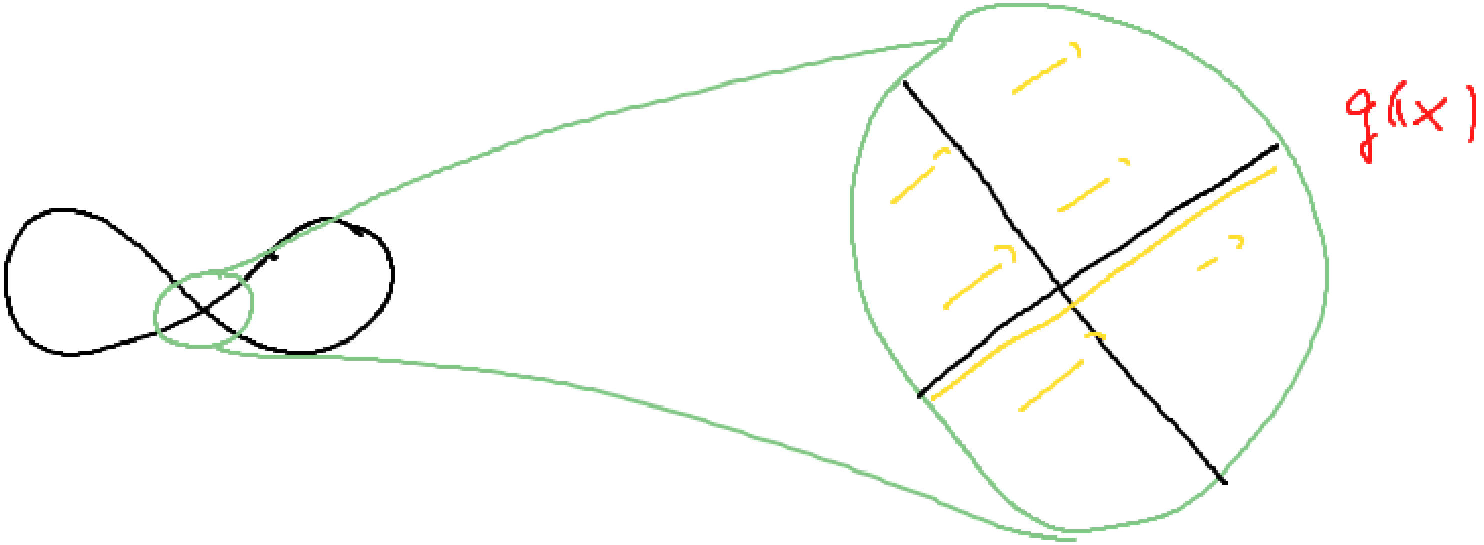
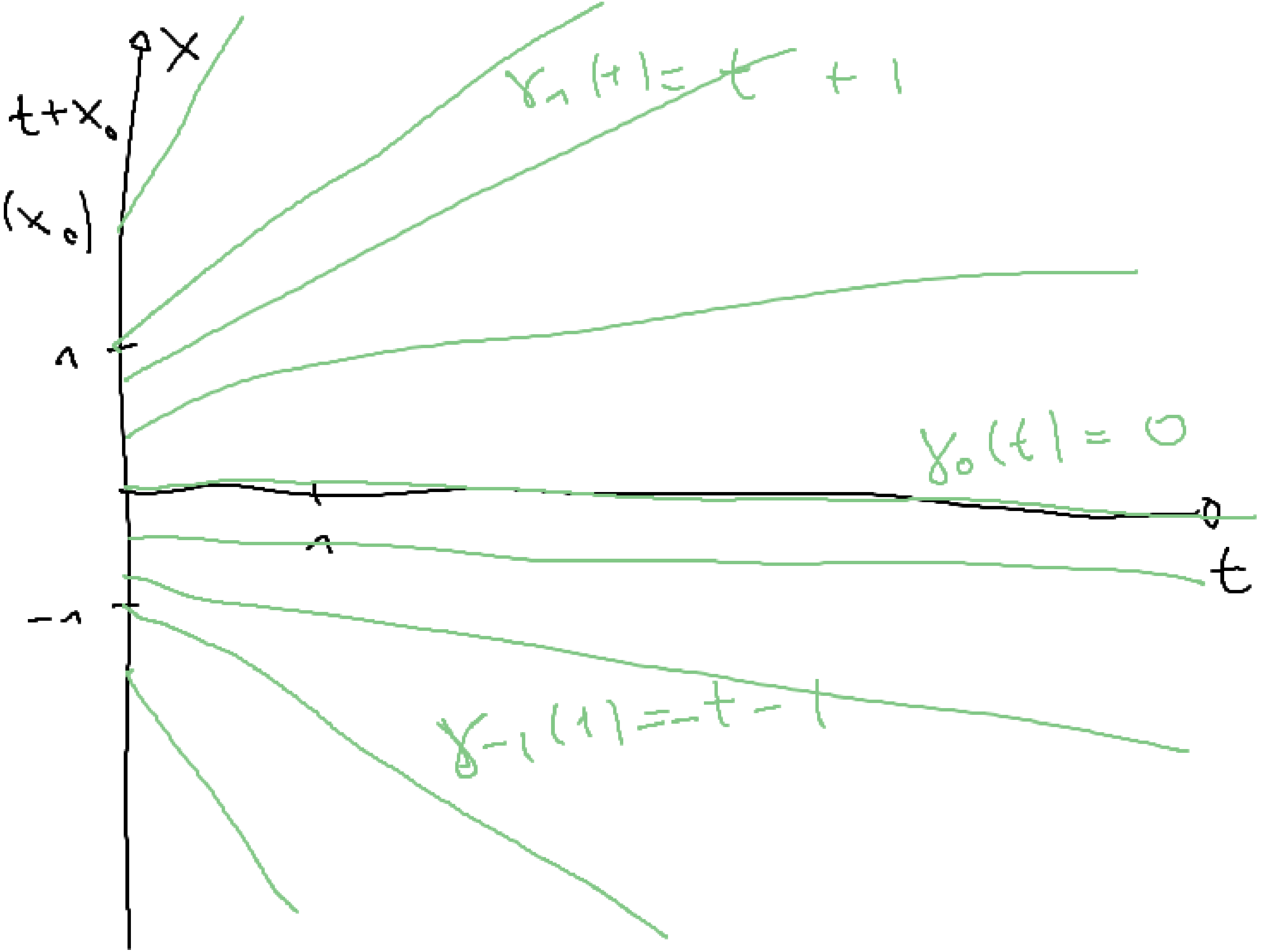
