

COMPACT-DIAGRAM: PROPAGATEUR EFFICACE POUR LA CONTRAINTE (S)MDD

JFPC19

Hélène Verhaeghe¹, Christophe Lecoutre², Pierre Schaus¹

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¹ICTEAM, UCLouvain, Place Sainte Barbe 2, 1348 Louvain-la-Neuve, Belgium, {*firstname.lastname*}@uclouvain.be

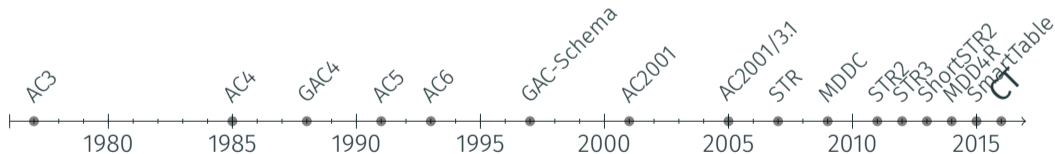
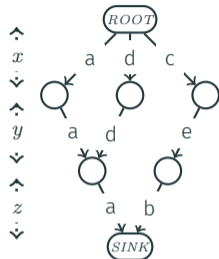
²CRIL-CNRS UMR 8188, Université d'Artois, F-62307 Lens, France, *lecoutre@cril.fr*



	x	y	z
τ_1	a	a	a
τ_2	d	d	a
τ_3	c	e	b
\vdots	\vdots	\vdots	\vdots

Les tables sont les
contraintes les plus vieilles
de la PPC

Les MDDs sont équivalents
aux tables



2016 : Nouvel algorithme! Compact-Table [CP2016], basé sur les opérations bit à bit, devance complètement les algorithmes existants

LES STRUCTURES MDD ET SEMI-MDD

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
	1	0	1	1
	1	1	0	1
1	0	0	0	1
	1	0	0	0
	1	1	0	0
	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		0	1	1
1	0	1	0	1
		0	0	1
	1	0	0	0
		1	0	0
		1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
			1	1
1	0	1	0	1
		0	0	0
	1	0	0	0
			0	0
		1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5		
0	0	0	0	1		
	1	0	1	0		
				1		
1	0	0	0	1		
	1	0	0	0		
				1	0	0
						1

ROOT

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5		
0	0	0	0	1		
	1	0	1	0		
				1		
1	0	0	0	1		
	1	0	0	0		
				1	0	0
						1

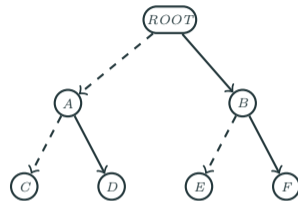
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5	
0	0	0	0	1	
	1	0	1	0	
			1	1	
1	0	0	0	1	
	1	0	0	0	
		1	0	0	0
			1	0	1


 \uparrow
 x_1
 \downarrow

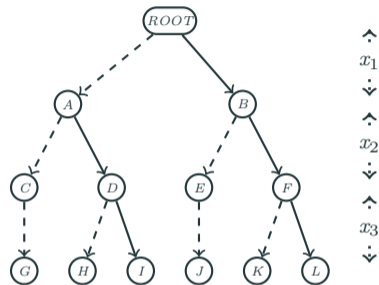
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1


 \uparrow
 x_1
 \downarrow
 \uparrow
 x_2
 \downarrow

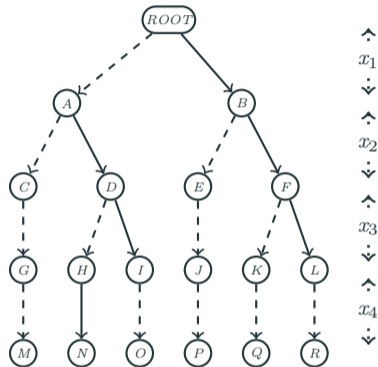
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5	
0	0	0	0	1	
	1	0	1	0	
			1	1	
1	0	0	0	1	
	1	0	0	0	
		1	0	0	0
			1	0	1



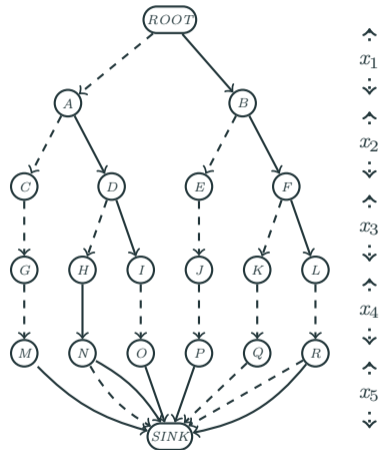
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



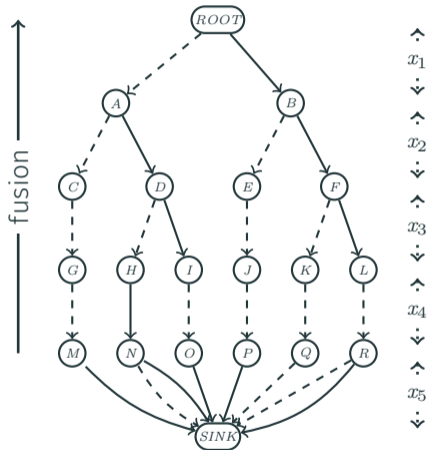
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



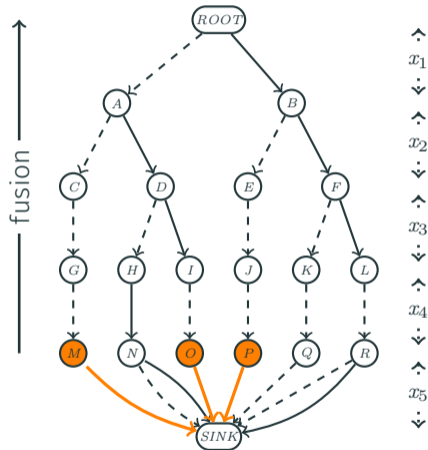
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



