



Good Paths in FAs

Referee's report on the PhD Thesis by Jan Lathau

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May 7, 2009

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The present PhD thesis discusses algorithms for pattern matching in compressed text. Two families of algorithms are covered. The first family of algorithms is for pattern matching in text compressed by general dictionary based compression methods. The second family of algorithms is for pattern matching in text compressed by compression methods that use finite automata for representation. Algorithms for pattern matching in text compressed by the LZ78 and position method results are presented. Huffman coding and Data Compression Algorithms (DCA) is also presented. The algorithms are based on finite automata, so they can solve the pattern matching problem. The main processing phase of the algorithm runs in linear time with respect to the length of the pattern and text. The discussion of some of the presented algorithms is partially left to the reader. The algorithm for pattern matching in text compressed by LZ78 method is

Transition of the text

The theoretical part of the following chapter

Good Faith

A sequence of states

q_0, q_1, \dots, q_n is

a good path if it

corresponds to a path in the state diagram

~~to~~ $q_0 - \text{start}$ & $q_n - \text{final}$

Go  Ours
no repeats ~~and~~ starts

2

Let $V = Q_0 + Q_1 + Q_2 + \dots + Q_n$ be a good path

For $e \in E$ for max flow $i < j$

~~P_1, P_2, \dots, P_n~~ Q_i

then $\leftarrow e$ $P_{i+1} = Q_i$ $P_i = Q_i$

then $P_{i+1} \dots P_n$ is

a ~~flow~~ (Q_i, Q_i) - return within V .

$$h_{c,t} \delta = q_1 q_2 \dots q_n P_1 \dots P_2 q_i \dots q_k$$

pe a circle!

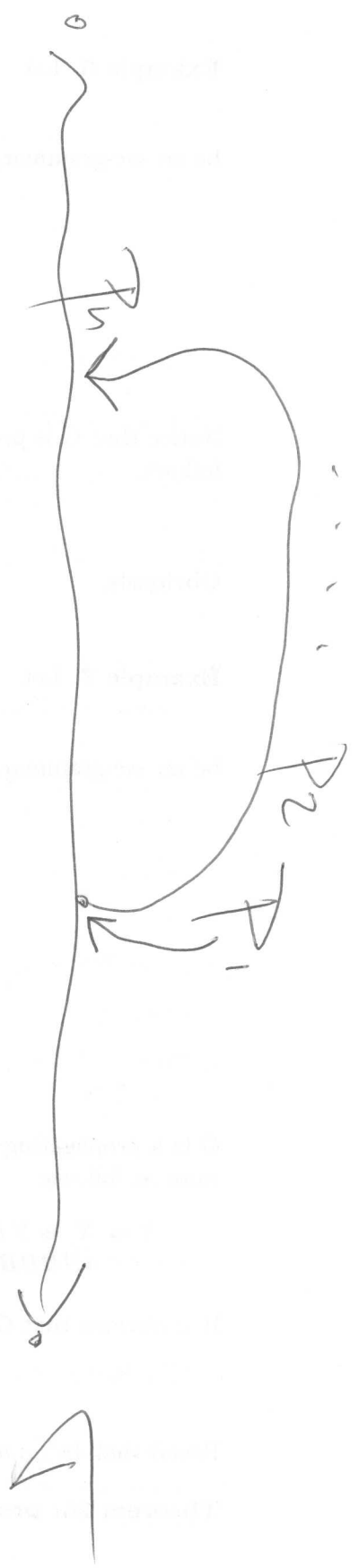
P_1, P_2 are roots in \mathbb{V} .

