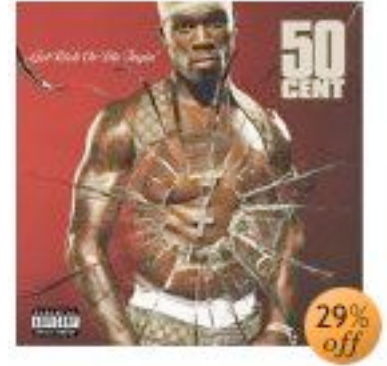


# Know Your Evolutionary History

An introduction to phylogeny

# Know your music history - Gangsta Rap

2007



2003



Eminem

50 Cent

1999



Dr. Dre

Tupac  
Shakur †  
(RIP)



Mack 10

1994



Eazy E †  
(RIP)

Snoop  
Dogg

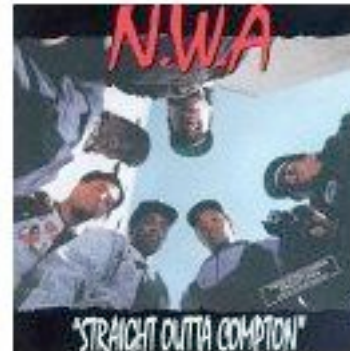
Death Row

Ice Cube



1990

N.W.A.



1988

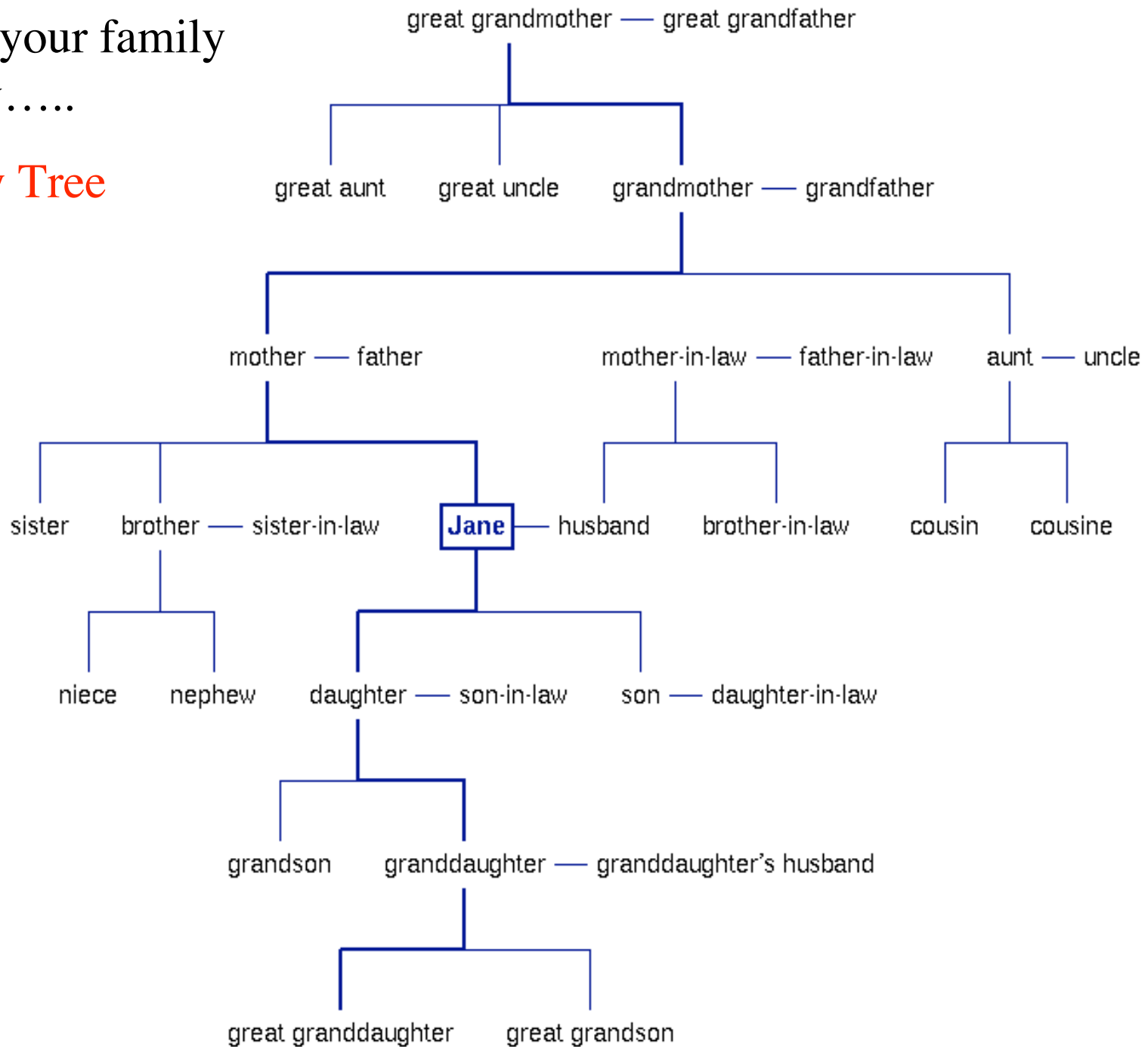
Public Enemy

1986



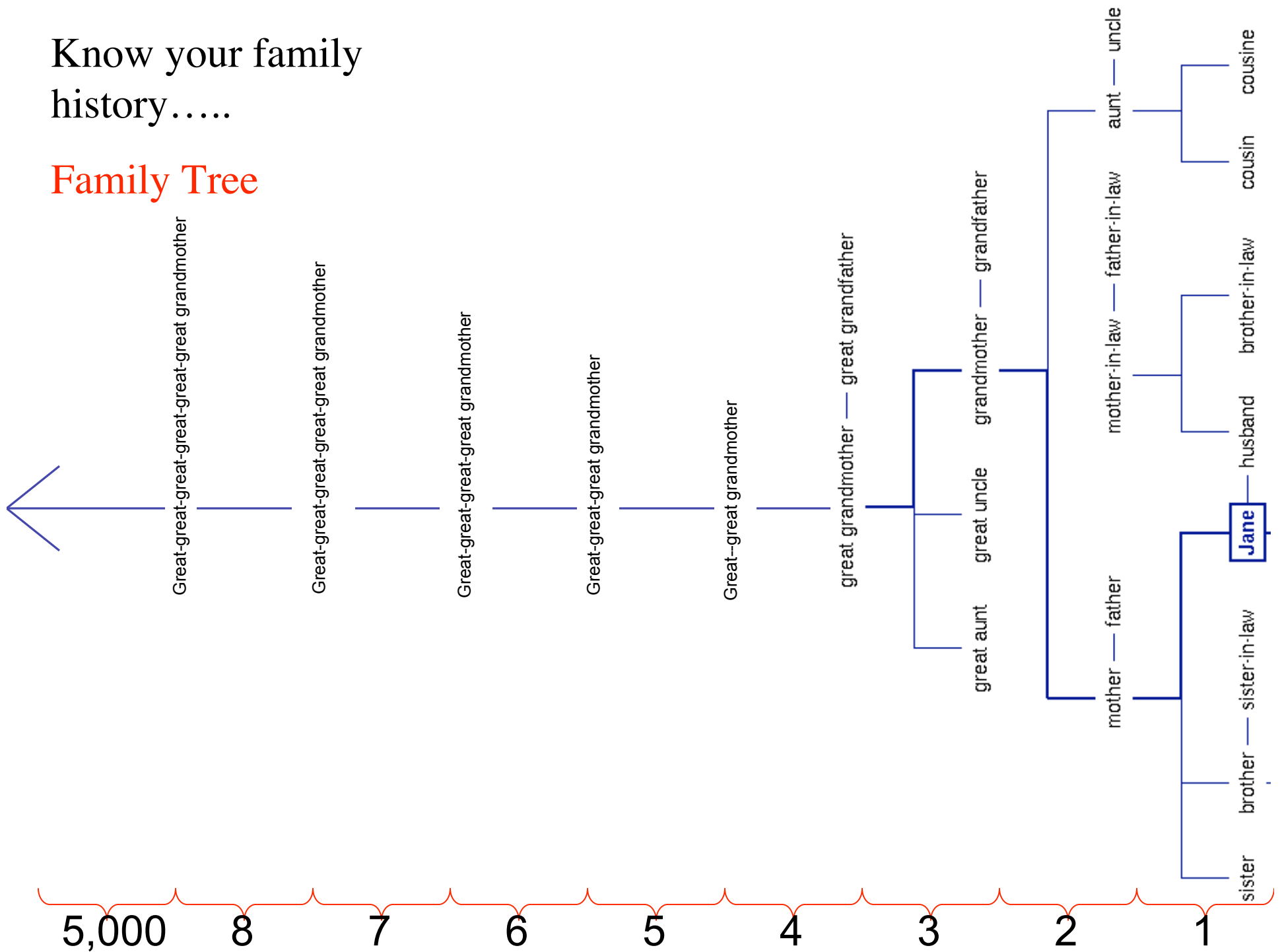
Know your family  
history.....

