Viachinist Optimality					
M	butm	<u>ພ</u>	Prefu	Output of Gale-Shapley	Another Stuble Matching
A	XYVWZ	V	ADCEB	(A,Y)	(A, V)
В	VXWYZ	W	ABDCE	(B,W)	(B, W)
L	VZWIX	X	DECAB	((,7)	(C, Y)
D	WYXZY	Y	CBAED	(D,V)	(D,X)
E	XYVWZ	7	ABDEC	(E,X)	(E,Z)

DEF: wis a valid partner for m if there is a stable matching S such that (m, w) & S

Y is a valid partner for A

V is a valid partner for A

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m	XXXMF	<u>w</u>		<u>)</u>	Output of	ey	Stable M.	hiling		
A	XIVWE	ν ω	ADC		(A,Y)		(A,V			
B	VXWYZ	X		CAB	(لاره) (کر ^ک)		(B, W			
ر 0	WVXZY	Y		AED	(D, V)		(C, Y)			
E	XYVWZ	•		DEC	(E,X)		(E, Z			
_							,,,			
		. 1	- (·	∙C TI		11	l 1.	1 <	a Ha	+/. \.
/tr:	w is a vali									
	Yis	a valid	partner	for A	\	V is a	valid	L partn	er for .	A
			•					'		
DE E :	best (m) is	m's be	ct unlid	l portu	c - the	valid	portue c	of m	earliest	in m's p
						•				
		~		A (3 C N Z	DE				
		1 1								
		6(57(1	M /	T	N E	V ;	X			
	stable mate	ching S	is mac	hinist .	optimal	: f -2	S = {		rt(w))	mer
		ching S	is mac	hinist .	optimal	: f -2	S = {		rt(w))	mer
	stable mate Gale-Shap	ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	mer
		ching S	is mac	hinist .	optimal	: f -2	S = {		rt(w))	mer
		ching S	is mac	hinist .	optimal	: f -2	S = {		it(m))	mek
		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	mek
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		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	mek
		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	mer
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		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	me p
		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	me p
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		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	mer
		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	m E V
		ching S	is mac	hinist .	optimal	: f -2	S = {		it(m))	mer
		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	m & N
		ching S	is mac	hinist .	optimal	: f -2	S = {		it(m))	mer
		ching S	is mac	hinist .	optimal	: f -2	S = {		st(m))	me

Invariant
a) Vm, m & FreeM \ightrightarrow \frack \ightrightarrow \text{ Im s.t. (m, w) & Tent } FreeM, FreeW keep Yw, w & FreeW \ightrightarrow \frack \ightrightarrow \text{ Im s.t. (m, w) & Tent } frack of unmatched Myw
Vw, w & FreeW ←> ∃m s.t. (m, w) & Tent track of unmatched
b) Tw, we Free > - 3m s.t. (m,w) = In vites free welders are exactly those with no received invitations
The second secon
c) Tent is a matching and stableish, stable when ignoring unmatched machinists, welders
1) Invites = k The volve of Matcheller) after j iterations once w receives first invitation,
(a) Invites = k The value of MatchWlw) after j Herntons Once w receives first invitation, wis never free again Why, jck, MatchW; (w) # MIL -> MatchW; (w),, MatchWk (w) != NIL The value of MatchWlw) after j Herntons Wis never free again The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Wis never free again Invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, Wis never free again Invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, Wis never free again Invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, Wis never free again Invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of MatchWlw) after j Herntons Once w receives first invitation, The value of Matc