Then δ is a return

to q_i (from q_i)
 with an os

$(q_1, q_2) - \text{return}$





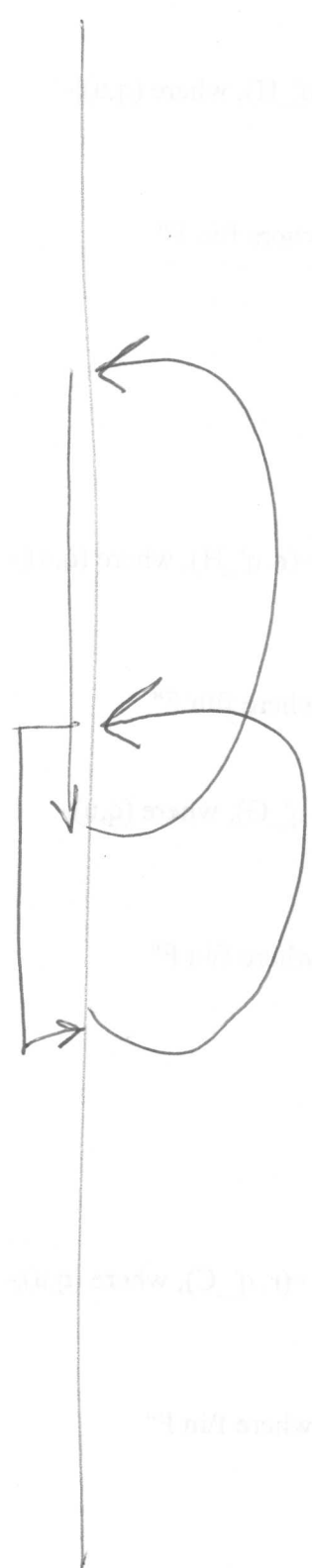
Text

$$V = q_1 \dots q_n$$

$$q_1 \dots q_2 \dots q_3 \dots q_4 \dots q_5 \dots q_6 \dots q_7 \dots q_8 \dots q_9 \dots q_{10}$$

$$X = (q_1, q_2) - \text{return}$$

$$y = (q_1, q_2)$$



G.1

Then $\{x\}$ ~~these~~ ^{are} ~~used~~ ^{of} ~~restoring~~ ^{are} ~~by~~
overlapped returns.

\mathcal{H} is a ~~one~~ ~~FA~~ one good path ^{15.3}
 $\mathcal{P}A$ without over- τ if

\mathcal{H} contains one g.p. \forall
no over-lapped returns.

