

# Computational Grammar - 3

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Grammatical Functions

Passives

# Recap

# Universal Dependencies

Universal Dependencies (UD) is a framework for consistent annotation of grammar (parts of speech, morphological features, and syntactic dependencies) across different human languages. UD is an open community effort with over 300 contributors producing more than 150 treebanks in 90 languages. If you're new to UD, you should

# Universal Dependencies

	Nominals	Clauses	Modifier words	Function Words
Core arguments	<a href="#"><u>nsubj</u></a> <a href="#"><u>obj</u></a> <a href="#"><u>iobj</u></a>	<a href="#"><u>csubj</u></a> <a href="#"><u>ccomp</u></a> <a href="#"><u>xcomp</u></a>		
Non-core dependents	<a href="#"><u>obl</u></a> <a href="#"><u>vocative</u></a> <a href="#"><u>expl</u></a> <a href="#"><u>dislocated</u></a>	<a href="#"><u>advcl</u></a>	<a href="#"><u>advmod</u></a> * <a href="#"><u>discourse</u></a>	<a href="#"><u>aux</u></a> <a href="#"><u>cop</u></a> <a href="#"><u>mark</u></a>
Nominal dependents	<a href="#"><u>nmod</u></a> <a href="#"><u>appos</u></a> <a href="#"><u>nummod</u></a>	<a href="#"><u>acl</u></a>	<a href="#"><u>amod</u></a>	<a href="#"><u>det</u></a> <a href="#"><u>clf</u></a> <a href="#"><u>case</u></a>
Coordination	MWE	Loose	Special	Other
<a href="#"><u>conj</u></a> <a href="#"><u>cc</u></a>	<a href="#"><u>fixed</u></a> <a href="#"><u>flat</u></a> <a href="#"><u>compound</u></a>	<a href="#"><u>list</u></a> <a href="#"><u>parataxis</u></a>	<a href="#"><u>orphan</u></a> <a href="#"><u>goeswith</u></a> <a href="#"><u>reparandum</u></a>	<a href="#"><u>punct</u></a> <a href="#"><u>root</u></a> <a href="#"><u>dep</u></a>

# CoNLL Format

- CoNLL (Conference on Natural Language Learning) format
- Representing graph (and other tags) in text file

Id

Word

Lemma

Coarse Grained POS

Fine Grained POS

Features

Host

Dependency Type

# CoNLL Format

dependency-conll - Notepad							
File	Edit	Format	View	Help			
1	ذبین	ذبین	Adj	Adj	-	2	amod
2	لڑکیاں	لڑکی	Noun	NN	-	6	subj
3	نے	نے	Adp	PP	-	2	case
4	اچھی	اچھا	Adj	Adj	-	5	amod
5	کتابیں	کتاب	Noun	NN	-	6	obj
6	پڑھیں	پڑھ	Verb	VB	-	0	ROOT
7	تھیں	ے	Aux	Aux	-	6	aux

# لڑکا کتاب پڑھتا ہے -

<https://urd2.let.rug.nl/~kleiweg/conllu/>

← → ↺ [urd2.let.rug.nl/~kleiweg/conllu/](https://urd2.let.rug.nl/~kleiweg/conllu/)

Upload a file with one or more sentences annotated in [CoNLL-U](#) format:

Choose File cgu - 2.tsv

Submit

Here is an [example](#)

— — *OR* — —

Enter something in CoNLL-U format here:

1	لڑکا	لڑکا	NOUN	—	—	3	<u>nsubj</u>
2	کتاب	کتاب	NOUN	—	—	3	obj
3	پڑھ	پڑھتا	VERB	—	—	0	root
4	ہے	ہے	AUX	—	—	3	aux
5	.	.	PUNC	—	—	3	<u>punct</u>

