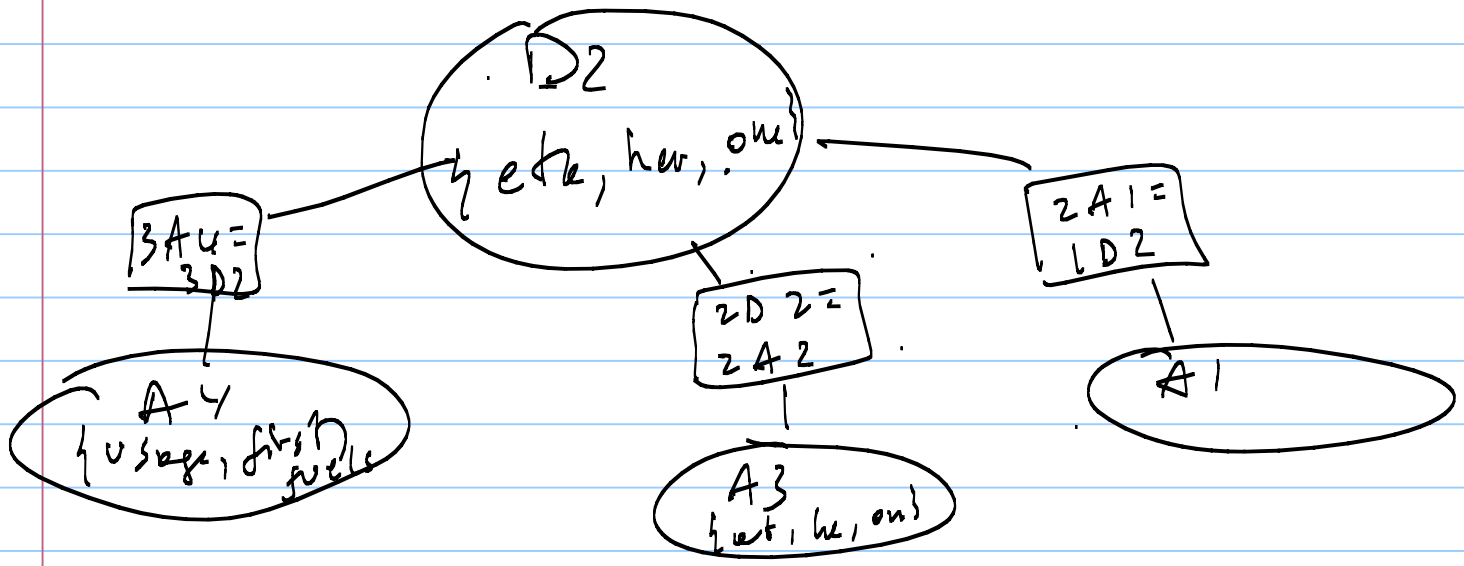