\mathcal{P} - the set of all \downarrow

$$\mathcal{Z}(\mathcal{P}) = \{1, \tau\} \cup \mathcal{P}$$

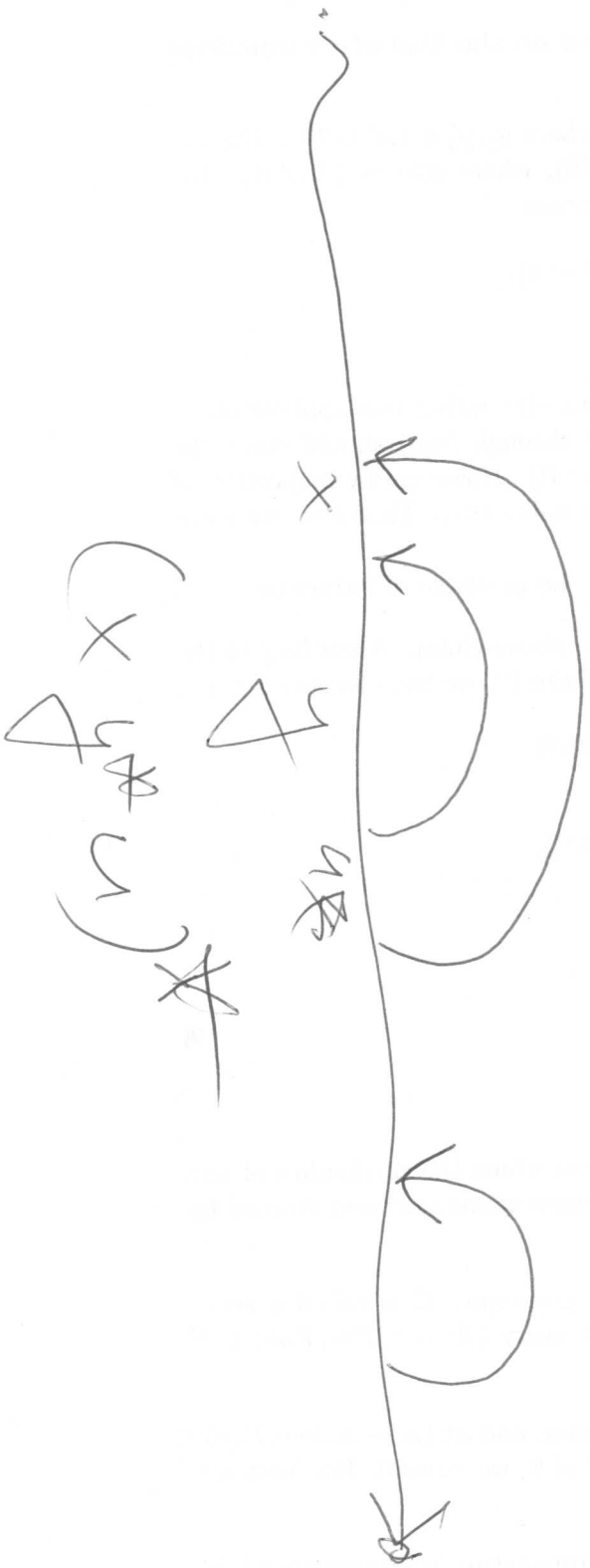
*E - only * | not |

f

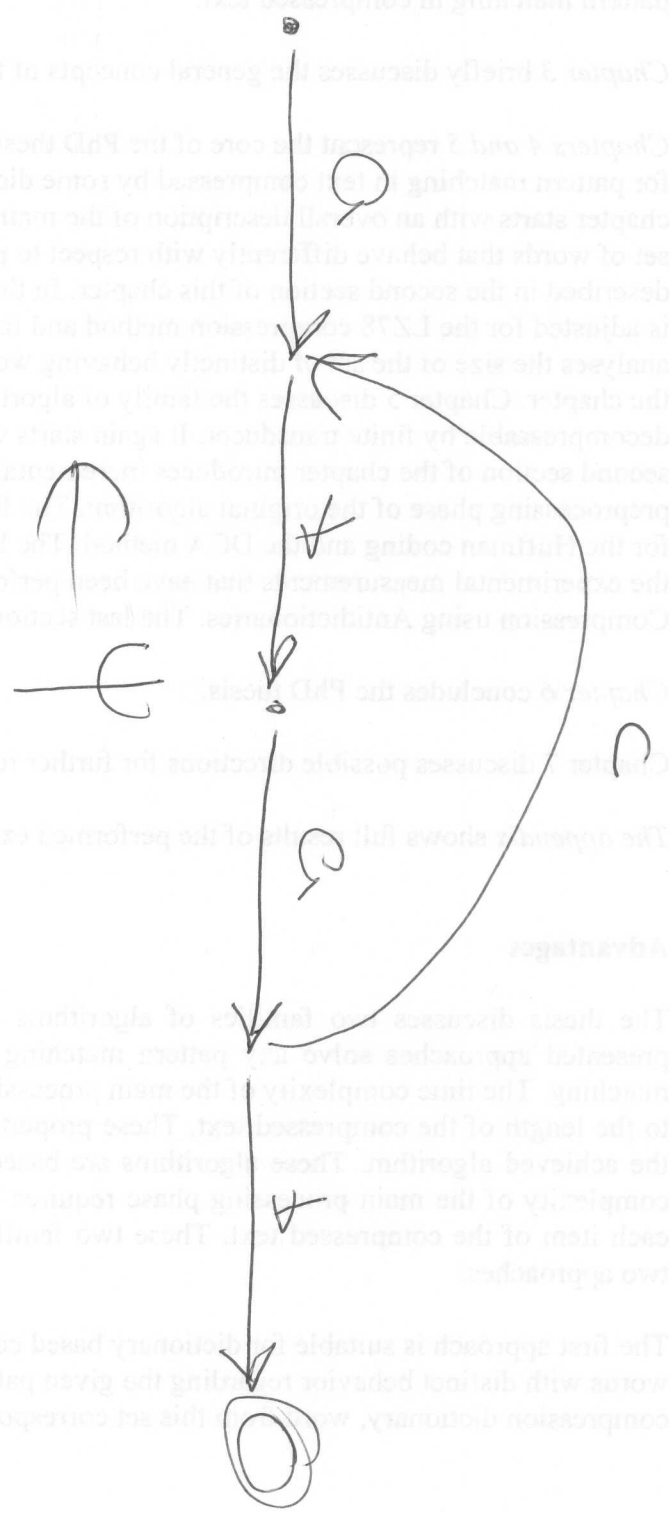
conjecture: test to see if

the is a - ed by a OGP FA

iff the e . f . $\chi(Y) = \chi(*E)$



MF



6-1

\Rightarrow Let $M \in \mathcal{F}$.

