Laws of Nature II
Preliminary Remarks

- Last week: Regularity account

- Regularity account faces various problems.

- This week: Alternative accounts, viz. Necessitarian account and sophisticated Regularity accounts.
Regularity Account – Problems

• Not all Regularities are Laws
  ➢ Laws vs. Accidental Generalisations (general case, single instance)
  ➢ Vacuous laws
  ➢ Co-extensionality objection
  ➢ Counterfactuals
  ➢ Uninstantiated values
  ➢ Explanatory failure

• Not all Laws are Regularities

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Necessitarian Account - Intro

- Laws ≠ mere regularities
- Law statements imply true universal generalisations, not vice-versa.
- There is a necessary connection between objects OR properties in laws.
- N.B.: Metaphysics welcome here!!!
Necessitarian Account – Dretske

• There is a necessary connection between properties (read: universals) in laws.

• The presence of F-ness necessitates the presence of G-ness.

• A law statement is a singular statement that expresses a relationship between properties, not between the extensions of those properties.

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Necessitarian Account

• Presumably avoids Regularity account objections
  - Laws vs. Accidental Generalisations
  - Vacuous laws
  - Co-extensionality
  - Counterfactuals
  - Uninstantiated values
  - Explanatory Failure

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Necessitarian Account - Problems

• What is this necessary connection? How are we meant to understand it?
  Hume’s objection: We can’t experience it…
  What is it then?

• Can we really distinguish between confirmed regularities and laws? On what basis?

• Occam’s razor: Can we make do without necessity, causality and universals?

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Revised Regularity Account (1)

- If being a regularity is a necessary but not a sufficient condition for being a law, what other conditions, if any, can be added to reach sufficiency?
Revised Regularity Account (2)

• Laws are more than regularities

• law = universal truth + X

where X is one or more of the following:

(1) predicates must not be gerrymandered (must be natural kind terms)
(2) high degree of confirmation
(3) wide acceptance
(4) explanatory potential
(5) deductive integration
(6) predictive use

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Problems w/the Revised Account

• Natural kind terms: Difficult to tell which of them, if any, are genuine natural kind properties.

• High degree of confirmation AND wide acceptance: These are epistemic notions and as such irrelevant.

• Explanatory potential: Universal generalisations can’t explain.

• Deductive integration: Doesn’t solve the problem but postpones it.

• Predictive use: How’s that going to make a difference?

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MRL/Systematic Account

• ‘MRL’ (after Mill, Ramsey and Lewis) or ‘Systematic Account’

• Species of the Revised Regularity Account

• According to MRL:

A regularity is a law of nature *if and only if* it appears as a theorem or axiom in that true deductive system which achieves a best combination of simplicity and strength.

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MRL Account - Problems

• Notions of *simplicity* and *strength* notoriously difficult to pin down.

• Even if we put this problem aside, how do we decide how much weight to assign to each?

• Different systems will specify different laws, some of which will be inconsistent!!!

• Why should there be one system that optimally combines simplicity and strength?
Food for Thought

• The impasse seems to depend on the *demands* we place on the correct account of laws.
  - Modality for Necessitarians
  - No Metaphysics for Regularity theorist

How do we decide which are the right demands?
Reading

• Bird, A. ‘Natural Kinds’, ch. 1, pp. 34-54.