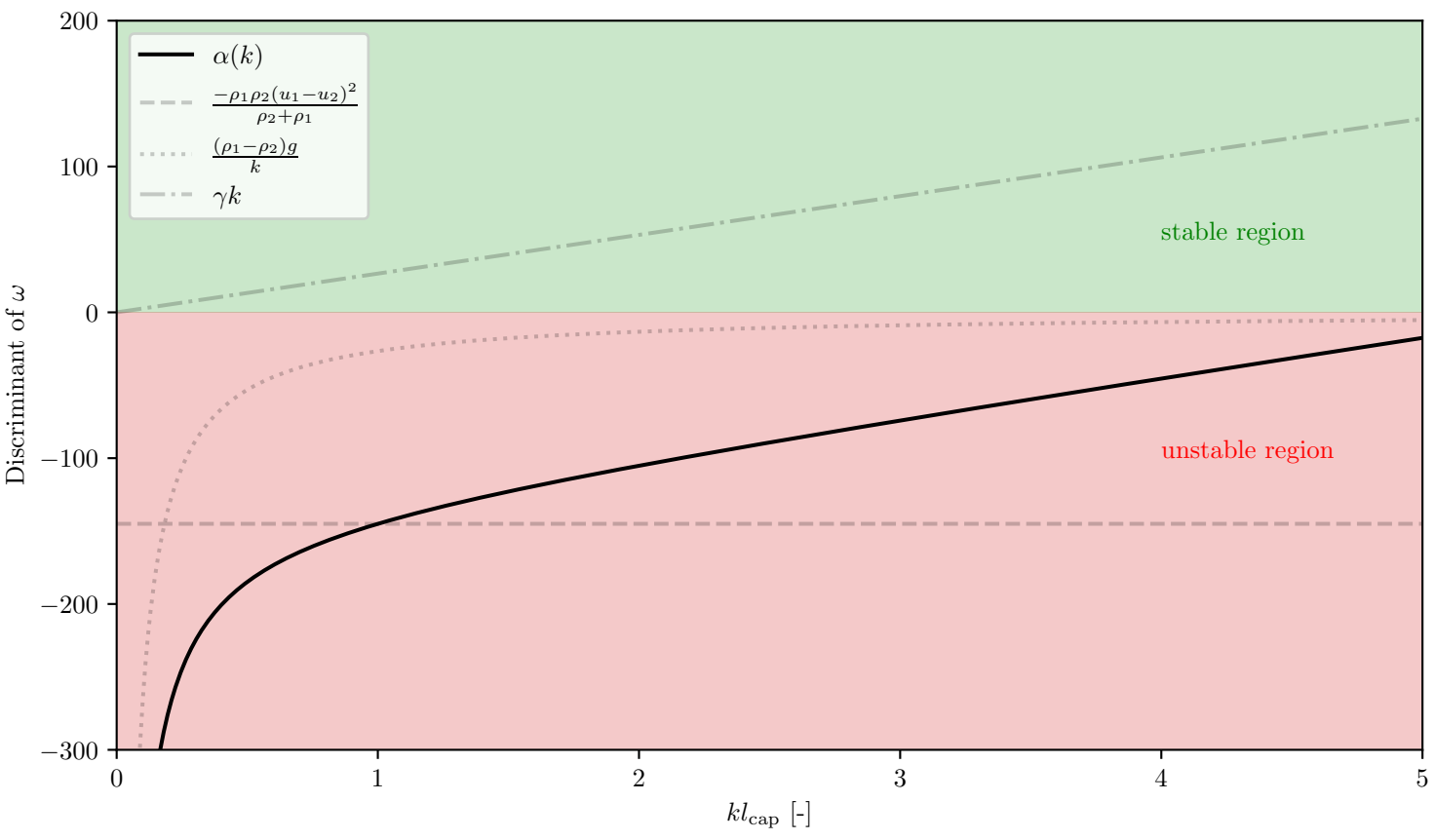
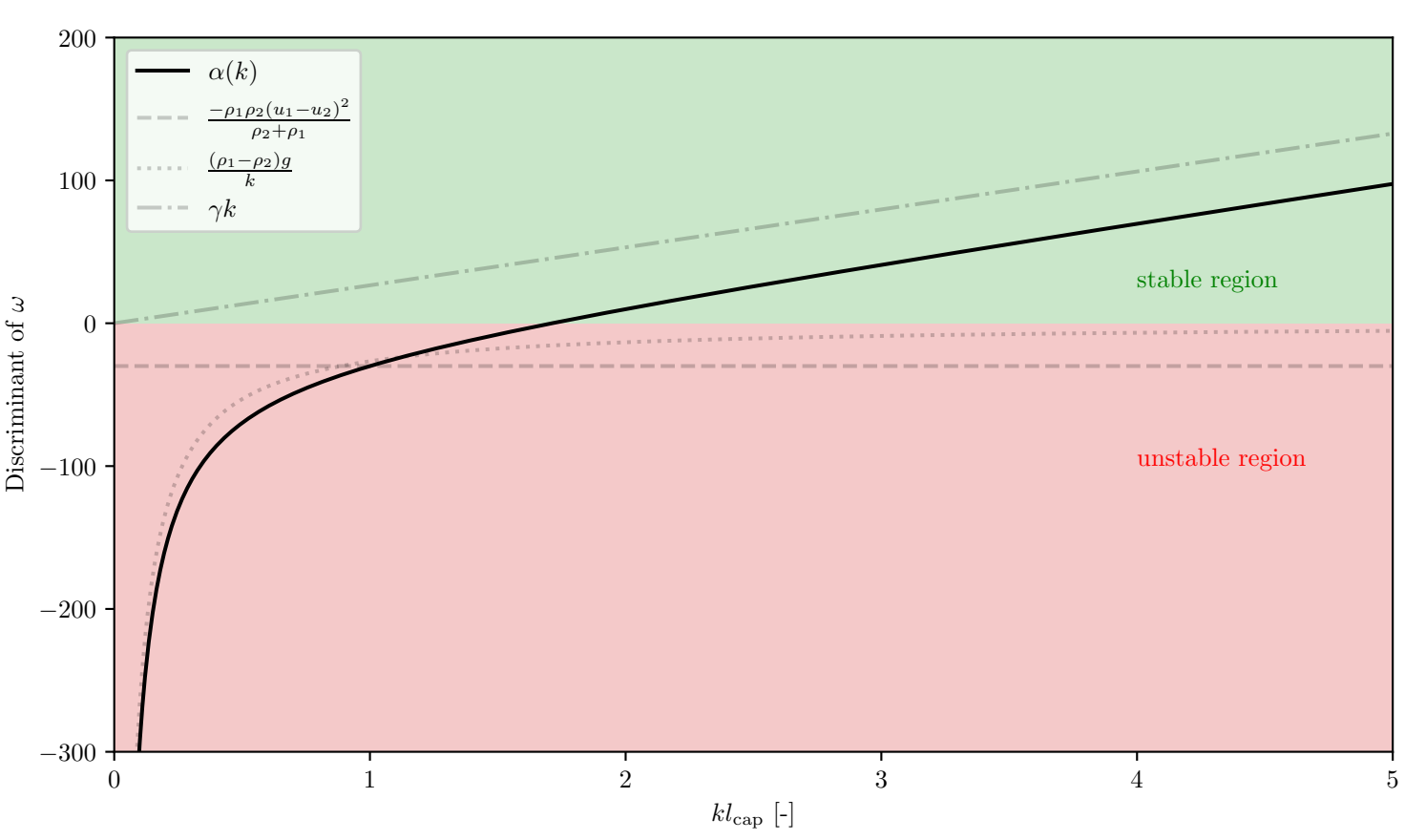
Assignment 4

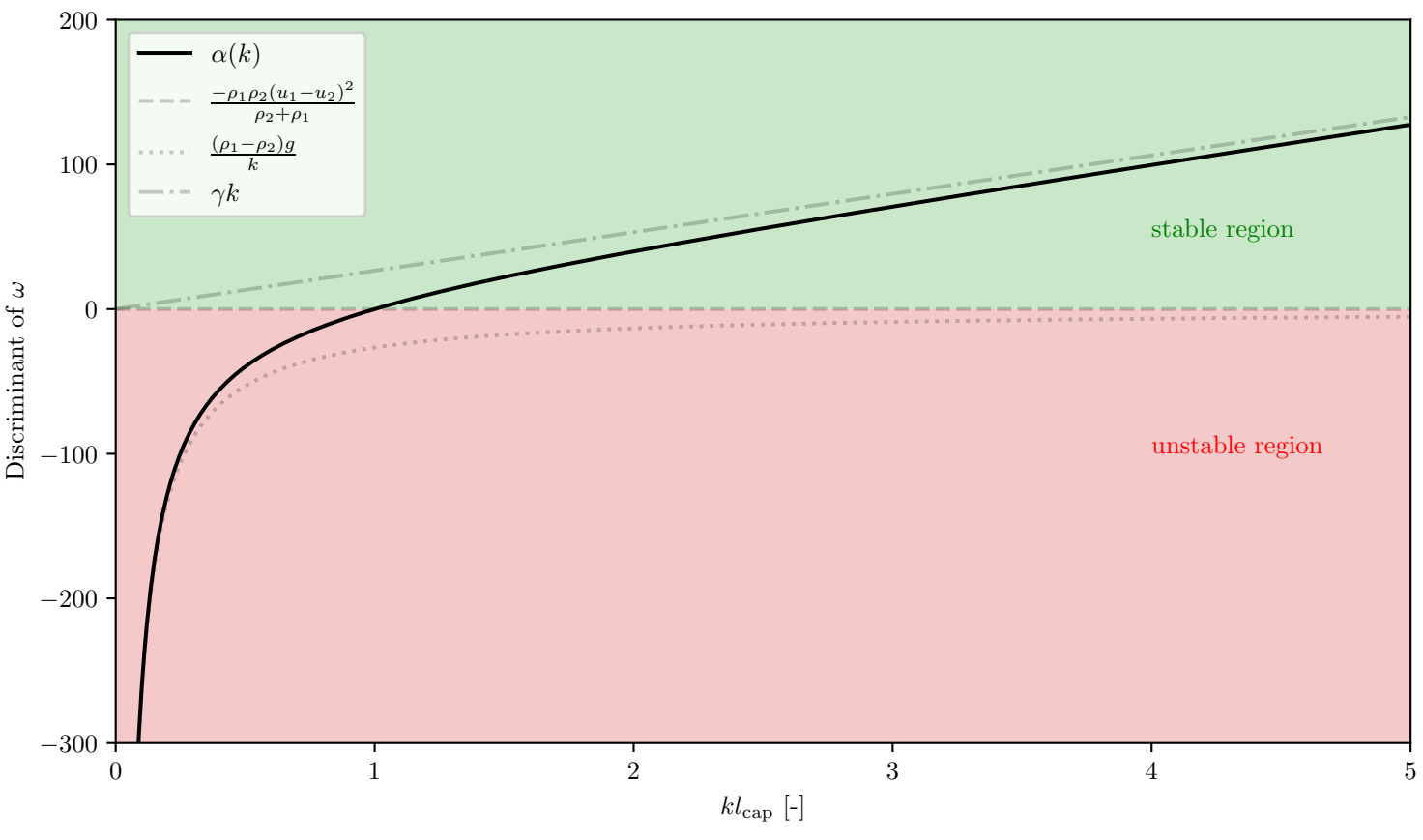
Task 1a: $|u_1 - u_2| = 11$ m/s, stable for $\lambda < 3$ mm
