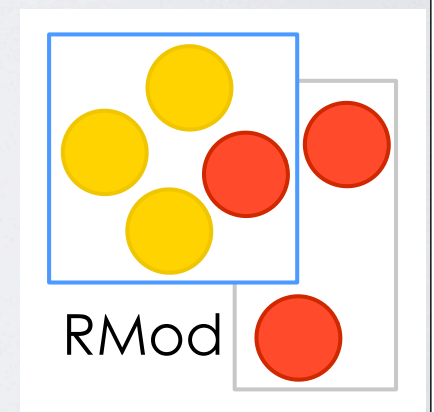


EDSM AN ENRICHED DSM

J. Laval, A. Bergel, S. Ducasse
RMod Team

<http://rmod.lille.inria.fr>

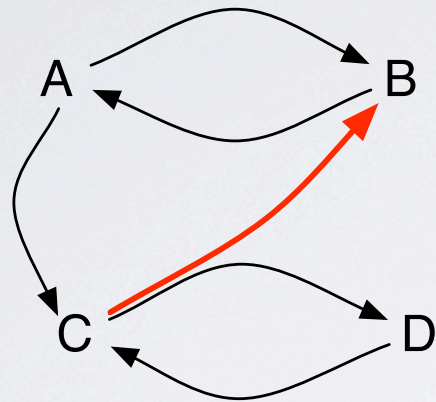


DEPENDENCY MATRIX

- Origin: process optimisation
- Applied to dependency in software reengineering



A DEPENDENCY MATRIX



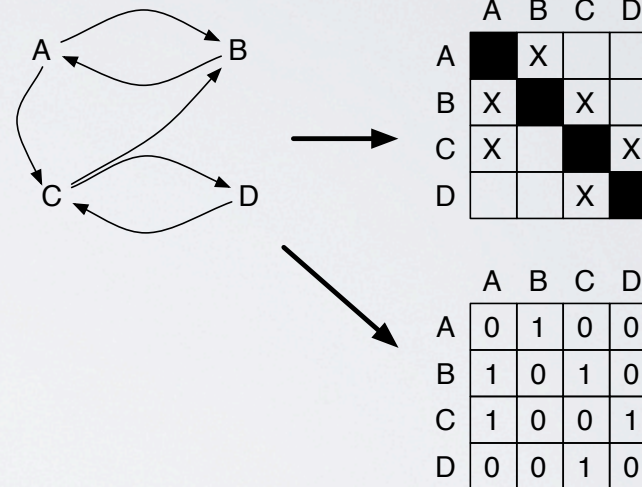
	A	B	C	D
A		X		
