

PRIME Theory of Motivation and its application to addiction

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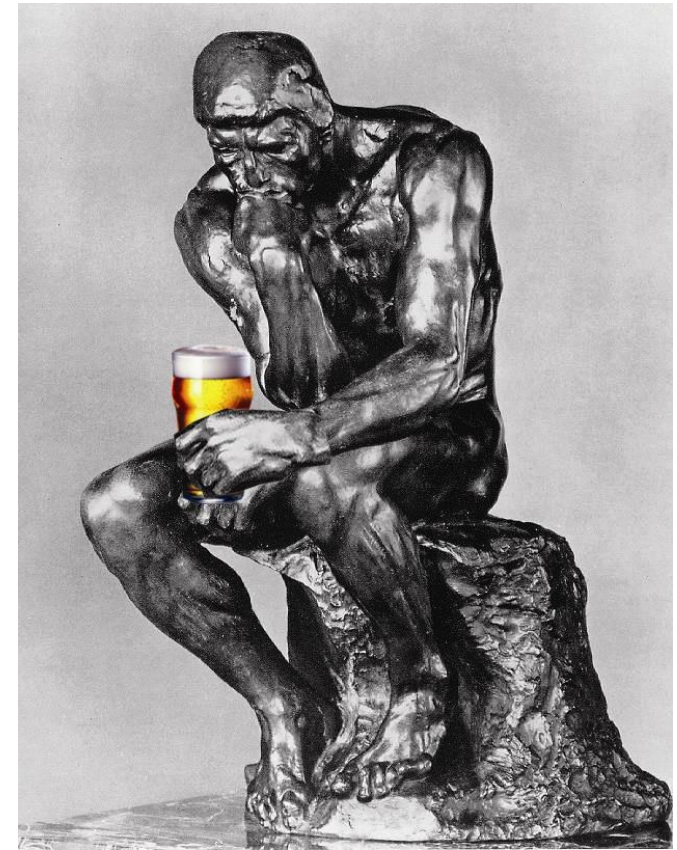
Outline

1. Theories of motivation
2. Constructing a coherent synthetic model of motivation: PRIME Theory
3. Observation and theory in addiction
4. Applying PRIME theory to addiction
5. Some hypotheses

1. Theories of motivation

Humans as rational decision-makers

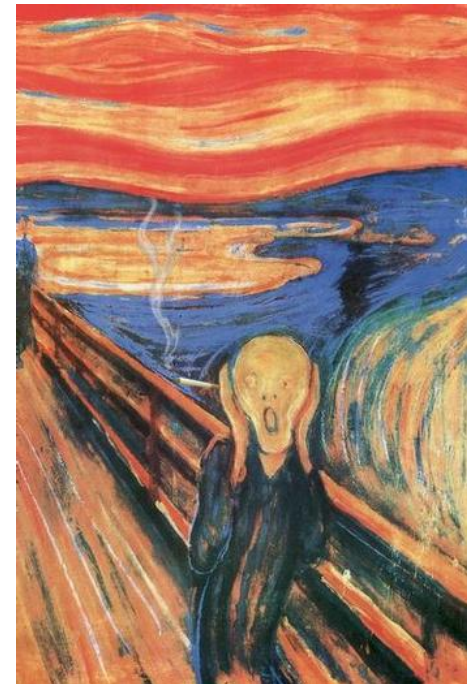
- Expectancy value theories
 - We take decisions by comparing the attractiveness of expected outcomes
- Multi-attribute utility theory
 - We take decisions comparing the characteristics of the options under consideration



‘The drinker’

Humans as emotional decision makers

- Conflict theory
 - Our decisions are influenced by our needs and emotions
- Self-regulation theory
 - We attempt to exercise self-control in the face of impulses, desires and needs
- Identity theory
 - Self-labels and perceptions are important sources of motivation



‘Smoke-scream’

Humans as animals

- Operant learning
 - Habits result from experience of reward and punishment
- Classical conditioning
 - Neutral stimuli take on emotional tone by being associated with important stimuli
- Drive theory
 - Behaviours derive from biological imperatives



www.michaelmain.com/addict.jpg

Mook DG (1996). Motivation: the Organization of Action. New York: WW Norton

Personality theory

- Trait theories
 - We vary in propensity to impulsiveness, anxiety etc.
- Psycho-analytic theories
 - Our experiences and behaviour stem from interactions and imbalances between different parts of our psyche, e.g. id, ego and superego
- Social cognitive theories
 - Our experiences and behaviours derive from the way we construct our world



