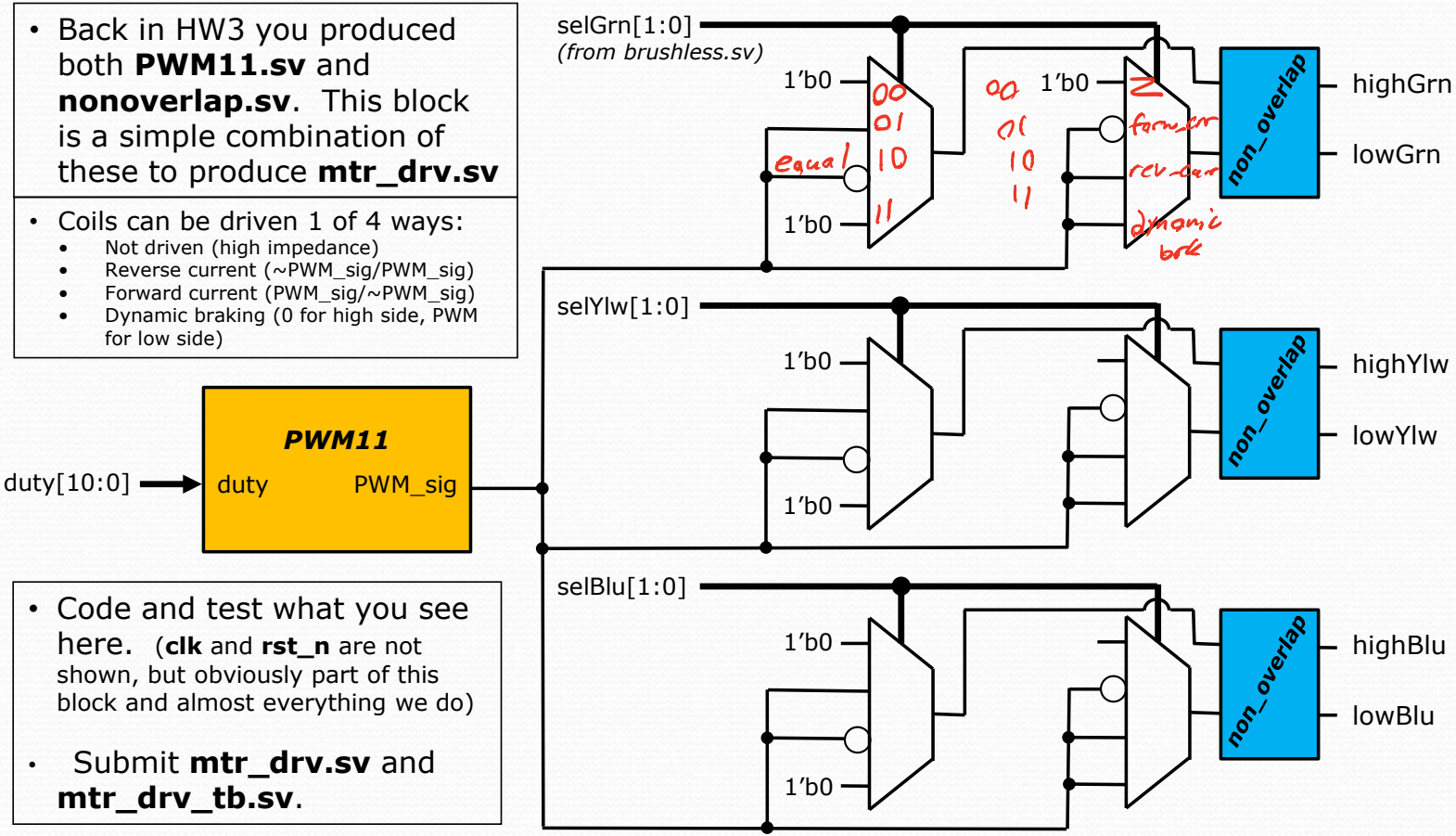
Exercise 13: mtr_drv.sv

- Back in HW3 you produced both **PWM11.sv** and **nonoverlap.sv**. This block is a simple combination of these to produce **mtr_drv.sv**

- Coils can be driven 1 of 4 ways:
  - Not driven (high impedance)
  - Reverse current (~PWM_sig/PWM_sig)
  - Forward current (PWM_sig/~PWM_sig)
  - Dynamic braking (0 for high side, PWM for low side)



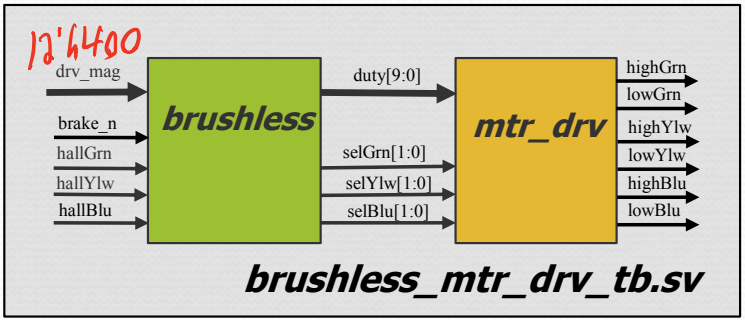
- Code and test what you see here. (**clk** and **rst_n** are not shown, but obviously part of this block and almost everything we do)

- Submit **mtr_drv.sv** and **mtr_drv_tb.sv**.

(hint on testing next page)

Exercise 13: Testing mtr_drv.sv

- Consider this:
  - The outputs of **brushless.sv** feed the inputs to **mtr_drv.sv**.
  - Create a combined testbench **brushless_mtr_drv_tb.sv** that tests both units in combination.



{hallGrn,hallYlw,hallBlu}	Expected Output for Grn, Ylw, Blu given as high/low
101	Grn = PWM/~PWM, Ylw = ~PWM/PWM, Blu = 0/0
100	Grn = PWM/~PWM, Ylw = 0/0, Blu = ~PWM/PWM
110	Grn = 0/0, Ylw = PWM/~PWM, Blu = ~PWM/PWM
010	Grn = ~PWM/PWM, Ylw = PWM/~PWM, Blu = 0/0
011	Grn = ~PWM/PWM, Ylw = 0/0, Blu = PWM/~PWM
001	Grn = 0/0, Ylw = ~PWM/PWM, Blu = PWM/~PWM
000 or 111	Both high and low at 0 for all channels
brake_n == 1'b0	All high channels at 0. All low channels at PWM (75%)