F) You m 1.11/11 - Maxw (m.w) & Invites
the most (my) & Tent (or NIL if no such m) wis matched with most
preferred machinist who
has sent an invitation to w
y) Vm, w, w' if (m, w) \in Invites and m prefers w' to w muchinists sent invitations then (m, w') \in Invites in order of preference min over m's preference list if a mechinist is matched them
h) Tent & Invites then (m, w') & Invites in order of preference min over m's preference list
Will be believed to be the best of the bes
j) √m, (m, best (m)) & Invites → Match M(m) = best (m) m matched with best valid partner if m has sent them on invitation
Vm, w (m, w) ∈ Invites -> w= best(m) or m prefers w to best(m)

Invariant	
Invariant	
a) Vm, m & FreeM () 7 w s.t. (m, w) & Tent FreeM, FreeW keep	
a) Vm, m & FreeM \ightharpoonup \(\frac{1}{2} \rm \) \ightharpoonup \(\frac{1}{2} \	
M,w	
b) Yw, we Free > - 3m s.t. (m,w) & In vites free welders are exactly those with no received invitations	
with no received invitations	
c) Tent is a matching and stobleish, stoble when ignoring unmatched machinists, welders	
The value of Matcheller) after j iterations once w receives first invitation is never free again wis never free again The value of Matcheller, (w),, Matcheller (w) != NIL max over w's preference list from Matcheller, (m, w) & Invites the m s.t. (m, w) & Invites the m s.t. (m, w) & Tent (or NIL if no such m) wis matcheller with most prefered machinist who has sent an invitation to	n,
wis never free again	
e) Tw, jck, MatchW; (w) 7 ML > MatchW; (w),, MatchW; (w) != NIL 2	
max over w's preference list	
+) AM, WatchM(m) = MINNM (M, W) ELAVITES (or NIL if no such m)	
the m s.t. (m, w) & Tent (or NIL if no such m) wis matched with most	
by real maining who	0
	N
y) Vm, w, w' if (m, w) \in Invites and m prefers w' to w muchinists sent invitations then (m, w') \in Invites in order of preference h) Tent \in Invites min over m's preference list if a muchinist is matched the	
then (m, w') & Invites in order of preference	
h) Tent & Invites min over m's preference list	
if a muchinist is matched H	
i) Ym, MatchM(m) & NIL -> Match M(m) = (m, n) & Invites W matched with their last invites when the matched with t	l w
	1,,,
j) Vm, (m, best (m)) & Invites -> Match M(m)= best (m) m matched with best valid par	4
▲	
Vm, w (m, w) ∈ Invites → w= best(m) or m prefers w to best(m)	
Suppose (m, w) & Invites and m prefers best (m) to w Match M(m) = NIL or Match M(m) = w or m prefers w to Match M(m) inv i (m, best (m)) & Envites Match M(m) = best (m) = & INV	
MatchM(m) = NIL or MatchM(m)=w or m prefers w to Match M(m) INV i	
(m, best(m)) & Envites INV q	
Match M(m) = bect (m) ==	

Invariant a) Vm, m & FreeM \(\infty\) \(\frac{1}{2}\mu\) s.t. (m, \(\omega\) \(\infty\) Tent \(\frac{1}{2}\omega\) \(\omega\) \(\om FreeM, FreeW kup track of unmatched b) Yw, we Free - 3m s.t. (m,w) = In vites free welders are exactly those with no received invitations c) Tent is a matching and stubleish, stuble when ignoring unmatched machinists, welders d) Invites = k once w receives first invitation, The value of MatchWlw) after j iterations e) $\forall w, j \in k$, $MatchW_{i}(w) \neq MIL \rightarrow MatchW_{i}(w), ..., MatchW_{k}(w) != NIL]$ f) Yw, MatchW(w) = Maxw (m, w) & Invites lor NIL if no such m) wis matched with most the m s.t. (m, w) & Tent (or NIL if no such