

UNIVERSAL SEMANTIC REPRESENTATION GUIDELINE VERSION 4.2

DEPENDENCY RELATION

In this row we mark the relation between head and dependent in following way-

Index of the head: the relation of dependent with the head

Here, the relation means "what the dependent is to the head". So, if we get a relation as 2:k2, this means '2' is the index of head and 'karma' or 'k2' is the name of the relation of the dependent with the head or dependent is k2 of head.

Two types of head-dependency relations are captured in this row. They are

- **kāraka relation** between verbs and its dependent nouns
- **kāraketara** (Other than **kāraka**) relations between
 - verb and its other non-**kāraka** dependents
 - Noun and its modifiers

Notes

- The tags for **kāraka** relations start with ‘k’
- and head will get **0:main**
- The relation between the *viśeṣya* or head and its dependents are specified in this row as the index of the head : relation tag in the column of the dependent.
- The convention followed in this document is to mark the **dependent** in **bold** and underline the head.
- If the concept is a component of a complex concept, we are not annotating any dependency relation for those concepts in the dependency row. Instead, the dependency relation of those concepts are annotated in construction row.

kāraka relations

- All **kāraka** relations start with ‘k’ and are followed by a numerical

A list of six main **kāraka** relations given below

kāraka	Tag	Definition	Example
<i>kartā</i>	k1	most independent participant of an action	rāma āma <u>khātā hai</u> ‘Ram eats mango.’
<i>karma</i>	k2	locus of the result of the action	mōhana nē āma <u>kharīde</u> ‘Mohana bought mangoes.’
<i>karaṇa</i>	k3	The instrument required for the performance of the action	ratanā ne āma cākū se <u>kāte</u> ‘Ratna cut the mangoes with a knife.’

<i>saṃpradāna</i>	k4	recipient/beneficiary	billī ko dūdhā do 'Give milk to the cat.'
<i>apādāna</i>	k5	Source	peḍa se eka pattā <u>girā</u> 'A leaf fell from the tree.'
<i>Viṣayaa dhikaraṇa</i>	k7	Location elsewhere	ve rājanīti para carcā kara rahe the 'They were discussing politics.' māim rāma ke bāre meṃ nahīm jānatā 'I do not know about Ram.'
<i>kāladhikaraṇa</i>	k7t	Time of the event	rāma cāra baje <u>āyegā</u> 'Ram will come at 4 o'clock.'
<i>deśadhikaraṇa</i>	k7p	Locus of the event	meja para kitāba <u>hai</u> 'The book is on the table.'

Table 1. six main kāraka

Note - Although, karta/ karma of Complex Predicate gets a genitive relation, but the dependency relation is k1/k2. See Complex Predicate for details

exemplifyOther kāraka relations

Relation Name	Tag	Definition	Example
<i>anubhava-kartā</i>	k4a	Experiencer	rāma ko āma <u>pasamda hai</u> 'Ram loves mango.'
<i>gauṇa karma</i>	k2g	Secondary object	rāma ne mohana ko ek bāte <u>kahī</u> . 'Ram has told Mohana something.'
<i>destination</i>	k2p	Destination or goal	rāma ghara <u>gayā</u> 'Ram went home.'
<i>prakṛti apādāna</i>	k5prk	Source material	jūte camaḍe se <u>banate haim</u> 'Shoes are made of leather.'
<i>prayojaka kartā</i>	pk1	causer	mām ne bacce ko khānā <u>khilāyā</u> 'Mother fed the babies.'
<i>prayojya kartā</i>	jk1	causee	mām ne āyā se bacce ko khānā <u>khilāvāyā</u> 'Mother made the maid to feed the babies.'
<i>madhyastha-kartā</i>	mk1	mediator causer	mām ne āyā se bacce ko khānā <u>khilāvāyā</u> 'Mother made the maid to feed the babies.'
	k7a	according to someone/ something	rāma ke anusāra sītā ghara para nahīm <u>hai</u> 'According to Ram Sita is not at home.'

