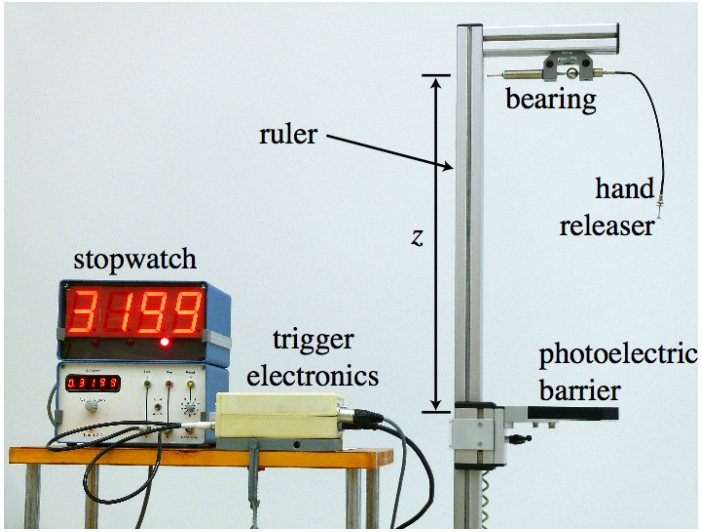
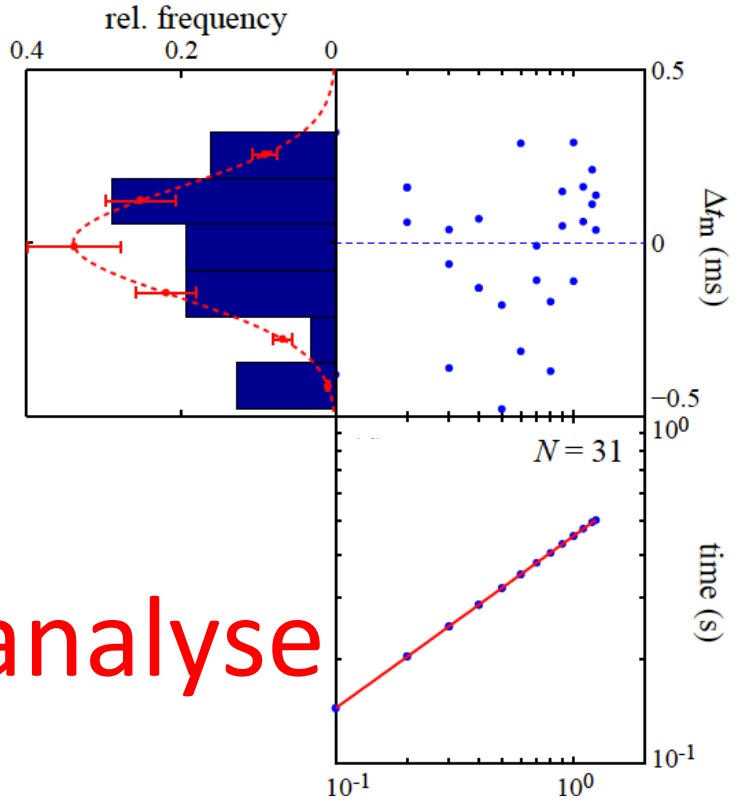
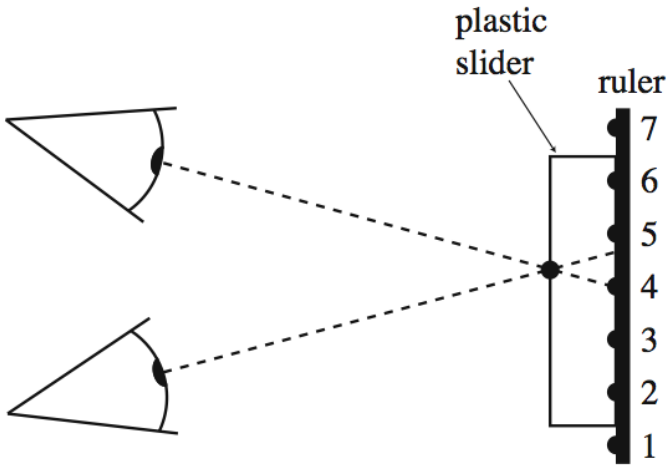