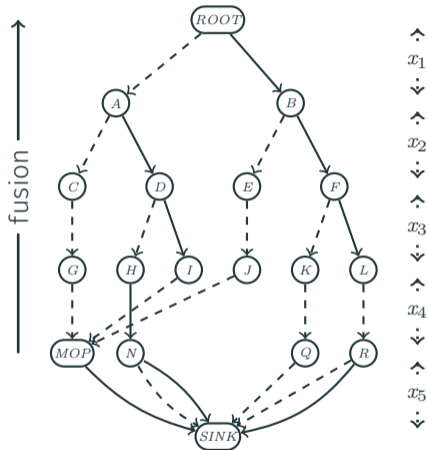
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5	
0	0	0	0	1	
	1	0	1	0	
			0	1	
1	0	0	0	1	
	1	0	0	0	
		1	1	0	0
			0	0	1



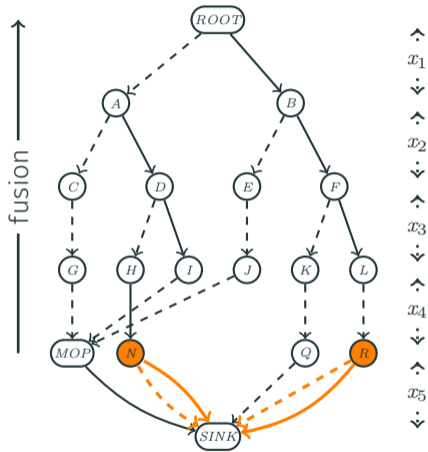
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



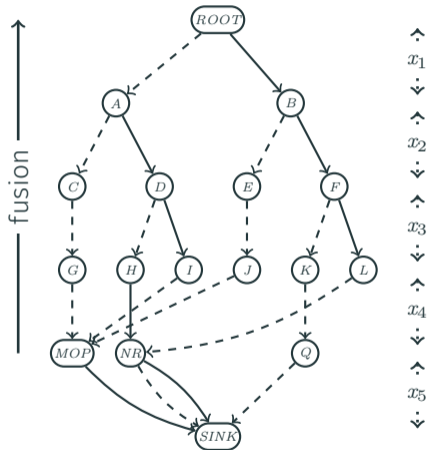
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



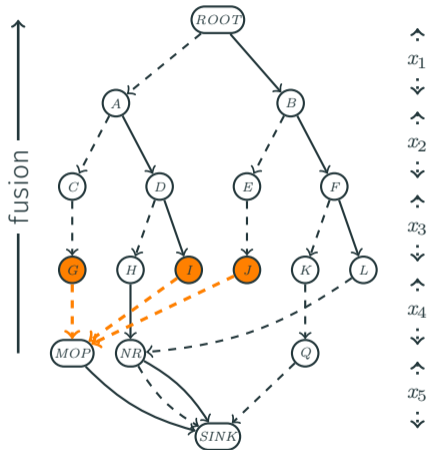
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5	
0	0	0	0	1	
	1	0	1	0	
			1	1	
1	0	0	0	1	
	1	0	0	0	
		1	0	0	0
			1	0	1



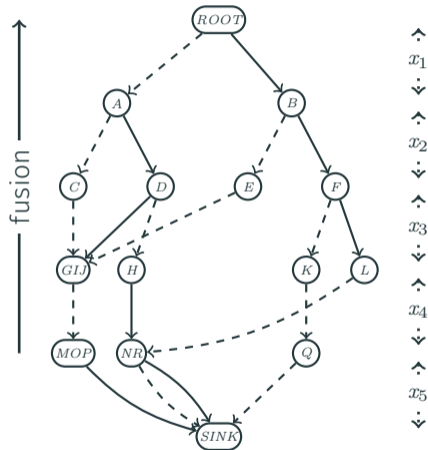
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



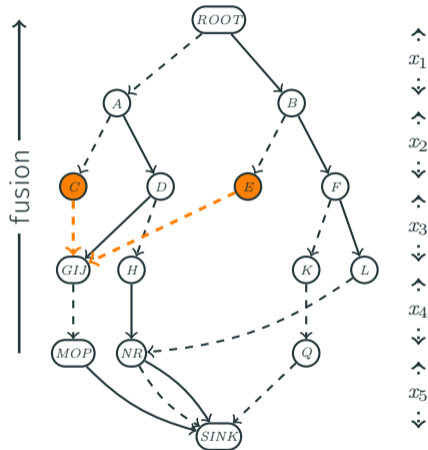
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5	
0	0	0	0	1	
	1	0	1	0	
			1	1	
1	0	0	0	1	
	1	0	0	0	
		1	0	0	0
			1	0	1



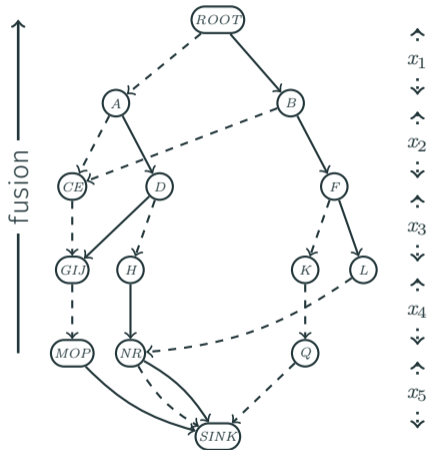
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
	1	0	1	0
		1	0	1
1	0	0	0	1
	1	0	0	0
		1	0	0
		1	0	1



x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5	
0	0	0	0	1	
	1	0	1	0	
			1	1	
1	0	0	0	1	
	1	0	0	0	
		1	0	0	0
			1	0	1



x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
0	1
1	0
1	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
0	1
1	0
1	1

suffixes

x_4	x_5
0	0
1	0
0	1
1	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	0
0	1
1	1