m) preferred machinist who has sent an invitation to w g) $\forall m, w, w'$ if $(m, w) \in Invites$ and m prefers w' to w' then $(m, w') \in Invites$ muchinists sent invitations in order of preference h > Tent & Invites min over m's preference list if a muchinist is matched then i) Ym, MatchM (m) = Notch M (m) = (m, n) = Invites makehed with their last invited w m matched with less t valid partner if m has sent them an invitation i) Vm, (m, best (m)) & Invites -> Match M(m) = best (m) Muintenance (j): Suppose the INV is true after k iterations and there is a free m with invitations left while there is an m in FreeM choose such an m let w be m's next uninvited add (m,w) to Invitations if w in FreeW then match m with w else find m' s.t. (m', w) in Tentative if w prefers m to m' unmatch m' and w match m and w else do nothing

Inva	riant					
	V	1 ()	Tal	FreeM, Free	W kup	
(A)	Vm, m & FreeM ←> ∃w s Vw, w & FreeW ←> ∃m	1 / \ \ -	- L	1. 1. 1		
	Tw, W& Free = Jm	(,4, (M,w)6	lent	track of a	Su Mut Car v	
1.5	yw, we FreeW ← ~3m s	1 /		f 1/40	1/ //	
(د	M, WE FREW - 3 - 3 m ;	S.F. (M)W)EL	in vites	tree welders a	re exactly to	ruge an c
				with no rea	a dear into i -	
(2)	Tent is a matching and stubben	sh. = stable wh	en igneo'	e unmatched	machinists.	welders
	J		J	9		
1	In:tes = k The value of Male) \[\forall \warpoonup, j \alpha k, \text{MatchW}_{j}(\omega) \neq Male \] \[\forall \warpoonup, \text{MatchW}_{in} = \text{Max}_{in} \text{(m, w)} \] \[\text{the m s.t. (m, w)}		1.	0.010	second Co	ch inchaben
-49	The value of Mal	tchWlw) after j iten	ntions	OVILE W	· vecelves 411	51 1101 41001 ,
	M 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-> W +dd . /	'\	M 1.11 /. N	AUT THE	7 1
•) TW, jek, MATCHW; (w) 7 MIL	MINICHW	w),,	MINTCHWE (W)) != NIL	12
	m c	ix over w's prefer	nu list			
f.) Yw, MatchW(w) = maxw (m,	w) EInvites		lor	NIL if we su	sk m)
		1 to 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	A no cod	- 19 No 19	matched w	ith most
	them s.t. (m,w)	SE ISMI (BY MIC	17 W 5000		french much	inist who
				ba	s sent on inv	itation to w
						77:0:::00
-	> Vm, w, w' if (m, w) & Invites > Tent & Invites	. 1 .1			المالية المالية	1 4,00
9) om, w, w ii (m, w) e Invin	s and m pro	47 1 4	WINCHIN	ole L L	1 lettera y
	The The	n (m, w') E	Louite	5 10 01	prete	MAC
h) lent & Invites		min off r	i's preference list	-	1
				if a m	nchinist is n	natched then
i i) Vm, MatchM(m) XNIL -> Mat	tch M (m) = (m)	nirim marketimike	, W makh	d with their	last invited w
) Vm, (m, best (m)) & Invites - Man	tchM(m)= best	(m)	m matched	with letst	valid partner
J				14 100	mis stoll Lodge	t out Marian
M	sintermore (j): Suppose the INV is true a	Hock transpare	ممل المم	e ic - feet un	انسمه مالحنس	Labore left
1-10	in termine cy . Suppose the floor is the a	iles le steranord	andr lafe.	cia miles be	00.14 MON	ations ich
while	e there is an m in FreeM					
	choose such an m	cases 1, 2n				
	let whe m's next uninvited					
	add (m.w) to Invitations	EFreeMoia		choice of n	1	
	M	latchM(m) = NII	L			
if w i	in FreeW then	m, best(m))	Covitesas	INV j		
2 [mátch m with w					
else		:\ <u></u>	1/4			
	find m' s.t. (m', w) in Tentative	nse i) w 7 bes	51 (m)	T. J.,		
i	<u> </u>	(M) 66	p (cm) te	LAVITSNW		
7.	unmatch m' and w		• / >			
	match m and w	ii) we bes	t(m)			
	else	Match	M(m)=w	= best(M)		
7	do nothing]طع			•		

Invariant			
