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# Panda Cubs, Distributed Networks and Others

*How They Survive in Distributed  
Networks and Why?*

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# Contents

1 Elements

2 Overlays

# Outline for Elements

## 1 Elements

Blocks

List Environments

Illustrations

## 2 Overlays

# Definition

The definition below is from Angluin 1980.

## Definition

Here is a definition block.

# Theorem

The following is proved in Yamashita and Kameda 1996, pp. 74–75.

## Theorem

*Here is a theorem block.*

# Alert

If you want to alert something, **just do it.**

## Notice

I can eat glass. It does not hurt me.

# You Can Also Define by Yourself

## Conjecture

An  $(x, bx)$ -biregular graph  $G = (U \cup V, E)$  is the union of  $b$  edge-disjoint bipartite  $x$ -regular subgraphs.

# Unordered/Order List

What a panda cub can bite:

- Bamboos
- Cookies
- Glass, of course

What you have to do next:

- ① Eat
- ② Pray
- ③ Love



# List With Item Labels

**Morgan** An American financier and banker

**Bach** A German composer and musician

**Naipaul** A Trinidad and Tobago-born British writer

# Figures



(Photo by Pascal Müller on Unsplash)

# Tables

Degree Tree $D_i$ (Key)	$D_1$	$D_2$	$\dots$	$D_\kappa$
Degree Tree Class $V_{D_i}$ (Value)	$V_{D_1}$	$V_{D_2}$	$\dots$	$V_{D_\kappa}$

Table 1

ID	Age	Salary	Panda
1	11	11111	11
2	7	78	0
3	121	0	302
4	43	18744	1
5	88	-342	6344

Table 2

# Outline for Overlays

1 Elements

2 Overlays  
Usages  
Examples

The command `\pause` makes the text following it to be shown only from the next slide on, which is a command using `\onslide` internally.  
An example:

The command `\pause` makes the text following it to be shown only from the next slide on, which is a command using `\onslide` internally.

An example:

- One

The command `\pause` makes the text following it to be shown only from the next slide on, which is a command using `\onslide` internally.

An example:

- One
- Two

The command `\pause` makes the text following it to be shown only from the next slide on, which is a command using `\onslide` internally.

An example:

- One
- Two
- Three



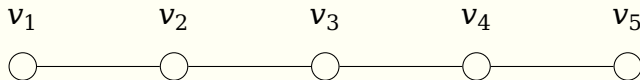
# `\uncover`, `\visible` & `\only`

- `\uncover` The text occupies space and is still typeset, but it is not shown or only shown as if transparent
- `\visible` It is almost the same as `\uncover`, except that if the text is not shown, it is never shown transparently, but rather it is not shown at all
- `\only` The text is inserted only into the specified slides and for other slides, it is thrown away and occupies no space

# Examples of \uncover, \visible & \only

A labelling is a set of local labelling functions.

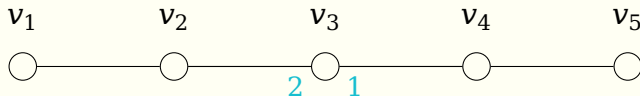
- The vertex-labelled graph  $G$



# Examples of \uncover, \visible & \only

A labelling is a set of local labelling functions.

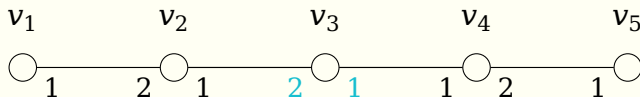
- The vertex-labelled graph  $G$
- The local labelling function  $f_{v_3}$ , for  $f_{v_3}(v_2) = 2$  and  $f_{v_3}(v_4) = 1$



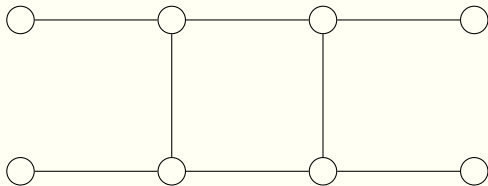
# Examples of \uncover, \visible & \only

A labelling is a set of local labelling functions.

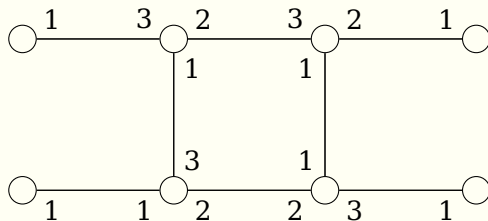
- The vertex-labelled graph  $G$
- The local labelling function  $f_{v_3}$ , for  $f_{v_3}(v_2) = 2$  and  $f_{v_3}(v_4) = 1$
- The labelling  $\mathbf{f} = \{f_{v_1}, f_{v_2}, f_{v_3}, f_{v_3}, f_{v_4}, f_{v_5}\}$



