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“”

$CACBBA$

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-
-
-
-
-

W •

$B \subseteq W$ •

$F\backslash$ •

nF

$f : W^n \to W$

$X_{B,F} \subseteq W$
FB

$B \subseteq X_{B,F}$

$f : W^n \to W, f \in F$
$f(x_1, x_2, \ldots, x_n) \in X_{B,F} x_1, x_2, \ldots, x_n \in X_{B,F}$

$X_{B,F}$
$X_{B,F}$
FB“$X_{B,F}$

a, b“W •

$B = \{ab\}$ •

•

aba

$f_1(w) = waba$

baa

$f_2(w_1aaw_2) = w_1bw_2 \ : aa \notin w_1$

bbb

$f_3(w_1bbbw_2) = w_1w_2 \ : bbb \notin w_1$

•

$aa, ababa$

B, F“$X_{B,F}$

$$yFWF(y), y$$

$$X_1 \subseteq X_2 \subseteq \cdots \subseteq X_n$$

$$X_1 = B$$
$$\ldots$$
$$X_{i+1} = X_i \cup F(X_i)$$
$$\overline{X} = \cup_i X_i$$
$$\overline{X} = X_{B,F}$$

$X_1 = \{ab\}$
$X_2 = \{ab, ababa\}$
$X_3 = X_2 \cup \{ababa, ababaaba\}$
$X_4 = X_3 \cup \{ababbba, ababaabaaba\}$
etc...

- $W = \mathbb{N}$
- $B = \{0\}$
- $F = \{+2\}$
- $X_{B,F} = \mathbb{N}_2$

- $\overline{X} = X_{B,F}\overline{X}$

$B \subseteq \overline{X}$“
$X_1 \subseteq \overline{X} X_1 = B$
“
$f(x_1, x_2, \ldots, x_n) \in \overline{X} x_1, x_2, \ldots, x_n \in \overline{X}$
$x_1, x_2, \ldots, x_n \in X_l X_l$
$f(x_1, x_2, \ldots, x_n) \in X_{l+1}$
$f(x_1, x_2, \ldots, x_n) \in \overline{X}$

$f(a_1, a_2, a_3)$
$a_1 \in X_5$, $a_2 \in X_{17}$, $a_3 \in X_1$
$\Rightarrow$
$f(a_1, a_2, a_3) \in X_{18}$

$\overline{X}$
$\overline{X} \subseteq YB, F1, 2Y$
$\cup X_i \subseteq YX_i \subseteq Yi$

- $X_1 = B \subseteq Y$“
  Y
- $X_{i+1} = X_i \cup F(X_i) \subseteq YX_i \subseteq Y$
- $x_1, x_2, \ldots, x_n \in Yx_1, x_2, \ldots, x_n \in X_i$“
  $f(x_1, x_2, \ldots, x_n) \in YY$

$\overline{X}$

$\overline{X} = X_{B,F}$
$X_{B,F} \subseteq YB, F1, 2Y$

“”
$X_{B,F} \subseteq Y$
$B \subseteq Y$
FY
$b \in X_{B,F}$
$a_1, a_2, \ldots, a_n X_{B,F} b$
$a_n = b$
$1 \leq i \leq n$
$a_i \in B$
F“a_i

$B = \{0\}, \qquad F = \{+2\}$
$8 \in X_{B,F}$
$\{0, 2, 4, 6, 8\}$

$$Txx \notin TX_{B,F} \subseteq TTx \notin X_{B,F}$$
$$T$$
$$aba \notin ABA$$

$$B, Fa\text{“}$$
$$aba$$

$$T \bullet$$

$$\bullet$$

$$B \subseteq T$$
$$f(x_1, x_2, \ldots, x_n) \in Tx_1, x_2, \ldots, x_n \in T$$

$$aab \in T$$
$$aa$$