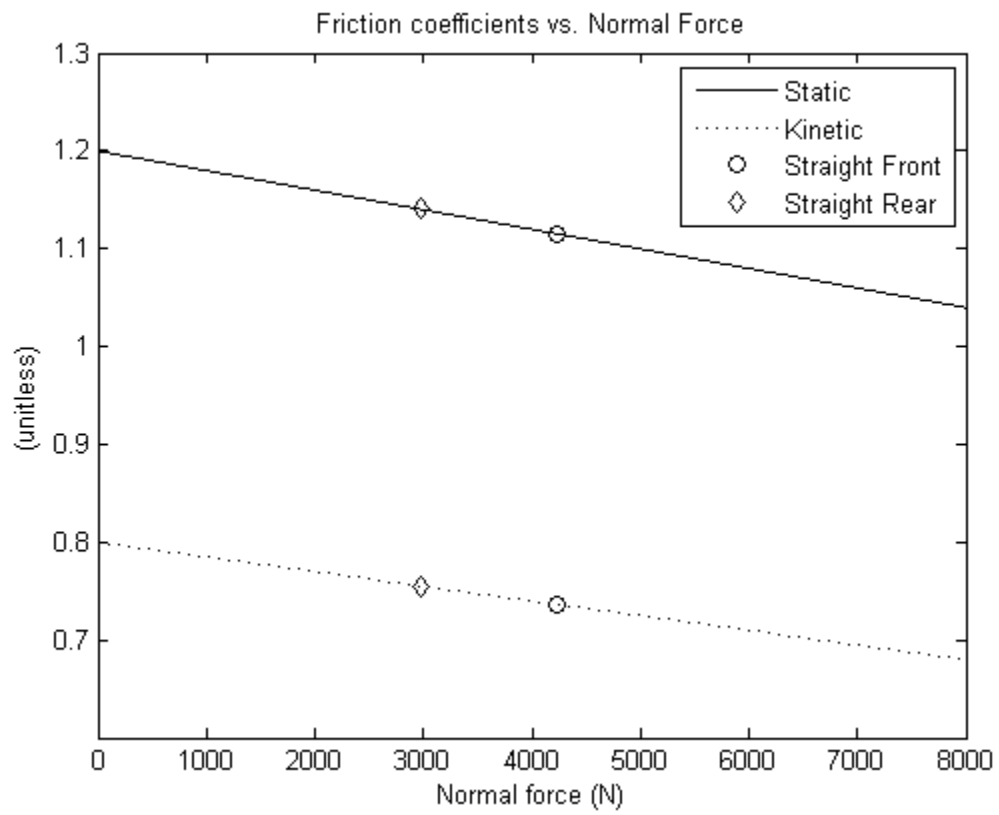## Table of Contents

Script for 2011 ME227 HW 7 Problem 1
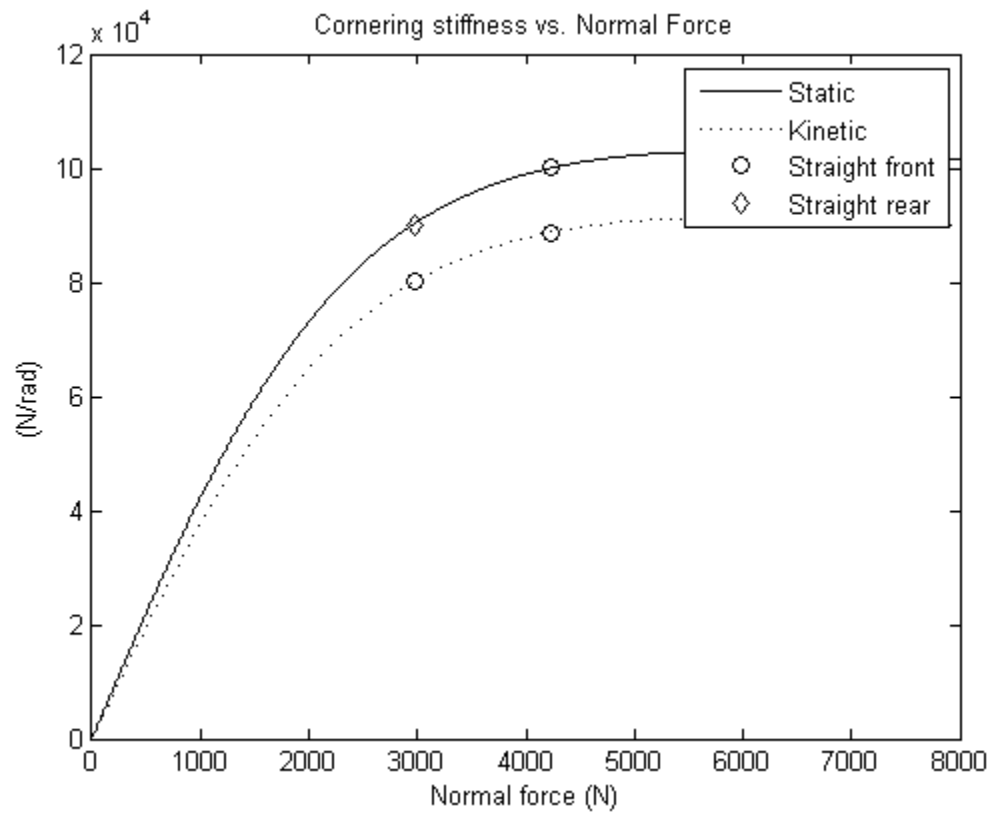
Author: Ruslan Kurdyumov Date: May 19, 2011

