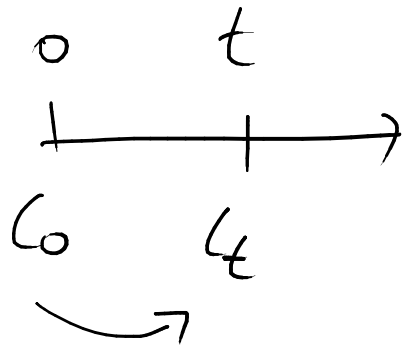
MATEMATICA PER ECON E FINANZA

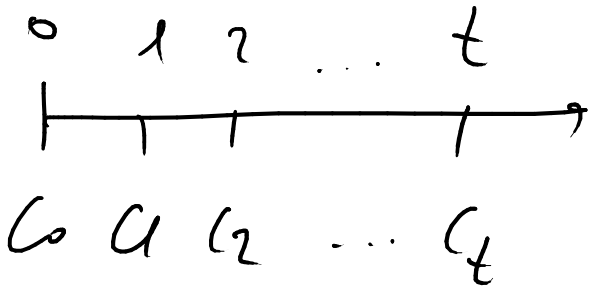
PWD : 1976 SU MORESPACE

- OPERAZIONE FINANZIARIA → semplice, complessa
- Capitalizzazione e attualizzazione
  - fattore montante
  - fattore sconto
- GRANDEZZE FONDAMENTALI
  - interesse
  - sconto
  - tasso interesse
  - tasso sconto
  - intensità istantanee
  - intensità interesse
  - intensità sconto

operazione finanziaria



SEMPLICE



COMPLESSA

fattore di merito:

$f(t)$

1) $f(t)$ definita $\forall t \in [0, T]$

2) $f(0) = 1$

3) $t_1 < t_2 \quad f(t_1) \leq f(t_2)$

$f'(t) \geq 0$

Legge di capitalizzazione

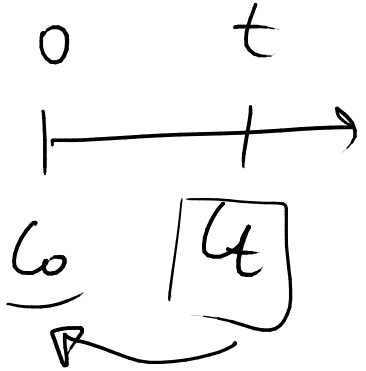
$$f(t) = 1 + 0{,}2 \cdot t$$

$f(t) = 1 + it$ semplici REGIME

fattoriale
di sconto

$$C_t = C_0 \cdot f(t)$$

$$C_0 = \frac{C_t}{f(t)}$$



$$C_0 = C_t \cdot \underline{g(t)}$$

FATTORE SCONTO

Valore attuale di 1€ disponibile in t

$g(t)$ =

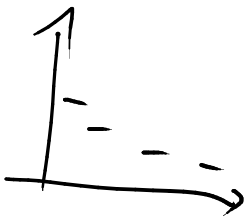
1) $g(t)$ è definita $t \geq 0$

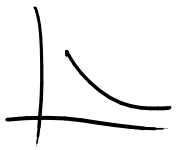
2) $g(0) = 1$ $\quad t \in [0, T]$

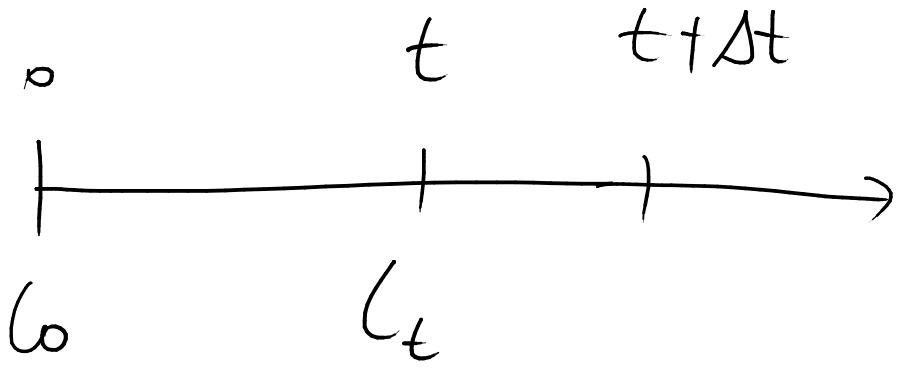
3) $g(t)$ non crescente

$t_1 < t_2 \quad g(t_1) \geq g(t_2)$

$g'(t) \leq 0$





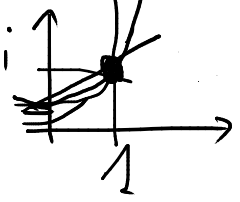


INTERESSE : $C_t - C_0$ TASSO DI INTERESSE : $\frac{C_t - C_0}{C_0}$

SCONTO : $C_t - C_0$ TASSO SCONTO : $\frac{C_t - C_0}{C_t}$

TASSO UNITARIO INTERESSE : $i(1) = f(1) - 1$

$f(1) = 1 + i^{Hi}$

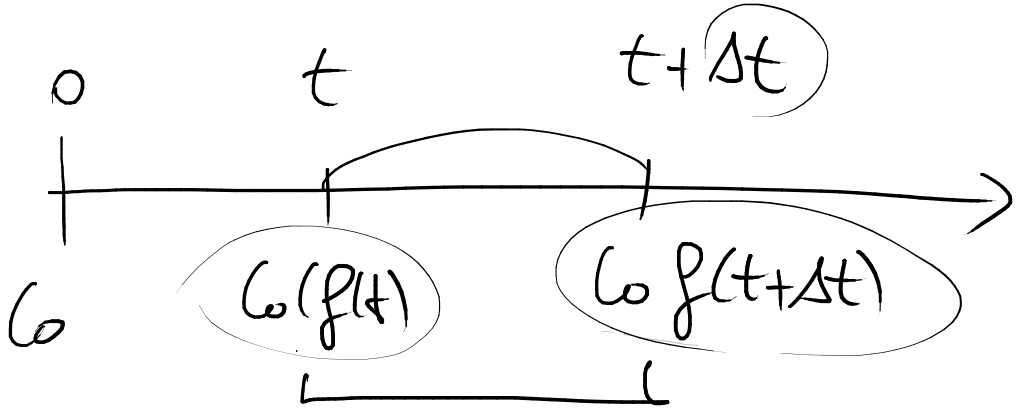


$$d(1) = 1 - g(1) = 1 - \frac{1}{g(1)} = 1 - \frac{1}{1+i}$$

$$= \frac{1+i-1}{1+i} = \frac{i}{1+i}$$

$$i(1) = g(d(1)) = \frac{d}{1-d}$$

$$i(t) = \frac{d(t)}{1-d(t)}$$



intensità istante = $\dfrac{C_0 f(t+\Delta t) - C_0 f(t)}{C_0 f(t) \cdot \Delta t}$

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intensità istantanea di interesse =

$$\lim_{\Delta t \to 0} \frac{\cancel{c_0} f(t+\Delta t) - \cancel{c_0} f(t)}{\cancel{c_0} f(t) \cdot \Delta t} \to f'(t)$$

$$= \frac{f'(t)}{f(t)} = \left[\ln f(t)\right]'$$

intensità istantanea di sconto:

$$\lim_{\Delta t \to 0} \frac{\ln f(t+\Delta t) - \ln f(t)}{\ln f(t+\Delta t) \cdot \Delta t} = \frac{f'(t)}{f(t)}$$

sono uguali = FORZA di interesse

$f(t) = 1 + it$ interessi semplici

$\frac{f'(t)}{f(t)} = \frac{i}{1+it}$ Decrescente al crescere di t

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$f(t) = (1+i)^t$ int. composti

$\frac{f'(t)}{f(t)} = \frac{(1+i)^t \ln(1+i)}{(1+i)^t}$

COSTANTE

int. anticipati:

$$f(t) = \frac{1}{1-\alpha t}$$

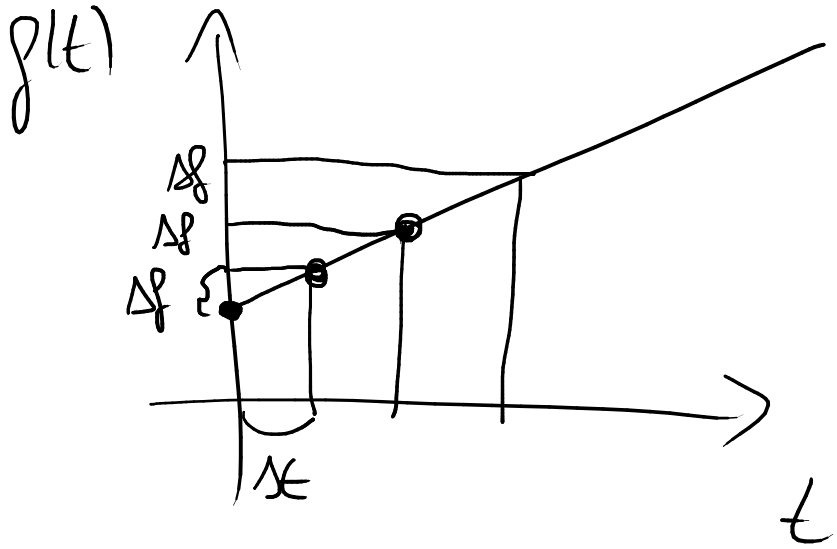
$$\frac{f'(t)}{f(t)} = \frac{\frac{+\alpha}{(1-\alpha t)^2}}{\frac{1}{1-\alpha t}} = \frac{\alpha}{1-\alpha t}$$