# Creating UD structures - 2



ہم نے لڑکے کو پیٹا

کتاب پڑھی گئی۔

لڑکے کو پیٹا گیا

لڑکے نے لڑکی کو کتاب دی

لڑکی کوئٹہ سے آئی تھی

لڑکا گھر گیا

لڑکی نے آج لائبریری میں کتابیں پڑھیں

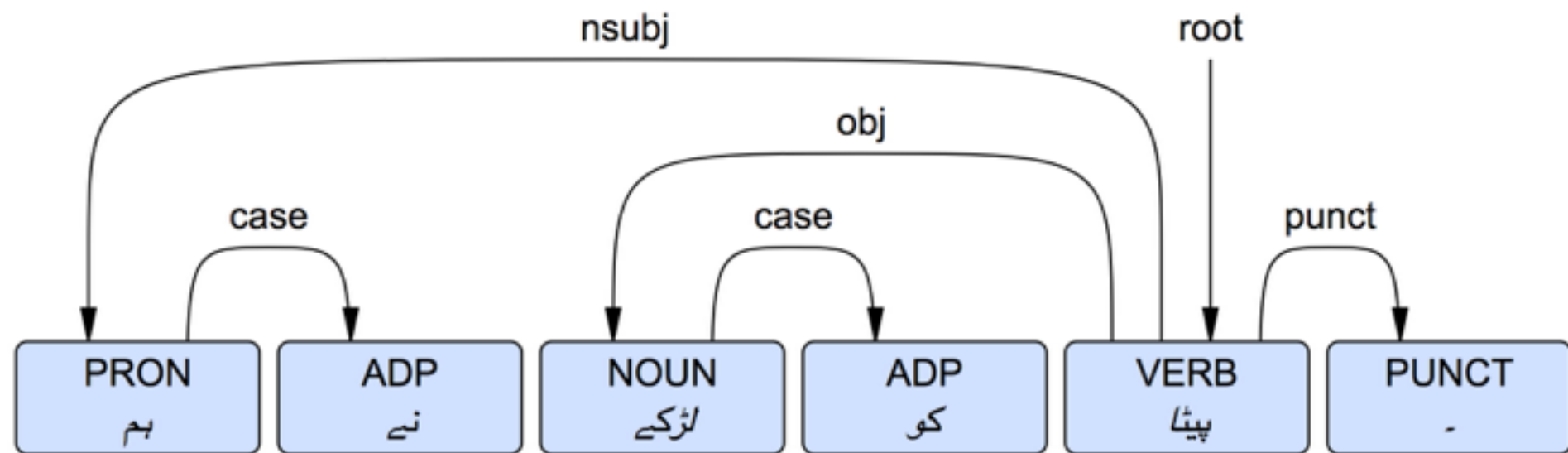
لڑکے نے گلاس میں پانی بھرا


لڑکے نے گلاس میں پانی نہیں بھرا

لڑکی لڑکے کو ذہین سمجھتی ہے

# sent\_id = 1

# text = ہم نے لڑکے کو پیٹا۔



- 
- What is Subject? and What is Object?
  - How do we know that a word or phrase is Subject or Object?



is a Lexical case.

## 3.2 Tests for Subjecthood

Subjecthood is a problematic concept in the Indo-Aryan languages.<sup>2</sup>

Many subjecthood tests seem to actually target agenthood and/or nominative case.

### 3.2.1 Some non-tests

- sentence initiality - putatively for treating the Dative NP as a subject, against treating the Nominative NP as a subject.
- agreement - putatively against treating the Dative NP as a subject, for treating the Nominative NP as a subject.
- nominative case - putatively against treating the Dative NP as a subject, for treating the Nominative NP as a subject.
- the points concerning agreement and nominative case are really the same.

### 3.2.2 Control into Adjuncts

The agent controls the subject of an adjunct (conjunctive participial) clause.

- (26) a. Vinod-ne<sub>i</sub> Sita-ko<sub>j</sub> [PRO<sub>i/\*j</sub> khirkii khol-kar] bulaa-yaa  
 Vinod-Erg Sita-Acc window.f open-PART call-Pfv  
 'Having opened the window, Vinod called Sita.'  
 (NOT: Vinod called Sita after she had opened the window.)
- b. Non-overt Passive agent can control:  
 Sita-ko<sub>j</sub> [PRO<sub>ImpArg/\*j</sub> khirkii khol-kar] bulaa-yaa gayaa  
 Sita-Acc window open-PART call-Pfv Pass-Pfv

