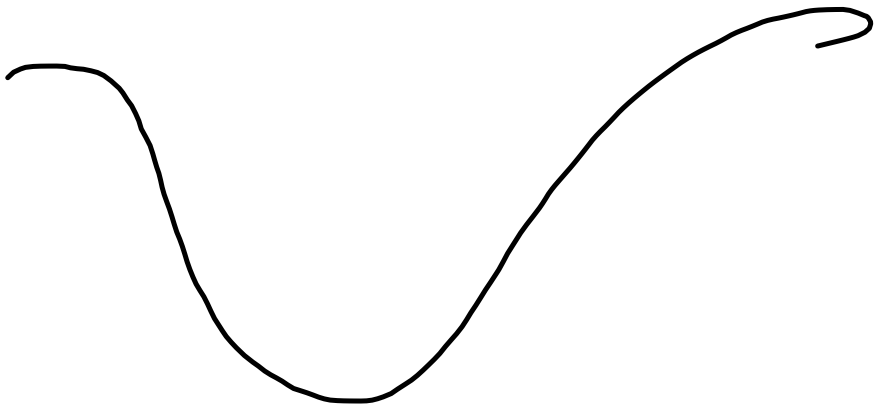
α - Quantil

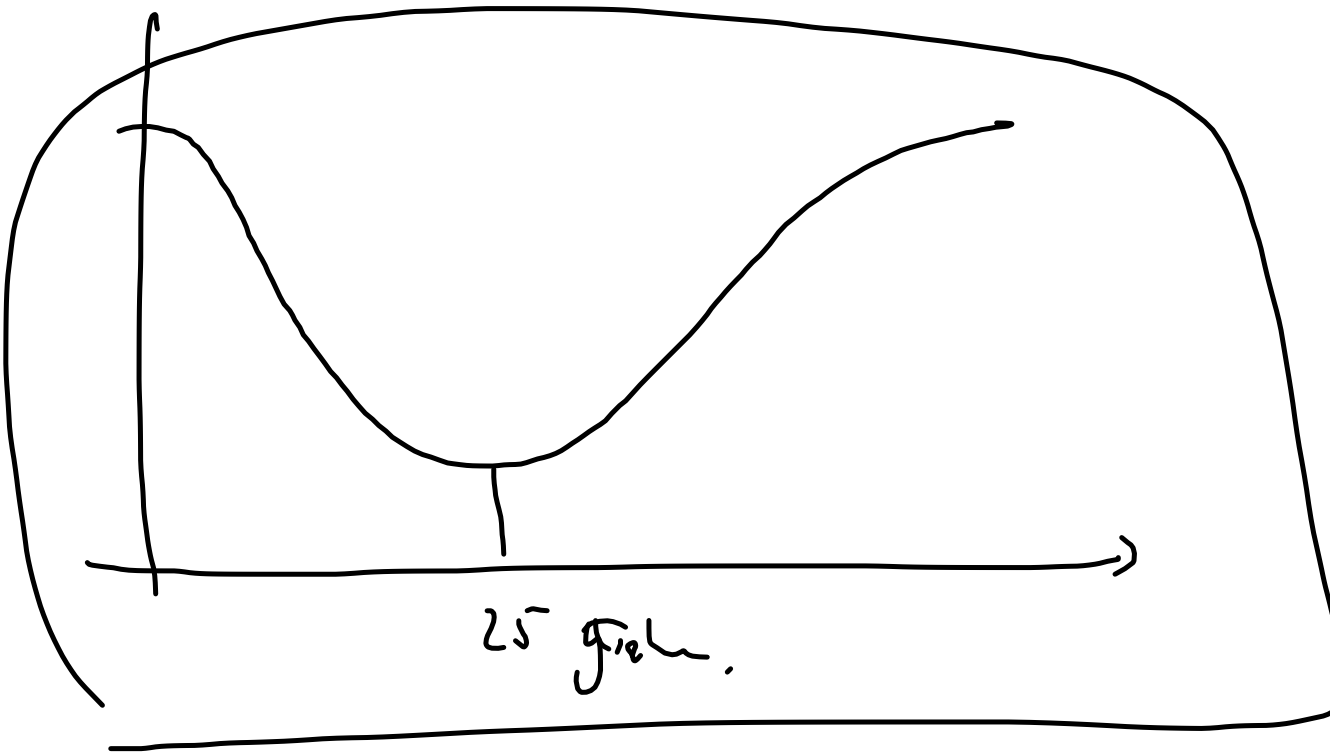
x_{min}

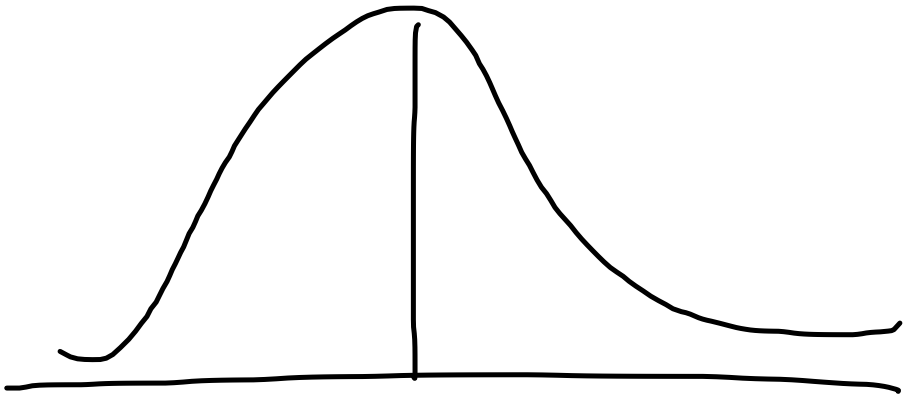
x_{max}

$x_{0,5}$

U - förmige




25 Fish.



Def: Eine Häufigkeitsverteilung heißt:

a) **rechtsschief** oder **linkssteil**, falls

$$\bar{x} > x_{0,5} > x_{mod}$$

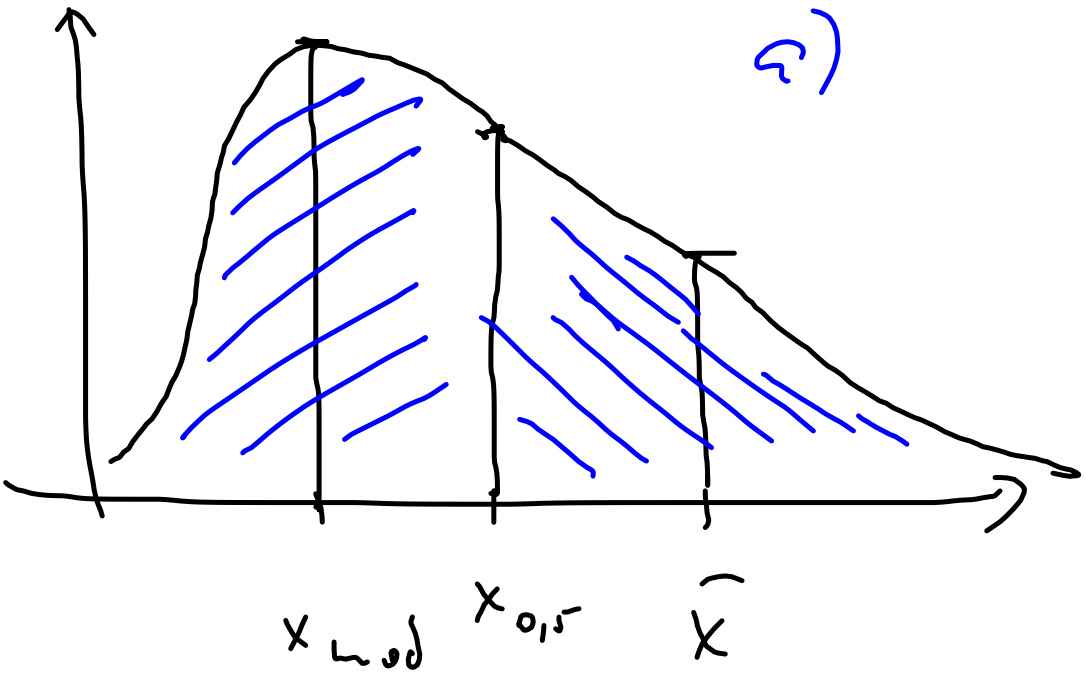
b) **linksschief** oder **rechtssteil**