Table 2. Other kāraka relations

Relations associated with kāraka

saha-kāraka	rask1	associate of kartā	rāma ke sātha mohana bājāra gayā. 'Mohana along with Ram went to the market.'
	rask2	associate of karma	rāma ne dūdha ke sātha kelā khāyā. 'Ram ate bananas with milk.'
	rask3	associate of karaṇa	vaha cammaca ke sātha kāmṭe se sabjī khā rahā hai 'He is eating vegetables with a fork along with a spoon.'
	rask4	associate of sampradāna	vaha guru jī ke sātha śiṣyom ko dakṣiṇā detā hai 'Along with the honorable Guru, he gives donations to the disciples.'
	rask5	associate of apādāna	bālakanī ke sātha khiḍakiyom se bhī dhūla ā rahī thī 'The dust came from the windows along with the balcony.'
	rask7	associate of adhikaraṇa	unhomne rājanītika muddom sahita anya viṣayom para kitābem likhī haim 'He has written books on other topics including political issues.'
kartā samanadhikarana	k1s	kartā and its viśeṣaṇa resides in the same locus, when the verb is copulative	rāma buddhimāna hai 'Ram is intelligent.'
karma samanadhikarana	k2s	karma and its viśeṣaṇa resides in the same locus	rāma mohana ko buddhimāna samajhatā hai 'Ram considers Mohan to be intelligent.'
	k*as	This relation is used when one entity is related or associated with the other entity and either both entities participate directly in the event/ state of being or both fulfill the desire of the verb. 'ke sātha/ se sambandhita' comes as a marker here to indicate the relation.	phūla ko ḍālī ke sātha phevikāla se jodo 'Fix the flower with the branch with fevicol.'

Table 3.Relations associated with kāraka

kāraketara relation

Apart from karaka relations, the head of the sentence can have some non-kāra relations with its dependents. They are further divided into different categories according to the specification of the relations as discussed below-

samānādhikaraṇa

Relation Name	Tag	Definition	Example
samānādhikaraṇa / viśeṣaṇa	mod	Modifier or the head and its modifier share the same locus	moṭī <u>billī</u> meja para soṭī hai ‘The fat cat sleeps on the table’
bhūtakālika samānādhikaraṇa	rbks	equal locus of the action and the dependent action denoted by non-finite verb) in past tense	maiṃne mohana ke dvārā likhī hui <u>kitāba</u> paḍhī ‘I read the book written by Mohana.’
vartamānakālika samānādhikaraṇa	rvks	equal locus of the action and the dependent action denoted by non-finite verb) in present tense	maine jangal meṃ eka bhāgate hue <u>śera</u> ko dekhā ‘I saw a running lion in the jungle.’

Table 4. samānādhikaraṇa

bhāvalakṣaṇa:

The nominal form of the dependent verb (VN) plays the role of a referent with respect to which the time of the main event (VM) is specified.

Relation Name	Tag	Definition	Example
bhāvalakṣaṇa samānakālika	rbksk	Temporal overlapping or co-temporality between VN and VM	rāma ke vana jāne ke samaya sītā unakā <u>anusarana karatī hai</u> ‘Sita followed Ram while he was going to the forest.’
bhāvalakṣaṇa pūrvakālika	rblak	VN precedes VM	sūrya ugane ke bāda khānā <u>khāo</u> ‘Eat after the sun rises.’
bhāvalakṣaṇa anantarakālika	rblpk	VN follows VM	sūrya ugane se pahale <u>nahāo</u> ‘Bathe before the sun sets.’

Table 5. bhāvalakṣaṇa

kālavācī

Relation Name	Tag	Definition	Example
pūrvakālika	rpk	One event occurs after the previous event is done and the kartā is shared	rāma ne khānā khākara pānī <u>piyā</u> ‘Ram drank water after eating a meal.’
samānakālika	rsk	Two events occur simultaneously and the kartā is shared.	rāma sote hue <u>kharrāte bharatā hai</u> ‘Ram snores while sleeping.’