a) Vm, m & FreeM > 7 w s.t	. (m, w) & Tent	FreeM, FreeW leap	
a) Vm, m & FreeM \(\rightarrow \) \(\rightarro	(m,w) & Tent	track of unmatche	1
		MyW	
b) ∀w, we FreeW → ~∃m s.t.	(m,w) & In vites	free welders are exactly	those
		with no received invite	ntions
c) Tent is a matching and stubleish	- Alle has been	an march tage	he valde or
	Spine wan ignory	13 DA WIN TENTA MACHINIS	13,000.0073
e) $\forall w, j \in k$ The value of Matchill e) $\forall w, j \in k$, $\text{MatchW}_{j}(w) \neq \text{MIL}$ $\Rightarrow mnx \in k$		Ann 11 68111141	Post in the bear
The value of Match	vlw) after j itemtions	only w reality	que morperion,
- A House Wetcher STAM =	> Matchlas (W)	Matchly (W) 1- ALL	
e) va, jek, mickej (b) + ME	war als seek man last	I MICHWE (W) :- MI	- ا
C V. malling max (m)	AT . tec		
+) VW, MatchW(w) = Mondo (M, w)	ETWAIR	lor NILit no	such un)
them s.t. (m, w) 67	tent (or NIL if no sud	h m) wis matched	with most
·		parama m	achinist who
		has seat on	invitation to w
g) om, w, w' it (m, w) Elnvits	and m prefers w' to	w muchinists sent i	
then	(m, w') & Invite	s in order of pr	
g) Vm, w, w' if (m, w) & Invites then h) Tent & Invites	min off r	n's preference list if a muchinist is	1
	min	if a muchinist is	
i) Ym, MatchM(m) &NIL -> Match	M (m) = (m, n) & Invite	W makked with the	ir Inst invited w
	_		the wall and and
j) Vm, (m, best (m)) & Invites -> Match	nM(m)= best(m)	m matched with loss if m has sent th	hem om invitation
T	F		
Maintenance (j): Suppose the INV is true after	r k iterations and their	re is a free m with in	vitations leff
11			
while there is an m in FreeM	e Zb		
choose such an m	ppose w=best(m)		
let w be m's next uninvited add (m,w) to Invitations	w prefers m' to m	va .	case Zb
add (III,w) to IIIvitations	Find study mentions	, c et (m) =5	College
if w in FreeW then	Find by ch In	s s.f. (m,w) es	
1 Cmatch m with w	tul se a salid a at	us of m'	def valid
else	w' is a valid parti MatchM(m')=w ≠		choice of m'
find m' s.t. (m', w) in Tentative	· · · · · · · · · · · · · · · · · · ·	'prefers best(m') to w	def best
if w prefers m to m'	m - pest(m,) or m	PRETE'S BEST (NY) TO W	det best
unmatch m' and w match m and w			
else			
عداد الماركة ا			
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Invariant				
a) Vm, m ¢	FreeW The S.t. FreeW The S.t. The S.t.	(m,w) & Tent	FreeM, FreeW Kee	P
Vw, w €	FreeW (-) 3m (,1)	(m, ω) 6 Tent	track of unmatch	e A
15 14	راء سات حج المارية	(my) 6 To vite	Liferent Maria and an all	Llow
5) W, W=F	Tell sin	(11)00) = 21 (1/2)	with no recived invi	tutions
Tet II a	markelitar I al (1 al			1 1/
2) IENT 13 A	matching and stubleish,	stable when ignor's	ng unmatched machini	sts, welders
A Taited 5	the valve of Matchbo Matchw; (w) ≠ MIL - maxw (m, w) the m s.t. (m, w) ∈ To		0.010 0.01 (0000)	Clint to the to
() Invites	The value of Matchle	lw) atter j itemtions	wis much for	s girsi mori-rion,
-1 Yw : ck	MatchW/ W Z MII -	> Matchle (w)	MatchW. (w) 1= N	1173
e / 100, Jen	max or	ner w's preference list	, , , , , , , , , , , , , , , , , , , ,	-7
f) Yw. M.t.	LL/() = Maxw (m, w)	EInvites	lac on il	4 d . A
, joint	#	the locally they be	w is matched	with most
	THE PA S.F. (M, W)E II	ENT COLVOIC IT NO 300	patent i	nachinist who
				invitation to w
g) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	if (m, w) EInvites a then ites M(m) &NIL -> Match!	ind in prefers w't	ow muchinists sent	invitations