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	

x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	


 ROOT

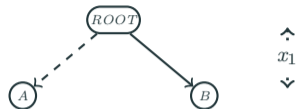
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



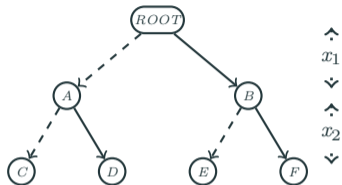
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



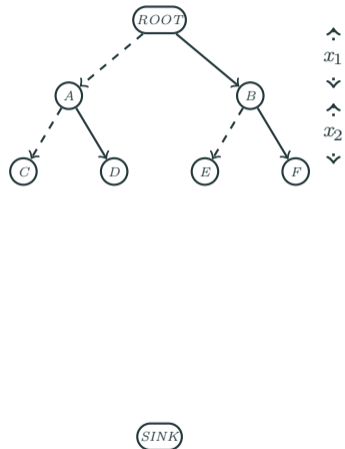
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



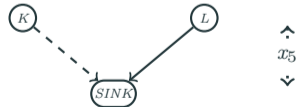
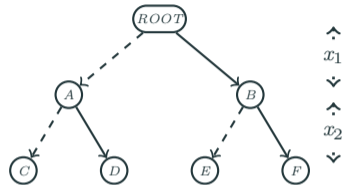
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



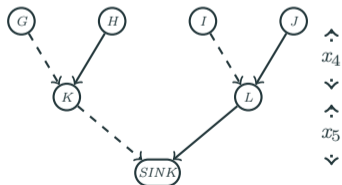
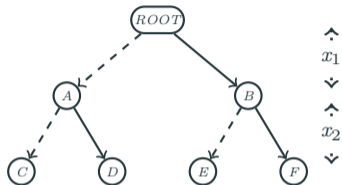
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



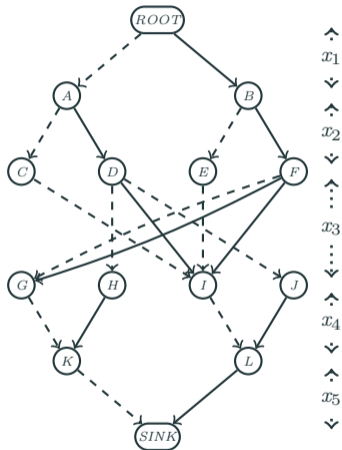
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



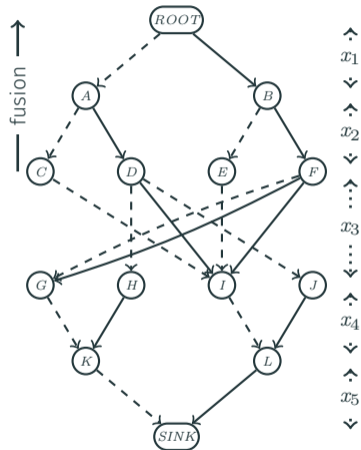
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



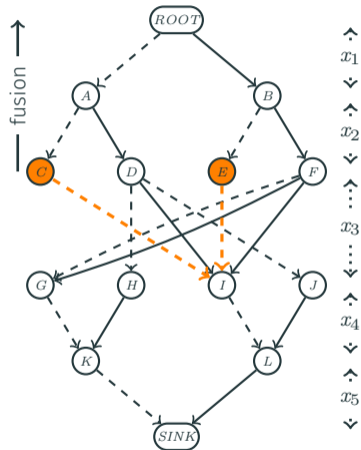
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



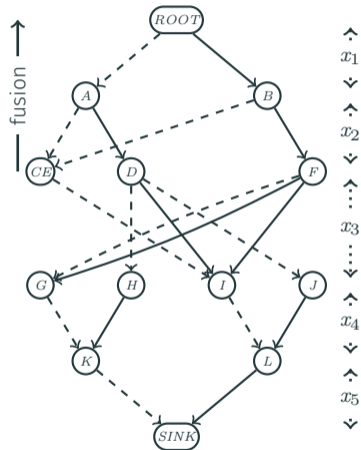
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



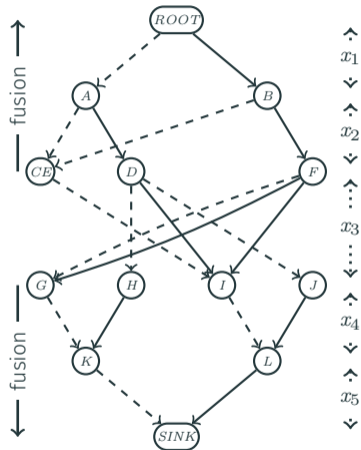
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



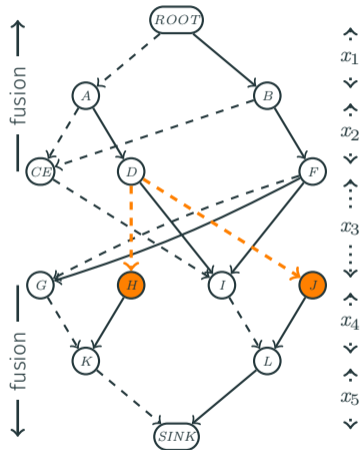
x_1	x_2	x_3	x_4	x_5
0	0	0	0	1
0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

prefixes

x_1	x_2
0	0
	1
1	0
	1

suffixes

x_4	x_5
0	0
1	
0	1
1	



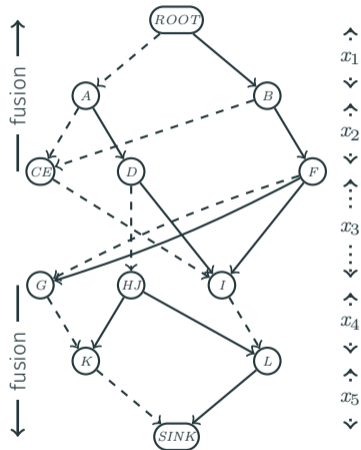
x_1	x_2	x_3	x_4	x_5
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0	1	0	1	0
0	1	0	1	1
0	1	1	0	1
1	0	0	0	1
1	1	0	0	0
1	1	1	0	0
1	1	1	0	1

