ASSIGNMENT 6 CPG Parsing

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1. Show the constraint graph and solution graph(s) for each of the following sentences in Hindi.

KARAKA SHARING RULES USED IN THE ASSIGNMENT: 1

- Rule S1: Karta of intermediate verb with TAM label 'kara' is the same as the karta of the verb modified by the intermediate verb.
- Rule S2: If an intermediate verb with the TAM label 'kara' takes a karma (as specified in its default karaka chart) while none has been obtained using karaka vibhakti mapping, then it shares its karma with the karta or the karma of the verb modified by the intermediate verb.
- Rule S3: An intermediate verb with TAM label 'taa_huaa' shares its karta with the karta of the verb modified by the intermediate verb.
- Rule S4: If a verb with TAM label taa_huaa modifies a noun, then that noun is its karta.
 - a. Raama phala khaakara mohana ko bulaataa hai

Required karaka Charts:

- I. khaataa hai -> $k1(\Phi)$, $k2(\Phi)^2$
- II. bulaataa hai -> $k1(\Phi)$, k2(ko)

Required transformation Charts:

¹ NLP: A Paninian Perspective Book

² Notation followed: karaka(vibhakti)

I. kara -> k1 must not be present; k2 is optional; add PRECEDE to parent verb(main verb)/ to the verb being modified

Constraint Graph and Solution Graph:

		classmate
		Constraint graph: KI.
	- 4 -	KI. (RODT)
	115	Raama phala khaakara Mohana ko bulaataa hoi
		K21
		K2.
		PRECE®DE
	\$	Solution make applying sulls of karaka.
		olution graphrafter applying rules of karaka.
		sharing:
		Possible graphs considering on mandate \$ each node can have only one incoming edge and by applying Karaka sharing rules: (ROOT)
		each node can have only one incoming
		edge and by applying Karaka sharing rules:
	Taroph	
對、	Sol a graph	Rama phala khaakara Mohanko bulgata hai
		K2
		k2
#		PRECEDE
1		(KOOT)
1	0	Raama phal Khakar Mohanko bulaata hai
4	B)	Raamie phie introduction
		k2
-}		RRECEDE
4		
		But option & the shows planwrity hence and B
1		has prossing/edges so it is a bad graph
1		the transfer was the sea (A)
1		· · · · · · · · · · · · · · · · · · ·
<u> </u>		h has crossing edges. So only A is solut
	opt	
† *		graph.
		U '

b. Raama ne phala kaaTakara khaaya.

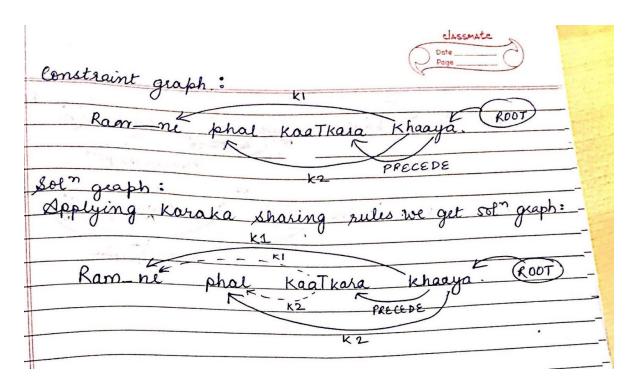
Required karaka Charts:

- I. kaaTtaa hai -> $k1(\Phi)$, $k2(ko/\Phi)$
- II. khaataa_hai -> $k1(\Phi)$, $k2(ko/\Phi)$

Required transformation Charts:

I. kara -> k1 must not be present; k2 is optional; add PRECEDE to parent verb(main verb)/ to the verb being modified
II. yaa -> k1(ne)

Constraint Graph and Solution Graph:



c. phala kaaTane ke liye usane caakuu liyaa

Required karaka Charts:

- I. $kaaTtaa_hai \rightarrow k1(\Phi), k2(ko/\Phi)$
- II. letaa_hai -> $k1(\Phi)$, $k2(\Phi)$

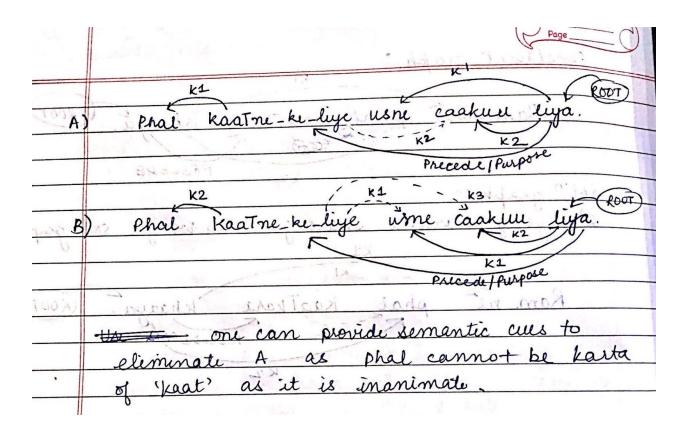
Required transformation Charts:

I. naa -> k1 is optional; k2 is optional, add PURPOSE to the verb being modified

II. yaa -> k1(ne)
Constraint Graph:

3	Constraint graph:
	Ram ne phal kaaTkasa Khaaya. (ROOT)
	SAL PRECEDE
	Sol ⁿ geaph: Applying karaka sharing rules we get sol ⁿ geaph: k1
	KKI
	Ram ne phal kaaTkara khaaya (ROOT)
	K2 .
	72
ai	Constraint graph: k1 (2007)
	Phal kaatne-ke lige usane caakuu liga
	K2 PRECEDETPURPOSE
	PRECEDETTO
	K2 (8)
	- lovem is shalts
	> K2(B) is worong because - (even if phat is > K2(B) is worong because - (even if phat is > K2(B) is worong because - (even if phat is > K2(B) is worong because - (even if phat is
	> K2(B) is werong because - (even of product) if K2 for intermediate verb is optional) if K2 for intermediate verb is optional) if
3	×2 (B) is working K2 for intermediate verb is optional) if We give & use $k_2(B)$ — to caakuu we have no incoming edge. will have no incoming edge. 80, $K_2(A)$ is chosen over $k_2(B)$
	will have the chosen over 1/2(B)
	So, K2 (A) wing karaka sharing rills.
	So, K2(A) is chosen over 1/2(B) So, K2(A) is chosen over 1/2(B) Solution geophs using karaka sharing rules:
	1.02 4 4 5

Solution Graph:



2. Show the constraint graph and solution graph(s) for each of the following sentences in Hindi.

a. shikaarii ne bhaagaate hue shera ko dekhaa

Required karaka Charts:

- I. bhaagtaa hai -> k1(Φ)
- II. dekhtaa hai -> $k1(\Phi)$, $k2(ko/\Phi)$

Required transformation Charts:

I. taa_hua -> k1 is optional; k2 is optional; add SIMULTANEITY to the verb being modified

II. yaa -> k1(ne)

Constraint Graph and Solution Graph:

	classmate
	Date Page
	Constraint graph: ROOT
	shirkarii—ne bhagte-hue shera-ko dekha.
	SIMULTA NEITY
	& By karaka sharing rule:
	K2 K007
A)) shikarii-ne bhagti-hue shera ko dekha. (using 53)
	KI SIMULTANELTY
11.3	KI KZ CROOT
B)	Shirkarii_ne bhaagti hue Shira-ko dikha. (using 14)
-0/	SIMULTA NELTY
	ki -
	verb bhagte bue with
	Sino Using rule St, at AM Label taa hya
	modifies 'shera' hence it is its 1/2.
	E SO BY COUNTY SOUTH OF SERVE.
اند	Marin in the continue her her in the same and in the same
	Hence there are 2 possible solution graphs.

b. raama ne haatha se chiilkara kelaa khaate hue bandara ko dekhaa

Required karaka Charts:

- I. dekhata_hai -> $k1(\Phi)$, $k2(ko/\Phi)$
- II. khaataa_hai -> k1(Φ), k2(ko/ Φ)

