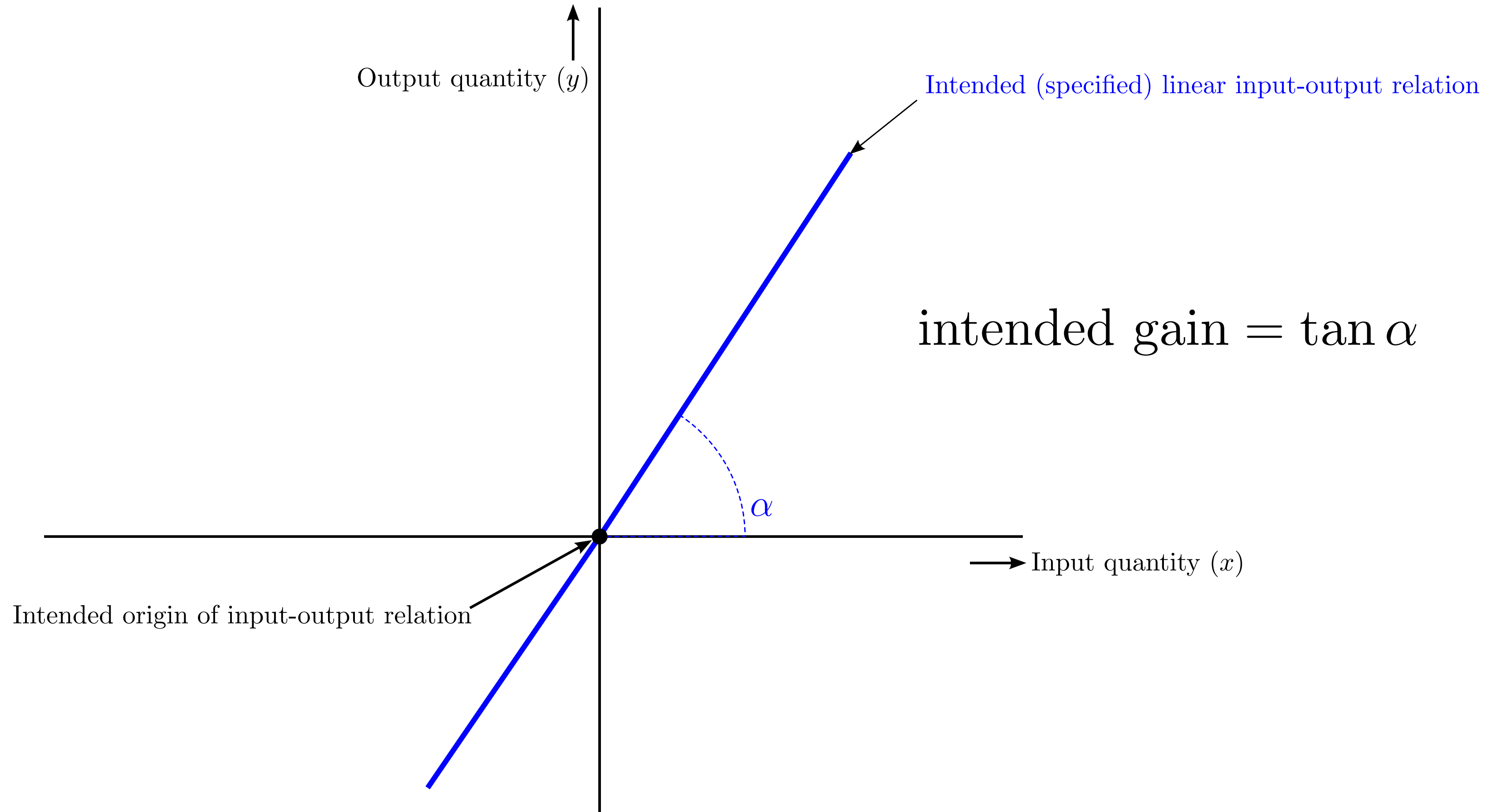


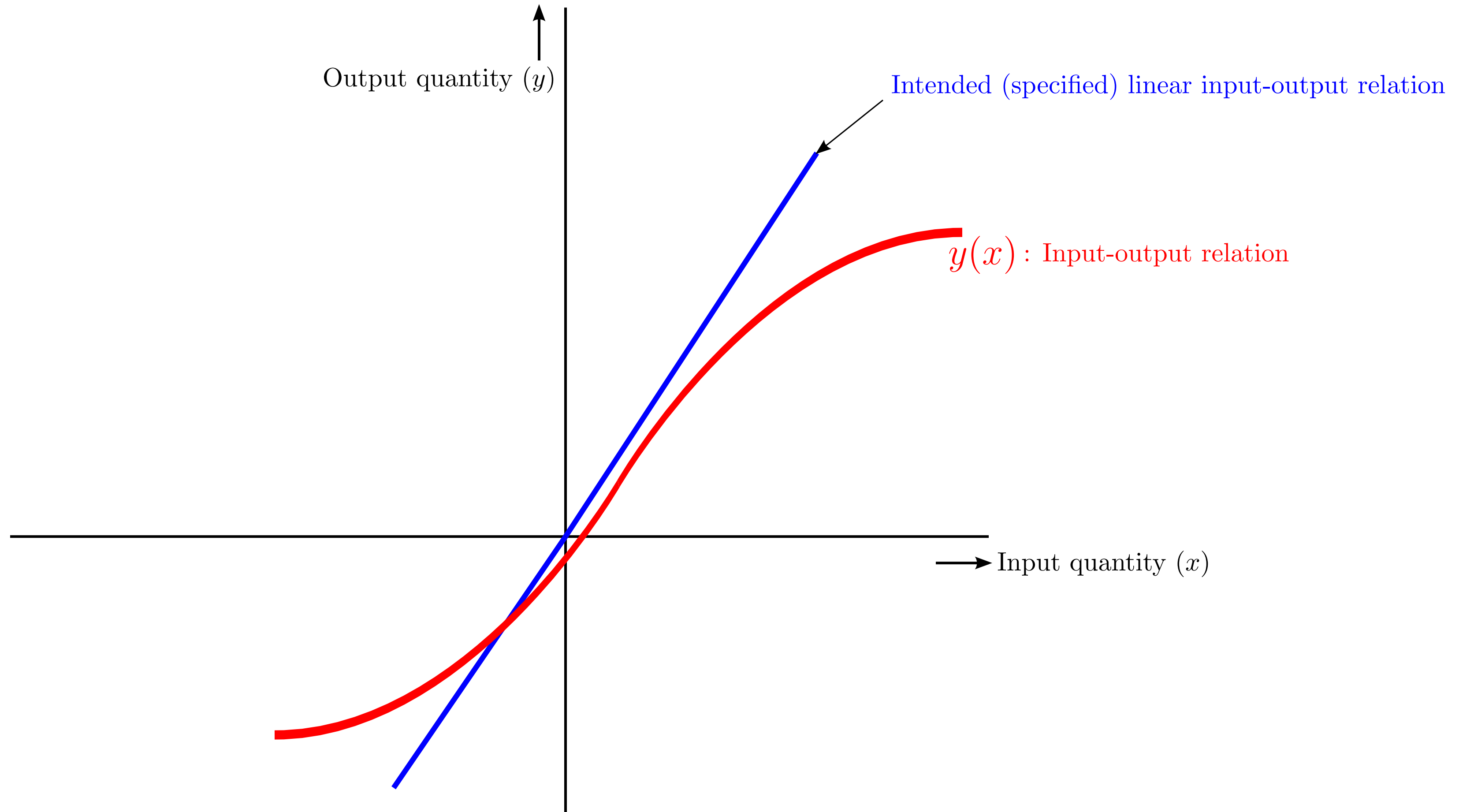
Structured Electronic Design

Amplifiers: weak nonlinearity

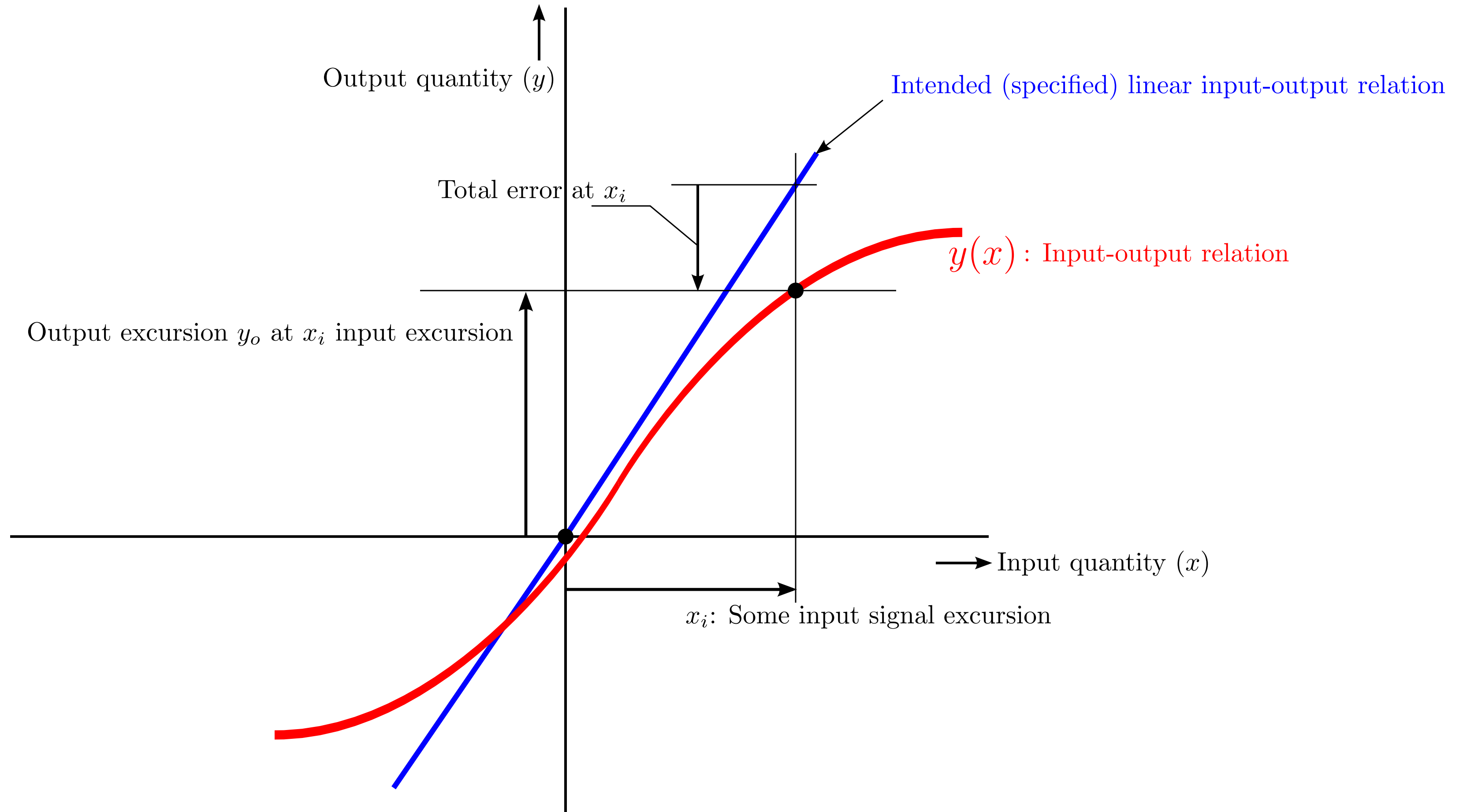
Static (DC) input-output relation



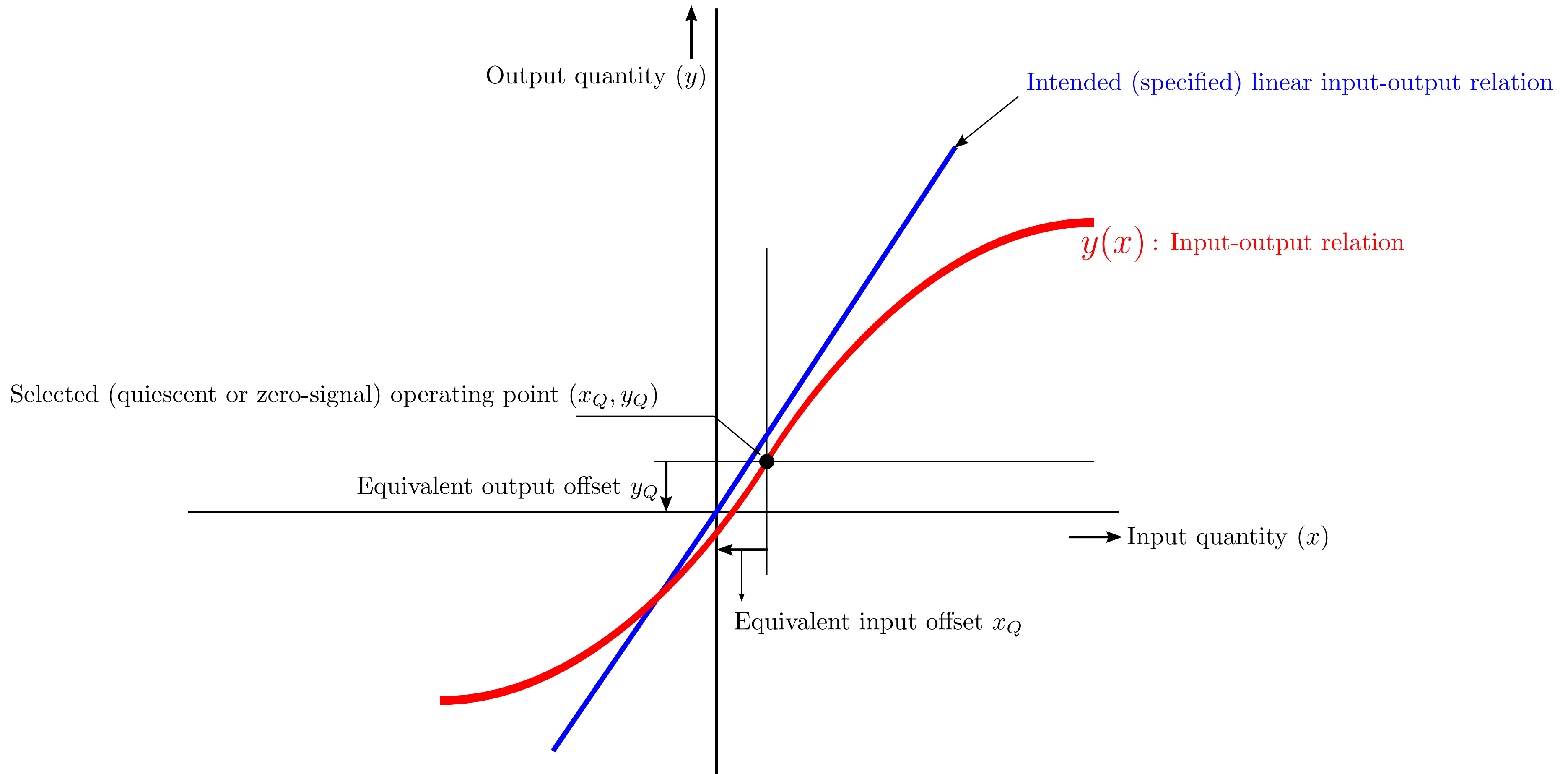
Static (DC) input-output relation