proseguite al proseguire di t

$$\frac{\frac{\Delta \text{quantité}}{\text{quantité}}}{\frac{\Delta P}{P}} = \varepsilon$$

$$\frac{\frac{\Delta \rho}{\rho}}{\Delta t}$$

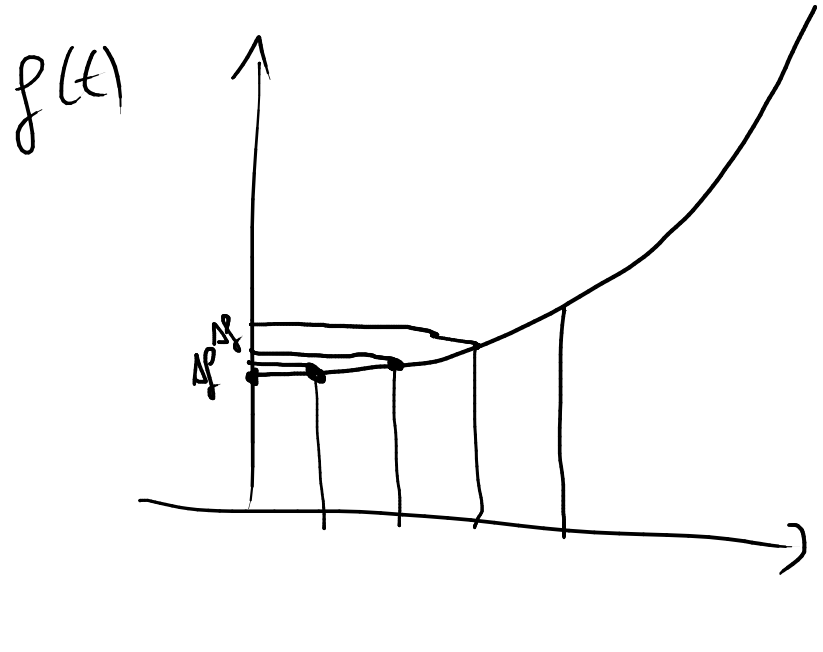
semi elasticité



SERVICE

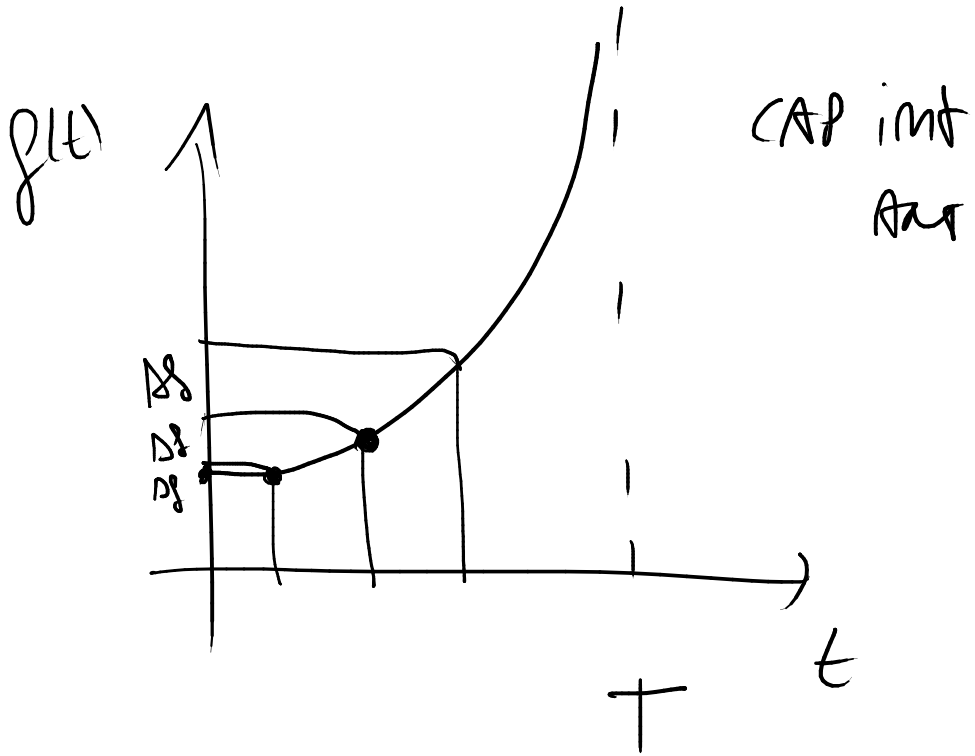
