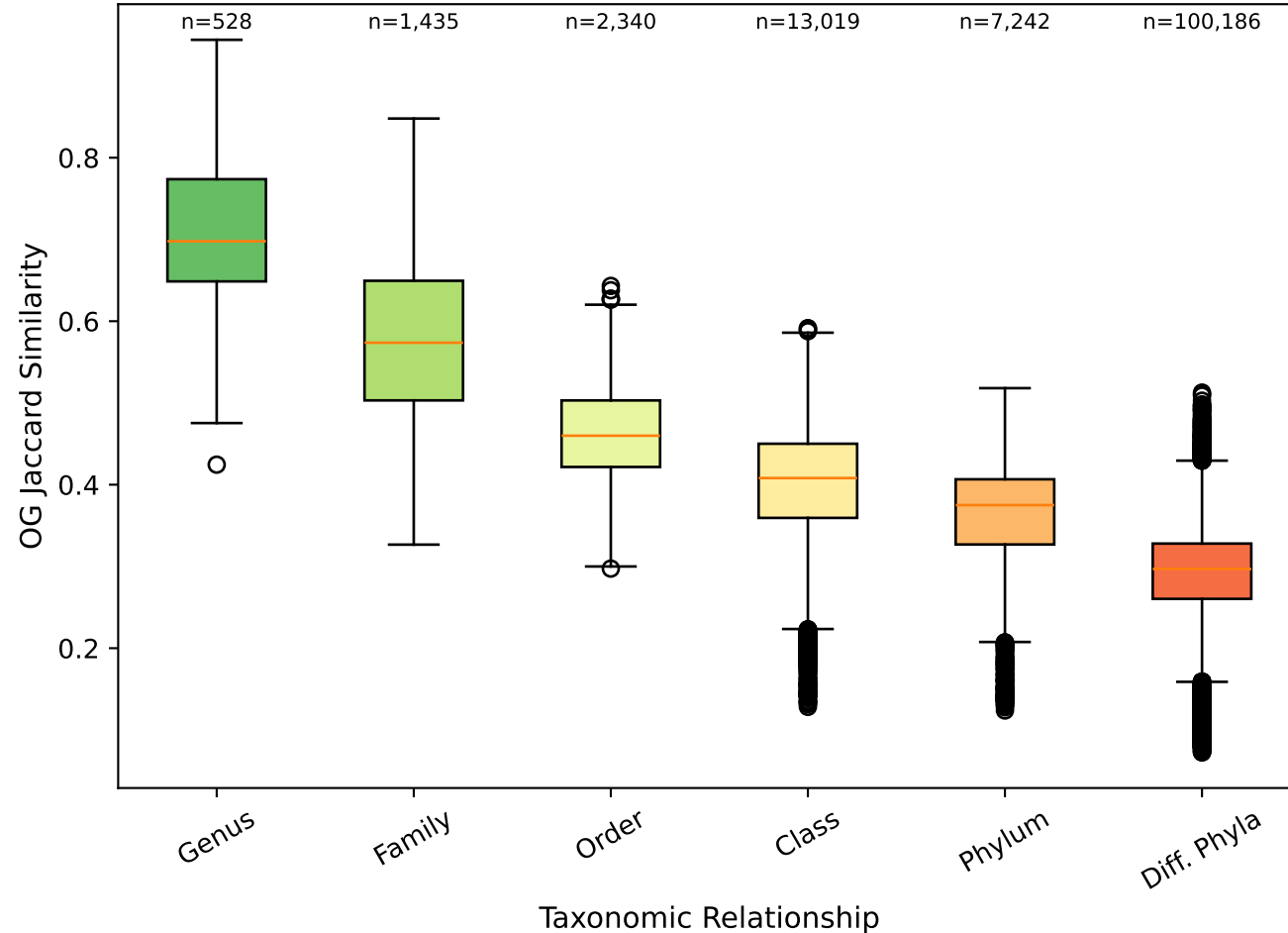


Gene Content Similarity by Taxonomic Relationship

A. Gene Sharing Decreases with Taxonomic Distance



GENE SHARING BY TAXONOMIC LEVEL

Level	Jaccard	% Shared	Interpretation
Same Genus	0.713	71.3%	Close relatives
Same Family	0.574	57.4%	Same family
Same Order	0.462	46.2%	Same order
Same Class	0.401	40.1%	Same class
Same Phylum	0.361	36.1%	Same phylum
Different Phyla	0.291	29.1%	Cross-phylum

BIOLOGICAL INTERPRETATION:

- Same-genus species share ~65% of core genes
→ Strong functional similarity expected
- Same-phylum species share ~35% of core genes
→ Shared phylum-level functions
- Cross-phylum species share ~27% of core genes
→ Universal bacterial machinery only
→ (ribosomes, basic metabolism, etc.)