Feature Stacking: The Kashmiri Periphery

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Abstract

This paper explores our understanding of the elements that make up the rich left periphery of the clause in Kashmiri. I offer an account of the CP domain that focuses on the structure of features on the C head. This analysis is an attempt to capture the insights of the cartographic investigations, which require a hierarchy of projections on the left edge of the clause, within the terms of a more spartan phrase structural system. Structuring features on a single C head, and thereby allowing the presence of multiple specifiers to a single head, provides an account of the complex left periphery of Kashmiri that is also more in line with current theoretical understanding, including the notion of the phase. This account provides a necessary framework for understanding A-bar movement and the organization of the left-periphery.

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1. Introduction

Crosslinguistically, a wide range of elements tend to appear at the left edge of the clause; among these are wh-phrases, topic phrases, focused phrases, and complementizers. Accounts of this subsystem typically rely on a hierarchy of distinct functional projections that appear in an order fixed by universal principles. Each of these projections hosts a single type of element (say, topic or focus) (Rizzi 1997, 2001; Benincà 2001). This approach, sometimes called "cartographic", has been a source of considerable empirical discovery, describing a wide range of left-edge phenomena.

Kashmiri exhibits a relatively rich left periphery in both main and subordinate clauses. The region includes the second position verb, topic, focus, complementizer, and wh-phrases, all of which display rigid ordering and co-occurrence restrictions. For this reason, Kashmiri provides an empirical context for an investigation of how the periphery is organized. In this paper I will explore some theoretical and empirical ramifications of this so-called cartographic approach to the left periphery, with an emphasis on how the cartographic view interacts with current theoretical developments. In particular, this exploration, and the account of the Kashmiri left edge which we will develop here, provides a necessary basis for research on A-bar movement to this edge (see Manetta 2006).

2. The Kashmiri Left Periphery

Kashmiri is unusual among the Indic languages in exhibiting the verb-second (V2) property, more familiar from Germanic languages. To the left of the verb, a number of constituent types may be found at the clause edge. The finite verb appears as the second constituent of a finite declarative clause. Any of the arguments (or other constituents) may appear first. (1a) exhibits the unmarked order, and (1b-e) are also grammatical (all from Wali and Koul, 1997).

(1) a. aslaman <u>dits</u> mohnas   kita:b ra:mini   kh :tr ra:th

aslam-erg gave Mohan-dat book Ram-dat for   yesterday

Aslam gave Mohan a book for Ram yesterday.

b. mohnas   <u>dits</u> aslaman   kita:b ramini   kh tr ra:th

Mohan-dat gave Aslam-erg book   Ram-dat for   yesterday

Aslam gave Mohan a book for Ram yesterday.

c. kita:b <u>dits</u> aslaman   mohnas   ramini   kh tr ra:th

Book gave Aslam-erg Mohan-dat Ram-dat for   yesterday

Aslam gave Mohan a book for Ram yesterday.

d. ra:mini kh :tr <u>dits</u> aslaman   mohnas   kita:b ra:th

Ram-dat for   gave Aslam -erg Mohan-dat book yesterday

Aslam gave Mohan a book for Ram yesterday.

e. ra:th   <u>dits</u> aslaman   mohnas   kita:b ra:mini   kh :tr

Yesterday gave Aslam-erg Mohan-dat book Ram-erg for

Aslam gave Mohan a book for Ram yesterday.

(2) k : ura   zaba:na   <u>chi</u> akha arya   zaba:na.

 Kashmiri language is   an   Aryan language

The Kashmiri language is an Aryan language. (2/20/06, Kashmiri Wikipedia)[1]

We can further probe the position of the verb by examining the position of sentential negation and the distinction between auxiliaries and main verbs in Kashmiri. Sentential negation follows the second position verb, attaching as a suffix.

(3) raath   khyav-na larRkav batI

yesterday eat-not   boys   food

'The boys did not eat the food yesterday'. (Bhatt 1999)

In a sentence with a tensed auxiliary, it is the auxiliary that occupies second position, and not the main verb. This is frequently taken as evidence that the verb is underlyingly in final position (Bhatt 1999). It is also the auxiliary to which negation attaches, as in (4d).

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[1] All naturally-occurring data will be indicated by source and date. The sentence in (2) is from: http:///ks.wikipedia.org/wiki/K%C5%8F%C5%9Bura_zab%C4%81na. Note that the commonly accepted term for this language group is not 'Aryan' but 'Indic'.

(4) a. laRk ch-u dohay sku:l gatsh-a:n

    boy aux daily school go-perf

  'The boy goes to school every day.' (Bhatt 1999)

  b. *laRk dohay skuul gatsh-aan ch-u

  c. 50 lacha   lukha chi yeh bo:la:na.