## Family Tree



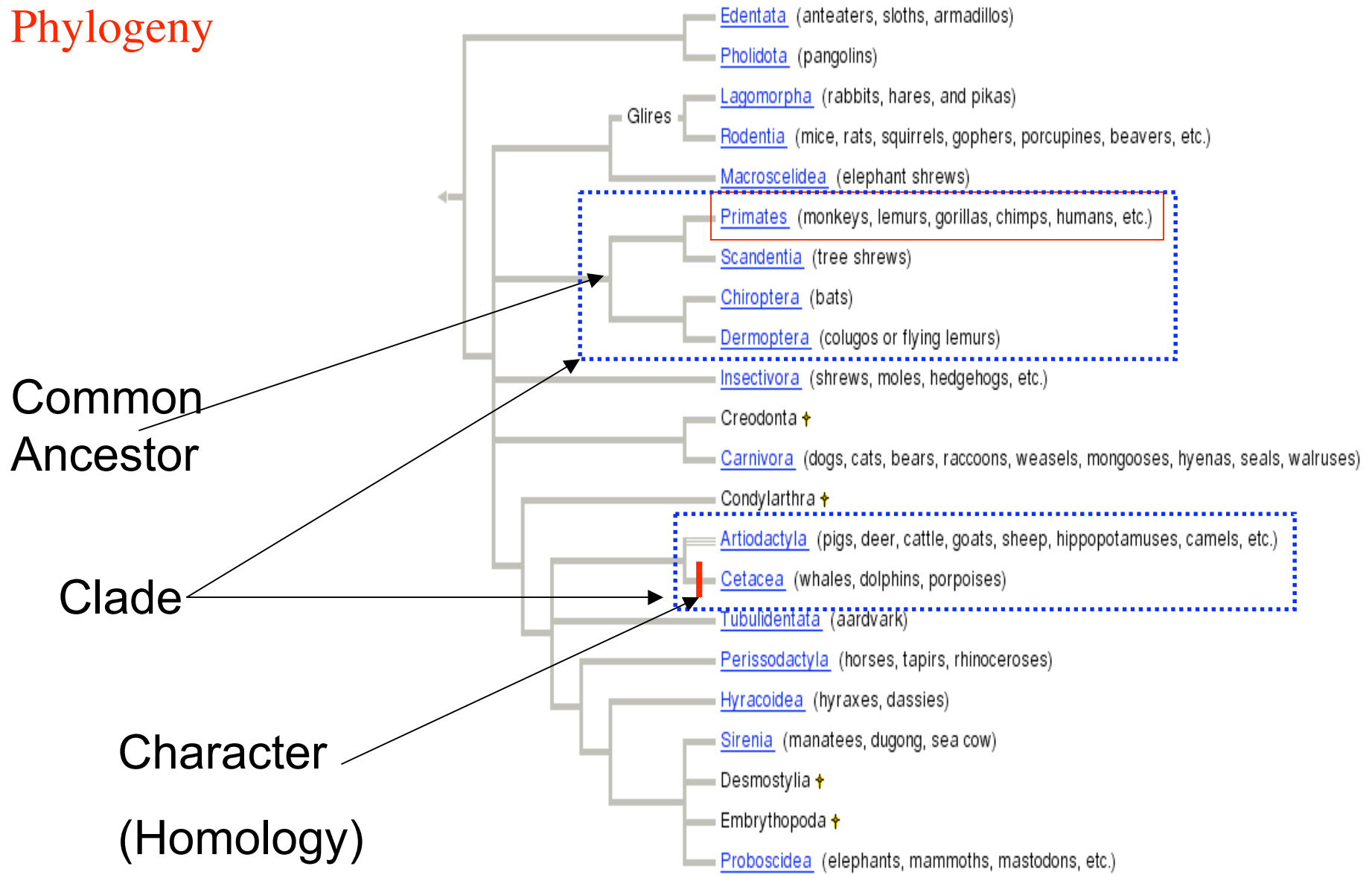
Know your family history.....