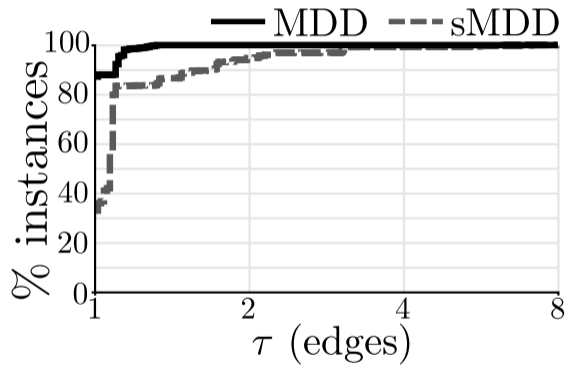
prefixes

x_1	x_2
0	0
	1
1	0
	1

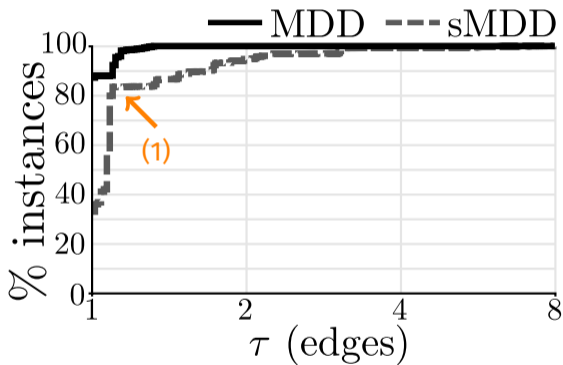
suffixes

x_4	x_5
0	0
1	
0	1
1	



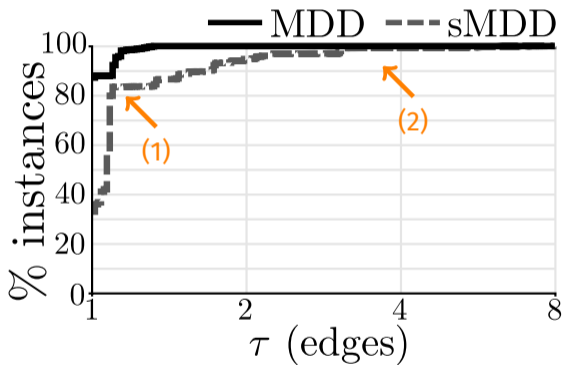


Arêtes:



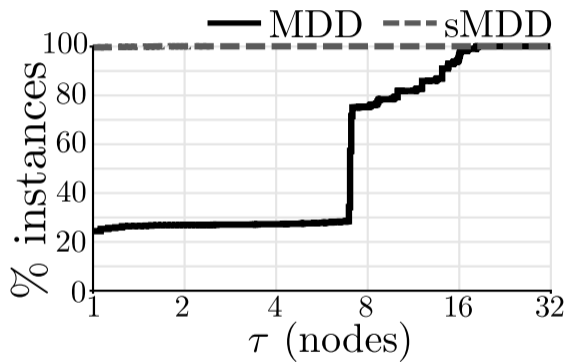
Arêtes:

- (1) 80% des semi-MDDs ont au plus 1.1× plus d'arêtes

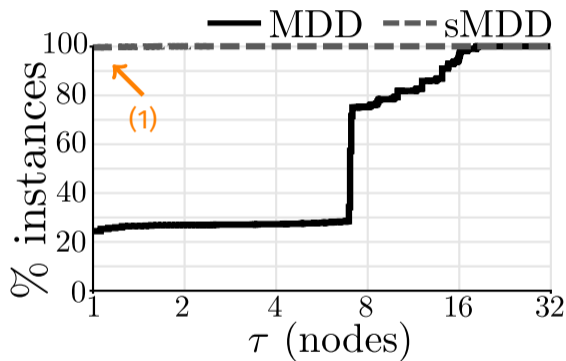


Arêtes:

- (1) 80% des semi-MDDs ont au plus $1.1\times$ plus d'arêtes
- (2) semi-MDDs ont au plus $4\times$ plus d'arêtes

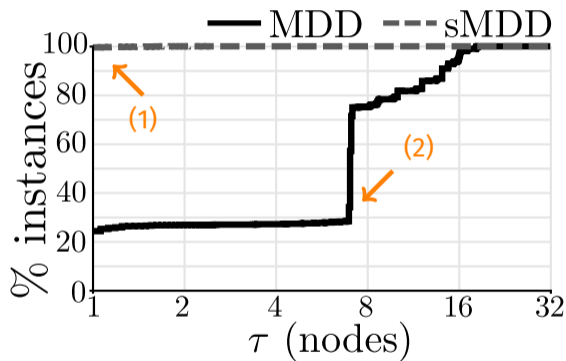


Noeuds:



Noeuds:

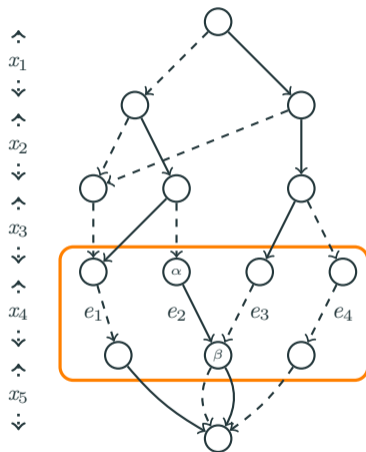
(1) tous semi-MDDs a moins de noeuds



Noeuds:

- (1) tous semi-MDDs a moins de noeuds
- (2) 70% des MDDs ont $\geq 7.5\times$ de noeuds

