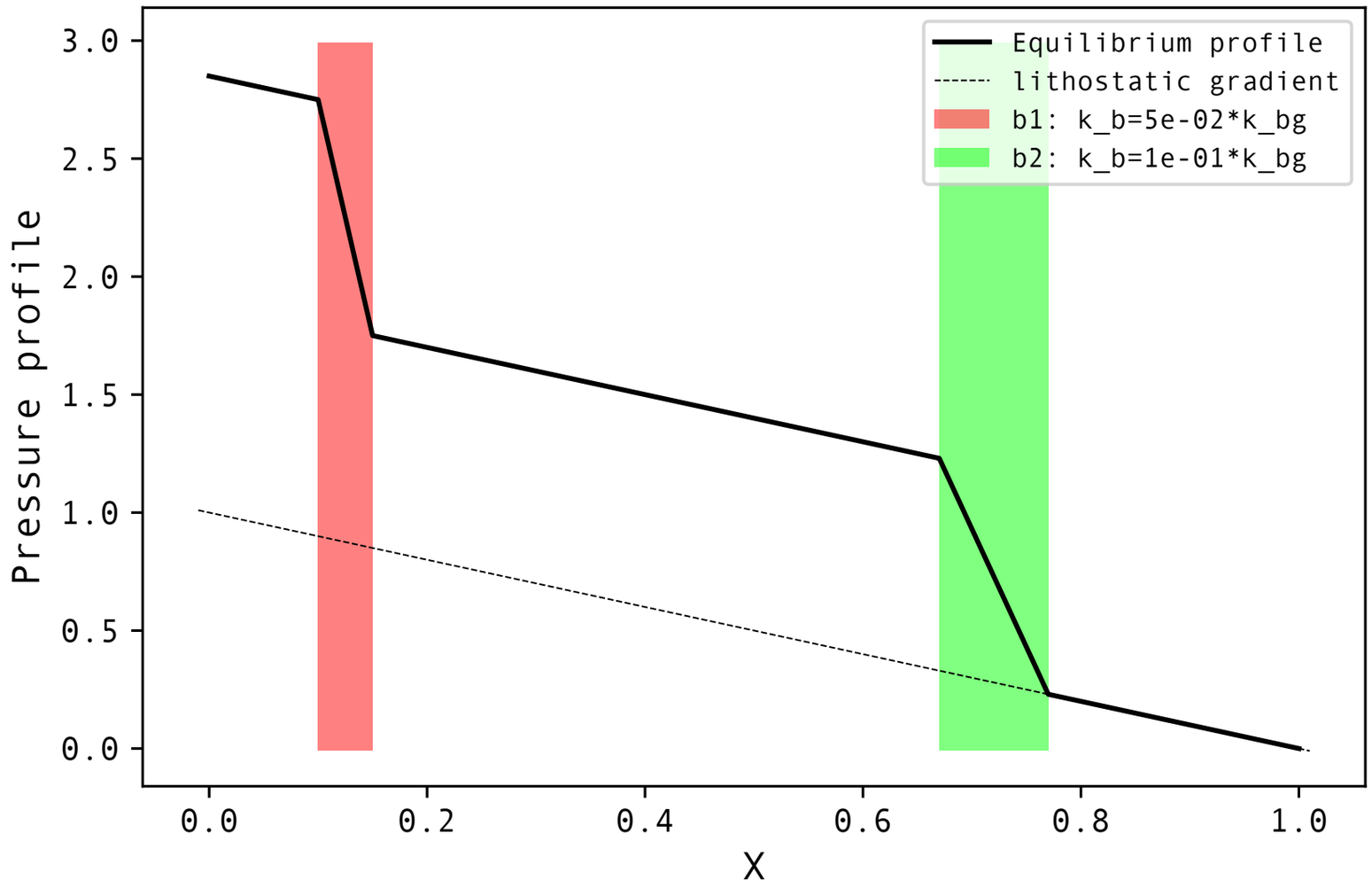
Around permanent regime

(b) QP boundaries: equilibrium



In permanent regime, the equilibrium flux is equal to the fixed flux entering the system. Once more, if the criterion:

L_barriers/k_barriers >> L_background / k_background,

is satisfied, effective permeability of the segment is mainly accounted by permeability of the barriers (most of pressure differential between domains ends is taken up on barriers). Illustration here shows a case where criterion is not satisfied.

Around permanent regime

(b) QP boundaries: transient from valve breaking

this is a gif, click on it to play

Experiment:

- Init. equilibrium pore-pressure profile when 2 valves are closed, but valve nb1 is open (k_b = k_bg).
- Observe the propagating transient

Observation:

- transient progresses from one valve to the other, to redistribute total dP on background segments and barriers.
- dP across remaining valve and overpressure are increased (closer to failure?)
- The increase is transient, overpressure will progressively dissipate when fluid has crossed the low permeability barrier