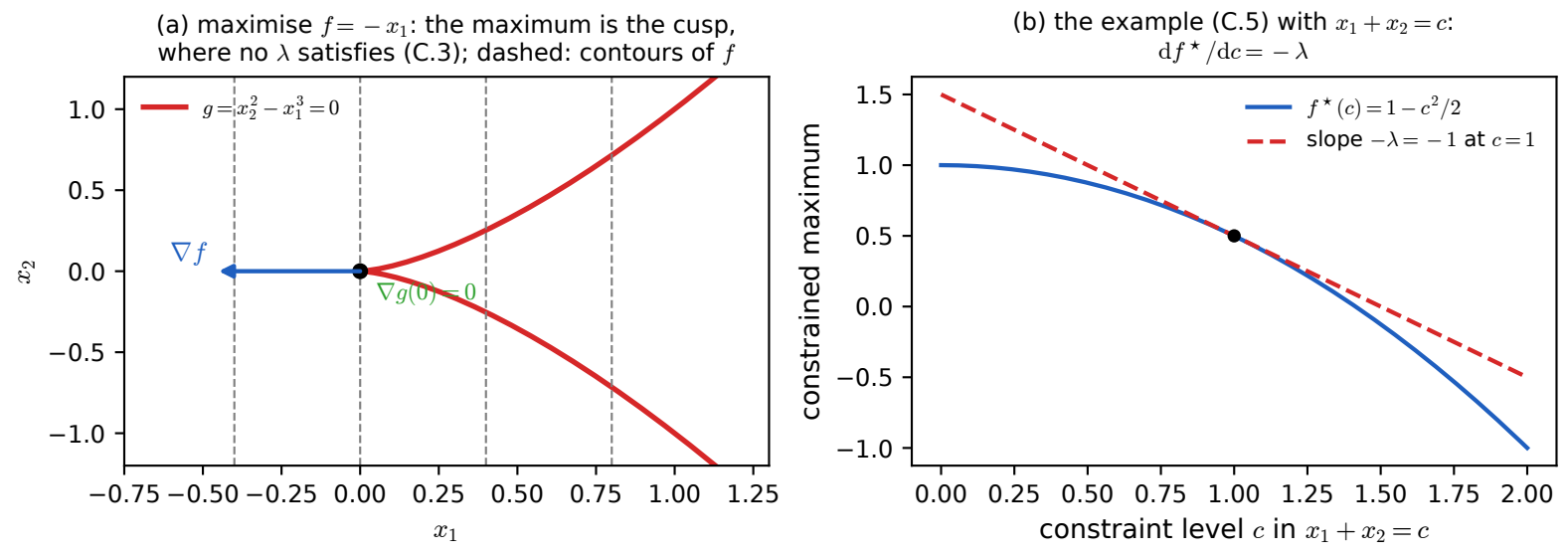

(a) maximise $f = -x_1$: the maximum is the cusp, where no λ satisfies (C.3); dashed: contours of f
$g = x_2^2 - x_1^3 = 0$
∇f
$\nabla g(0) = 0$
x_1
x_2
(b) the example (C.5) with $x_1 + x_2 = c$: $\mathrm{d}f^\star/\mathrm{d}c = -\lambda$
$f^\star(c) = 1 - c^2/2$
slope $-\lambda = -1$ at $c = 1$
constrained maximum
constraint level c in $x_1 + x_2 = c$