## Family Tree



# Know your evolutionary history....

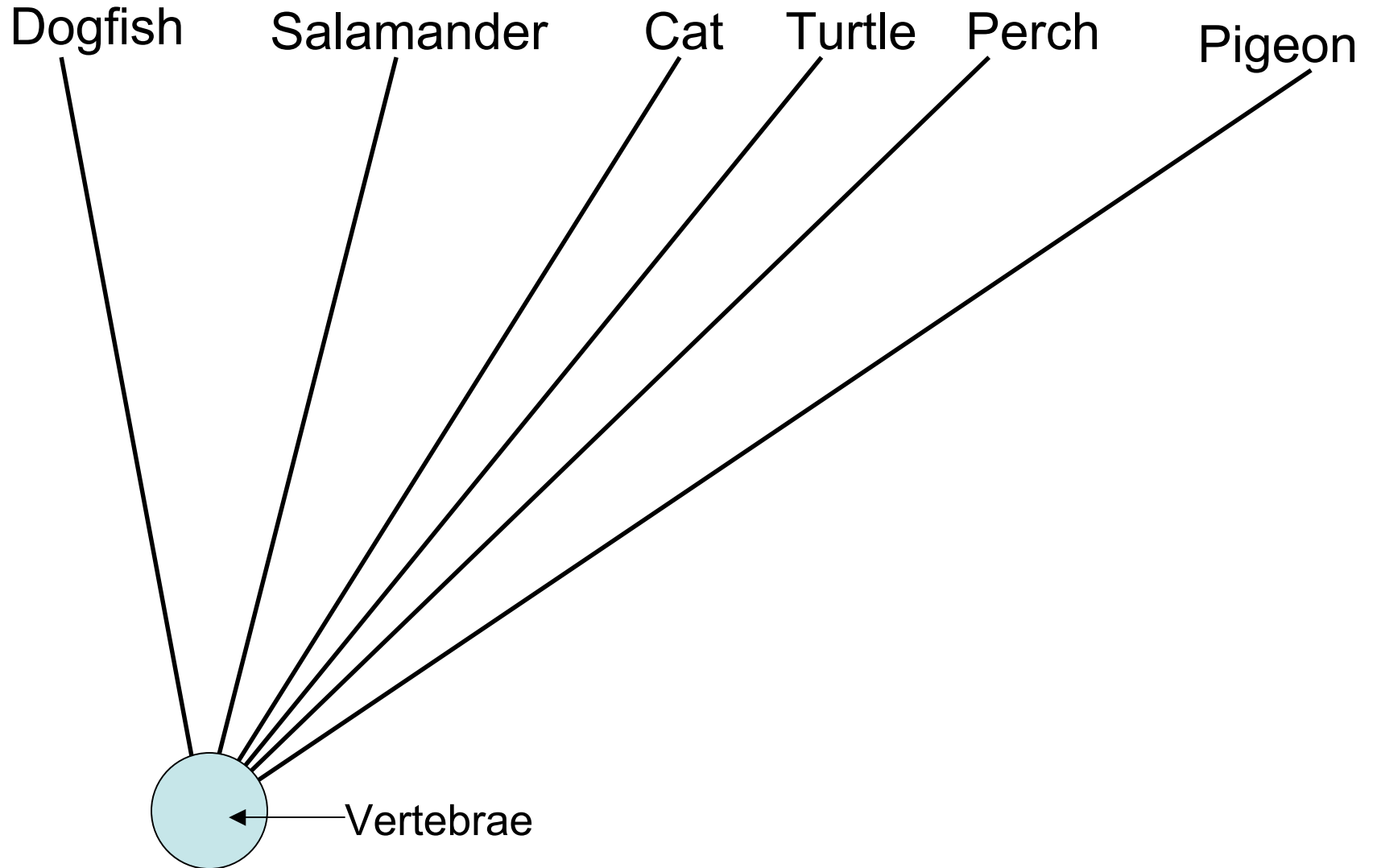
## Phylogeny



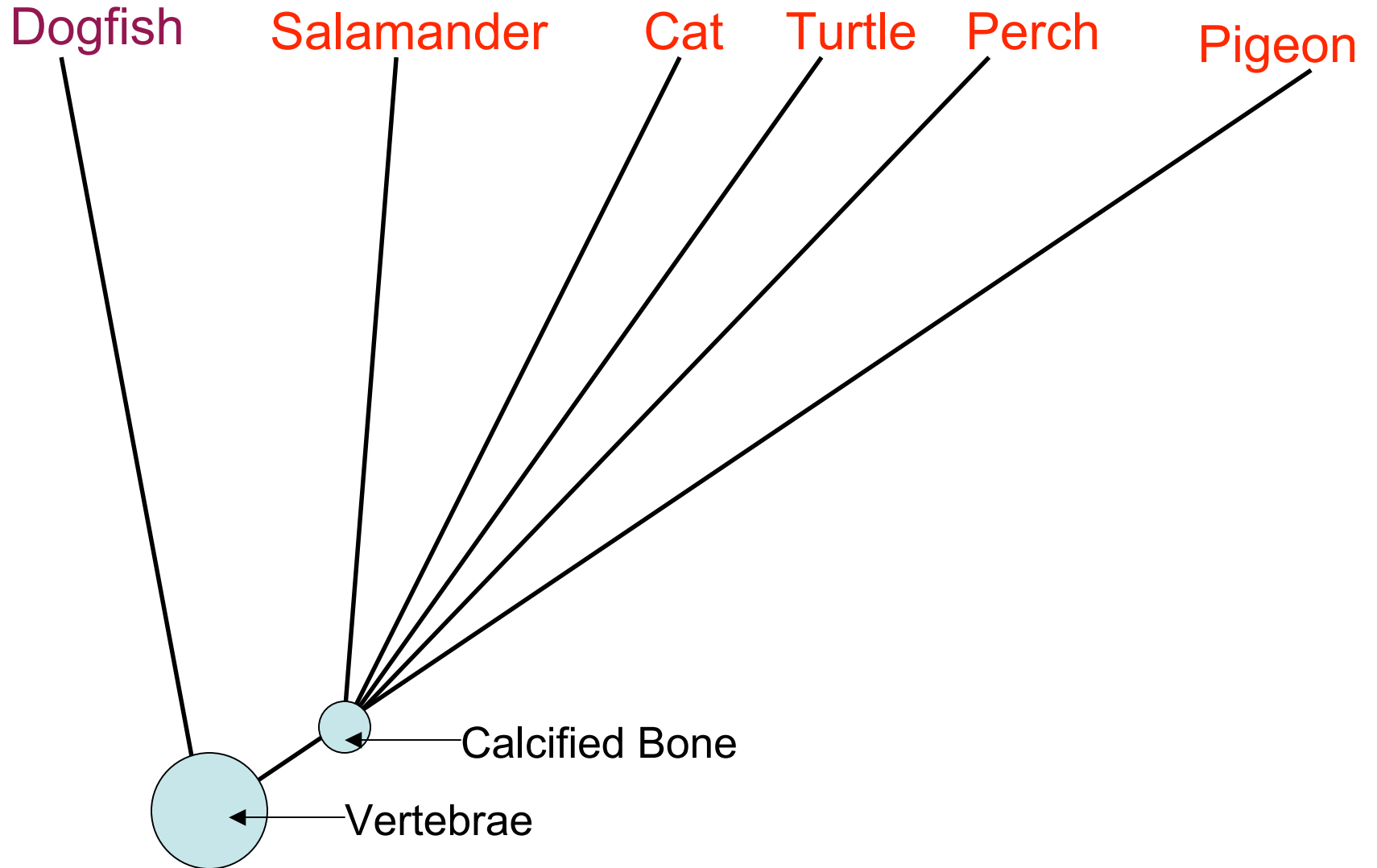
# Homology Data Table

	1. Vertebrae	2. Calcified bone	3. 4 limbs	4. Egg with Amnion	5. Pronounced Large Intestine	6. Skin Covering	7. Pronounced Dorsal Process on vertebrae	8. Egg with mineralized shell	9. Beak	10. Keeled Breastbone	11. Diaphragm	12. Thoracic vertebrae fused into shell
<b>Shark</b>	1	0	0	0	0	1	0	0	0	0		0
<b>Perch</b>	1	1	0	0	0	2	0	0	0	0	0	0
<b>Salamander</b>	1	1	1	0	0	3	0	0	0	0	0	0
<b>Turtle</b>	1	1	1	1	1	4	0	1	1	0	0	1
<b>Pigeon</b>	1	1	1	1	1	5	0	1	1	1	0	0
<b>Cat</b>	1	1	1	1	1	6	1	0	0	0	1	0