    50 (100000) people aux this speak

    Five million people speak it. (2/20/06, Kashmiri Wikipedia)[2]

  d. bI chu-s-nI   azkal   garI gatsha:n

    I aux-1st-neg nowadays home going

    'I don't go home nowadays.' (Bhatt 1999)

Let us now turn to the constituents that precede the second-position verb. The non-subject pre-verbal constituents in (1b-e) are generally interpreted as focused. For instance, the focus-particle –*ti* can only appear suffixed to a constituent in this position (Bhatt 1999).

(5) bi ti   go:s   gari   vakhtas   peth

    I foc went home time-dat on

    I too went home on time. (Bhatt 1999)

Note that the suffixation of –*ti* to *huun* 'dog' in (6) is grammatical only if *huun* is found in the pre-verbal position, as in (6), not when it follows the auxiliary, as in (7).

(6) huun-ti chu behna broNh panin jaay   goD saaf karaan (Bhat 1999)

    dog-foc aux seat before self's place first clean do

    'Even the dog cleans his place before sitting.'

(7) *? panin jaay chu huun-ti   behna broNh goD saaf karaan (Bhat 1999)

    self's place aux dog-foc   seat before first clean do

    Intended: 'Even the dog cleans his place before sitting.'

In constituent questions, the focused interrogative phrase must appear immediately before the verb, as in (8). Other positions for the interrogative constituent are strongly dispreferred.

(8) a.   h :v   shi:las n v kita:b ra:th

    who showed Sheila new book yesterday

    'Who showed a new book to Sheila yesterday?' (Wali and Koul)

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[2] (http:///ks.wikipedia.org/wiki/K%C5%8F%C5%9Bura_zab%C4%81na).

b. k mis   chi va:riya:h p :s ?

who-dat has lot   money

'Who has a lot of money?' (Wali and Koul 1997)

(9) *? shi:las   h :v   kita:b ra:th

Sheila showed   who   book yesterday

Intended: 'Who showed a new book to Sheila yesterday?' (judgment: PK 9/21/04)[3]

In one important case, an additional constituent can precede the verb, which will thus no longer be "second", though it is not in its base position. This additional pre-wh constituent in (10) may occur just when the wh-word is present, and it is interpreted as a Topic (Bhatt, 1999).

(10)   a. rajan kemis he:v   nev kita:b?

Raj whom showed new book

'As for Raj, to whom did he show his new book?' (Wali and Koul)

b.   mohnan k'a: khev ra:th

Mohan what ate   yesterday

'As for Mohan, what did he eat yesterday?' (Wali and Koul)

It is ungrammatical to have more than one topic (as in (11a)), to have the wh-phrase precede the topic (11b), or to have a topic precede a non-interrogative focus (11c) (judgments all JC 9/8/05).

(11)   a. *rajan n v kita:b k mis h :v

Raj   new book whom showed

Intended: 'As for Raj, as for the new book, to whom did he show it?'

b. *k m' tse chu-y ba:sa:n ki   mohn-as dits kita:b

who you aux   think   that Mohan   gave book

Intended: 'As for you, who do you think Mohan gave the book to?'

c. *gari b   go:s vakhtas peth

home I went time-dat on

Intended: 'As for home, I went there on time.'

Subordinate clauses are identical to matrix clauses in their word order, except that they are optionally preceded by the particle ki. This particle is not counted in determining verb-second position. These facts are exemplified by the bolded material in the sentences in (12)-(13).

(12) mi:ra:yi cha pata: **ki k mis dits   mohnan kita:b.**

Mira   aux know that who   gave Mohan   book

Mira knew who gave Mohan a book. (Wali, 2002)

(13) mi:ra:yi cha pata: **ki mohnan k mis dits kita:b.**

Mira   aux know that Mohan   who   gave book.

'Mira knew who gave Mohan a book'. (JC 9/8/05)

In summary, the left periphery of the finite clause in Kashmiri can take two essential forms. The first (in (14a)), is when a single focused constituent, whether interrogative or non-interrogative, precedes the verb. The second (in (14b)), is when a topic phrase precedes a wh-phrase which precedes the verb.

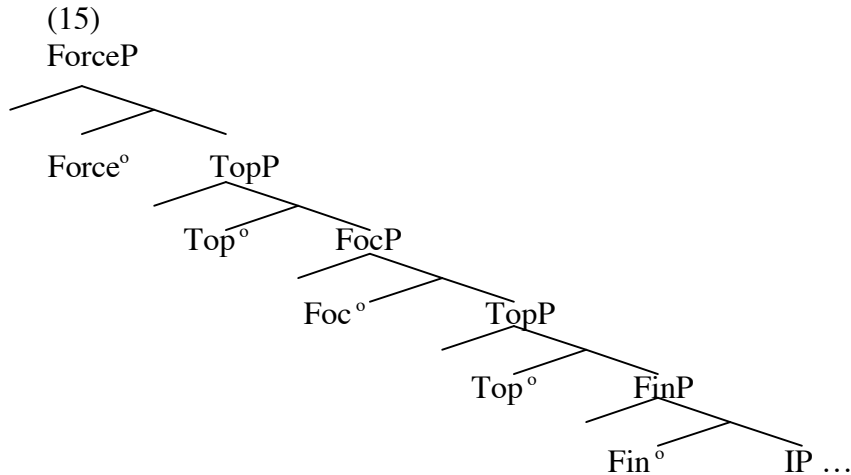(14)   a. [Focused (wh or non-wh) XP] [verb] [TP]

          b. [Topic XP] [Focused wh-XP] [verb] [TP]

In the case of subordinate clauses, either of these orders can be preceded by the element ki.

