M81 2013A /מבחן

שאלה 1

DFS: A, B, F, M, G, M, N, T

BFS: A, B, D, F, G, I, ~~J, K, M, N, P, Q~~

GBFS: A, B, G, M, N, T

A^*: A, B, G, D, K, N, B

שאלה 2

א)

$P(H, S, \neg L, \neg E) =$

$P(H) \cdot P(S|H) \cdot P(\neg L | H, S) \cdot P(\neg E | \neg L)$

$= 0.1 \cdot 0.3 \cdot 0.1 \cdot 0.9 = 0.0027$

ד) כן כי L נצפה ו (H) → (L) נצפה → (E) היא שלשה לא פעילה.

שאלה 3

א)

~~1) $\forall x, \exists y\ (male(x) \wedge \neg But(x)) \rightarrow Love(x,y)$~~

1) $\forall x \exists y\ (male(x) \wedge \neg But(x) \wedge Fe(y) \wedge Veg(y)) \rightarrow Love(x,y)$

2) $\exists x \forall y\ (male(x) \wedge Fe(y) \wedge Veg(y)) \rightarrow \neg Love(x,y)$

CNF

1) $\forall x \exists y\ (\neg male(x) \vee But(x) \vee \neg Fe(y) \vee \neg Veg(y)) \vee Love(x,y)$

1) $\neg male(x), But(x), \neg Fe(f(x)), \neg Veg(f(x)), Love(x, f(x))$

2) $\neg male(f(x)), \neg Fe(y), \neg Veg(y), \neg Love(f(x), y)$

ב)

