

# *Fundamentals of Traffic Operations and Control*

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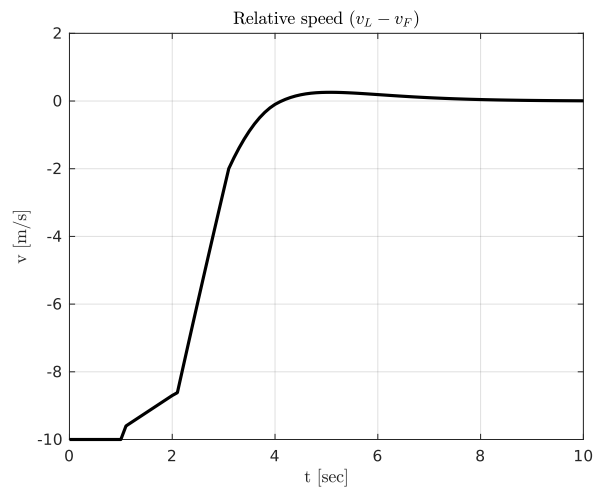
*Exercise solutions*

## *Stability analysis of a linear car following model*

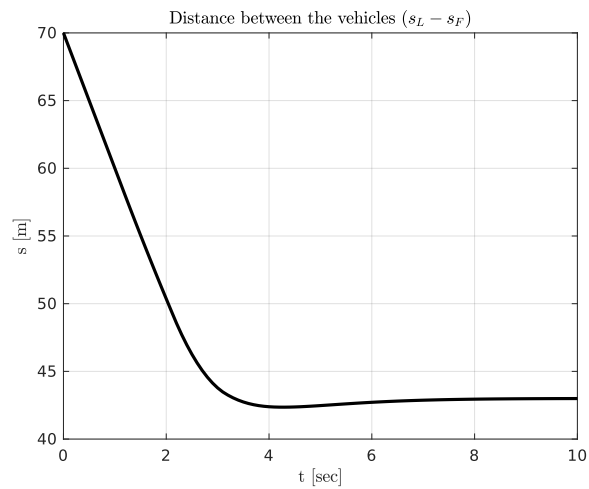
*Author: Semin Kwak*

Please download the code on the Moodle and follow the instructions.

**a)** Run *solution\_a.m* file.



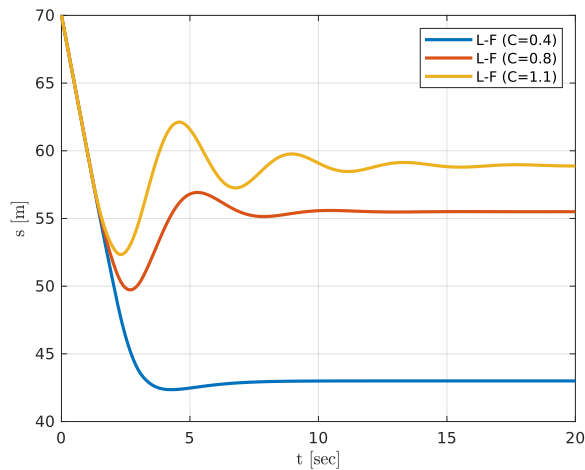
**b)** Run *solution\_b.m* file.



c) Run *solution\_c.m* file. The distances are  $42.3882m$  at 4 seconds and  $42.9931m$  at 10 seconds when the driver sensitivity  $C$  is 0.4.

d) Run *solution\_d.m* file. The larger sensitivity leads to the larger distance between vehicles. The distances are  $54.235m$  at 4 seconds and  $55.5717m$  at 10 seconds when the driver sensitivity  $C$  is 0.8. The distances are  $60.8723m$  at 4 seconds and  $59.0894m$  at 10 seconds when the driver sensitivity  $C$  is 1.1.

Please refer the following figure.



e) Run *solution\_e.m* file.