B	X		X	
C	X			X
D			X	

	A	B	C	D
A	0	1	0	0
B	1	0	1	0
C	1	0	0	1
D	0	0	1	0



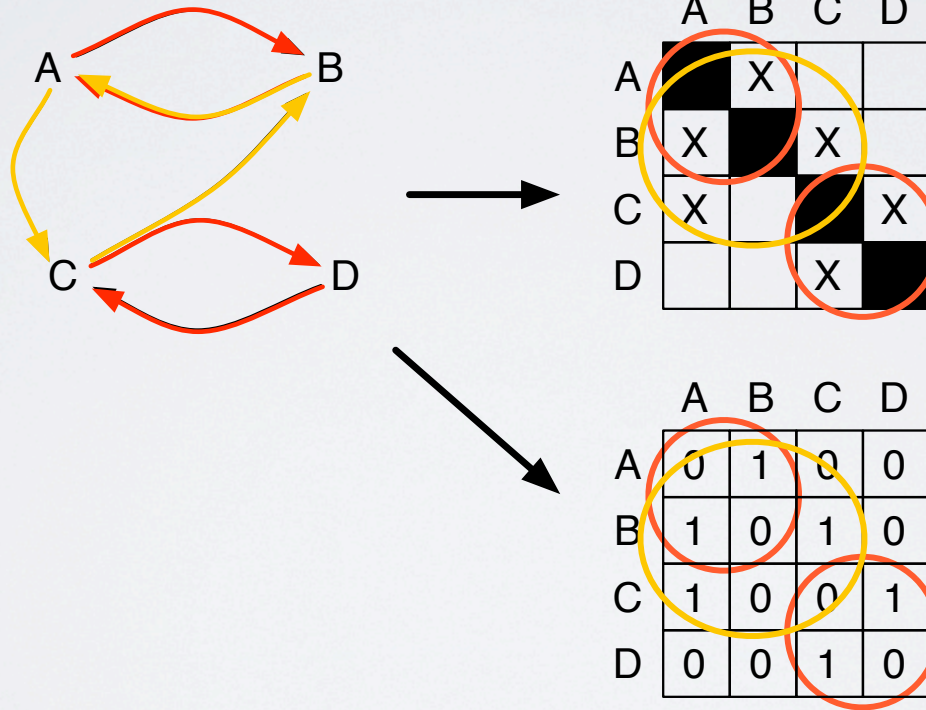
PROBLEMS

- Cycles distinction
- Lack of information
 - about causes
 - about impacts
 - how to fix cycles



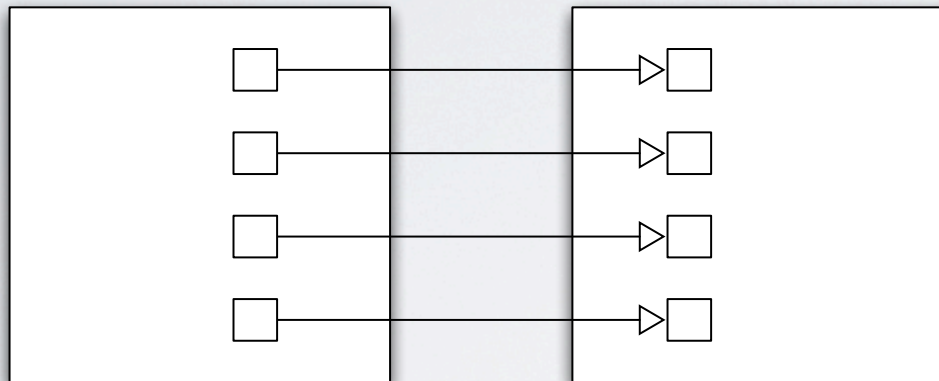
WHERE ARE CYCLES ?

- Cycles distinction

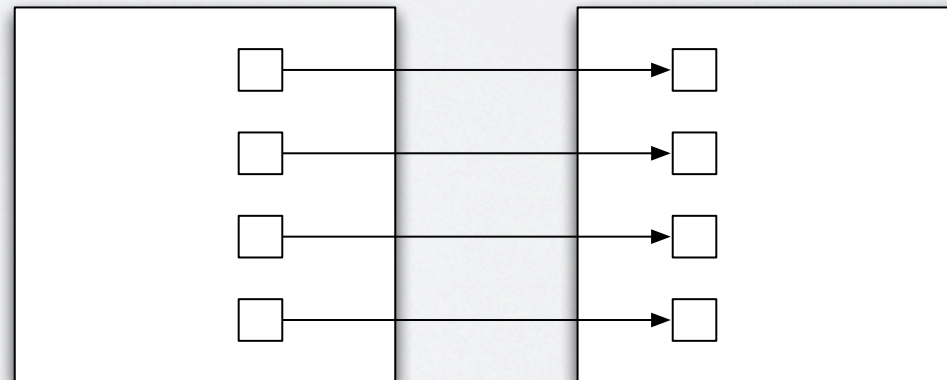


WHAT ARE CAUSES ?