www.fantavier.net

Pervin L (2004). Personality: Theory and Research. Chichester: Wiley

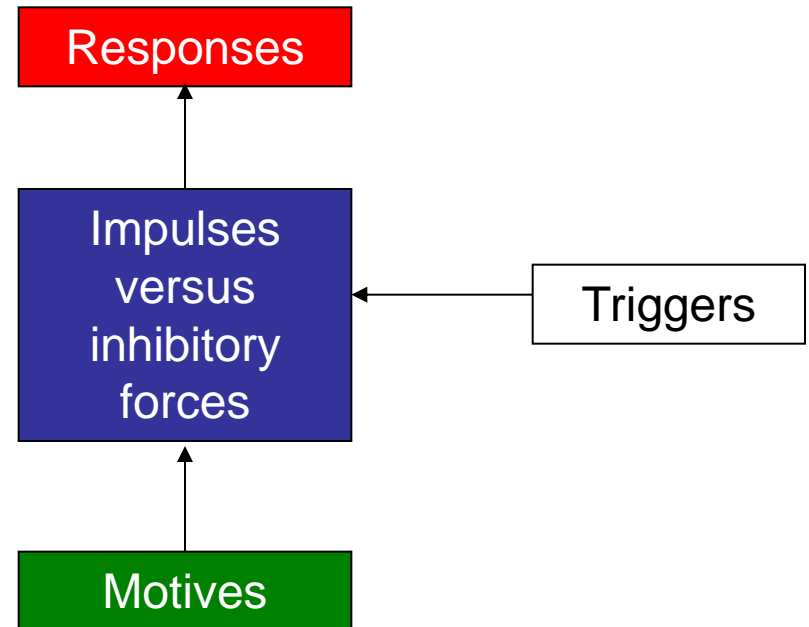
2. Constructing a synthetic theory

The starting point for a synthetic model

Humans are more or less instinctive, habit-driven, emotional decision-makers with a propensity to plan ahead, powerfully influenced by our social world, with a sense of identity which can act as a source of self-control

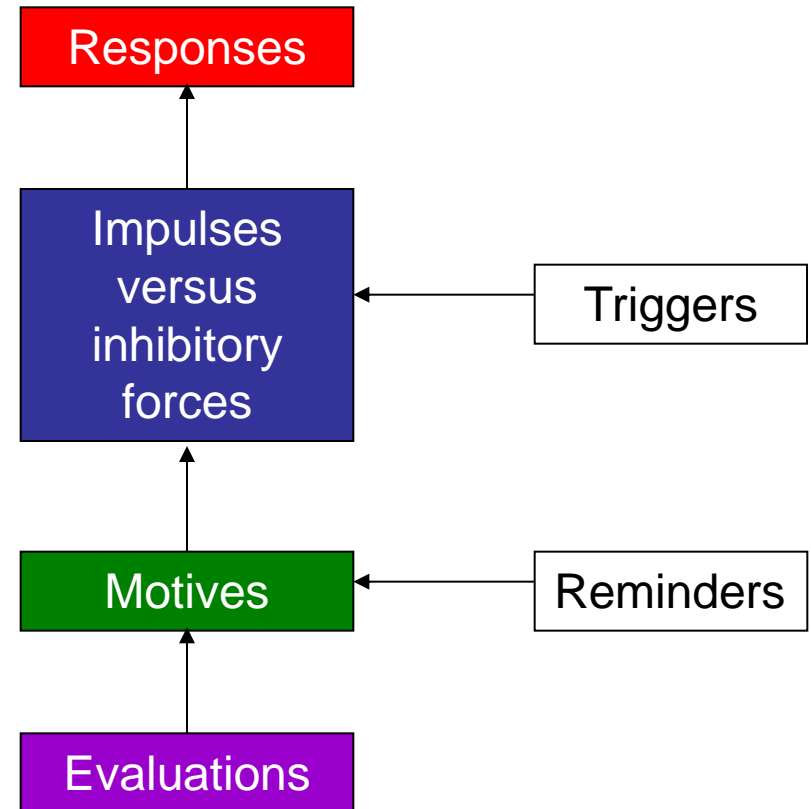
Impulses

- Impulses can be generated by
 - Triggers interacting with innate dispositions (instincts) and learned dispositions (habits)
 - ‘Motives’: feelings of desire (anticipated pleasure or satisfaction) and/or need (anticipated relief from unpleasantness or tension)
- They decay quickly unless ‘fed’