3. The Cartographic Approach to the Left Periphery of Kashmiri

Rizzi (1997) initiated a research program in which the 'C-domain' is regarded not as a single projection, but rather as an articulated hierarchy of distinct projections. The program has yielded rich empirical results (see volumes edited by Belletti (2002) and Rizzi (2004)) and has been influential. In this view, the left periphery of the clause is comprised of a sequence of functional projections whose hierarchical order is fixed universally. Each of these heads hosts a unique element in its single specifier. The expansion of the CP layer conceptually echoes the expansion of the IP layer into a series of functional projections (Pollock, 1989).

In its original conception in Rizzi (1997), this theory posits at least the following projections:

(15)

```
ForceP
   ╱╲
Force°   TopP
         ╱╲
      Top°   FocP
             ╱╲
          Foc°   TopP
                 ╱╲
              Top°   FinP
                     ╱╲
                  Fin°   IP …
```

This hierarchy divides into two types of projections. Force and Finiteness projections, on the peripheries of this structure, are required. They are present at every clause edge for all languages. The Force projection contains information that determines the force of the clause to follow (i.e. interrogative, exclamative, imperative, and so on). The Finiteness head contains information about whether the clause will be finite or non-finite. Each of these heads may (or may not) host morphological material.

The other projections are optional. Topic and Focus projections appear in the structure "when needed", or when a constituent with topic or focus features in the main clause needs to enter into a specifier-head relation with the relevant functional head. Note here that the Topic head can be recursive, allowing for multiple topics in a single clause edge, while the Focus head cannot. Rizzi (1997) suggests that there cannot be more than one focus in a given clause because if there were, an interpretive paradox would arise. While a lower focus must have a focused or 'new' interpretation, it must also simultaneously be interpreted as given or 'old' as part of the presupposition of a higher focal head.

In the system introduced above, all movements to the left periphery are driven by the need (ultimately) to satisfy some criterion. That is, constituents with a topic or focus feature must ultimately be in the specifier-head relation with a head bearing those same features. It is this feature that motivates both the presence of the relevant optional projection in the structure, and the movement itself.

Let us examine how this system might account for the left periphery of a Kashmiri clause. In a simple declarative clause as in (1b), repeated here, we find a focused constituent on the left edge, followed immediately by the second position verb.
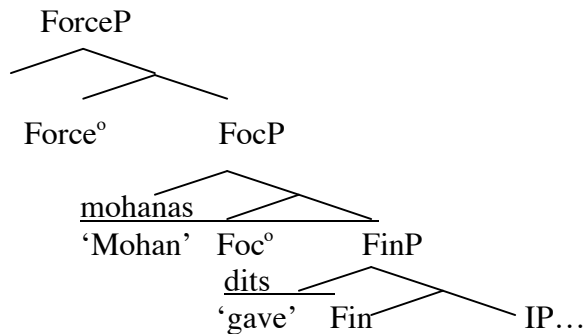
(1b) mohnas dits aslaman kita:b ramini kh tr ra:th

   Mohan gave Aslam   book Ram   for   yesterday

   'Aslam gave Mohan a book for Ram yesterday.'

In order to form this sentence, a focus projection must appear on the left edge, sandwiched between ForceP and FinP. A focus feature present on the Foc head attracts the focused constituent in the clause, prompting a move to Spec, FocP . According to Rizzi's approach to Germanic verb-second, when the Focus head is projected it also attracts the finite verb. We will assume this is also the case in Kashmiri.

(16)


```
   ForceP
   /      \
Force°    FocP
        mohanas
        'Mohan'  Foc°      FinP
                 dits    /     \
                 'gave'  Fin    IP…
```

Note that in this Kashmiri sentence there is no audible material in the Force or Finiteness projections – that is, there seems to be no morpheme which corresponds in particular to the interpretations designated for these heads.

In the case of a more complex interrogative clause such as (10), repeated as (17) below, the preverbal position is occupied by a focused wh-word, mutually exclusive of any other focused constituent.