# Subject Tests for New-Indo-Aryan languages

Control into Adjuncts

Behaviour in Infinitival Clauses: Infinitival Subjects

Behaviour in Infinitival Clauses: Control into the Clause

Binding: Coreference

Binding: Disjoint Reference

Weak Crossover

Binding: Coreference vs. Binding

# Subject Test for Urdu

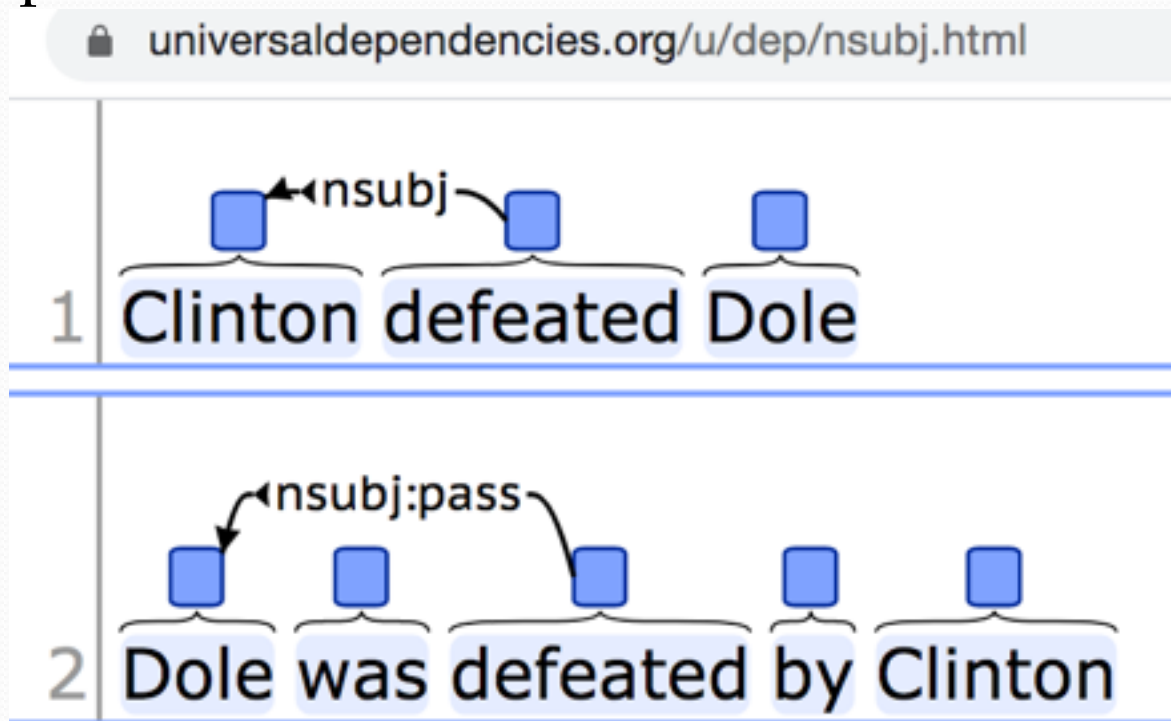
- انجم نے عدنان کو اپنی گاڑی دی۔
- انجم نے عدنان کو اسکی گاڑی دی۔

conjunction with the behavior of the pronominals. In a simple clause, *apn-* 'self' must refer to the subject, in contrast, the pronoun cannot refer to the subject. This is illustrated in (18) for the ditransitive verb *de* 'give'.

- (18) a.  $anjum=ne_i$   $adnan=ko_j$   $apn-i_{i,*j}$   $gar_i$   $d-i$   
A.F=Erg A.M=Dat self-F car.F.Sg.Nom give-Pf.F.Sg  
'Anjum gave Adnan his/her (Adnan's or somebody else's) car.'
- b.  $anjum=ne_i$   $adnan=ko_j$   $us=ki_{*i,j,k}$   $gar_i$   $d-i$   
A.F=Erg A.M=Dat Pron=Gen.F car.F.Sg.Nom give-Pf.F.Sg  
'Anjum gave Adnan his/her (Adnan's or somebody else's) car.'

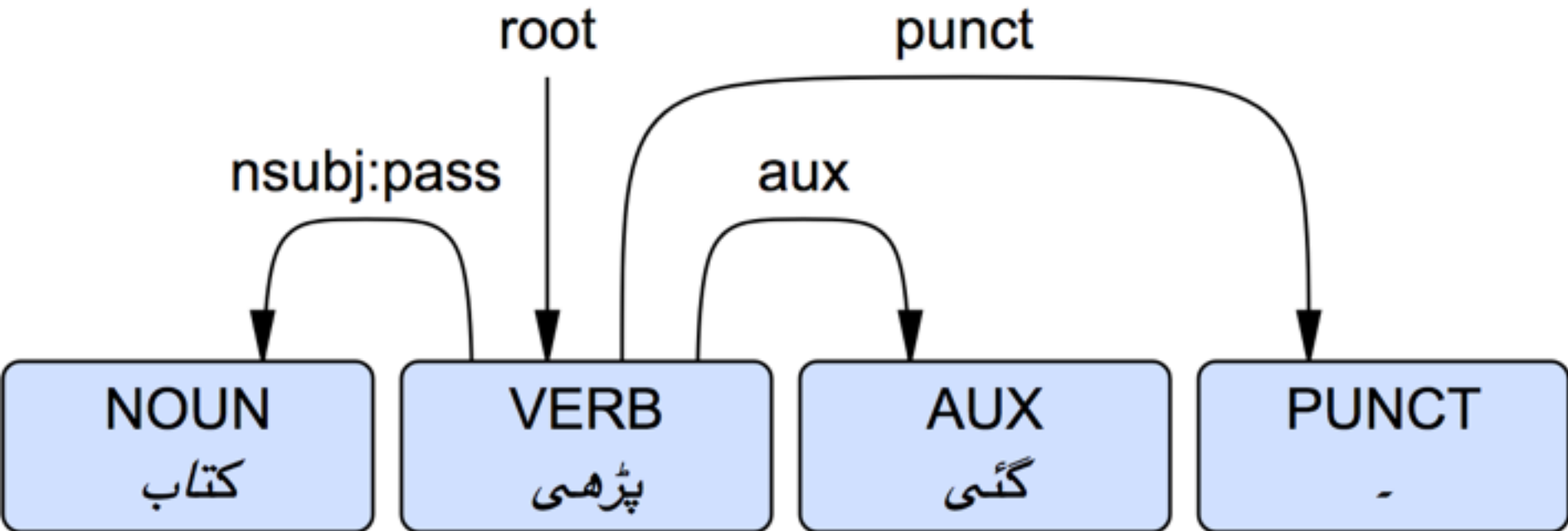
# Passives

- The nsubj relation is also used for the nominal subject of a passive verb or verb group, even though the subject is then not typically the proto-agent argument due to valency changing operations.