$$\mathcal{Z}(\mathcal{F}) \subseteq \mathcal{Z}(G \cdot H) \times$$

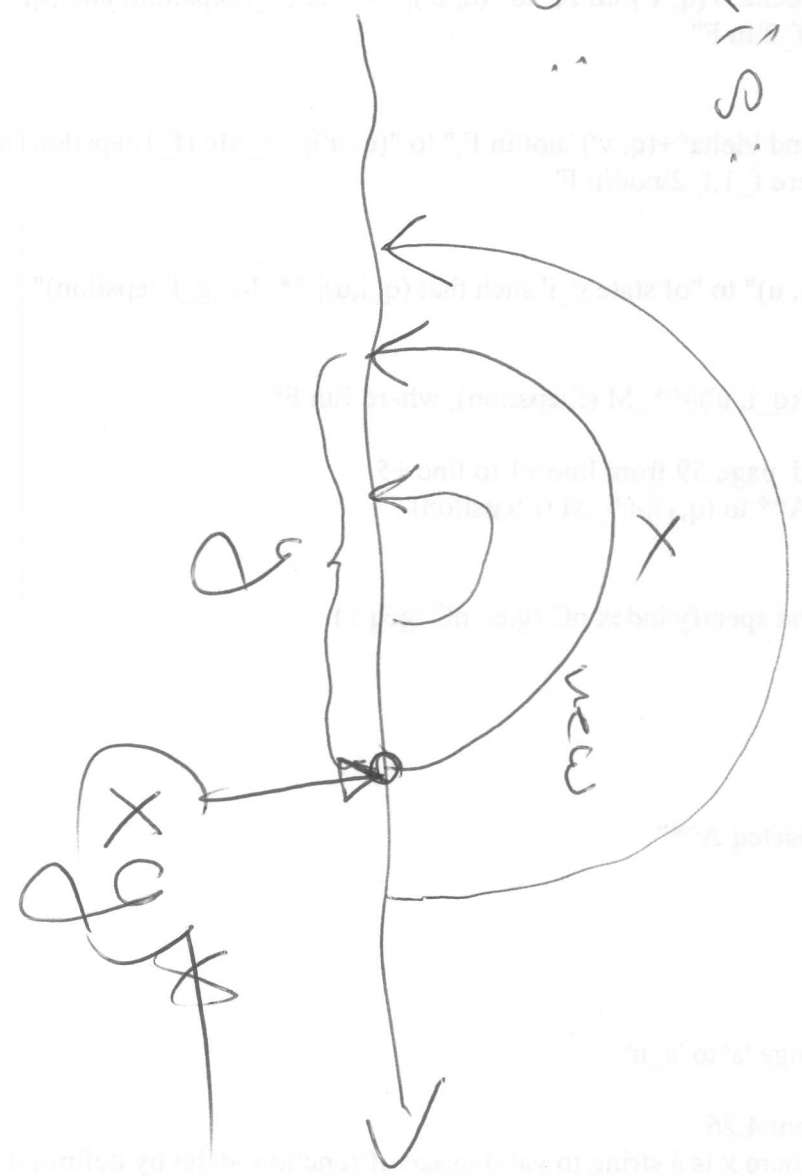
top in direction on ~~the~~ # of

features.

Proofs:

IS:

\mathcal{H} :



$$\mathcal{L}(\ast, E) \subseteq \mathcal{L}(\mathcal{Y})$$

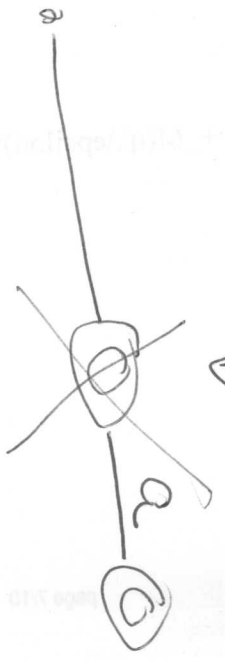
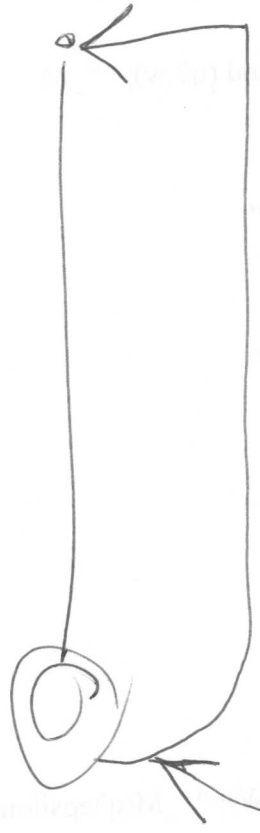
$$\Leftarrow \begin{matrix} \text{let } e \in E \\ \ast, E \end{matrix}$$

by induction on $\#$ of

operators:

Basis: $\mathcal{L}(\phi, a)$ operators

IS:



\mathcal{P}

\mathcal{P}

$\mathcal{P}(s)$

$\mathcal{P} \cdot \mathcal{H} \cdot \mathcal{L}$

$\mathcal{P}(s) =$

\mathcal{P}

~~or fewer~~

good paths with ~~PA~~ PAs with

$\mathcal{P} \cdot \mathcal{H} \cdot \mathcal{L}$ plus 5 or fewer

$\mathcal{P}(\mathcal{P} \cdot \mathcal{H} \cdot \mathcal{L})$

$\mathbb{Z}(\phi)$

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~~FIN~~
FIN

this talk

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(Carthage) # 1 P #

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order

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The method in V-1 is not applicable to the case of a...

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