L'ALGORITHME COMPACT-DIAGRAM



Nom	Ensemble	Bit-set
$\text{currArcs}[x_4]$ ⁽¹⁾	$\{e_1, e_2, e_3, e_4\}$	[1 1 1 1]
$\text{supports}[x_4, 0]$ ⁽²⁾	$\{e_1, \cancel{e_2}, e_3, e_4\}$	[1 0 1 1]
$\text{arcsT}[\alpha, x_4]$ ⁽²⁾	$\{\cancel{e_1}, e_2, \cancel{e_3}, \cancel{e_4}\}$	[0 1 0 0]
$\text{arcsH}[x_4, \beta]$ ⁽²⁾	$\{\cancel{e_1}, e_2, e_3, \cancel{e_4}\}$	[0 1 1 0]

(1) modifiables (2) non-modifiables et pré-calculés

1. Quelles arêtes sont toujours valides?
2. Quelles valeurs sont toujours supportées?

1. Quelles arêtes sont toujours valides?

Phase de **mise à jour**

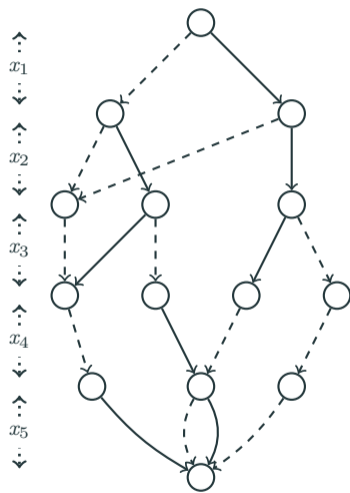
2. Quelles valeurs sont toujours supportées?

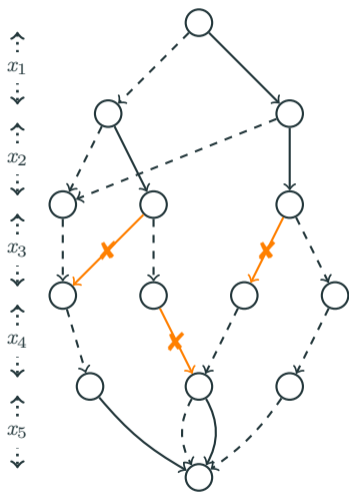
1. Quelles arêtes sont toujours valides?

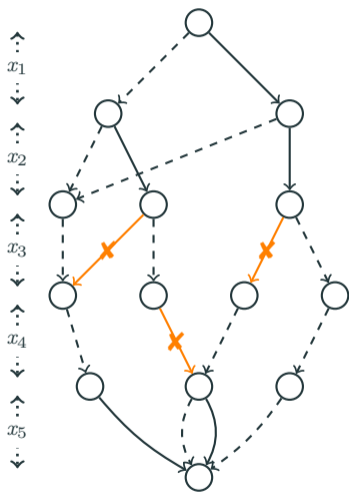
Phase de **mise à jour**

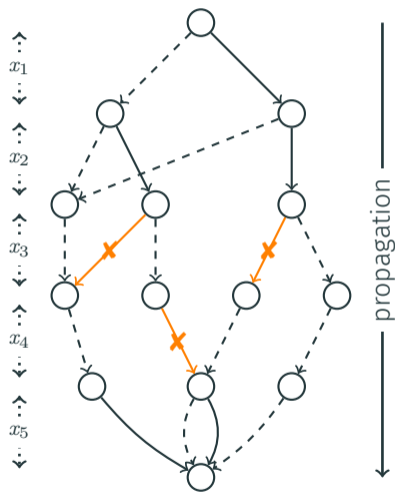
2. Quelles valeurs sont toujours supportées?

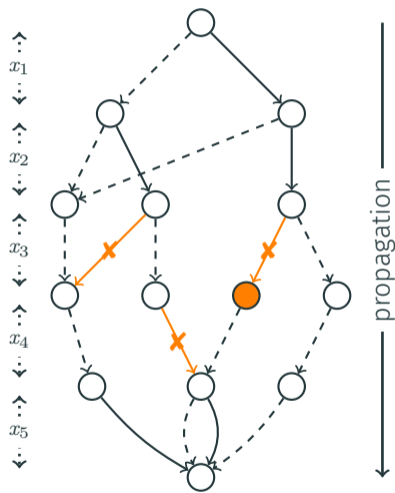
Phase de **filtrage**

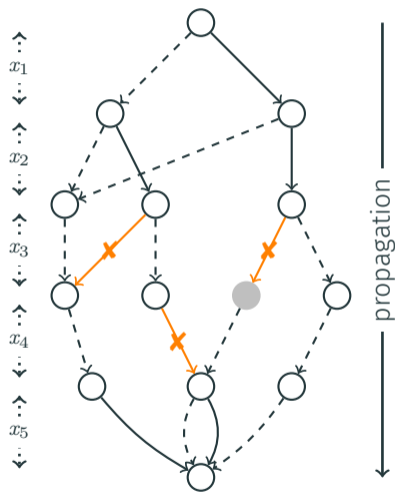

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 1\ 1\ 1\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

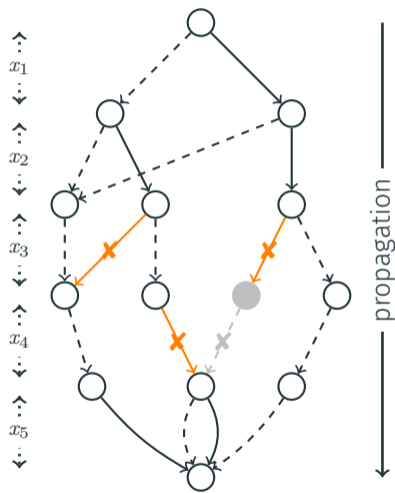

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 1\ 1\ 1\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