gravity and velocity terms (dotted, dashed) destabilize, capillarity term stabilizes (dash-dotted)



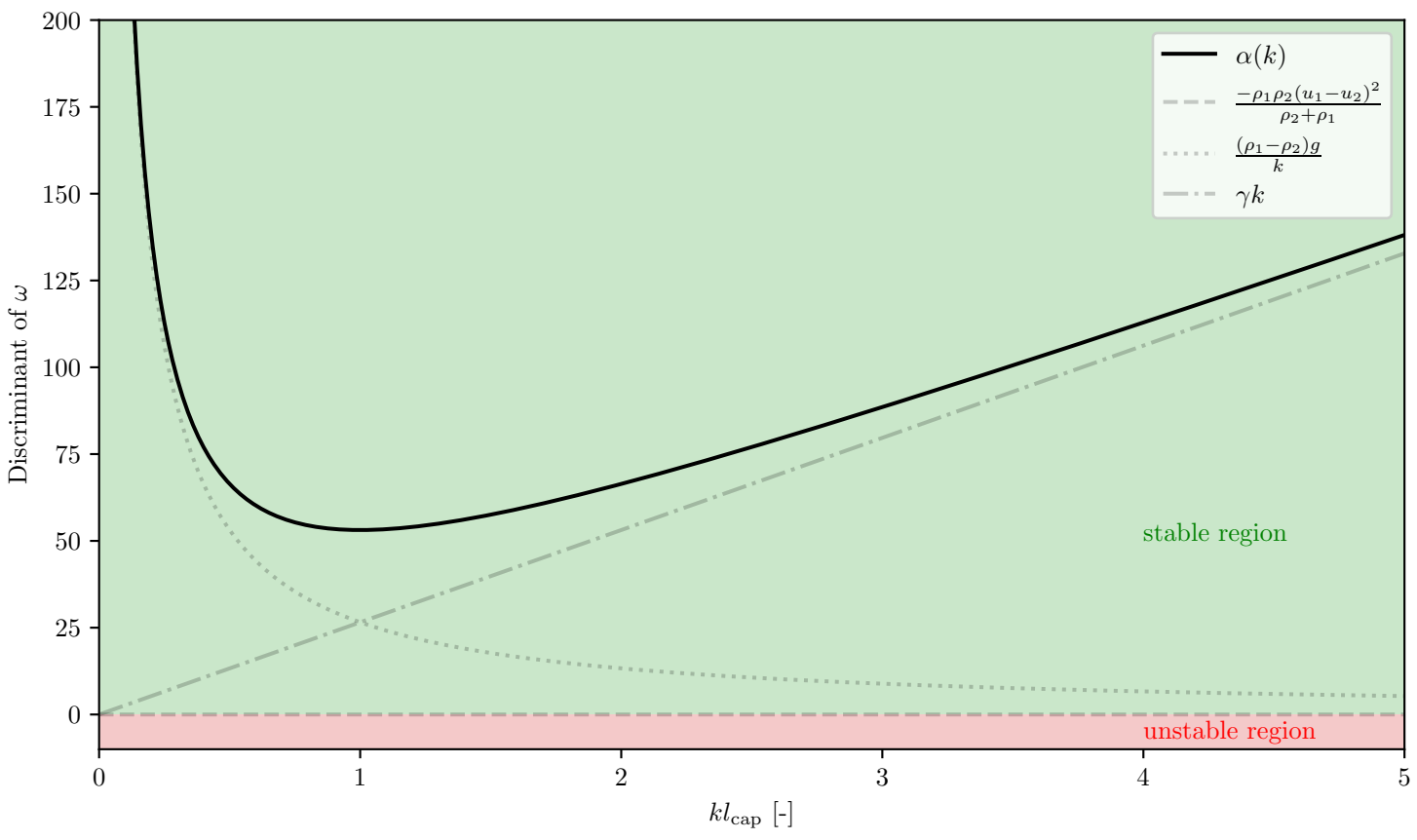
Task 1b: $|u_1 - u_2| = 5$ m/s, stable for $\lambda < 10$ mm
