

# Computer Exercise 4

## EL2520 Control Theory and Practice

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March 18, 2015

### Minimum phase case

#### Dynamic decoupling

The dynamic decoupling in exercise 3.2.1 is

$$W(s) = \dots$$

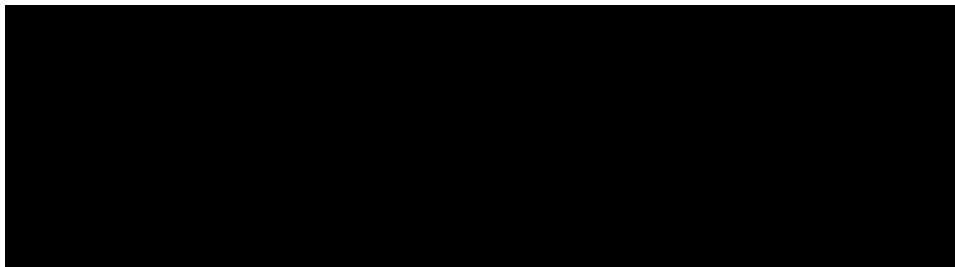


Figure 1: Bode diagram of  $\tilde{G}(s)$  derived in exercise 3.2.1

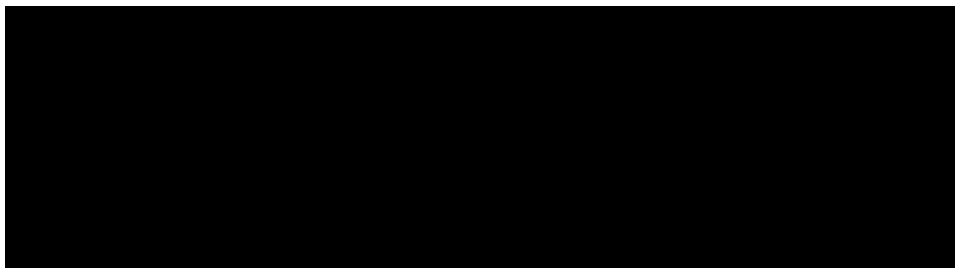


Figure 2: Simulink plots from exercise 3.2.4

Is the controller good?

.....  
 .....  
 Are the output signals coupled?  
 .....  
 .....

## Glover-MacFarlane robust loop-shaping

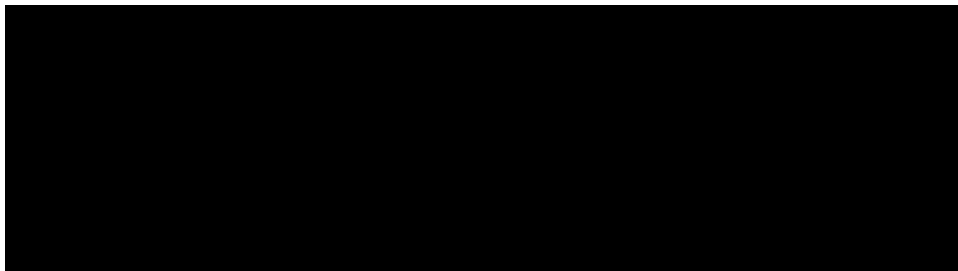


Figure 3: Simulink plots from exercise 3.3.4

What are the similarities and differences compared to the nominal design?  
 .....  
 .....

## Non-minimum phase case

### Dynamic decoupling

The dynamic decoupling in exercise 3.2.1 is

$$W(s) = \dots$$

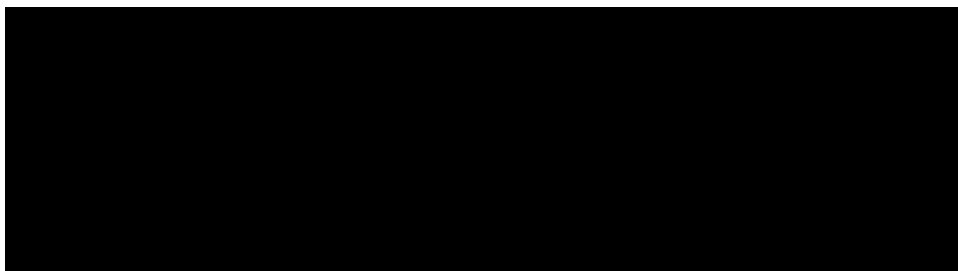


Figure 4: Bode diagram of  $\tilde{G}(s)$  derived in exercise 3.2.1

Is the controller good?  
 .....  
 .....



Figure 5: Simulink plots from exercise 3.2.4

Are the output signals coupled?

.....  
.....

### **Glover-MacFarlane robust loop-shaping**



Figure 6: Simulink plots from exercise 3.3.4

What are the similarities and differences compared to the nominal design?

.....  
.....