- Informations about causes

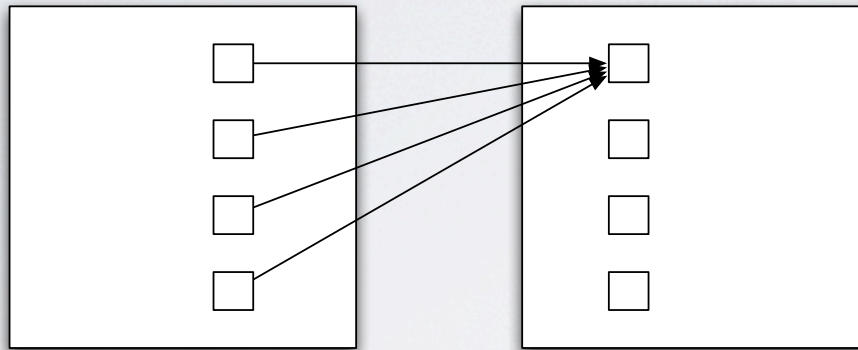


Inheritance
!=
Invocation

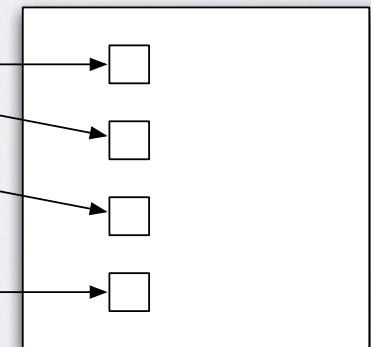
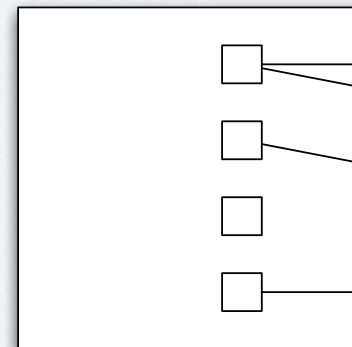
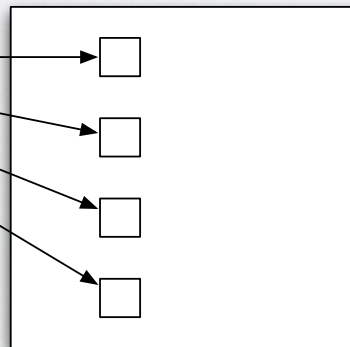
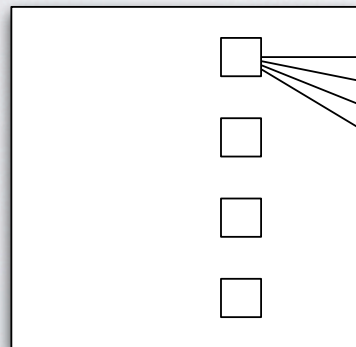


WHAT ARE THE IMPACTS ?