gravity and velocity terms (dotted, dashed) destabilize, capillarity term stabilizes (dash-dotted)



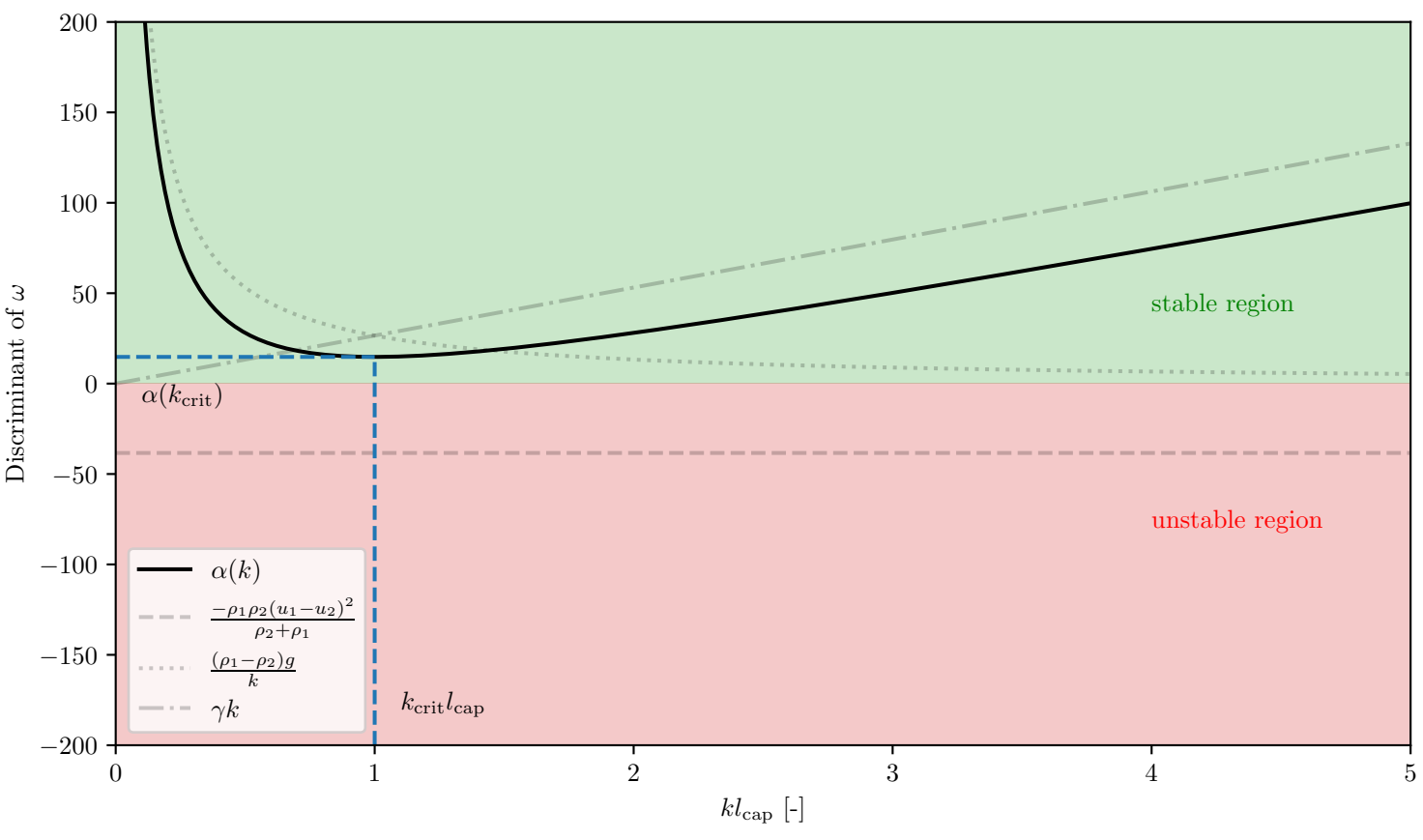
Task 2: $u_1 = u_2 = 0$, stable for $\lambda < 17$ mm