$$\bar{x} < x_{0,5} < x_{mod}$$

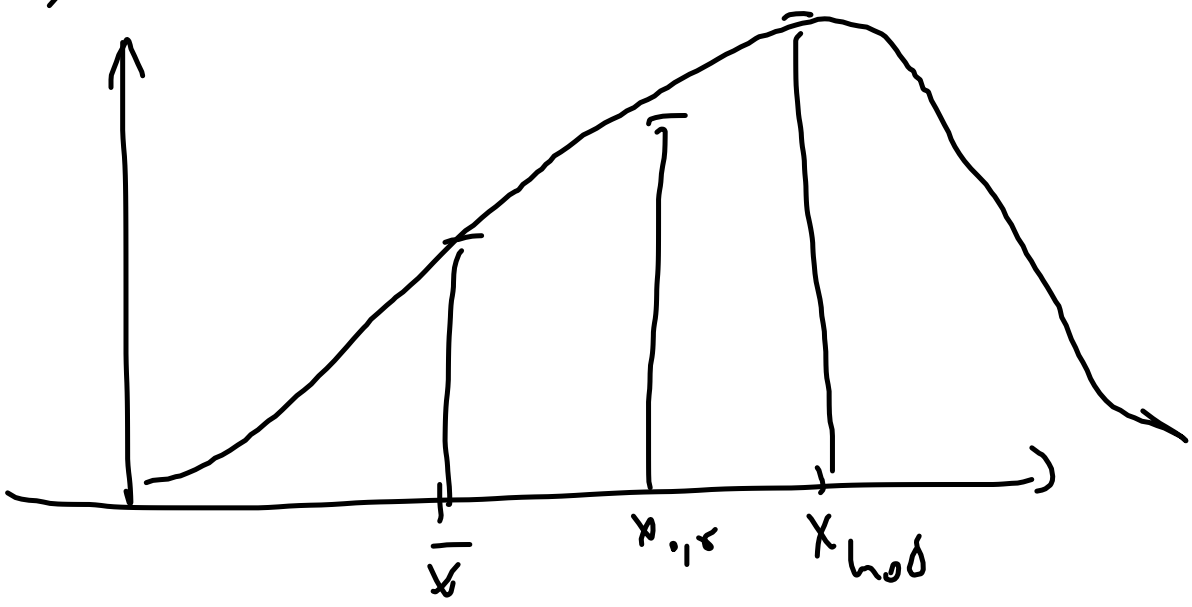
c) **symmetrisch**:

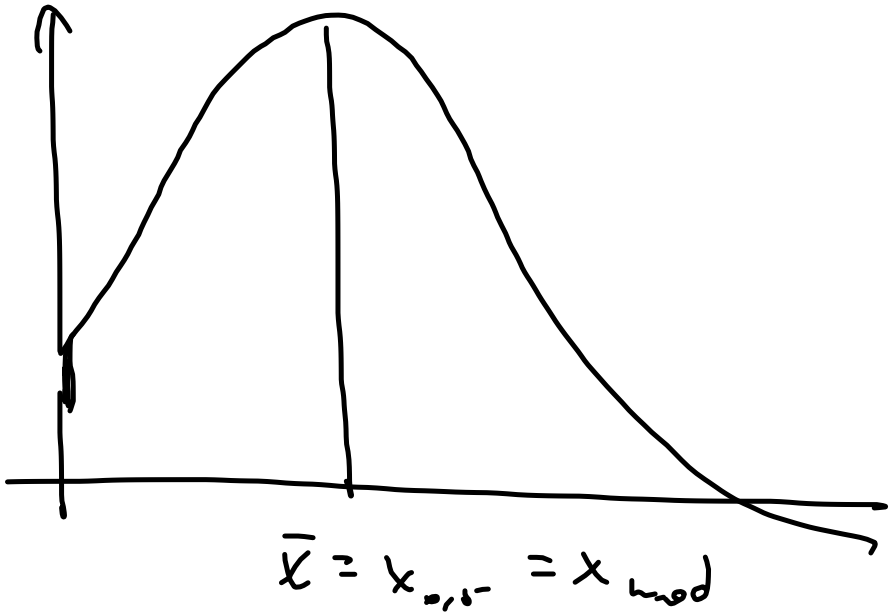
$$\bar{x} \approx x_{0,5} \approx x_{mod}$$

