Conditioning, reinforcement and observational learning

Supported GRE teaching and original transfer practice

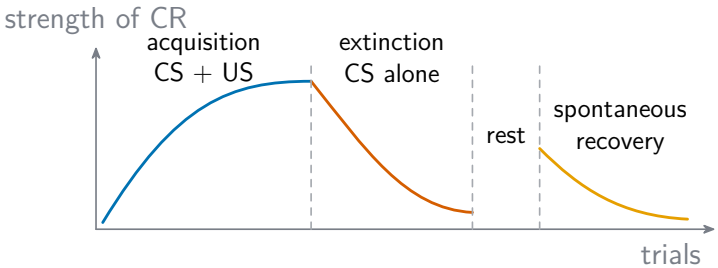
Conditioning, reinforcement and observational learning

- Name the parts of **classical conditioning** and its main effects.
- Classify reinforcement and punishment in **operant conditioning** .
- Recognise the four **reinforcement schedules** by the patterns they produce.
- Explain **observational learning** and its conditions.

Classical conditioning

- Acquisition works best when the CS comes just before the US and reliably predicts it. Pairing alone, without prediction, is weak.
- **Extinction** : the CS appears without the US, and the CR weakens.
- **Spontaneous recovery** : after a rest, an extinguished CR returns, partly. **Extinction** is new learning, not erasure.
- Generalisation: similar stimuli also produce the CR. Discrimination: the learner responds only to the CS that predicts the US.

Figure: Classical conditioning



- **Extinction** is not erasure: the response can return after a rest.
- Read the axes and units first.

Operant conditioning

- Is something added (positive) or removed (negative)?
- Does the behaviour increase (reinforcement) or decrease (punishment)?
- **Negative reinforcement** removes something unpleasant, so the behaviour increases. It is not punishment. Escape (ending a headache with aspirin) and avoidance (leaving early to miss traffic) are both **negative reinforcement**.
- Shaping reinforces closer and closer approximations to a target behaviour.

Figure: Operant conditioning

	behaviour increases	**behaviour decreases**
add (positive)	positive reinforcement token after reading	positive punishment a fine added
remove (negative)	negative reinforcement aspirin ends a headache	negative punishment game access removed

- Positive and negative mean add and remove; the behaviour's direction decides the rest.
- Match each part of the diagram to the text.

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Reinforcement schedules

- Fixed ratio (every 5th response): high rate, with a pause after each reward.
- Variable ratio (on average every 5th): the highest, steadiest rate and the strongest resistance to **extinction**, as in gambling.
- Fixed interval (first response after 60 s): scalloped responding that speeds up near the end of each interval.

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Reinforcement schedules (2)

- Variable interval (first response after a varying time): a steady, moderate rate.
- Partial reinforcement makes behaviour harder to extinguish than reinforcing every response.

Observational learning

- Four conditions: attention to the model, retention, the ability to reproduce the action, and motivation.
- Vicarious reinforcement: seeing the model rewarded raises imitation; seeing the model punished lowers it.
- Children who saw the model punished still learned the action: they reproduced it when offered a reward. Learning and performance are different.

Worked example: classifying consequences

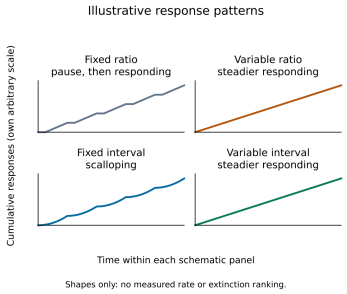
- A teenager loses phone access after rude remarks, and the remarks decrease: something wanted is removed and the behaviour falls, so negative punishment.
- An alarm stops when homework begins, and starting homework increases: something unpleasant is removed and the behaviour rises, so **negative reinforcement**.
- The word "removed" appears in both. The direction of the behaviour decides the label.

Worked example: schedules

- A factory pays for every 10 shirts sewn: fixed ratio. Expect a short pause after each payment.
- A slot machine pays after an unpredictable number of plays: variable ratio, with fast play that is hard to extinguish.
- Checking email that arrives at random times: variable interval. Checking more often does not make mail arrive sooner, so the rate is moderate.

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Figure: Worked example: schedules



- Each reinforcement schedule leaves its own shape in the cumulative record
- Read the axes and units first.

Common errors

- Calling **negative reinforcement** punishment.
- Calling every unpredictable reward variable ratio; if time decides, it is variable interval.
- Treating **extinction** as forgetting.

Common errors (2)

- Classifying by the intention of the person giving the consequence, not by what happens to the behaviour.
- Assuming a child who does not imitate has not learned.

Key terms

- **classical conditioning**: Learning in which a neutral stimulus comes to predict an unconditioned stimulus and produce a response.
- **operant conditioning**: Learning in which behaviour changes because of its consequences.
- **extinction**: The weakening of a learned response when the CS no longer predicts the US, or the behaviour is no longer reinforced.
- **spontaneous recovery**: The partial return of an extinguished response after a rest.

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Check yourself

- A dog salivates to a bell after many pairings with food. What is the bell now?
- A driver fastens a seat belt to stop a buzzer. What kind of consequence is this?
- Which schedule produces scalloped responding?