a1) U, P   b1) B   2) ¬P, ¬B, Q   3) B, S, U   a4) P   b4) S

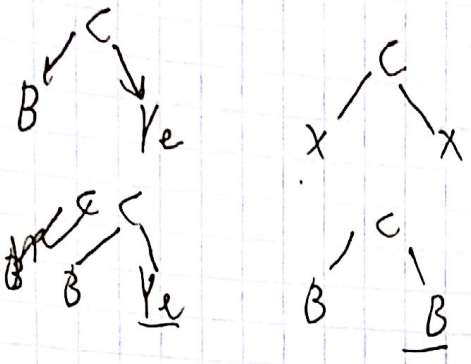
a5) U, ¬P, ¬Q   b5) U, ¬B, ¬S

6) ¬S, ¬U

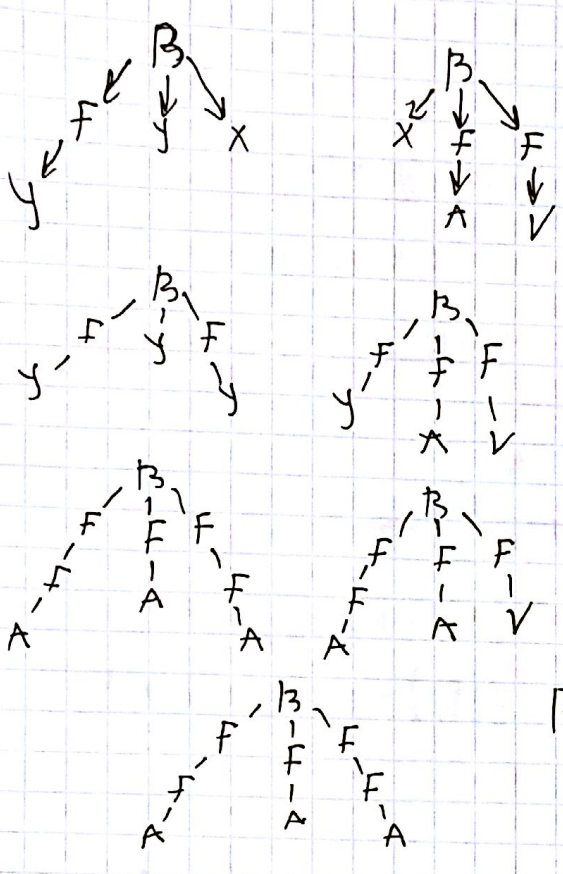
6,4: 7) ¬U 5_b,3: 8) U   8,7: 9) סתירה

~~6, 4, 5, 3~~ 3, 4, 5

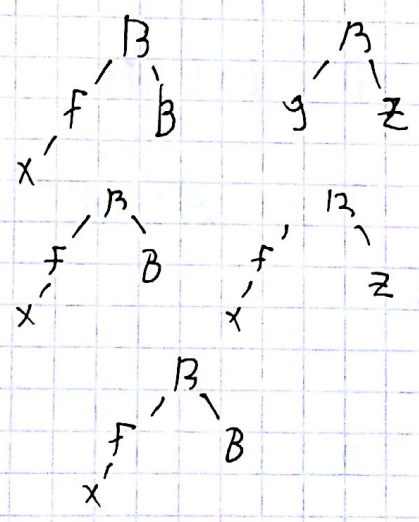
ג' בעמ' הבא



Fail 2.1



$B(F(F(A)), F(A), F(F(A)))$



$B(F(x), B)$

מ81 2013א מועד

4 שאלה

$P(<\alpha t) = 4/8 \qquad P(7<\alpha t) = 4/8$

$Entropy(<\alpha t) = 1$

~~תשס~~

~~$P(F_1=A) = 3/4 \quad P(F_1=B) = 4/4$~~

~~$Entropy(F_1) =$~~
~~$Entropy(F_1=A) =$~~ ~~0.811~~

F_1

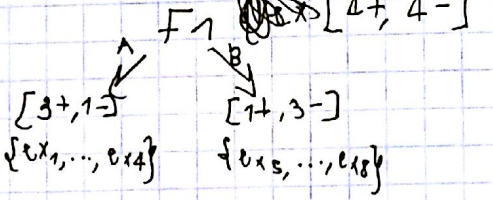
$Entropy(F_1=A) = 3/4 \cdot \ldots = 0.81$
$Entropy(F_1=B) = 1/4 \cdot \ldots = 0.81$
} $gain F_1 = 1 - 0.81 \cdot (4/8) - 0.81 \cdot 4/8 = 0.19$

F_2

$Entropy(F_2=C) = 2/4 \cdot \ldots = 1$
$Entropy(F_2=D) = 2/4 \cdot \ldots = 1$
} $gain F_2 = 1 - 0.5 - 0.5 = 0$

F_3

$Entropy(F_3=H) = 2/4 \cdot \ldots = 1$
$Entropy(F_3=G) = 2/4 \cdot \ldots = 1$
} $gain F_3 = 0$



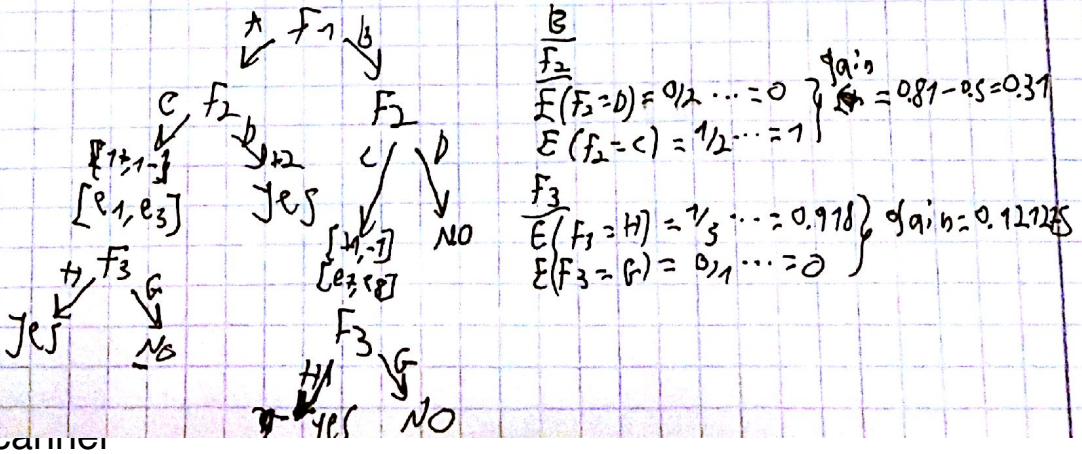
A

F_2

$Entropy(F_2=C) = 1/2 \cdot \ldots = 1$
$Entropy(F_2=D) = 2/2 \cdot \ldots = 0$
} $gain(F_2) = 0.81 - 0.5 = 0.31$

F_3

$Entropy(F_3=H) = 1/1 \cdots = 0$
$Entropy(F_3=G) = 2/3 \cdots = 0.9183$
} $gain(F_3) = 0.81 - 0.9183 \cdot 3/4 = 0.12275$



B

F_2

$E(F_2=D) = 0/2 \cdots = 0$
$E(F_2=C) = 1/2 \cdots = 1$
} $gain = 0.81 - 0.5 = 0.31$

F_3

$E(F_3=H) = 1/3 \cdots = 0.918$
$E(F_3=G) = 0/1 \cdots = 0$
} $gain = 0.12275$