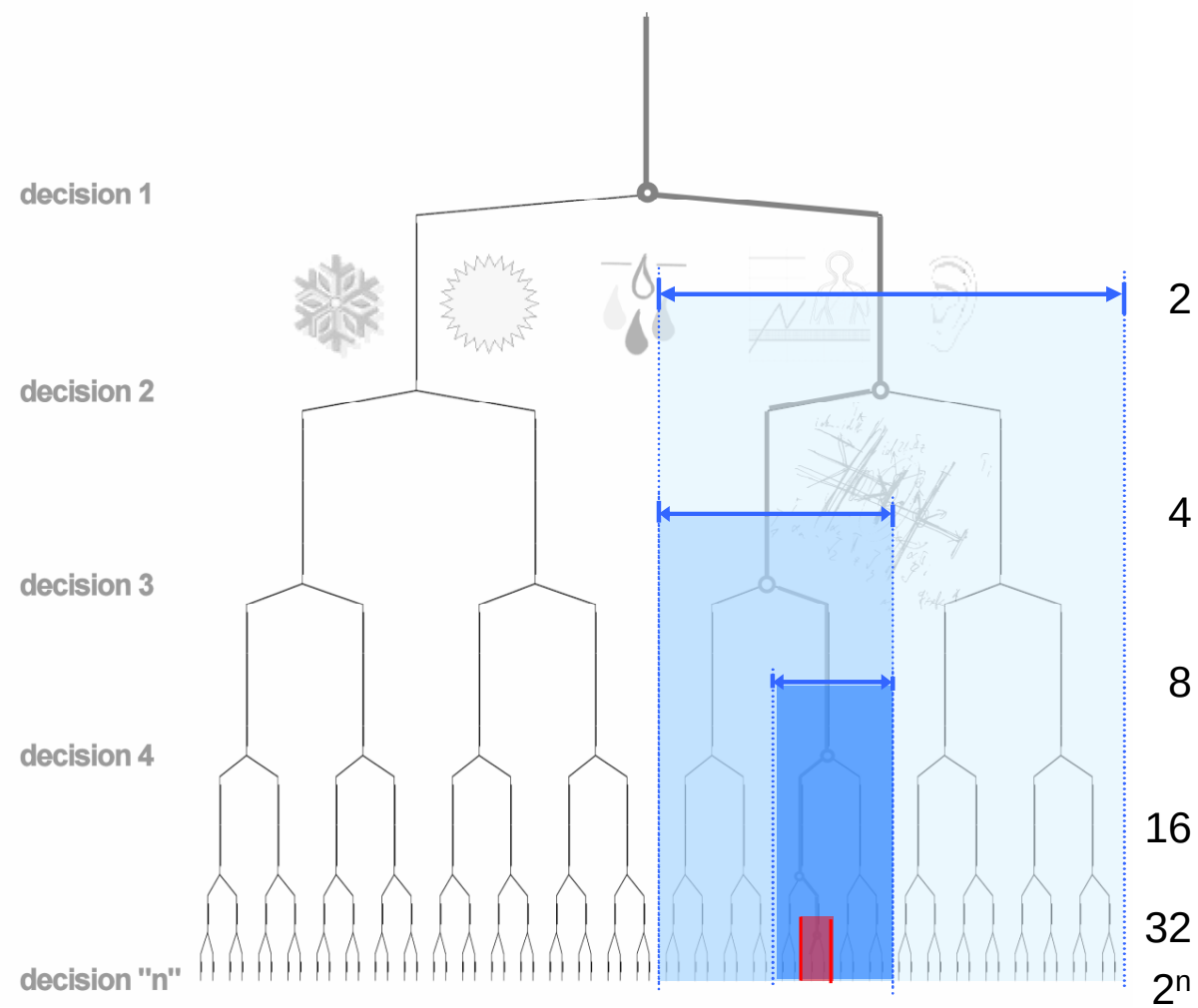
Prof. Lorenz **Climate design & building physics**