Einführung in die Datenanalyse



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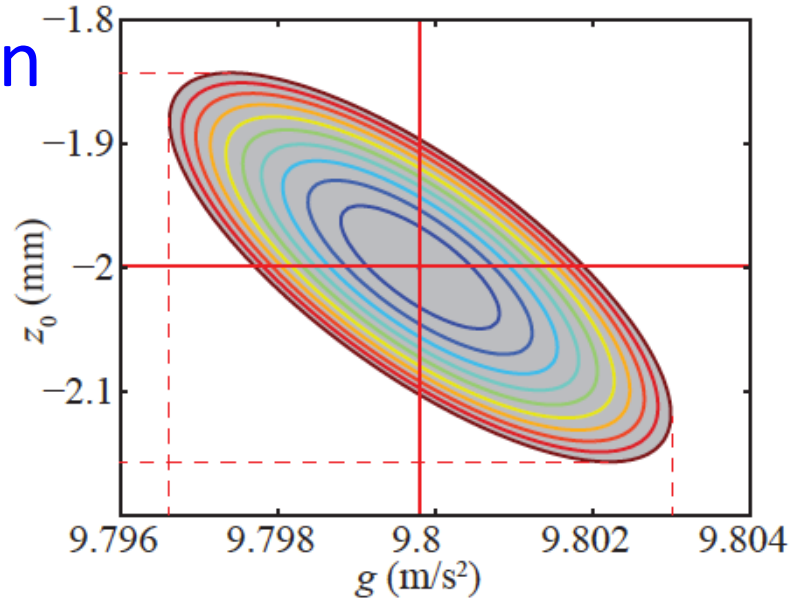
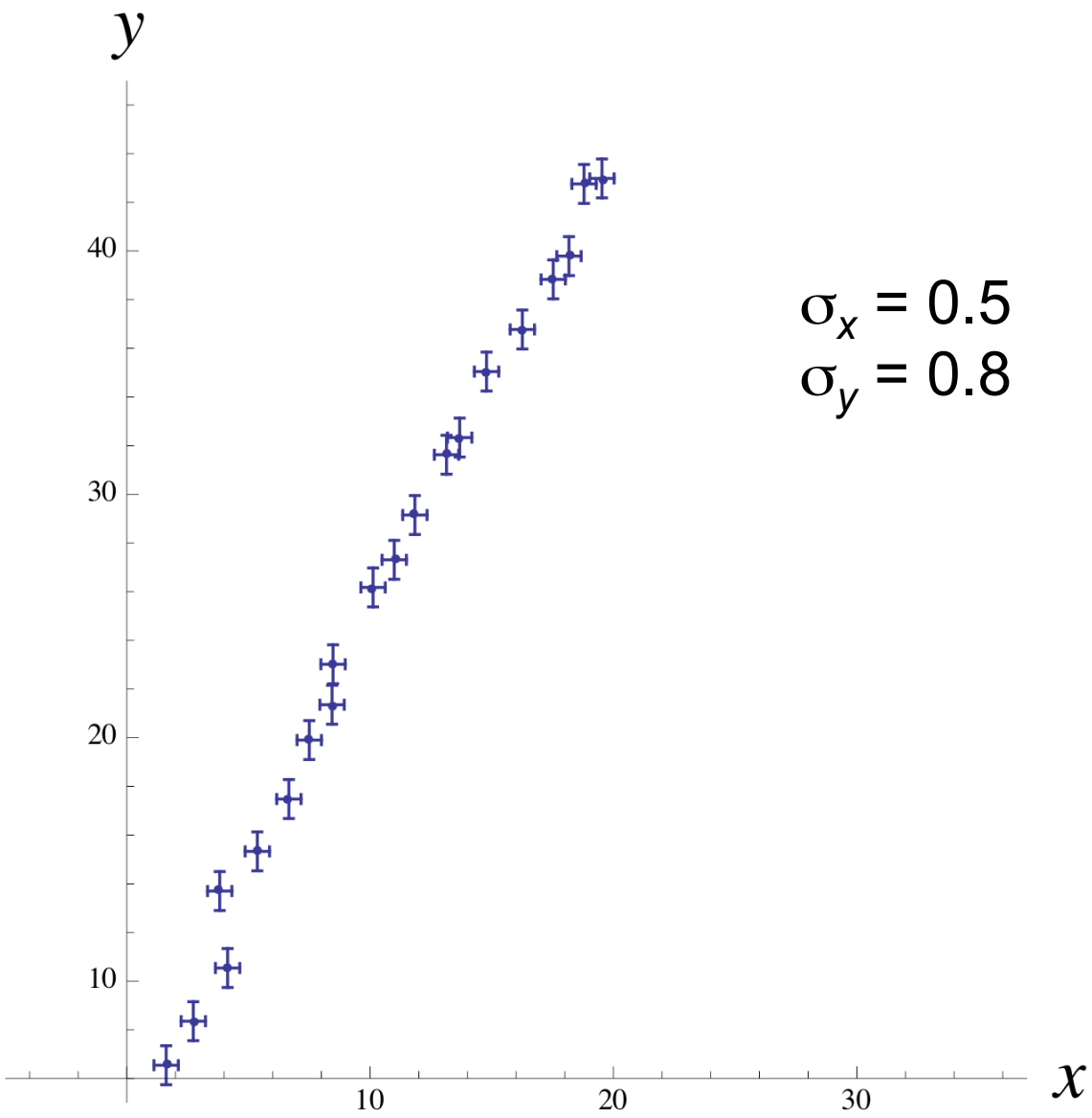
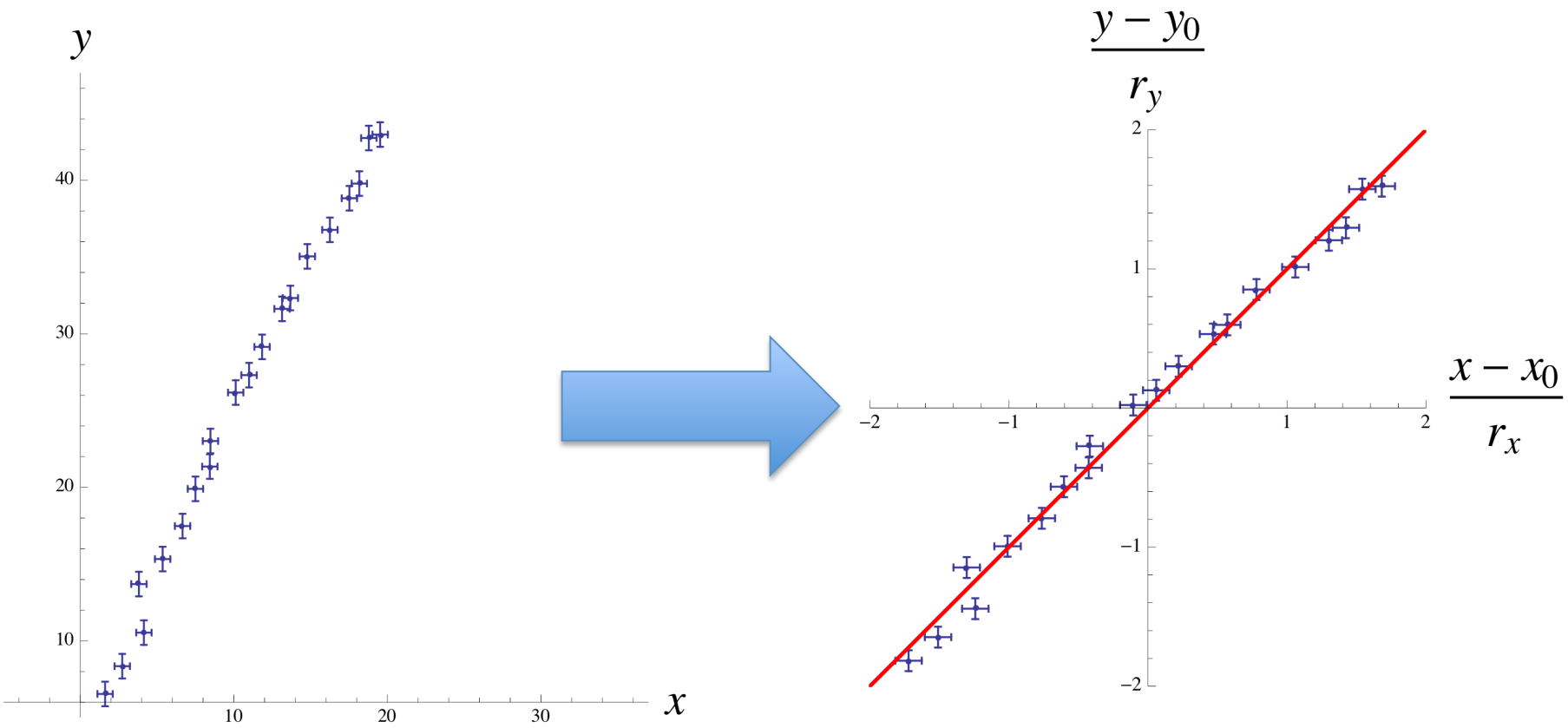


