3.1 Marginal Rate of Substitution in Exchange and Marginal Rate of Substitution in Consumption (MRS_E and MRS_C)

Two concepts: **MRS_E** = Marginal Rate of Substitution in Exchange

and **MRS_C** = Marginal Rate of Substitution in Consumption

a) MRS_E = Marginal Rate of Substitution in Exchange

MRS in Exchange
describes at what ratio the individual can trade on the market.

Example 1:

$P_A = 2$; $P_B = 1$; => $\frac{P_A}{P_B} = \frac{2}{1} = 2$

If you give up 1 apple, you can get 2 bananas.

Example 2:

$P_A = 2$; $P_B = 0.50$; => $\frac{P_A}{P_B} = \frac{2}{0.50} = 4$

If you give up 1 apple, you can get 4 bananas.

MRS_E is equal to the relative price (i.e the price ratio):

It is a positive number!

$$MRS_E = \frac{P_A}{P_B}$$

b) MRS_C = Marginal Rate of Substitution in Consumption

MRS in Consumption
is the ratio at which the individual is just willing to substitute a small amount of B for a small amount of A in her consumption basket.

MRS_C is the absolute value of the slope of the indifference curve:

⇨ Figure 21 – 4

Graphisch: steigung ablesen

$$MRS_C = -\frac{dx_B}{dx_A}$$ MRSc = Betrag dxb / dxa

Note that it is also a positive number!

c) What is the condition for the consumer optimum?

slope of the budget constraint = slope of the indifference curve

$$-\frac{P_A}{P_B} = \frac{dx_B}{dx_A}$$

$$\frac{P_A}{P_B} = -\frac{dx_B}{dx_A}$$

$$MRS_E = \frac{P_A}{P_B} = -\frac{dx_B}{dx_A} = MRS_C$$

$$MRS_E = MRS_C$$

like in graphical solution
how much we can get on the market must be equal to how much we are willing to trade/have to get the optimal utiltiy