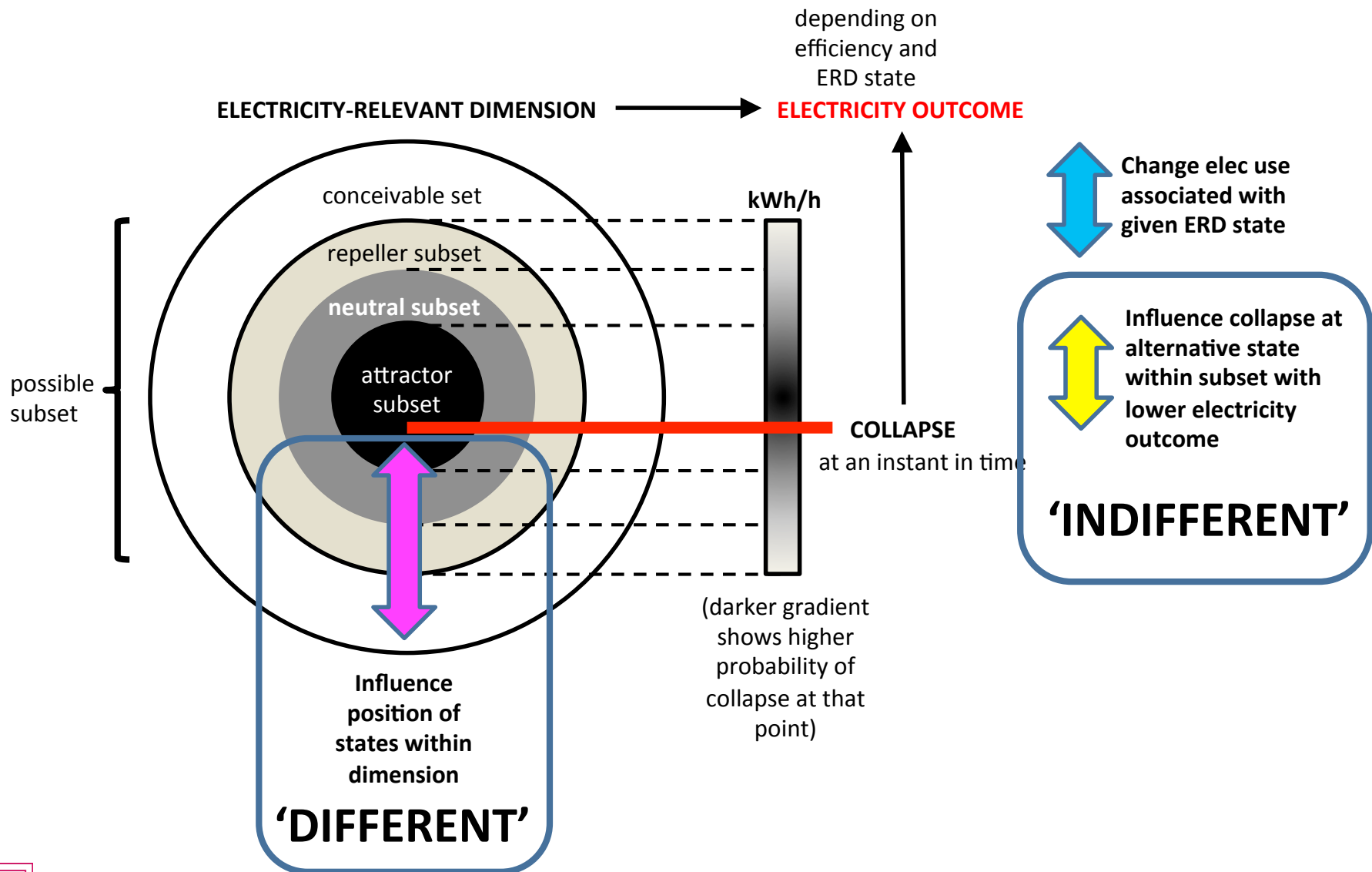


Temperature



Body insulation

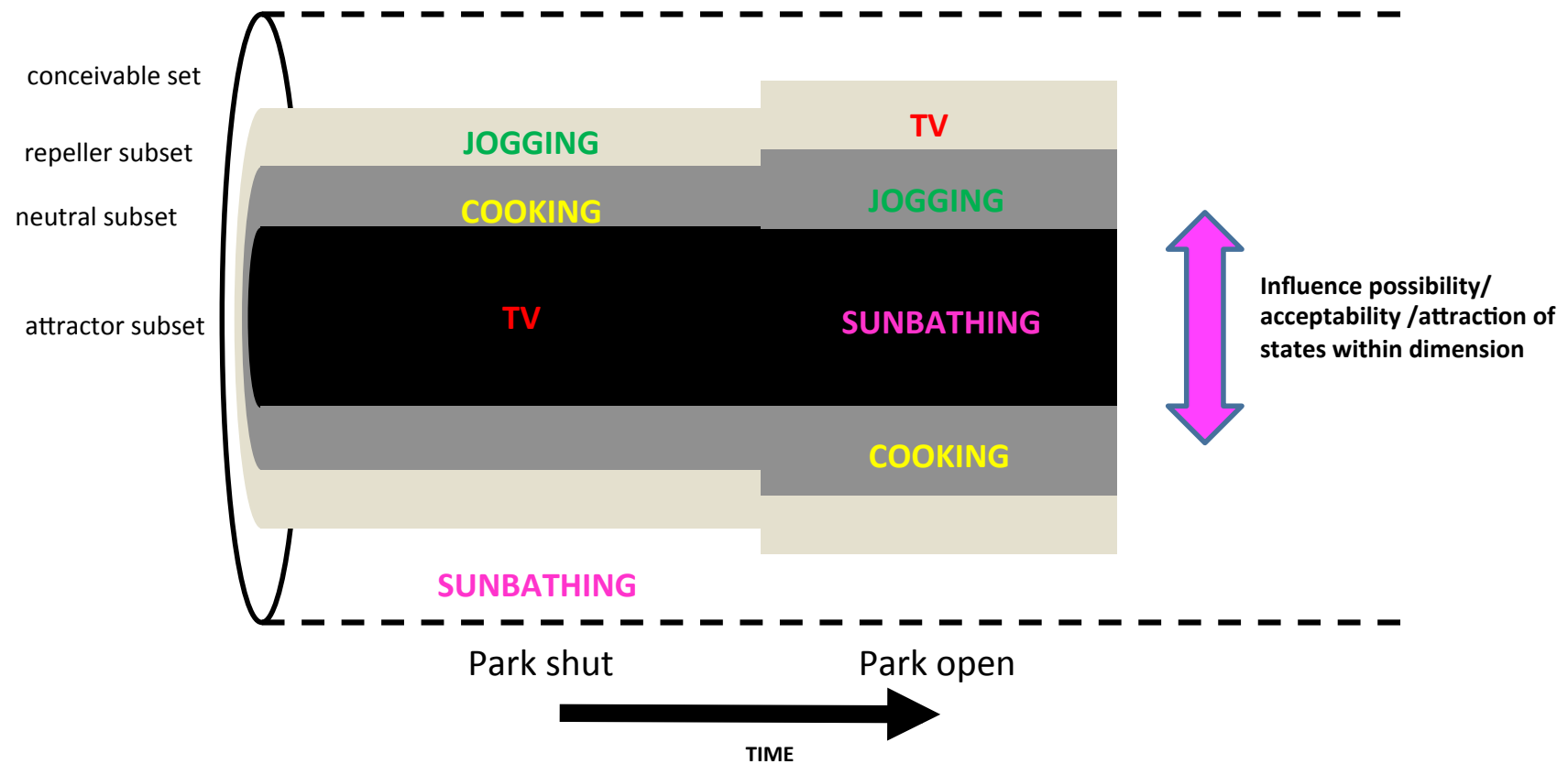




Influencing demand

- Choice architecture (Thaler and Sunstein 2008)
- ‘Phase space architecture’
- ‘Total DSR’?
- Some examples on new couple of slides – nothing new, but to demonstrate the principle.





TOU + step count bonus + more reliable opening times?