	then	(m, w') & Invite	in order of p	areterence
h) Tent & Inv	ites	min over v	m's preference list	11.00
	AA / >	minm	it a much/nist i	s matched then
i) Am, Mutch	M(m) #NIL > Match 1	M(m) = (m, n) & Invite	u malched with th	uir Inst invited w
			m matched with b	est valid partier
1) Am, (m, be	st(m)) & Invites -> Match	- BIST(M)	if m has sent	them on Invitation
Maintenace (:): Su	ppose the INV is true after	k iteratives and the	og is a feel on with the	avitations left
1, lough termines (1) , 30	pour me nou is not wifer	le i feranco. 2 shift 1M6	reis a fee for write in	HOTTALIONS ICH
while there is an m in Free	M For m, in case	. 7h		
choose such an m	Sur	opose w = best(m)		
let w be m's next uning add (m,w) to Invitation		w prefers m' to 1	M	case Zb
add (III,W) to IIIVItation	best(m')	Find stable matchin	ng S s.t. (m, w) eS	
if w in FreeW then	m': w1,, w, wn	Find W's.t. (n	m', w') E S	
↓ Cmatch m with w		w' is a valid part	ner of m'	def valid
else find m' s.t. (m', w) in To	Invites '	w' is a valid part MatchM(m')=W =	ŧ W'_	choice of m'
if w prefers m to m'	mative	w'=best(m') or m	n' prefers best(m') to w	def best
າງ Cunmatch m' and w			1	
match m and w				
else 75 do nothing				
Ze do nothing				
The second secon				

Invariant			
	\ - \	C. d. C l.	
a) Vm, m & FreeM \(\rightarrow \frac{1}{2} \mu \s.t. (m, w) & Tent	FreeM, FreeW len	9
Vw, w & Free W ← ∃m s.t.	(m,w) & Tent	track of unmatch	e &
15 Mrs. Mrs. Ecolol	mun) & Toutes	for aller or an all	Llaux a
b) Yw, we FreeW → ~∃m s.t. (, , , , , , , , , , , , , , , , , , ,	with no received invi	tations
Test is a metalian and application	111 1	11.4 1	.1 1 /
c) Tent is a matching and stubleish	stable when ignon's	ng unmatched machini	sts, we lack
1) Invites = k The value of MatchWw) e) \(\forall w, j \color k, \) MatchW; (w) \(\forall m) \(\forall m, w) \in Inv the m s.t. (m, w) \(\forall Tent) \)	0 1 1	A. O. O. D. J. C.	Sect in the
The value of MatchWlw)	atter j itemtions	wis much	41151 11101 1101
el Vw.: ck MatchW: (w) ZNIL -> 1	natchw. (w)	MatchW. (w) 1= N	173
max over	w's preference list		-)-
F) Yw, Matcheller) = Maxin (m, w) EIn	wites	loc 100 : 1	cal m
the model of the Notice	Locally if no end	wis matched	with most
the m s.t. (m, w) & Tent	[07 70] [11 11 5 300]	patent n	nachinist who
		has seat on	invitation to w
			1.7
g) Vm, w, w' if (m, w) & Invites and then (o h) Tent & Invites i) Vm, MatchM(m) \(\nabla NIL \rightarrow Match M (l m prefers w' to	w muchinists sent	invitations
then ()	n, w') e Invite	s in order of p	rete/ence
h) lent & Invites	min off r	n's pretennu list	
· \ \ \ m 1.1m / \ \ \ \ \ m 1.1 m /	minm	IN MARCHINIST I	s matched then
1) Jm, Matchillm) INIL - Matchill	m) - (m, n) + Envited	MAIGHEL WITH TH	eir Inst invikedw
· \ Var (m beet (m) 6 Tourbes -> Match M	m)= hect(m)	m matched with b	est valid partner
J) VM, (M, 6857CM) C ENVIES PLANTES	F	17 M MAS SENT	FULM OM INVITATION
j) Vm, (m, best (m)) & Invites -> Mortch MI Maintenance (j): Suppose the INV is true after k	iterations and ther	re is a free m with 1	nuitations left
J. II		•	•
while there is an m in FreeM	ط		
while there is an m in FreeM choose such an m let w be m's next uninvited	se w = best(m)		
add (m w) to Invitations	Prefers wi to It	1	case 2b
Sestan's A	ind stable matchin	5 S.t. (m, w) ES	•
if w in FreeW then w, w,, w,, w,	Find W's.t. (w	1', w') E S	. () .