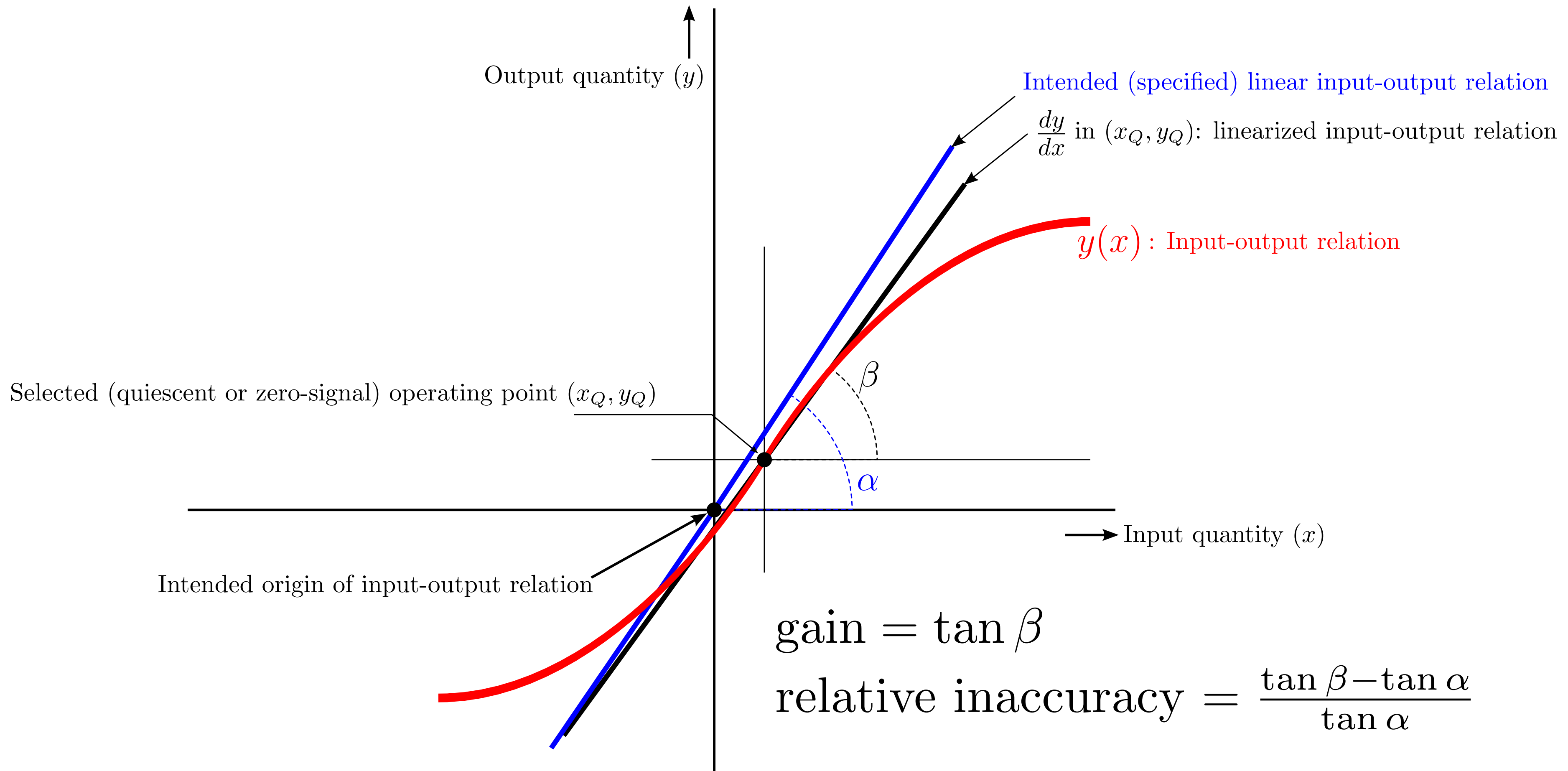
Total error



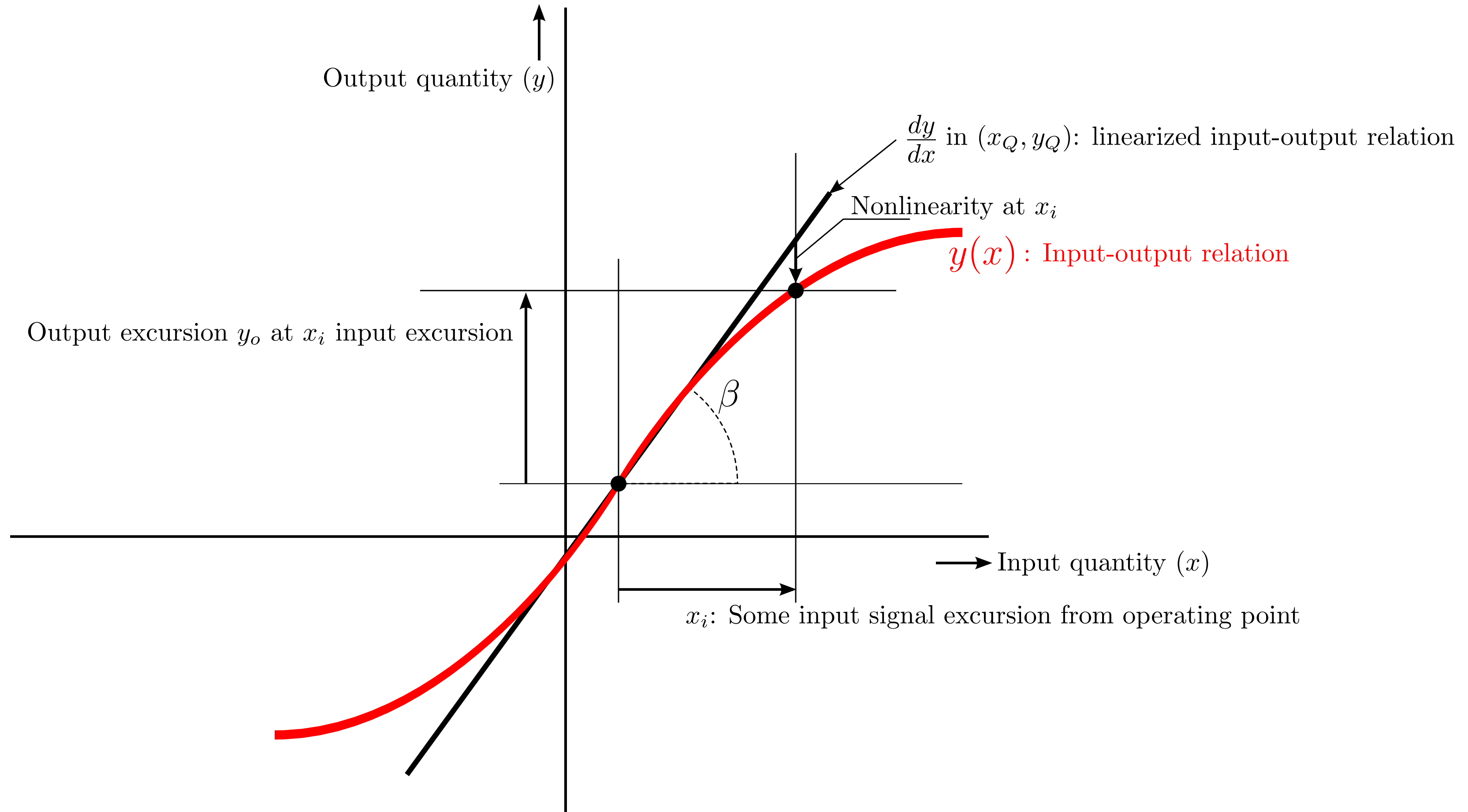
Operating point and offset



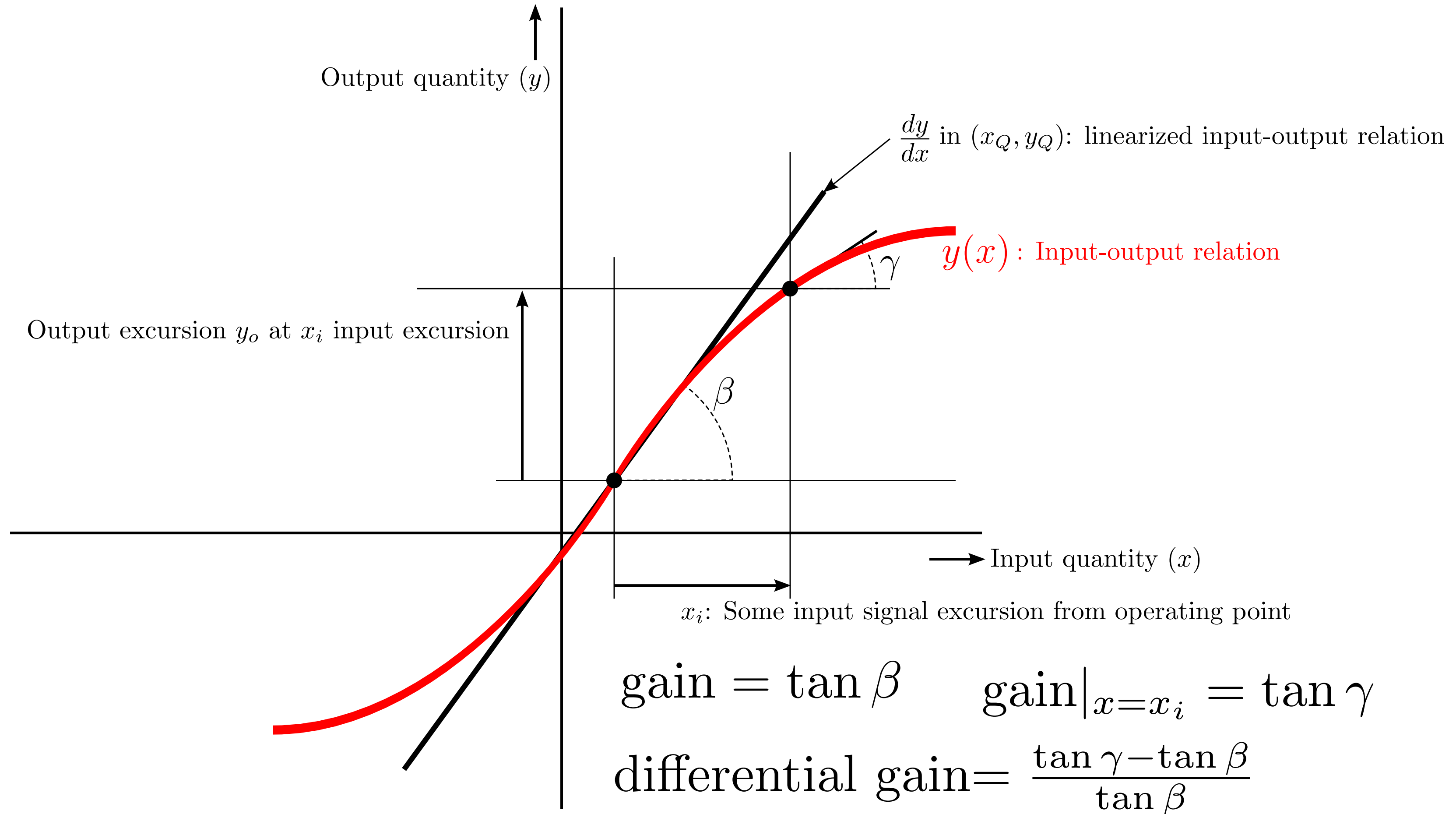
Static (DC) input-output relation



Nonlinearity



Differential gain



Distortion

Distortion

Distortion: change of the shape of the signal; caused by:

Distortion

Distortion: change of the shape of the signal; caused by:

(Linear) dynamic behavior (linear distortion)

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Characterization as LTI system

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Nonlinear behavior (introduces new frequency components)

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Distortion: change of the shape of the signal; caused by:

- (Linear) dynamic behavior (linear distortion)

 - Characterization as LTI system

- Nonlinear behavior (introduces new frequency components)

 - Characterization depends on perception of errors

Distortion

Distortion: change of the shape of the signal; caused by:

- (Linear) dynamic behavior (linear distortion)

 - Characterization as LTD system

- Nonlinear behavior (introduces new frequency components)

 - Characterization depends on perception of errors

Radio systems

Audio systems

Control systems

Instrumentation

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Radio systems

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Control systems

Instrumentation

Gain compression

Intermodulation

distortion

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Harmonic
distortion

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Simple relations between description methods exist for weakly nonlinear, instantaneous systems

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See sections: 2.4.7, 2.4.8, 17.5 and 17.6

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