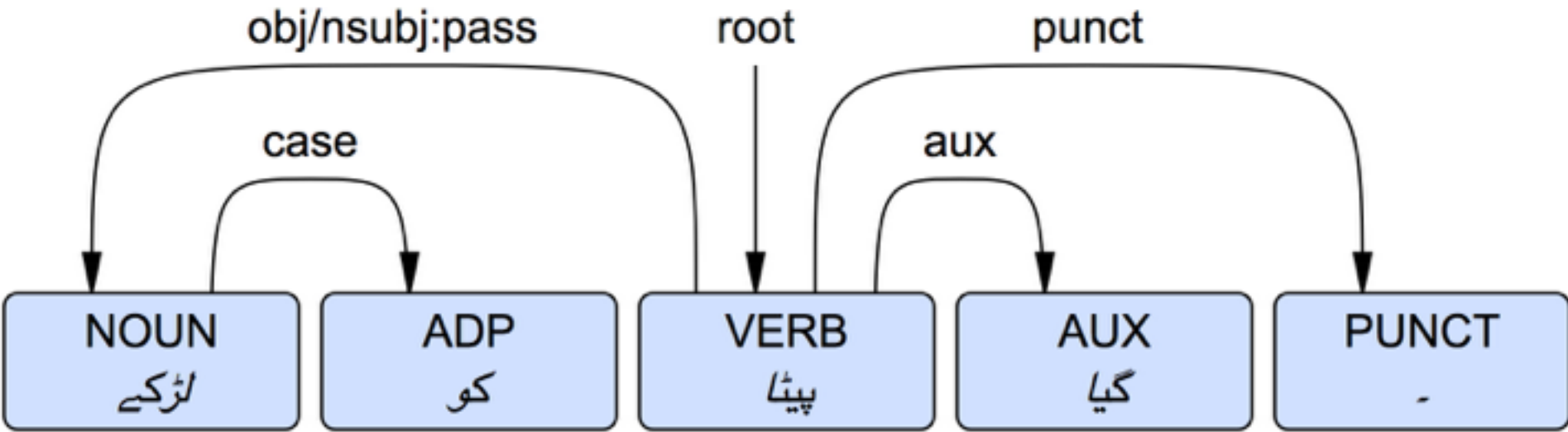
# sent\_id = 2

# text = کتاب پڑھی گئی۔





# sent\_id = 3 \_  
# text = لڑکے کو پیٹا گیا۔ \_ \_ \_

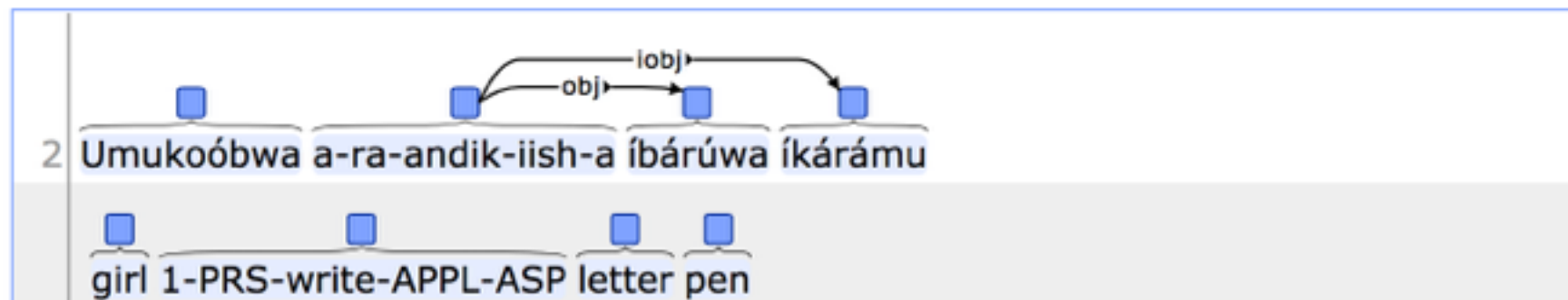


## iobj : indirect object

The indirect object of a verb is any nominal phrase that is a core argument of the verb but is not its subject or (direct) [object](#). The prototypical example is the recipient of ditransitive verbs of exchange:



However, many languages allow other semantic roles as additional objects. The most common case is allowing benefactives, but some languages allow other roles. Examples include instruments, such as in the Kinyarwanda example below, or comitatives. At the other extreme, some languages lack all indirect objects.