(17)   rajan k mis he:v   nev kita:b?
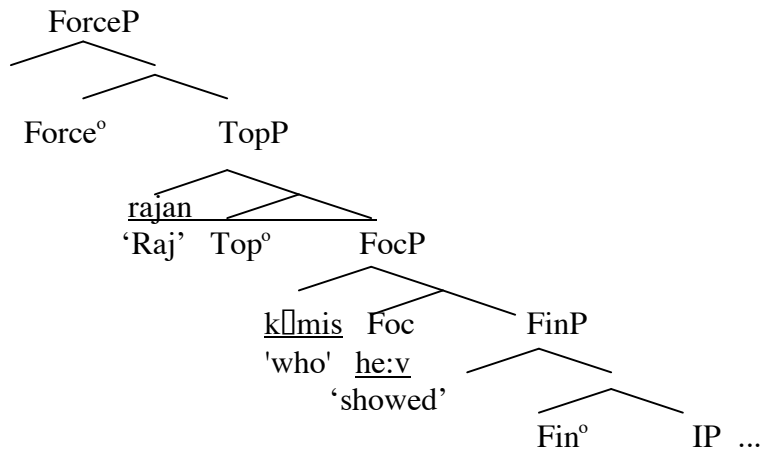
        Raj whom showed new book

        'As for Raj, to whom did he show his new book?'

Preceding the wh-element is a constituent interpreted as a topic. This topic can only be present when a wh-word occupies the focus position; it is otherwise ungrammatical, as shown in (11c).

Under the cartographic approach, in this sentence a Focus projection must again appear between ForceP and FinP. A single Topic projection must appear between ForceP and FocP. The focus and Q feature in the Foc head interact with the focus and ensure that it moves to the left periphery. The topic feature on the Top head motivates movement to that specifier as well. Again, the presence of the Foc head attracts the second position verb. The resulting structure is below.

(18)


```
        ForceP
       /      \
   Forceᵒ      TopP
            /        \
         rajan        \
         'Raj'  Topᵒ    FocP
                      /      \
                   k mis Foc   FinP
                   'who' he:v  /    \
                      'showed'      \
                               Finᵒ   IP ...
```

Again, there is no audible linguistic material in this sentence that would appear in the head or specifier of either the ForceP or FinP, nor in the head of TopP.

4. New Opportunities

The cartographic approach to this point has been the most successful analysis of languages such as Kashmiri or Italian, which exhibit an articulated left periphery. Since the initial proposals were made, though, there have been several theoretical developments that let us look at these sorts of facts in a new way.

4.1 The Specifier-Head Relation

The first of these developments involves the specifier-head relation. In the cartographic view of the left periphery it is the formation of specifier-head relation, satisfying criteria on the peripheral heads, that causes such a range of projections to appear on the left edge. For each projection, there is a single specifier in a unique relation to its head.

If we are committed to the notion that there is a single specifier for each projection, we are likewise committed to the position that there must be a unique projection for each constituent that undergoes A-bar movement to the left edge. That is, whether or not we have evidence for a head in that position, we must postulate that one exists in order to provide room for a specifier.

However, recent work has suggested that the restriction that there be just one specifier per head is neither theoretically nor empirically justified (Chomsky 2000, Ura 2000). Abandoning this restriction, we could permit multiple specifiers to be hosted by a single head. This shift in theoretical perspective is in harmony with two kinds of empirical observations. The first is that while evidence for a sequence of phrasal constituents on the left periphery is overwhelming, evidence for a sequence of distinct head positions among these phrasal constituents is delicate at best.

The second observation has to do with the positioning of audible linguistic material in the heads of the left periphery. As described above, Kashmiri is a "verb-second" language, in the sense that the finite verb must follow at least one major clausal constituent in declarative sentences. The crudeness of the term "verb-second" becomes obvious when we examine interrogative clauses, in which the verb is actually in third position, preceded by the topic and a theoretically unlimited number of wh-phrases. In both cases, the verb appears immediately following the last focused wh-phrase. In the cartographic view, this seems to indicate that the second-position verb is located in the Focus head. However, looking at the hierarchy of projections in (15), there are at least four heads to which the verb could potentially move: $Force^0$, $Topic^0$, $Focus^0$, and Fin^0. It would seem, given this structure, that it would be possible for the verb to raise further to $Topic^0$, in which case it should directly follow the topic (and precede wh-material) in linear order. Possibly it could move to an even higher head, such as $Force^0$, in which case it could precede the topic. Yet both of these alternative orders are very degraded to ungrammatical (judgments JC 9/8/05).

(19)   a. * rajan he:v k mis nev kita:b?

Raj showed whom new book

Intended: 'As for Raj, to whom did he show his new book?'

b. *he:v   rajan k mis   nev kita:b?

showed Raj whom   new book

Intended: 'As for Raj, to whom did he show his new book?'

11

In order to rule out the ungrammatical constructions in (19), we will have to require that head movement raises the Kashmiri verb as far as the Focus head, and no further. That is, an analysis such as that in (18) multiplies analytical possibilities, in the sense that it provides multiple possible landing sites for raising of the finite verb and provides no principled basis for choosing among them.

An analysis in which there is a single C head with multiple specifiers narrows the range of possible analyses (assuming that heads may only move to head-positions) to one, and leads us to expect what is in fact the case – namely that the finite verb will appear to the right of all fronted phrasal constituents in the C-domain.