a)

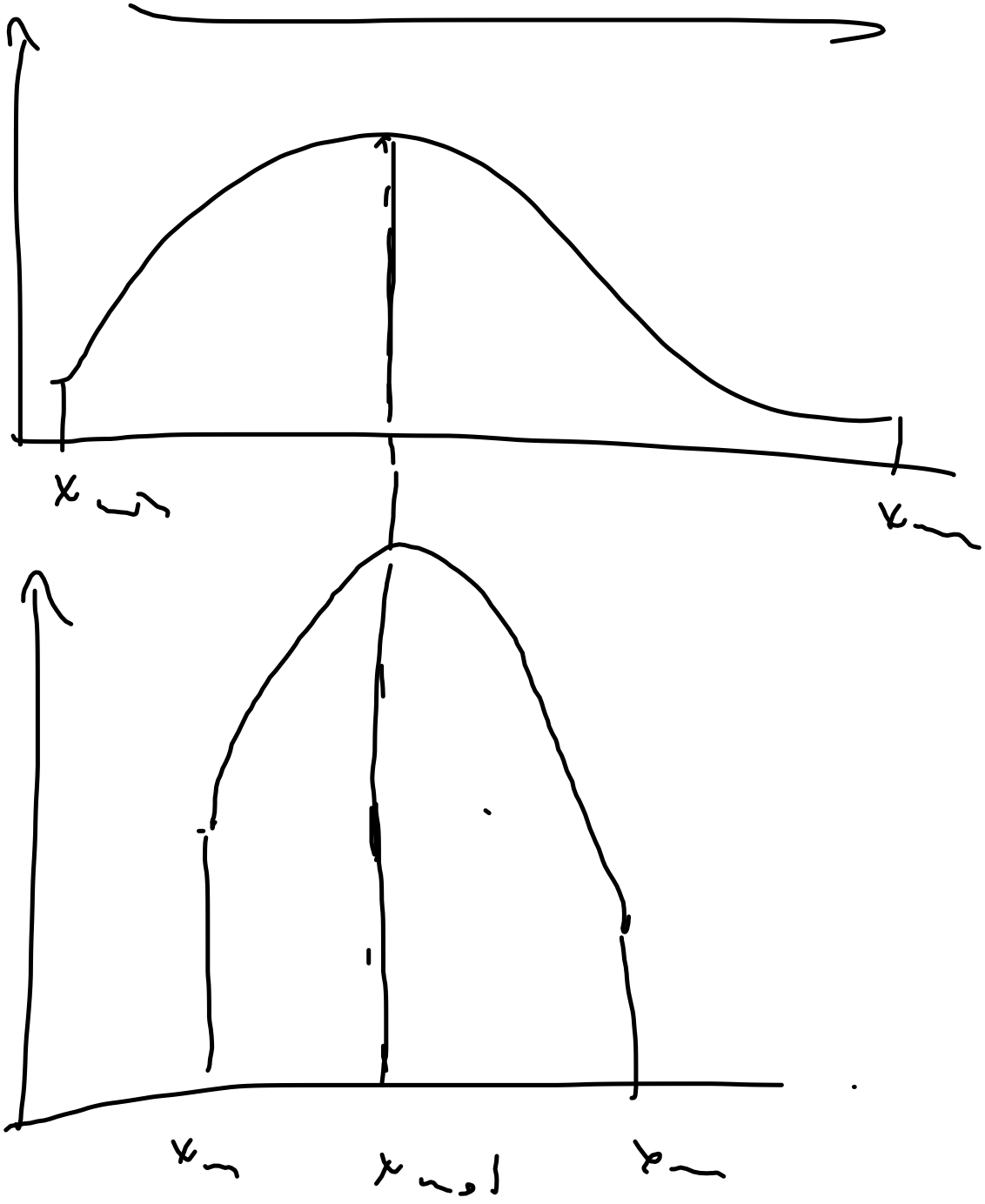


b)