Daten mit Fehlern in *x* und *y*

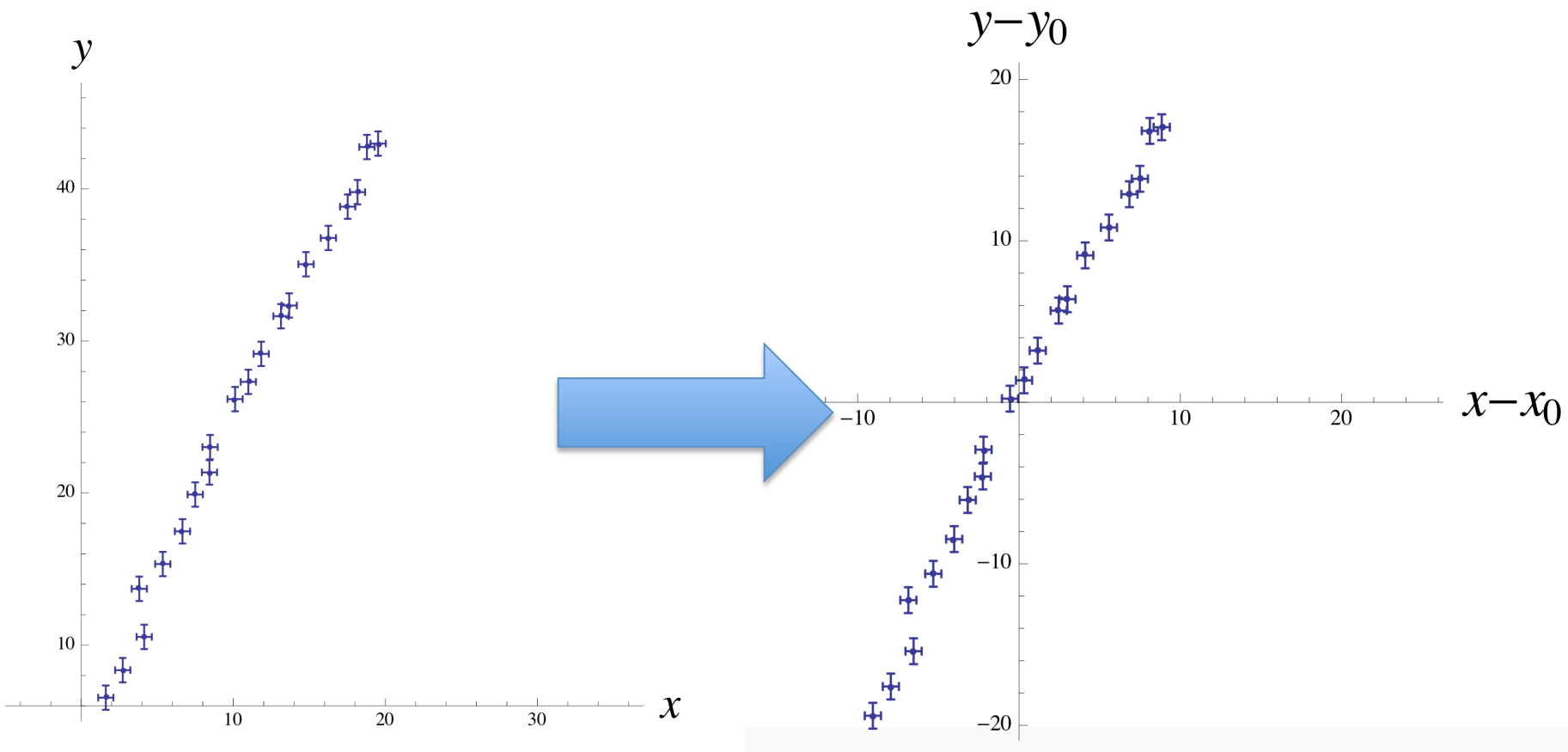


$\sigma_x = 0.5$
$\sigma_y = 0.8$

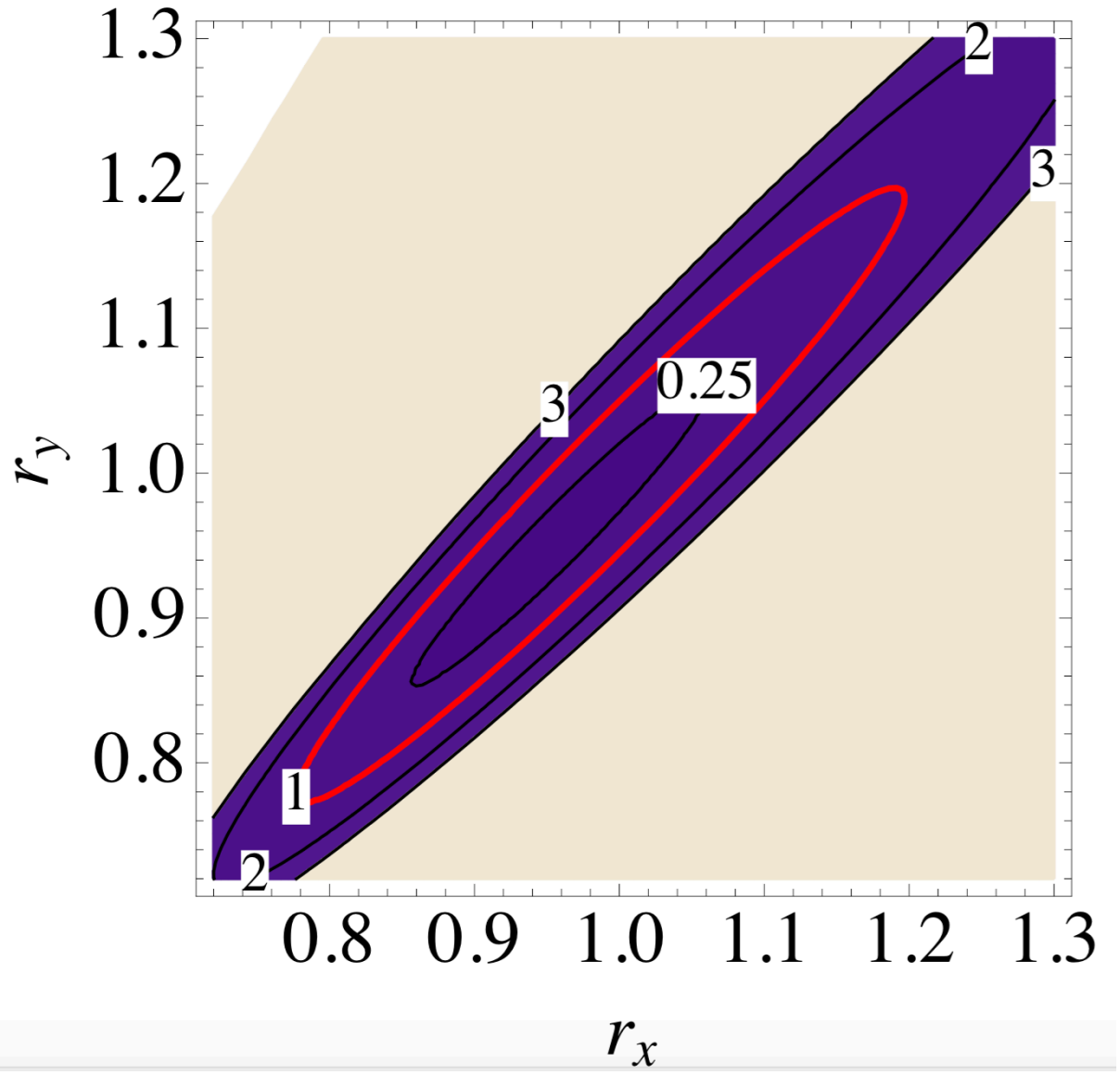
Idee der Skalierung



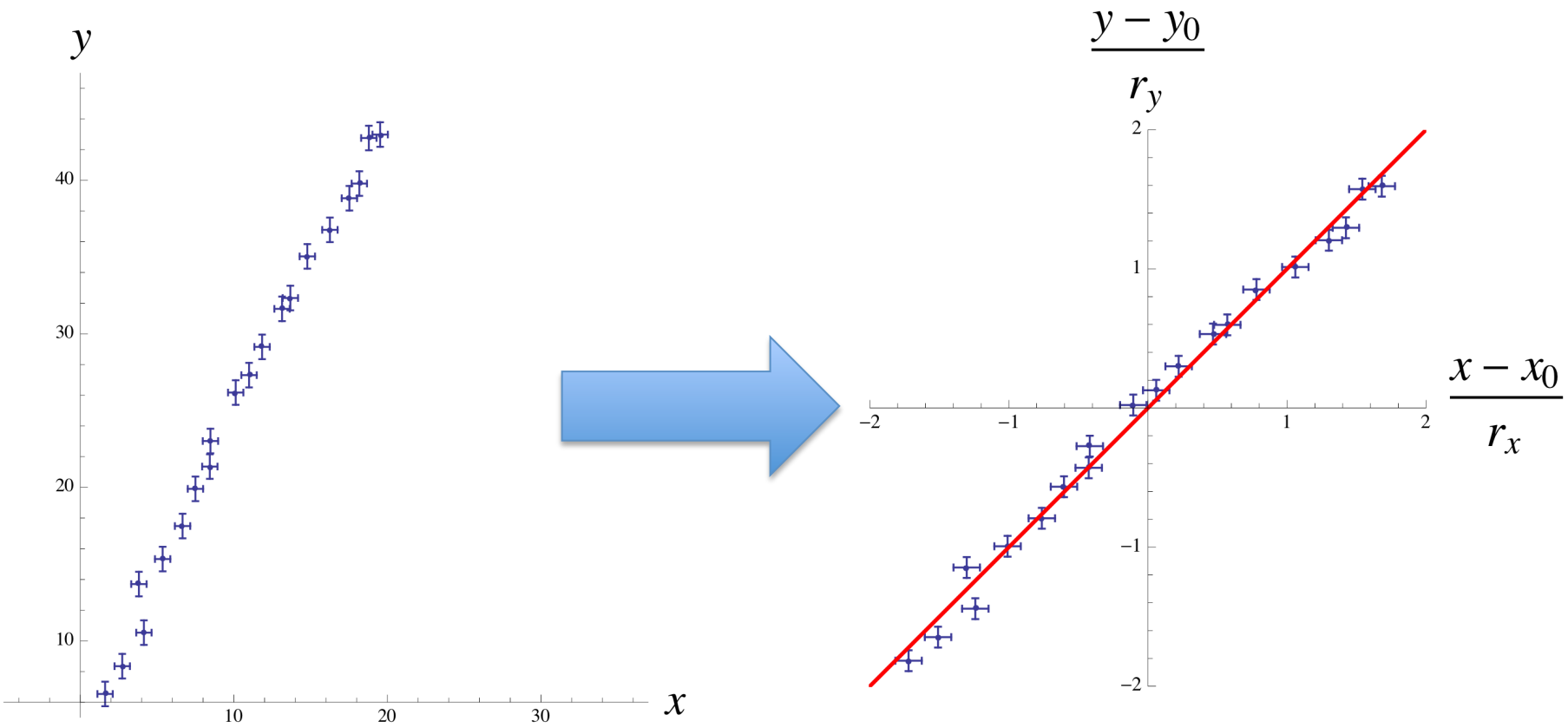