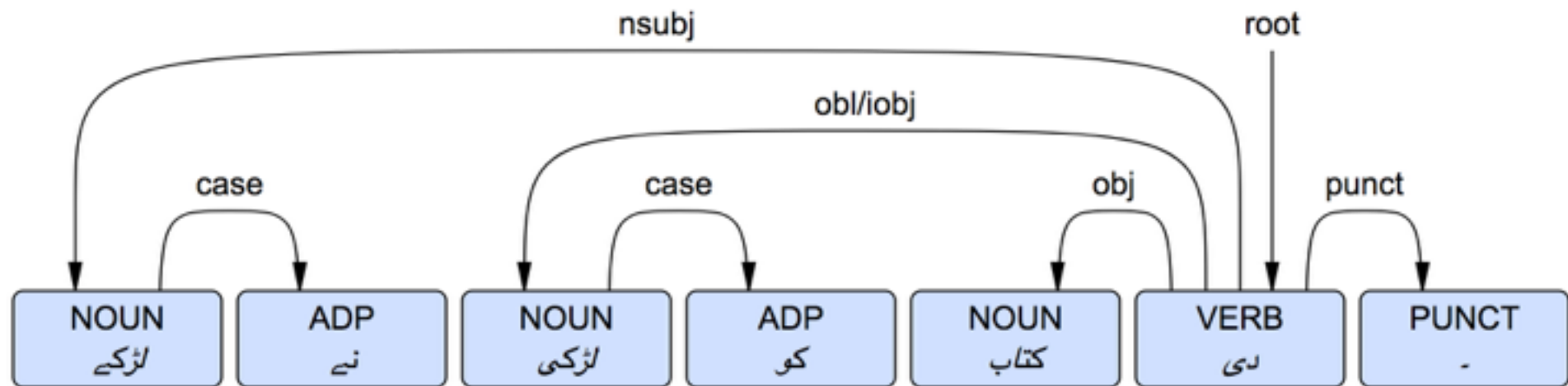
In languages distinguishing morphological [cases](#), the indirect object will often be marked by the dative case. However, verb valency may occasionally dictate that the

# iObj in Urdu UD

- ?
- analyzing a subset of examples in the Urdu UD annotated corpus tells that iObj is used for:
  - Addressee
  - Receipient
- 
- A written rule cannot be found by me.
- Do/can we use obl in place of iobj?

# sent\_id = 4

# text = لڑکے نے لڑکی کو کتاب دی۔



لڑکی کوئٹہ سے آئی تھی

لڑکا گھر گیا

لڑکی نے آج لائبریری میں کتابیں پڑھیں

لڑکے نے گلاس میں پانی بھرا

# obl: oblique nominal

The obl relation is used for a nominal (noun, pronoun, noun phrase) functioning as

*a non-core (oblique) argument  
or adjunct.*

# obl

universaldependencies.org/u/dep/obl.html

4 give the children the toys

5 give the toys to the children

6 donner les jouets à les enfants  
donner les jouets aux enfants

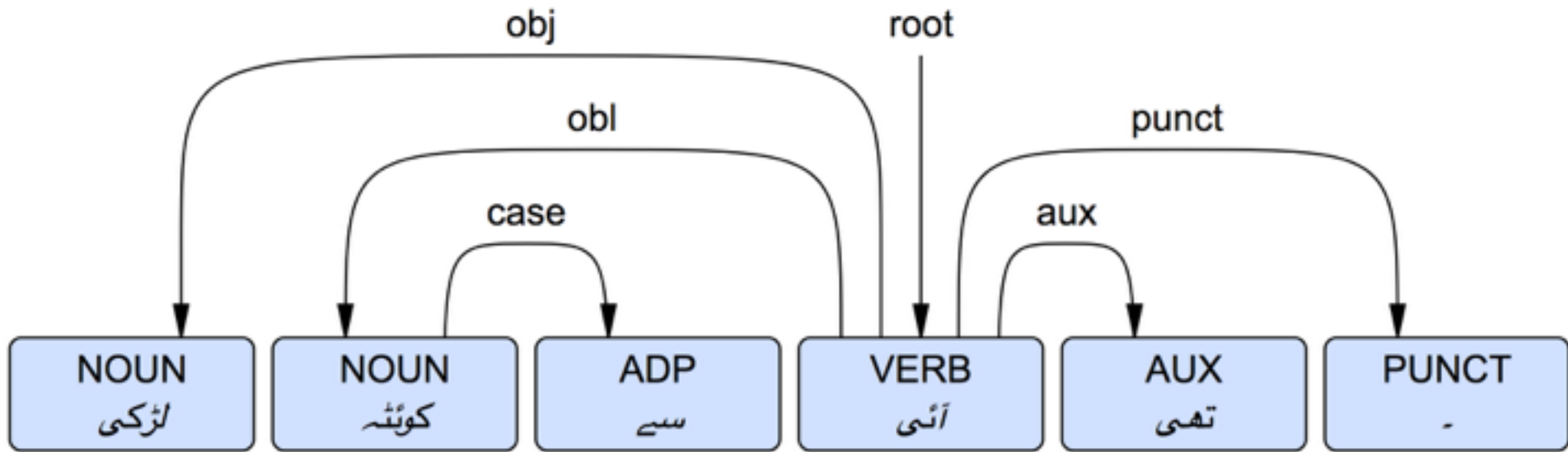
obl is also used for temporal and locational nominal modifiers:

7 Last night , I swam in the pool

and for the agent of a passive verb (with the optional subtype obl:agent)

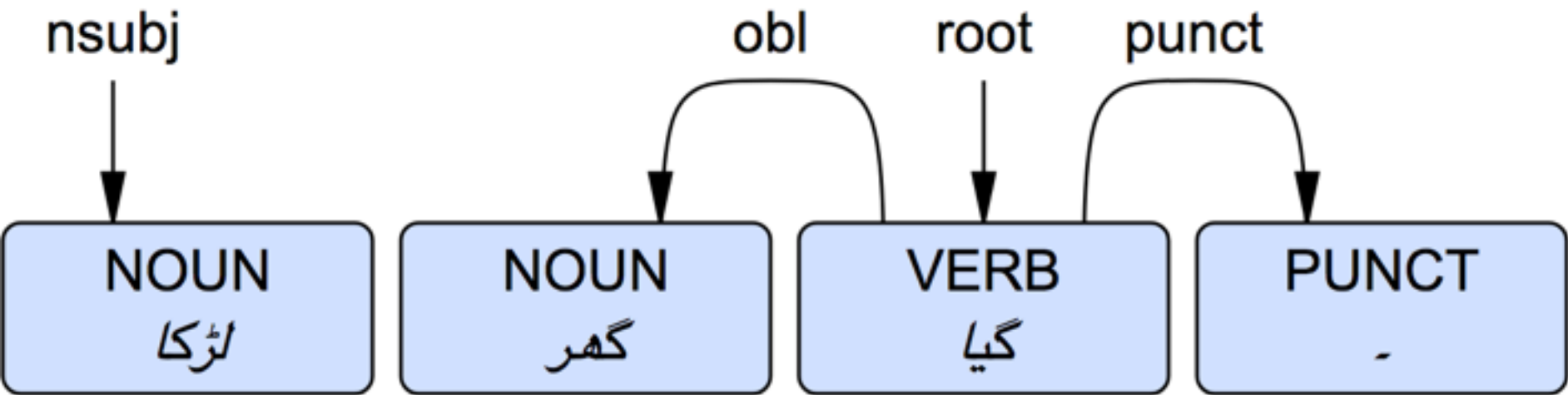
8 the cat was chased by the dog

# sent\_id = 5 \_ \_ \_  
# text = لڑکی کوئٹہ سے آئی تھی۔ \_ \_ \_





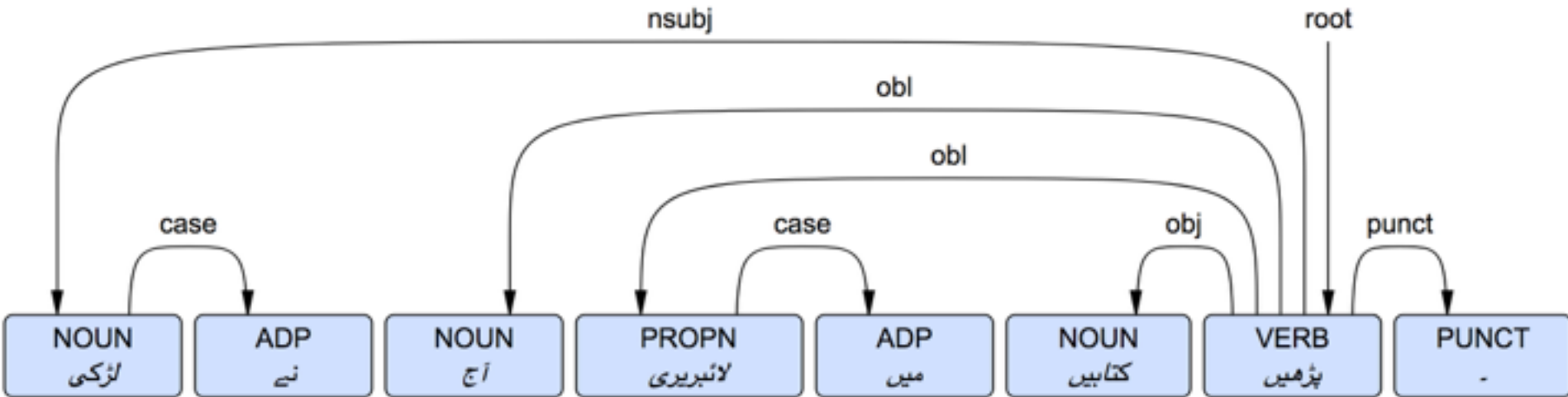
# sent\_id = 6 \_\_\_\_  
# text = لڑکا گھر گیا۔ \_\_\_\_