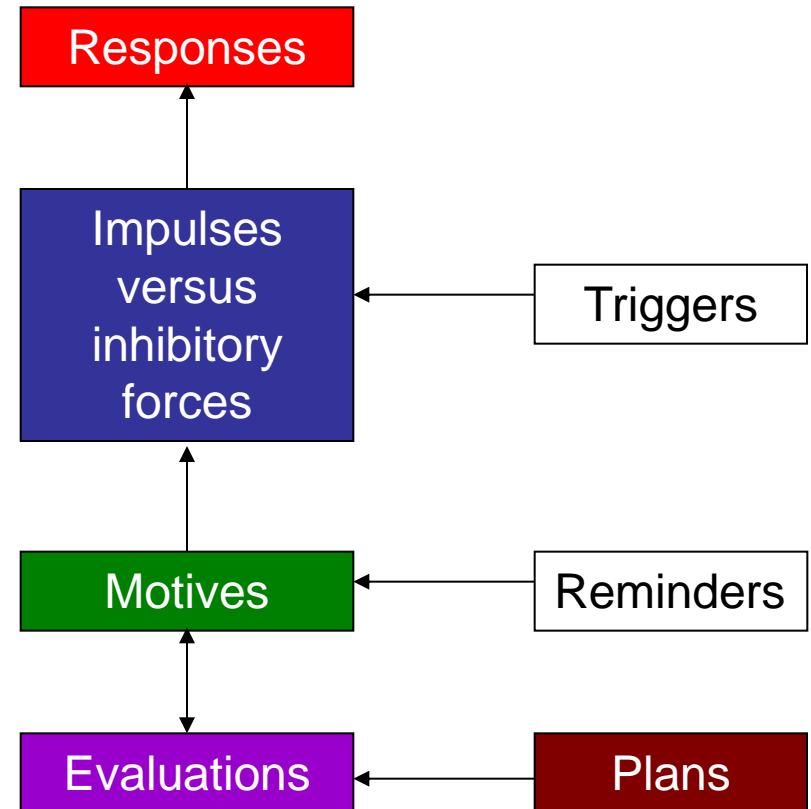
Motives

- Motives can be generated by:
 - Reminders interacting with the level internal tension at the time
 - ‘Evaluations’: beliefs about what is good/bad, right/wrong, useful/detrimental etc.



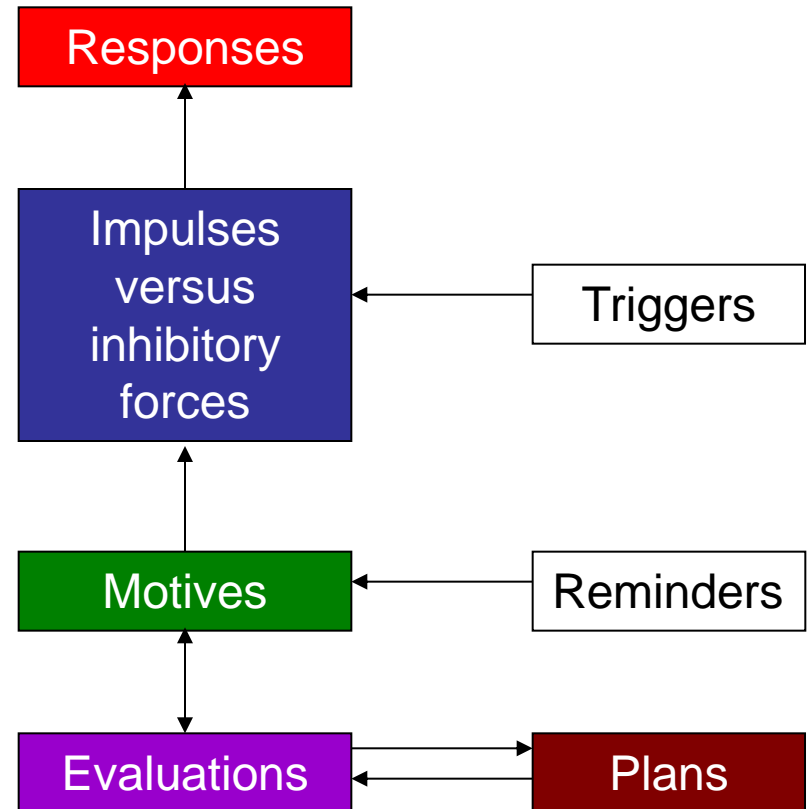
Evaluations

- Evaluations are generated by:
 - Recall of observations
 - Analysis, inference
 - Accepting what others say
 - Motives
 - Plans

