Order and Discontinuity within Urdu NPs

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A brief introduction of Urdu

Urdu is an Indo-Aryan language spoken in Pakistan and India and together with Hindi is the fourth big language of the world.

- Case-rich
- Verb final
- Free Word Order
- pro-drop

Outline of the Presentation

- 1. Well known discontinuities
- 2. NP-internal discontinuity in Urdu
- 3. LFG implementation
- 4. Conclusion

Warlpiri Example

(1) wita-jarra-rlu ka-pala wajili-pi-nyi yalumpu small-Du-Erg Pres-3DuSubj chase-NPast that.Abs kurdu-jarra-rlu maliki. child-Du-Erg dog.Abs 'The two small children are chasing that dog.'

Extraction of a PP from a DP

- (2) a.
- Er hat viele Bücher über Logik gekauft. He has many books on logic bought 'He has bought many books about logic.'
- b. Bücher über Logik hat er viele gekauft.
- c. Über Logik hat er viele Bücher gekauft.

(German)

Extraction of a dependent from an NP

(3) mantiq=par nidaa=ne ek kitaab logic=Loc.on Nida=Erg one book.F.3Sg xariid-ii hai. buy-Perf be.Pres 'Nida has purchased a book on logic.' (Urdu)

Dislocation of quantified expression

- (4) a. They all have bought a car.
 - b. *They* have *all* bought a car.
- (5) a. alii=ne **bahut aam** k^haa-e Ali=Erg many mango.Pl eat-Perf 'Ali ate many mangoes.'
 - b. aam alii=ne bahut khaa-e mango.Pl Ali=Erg many eat-Perf 'Ali ate many mangoes.'

(Urdu)

Free Topic Structure

```
(6)
    Say-nun ku-ka nightingale-man a-n-ta.
    bird-Top he-Nom nightingale-only know-Pres-Dec
    'As for birds, he only knows nightingales.'
                                       (Korean)
(7)
    p^hal, alii=ko aam pasañd hai.
    fruit, Ali=Dat mango like be.Pres
    'As for fruit, Ali likes mango.'
                                       (Urdu)
```

Types of constituent-level discontinuities in Urdu

- 1. NP-internal discontinuity
 - Discontinuous NP
 - Discontinuous AP
- 2. PP-internal discontinuity
 - Discontinuous complement of P

When NP-internal discontinuity occurs in Urdu

The NP-internal discontinuity in Urdu can occur when the argument-taking noun is:

- Modified by argument-taking adjectives
- Specified by argument-taking nouns

Argument-taking adjectives in Urdu

Nr.	Type of Argument	Example of Adjective Phrase
(i)	Dative Marked	sadr=ko haasil
		president=Dat possessed
		'possessed by the president'
(ii)	Ablative Marked	adliyah=se xaaif
		courts=Abl afraid
		'afraid of courts'
(iii)	Locative Marked	buxaar=meñ mubtalaa
		fever=Loc.in suffered
		'suffered with fever'
(iv)	Adpositional	sihat=ke liye muzir
		health=Gen for harmful
		'harmful for health

Simple examples of argument-taking nouns

- (8) a. istisnaa 'immunity'
 - b. muqaddamaat=se istisnaa court-case.Pl=Abl immunity 'immunity from court-cases'
 - c.
 muqaddamaat=se aaiinii istisnaa
 court-case.Pl=Abl constitutional immunity
 'constitutional immunity from court-cases'

Simple examples of argument-taking nouns

- (9) a. bariifing 'briefing'
 - b. salaamtii=par bariifiñg security=Loc briefing 'briefing on security'
 - c.
 salaamtii=par tafsiilii bariifiñg
 security=Loc detailed briefing
 'detailed briefing on security'

Simple examples of argument-taking nouns

- (10) a. mutaalbah 'demand'
 - b. aarmii-ciif=se mutaalbah army-chief=Abl demand 'demand to the army-chief'
 - c.
 aarmii-ciif=se qaanuunii mutaalbah
 army-chief=Abl legal demand
 'legal demand to the army-chief'