## Examples of \uncover, \visible & \only (Cont.)

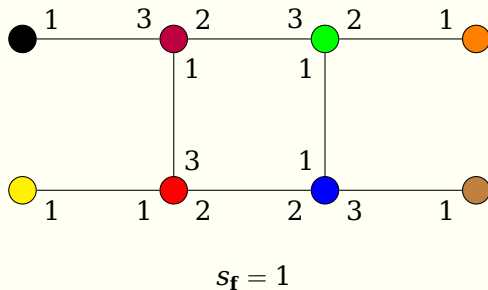


## Examples of \uncover, \visible & \only (Cont.)

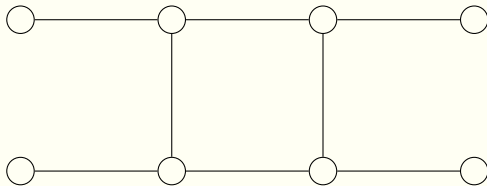


$$s_f = 1$$

# Examples of \uncover, \visible & \only (Cont.)

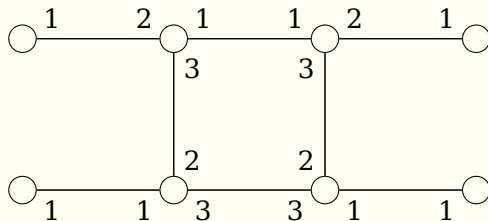


# Examples of \uncover, \visible & \only (Cont.)



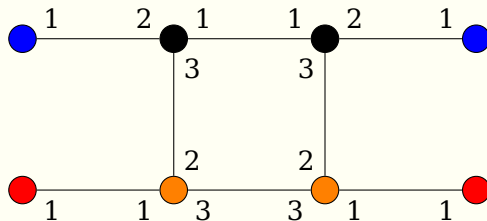


## Examples of \uncover, \visible & \only (Cont.)



$$s_f = 2$$

# Examples of \uncover, \visible & \only (Cont.)



$$s_f = 2$$

# References

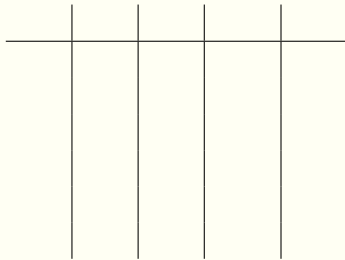
- ▶ Angluin, Dana (1980). “Local and global properties in networks of processors”. In: *Proceedings of the twelfth annual ACM symposium on Theory of computing*. Acm, pp. 82–93 (cit. on p. 4).
- ▶ Yamashita, Masafumi and Tsunehiko Kameda (1996). “Computing on anonymous networks: part I—characterizing the solvable cases”. In: *IEEE Transactions on parallel and distributed systems* 7.1, pp. 69–89 (cit. on p. 5).

Thank you very much!

# Q & A

# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:



$$1 \leq s_f \leq 36$$

# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$				
$v_1$				

$$1 \leq s_f \leq 36$$

## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$			
$v_1$	$v_2$			

$$1 \leq s_f \leq 18$$



## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$			
$v_1$	$v_2$			
	$v_3$			

$$2 \leq s_f \leq 18$$

## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$		
$v_1$	$v_2$	$v_4$		
	$v_3$			

$$2 \leq s_f \leq 12$$

## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$ $v_3$	$v_4$	$v_5$	

$$2 \leq s_f \leq 9$$

## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$ $v_3$	$v_4$ $v_6$	$v_5$	

$$2 \leq s_f \leq 9$$

## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$	$v_4$	$v_5$	
	$v_3$	$v_6$	$v_7$	

$$2 \leq s_{\mathbf{f}} \leq 9$$

## One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$	$v_4$	$v_5$	
$v_8$	$v_3$	$v_6$	$v_7$	

$$2 \leq s_{\mathbf{f}} \leq 9$$

# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$	$v_4$	$v_5$	
$v_8$	$v_3$	$v_6$	$v_7$	
		$v_9$		

$$3 \leq s_f \leq 9$$

# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$	$v_4$	$v_5$	
$v_8$	$v_3$	$v_6$	$v_7$	
		$v_9$	$v_{10}$	

$$3 \leq s_f \leq 9$$



# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$	$v_4$	$v_5$	
$v_8$	$v_3$	$v_6$	$v_7$	
		$v_9$	$v_{10}$	
			$v_{11}$	

$$6 \leq s_f \leq 9$$

# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	
$v_1$	$v_2$	$v_4$	$v_5$	
$v_8$	$v_3$	$v_6$	$v_7$	
		$v_9$	$v_{10}$	
			$v_{11}$	
			$v_{12}$	

$$6 \leq s_f \leq 9$$

# One More Example

Given a graph with 36 vertices,  $s_f$  can be 1, 2, 3, 4, 6, 9, 12, 18 or 36:

$T_1$	$T_2$	$T_3$	$T_4$	$T_5$
$v_1$	$v_2$	$v_4$	$v_5$	$\square$
$v_8$	$v_3$	$v_6$	$v_7$	
$\square$	$\square$	$v_9$	$v_{10}$	
		$\square$	$v_{11}$	
			$v_{12}$	
			$\square$	

$$6 \leq s_f \leq 9$$

The squares above are  $v_{13}$ 's possible places.

# Can You Explain the Order of Terms in List of Symbols?

- It is automatically generated by the external *MakeIndex* program along with L<sup>A</sup>T<sub>E</sub>X package `nomenc1`, using default settings
- Yes, it even looks bizarre to me as well

# Your Paper is Hard to Understand ...

After today's presentation, do you feel a little better?

Your answer =  $\begin{cases} \text{Yes} & \text{Phew, thank you!} \\ \text{No} & \text{Is it too late to say sorry?} \end{cases}$