gravity term (dotted) destabilizes, capillarity term stabilizes (dash-dotted)



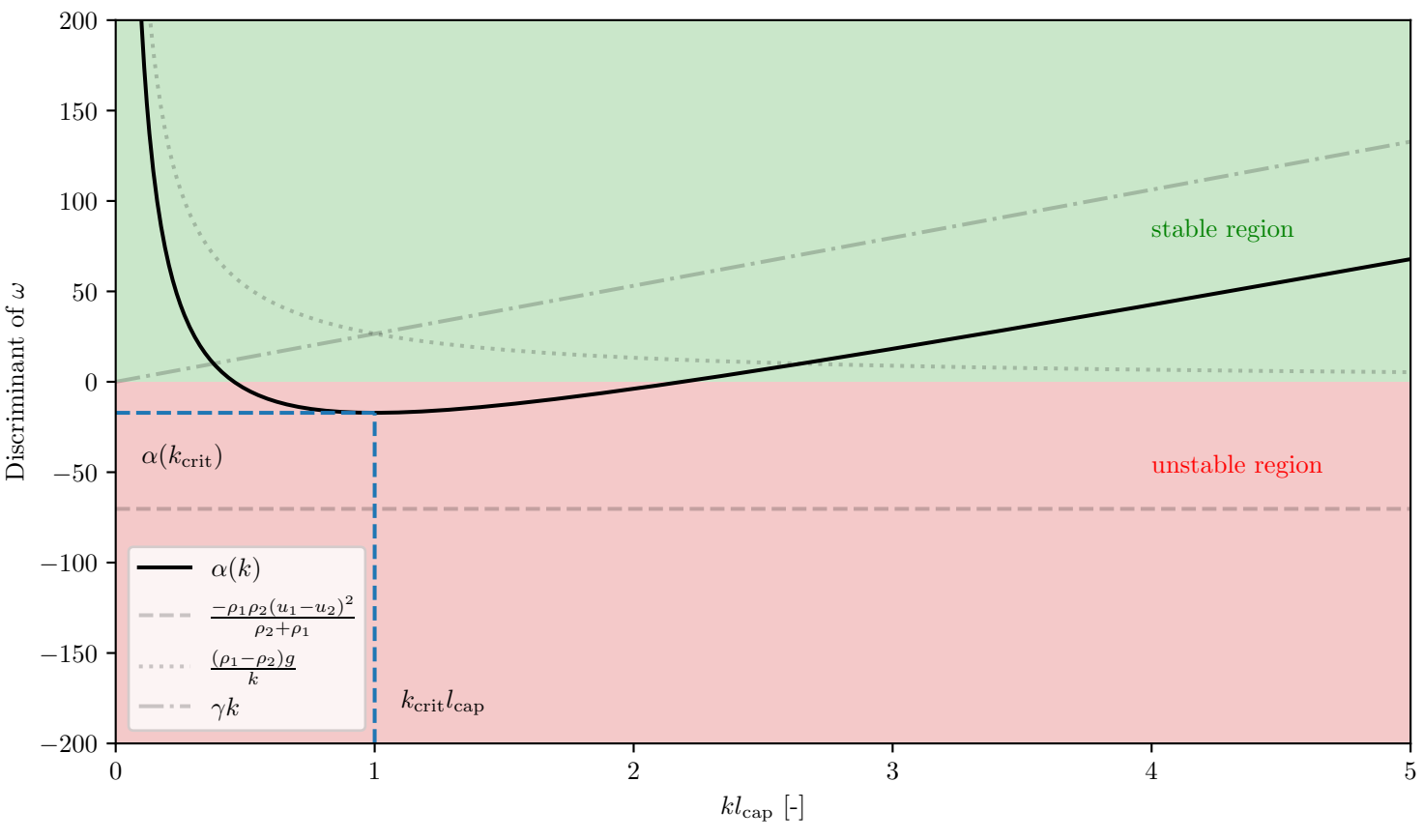
Task 3a: $|u_1 - u_2| = 0$, long λ stabilized by gravity term (dotted),
short λ stabilized by capillarity term (dash-dotted)



Task 3b, Part 1: $|u_1 - u_2| < |u_1 - u_2|_{\text{crit}}$ (e.g. $|u_1 - u_2|_{\text{crit}} - 1$ m/s)



Task 3b, Part 2: $|u_1 - u_2| > |u_1 - u_2|_{\text{crit}}$ (e.g. $|u_1 - u_2|_{\text{crit}} + 1$ m/s)



Expressions for $(u_1 - u_2)_{\text{crit}}$ and λ_{crit} can be found in a markdown cell above in the jupyter notebook!