Verschobene Daten



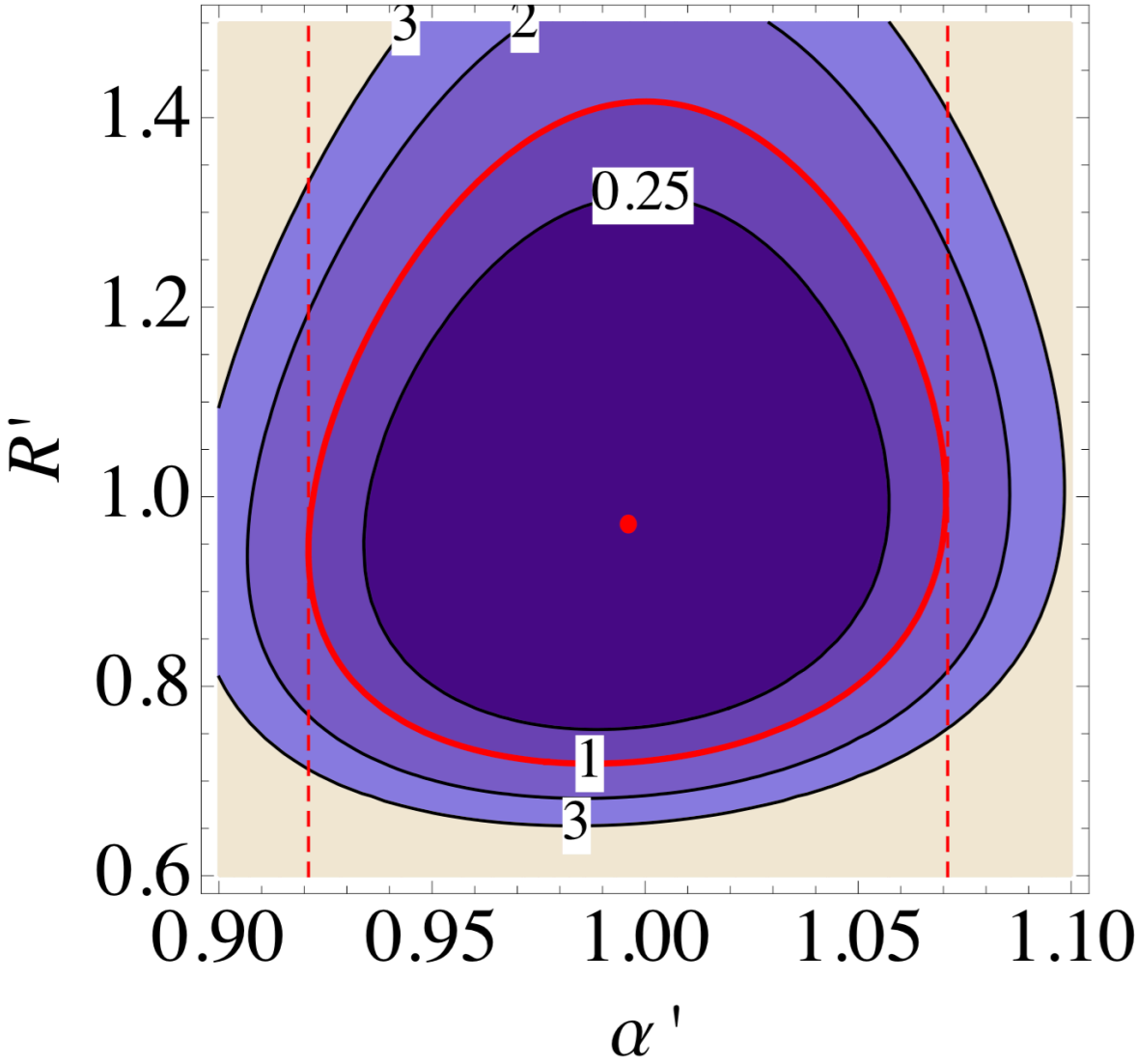
Skalierungsparameter bestimmen



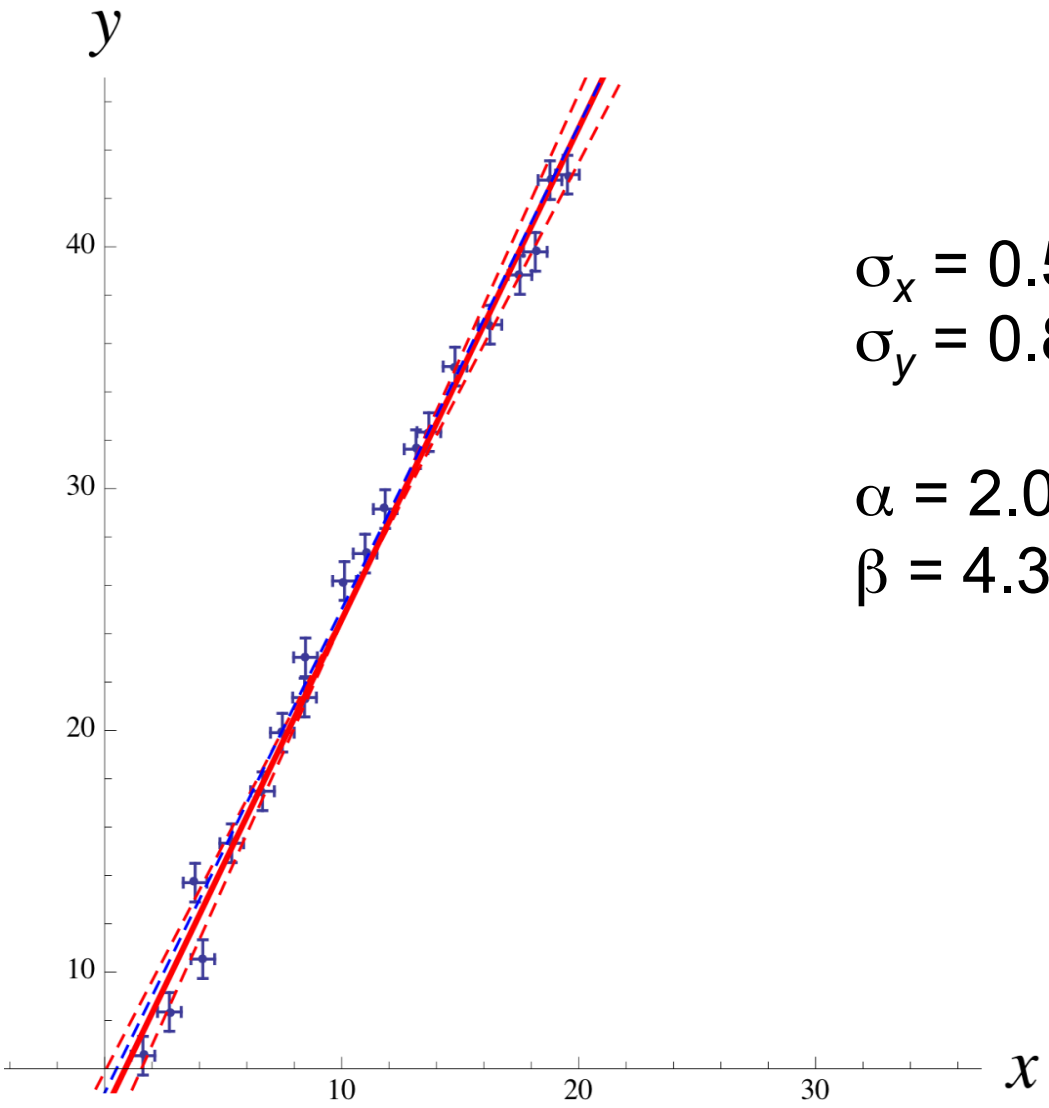
Ergebnis der Skalierung



Steigungsparameter bestimmen



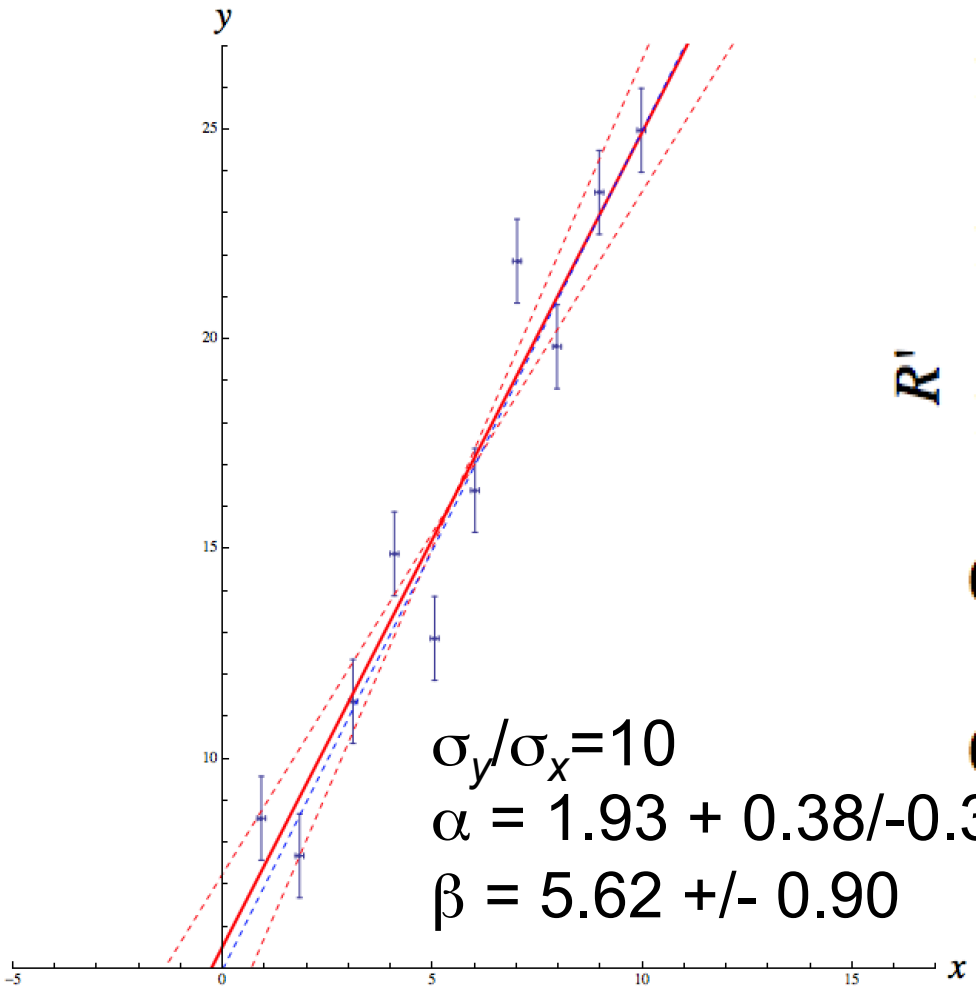