1) motivation – world is changing
2) high quality parts = high quality building ?
3) early design phase – adapted models
4) quantification – where to get criteria from
5) combined qualities – effect a compromise
6) application & examples
7) tools (FLIXO, IDA-ICE,)

prof@ifg-lorenz.com

“typical” planning process...
how to assist at **early design phase?**

adaption of modeling.....
what are characteristics of **early design phase?**



create new ideas

≠

provide proof

experience:

tools optimized to provide proof of known constructions

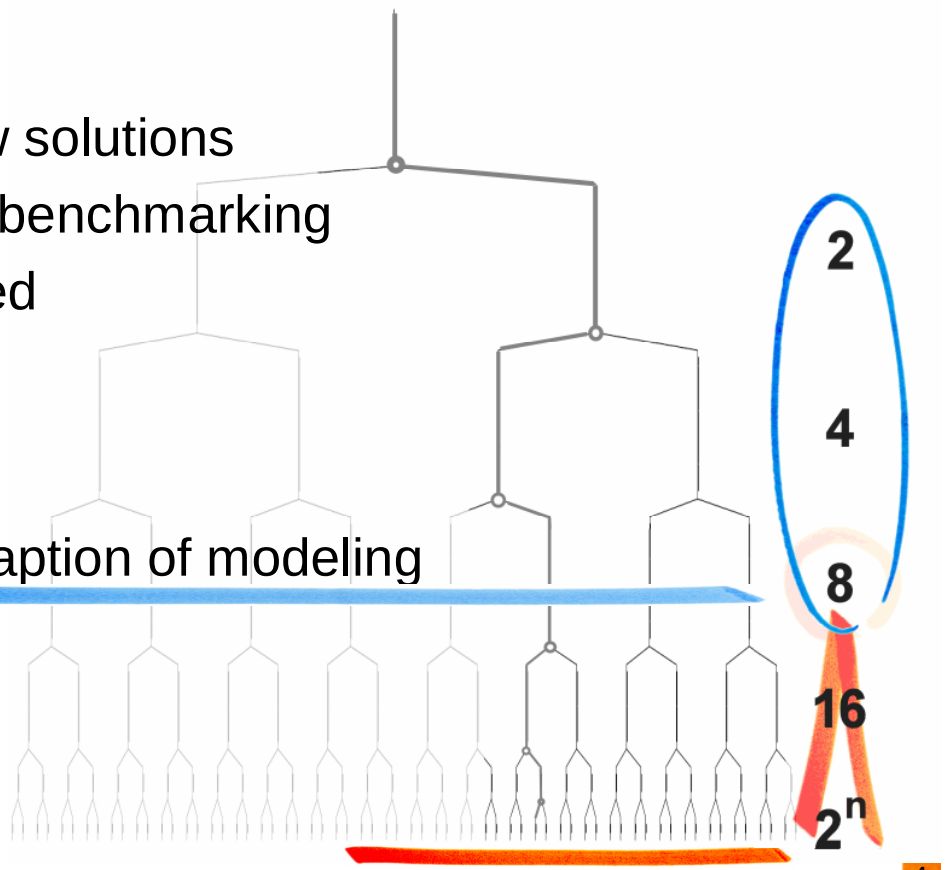
hypothesis:

simulation will help to generate new solutions

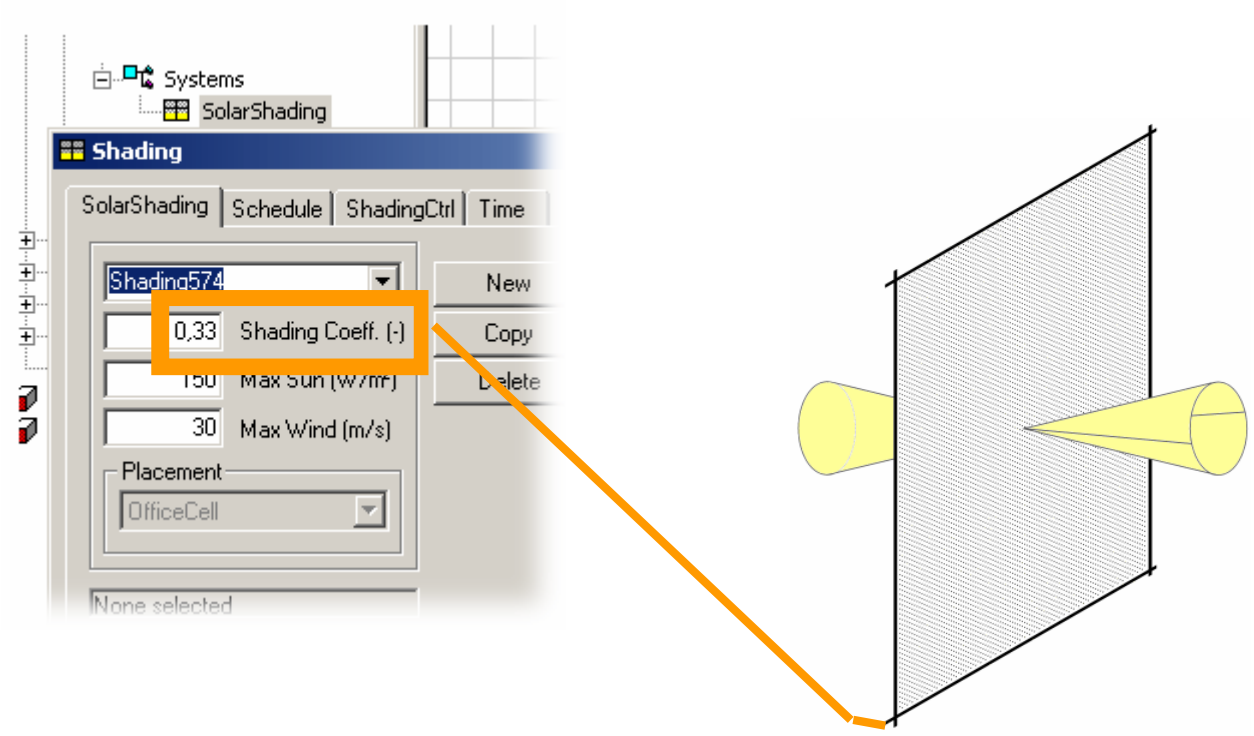
- if the tool allows understanding & benchmarking
- if appropriate parameter set is used

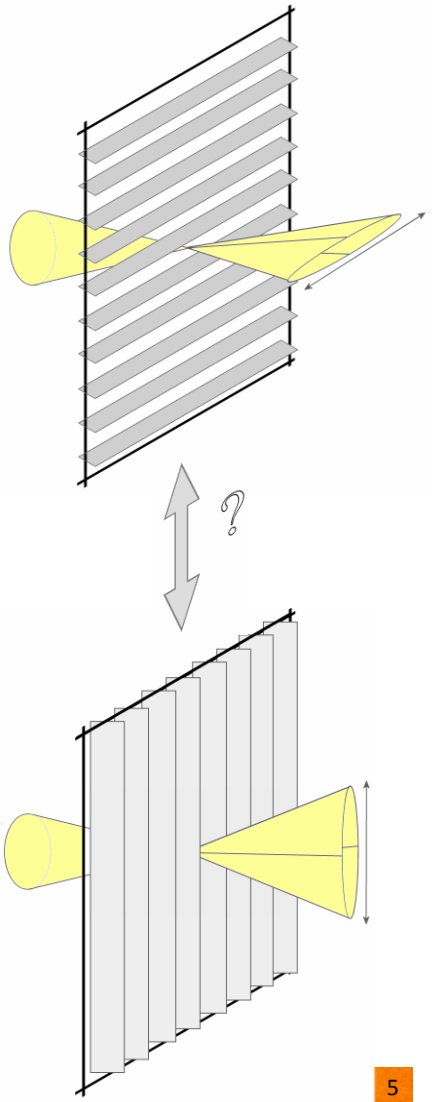
but

use of proofing software &
reduction by assumption ≠ adaption of modeling



adaption of modeling...
example: Reduction ≠ Adaption





where to get criteria from?

... what does „good building“ mean ?

(concerning climate design & building physics)

where to get criteria from?

...

early design stage ...general ideas needed

- energy balance
  - heating demands
  - cooling demands
- utilization quality
  - thermal comfort
  - indoor air quality
  - daylight supply
  - sound protection
- indoor ambience
  - connection to environment

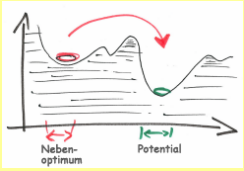
„idea/ concept/ realization influence each other“

early design stage ...general ideas needed

...

combined qualities... compromise/ optimum

...



early design stage ...general ideas needed

...

... find & check desired qualities

but

don‘t neglect aspects even if
single optimization goals are diametral!

...try to find a compromise