(2.4) Nonlinear bike handling diagram w/ ramp input

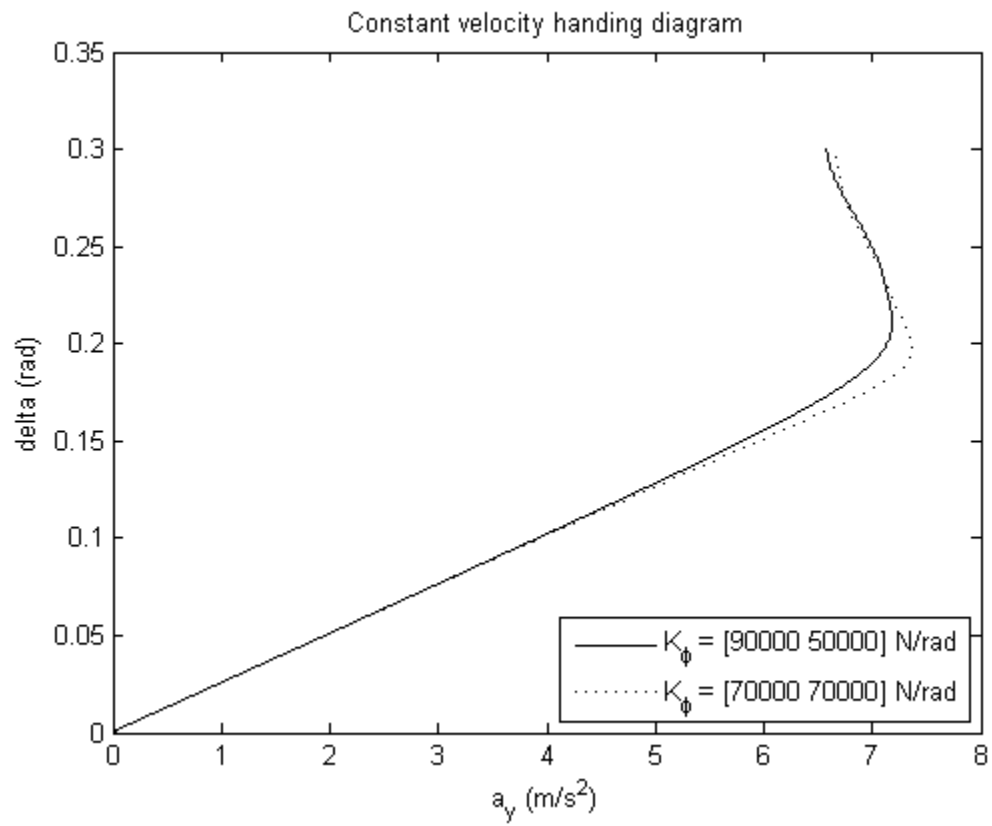# (7.1) Nonlinear four wheel handling diagram w/ ramp input

(7.1.1)