Ergebnis des Fits



$\sigma_x = 0.5$
$\sigma_y = 0.8$

$\alpha = 2.03 +/- 0.15$
$\beta = 4.3 +/- 1.6$

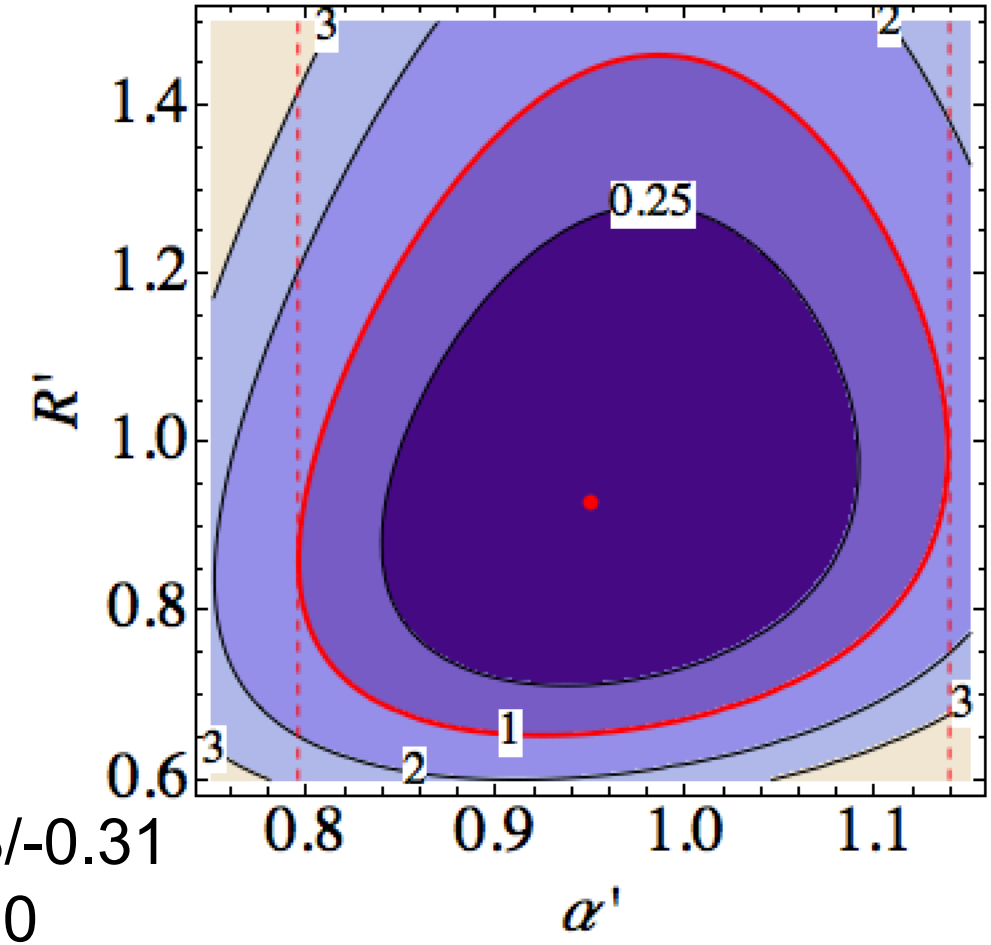
Fehler in *y* viel grösser als in *x*



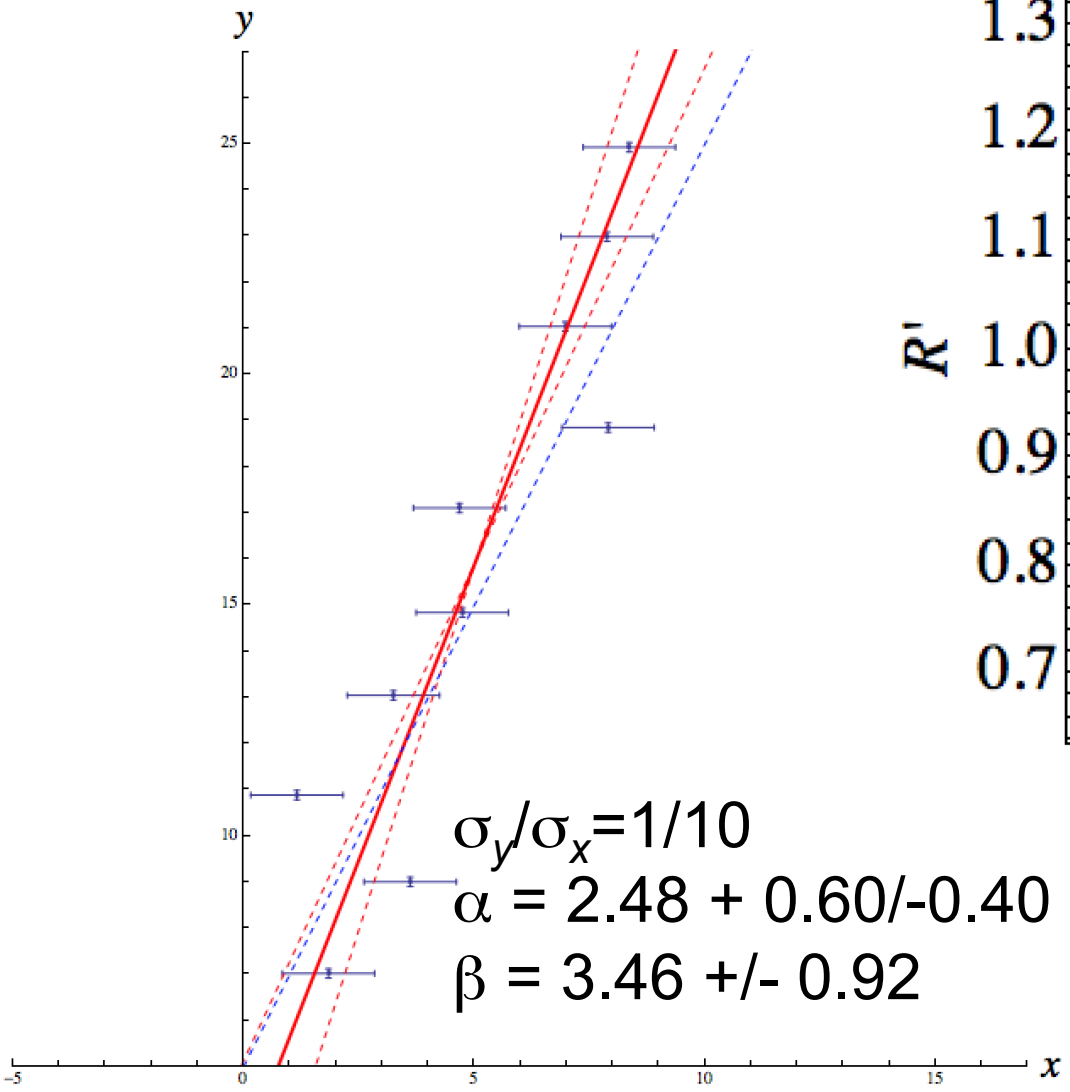