III. chilltaa_hai -> $k1(\Phi)$, $k2(ko/\Phi)$

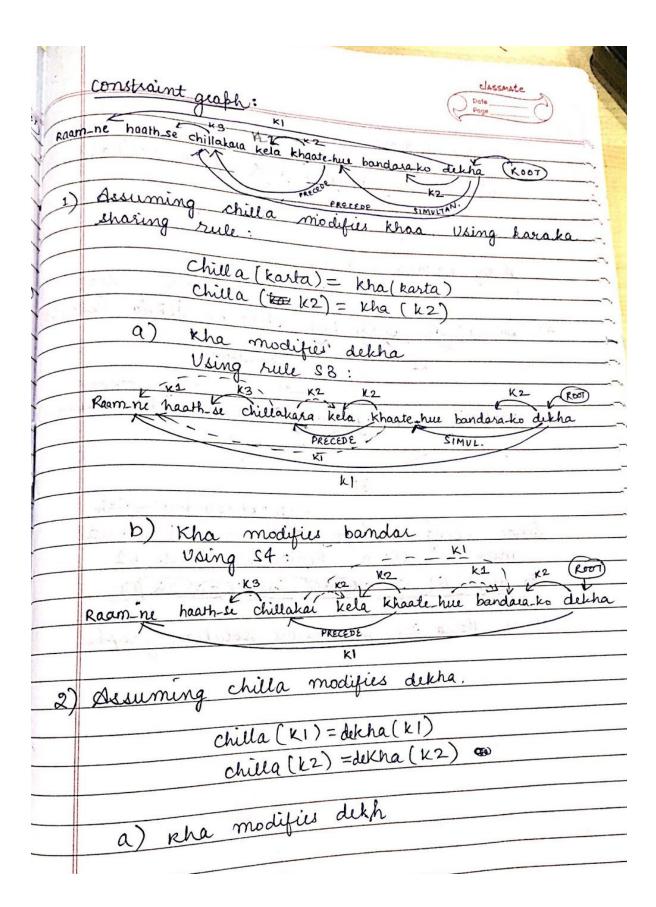
Required transformation Charts:

I. kara -> k1 must not be present; k2 is optional; add PRECEDE to verb being modified

II. yaa -> k1(ne)

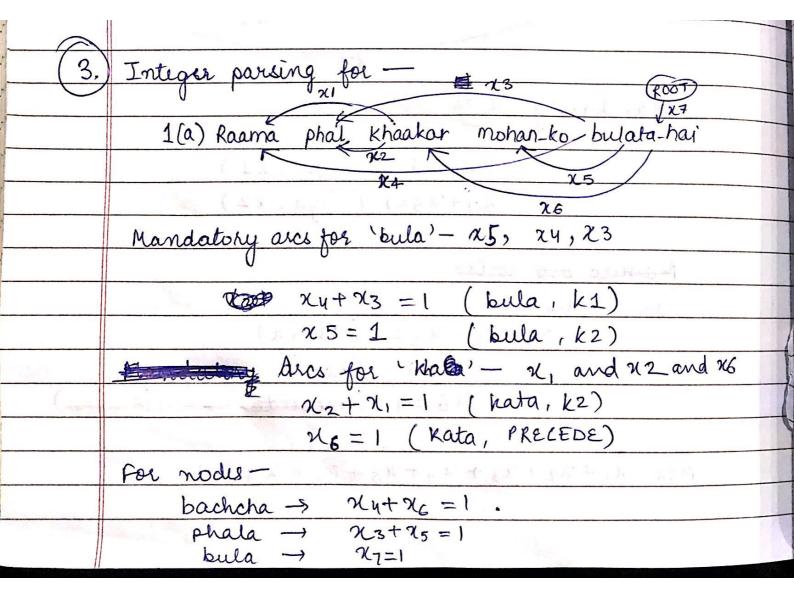
III. taa_hua -> k1 is optional; k2 is optional; add SIMULTANEITY to verb being modified

Constraint Graph and Solution Graph:



	k1 Dale
	k1 Page
	K2 K2 K2 K2 K2
	Reamne haath se chillakara kela knaate hur bandara to delka
	PRECEDE
4	1 crossing edges
	b) kha modifies & bandar
Ro	am ne haath se chillakae kela khaate hee bandara ko dul
	k_1
	PRECEDE
	k 1.
100%	
X	1(a), 1(b), 2(b)

Q3 and Q4: PTO



	Fage.
	Max. U= 21+22+22+24+25+26+27
	the state of the s
	21
_	1(b) Raam-re phal Kaatkar khaya (x4 (ROOT)
_	743
_	262 PROCESSE
_	Mandatory arcs for khaaya -
_	$x_i = 1$ (kaaya, k1)
-	$\chi_{2}=1$ (khaaya, k2)
	Nodes - 23=1 (Kaatkai, PRECEDE)
_	24=1 (ROOT)
_	44
_	Max. $\chi_1 + \chi_2 + \chi_3 + \chi_4 = U$
_	
-	1(c) Phal kaatne ke-lige usne caaku liga. (ROOT)
_	715
-	N6
	27
	Mandatory arcs for liga:
	Joseph Lagu.
	24=1 (lija, k1)
1	27+25=1 (lija, K2)
	and along was sen 'acus - u.s. un. Ca
	Manda Lory arts
	For nodes -
	x7+22+23=1 (Phala)
	$\mathcal{L}_{1}=1$ (Rmt)
	26 = 1 (frectede Simultaneous)
-	(303) 277 (202)
-	Max N1 + N2 + 23 + 24 + 25 + 26 + 27 = U
-	· de state de solador d
+	Chranes and a comment of the comment