Table 6. kālavācī

Spatio-temporal Information

Relation Name	Tag	Definition	Example
deśalakṣaṇa	rdl	A space is referent of another locus	peḍa ke <u>ūpara</u> cāmda hai ‘The moon is above the tree.’
kālakṣaṇa	rkl	A time is referent of actual temporal information of the event	7 se <u>pahale</u> rāma ghara āyā ‘Ram came home before 7 o’clock.’

Table 7. Spatio-temporal information

Intra-sentential sangati

Relation Name	Tag	Definition	Example
tādarthya	rt	Purpose of the event	mohana ke lie seva <u>lāo</u> Bring apples for Mohan.’
kāraṇa or hetu	rh	Reason of an action	mohana ke kāraṇa mujhe dera <u>ho gayī</u> ‘I became late because of Mohan.’
udāharaṇam	re	Elaboration or example of an expression	kucha <u>vastuom</u> kā nirmāṇa prakṛti ne kiyā hai jaise parvata nadiyām prāṇī ‘Some things are made by nature like rivers, trees and animals.’
samānādhikaraṇa	rs	When one entity equates with the other entity	#pṛthvī kī āntarika paratom kā vargīkaraṇa aura unakī <u>moṭāiyom ko</u> citra samkhyā 2.1 meṃ darśāyā gayā hai

Table 8. Intra-sentential sangati

Genitive or Possessive relation between two entities

Relation Name	Tag	Definition	Example
saṣṭhī	r6	Genitive	rāma kā <u>kitāba</u> Ram’s book.
sthāyī svāmī	rsm	Possessor of some entity	rāma ke pāsa <u>kitāba</u> hai. ‘Ram has the book.’
asthāyī svāmī	rsma	Temporary possessor of some entity	rāma ke <u>pāsa</u> sītā kī <u>kitāba</u> hai.

			‘Ram has Sita’s book.’
Human to human	rh	Relation between two human beings when there is a stative verb.	rāma ke do bete haiṃ ‘Ram has two sons.’

Table 9. Genitive or Possessive relation between two entities

Sādrisya, vibhājana and nirdhāraṇa

Relation Name	Tag	Definition	Example
sādrisya	ru	When there is comparison between two entities based on the resemblance or similarity	gulāba jaise phūla pānī meṃ nahīṃ ugate haiṃ ‘Rose-like flowers do not bloom in water.’
vibhājana	rv	When two entities are compared and there are inequalities observed between them	rādhā mīrā kī tulanā meṃ adhika suṃdara hai ‘Radha is more beautiful than Mira.’
nirdhāraṇa	rn	‘nirdhāraṇam or specification is made by separating one from the many by reason of its genus, quality and action’.	gāyoṃ meṃ kālī gāi sabase jyādā dūdhā detī he. ‘Among cows, black cows give the most milk.’

Table 10. Sādrisya, vibhājana and nirdhāraṇa

Other kārakatera relation

Relation Name	Tag	Definition	Example
Direction	rd	Direction towards a goal	sītā gāṃva kī ora jā rahī thī ‘Sita is going towards the village.’
kriyā viśeṣaṇa	krvn	Manner adverb	rāma bhāgakara āyā ‘Ram came running.’ rāma dhīre chalatā hai ‘Ram walks slowly.’
Negation	neg	Negation	rāma nahīṃ āyā hai ‘Ram has not come.’
vakya viśeṣaṇa	vkvn	Sentential adverb	rāma sāyada nahīṃ āyā hai ‘Ram probably has not come.’
frequency	freq	A temporal and manner information of an event which reoccurs over a period of time	vaha roja yahāṃ ātā hai ‘He comes here everyday.’
Negation in Associatives	rasneg	When there is absence of some participant	jala ke binā koī bhī jīva jīvita nahīṃ raha sakatā ‘No animal can be alive without water.’
Relation path	rp	for "through" or "via" which indicates a path of movement.	karka rekhā isa mahādvīpa se hokara gujaratī hai

			‘The Tropic of Cancer passes through this continent.’
Construction Part	cxnpart	When element/s of a construction shows the relation with other element/s and not defined as a dependency relation due to non- compositionality	rāma <u>do bāra</u> hara 12 ghaṃṭe mem khātā hai ‘Ram eats twice in every 12 hours.’
Relation address	rad	When there is an address by some name	nāraka! mere tīśvara, lepacāom kī duniyā mem āpa saṃgīta ke janaka haiṃ ‘Naraka, my lord, you are the father of songs in the world of Lepchas.’