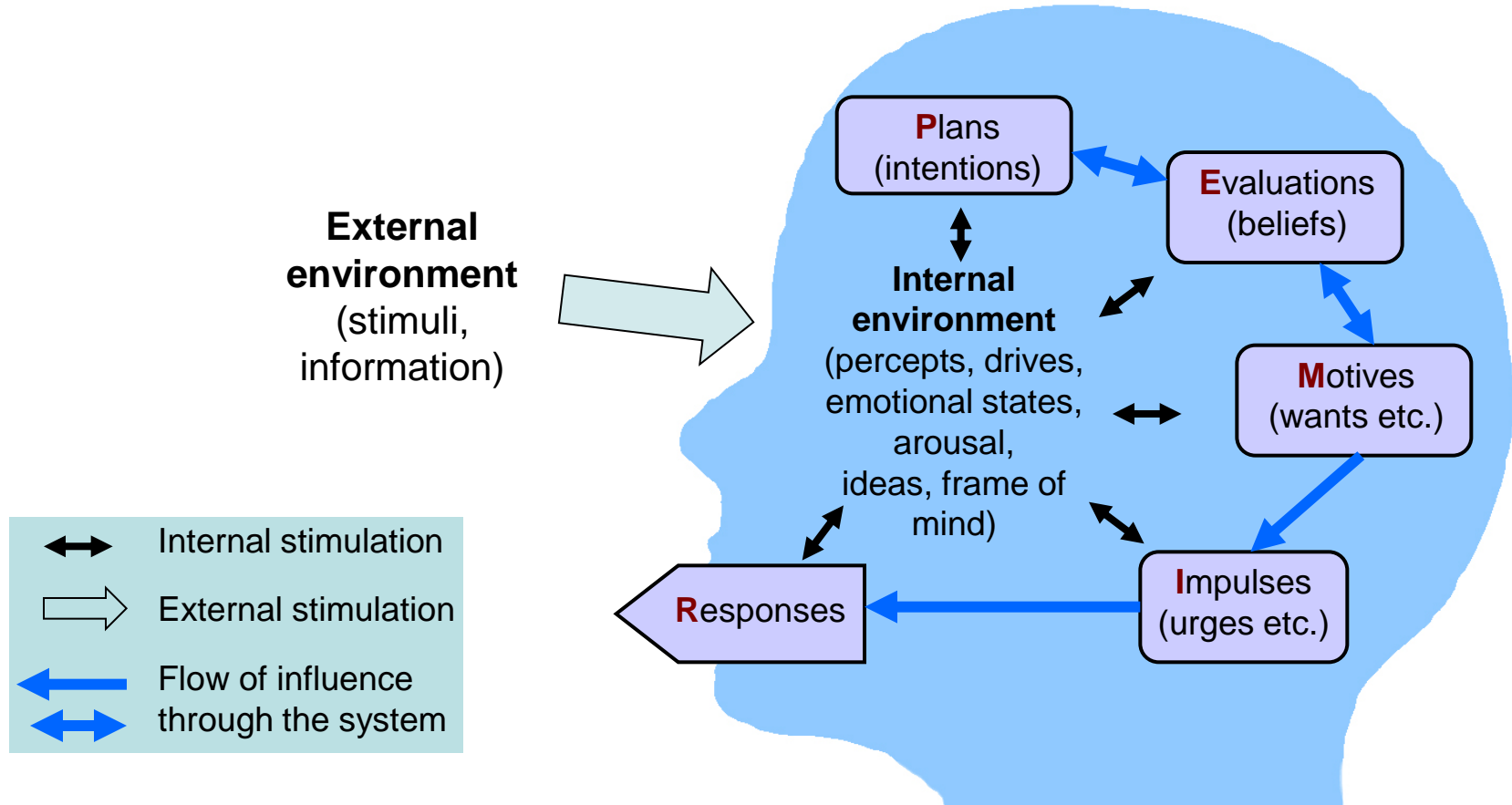


Plans

- Plans are ‘mental actions’ generated when:
 - Actions are considered to be required in the future
 - Actions are considered to be more likely to meet desires or needs if undertaken at a future time
 - Actions meeting desires or needs do have a sufficient priority to be enacted at the moment



The human motivational system

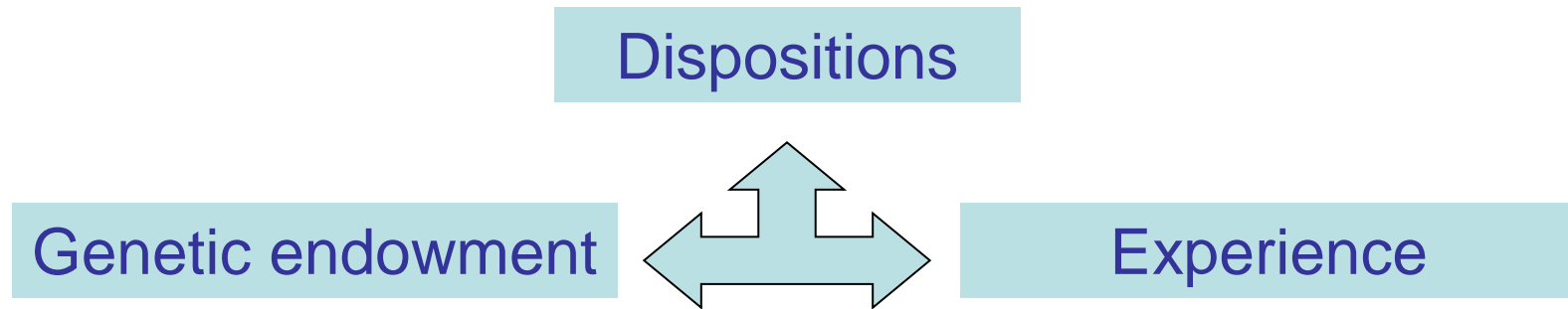


The importance of the moment

Evaluations, wants, emotional states, impulses and plans are only present when triggered and have no influence when not present

- Everything we think, feel or do is a reaction to what happened or our state just prior to that acting on our dispositions
- We only think about things when we are prompted to do so
- The way that we think or feel about things depends to some degree on the current circumstances
- Not thinking about things is an important method of reducing dissonance