4.2 The Cartographic Project and the Phase

A relatively recent theoretical development concerning the nature of the clause edge is the concept of the 'phase', as defined in Chomsky (2000, 2004, 2005). Phases are self-contained subparts of a derivation, each beginning with a numeration and ending with a transfer of the object so far created to the interfaces. CP and *v*P have been identified in the literature as the minimal phases, with other functional projections such as DP claimed to have phase status as well (Svenonius 2003).

The clause edge as addressed by the cartographic project is also identified as the edge of the phase, a region with a special status. Constituents on the edge of the phase (the phase-defining head H and any specifiers or adjuncts to H) and do not transfer to the interfaces along with the phase itself, but instead remain accessible to probes in the next higher phase (Chomsky 2004). This is the process which makes successive cyclic wh-movement possible, for instance. The map in (15) is a theory of CP. CP is also the category whose status as a phase is best established. To the extent, then, that we want to maintain results and analyses which depend on the notion of the phase, theories of the CP-domain must provide us with a reasonable way of defining phasehood.
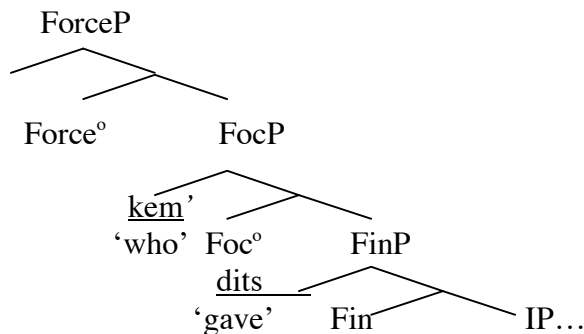
The first task in correlating the phase and the cartographic hierarchy of the left periphery as in (15) is to identify the phase-defining head. However, this becomes a challenge once the CP is split into a hierarchy of projections. It is unclear which of these projections becomes the phase-defining head, and more importantly what material is then by definition considered to be on the phase edge.

This question can be addressed empirically when we examine a wh-movement construction such as the one in (20).

(20)   tse **kʌm'** chu-y ba:sa:n [ki   mohn-as dits kita:b]

you who aux   think   that Mohan   gave book

As for you, who do you think [Mohan gave the book to]?

Though we not address constructions like (20) in great detail here (though see Manetta 2006), at this juncture it serves to illustrate a very specific concern. The bolded wh-word kʌm' 'who' originated in the lower clause in (20) as the direct object of the verb dits 'gave'. Given our understanding of wh-movement in the current framework, kʌm' must have moved to the edge of the bracketed subordinate clause at some point. According to the cartographic view, at this point kʌm' would occupy the specifier position of the Focus phrase on the left periphery of this lower clause.

(21)

```
       ForceP
      /      \
  Force°      FocP
             /    \
         kem'      \
        'who'  Foc°   FinP
               dits   /   \
              'gave' Fin    IP…
```
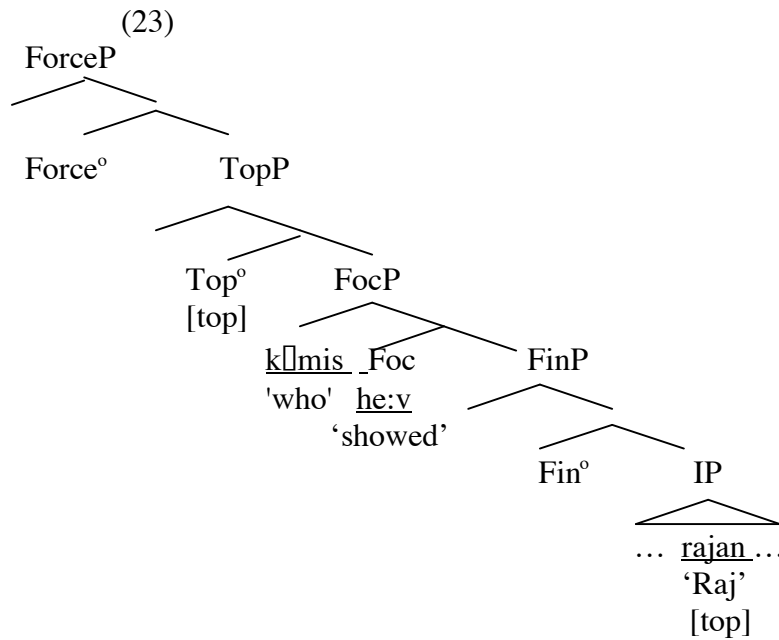
In this position, kʌm' must be on the phase edge, so that it is able to interact with probes in the higher clause and ultimately move to its final position in the matrix focus projection. From this we could conclude that the phase defining head in the split-CP is Focus, and so any material in the Focus head, or in its specifier, is on the phase edge.

However, this conclusion will prove too simplistic, even for simple interrogative clause in which a Topic is present, such as that in (22).

