

~~1/2/2009~~

1/2/2009 $G=(V,E)$ גרף גורם: הצגה



$\mathcal{T} = \{T_1, T_2, \dots, T_p\}$ \mathcal{T} פורק!

$V(T_i) \subseteq V, E(T_i) \subseteq E$ פ' 36 \leq

$i \in \{1, 2, \dots, p\}$ i ב' $T_i = (V(T_i), E(T_i))$

G \leq יו"ב \mathcal{T} פורק

הוכחה: \mathcal{T} \leq G \leq \mathcal{T} \leq G

$\bigcup_{i=1}^p E(T_i) = E$ $\bigcup_{i=1}^p V(T_i) = V$ 10

T_i \leq \mathcal{T} \leq G \leq \mathcal{T} \leq G

$u, w \in V(T_i) \Rightarrow e \in E(T_i) \Rightarrow T_i \in \mathcal{T}$

~~הוכחה~~ \mathcal{T} הוכחה \leq הוכחה

~~max~~ $\mathcal{T} \ni T_i$ \leq G \leq \mathcal{T} \leq G

overlap _{\mathcal{T}} $(\mathcal{T}) = |\{T \mid T \in \mathcal{T}, v \in V(T)\}|$

הוכחה: \mathcal{T} \leq G \leq \mathcal{T} \leq G
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$$\text{overlap}(\mathcal{T}) = \max_{T \in \mathcal{T}} \{ \text{overlap}_T(\mathcal{T}) \}$$

גרעין \mathcal{T} יחיד $T \in \mathcal{T}$ ~~הוא~~ הקטן
 יחיד $T \in \mathcal{T}$ ~~הוא~~ הקטן \mathcal{T}

$$\text{Diam}(\mathcal{T}) = \max_{T \in \mathcal{T}} \{ \text{Diam}(T) \}$$

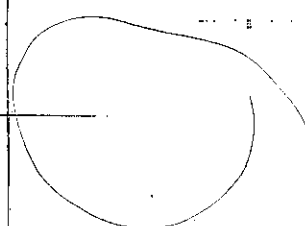
≤ 1 הוא \mathcal{T}

$G \in \mathcal{T}$ הוא G הוא G

יחיד $T \in \mathcal{T}$ הוא T הוא T
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$$l = \text{overlap}(\mathcal{T}) \quad d = \text{Diam}(\mathcal{T})$$

יחיד $T \in \mathcal{T}$ הוא T הוא T
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$d = 2r$ הוא d הוא d
 ($d = 2r$)

המשפט: $G = (V, E)$ גרף k -מחזורי

$G' = (V, H)$ גרף k -מחזורי, $H \subseteq E$

אם G הוא גרף k -מחזורי

אז $e = \{u, w\} \in E$ קיים k מסלולים

הכוללים את e (כל מסלול הוא k -מחזורי)

אם $G' = (V, H)$ גרף k -מחזורי

אז G הוא גרף k -מחזורי

אם H הוא גרף k -מחזורי

אז G הוא גרף k -מחזורי

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~~3. Establish the maximum possible value for $\text{Time}_{gap}(\beta)$ and prove it.~~

3) Consider a 15-processor asynchronous network with processors $0, \dots, 14$. The processors constantly run a synchronizer. Let v and v' be two processors in the network, and suppose that at a certain moment, the pulse counter at v shows $p = 27$. What is the range of possible pulse numbers at v' in each of the following cases:

- (a) The network is a ring (with the processors arranged according to their numbers), v is processor number 11, v' is processor number 2 and the synchronizer used is α .
- (b) The network is a full balanced binary tree (4 levels), v is the root, v' is one of the leaves and the synchronizer used is β .
- (c) The same as in (b), except both v and v' are leaves.

~~5. What are the message and time complexities of the asynchronous broadcast algorithms $\alpha(\text{FLOOD})$ and $\beta(\text{FLOOD})$ resulting from combining the synchronous Algorithm FLOOD on top of synchronizers α and β , respectively?~~

~~6. Consider a model combining the ASSYNC and LOCAL models, that is, with asynchronous communication but allowing arbitrarily large messages. Which synchronizer type is preferable in this model? Justify your answer.~~

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