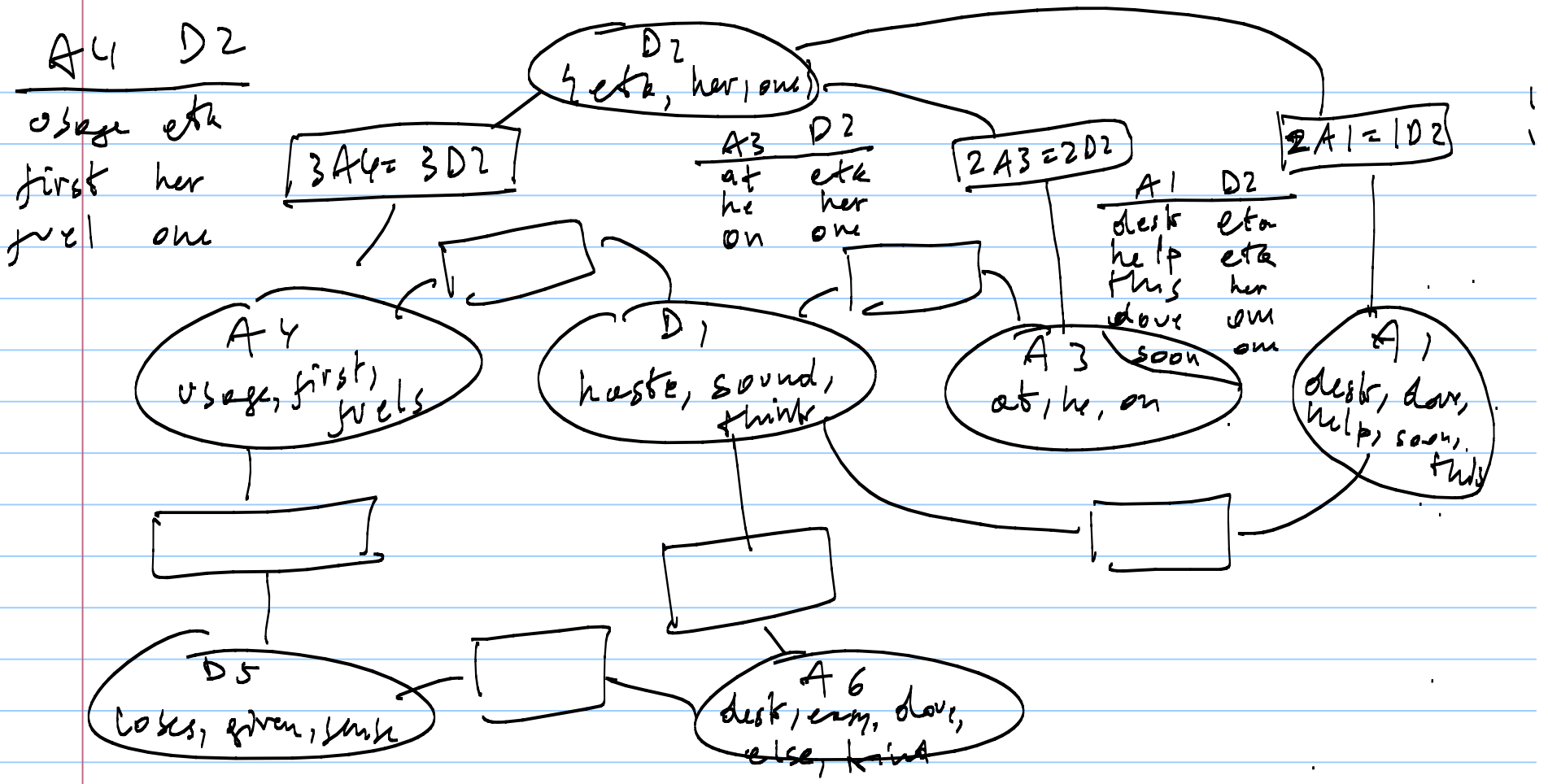
580 2011-10-25 HW 3 (4.1 + 4.3 [P])

