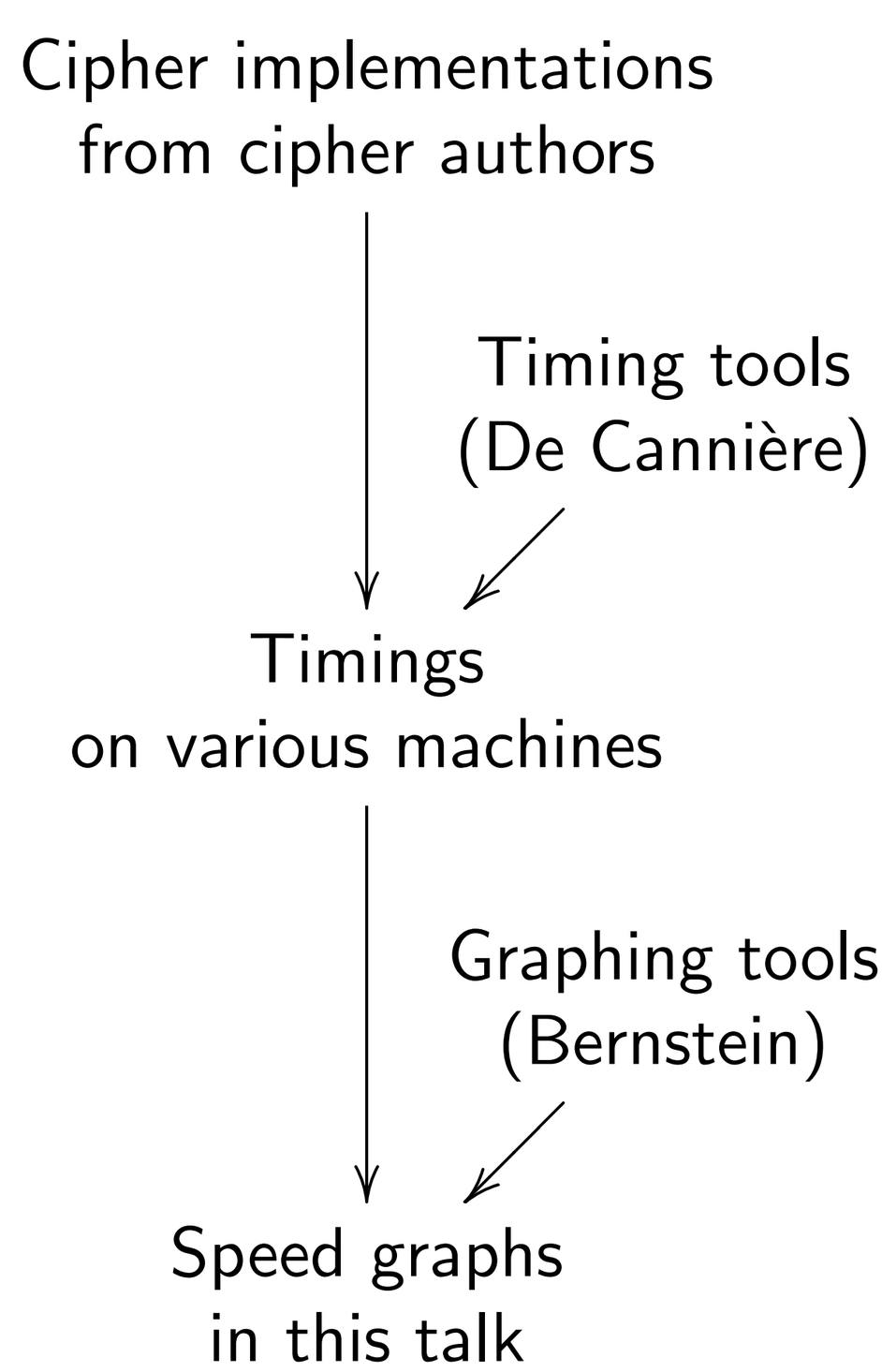
Comparison of
256-bit stream ciphers

D. J. Bernstein

Thanks to:
University of Illinois at Chicago
Denmark Technical University
Alfred P. Sloan Foundation



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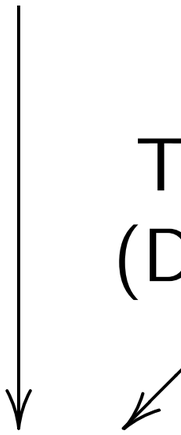
Cipher implementations
from cipher authors



Timing tools
(De Cannière)

