

Gambling with Australian brachiopods

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All species that have ever lived are, to a first approximation, dead.

(Raup 1986 The Nemesis Affair)

Question

Why do certain taxa go extinct at different rates?

Modes of extinction

Field of Bullets – Wanton – Fair Game

(Raup 1991 Extinction: Bad Genes or Bad Luck?)

Common observation

Known pattern

Species with large geographic ranges have a low extinction risk.

Expected given **purely random** extinction.

Gambler's Ruin

Definition

Given infinite time, all gambler's go bust. The rate is proportional to starting chip count.

Gambler \equiv Taxon

Chip count \equiv Range, Species:Genus, etc.