How dispositions come about

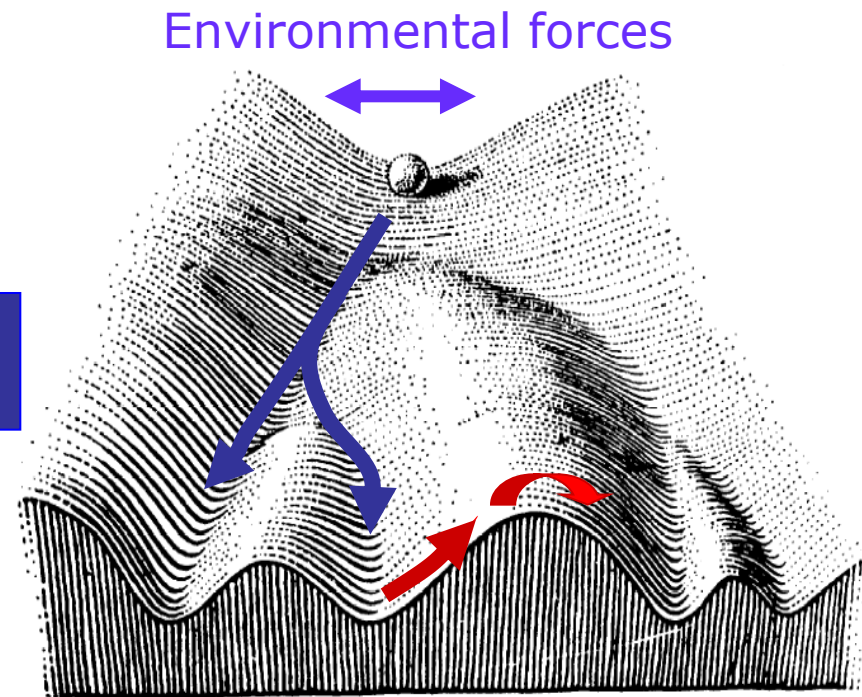


1. **Habituation/sensitisation** - becoming less or more sensitive to repeated or ongoing stimuli
2. **Associative learning** - habit formation, classical conditioning
3. **Explicit memory** - images and thoughts recreated in response to cues

The development of dispositions

Waddington's epigenetic landscape

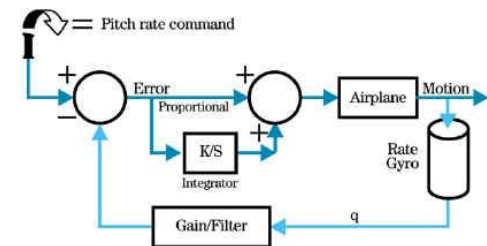
Critical periods: points where the chreods fork



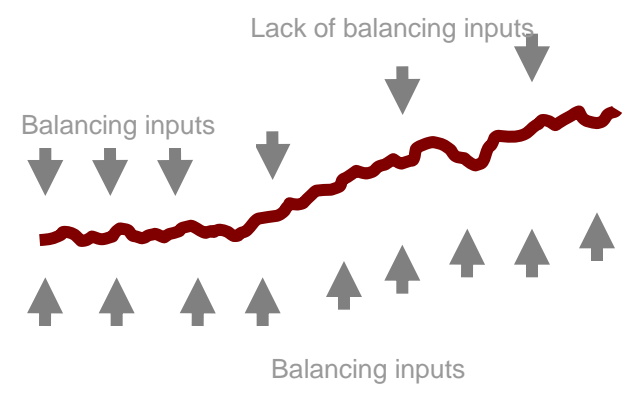
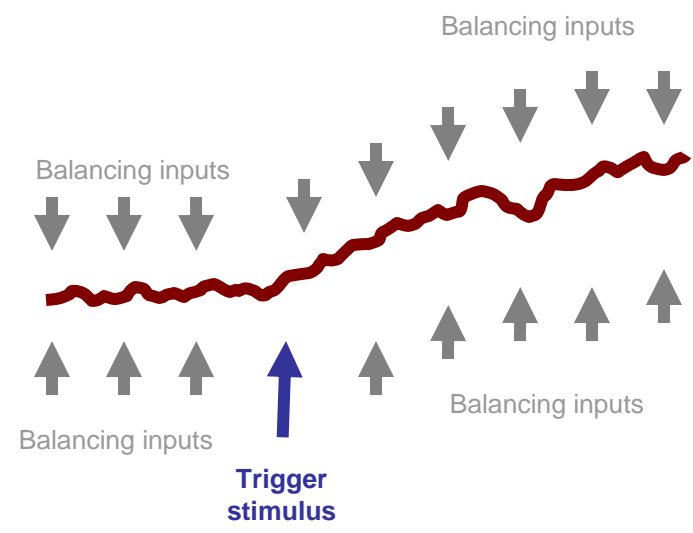
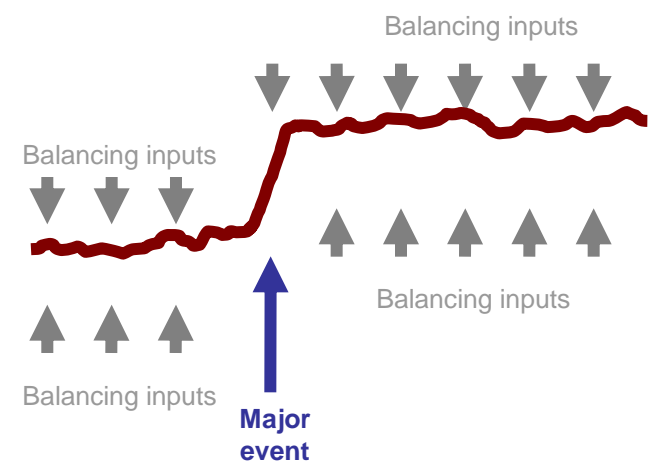
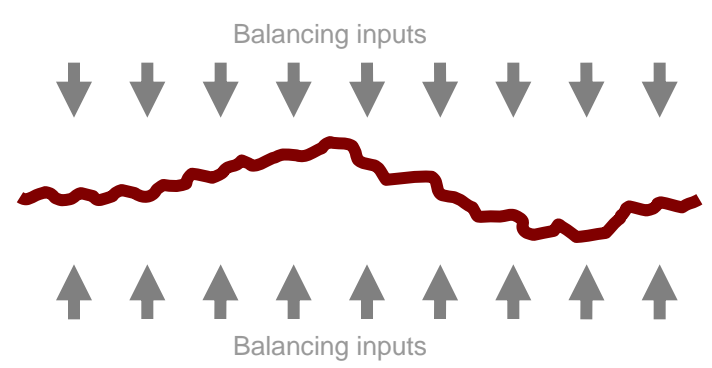
Deep chreods: small forces will not lead to escape; the system will settle back once they are removed; but if the system is on a cusp a small force will tip it into a new path