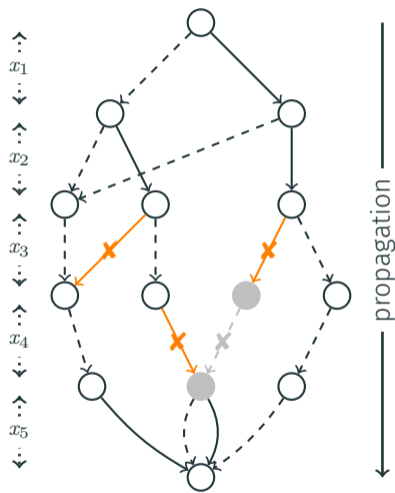

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 1\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

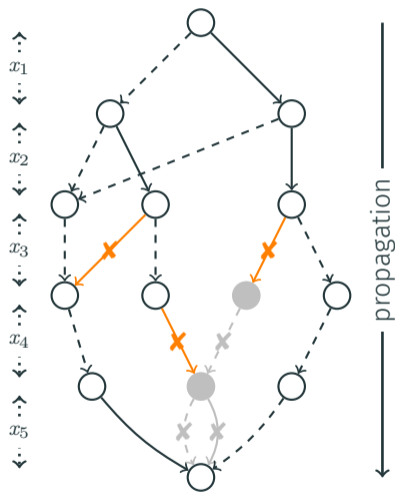

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 1\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

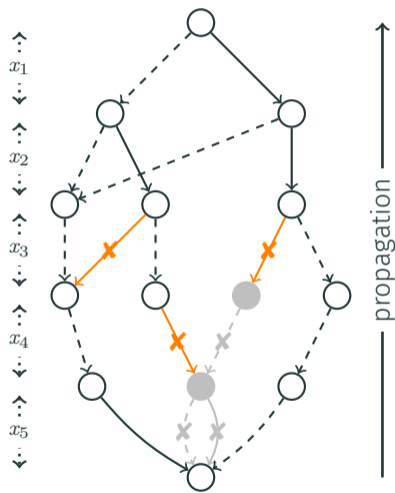

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 1\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

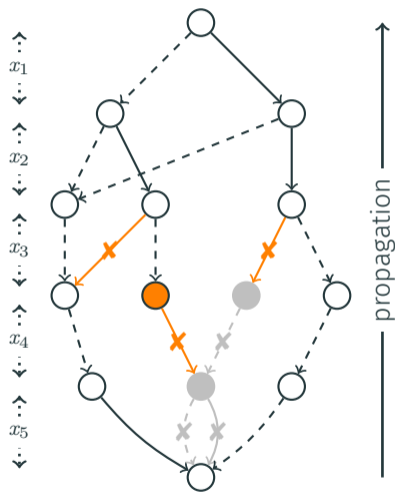

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 1\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

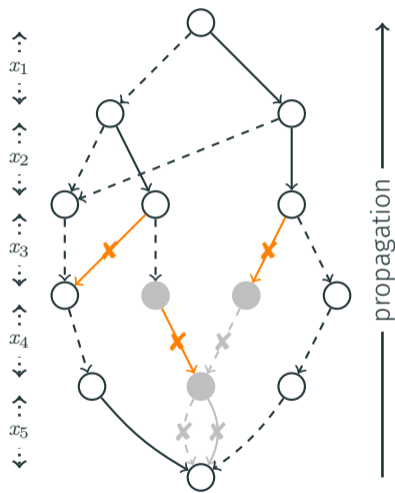

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

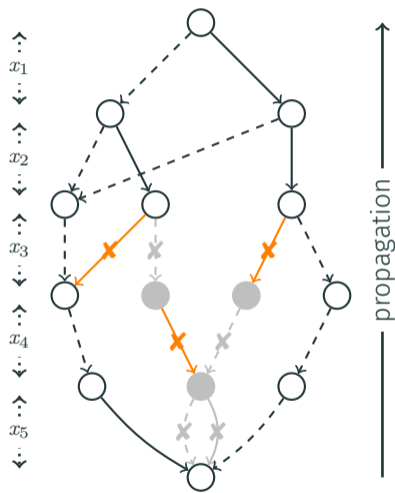

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 1\ 1\ 1]$

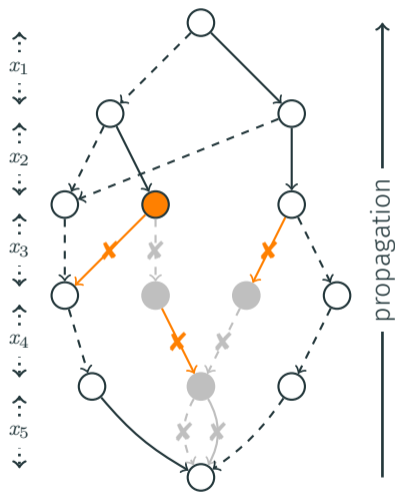

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$

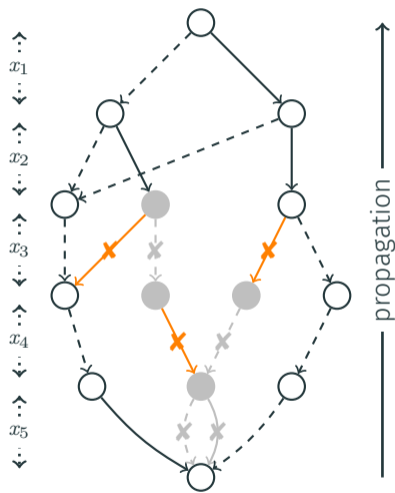

 $\text{currArcs}[x_1]$
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 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
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 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$