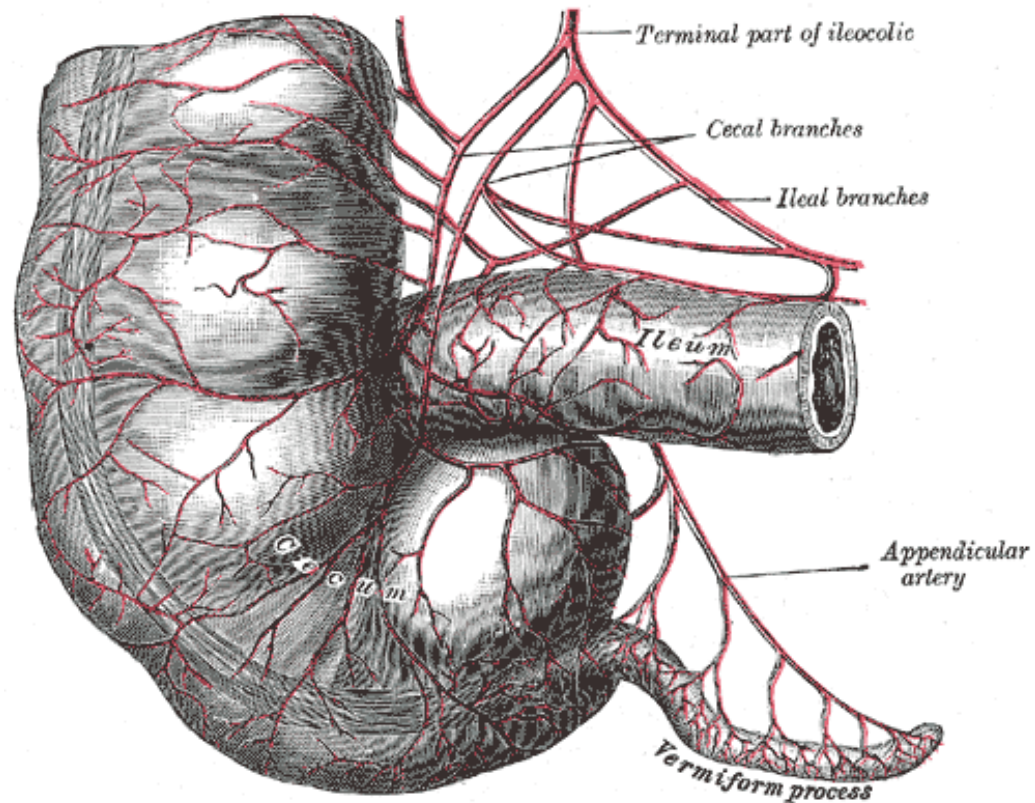
Direct load control + social norm?



Summing up

- Framework aims to balance structure and flexibility
- Prompts consideration of full range of DSR possibilities → 'Total DSR'
- Prompts integration of interventions from different theoretical perspectives and informs testable hypotheses.
- Challenges:
 - Is it worth it? i.e. does it prompt worthwhile interventions?
 - Social engineering?
- What next?
 - Categorize existing DSR approaches?
 - Modelling? See McKenna et al. 2017
 - Understand 'indifference' and the neutral zone.