The 'unstable mind'

- The fly-by-wire brain: the brain has evolved to be inherently unstable
 - this makes it highly adaptable and creative
 - but it needs constant balancing input to keep it from veering off in unwanted directions
- This is similar to modern fighter aircraft whose airframes are designed to be unstable and require constant input from computers to keep them on course



Simple examples



Identity

Identity refers to a disposition to generate particular thoughts and feelings about ourselves

- People differ in the propensity to think about themselves, the nature of the thoughts and feelings that they have, and how consistent and coherent these are
- Identity is a very important source of motives; it is the foundation of personal norms that shape and set boundaries on our behaviour

Self-control

Self-control refers to wants and needs that arise from evaluations associated with our identity

- Self-control is a cornerstone of behaviour change. The moment-to-moment wants and needs arising from that must be strong enough to overcome impulses, wants and needs coming from other sources
- The exercise of self-control is effortful; it requires and uses up mental resources

3. Observation and theory on addiction

Why a theory of addiction?

It affects our **strategy** for dealing with the problem

For example ...

Addiction as choice



control using deterrence
+ education

Addiction as a mental
disorder



control using treatment

Addiction as disordered
choice



deterrence + education
+ treatment

Why a theory of addiction?

It affects our **tactics** for dealing with the problem
 For example ...

Failure of addict to appreciate adverse effects	⇒	make these 'real'
Need to escape withdrawal symptoms	⇒	treat symptoms
Reward-driven habit	⇒	extinguish the habit
Problem of impulse control	⇒	enhance self-control
Means of coping	⇒	teach new coping strategies
Response to cultural norms	⇒	'denormalise'

Existing theories of addiction

- Choice, memory and attention
 - Maladaptive choices following economic principles (e.g. Becker & Murphy 1988)
 - Positive and negative ‘outcome expectancies’ (e.g. Christianson & Goldman, 1983)
 - Cognitive biases (e.g. Brown, Christiansen et al. 1987)
- Coping and avoidance
 - Self-medication for pre-existing problems (e.g. Gelkopf et al, 2002)
 - ‘Opponent processes’ generating withdrawal symptoms (e.g. Solomon, 1980)

Existing theories of addiction

- **Reward mechanisms**
 - Deficits in response inhibition (see Lubman, Yucel et al. 2004)
 - Reward-driven habit (e.g. O'Brien, Childress et al. 1992)
 - Functional neurotoxicity on reward pathways (e.g. Weiss et al, 2001)
 - Multi-system learning process (e.g. White, 1996)
 - Incentive sensitisation (e.g. Robinson & Berridge, 2003)
- **More general theories**
 - Maladaptive personality (e.g. Cloninger. 1987)
 - Biologically driven compulsion (e.g. Jellinek 1960)
 - Excessive appetites (e.g. Orford, 2001)

Existing theories of recovery

- Transtheoretical Model (e.g. Prochaska et al, 1985)
- Social learning theory (e.g. Bandura et al, 1977)
- Abstinence violation effect (Marlatt, 1979)
- Identity Shift Theory (e.g. Kearney et al, 2003)

What activities are addictive?

They are all activities that provide pleasure or meet needs but change the individual in ways that reduce the propensity or ability to maintain balance

- They may increase reliance on the addictive behaviour as a source of reward or means of meeting particular needs
- They may create unpleasant reactions when the activity is stopped
- They may create a 'habit'
- They may create an 'acquired drive'

Who is susceptible to development of addiction?

They have a reduced propensity to achieve or be able to restore balance

- They are more impulsive
- They are less committed to conventional morality
- They have a greater propensity to depression or anxiety
- They are lower in self-esteem
- They may be more sensitive to the rewarding effects of the activity/drug
- They may be less sensitive to the aversive effects of the activity
- They may be more sensitive to lasting effects of the drug on the brain

What conditions promote addiction?

Social and physical conditions that are not conducive to motivational balance by virtue of providing opportunities or incentives for a behaviour and/or failing to provide motivation for restraint

- A culture in which the activity is commonplace and regarded as normal
- Peer groups in which the activity forms a part of social identity
- An environment with greater opportunities to engage in the activity
- An environment with reduced opportunities for other sources of reward
- Adverse social, economic or environmental circumstances
- Possibly an environment in which there is lower propensity for the activity to lead to immediate adverse consequences

What conditions promote suppression and recovery?

