The only stable match relative to these transfers is PAM match.

Think intuitively by that ~~then~~ then (t_1, b_2) could block the transfer/match

$b_1 \to 16$
$b_2 \to 4$

Problem Set ~~5~~ 6

① $\mu(b_3) = t_1$ $\mu(b_1) = t_1$

$\mu(b_2) = t_2$ only stable match

② Unique? yes

③ $\mu(t_1) = \{b_1, b_3\}$ $\mu(t_2)$ in Core (since stable)

Does there exist a match μ' s.t.

$\mu'(t_1) \geq_{t_1} \{b_1, b_3\}$ and

$\mu'(t_2) \geq_{t_2} \{b_2\}$

and for some $i \in \{1, 2\}$ $\mu'(t_i) >_i \mu(t_i)$

Then $\mu'(t_1) = \{b_2, b_3\}$ $\mu'(t_2) = \{b_1\}$

μ' in the core

not stable

e w
very
block

$\exists \mu^*$ s.t. $\mu^*(t_1) \succsim_{t_1} \mu'(t_1)$

$\mu^*(t_2) \succsim_{t_2} \mu'(t_2)$ and

some $i \in \{1,2\}$ $\mu^*(t_1) \succ_{t_1} \mu'(t_1)$

$\mu^*(t_2) \succsim_{t_2} \mu'(t_2)$

and for some $i \in \{1,2\}$

$\mu^*(t_i) \succ_{t_i} \mu'(t_i)$

$\mu^*(t_1) = \{s_1\ b_2\}$ or $\{s_1\ b_2\ b_3\}$

But then $\mu^*(t_2) \neq \{s_1\} \succsim_{t_2} \mu'(t_2)$

μ' is the T-optimal core match.

(4) No. Another IR match $\bar{\mu}(t_1) = B$

$\bar{\mu}'(t_2) = \phi$

t_1 likes it
t_2 likes original match

Q2 Suppose t has incentive to misreport $\hat{\succ}_t$. $\hat{\succ} = (\hat{\succ}_t, \succ^*_{-t})$. Then,

$m(\hat{\succ})(t) \succ_t m(\succ^*)(t)$.

Construct another report $\succ'_t$: $m(\hat{\succ})(t)$ t..

$\succ' = (\succ'_t, \succ^*_{-t})$

Claim $m(\hat{\succ})$ is stable for $\succ'$

Obviously $m(\hat{\succ})$ is IR for $\succ'$

By prop DA matching

Because any blocking pair for any match μ under $\succ'$ also blocks μ under $\hat{\succ}$ ~~because~~

Because matching you get $m(\hat{\succ})$ is stable, should also be stable for ~~..~~ $\succ'$

Then we can apply RHT.

t is matched ~~to~~ in any stable match for $\succ'$. And t has to be matched to $m(\succ')(t)$

So, going through the B-proposing DA under $\succ'$, $\mu'_{B0}(t) \succeq_t \mu_{B_0}$

$$= m(\succ')(t) \succ_t m(\succ^*)(t).$$

② True

Let $\succ''_t$ be a strong truncation

$$\succ''_t \quad b_{t,1}, b_{t,1}, \ldots m(\succ')(t), t$$

$$\succ'' = (\succ''_t, \succ^*_{-t})$$

If during the B-prop DA algo, under $\succ''$ there exists some b s.t. $b \succ_t m(\succ')(t)$ proposing to t.

Then, $m(\succ'')(t) \succeq_t m(\succ')(t) \succ_t m(\succ^*)(t)$

If during B-prop DA, under $\succ''$ there does not exists such b s.t. $b \succeq_t m(\succ')(t)$ proposing to t.

~~the process of B-prop~~

Then, the whole process is the same as that under $\succ'$

In this case, $m(\succ'')(t) = m(\succ')(t)$
$\succ_t m(\succ^*)(t)$

Q3

① A mech that assigns t one of his reported favourite b agents. The second is:

② B-prop. DAA

Q4 Fix ~~any~~ some match μ and let $m(\succsim) = \mu$ (be degenerate) for any ~~prof~~ $\succsim \in \Pi P_i$