Note Title 2011-10-25

4.3(a) Constraint network




A4 D2
usage etc
first her
fuel one
D2
etc, her, one
3A4=3D2
A3 D2
at etc
he her
on one
2A3=2D2
A1 D2
desk etc
help etc
this her
dove our
soon our
2A1=1D2
A4
usage, first, fuels
D1
haste, sound, think
A3
at, he, on
A1
desk, dove, help, soon, this
D5
loses, given, sink
A6
desk, exam, dove, else, kind

eliminate D2. Join the tables in the scope of D2 (i.e., in whose domain D2 is present): tables of A1, A3, A4. Then, project D2 out (i.e., project on A1, A3, A4). Call the resulting relation r1.

D2	A1	A3	A4
eta	desk	at	usage
eta	help	at	usage
her	this	he	first

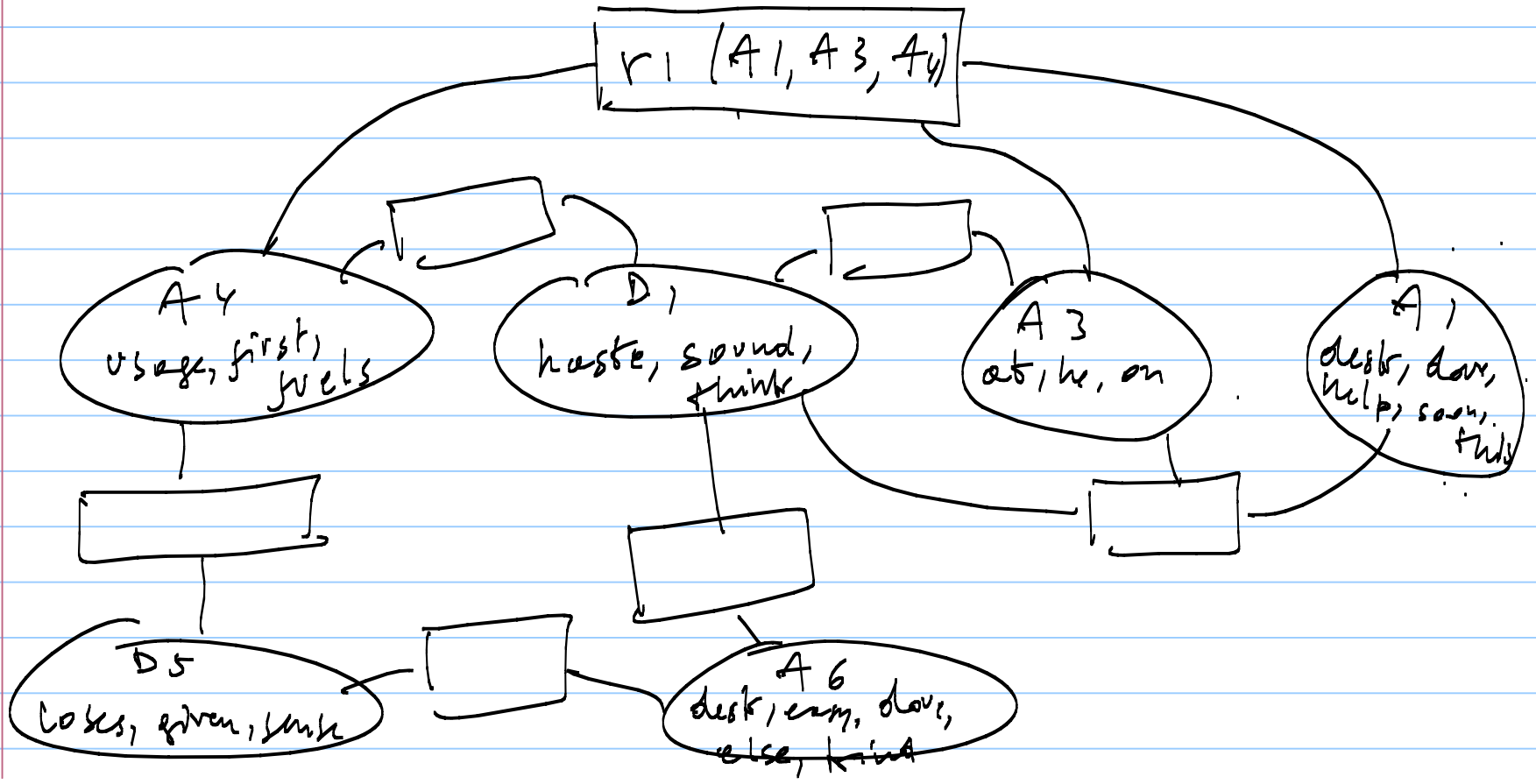
(2A1 = 1D2 ∧ 2A3 = 2D2 ∧ 3A4 = 3D2) = t1