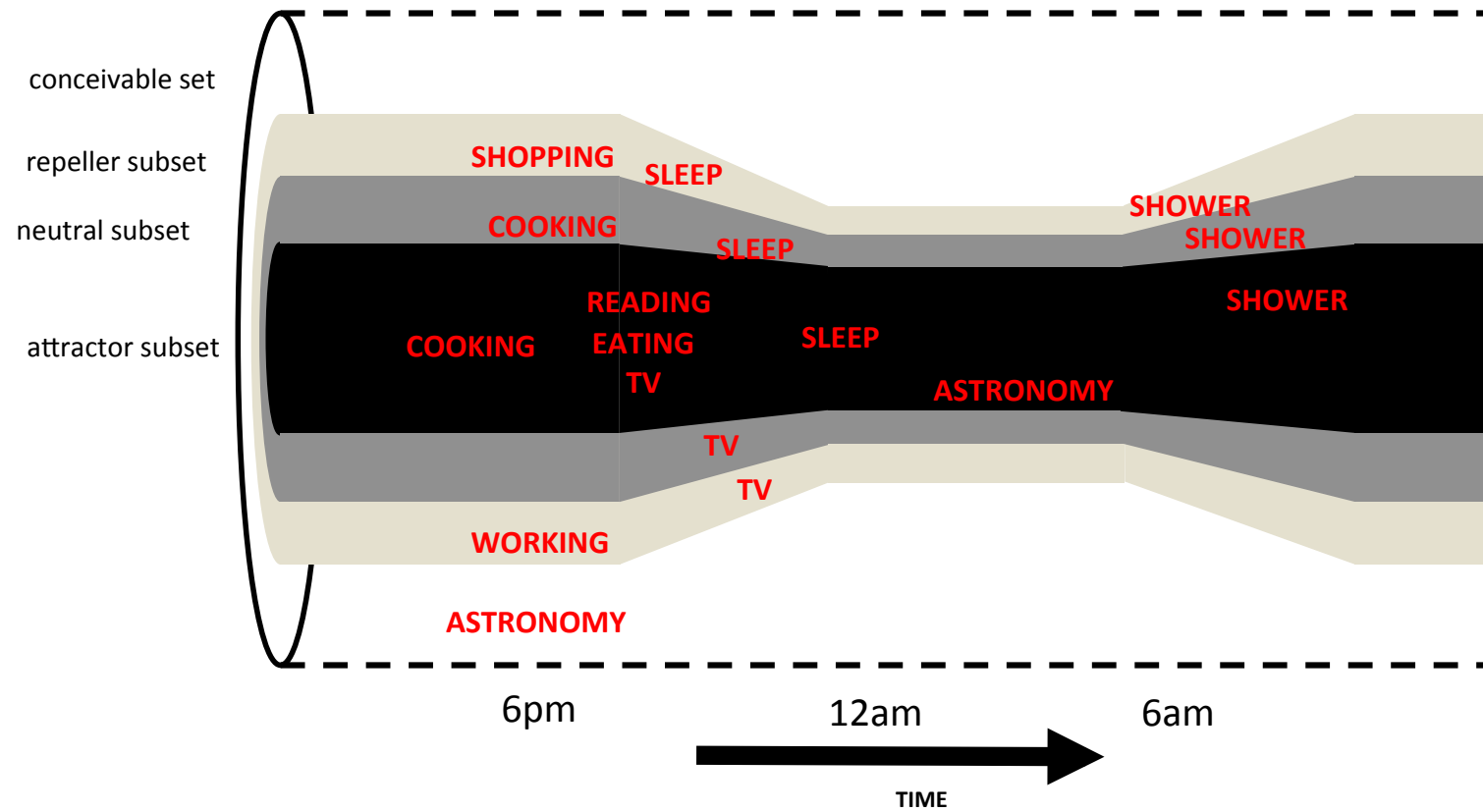


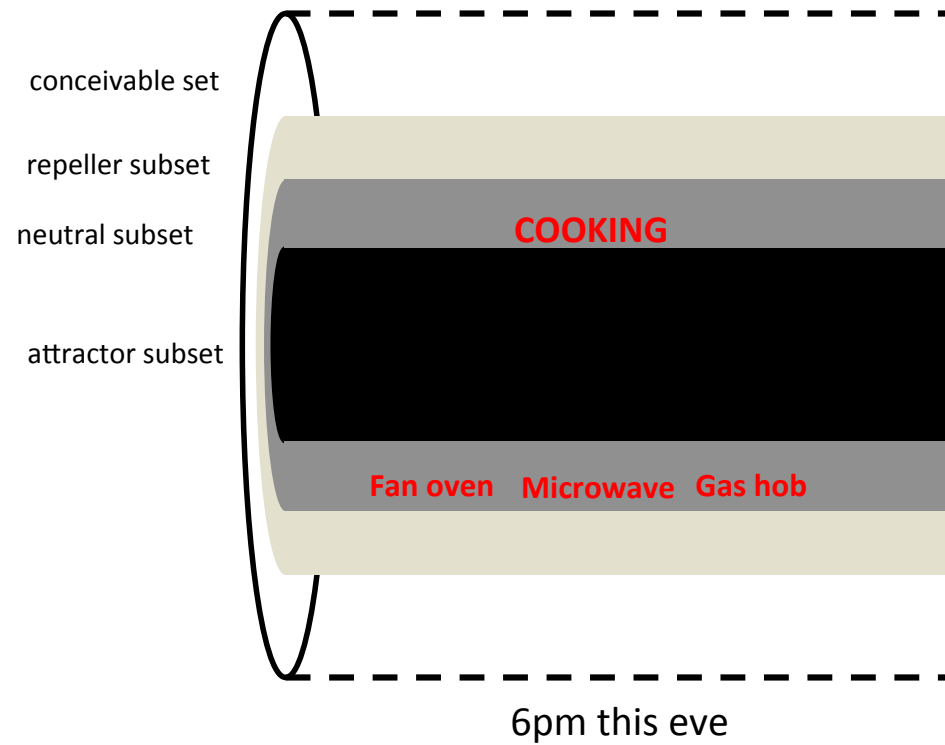


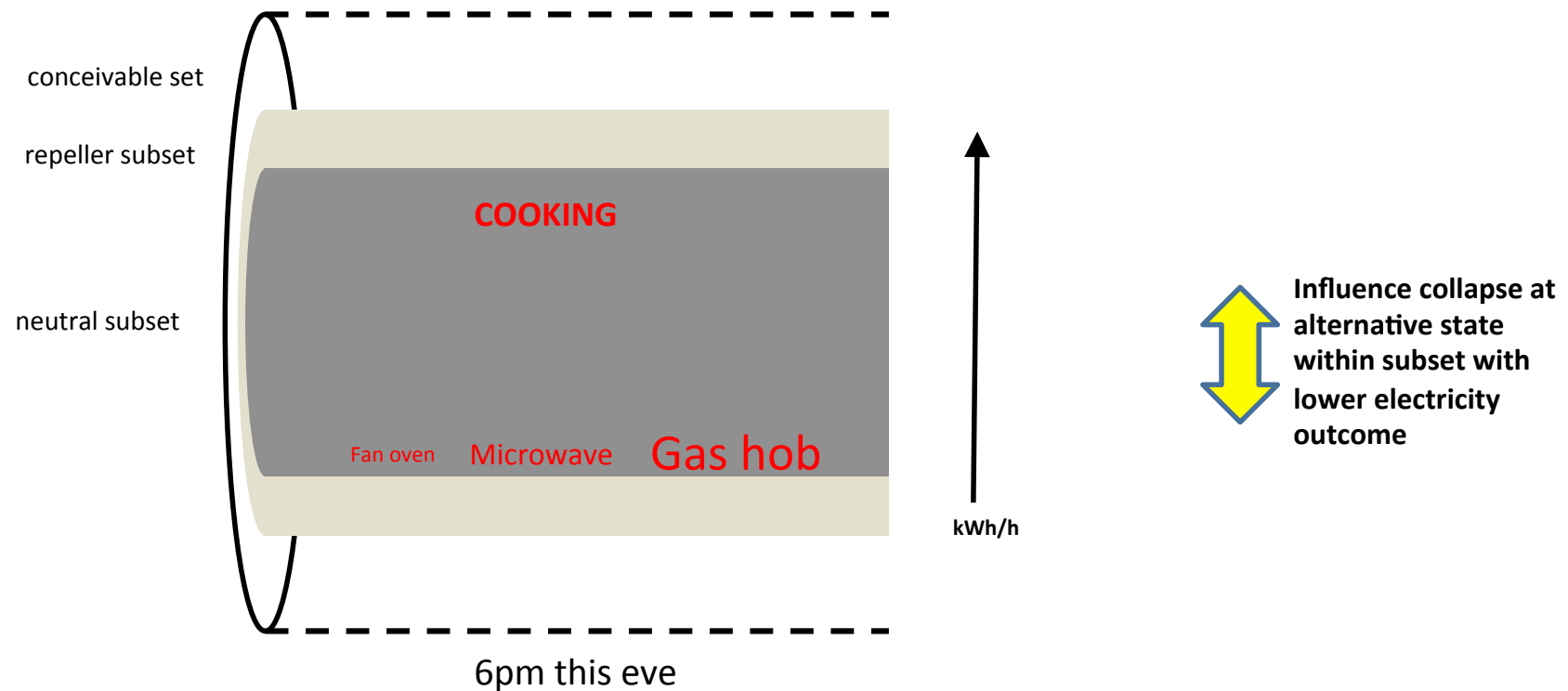
Thank you!

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Critical Peak Pricing + emailed recipe suggestion + health framing?