(22)   rajan kʌmis he:v   nev kita:b?

Raj whom showed new book

'As for Raj, to whom did he show his new book?'

13

In Kashmiri, the TopicP dominates FocusP. If $Focus^0$ is the phase-defining head, then the probe in the Topic head would be outside of the phase, and would be unable to probe any material inside the domain of the Focus head. In particular, the phrase with topic features in this derivation, <u>rajan</u> 'Raj', would be unable to interact with the topic features on the Topic head, being inaccessible to it.

(23)

```
ForceP
├── Force°
└── TopP
    ├── Top°
    │   [top]
    └── FocP
        ├── k_mis_Foc
        │   'who' he:v
        │        'showed'
        └── FinP
            ├── Fin°
            └── IP
                … rajan …
                   'Raj'
                   [top]
```

The derivation would crash without a topic, and so designating Focus as the phase-defining head will certainly not achieve the desired result.

Of course, if the phase-defining head is instead $Topic^0$, a different problem arises, in that any wh-material in the immediately lower FocusP will be inaccessible to any probe in a higher clause. That is because such material will no longer be on the phase edge, being lower than the specifier of TopicP. This would make it impossible to successfully derive the wh-question in (22).

Another option logically available would be to view the entire left periphery as the phase edge. This is a natural move; if the single C is phase-defining in the current theoretical view, then so too must be the array of projections created when this CP is split. This then would require that we re-vamp our notion of phase such that we can designate an array of heads as the phase-defining unit, and all of the linguistic material in that array as being on the phase edge.

We might simultaneously ask whether other phase boundaries, such as the *v*P, actually represent an expanded array of functional projections, all of which are phase-defining.

It may be possible to work this proposal out in some reasonable way, but this is unnecessary if, instead of (15), we posit a single (phase-defining) head of category C allowing multiple specificers – all of which will be on the phase-edge.

4.3 Order of Projections

The cartographic project also raises an important theoretical question concerning the way in which parametric variation is handled by the grammar. In particular, what is the source of the language-to-language variation in the order and number of the constituents on the left periphery?

While it is true that certain patterns emerge consistently on the left periphery, there is also significant crosslinguistic variation. It is useful here to compare Kashmiri with other languages that exhibit verb-second order in subordinate clauses, such as the Germanic languages Yiddish and Icelandic. In the case of indirect questions in all three of these languages, there are a number of constituents on the left-periphery, including the topic, the wh-word, and the verb.

In indirect questions in Yiddish, the order of the constituents is wh-topic-verb, but never *topic-wh-verb (Diesing 1990, Bhatt 1999).

    (24)   a. Ikh veys **vos**   **bay mir** tut   zikh.

                 I   know what by me does refl.

                 I know what goes on with me.

           b. *Ikh veys **bay mir vos** tuto zikh.

On the other hand, in Kashmiri indirect questions, the order of the constituents is the reverse: topic-wh-verb, but never *wh-topic-verb (Bhatt 1999).

    (25)   a. me chi patah ki **batI kemyi** khyav

                 I   aux know that rice who   ate.

                I know (that) , as for rice, who ate it. (Bhatt 1999)

          b. * me chi patah ki   **kemyi batI** khyav

                 I   aux know that who   rice eat

                Intended: I know (that), as for rice, who ate it. (Bhatt 1999)

We would need to address how this intra-language variation is encoded, and how it is expressed in the syntax.

Within Kashmiri, there are also some particular restrictions. The hierarchy of projections presupposed by (15) suggests that the Topic projection has the potential to iterate (though the Focus projection cannot). However, only one topic is permitted per clause in Kashmiri, so the order *topic-focus-topic or *topic-wh-topic is unavailable, as exemplified in (11) above. Again, we would need to ask what it is about the syntax of Kashmiri in particular that restricts the number of topics.

More generally, under the assumptions of the cartographic approach, how could we determine which projections may appear in the left periphery of a given language, and in what order? Cinque (1999) is largely agnostic about what mechanisms determine these patterns. Rizzi (1997) suggests that when an element bearing the relevant features (say topic) appears within the sentence, the optional projection associated with that feature (in this case, TopP) will project on the left periphery. It seems that we would also need some device with essentially the effect of traditional phrase structure rules to restrict the inventory of left-periphery projections for a given language, and to indicate their relative order. In the case of Kashmiri, these mechanisms must permit all and only the hierarchies in (26) (where the arrow indicates immediate containment).

(26) a. ForceP → TopP → FocP (wh only) → FinP

b. ForceP → FocP → FinP

For other languages, very different patterns must be guaranteed, particularly with respect to the order and number of Topic and Focus projections.

The broader theory-internal question that opens at this point is how we wish to account for parametric variation in the grammar. To the degree that we are committed to an approach like the cartographic one, we must also be committed to the existence of phrase structure rules or similar language-specific mechanisms. On the other hand, there is a line of research that adopts as a premise that all parametric variation resides in the functional lexicon. I will suggest below that such a theory can readily be constructed given the view that the CP-domain is shaped by a single head.