[لڑکی نے] [آج] [لائبریری میں] [کتابیں] پڑھیں۔

# sent\_id = 7

# text = لڑکی نے آج لائبریری میں کتابیں پڑھیں۔

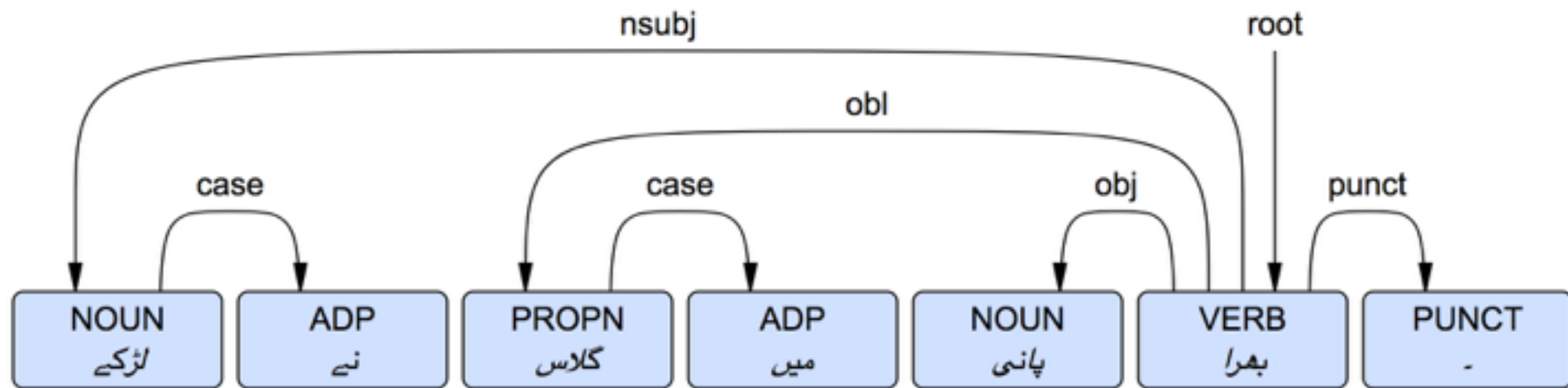


[لڑکی نے] [اَج] [لائبریری میں] [کتابیں] پڑھیں۔

ID	FORM	LEMMA	UPOS	XPOS	FEAT	HEAD	DEPREL
پڑھیں۔							
1	لڑکی	لڑکی	NOUN	_	_	7 nsubj	
2	نے	نے	ADP	_	_	1 case	
3	اَج	اَج	NOUN	_	_	7 obl	
4	لائبریری	لائبریری	PROPN	_	_	7 obl	
5	میں	میں	ADP	_	_	4 case	
6	کتابیں	کتابیں	ADJ	_	_	7 case	
7	پڑھیں	پڑھا	VERB	_	_	0 root	
8	.	.	PUNCT	_	_	7 punct	

