LexMapr's classification system

How LexMapr can map samples
to your personal classification schema

Disclaimer

LexMapr's classification system is a work-in-progress.

These slides discuss the **logic** used by LexMapr to classify samples. It is currently not possible to utilize the classification functionality for your own needs, without closely working with our development team as we continue to develop LexMapr's classification system.

The ability to actually run LexMapr on your own classification scheme will be possible at a future date, at which point we will extend these slides.

Outline

What classification looks like

LexMapr maps samples to ontology terms

e.g.,

`Chicken Breast` ➡️ `chicken breast:foodon_00002703`

`Baked Potato` ➡️ `potato (whole, baked):foodon_03302196`

`Canned Corn` ➡️ `corn (canned):foodon_03302665`

`Frozen Yogurt` ➡️ `frozen yogurt:foodon_03307445`

`Apple Pie` ➡️ `apple pie:foodon_00002475`

What classification looks like

But you may want to map samples to your own classification schema

e.g.,

`Chicken Breast` ➡️ `meat`

`Baked Potato` ➡️ `vegetable`

`Canned Corn` ➡️ `vegetable`

`Frozen Yogurt` ➡️ `dairy`

`Apple Pie` ➡️ `fruit`

What classification looks like

LexMapr allows you to do this, by classifying mapped ontology terms

e.g.,

`Chicken Breast` ➡️ `chicken breast:foodon_00002703` ➡️ `meat`

`Baked Potato` ➡️ `potato (whole, baked):foodon_03302196` ➡️ `vegetable`

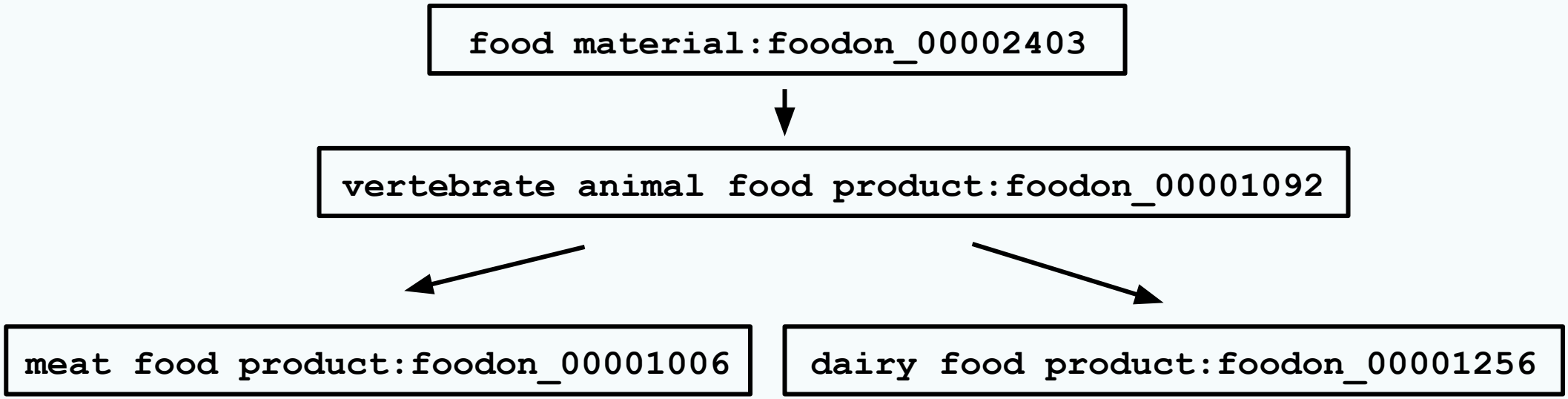
`Canned Corn` ➡️ `corn (canned):foodon_03302665` ➡️ `vegetable`