Suppression is achieved by pharmacological, environmental or psychological methods that restore temporary balance. Recovery is achieved by methods that effect permanent changes to the motivational system to enable it to function in balance

- Full or partial agonist therapy can lead to suppression and sometimes recovery
- Life-changing events that introduce powerful new competing motivations
- Epiphanies can lead to recovery

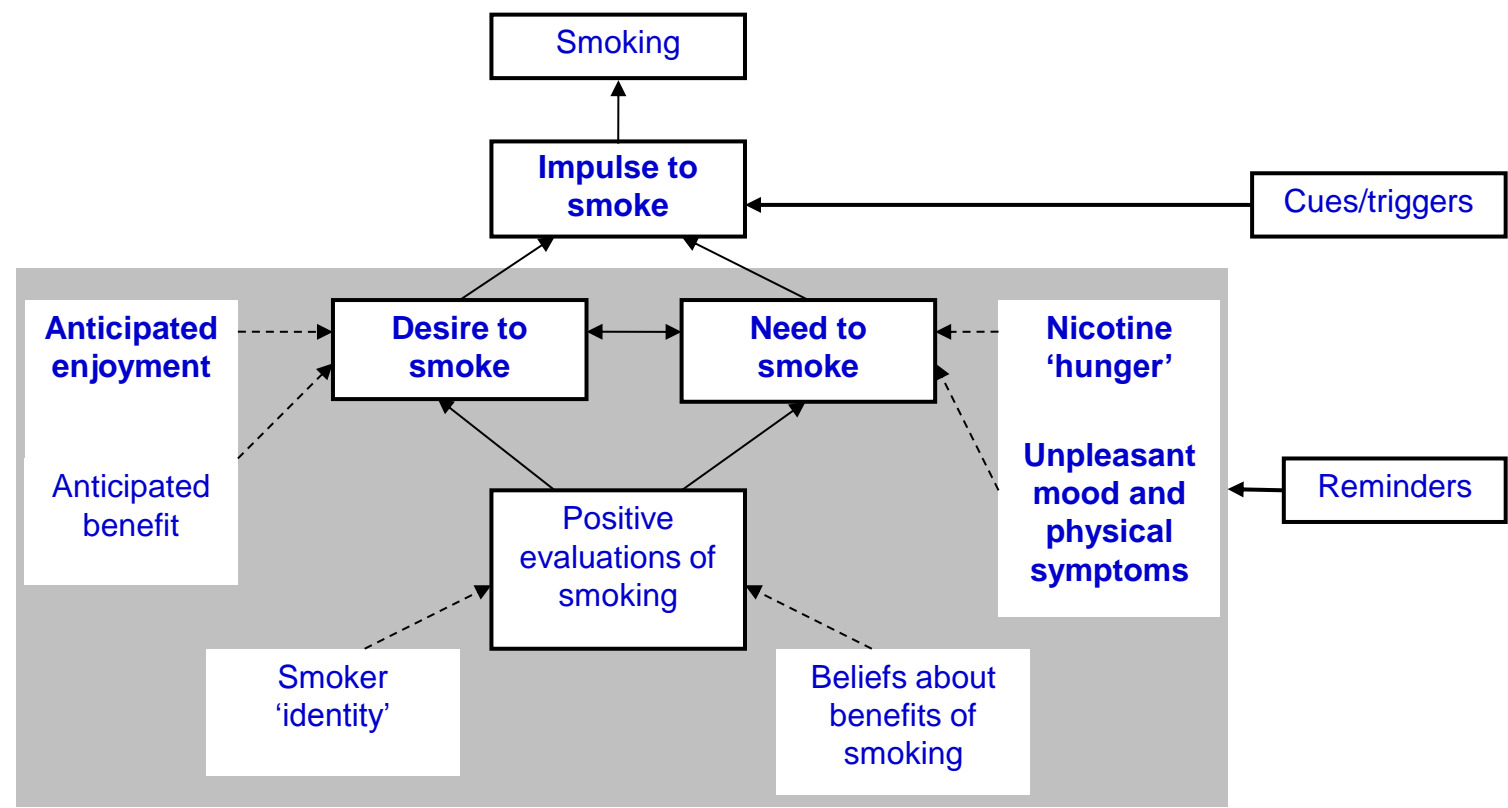
4. Applying PRIME theory to addiction

Addiction and dependence

Addictions are activities that are given an unhealthy priority because of a disordered motivational system