Timings
on various machines

Graphing tools
(Bernstein)

Speed graphs
in this talk

Security disasters

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Presumably also

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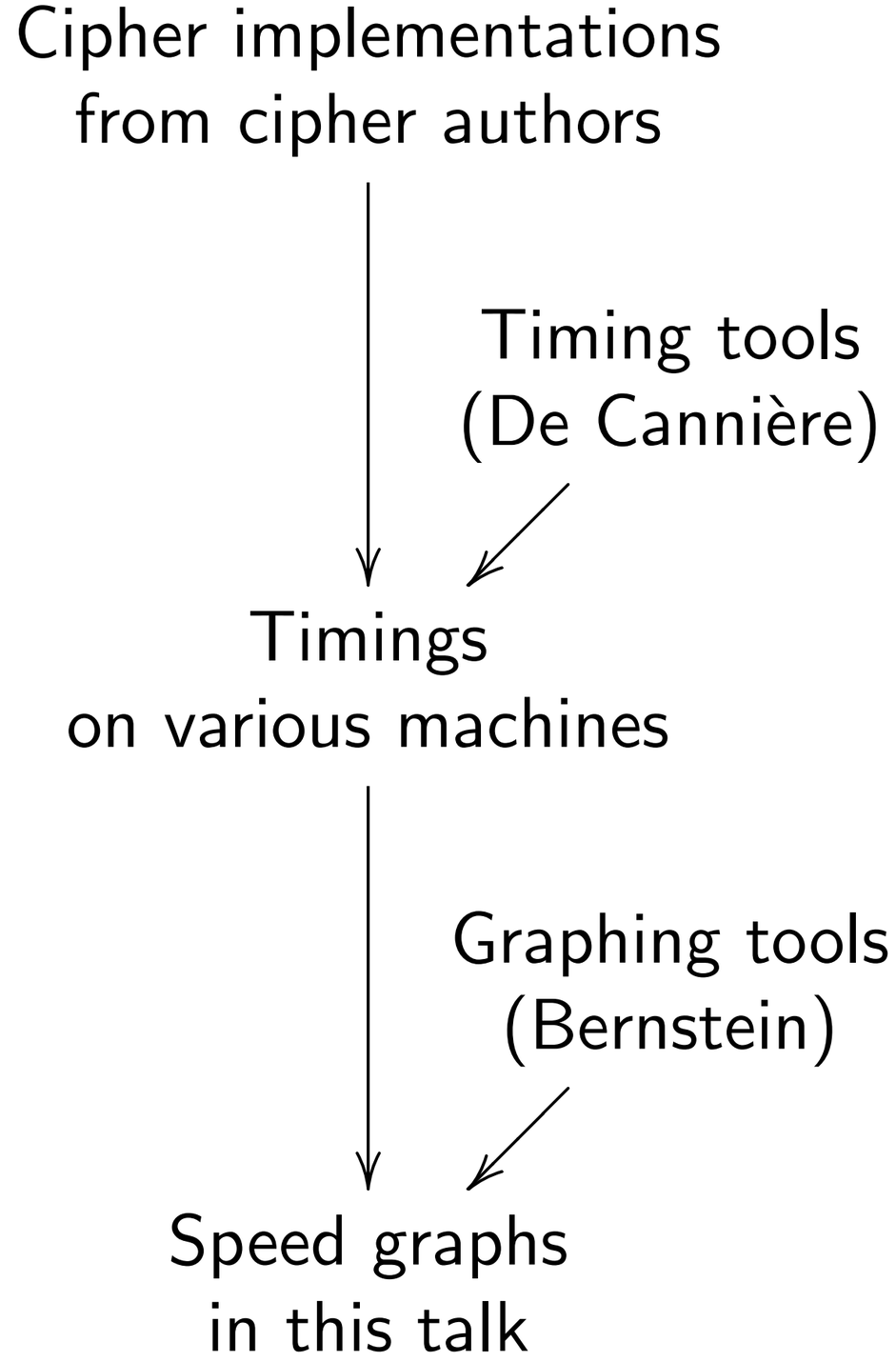

Security disasters

Attack claimed on YAMB: "2^{58}."

Attack claimed on Py: "2^{72}."
Presumably also Py6.

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Slowdown: timing attacks

Typical AES software
leaks key through timing.
Often attacker can see timing.

Constant-time AES software
is considerably slower.

Slowdown depends on cipher.
CryptMT, Phelix, Salsa20: 0.
DICING, Dragon, HC-256: ?

Benchmarks need to cover this.