5. Feature Stacking

My starting point will be the idea that the attributes of the left periphery can be accounted for by way of a single functional head whose features have some internal organization – specifically in that they are ordered, or form a stack (see Bobaljik and Thrainsson 1998). Constituents that

interact with this head can potentially undergo Move, creating multiple specifiers of this single head. Most importantly, the order of features in the stack is intended mirror (as well as to capture) the patterns being uncovered in cartographic work.

5.1 Features and the Lexicon

Features are linguistic properties that are made available by UG. A given language makes a one-time selection from these features and organizes them to form a lexicon (Chomsky, 2000). I propose that features are grouped into bundles. Each bundle is a unit that will eventually be valued in a single Probe-Goal interaction in a derivation. Each syntactic head in the lexicon is comprised of a stack of feature bundles. This stack is simply an ordered list of one or more bundles of features.

The composition of the feature bundles and the order in which they appear in a stack on a head is language-specific. In fact, the selection and organization of features into lexical items is, in this view, a principal locus of grammatical variation. The unique characteristics of the left periphery from language to language are attributed here not to phrase structure rules but instead to the featural composition of the clause-peripheral head. What are universal across languages are the mechanisms (Merge, Agree) by which these features interact, are valued, and are transferred in phases to the interfaces.

Let us now be more precise about what feature stacking is and how it might function. When a head H is introduced into the derivation as in (27), the features of feature bundle F1 must be accessed in the derivation first, followed by those in F2 to F_n sequentially.

(27)
HP

H
$[F_1]$
$[F_2]$
$[F_3]$
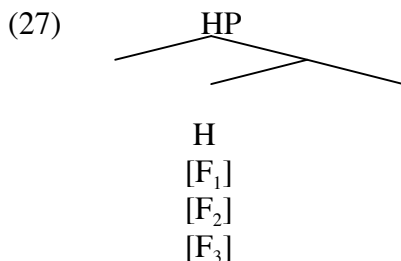
So in a stack consisting of feature bundles F1, F2, and F3, all features in F1 (a, b, c) will be valued before all features in F2 (d, e), which will be valued before all features in F3 (g).

(28)   <{F1=a,b,c}, {F2=d, e}, {F3=g}>

If a feature bundle is made simply of interpretable and unintepretable features, it will interact with an available goal vial the Agree operation. If a feature bundle in addition contains the EPP property, the relevant Goal will undergo Move (Agree + Internal Merge) to successive specifiers of the head H. In principle, it makes no difference whether we assume that those specifiers attach successively further outward from the head or "tuck-in" (Richards 2001) and are successively more proximate to the head. Here I will assume for illustrative purposes that specifiers attach successively further outward, but with respect to the questions we are interested in here, the choice between these alternatives is largely arbitrary. Below, I will follow convention in calling the single left-peripheral functional head C, and the phrase that it projects CP.
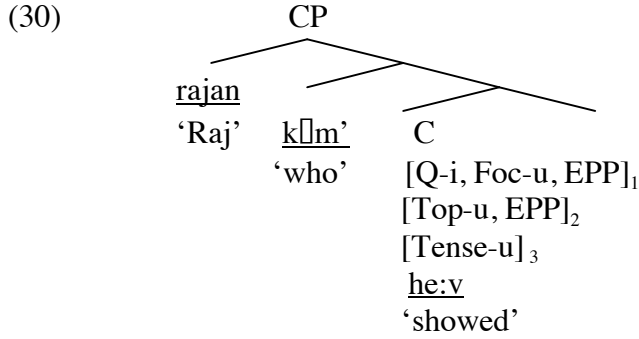
Let us turn to a more specific case, or the left periphery of a Kashmiri constituent question as in (29).

(29)   rajan k mis he:v   nev kita:b?

        Raj whom showed new book

        'As for Raj, to whom did he show his new book?'

Under the feature stacking view, the left periphery of this clause is comprised of a single CP projection. In (29), the C head must bear sets of features related to interrogative focus movement, the raising of the topic, and the raising of the second-position verb. The features controlling wh-movement and wh-expletive constructions in Kashmiri, and in fact the syntax of A-bar movement more generally, are discussed in more detail in Manetta (2006). Let us at this point choose a basic set of features to illustrate the proposal. Let us say that the features controlling interrogative focus movement are [Focus] and [Q], the feature controlling topicalization is simply [Topic], and that uninterpretable [Tense] is the feature triggering verb movement (Biberauer and Roberts, this volume). These features must be organized into a sequence of sets, which is in turn associated with or constitutes the C head in the lexicon of Kashmiri. One bundle motivates wh-movement, a second topicalization, and a third verb-second.