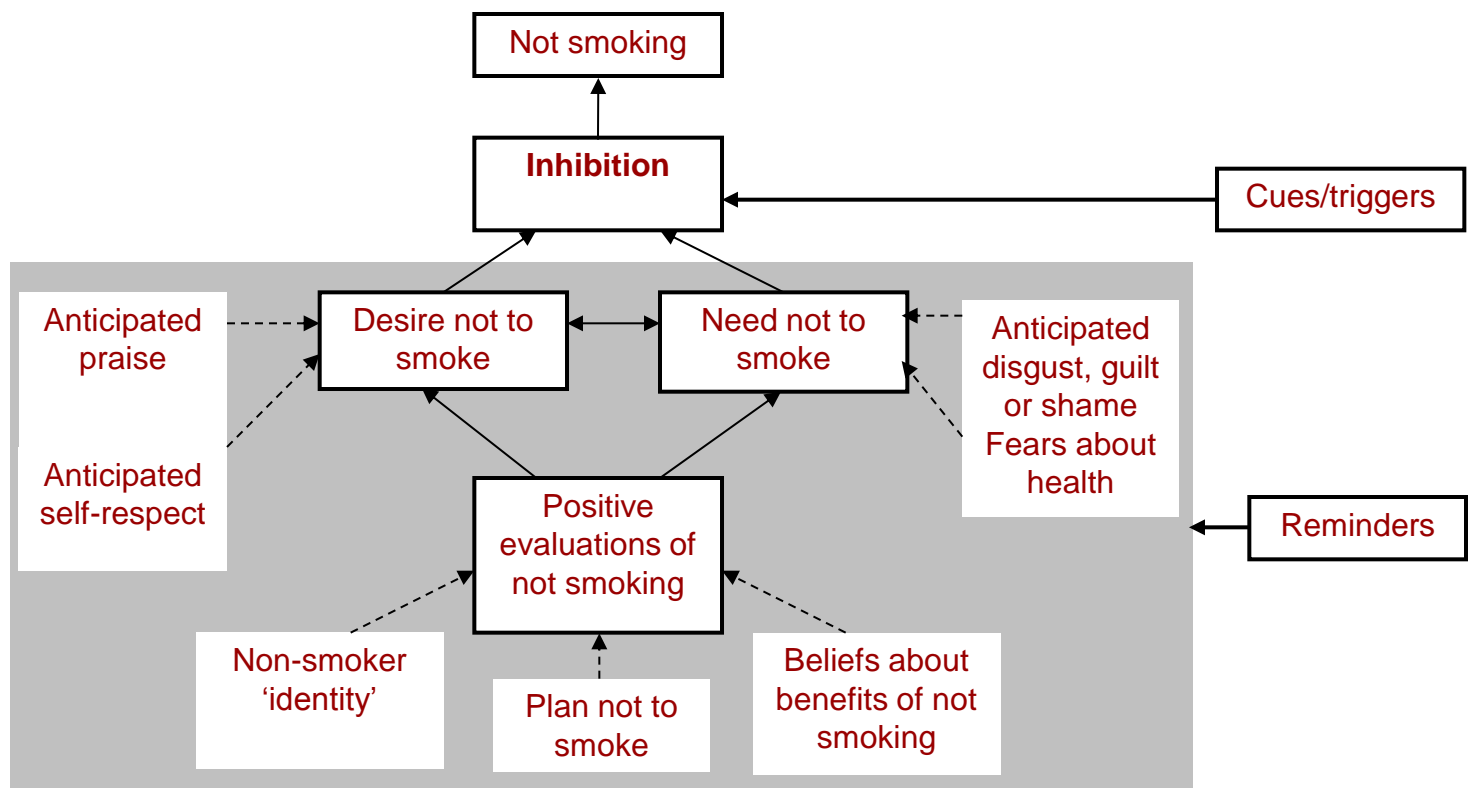
Dependence refers to the nature of that disorder. It varies from individual to individual and behaviour to behaviour

Example: Motivation to smoke



Nicotine dependence involves generation of acquired drive, withdrawal symptoms, strong desires from anticipated enjoyment and direct simulation of impulses through habit learning

Example: Inhibition of smoking



Nicotine dependence also involves impairment of impulse control mechanisms undermining response inhibition

Promoting change: principles

- For control of behaviour:
 - apply maximum acceptable motivational pressure as much of the time as possible
 - restrict/provide opportunities/triggers
 - suppress drive states and enhance impulse control
- To achieve self-sustaining change:
 - change identity
 - foster permanent changes in dispositions to generate impulses, wants, needs and evaluations

Example: Brief interventions

Interventions should:

- induce a feeling of *desire or need* to change
- translate that into an *impulse* to initiate a change before it dissipates
- create a lasting commitment to the change based on a *shift of identity*
- trigger *supporting activities* that can sustain the plan

4. Some hypotheses

Predicting change

1. Markers of unconflicted shifts in identity (epiphanies) will predict lasting recovery
2. Users who 'want' to change will be more likely to be successful than those who 'need' to change
3. Pro- con- types of analysis will be largely ineffectual in promoting change

Predicting change

4. Changes in incentives will have a greater effect in individuals already motivated to change
5. Offering help to all-comers will result in greater uptake and lasting change than asking who wants it and then offering it
6. Bursts of action-oriented change messages from different sources will be more effective in triggering change than attitude-oriented messages

Conclusions

1. Human motivation can be construed as a system of interacting forces resulting from internal and external stimuli operating on innate and learned dispositions
2. The system is inherently unstable and requires constant balancing input to remain adaptive
3. Addiction arises out of a failure of balancing input leading the system down maladaptive paths in which an unhealthy priority is given to certain behaviours

Conclusions

4. The disordered motivational system may involve a wide range of abnormalities at multiple levels
5. Suppressing the addiction requires sustained countervailing motivational pressure, measures that maintain balance and restriction of opportunities
6. Achieving self-sustaining change requires methods to achieve lasting changes to dispositions, including a change in identity