Lengthening a tetrahedron, and the method of positive dominance

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I'll explain why the volume of a tetrahedron increases (and give a sharp lower bound on how much) when you equally increase the lengths of all the sides. I'll also discuss what happens to the volume when you selectively lengthen some subset of the sides. I discovered the results experimentally, and everything boils down to various polynomial inequalities on 5D simplices. I'll explain something I call the method of positive dominance, which is one way to verify such inequalities.