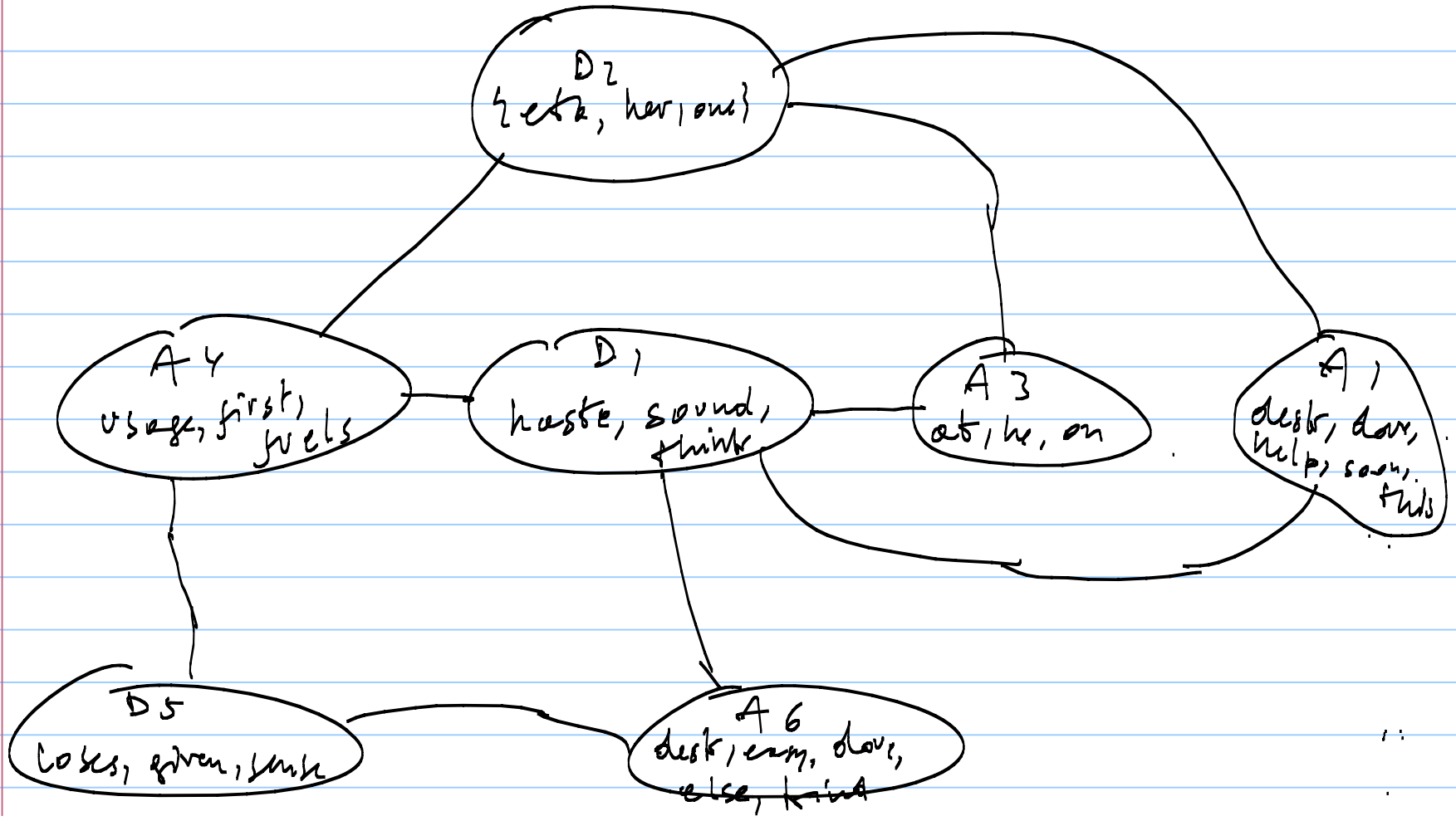
one dove on fuel

one soon on fuel

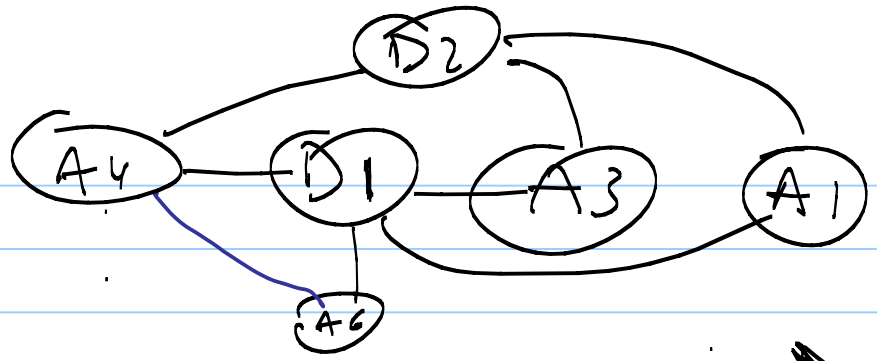
r_1 = projection of t_1 on A_1, A_3, A_4 =