int ist interessr decrescente

t

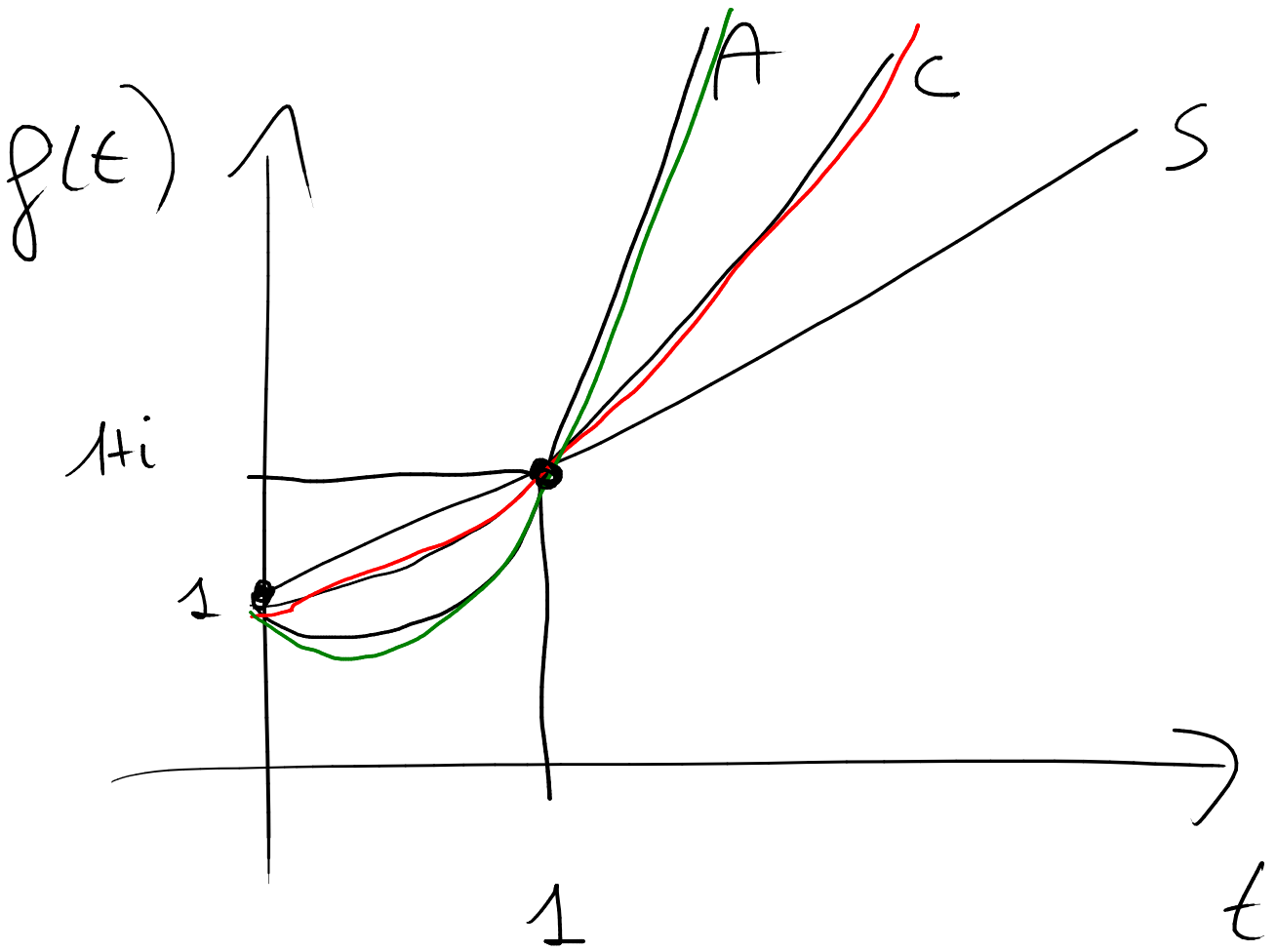


CAP
COMP

$\frac{\Delta p}{p}$ costante $= \ln(1+i)$
in t



int ist interessé à croissante in t



$$\frac{1}{1-dt} = 1+i$$

$$1+i \cdot t = 1+i$$

$$(1+i)^t = 1+i$$