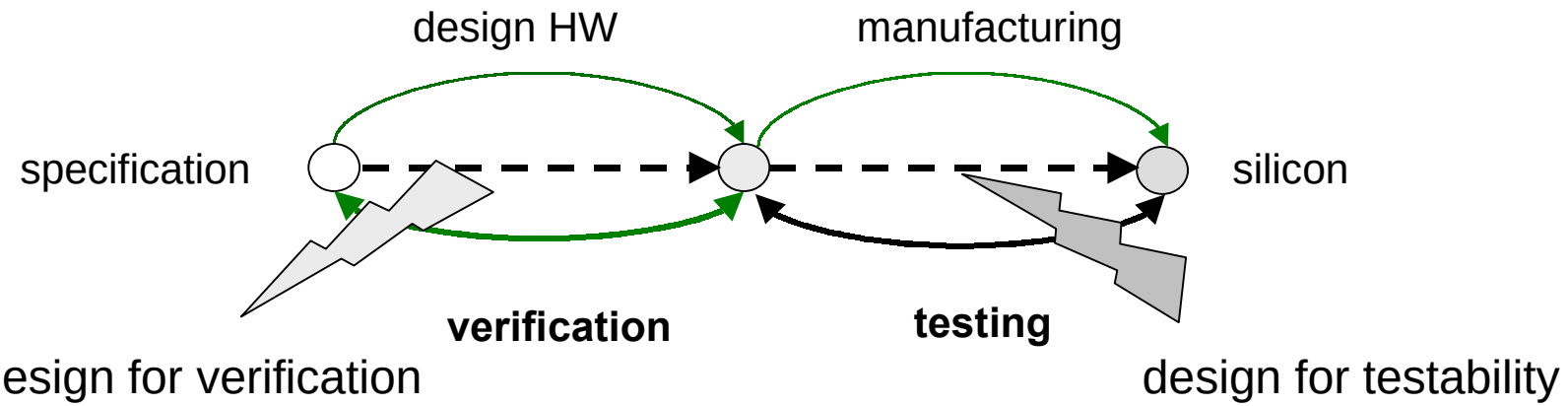
In commemoration of Prof. Jan Hlavička

Work on this REASON tutorial was already in the final phase when the sad and terrible news did reach the organisers and lecturers that Jan Hlavicka, member of the REASON project, has gone forever. Jan was not only an outstanding researcher and a devoted professor, but the archetype of an European scientist. He was the initiator of international conferences and workshops held from the mid-seventies until 1990. These events were the integrative platform for scientists working in the field of diagnostics, testing and dependability in Central- and Eastern Europe and became the roots of new conferences after 1990 (IEEE DDECS, EDCC series). Jan was one of the first who made all efforts to integrate the scientists both at the regional and the international levels. We must thank him for the fast integration of our community after the political changes in 1989. Jan's vision that we have a unique European culture is such an evident truth that we will keep pushing forward to continue the ideas of our late friend. Throughout his career, he was constantly productive in both research and service to his profession. In short, he was a gentleman and a scholar who will be sincerely missed by all who knew him.

TUTORIAL PREFACE I



- The purpose of **verification** is to ensure that the result of some transformation is as intended or expected. The challenge is to determine what input patterns to supply to a design and what is the expected output of a properly working design; it means that the design meets its functional intent.
- The purpose of **testing** is to ensure that the design was manufactured correctly. Testing is accomplished through test vectors. The objective of these vectors is not to exercise functions but to exercise physical locations in the design to ensure that they can go from 0 to 1 and from 1 to 0.

TUTORIAL PREFACE II

- The relationship between testing cost and product quality is complex. Testing accounts for 30 % or more of the total cost for large electronic systems.
- VLSI yield, product quality measured as defect level and fault coverage are important concepts related to electronic production and testing.
- **Cost** of testing includes:
  - ✓ the cost of automatic test equipment (ATE) (initial and running costs)
  - ✓ the cost of test development (CAD tools, test vector generation, test programming)
  - ✓ the cost of test generation
  - ✓ the cost of DFT and/or BIST techniques.
- **The cost of scan design technique can significantly reduce the cost of test generation, and BIST method can lower the complexity and cost of ATE**.