Examples of discontinuous NPs

- b. muqaddamaat=se2 sadr=ko1 haasil1 aaiinii istisnaa2
- c. sadr=ko1 muqaddamaat=se2 haasil1 aaiinii istisnaa2
- d. *haasil₁ muqaddamaat=se₂ sadr=ko₁ aaiinii istisnaa₂

Examples of discontinuous NPs

```
(12) a. [NP[KP aarmii-ciif=se] [KP[NP[KP army-chief=Abl salaamtii=par] bariifiñg]=kaa] mutaalbah] security=Loc.on briefing=Gen demand 'The demand to the army chief for briefing on security'
```

Examples of discontinuous NPs

Examples of discontinuous NPs in PPs

```
(14) a.
    zardaarii=kii zer-e sadaarat
    Zardari=Gen under-Ezafe chair
    'under the chair of Zardari'
b.
    nidaa=ke bah qaol
    Nida=Gen to saying
    'to the saying of Nida'
```

Flat structure proposed for Urdu NPs

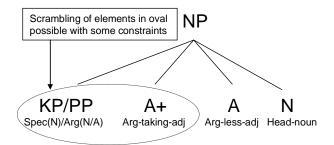


Figure: Word Order in Noun Phrases of Urdu

Implementation Issues LFG tools Grammar Rules C-structure F-structure

What aspects to accommodate

- Free word order in an NP
- Relating arguments with corresponding heads
- Head last constraint

LFG instruments used

- ► Shuffle operator (','): To accommodate free word order of different elements in the noun phrases.
- ▶ Non-deterministic operator ('\$'): Relating the corresponding arguments to the corresponding heads.
- ► Head Precedence Operator ('<h'): To make it sure that the head must not precede its arguments in the noun phrases.

An excerpt from Grammar Rules

```
KP*: { (^ ADJUNCT $ OBL)=!
    | (^ ADJUNCT $ OBJ- GO)=!
    I (^ OBL) = !
     | (^ OBJ-GO) = ! }
     , "for scrambling"
 AP: ! $ (^ ADJUNCT)
  N: \Lambda = !
KP*: { (^ ADJUNCT $ OBL)=!
     (^ ADJUNCT) <h (^ ADJUNCT $ OBL)
     | ..... }
```

Figure: Grammar Rules

C-structure for a discontinuous NP

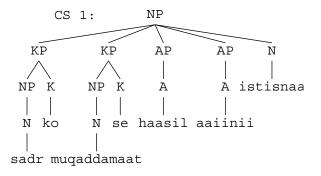


Figure: C-structure

F-structure for a discontinuous NP

```
"sadr ko muqaddamaat se haasil aaiinii istisnaa"
```

```
PRED
          'istisnaæ[33:muqaddama}'
          [PRED 'mugaddama
          CHECK [ NMORPH ob]
  OBL
        33 CASE inst, GEND masc, NUM pl
            PRED
                     'haasik[1:sadrb'
                     PRED 'sadr'
                     CHECK [ NMORPH ob]
            OBJ-GO
                     NTYPE NSEM [COMMON count]
                           NSYN common
                    1 CASE dat, GEND masc, NUM sg, PERS 3
  ADJUNCT
            CHECK [ RESTRICTED-]
            LEX-SEM [GOAL +]
          38ATYPE attributive GEND masc, NUM sq
            MPRED 'aaiini'
            ATYPE attributive GEND masc, NUM so
          40 <s ([38:haasil]
          NSEM [COMMON count]
  NTYPE
          NSYN common
42 GEND masc, NUM sg
```

Figure: F-structure

Summary

Urdu is a typical language in which discontinuous NPs are found both at:

- Clause-level
- Constituent-level

Constituent-level discontinuity in Urdu can be implemented in LFG framework by making use of:

- Shuffle operator (',')
- ► Head-precedence operator ('<h')
- ► Non-deterministic operator ('\$')

Introduction
Well known (clause-level) discontinuities
Constituent-level discontinuities in Urdu
LFG implementation of NP-internal discontinuity
Conclusion

That is all

Thanks!