# Vertebrate Phylogeny

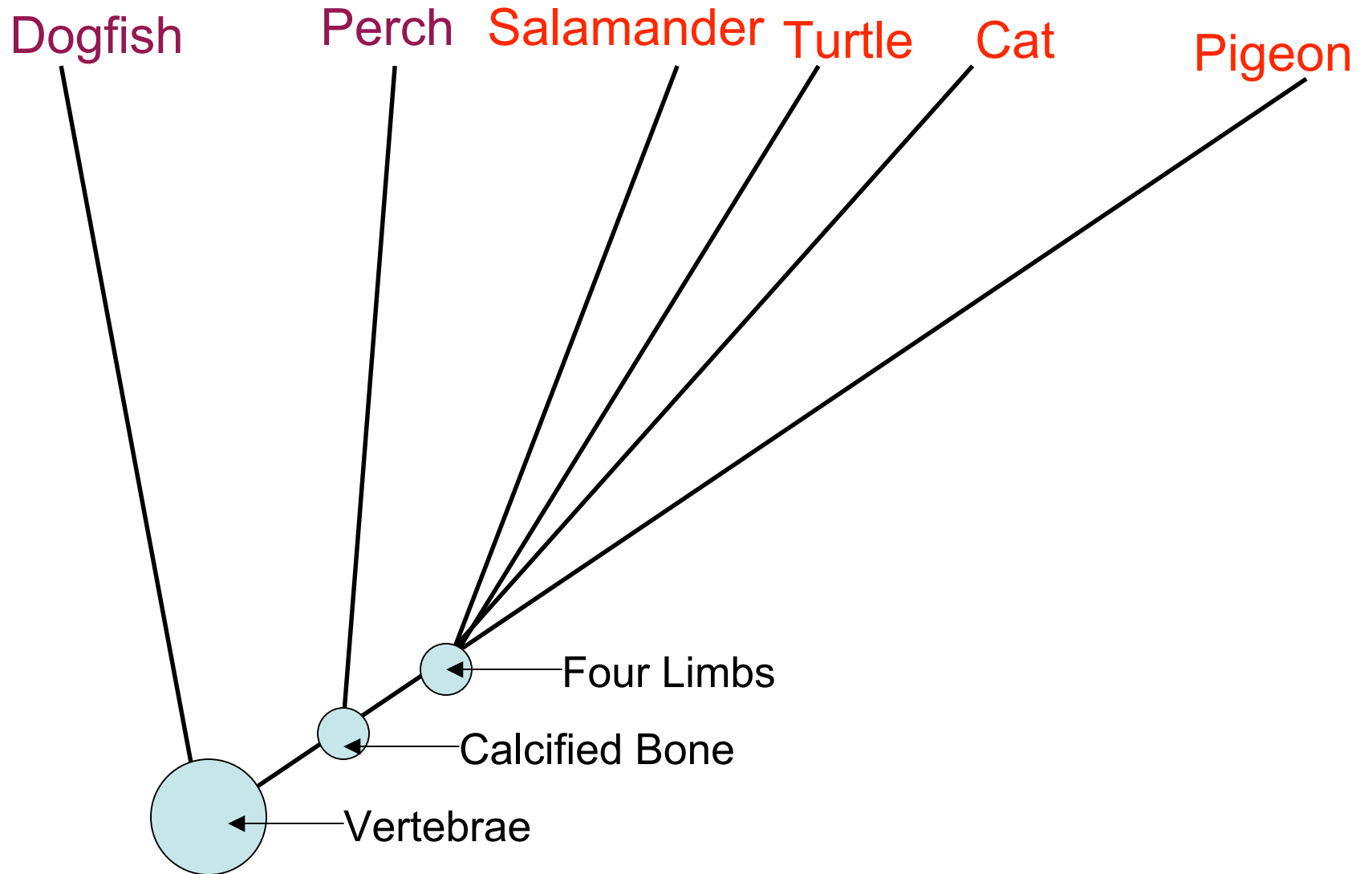


# Vertebrate Phylogeny

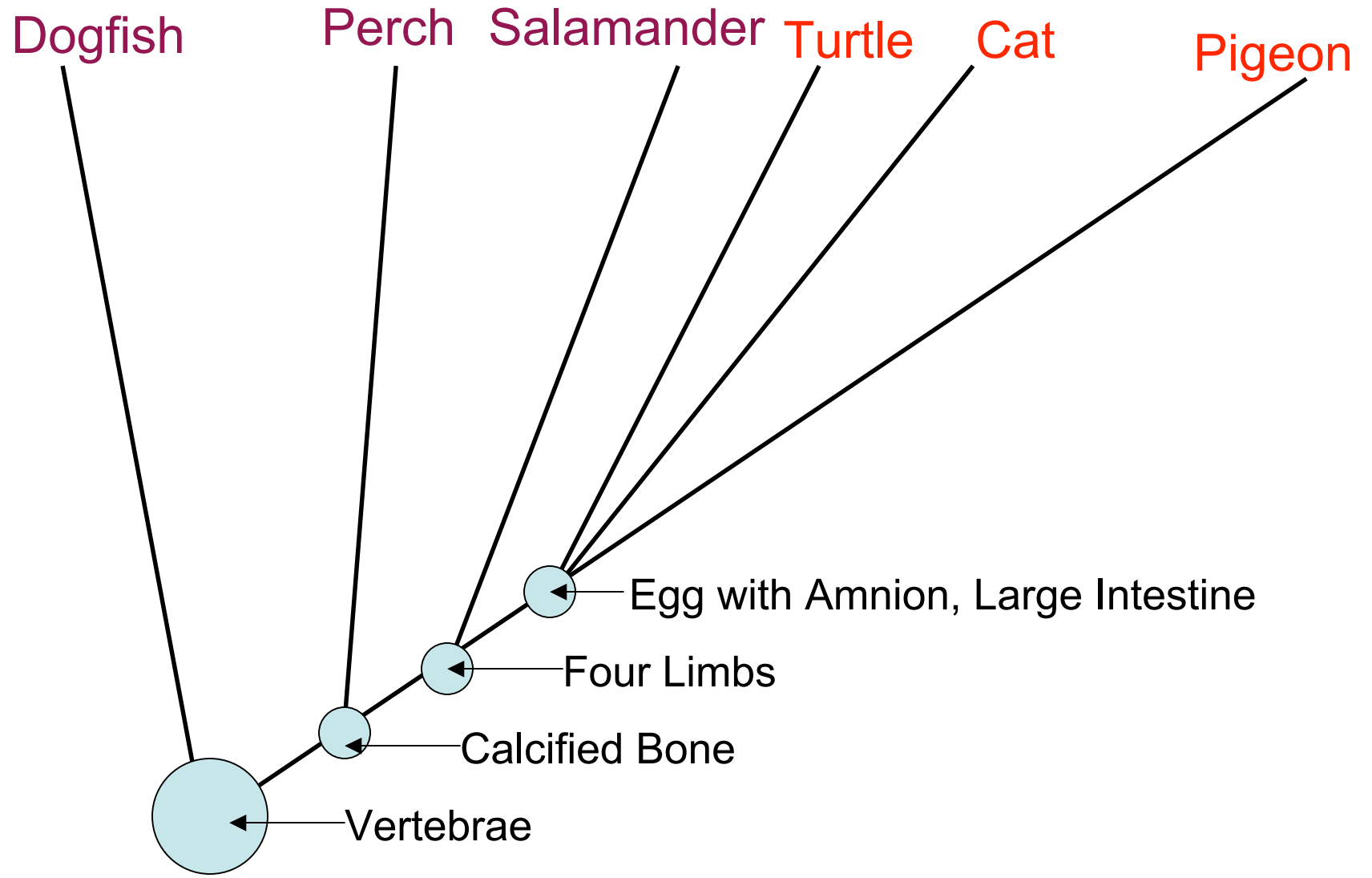




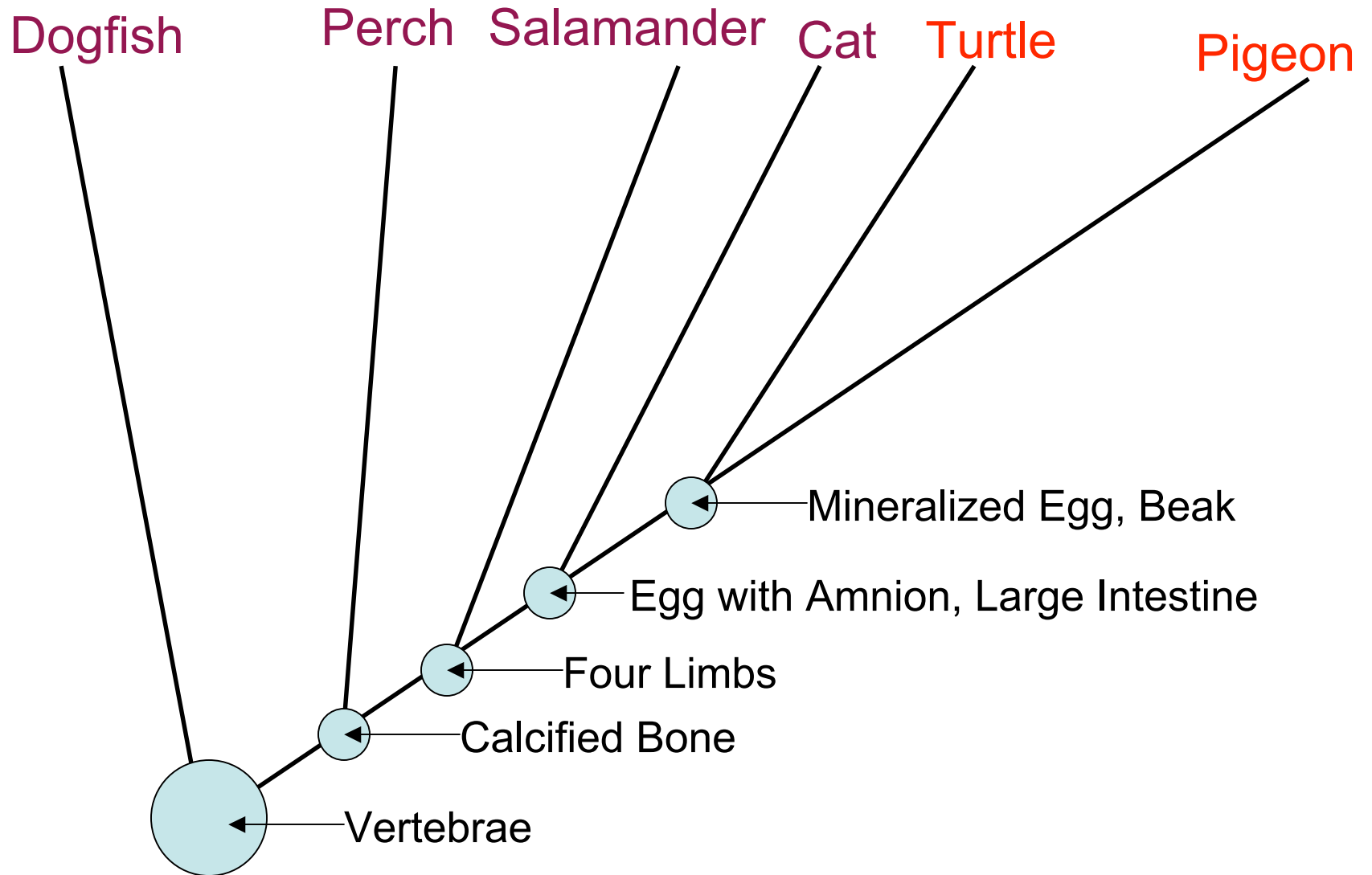