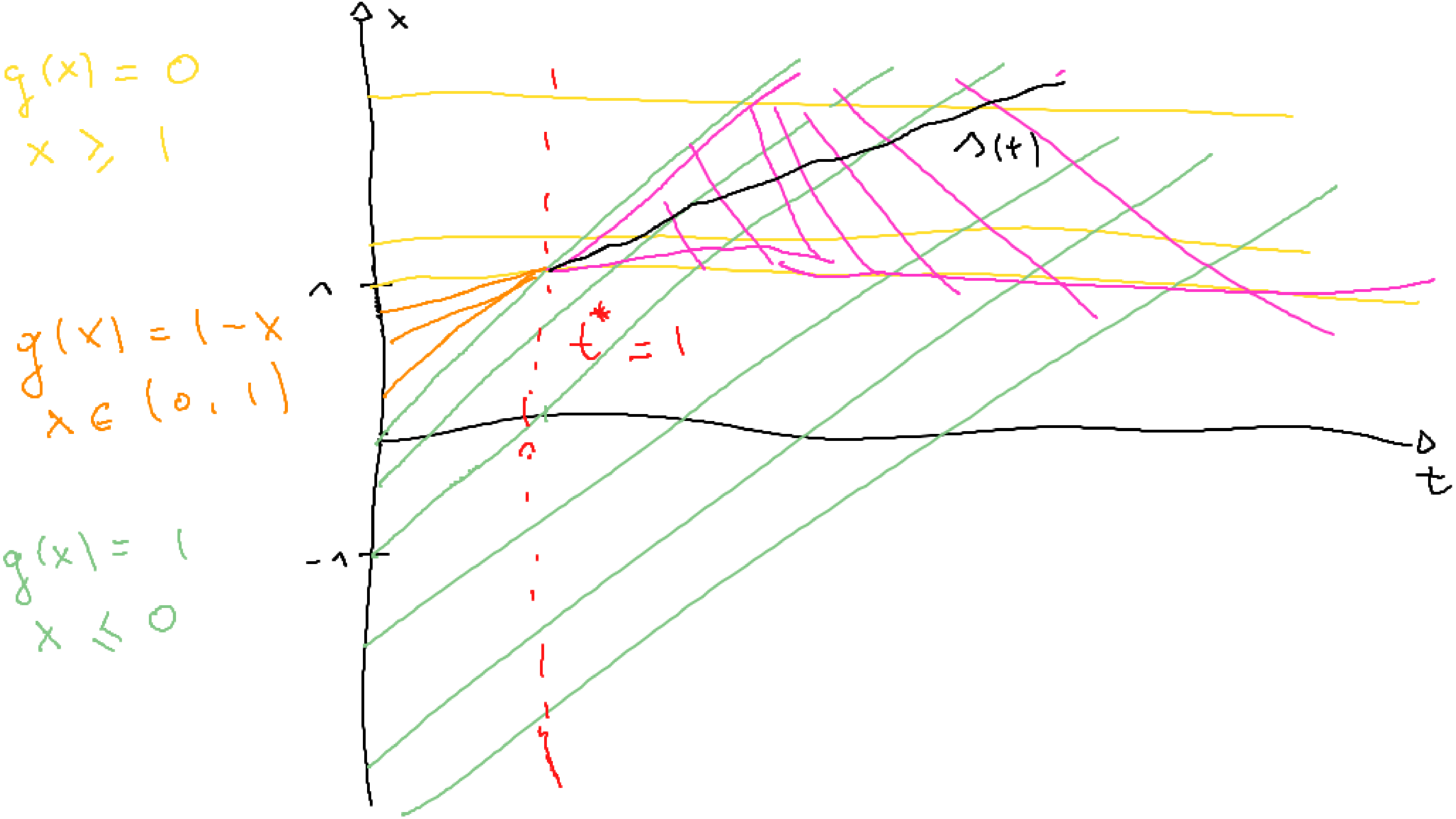