$\bar{x} = x_{med} = x_{mod}$

2.2. Streuungsmaße



2.11. Spannweite (Range)

$$R := x_{max} - x_{min}$$

Bsp mit Einheit:

3 mal 400 €

1 mal 4000000 €

$R \approx 4$ M€

Empfindlich gegenüber Ausreißern!

2.2.2. Quartilsabstand

$$s_Q = x_{0,75} - x_{0,25}$$

Bereich, in den etwa 50% der Beobachtungen liegen.

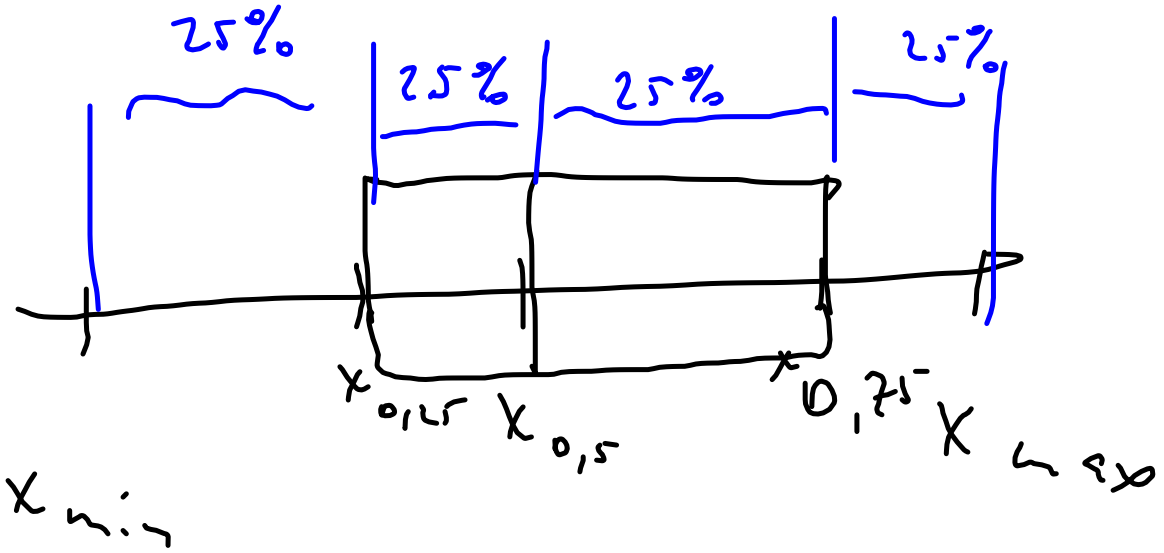
Nicht so empfindlich gegenüber Ausreißern.