- Informations about impacts

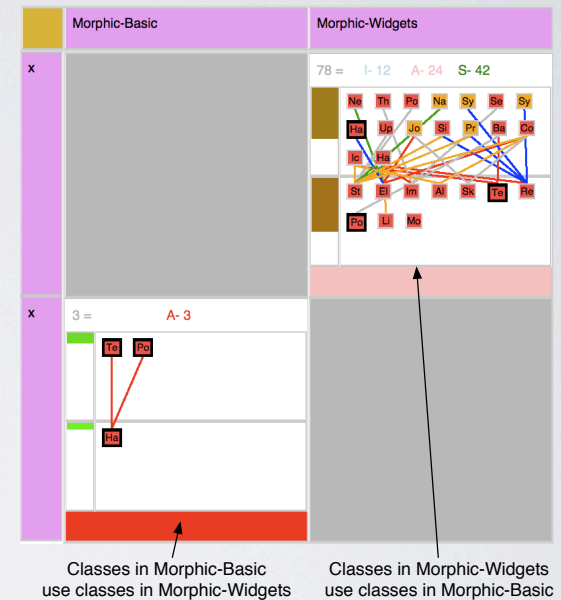


1 class
vs
n classes

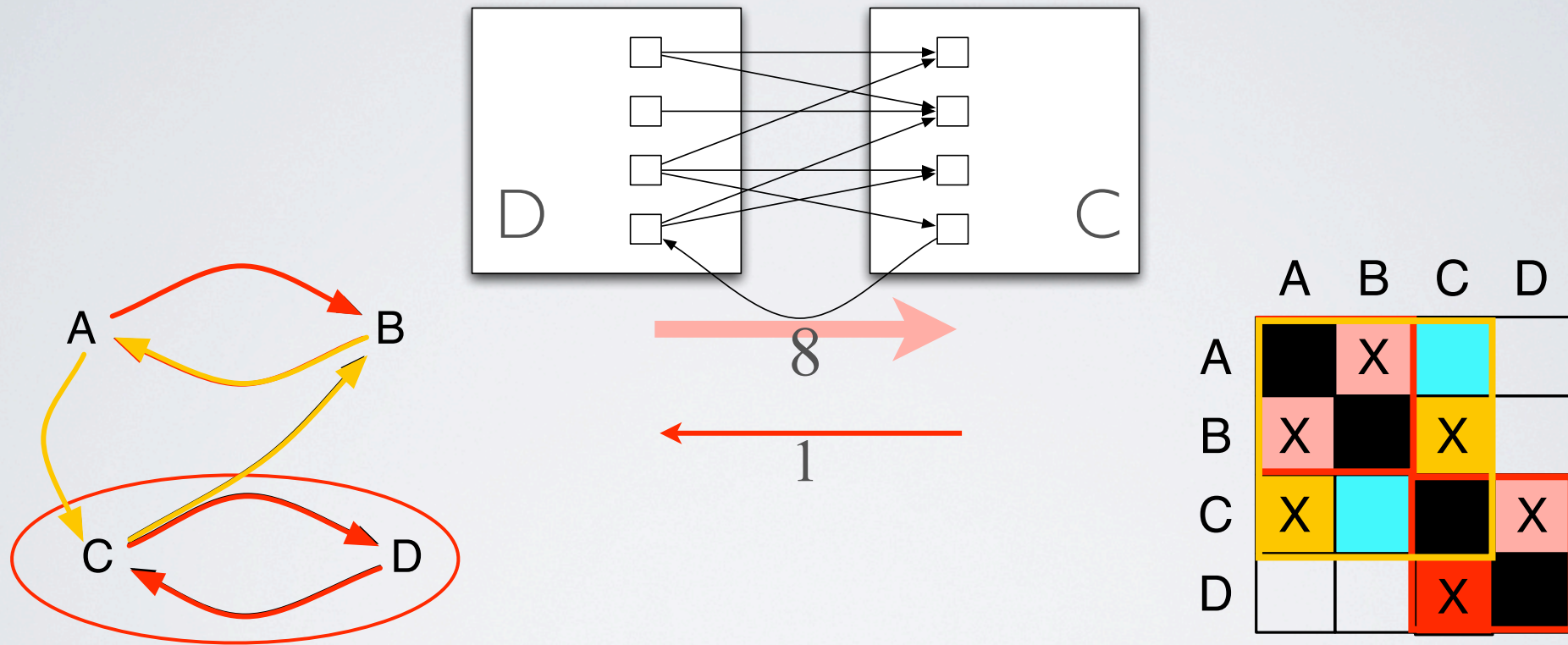


EDSM

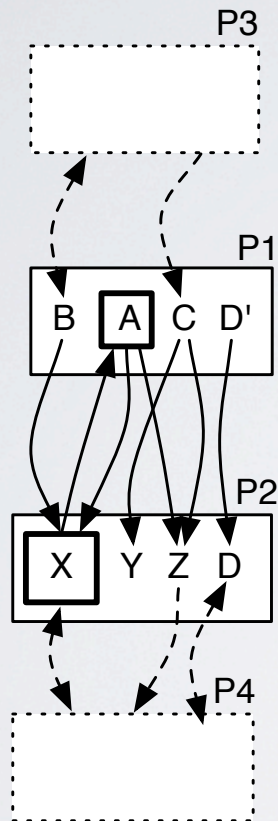
- Clarifies cycles
- Offers prognostic (pink/red)
- Qualifies relationships
- It shows what are causes and impacts
- preattentive approach