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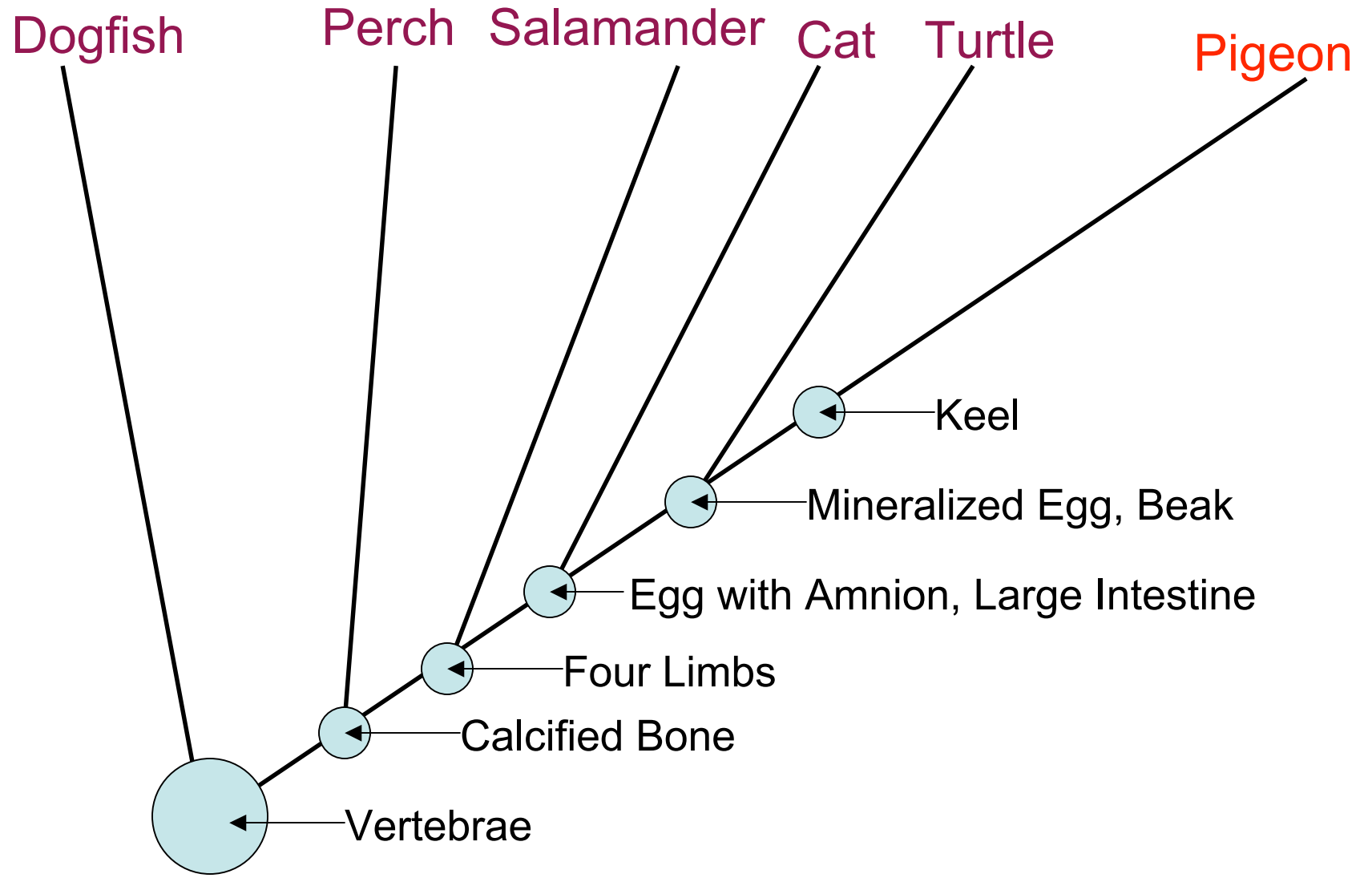
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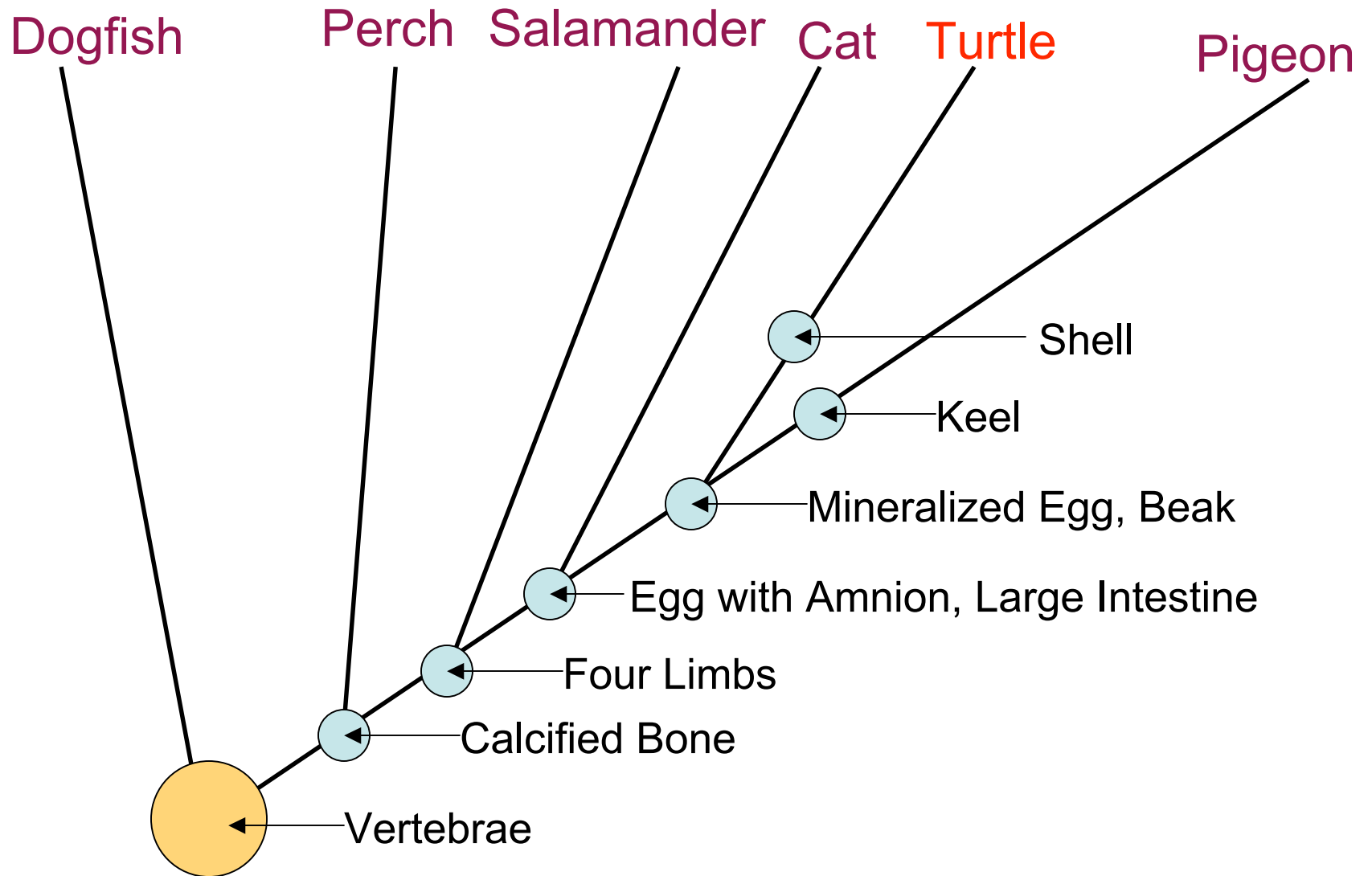
# Vertebrate Phylogeny