g(x)

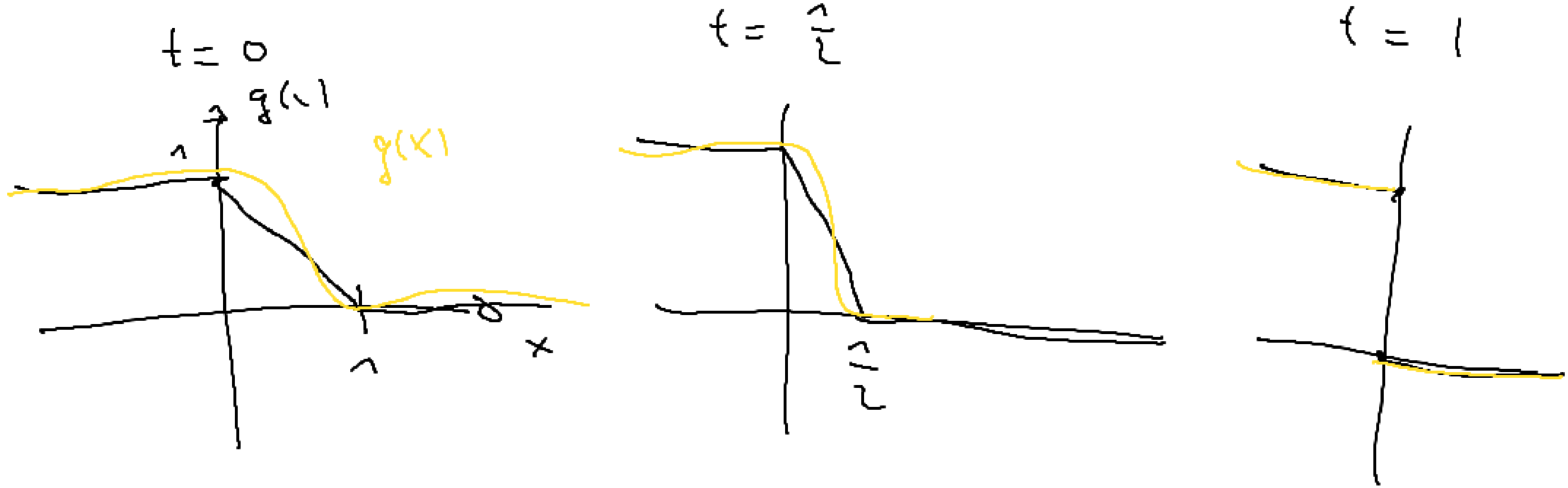
$$\gamma_{x_0}(t) = g(x_0)\cdot t + x_0$$