also W	w' is a valid parts	ner of m	det valid
find m' s.t. (m', w) in Tentative	MatchM(m')=w =		choice of m'
if w prefers m to m'		prefers best(m') to w	def best
unmatch m' and w match m and w	m', w') 4 Invite		tant la
else	(m', w) & Invite m' prefers w t		INV h
do nothing علا	(m' w) is on in	istability in S=F	det instability
	(10.) 00) 13 OW 14		/ (11) (11)

Invariant			
a) Vm, m & FreeM \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	n,w) & Tent	FreeM, FreeW leup	
Vw, w & FreeW ← ∃m (,1. (,	m, w) & Tent	track of unmatche Myw	Į.
		Myw	
b) Yw, we FreeW ← ~ 3m s.t. (m	n,w) & In vites	free welders are exactly	thuse
		with no recited invite	4D942
c) Tent is a matching and stubleish, s	stable when ignoria	a unmatched machinist	ts, welders
	J		
The value of MatchW(w) of e) $\forall w, j \in k$, $MatchW_j(w) \neq MIL \rightarrow M$ $\Rightarrow max \text{ over } w$ $\Rightarrow max \text{ over } w$ $\Rightarrow max \text{ over } w$ the $m \text{ s.t. } (m, w) \in Tent$	Acc: Hentiers	one w recins	first invitation.
The value of historianian	Miles J Helminous	wis mor fre	e again
e) Yw. ; ck. MatchW: (w) INIL -> MI	atchw. (w),	MatchW, (w) != NII	_72
-> max over w	o's preference list		
f) Yw, MatchW(w) = Maxw (m, w) & Inv	vites	loc an if	col m
H	Lacable of march	w is matched	with most
the m s.t. (m, w) & Tent	(OF NIL IT WE SHOW	patend m	nchinist who
		has seat on i	nuitation to w
g) $\forall m, w, w'$ if $(m, w) \in Invites$ and then $(m + 1)$ Tent $\subseteq Invites$ i) $\forall m, Match M(m) \neq NIL \Rightarrow Match M(m)$	m prefers w' to	w muchinists sent i	nuitations
then (m	(w') & Invites	in order of pr	eterence
h) Tent & Invites	min over m	s preference list	
		if a much/nist is	matched then
i) Vm, MatchM(m) XNIL -> Match M(m	MINM	W makehed with their	r last invited w
i) Vm, (m, best (m)) & Invites -> Match M(w	n)= best(m)	m matched with less if m has sent th	rem on invitation
F	_F		
j) Vm, (m, best (m)) & Invites > Match M (w) Maintenance (j): Suppose the INV is true after k:	iterations and there	is a free m with in	vitations left
while there is an m in FreeM choose such an m let w be m's next uninvited			
choose such an m let w be m's next uninvited	e w = best(m')		
and (m W) to invitations	P. C.		case 2b
add (m,w) to invitations	nd stable matching	5 s.t. (m/w) e5	
if w in FreeW then w: w,, w, Fi	ind w's.f. (m	, w') ES	
1 (match m with w	o' is a valid parta	er of m	def unlid
find m's t (m' w) in Tentative	MatchM(m)=NILF	w'_	choice of m
if w prefers m to m'	~= best(m) or m	prefers best(m) to w	def best
	n, w') 4 Invite	Sold	
match m and w	(m, n) & Invite	Snu	INV h
else	m prefers w to	<u> w'</u>	INV 9
do nothing	m, w) is an in-	stubility in S ==	def instability
	•	•	

nvariant