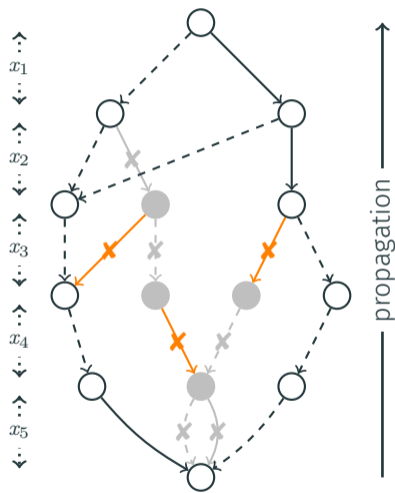

 $\text{currArcs}[x_1]$
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 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$

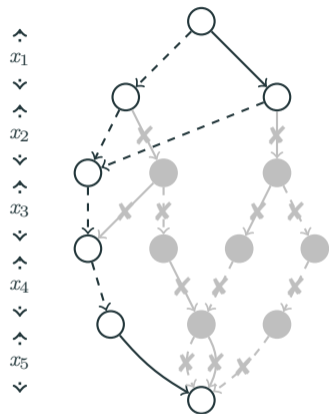

 $\text{currArcs}[x_1]$
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 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 1\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$


 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$


 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
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 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$

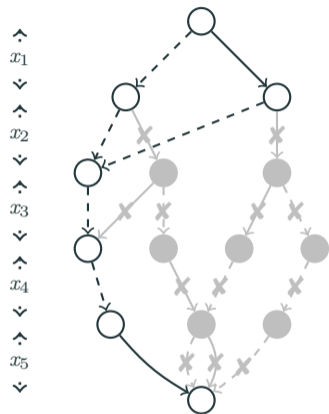

 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 1\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 0\ 0\ 1]$
 $\text{currArcs}[x_4]$
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 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$


 $\text{currArcs}[x_1]$
 $[1\ 1]$
 $\text{currArcs}[x_2]$
 $[1\ 0\ 1\ 1]$
 $\text{currArcs}[x_3]$
 $[1\ 0\ 0\ 0\ 1]$
 $\text{currArcs}[x_4]$
 $[1\ 0\ 0\ 1]$
 $\text{currArcs}[x_5]$
 $[1\ 0\ 0\ 1]$



x_1	x_2	x_3	x_4	x_5
$\{0, 1\}$	$\{0\}$	$\{0, 1\}$	$\{0, 1\}$	$\{0, 1\}$

(x, v)	currArcs[x]	supports[x,v]	\cap
$(x_1, 0)$	11	10	10
$(x_1, 1)$	11	01	01
$(x_3, 0)$	10000	10101	10000
$(x_3, 1)$	10000	01010	00000
$(x_4, 0)$	1000	1011	1000
$(x_4, 1)$	1000	0100	0000
$(x_5, 0)$	1000	0101	0000
$(x_5, 1)$	1000	1010	1000

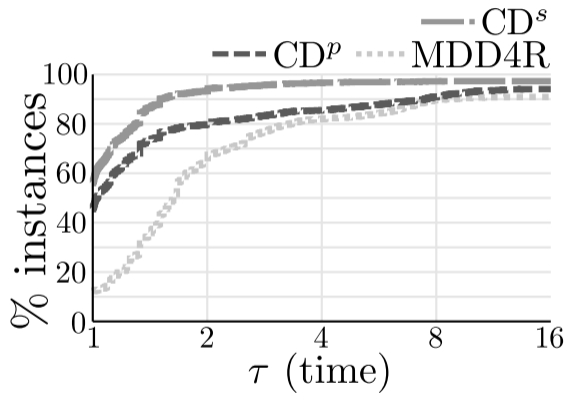


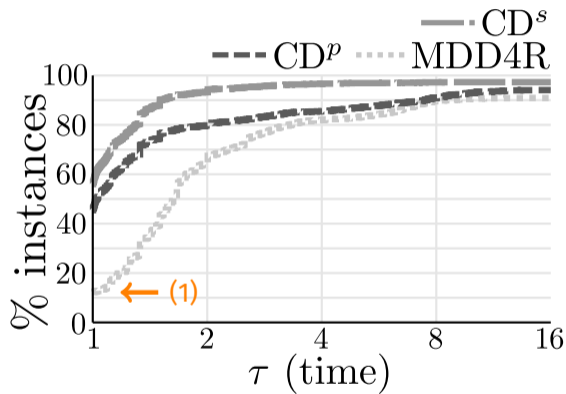
$$\Delta_{x_2} = \{1\}$$

x_1	x_2	x_3	x_4	x_5
$\{0, 1\}$	$\{0\}$	$\{0, \cancel{1}\}$	$\{0, \cancel{1}\}$	$\{\emptyset, 1\}$

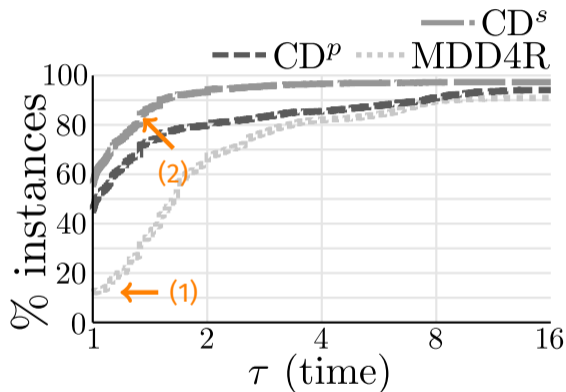
(x, v)	currArcs[x]	supports[x,v]	\cap
$(x_1, 0)$	11	10	10
$(x_1, 1)$	11	01	01
$(x_3, 0)$	10000	10101	10000
$(x_3, 1)$	10000	01010	00000
$(x_4, 0)$	1000	1011	1000
$(x_4, 1)$	1000	0100	0000
$(x_5, 0)$	1000	0101	0000
$(x_5, 1)$	1000	1010	1000