A_1	A_2	A_4	D_2^* (used when reconstructing the solution)
desk	at	usage	the
help	at	usage	the
this	is	first	her
dove	on	fuel	one
soon	on	fuel	one


r1 (A1, A3, A4)
A4
usage, first, fuels
D1
haste, sound, think
A3
at, he, on
A1
desk, dove, help, soon, fuds
D5
loses, given, sink
A6
desk, exam, dove, else, kind


D2
{ecks, her, our}
A4
usage, first, jewels
D1
haste, sound, think
A3
at, he, on
A1
desk, dove, help, soon, this
D5
loses, given, sink
A6
desk, exam, dove, else, kind

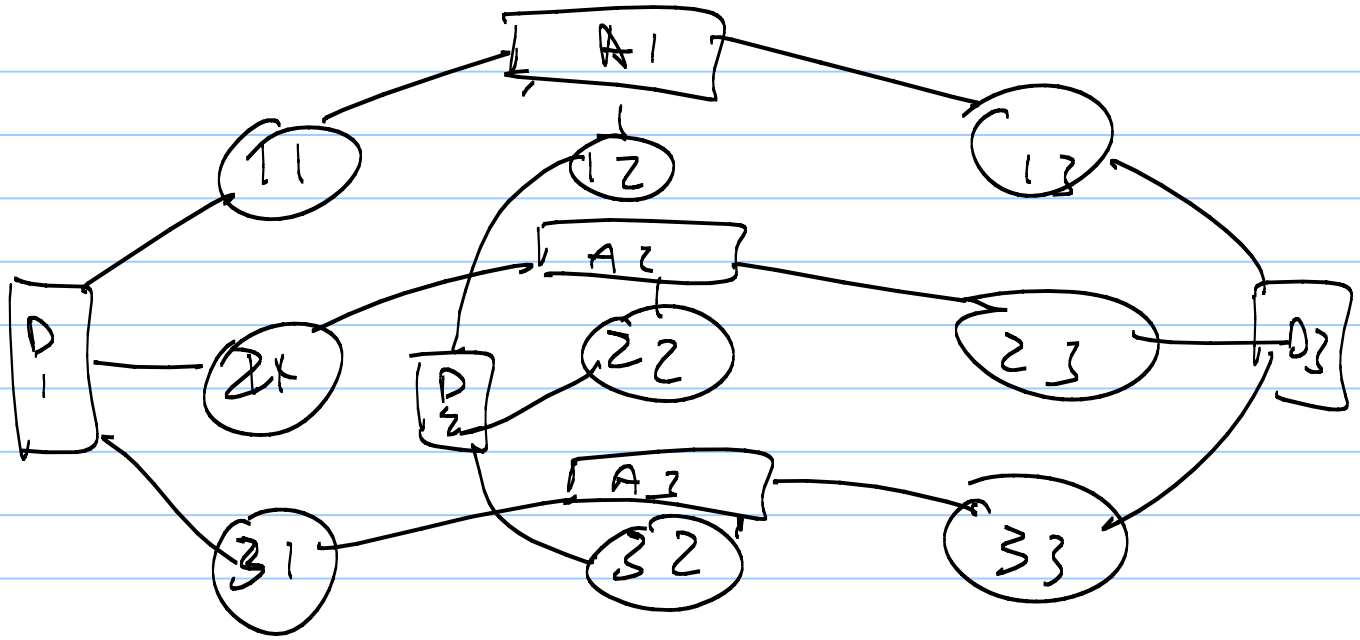
elim. D5 (3 inter. vars)



A really bad order of eliminations:

eliminate D1 ; must join <u>all</u> tables here

A better order: eliminate A6 — no fill in (blue edge) needed.


A1
I1
I2
I3
A2
D1
2x
2z
D2
2 3
D3
A3
3 1
3 2
3 3