Friction coefficients vs. Normal Force
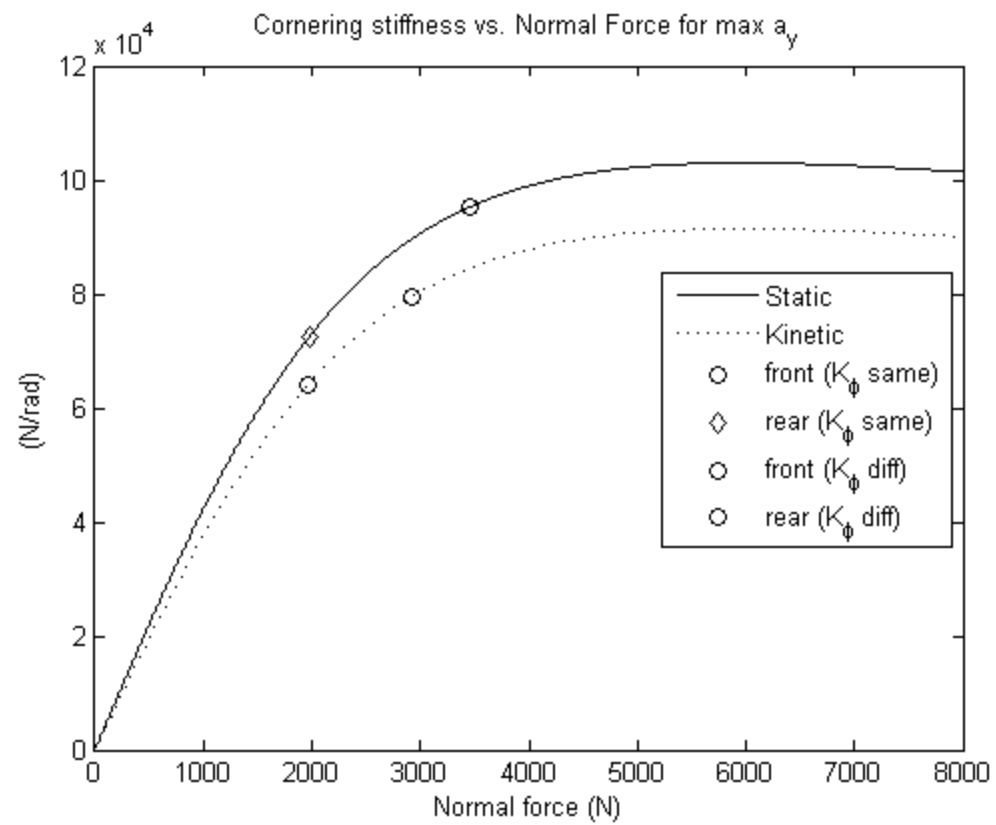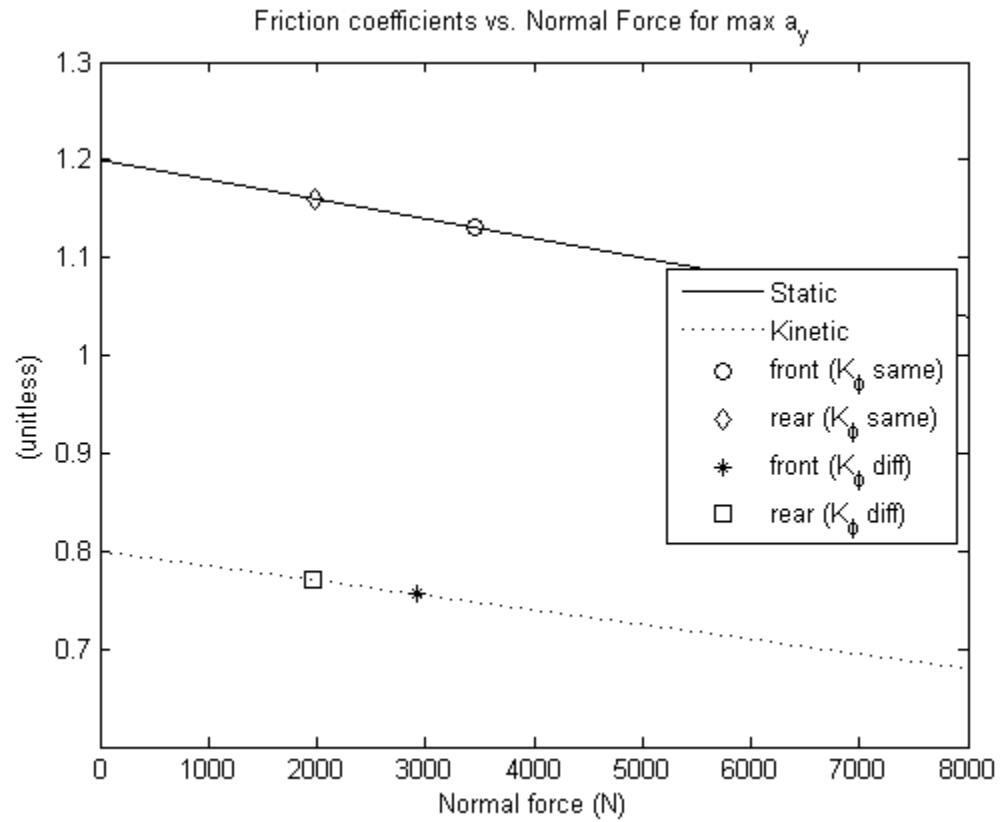
Cornering stiffness vs. Normal Force
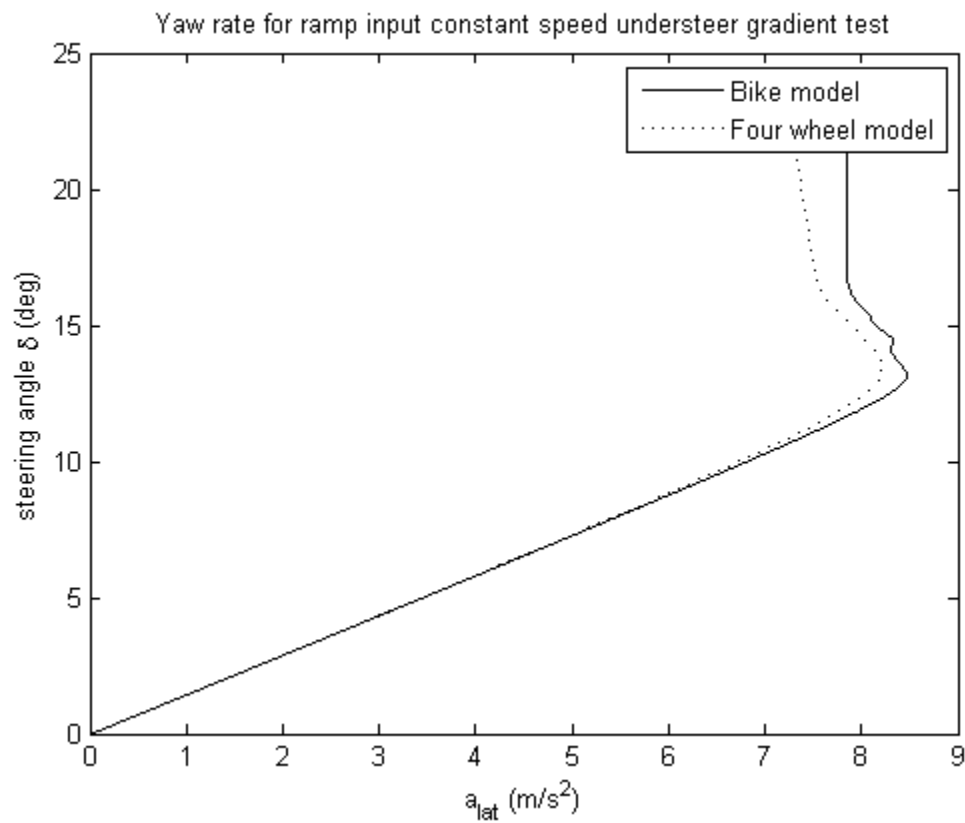
(7.1.2)

The first case is more understeering. This is what we expect since the front is more stiff, therefore more weight will transfer in the front, leading to limit understeer behavior. The stabilizer bar has an effect at high lateral acceleration.

Constant velocity handing diagram

Legend:
- K_ϕ = [90000 50000] N/rad (solid line)
- K_ϕ = [70000 70000] N/rad (dotted line)

x-axis: a_y (m/s^2)
y-axis: delta (rad)

(7.1.3)

Friction coefficients vs. Normal Force for max a_y

Cornering stiffness vs. Normal Force for max a_y

Published with MATLAB® 7.10