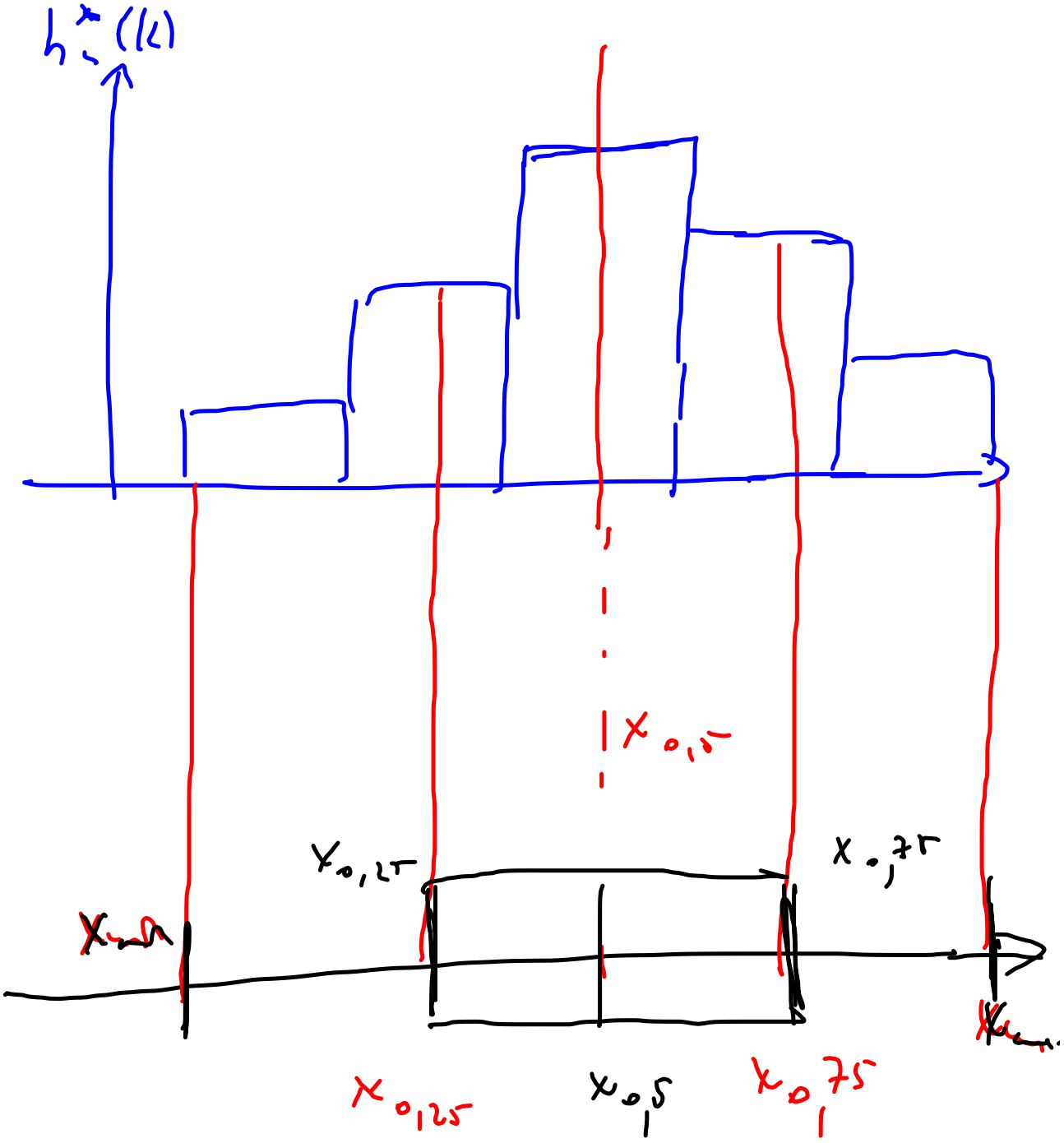
2.2.2.c) Zentilsabstände

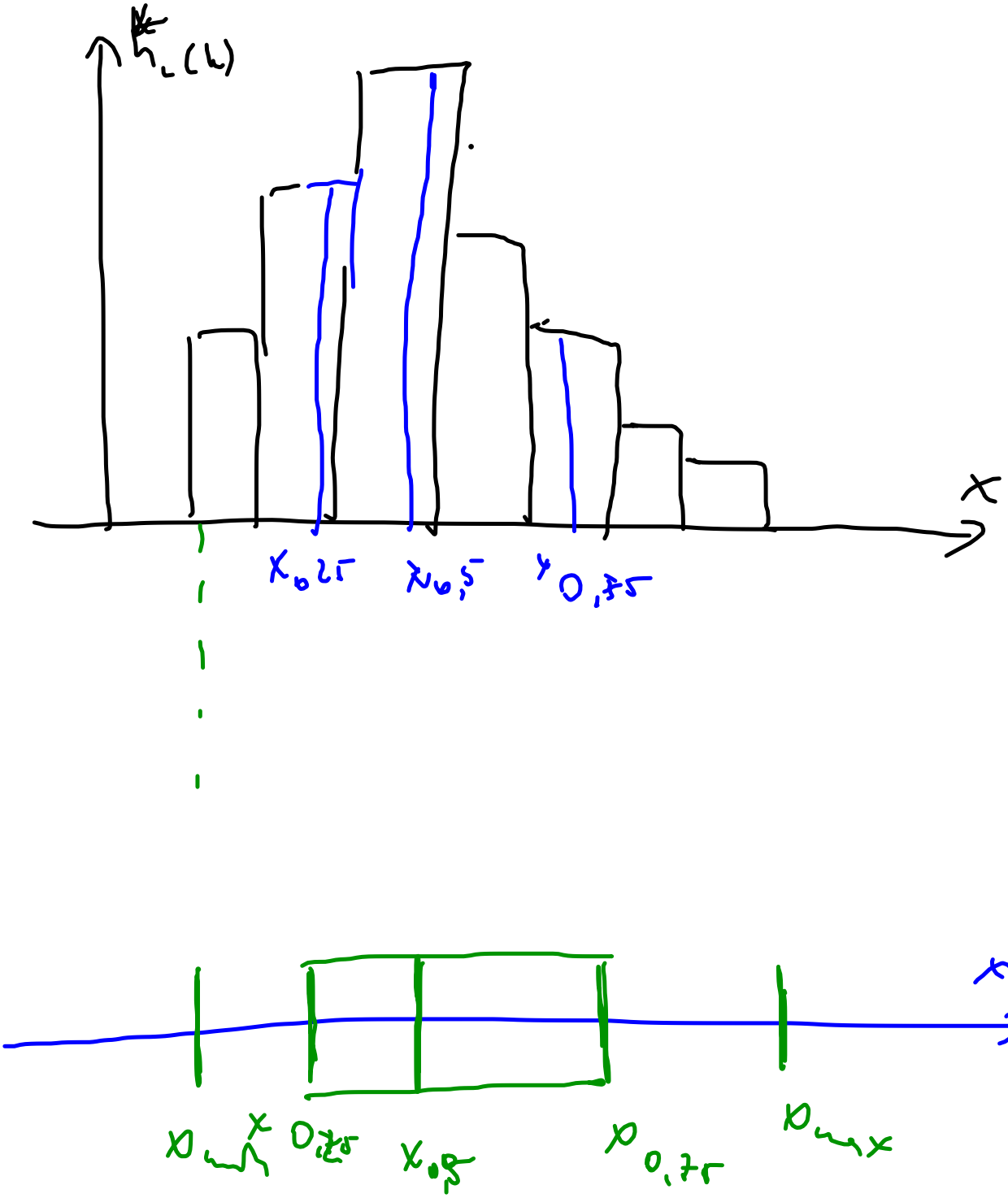
$$s_{Q_{10}} = x_{20} - x_{10}$$

- - - - - - - -

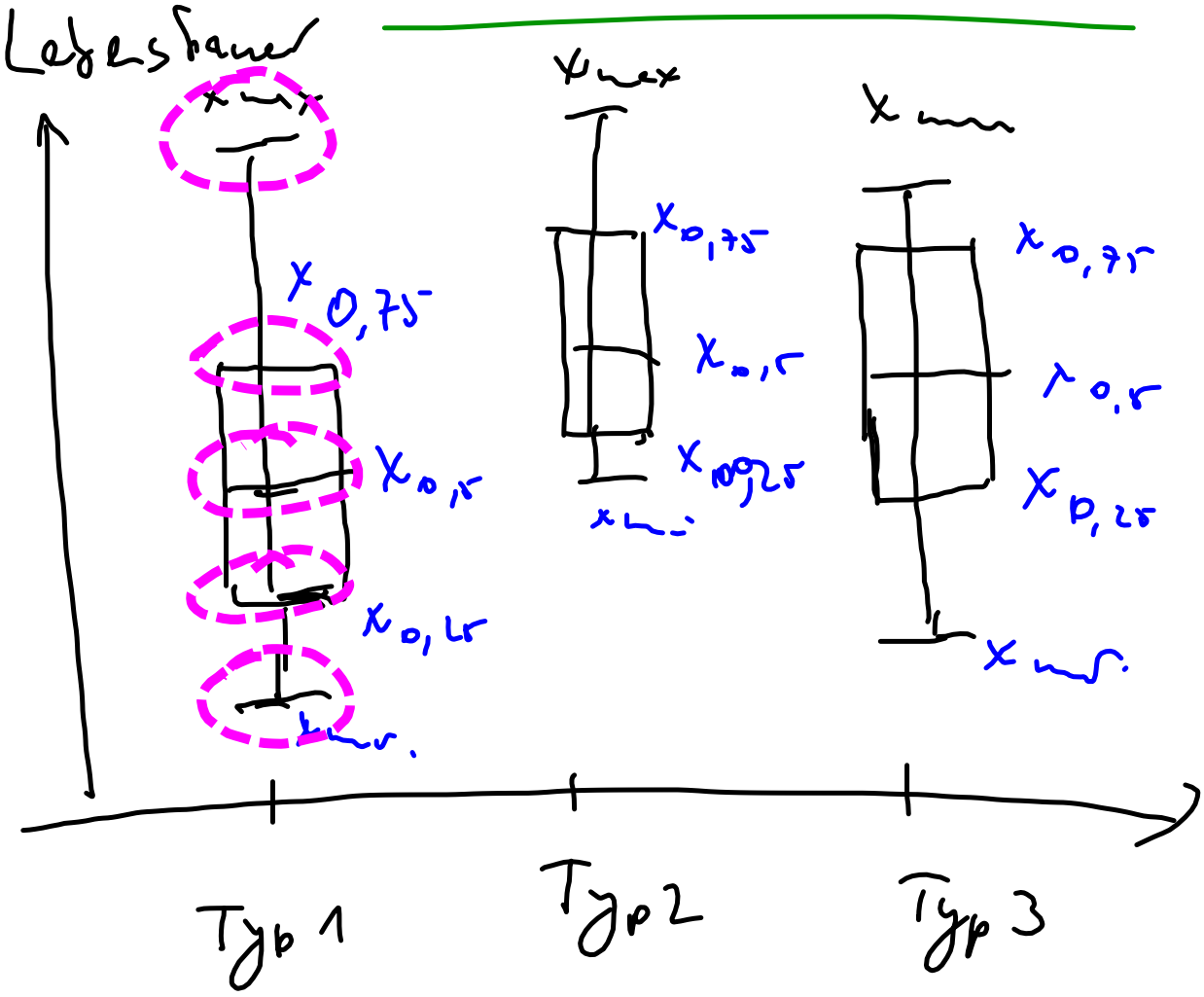
2.23 Boxplots




$h^*(t)$
$x_{0,5}$
$x_{0,25}$
$x_{0,75}$
$x_{0,125}$
$x_{0,875}$


x
x0,25
x0,5
x0,75
x
x0,25
x0,5
x0,75
xmax

⇒ Vergleiche vers. Hystogr. möglich!



2.2.4. Streuung

Data and wessler.

S1: 10 → 400 € jeder

S2: 9 → 400 € jeder

1 → 4000000 €

$x_{0,5\text{-}S1} = 400$ €

$x_{0,5\text{-}S2} = 400$ €

Streuung ist ein
"mittlere" quadr. Abstand
von dem Mittelwert:

Def: $s^2 = \frac{1}{n-1} \sum_{i=1}^{n} (x_i - \bar{x})^2 =$

HA $= \frac{1}{n-1} \left(\sum_{i=1}^{n} x_i^2 - n \cdot \bar{x} \right)$

heißt Streuung (Stichprobenvarianz) der Stichprobe $x_1, \dots, x_n$.

2.2.5 Standard deviation

Def: $s = \sqrt{s^2} =$

$= \sqrt{\text{Streuung}}$