`Frozen Yogurt` ➡️ `frozen yogurt:foodon_03307445` ➡️ `dairy`

`Apple Pie` ➡️ `apple pie:foodon_00002475` ➡️ `fruit`

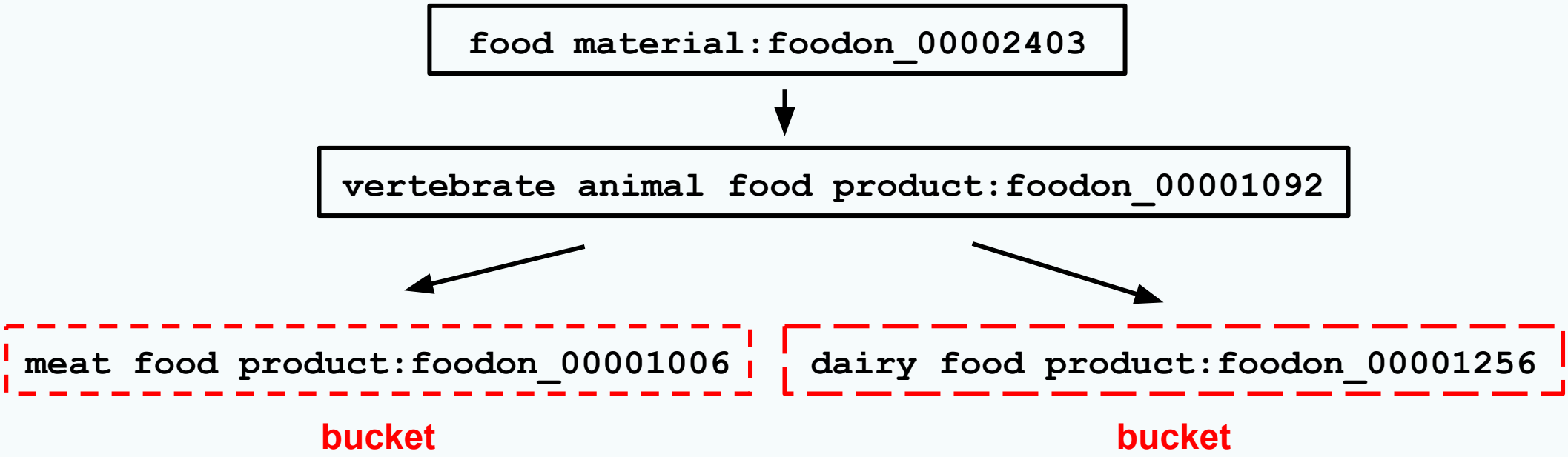
Buckets and classification

Recall the structure of an ontology



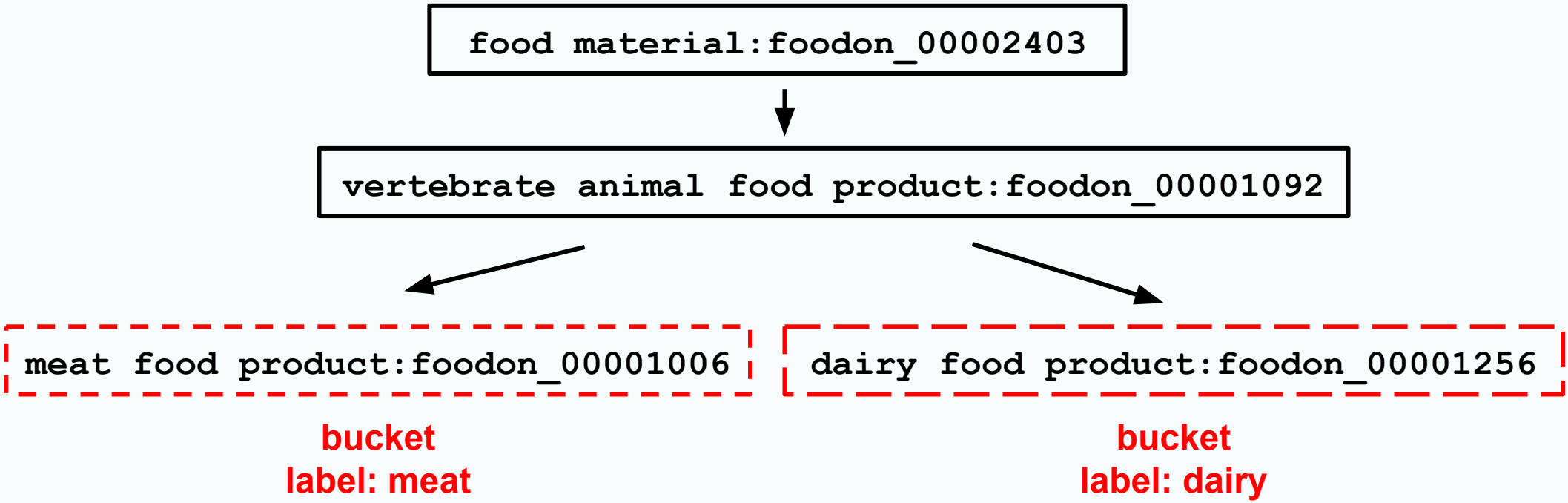
Buckets and classification

LexMapr can designate certain nodes of an ontology as **buckets**



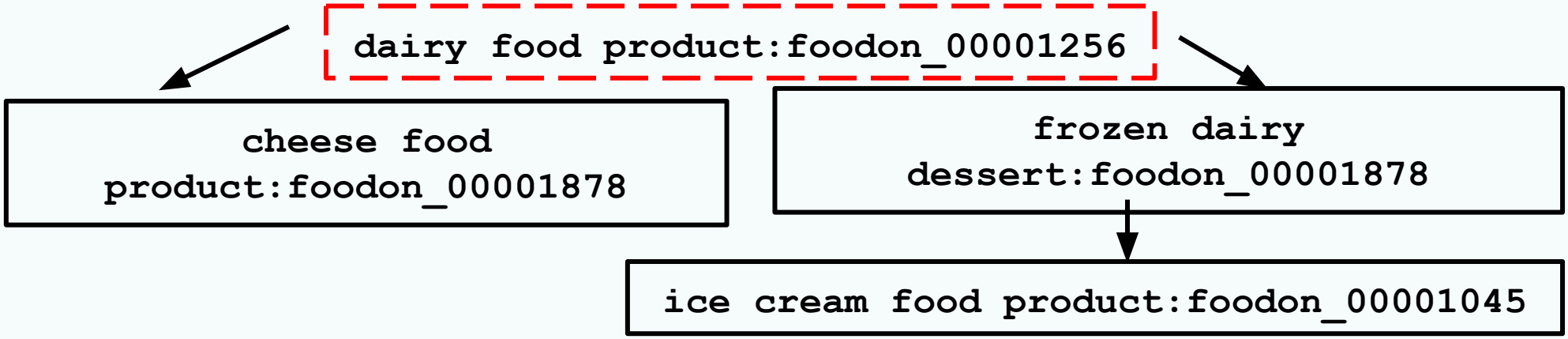
Buckets and classification

Each bucket has its own label



Buckets and classification

Any sample mapped to a **bucket or its descendants** is classified with the bucket's label



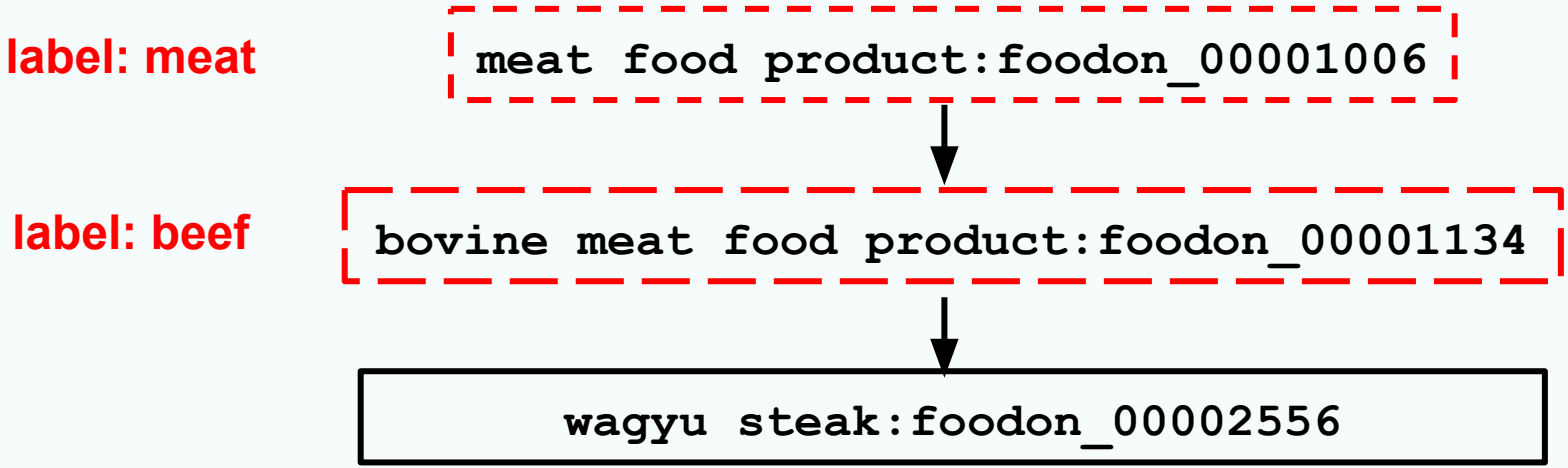
dairy food ➡️ dairy food product:foodon_00001256 ➡️ dairy

ice cream ➡️ ice cream food product:foodon_00001045 ➡️ dairy

cheese ➡️ cheese food product:foodon_00001878 ➡️ dairy

Buckets and classification

If there are nested buckets, a mapped ontology term is classified to its most recent ancestor



`wagyu steak` ➡️ `wagyu steak:foodon_00002556` ➡️ `beef`

Buckets and classification

To summarize the idea of buckets:

You pick nodes from the ontologies you are mapping your samples against, to designate as buckets

You give the buckets labels fitting your classification scheme

Any samples mapped to a bucket, or its descendants, will be classified under your classification scheme

Rules and classification

LexMapr permits classification “rules” that allow you to further refine the results of bucket mapping

e.g.,

if you map “dairy” and “cow”, remove “cow”

if you map “pork” and “meat”, remove “meat”

if you map “pork” and “clinical/research”, remove “pork” and add “pig”