σ_y/σ_x=10

α = 1.93 + 0.38/-0.31

β = 5.62 +/- 0.90



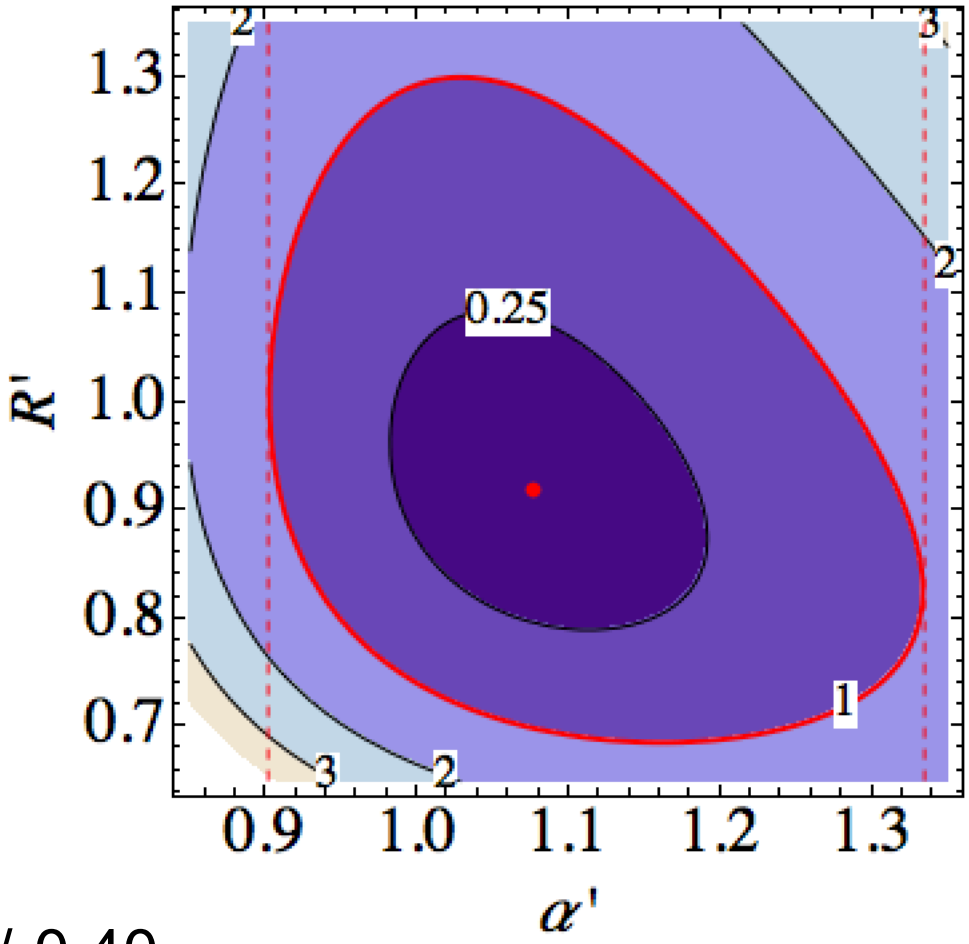
Fehler in *x* viel grösser als in *y*



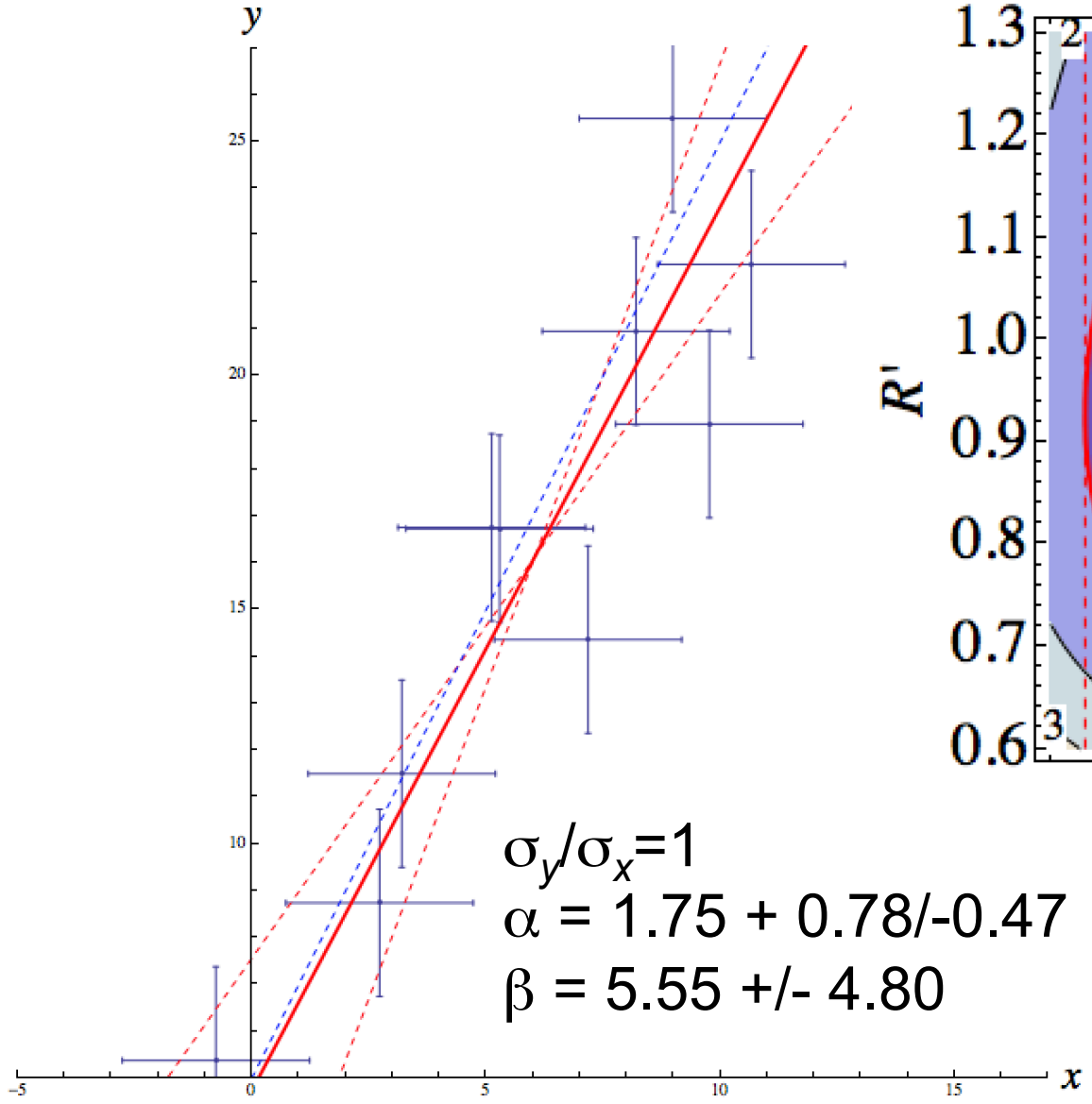
σ_y/σ_x=1/10

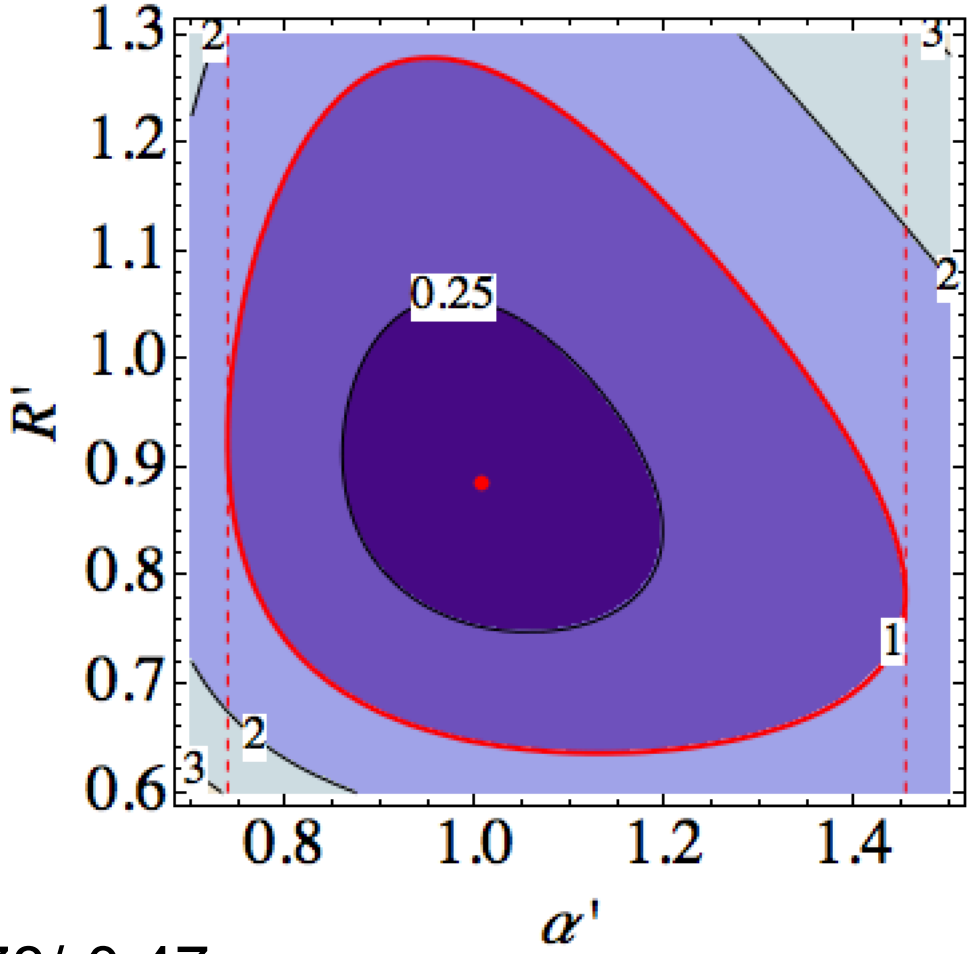
α = 2.48 + 0.60/-0.40

β = 3.46 +/- 0.92



Fehler in *x* und *y* vergleichbar





$\sigma_y/\sigma_x=1$

$\alpha = 1.75 + 0.78/-0.47$

$\beta = 5.55 +/- 4.80$

Zusammenfassung
Geradenfit mit Fehlern in *x* und *y*

1. Mittelwerte, Varianzen und Korrelationskoeffizient der Daten berechnen. => x_0, y_0
2. negative log-Posterior Verteilung für α und R minimieren (numerisch) => α, $\Delta\alpha$
3. $\beta = y_0 - \alpha\, x_0$, und $\Delta\beta$