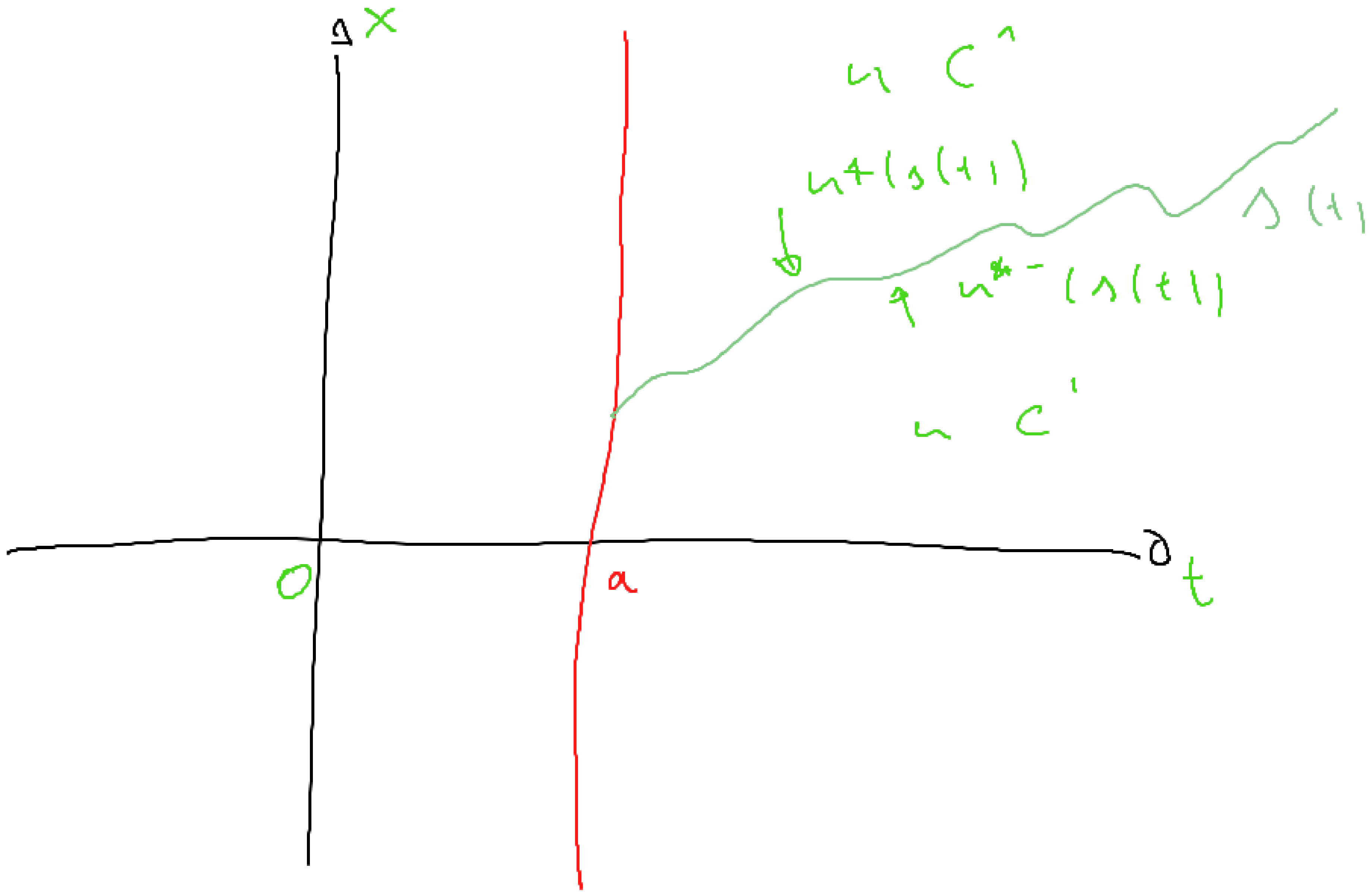
$$\dot{\gamma}_{x_0}(t) = g(x_0)$$

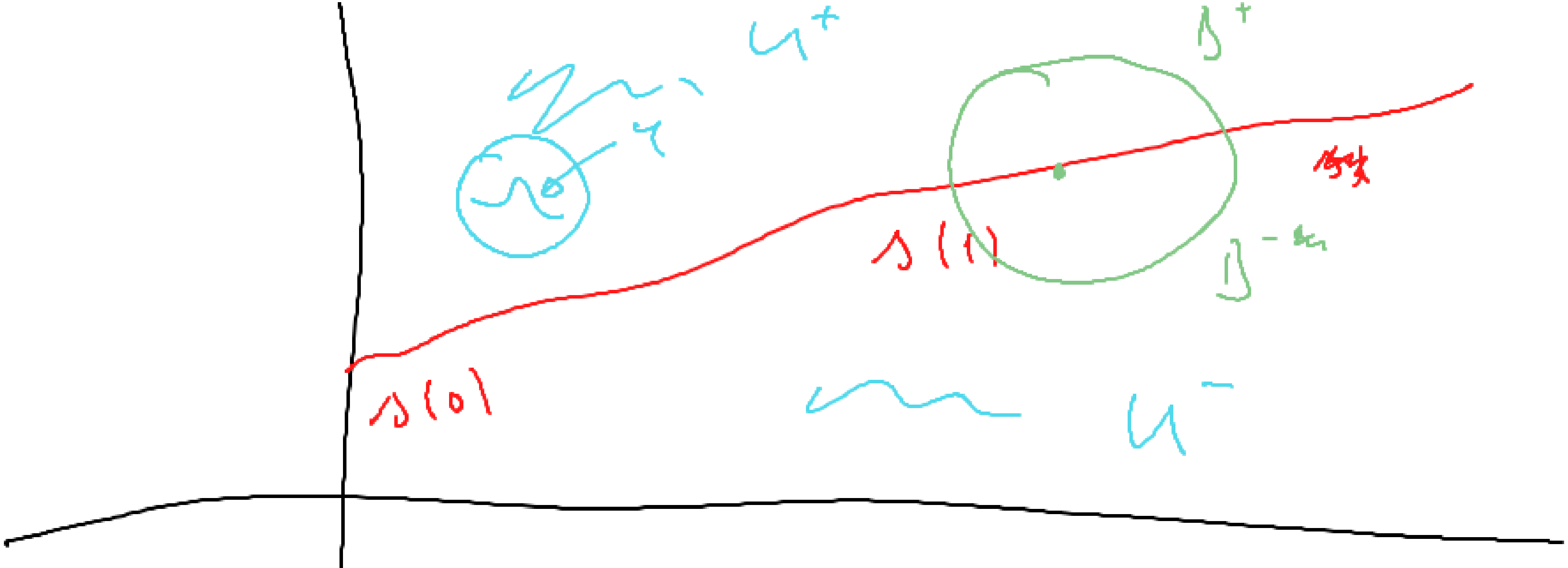
$$g(x) = x$$




x
g(x) = 0
x ≥ 1
s(t)
1
g(x) = 1 − x
x ∈ (0, 1)
t* = 1
t
g(x) = 1
-1
x ≤ 0


t = 0
g(x)
1
g(x)
0
1
x
t = 1/2
1/2
t = 1


x
u C^1
$u^+(s(t))$
$s(t)$
$u^{*-}(s(t))$
u C^1
O
a
t



u

u is a classical solution in U^+ / U^-

$$0 = \iint u \varphi_t + f(u) \varphi_x \, dx$$

$$= \iint u_t \varphi + (f(u))_x \varphi \quad \text{on } U^+ / U^-$$

$$0 = \iint \left[u_t + (f(u))_x\right] \varphi(t,x)\, dt\, dx \quad \forall \varphi \text{ in } U^+$$

C^1

$$\Rightarrow \quad u_t + (f(u))_x = 0$$

in U^+