RÉSULTATS

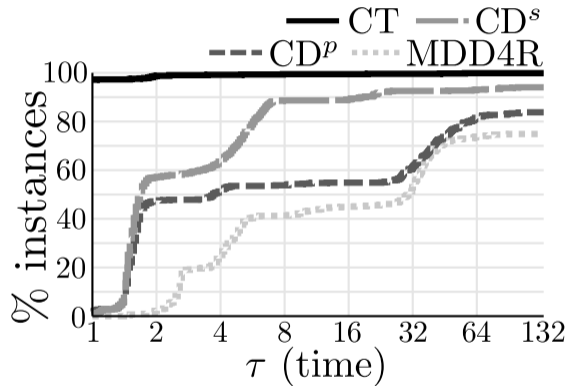


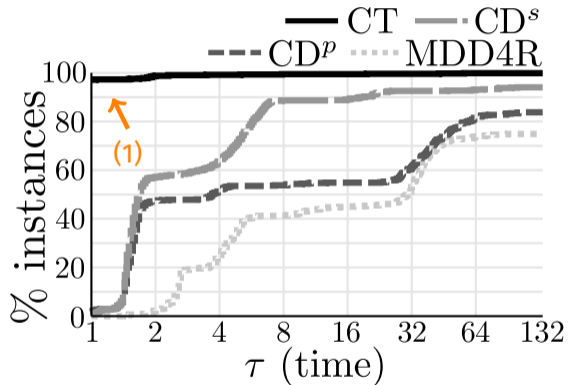


(1) MDD4R est meilleur sur 12%

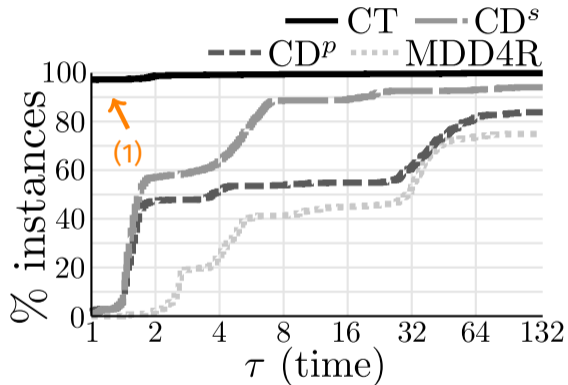


- (1) MDD4R est meilleur sur 12%
- (2) L'utilisation des semi-MDD (CD^s) permet une propagation plus rapide

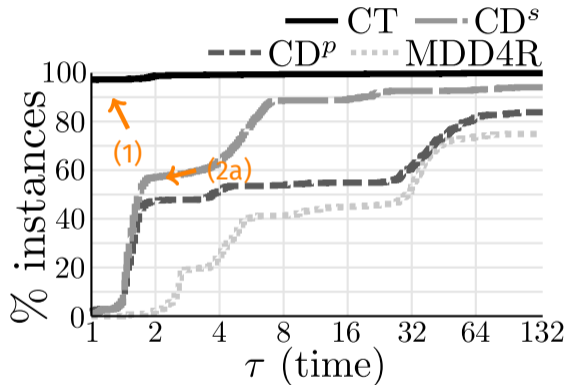




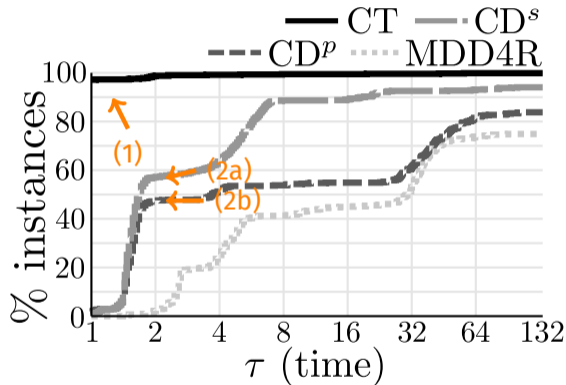
(1) CT toujours meilleur 97% du temps



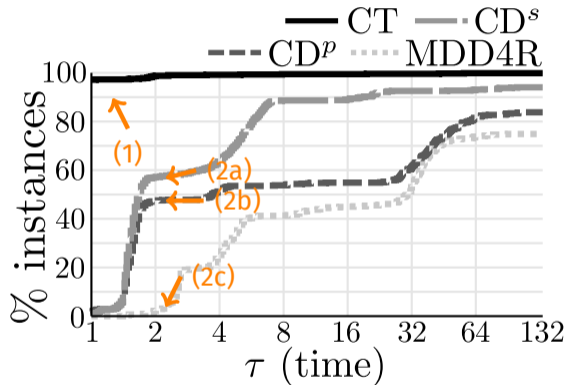
- (1) CT toujours meilleur 97% du temps
- (2) Au plus deux fois le temps pour



- (1) CT toujours meilleur 97% du temps
- (2) Au plus deux fois le temps pour
 - (2a) 60% avec CD^s (CD sur les semi-MDDs)

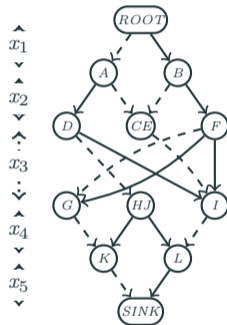


- (1) CT toujours meilleur 97% du temps
- (2) Au plus deux fois le temps pour
 - (2a) 60% avec CD^s (CD sur les semi-MDDs)
 - (2b) 50% avec CD^p (CD sur les MDDs)



- (1) CT toujours meilleur 97% du temps
- (2) Au plus deux fois le temps pour
 - (2a) 60% avec CD^s (CD sur les semi-MDDs)
 - (2b) 50% avec CD^p (CD sur les MDDs)
 - (2c) 5% pour MDD4R

- Nouveau type de diagramme (semi-MDD) permettant **moins de noeuds**
- Propagateur pour diagramme **plus efficace** (CD)
- **Réduction de l'écart** entre les propagateur pour table (CT) et pour diagramme (CD)



Merci pour votre attention!

Des questions?