

Problem Case



Question:
You are a taxonomist.
Answer the following
multiple-choice
questions about the
organism in the image.

L1: what is the taxonomic
classification at ...
A. animalia

L2: what is the taxonomic
classification at ...
A.mollusca
B.annelida
C.arthropoda
D.chordata

L3: what is the taxonomic
classification at ...
A. mammalia
B. aves
C. clitellata
D. malacostraca
...

Problem Setup

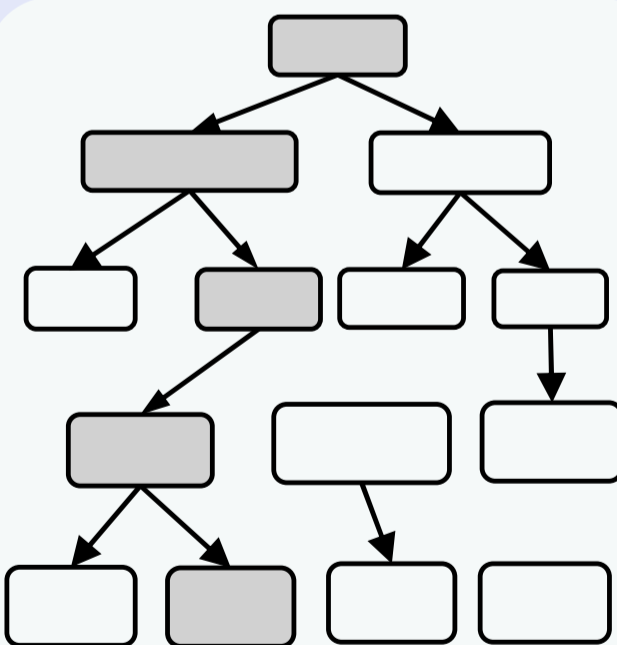


Text



Image

Flatten into VQA



Hierarchical
Taxonomy Search

Forward Propagation and Answer Decoding

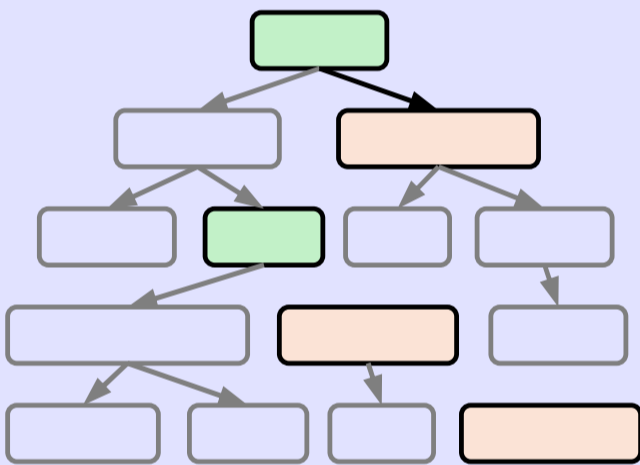
These questions
keep getting
harder, and I
end up just
guessing each
answer.

Origin VLM

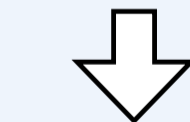


Answer

L1: animalia
L2: arthropoda ×
L3: aves ×
L4: adapedonta ×
L5: cathartidae ×
L6: felis ✓
L7: catastictanimbice ×



Self-Elicited Knowledge Distillation



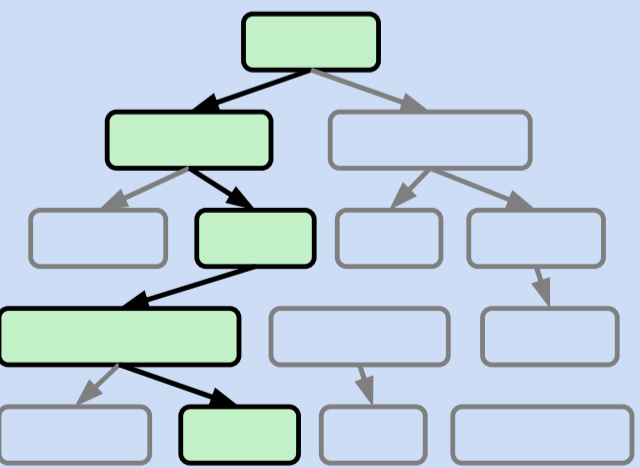
VLM after SKED

As the early
problems get
solved, the
later ones
naturally fall
into place.



Answer

L1: animalia
L2: chordata ✓
L3: mammalia ✓
L4: carnivora ✓
L5: felidae ✓
L6: felis ✓
L7: felis catus ✓



Let the VLM Teach Itself

We can solve
L1 first



Yes!

Next, go from
L1 to L2.



...

Finally, from
Ln-1 to Ln

