

Levels of explanation in (biological) psychology

Huib Looren de Jong

VU FPP

Interlevel relations

- Classical reduction (bridge laws, connectability and deducibility) fails:
reduced theory corrected, meaning change
- No bridge laws in psychology: two different conclusions:
 - autonomy (multiple realisation)
 - eliminating psychology

Multiple realisation, autonomy

- Autonomous functional explanation (causal role), neural level implementation irrelevant
- MR: lots of psycho-physical connections but not laws
- *but*: then local reductions (Kim)
- Kim: function not causal, no explanation: finding realisers is

Kim: Multiple realisation, local reduction

- Kim: functionalising strategy
- real explanations are causal
- function not causal, no explanation
- functionalising is finding physical realisers for functions
- functionalising is reduction without bridge laws
- MR does not support autonomy

Grain size: pluralism

- Functional-to-neural identification is tentative, theory dependent: grain size (Bechtel et al.)
- multiplicity of explanatory questions
- *Interim conclusion: MR: from autonomy to reduction to pluralism*

Eliminativism- NWR

- No psychophysical identities: replace psychology with neuroscience
- New Wave Reductionism (Bickle):
continuum of correction between retention (“smooth”) and elimination (“bumpy”)
- Churchland, Bickle: neuroscientific image explains functional phenomena

Eliminativism is too simple

- NWR only theory succession (diachronous), retention-replacement continuum
- McCauley: two dimensions: diachronous succession and synchronous coexistence
- synchronous bottom-up and top-down selection pressure
- *Interim conclusion: coexisting theories, explanatory pluralism*

Pluralism, heuristic identity

- McCauley & Bechtel: heuristic interlevel identifications
- HIt (unlike classical identities) dynamic, revisable; further research; intra level adjustments

Explanatory pluralism

- Explanatory pluralism: third way between autonomy and elimination
 - top down and bottom up adjustment, coevolution
 - coexisting theories
 - heuristic identities between theories

Behavioral genetics

- “Genes for” personality?
- Temperament (novelty seeking) related to dopamine and related to repeats on D4DR
- biochemical constraints on psychological theorising, genetic causes of neurotransmitters, etc.
- coevolution of semi-autonomous theories, mutual correction and corroboration

Conclusion

- Biological psychology is a matter of multiple explanations at multiple levels
- No reduction (identities), no autonomy, theory succession (elimination) not plausible
- Coevolution, mutual correction and heuristic identifications