Biocollections, hierarchical models & islands

\[ \int_{\theta_s} \frac{\mathbb{P}(\hat{D} \mid S, M)\mathbb{P}(S, M)}{\mathbb{P}(\hat{D})} \, d\theta_s \]

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Thanks!

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Sampling problems
Sampling problems
Sampling problems
Hierarchical models
Hierarchical models

\[ P(\text{real data} \mid \text{sampling, latent data}) \]
Hierarchical models

\[
P(\text{latent data}|\text{model})
\]
Hierarchical models

\[ P(\text{model} \mid \text{real data}) = \int_{\theta_S} \frac{P(\text{real data} \mid \text{sampling, latent data})P(\text{latent data} \mid \text{model})P(\text{sampling, model})}{P(\text{real data})} \, d\theta_S \]
Use case: Networks

```
HDIM6643; laupLSAG_10
beating **Melicope** 65 sec.
09:25–10:08; 2015-oct-1
B. Cote coll.
```
Use case: Networks

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Use case: Networks

HDIM6643; laupLSAG_10 beating Melicope 65 sec. 09:25–10:08; 2015-oct-1
B. Cote coll.
Use case: Macro eco-evo

Do widespread species distributions promote or inhibit diversification?
Use case: Macro eco-evo

Clade speciation rate

Clade range size

?
Use case: Macro eco-evo

CHALLENGE

Clade range size

Clade speciation rate
Use case: Invasion $\beta$

Distance

Similarity

Invasive

Native

?
Use case: Invasion $\beta$

CHALLENGE
Use case: Invasion $\beta$
Digitization

Published studies

Databases/API

e.g. iDigBio

e.g. Dryad

e.g. TreeBase

R packages

e.g. ridigbio

Query
Digitization

Published studies

Databases/API

- e.g. iDigBio
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Query

Analyze

Integrate