$$S_n = f_1 + f_2 + f_3 + f_4 + \ldots f_{n-1} + f_n \qquad f_{n+2} - 1$$

$$S_n = f_1 + f_2 + f_3 + f_4 + \ldots f_{n-1} + f_n$$

$$2S_n = f_1 + (f_1 + f_2) + (f_2 + f_3) + (f_3 + f_4) + \ldots + (f_{n-2} + f_{n-1}) + (f_{n-1} + f_n) + f_n$$

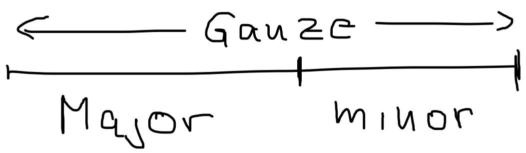
$$\underbrace{f_1 + f_3 + f_4 + f_5 + \ldots + f_n + f_2}_{S_n} \qquad f_{n+1} + f_n - f_2$$

$$2S_n = S_n + f_{n+1} + f_n - f_2 \quad \Big| - S_n$$

$$S_n = \underbrace{f_{n+1} + f_n}_{} - f_2$$

$$S_n = f_{n+2} - 1 \quad \text{q.e.d.} \ \square$$

Der goldene Schnitt



$$\frac{\text{Major}}{\text{Ganze}} = \frac{\text{minor}}{\text{Major}} \qquad \text{Ganze} = 1$$

$$\text{Major} = x$$

$$\frac{x}{1} = \frac{1-x}{x} \quad \Big| \cdot x \qquad \text{minor} = 1 - x$$

$$x^2 = 1 - x$$

$$x^2 + x - 1 = 0 \qquad x^2 + \underset{p}{1}x + \underset{q}{(-1)} = 0$$

$$x = -\frac{1}{2} \pm \sqrt{\left(\frac{1}{2}\right)^2 + 1} = -\frac{1}{2} \pm \sqrt{\frac{5}{4}}$$

$$x = -\frac{1}{2} \pm \frac{1}{2}\sqrt{5}$$

$-$ ist keine Lösung

$$x = -\frac{1}{2} + \frac{1}{2}\sqrt{5} = \frac{\sqrt{5} - 1}{2} \approx 0{,}618$$