# Data science cultures

Reality      x → **Nature** → y

f(x) ← Trying to learn this

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Natural processes culture    x → **Mechanistic model** → y    Natural process algorithms

Generative modeling culture    x → **Generic model** → y    Phenomenological algorithms

Algorithmic modeling culture    x → **Generic algorithm** → y    Arbitrary algorithms
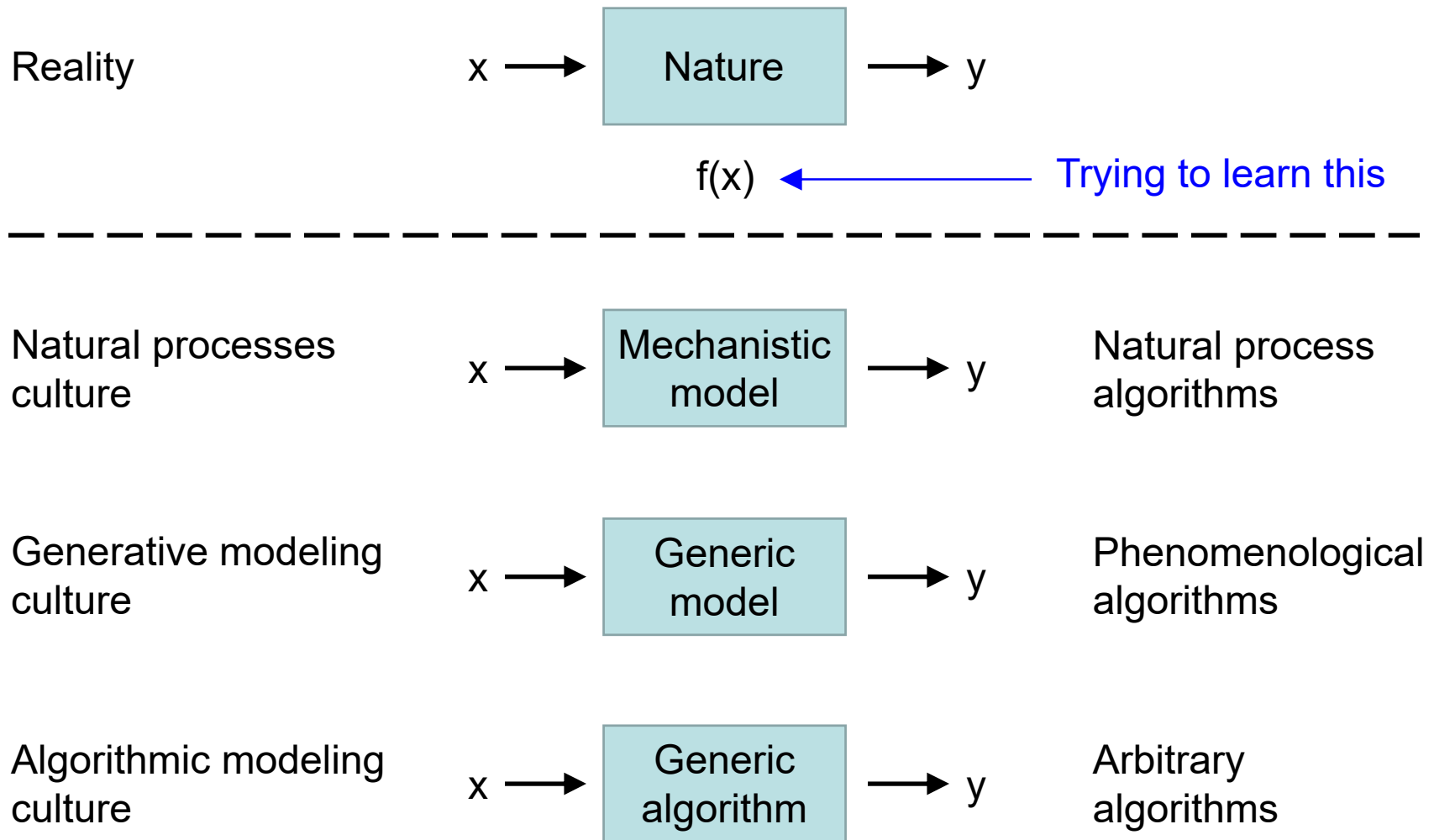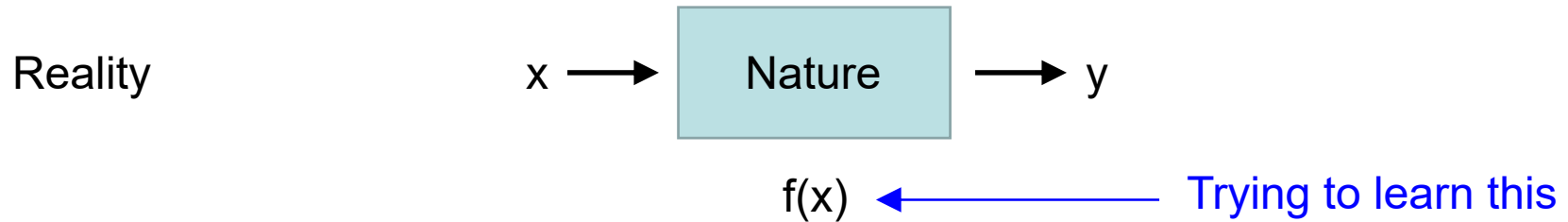
f can mean different things in different cultures