Table 11. Other kārakatera relation

Note

In the context of the relation path, the term "relation path tag" will be used there to signify "via," or "through" or in other words, "से होकर" in Hindi. The sentence is constructed in a manner that conveys this meaning. Here, "से होकर" is taken as a post position. It is important to note that, in this usage, "से होकर," which is typically a verb, is employed in particular semantics as a post position.

Modifier and modified relations

Relations	Tag	Definition	Example
Demonstrative	dem	Point to a specific entity	yaha <u>kitāba</u> lāla hai. ‘This book is red.’
Cardinal number	card	Cardinal numbers or counting numbers	rāma roja do <u>seba</u> khātā hai. ‘Ram eats two apples everyday.’
Ordinal number	ord	Number which represents the position or rank	rāma daśaratha ke prathama <u>putra</u> haiṃ ‘Ram is the first son of Dasaratha.’
Quantifier	quant	A limiting noun modifier express quantity	saba <u>ladake</u> āemge ‘Every boy will come.’
Intensifier	intf	Intensifying quality or quantity of an entity	bahuta <u>motī</u> billī dīvāra para so rahī hai ‘The very fat cat is sleeping.’
Quantity more than a certain number	quant more	when quantity is mentioned not as a specific number but as more than a certain number, then we will not use cardinal relation but quantmore relation	#pṛthvī para tīna <u>hajāra</u> se adhika vibhinna <u>khanija</u> haiṃ There are over three thousand different minerals on this earth.

Quantity less than a certain number	quantless	when quantity is mentioned not as a specific number but as less than a certain number, then we will not use cardinal relation but quantless relation	pṛthvī para tīna hajāra se kama vibhinna <u>khanija</u> haiṃ There are less than three thousand different minerals on this earth.
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Table 12. Modifier and modified relations

Different Measurement relations

Relations	Tag	Definition	Example
Duration	dur	Measuring the time span, during which something continues	rāma 10 ghaṃṭe <u>calā</u> 'Ram walked for ten hours.'
Extent	extent	Measuring the area covered by someone/ something	rāma 10 kimi <u>calā</u> 'Ram walked ten km.'
Quantity	quant	Measuring the amount or number of some material	rāma ne 10 kilo <u>ālū</u> kharīdā 'Ram bought ten kilo potatoes.'
frequency	vIpsA	Measuring the frequency of occurrences of something	rāma hara 12 ghaṃṭe meṃ do bāra <u>khātā hai</u> 'Ram eats twice in every 12 hours.'

Table 13. Different Measurement Relations

Relative Clause relation

Relations	Tag	Definition	Example
relative clause elaboration	rclab	When the relative clause elaborates the head noun, the main verb of relative clause get this tag	<u>himda mahāsāgara</u> jo yuropīya deśom aurā eṣiyāī deśom ko milātā hai , bhārata ko kendrīya sthiti pradāna karatā hai
relative clause delimitation	rcdelim	When the relative clause delimits the head noun, the main verb of relative clause get this tag	ye aisā <u>phaṛsala</u> hai jisakā kāma varṣā aura ucā tapamāna kī avaśyakatā hotī hai

relative clause cotemporal	r_{csam}A n_{akAla}	when the temporal modifier of the subordinated event acts as the temporal modifier of the main clause event as well	jaba rāma ghara jā rahā thā taba <u>bāriśa ho rahī thī</u>
Relative clause colocation	r_{loc}	when the locational/spatial modifier of the subordinated event acts as the locational/ spatial modifier of the main clause event as well.	mora <u>vaḥāṁ</u> nāca rahā thā jahāṁ bāriśa ho rahī thī

Table 14. Relative Clause Relation

[Link to main Guideline](#)