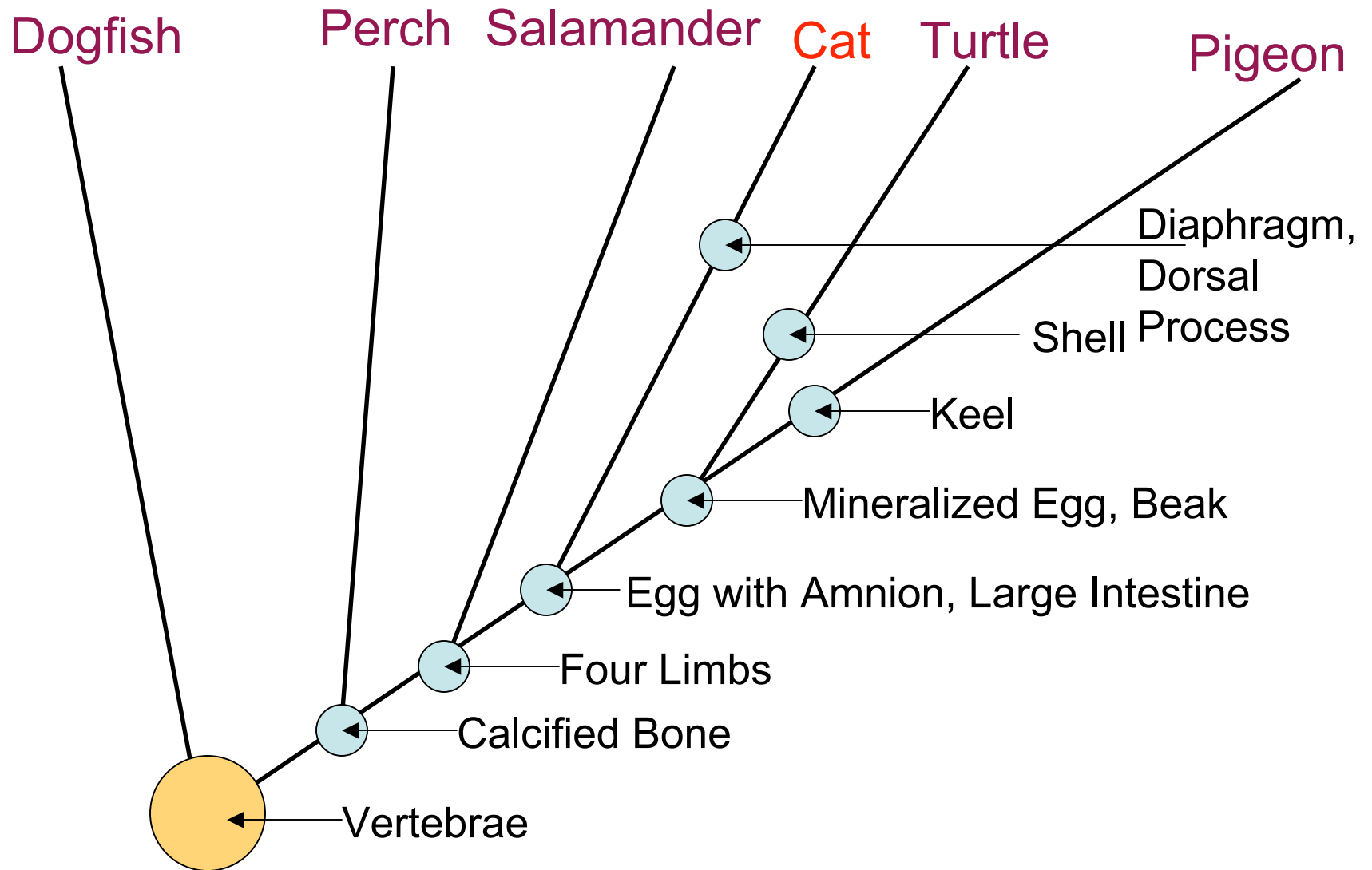
# Vertebrate Phylogeny



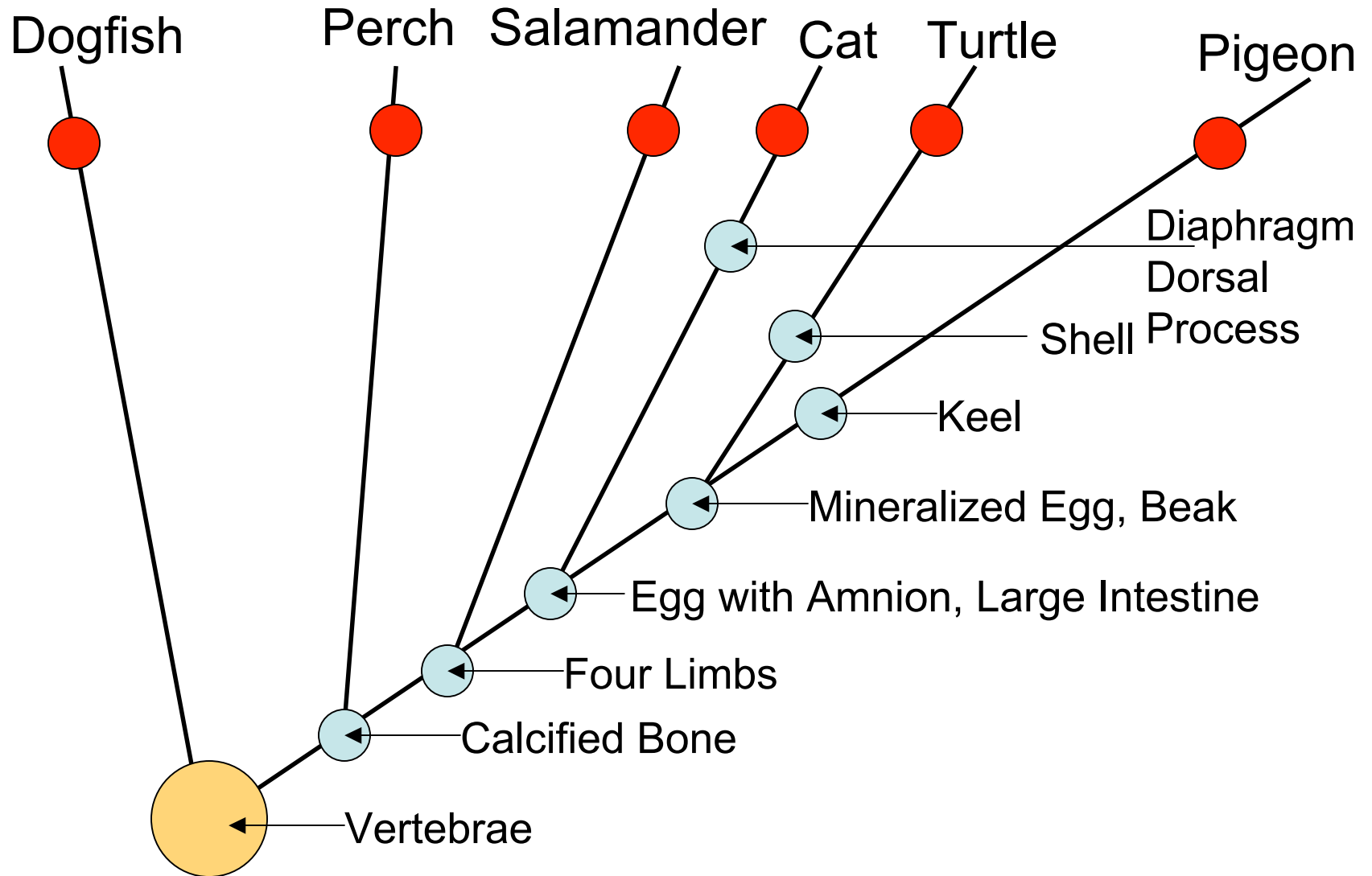
# Vertebrate Phylogeny



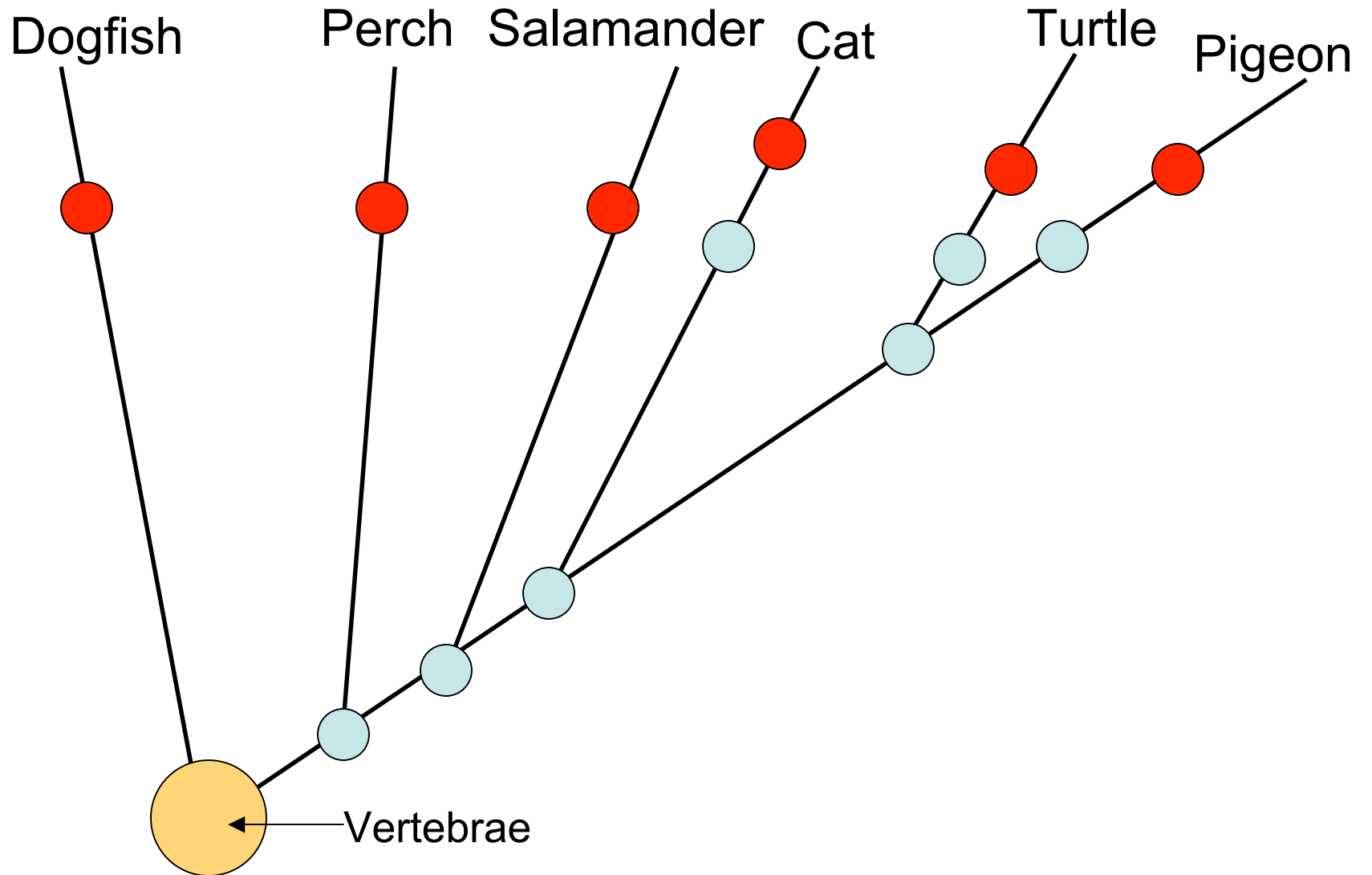
# Vertebrate Phylogeny



# Vertebrate Phylogeny



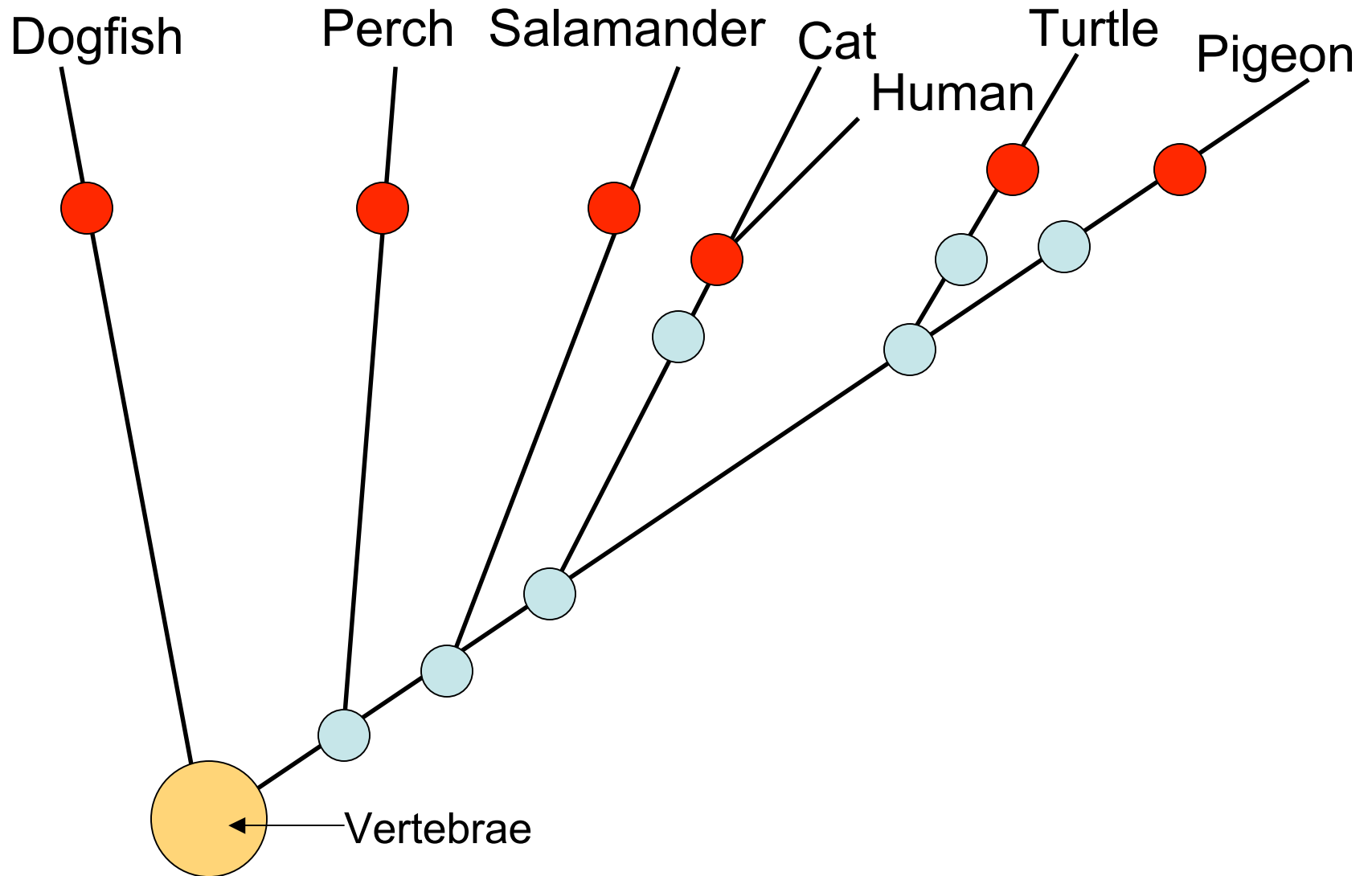
# Vertebrate Phylogeny





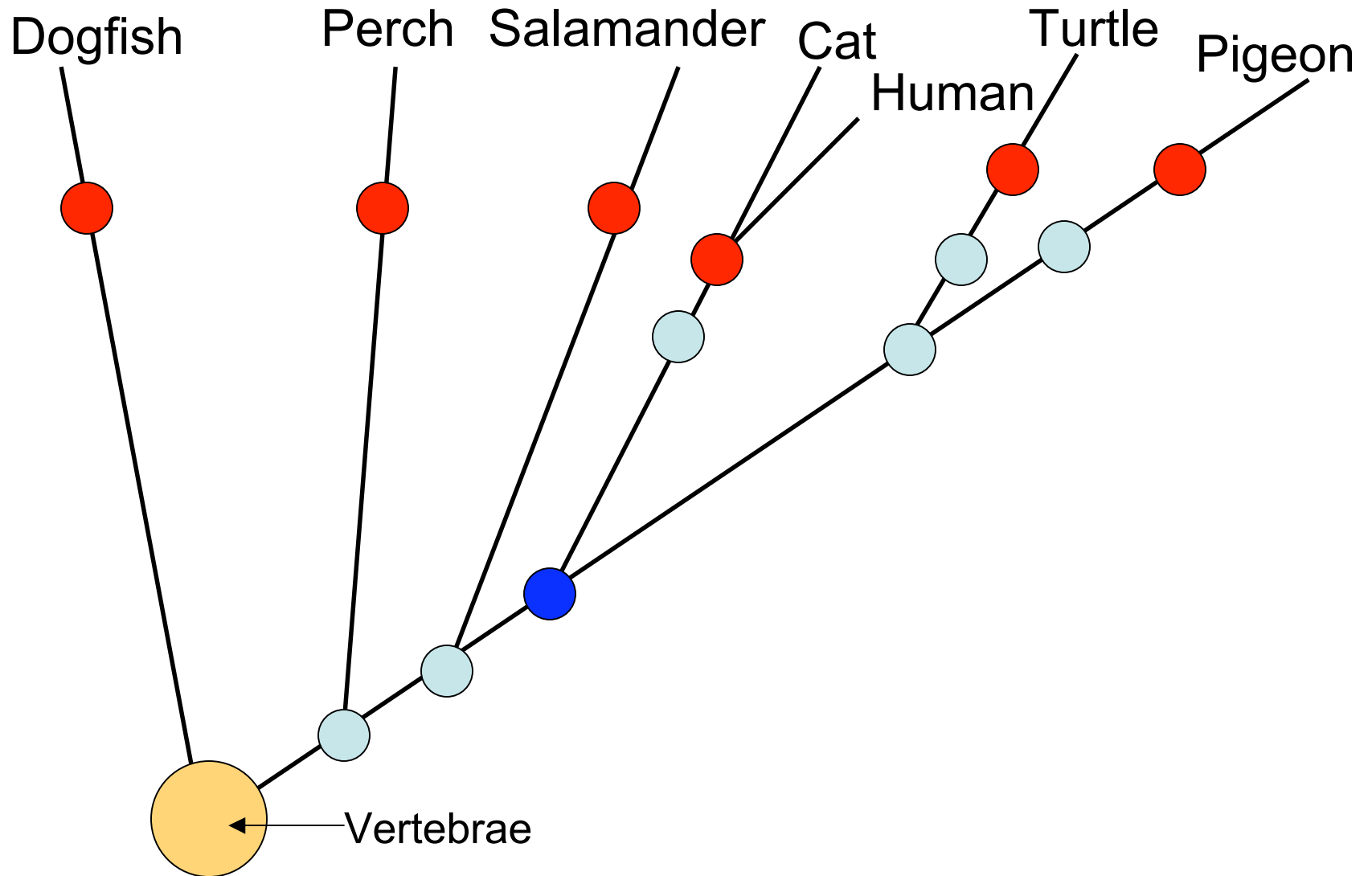
# Vertebrate Phylogeny

A hypothesis for our evolutionary history



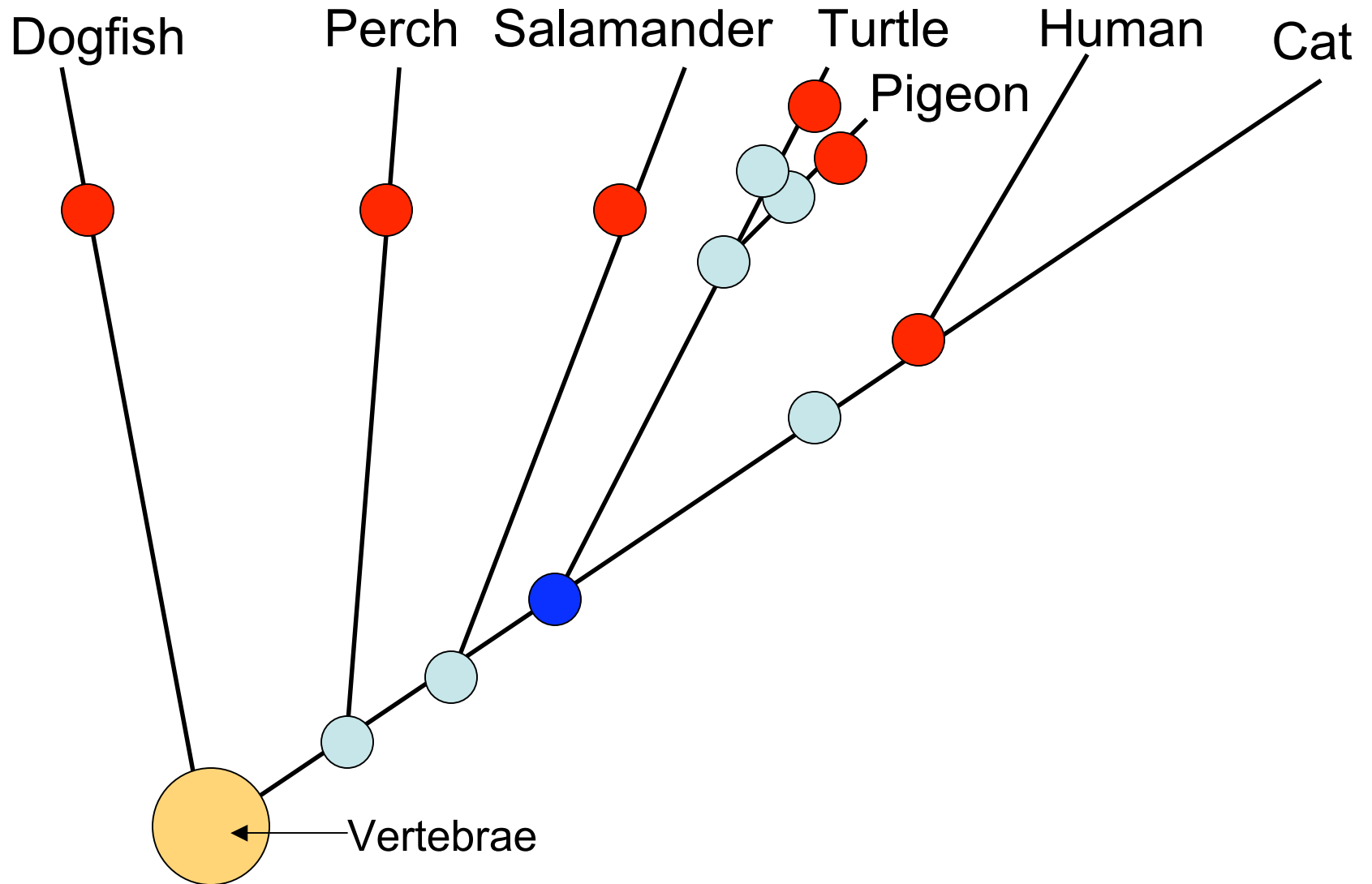
# Vertebrate Phylogeny

A hypothesis for our evolutionary history



# Vertebrate Phylogeny

A hypothesis for our evolutionary history



# What have we learned?

- **Homology**
  - Any trait that species have in common, and can be traced to a common ancestor
- **Adaptation**
  - Any heritable change in traits that allows an animal to survive in a new environment.
- **Phylogeny**
  - The evolutionary history, or “family tree” of a group of species
- **Hypothesis**
  - A proposed explanation that can be tested by observation or experiment.

# What have we done today?

- Looked at bones
  - The skeletal anatomy of 5 different vertebrates
  - Their adaptations to their environment.
- Looked at bodies
  - The internal anatomy of 6 different vertebrates
  - Their adaptations to their environment.
- Built a phylogenetic hypothesis
  - A proposal for the evolutionary history of all 6 species - how they are related to each other
  - Based on their shared anatomical traits (homologies)