Breiman (2001)
Denoho (2017)

# Data science cultures
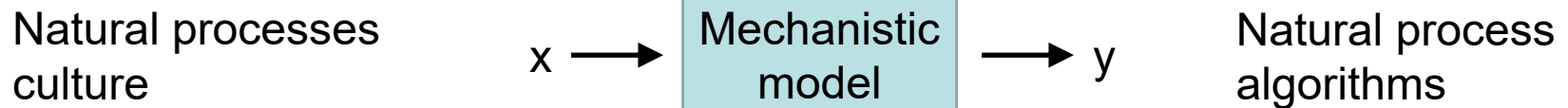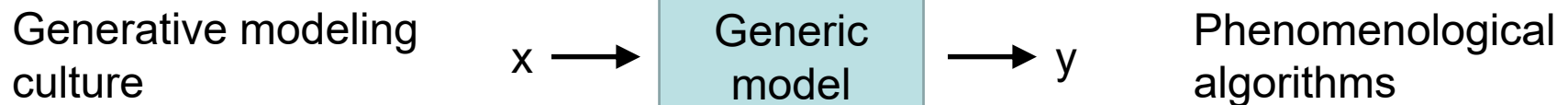
Reality      x ⟶ Nature ⟶ y

f(x) ⟵ Trying to learn this

Ecological model

Natural processes culture    x ⟶ Mechanistic model ⟶ y    Natural process algorithms

GLMM

Generative modeling culture    x ⟶ Generic model ⟶ y    Phenomenological algorithms

Machine learning

Algorithmic modeling culture    x ⟶ Generic algorithm ⟶ y    Arbitrary algorithms
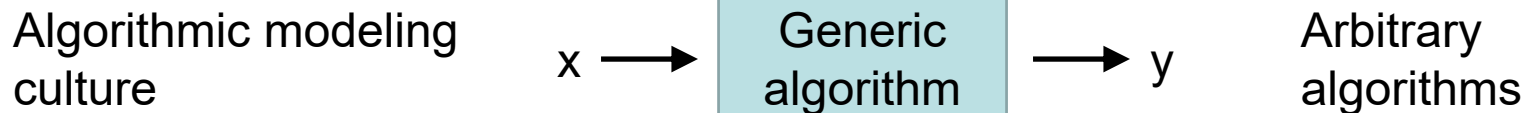
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# Discussion: data science in EBIO

- What are some goals of ecology and evolutionary biology?

- ... or what do we want to do with data?

- How can the different cultures help us with those goals?