# sent\_id = 8 \_ \_ \_

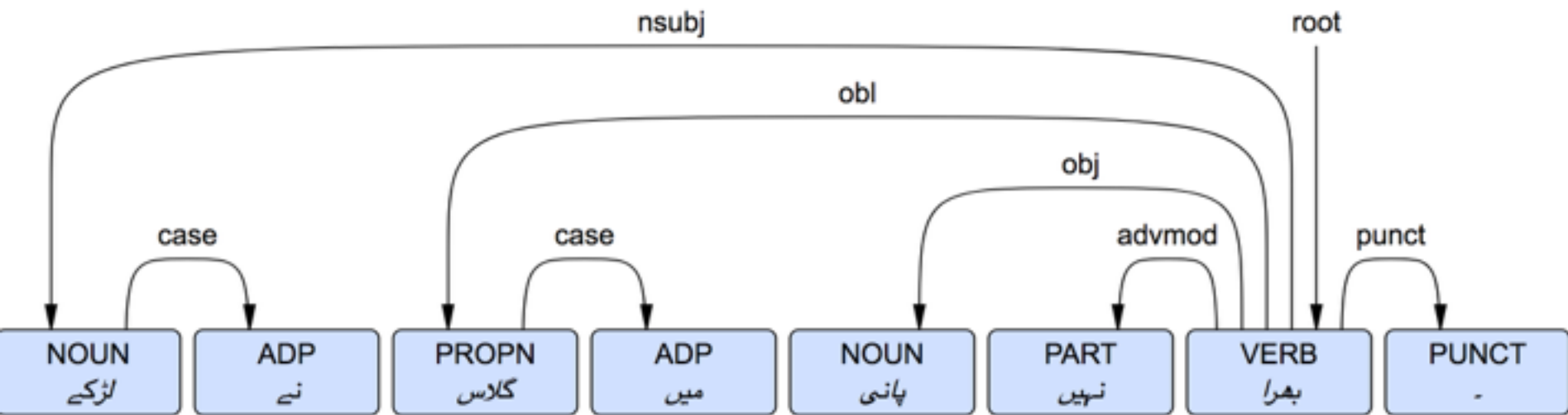
# text = لڑکے نے گلاس میں پانی بھرا۔



# advmod: adverbial modifier

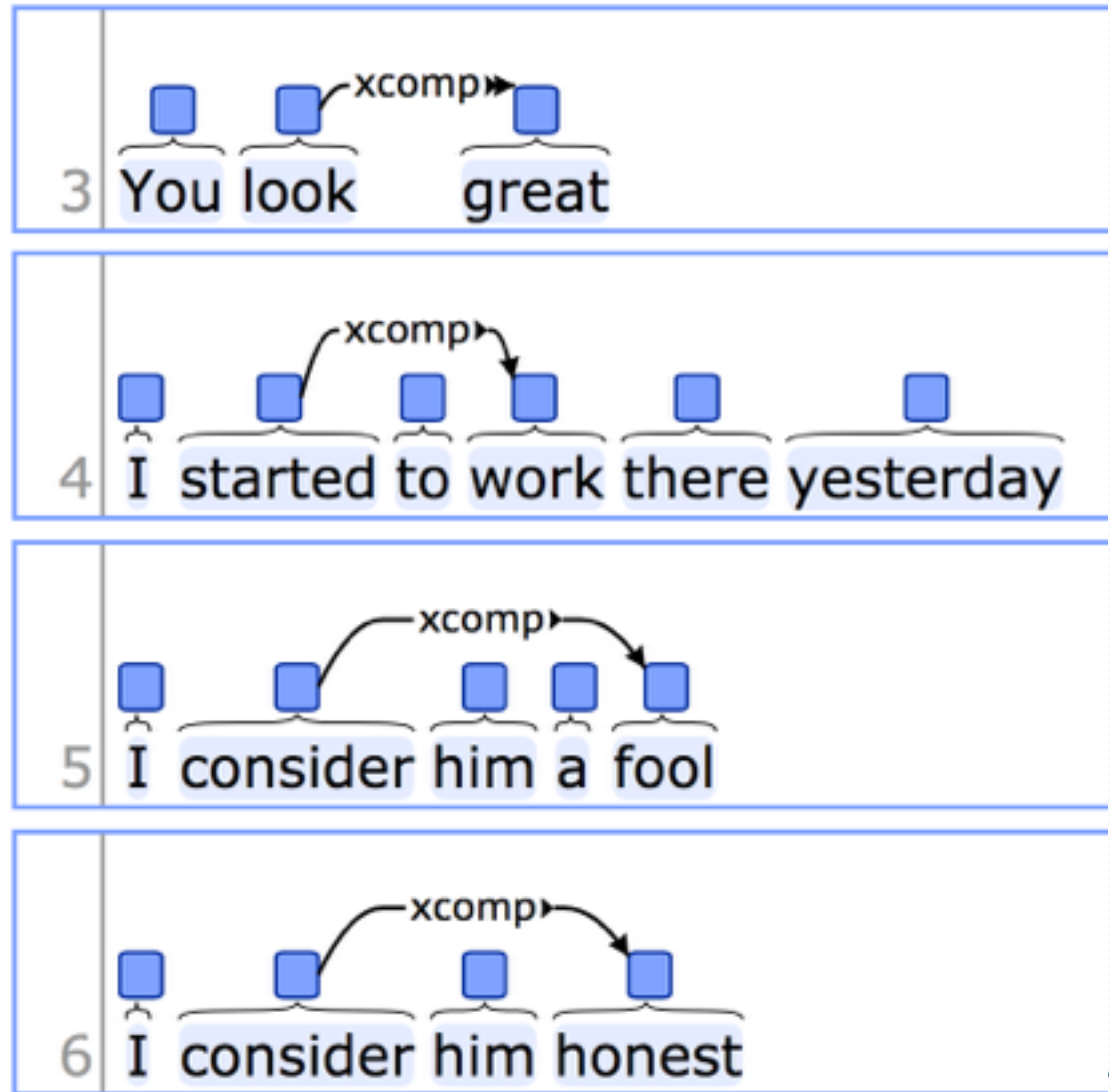
- An adverbial modifier of a word is a (non-clausal) adverb or adverbial phrase that serves to modify a predicate or a modifier word.

# sent\_id = 9 \_ \_ \_  
# text = لڑکے نے گلاس میں پانی نہیں بھرا۔ \_ \_ \_



# xcomp

[universaldependencies.org/u/dep/xcomp.html](https://universaldependencies.org/u/dep/xcomp.html)



# sent\_id = 10

# text = \_ لڑکی لڑکے کو نہیں سمجھتی ہے -