a) Vm, m & FreeM \(\infty\) \(\frac{1}{2}\mu\) s.t. (m, w) & Tent\\ \text{Vw}, w & FreeW \(\infty\) \(\frac{1}{2}\mu\) \(\frac{1}\mu\) \(\frac{1}{2}\mu\) \(\frac{1}{2}\mu\) \(\frac{1}{2}\mu\) \(\frac{1}\
Vw, w & FreeW ← ∃m s.t. (m, w) & Tent track of unmatched M, w
MIW
L) You we Free W -> - I'm s.t. (m,w) & Invites I fee molders are exactly there
b) Tw, we Free > - 3m s.t. (m,w) & In vites free welders are exactly those with no received invitations
Test to a modellar of model to the first of
c) Tent is a matching and stololeish, a stolle when ignoring unmatched machinists, welders
1) Invites = K The valve of Matcheller) after j iterations once w receives first invitation,
A) Invites = k The value of MatchWw) after j iterations once w receives first invitation, w is never free again a) Yw, jck, MatchW; (w) # MIL -> MatchW; (w),, MatchWk (w) != NIL > max over w's preference list f) Yw, MatchW(w) = Maxw (m, w) & Invites the m s.t. (m, w) & Tent (or NIL if no such m) w is matched with most ore ferred machinist who
e) Tw, jck, MatchW; (w) IMIL > MatchW; (w),, MatchWk (w) != NIL 2
max over w's preference list
f) Yw, MatchW(w) = Maxw (m, w) & Invites (or My if no cuch m)
the second of the second with most
the m s.t. (m, w) & Tent (or NIL if no such m) wis matched with most preferred machinist who
has sent an invitation to w
a) Vm, w w' if (m, w) & Invites and in prefers w' to y muchinists sent invitations
then (m, w') & Invites in order of preference
h Tent & Tourites
y) $\forall m, w, w'$ if $(m, w) \in Invites$ and m prefers w' to w muchinists sent invitations then $(m, w') \in Invites$ in order of preference h) Tent $\subseteq Invites$ min over m 's preference light if a muchinist is matched then i) $\forall m, Match M(m) \neq NIL \Rightarrow Match M(m) \equiv (m, w) \in Invites W$ matched with their last invited w
i) Ym, MatchM (m) = Match M (m) = (min) = Truites W matched with their last invited w
1/ UM, MAICHT (M) FIOTE THE CHIT (M) - (M) & Emites MAICHT (M) MAI
1) Im, best (m) & Invites = 1 michitum) best (m) if m has sent them am invitation
j) Vm, (m, best (m)) ∈ Invites → Match M(m)= best (m) F Mountemore (j): Suppose the INV is true after k iterations and there is a free m with invitations left
Maintenance (1). Suppose the INV is the after the remains and there is a free the wirth invitations letter
vhile there is an m in FreeM
de anno accidente de
let who m's next uninvited 19912111111111111111111111111111111111
add (m w) to Invitations find w s.t. (m, w) & lent
wis a valid partner of m def valid
f w in FreeW then Suppose W # ocs + (a)
L match m with w m prefers best (m) to w let best
find m' s.t. (m', w) in Tentative
if w prefers m to m' (m, best (m)) & Invites INV q
Cupmatch m' and w
else
do nothing عامل