CLARIFICATION OF CYCLES

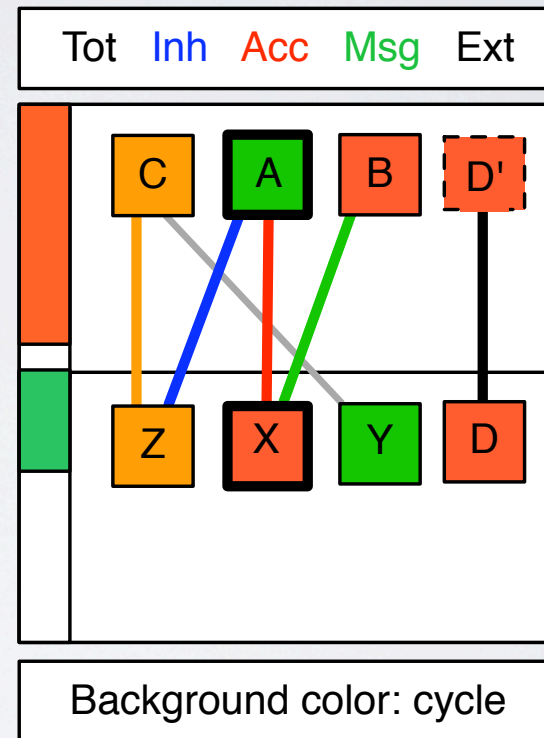


RELATIONSHIPS, CAUSES AND IMPACTS

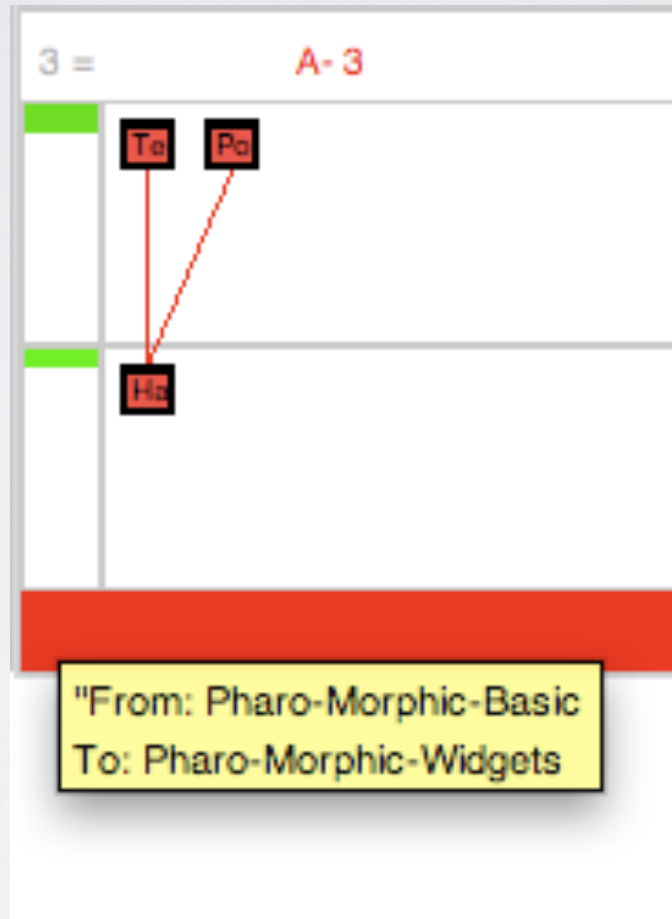


Source P1

Target P2



EXAMPLE



I: outgoing funnel

D: two classes referring each other
F: candidate for direct cycle fix

E: high % of source

A: indirect cycle

I: incoming funnel

F: candidate for direct cycle fix

G: invocations

B: complex cycle

B: complex cycle

E: high % of target impacted

C: accesses

C: accesses

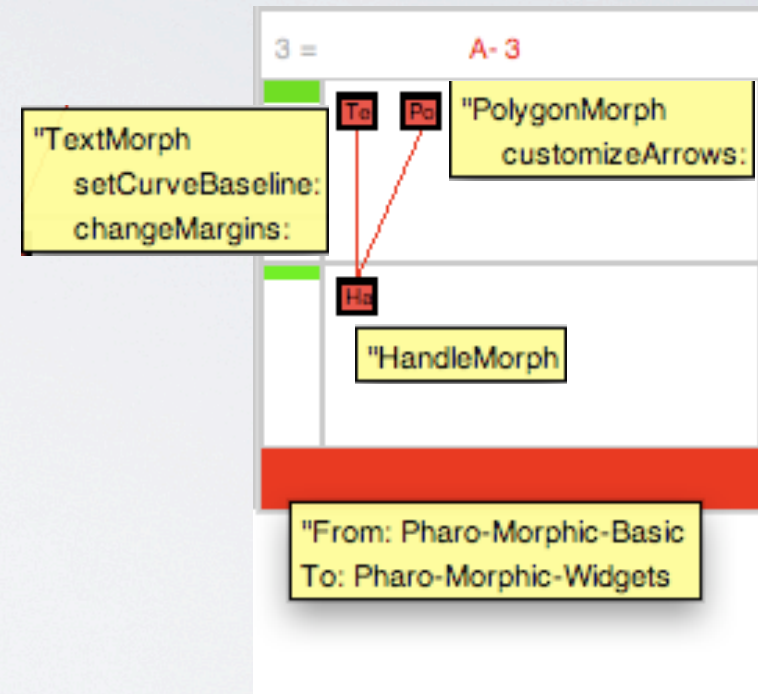
H: inheritance + other

DETAILED INFORMATION



Classes in Morphic-Basic use classes in Morphic-Widgets

Classes in Morphic-Widgets use classes in Morphic-Basic



VALIDATION

- Applied on Morphic (46 packages)
- Changes identified with “5 min protocol”
 - property of visualization
 - diagnostic aid
- Changes proposed and accepted in Pharo
 - 25 prognostics for direct cycles - 18 accepted and changed
 - <http://www.pharo-project.org/>

AVAILABILITY

- on Moose <http://moose.unibe.ch>
 - available on VisualWorks
 - available on Pharo

