580 Notes on exercise 4.3(b)

Note Title 2014-03-31

Constraint network for 4.3(b) ⊛ [two unary constraints]

Variables: 1 A 2 B C D
3 E f
4 G H I 5 J K
L M
6 N O P Q
R
S

Domains after domain consistency:

A = {d, h, k, s, t} (all letters that start both a 4- and 5-letter word) ⊛

B = (all letters in the first place of a 3-letter word and in the 2nd place of a 4-letter word) = {e, h, o}

C = (all letters in the 3rd place of a 4-letter word) = {i, l, n, o, s, v}

D = (all letters in the last place of a 4-letter word) = {d, e, k, n, p, s, y}

E = (all letters in the 1st place of a 2-letter word and in the 2nd place of

a 5-letter word) = {a, h, i, o} = {a, h, o}

F = (all letters in 2nd place in a 2-letter word and 2nd place in a 3-letter word) = {t, e, n} = {e, n, t}

G = (all letters in 1st place in a 5-letter word) = {d, u, f, l, h, g, s, t} = {d, f, g, h, l, s, t, u}

H = (all letters in 2nd place in a 5-letter word and 3-rd place in a 5-letter word) = {a, s, i, o, u, e, h} = {a, e, i, s, u}

I = (all letters in last place of a 3-letter word and 3rd place of a 5-letter word) = {a, e, m, r, t} = {a, e, r}

J = (all letters in 4-th place of a 5-letter word and first place of

a 5-letter word) = (start from 4) = {g, l, s, t}

K = (all letters, at the last place of a 5-letter word) = {d, e, k, n, s}

L = (all letters in the next-to-last (4th) place of a 5-letter word) = {c, g, s, e, l, t, i}
= {c, e, g, l, n, s, t}

M = (all letters in the second place of a 5-letter word) = {a, i, e, o, u, e, h} =
{a, e, h, i, o, u, s}

N = (all letters in the first place of a 4-letter word) = {d, e, h, k, s, t}

O = (all letters in the second place of a 4-letter word) = {a, e, o, l, i, h} =
{a, e, h, i, l, o}

P = (all letters in the third place of a 4-letter word (as for C) and in the

third place of a 5-letter word} = {i, l, n, o, s, v} = {i, n, s, v}

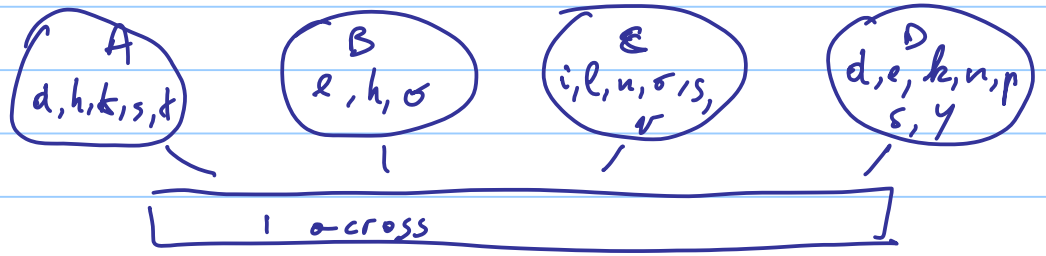
Q = D = {d, e, k, n, p, s, y}

R = {all letters in the 4-th place of a 5-letter word} = {c, g, s, e, l, t, n} =
{c, e, g, l, n, s, t}

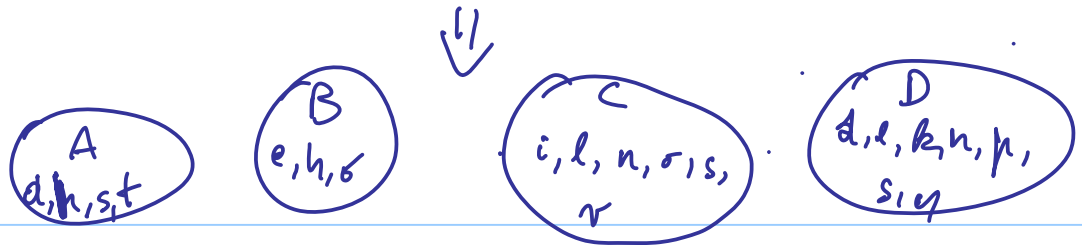
S = K = {d, e, k, n, s}

The constraint network has one n-ary constraint per n-letter word.

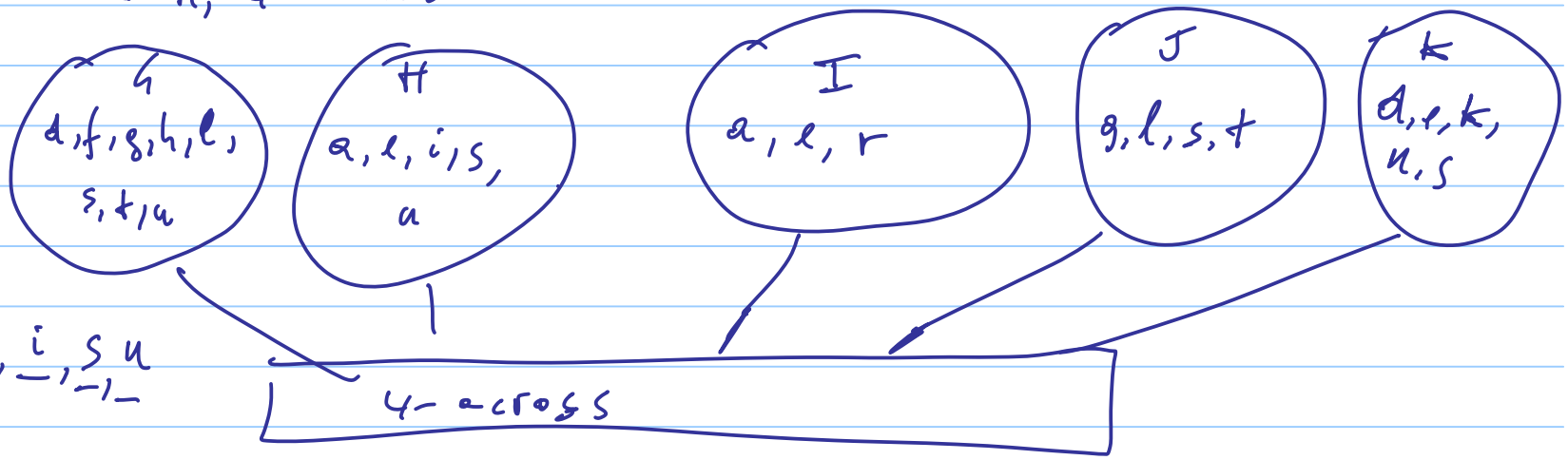
Ex:



by considering <A, 1-across>, we update dom A to {d, h, s, t}



Try $(H, 4\text{-across})$



~~e, k~~, i, s, u

The new domain of H is $\{l, s, u\}$