(30)

                          CP

         rajan

        'Raj'   k̮m'   C

               'who'   [Q-i, Foc-u, EPP]$_1$

                          [Top-u, EPP]$_2$

                          [Tense-u] $_3$

                          he:v

                          'showed'

The bundle containing the uninterpretable [Focus], the interpretable [Q] feature and the EPP will be valued first, interacting with the wh-word k̮mis' 'who'. Due to the presence of the EPP in this bundle, k̮mis will Move into Spec, CP. The second bundle of features on the C head (which includes the uninterpretable [Topic] feature and another EPP) is thereby rendered accessible and triggers movement of a Topic-DP to another specifier of CP. The third feature, uninterpretable Tense, motivates the head raising of the verb into the C head, resulting in V2. In this way, the entire left periphery of an interrogative clause in Kashmiri is contained within a single CP.

      As far as Kashmiri is concerned, the C head in (30) is one of the C heads available in the lexicon of the language. The full range of possibilities is expressed in (31).

(31)   a.   C   b.   C

           [(Q-i) Foc-u, EPP]   [Q-i, Foc-u, EPP]

           [Tense-u]   [Top-u, EPP]

                                  [Tense-u]

(31a) represents a C head in a clause in which a sole focused constituent precedes the second-position verb, whether that focus is interrogative or not. The top bundle on the C in (31a) is the set of features attracting that focused constituent, and the second bundle, consisting only of uninterpretable Tense, attracts the verb for head movement. (31b) represents a C head in a clause like (29), in which an interrogative focus precedes the second position verb and a topic precedes the interrogative focus. Note that these are not at all dissimilar to the basic observations made in (11) about what combinations of constituents are typically found at the left edge. These are the only manifestations of the C head in the Kashmiri lexicon.[4]

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[4] With the exception of the C heading relative clauses, which are unusual in Kashmiri in that they are verb-final (Wali and Koul 1997).

5.2 More on Feature Stacking

Feature bundling and stacking clearly represent an increase in technological complexity over alternative possible conceptions of the internal make-up of functional heads. We are required to view the features on a head not simply as a set, but as a list of sets. It is not clear, however, that this is an unwarranted increase. It may not go beyond the kind of complexity already observed in empirical studies of lexical structure.

It is already clear that certain features display a tendency to bundle together, and that certain features tend to bundle with the EPP property. For instance, the feature responsible for assigning nominative case to some accessible argument frequently also requires internal Merge (raising) of that argument, a property we have couched in terms of an EPP feature. On the other hand, the feature responsible for assigning accusative case to some argument often does not require internal Merge of that argument. The process of feature bundling within the lexicon is an acknowledgment of such observed tendencies.

Recent proposals for more articulated feature structuring meet or exceed in complexity the stack or ordered list discussed here. Chomsky (2005) recognizes "multiple probes" within C, and suggests that perhaps only one functional head may be necessary to account for the left peripheral region. Cowper (2005) introduces a feature geometric account of the inflectional node that requires that entailment relations hold among sets of features. The proposal here similarly asserts that when the lexicon of a given language is constructed, the appropriate features are organized onto the C head, but this view only requires that sets of features be ordered in a list.

Greater structure and organization of features may also be needed at another phase-defining head, transitive v. Constituents purported to be located in the specifier of v include externally merged subjects, shifted objects, and wh-phrases (Rackowski and Richards 2005, Manetta 2006). If, in fact, each of these constituents must occupy the single specifier of some functional head, and must occur in a fixed order, we will need to expand the vP phase in a manner similar to the split-CP. On the other hand, feature stacking could provide a means to attract any number of constituents to the vP phase edge while maintaining a single functional projection. If we have an interest in locating the source of parametric variation in the lexicon, then this account simply represents a fine-tuning of our notion of the structuring of lexical objects.

5.3 An Additional Empirical Question: The Kashmiri Subordinator ki

In this section we turn to an additional empirical challenge for the proposal made here: Kashmiri subordinate clauses. Subordinate clauses in Kashmiri differ from matrix clauses only in that all of the above mentioned constituents can optionally be preceded by the element ki.

(32)   bi o:sus yi za:na:n ki   seli:m gav ra:th   rajas sit

       I aux   this know   ki   Selim went yesterday Raj with

       'I knew that Selim went with Raj yesterday.' (Wali and Koul)

Notice that if we are committed to hosting the verb in verb-second clauses in a single C head, and the focus and topic constituents in its specifier, the element ki must be in some location at which it can precede all of these elements. One possibility under the Rizzi (1997) cartographic approach is to assume that ki is a Force particle. If this were the correct analysis, many of the difficulties that we identified above for the definition of phase-hood would re-emerge. Fortunately, however, there are a number of reasons to believe that the subordinator ki plays no particular role in determining the force of the clause it precedes.

First, ki is optional, and is never required in a subordinating construction. In fact, there are instances in which ki must not appear, such as when a clause is preposed.

(33)   (*ki) selim gav ra:th   ra;jas sit   yi   o:sus bi za:na:n

        ki   Selim went yesterday raj   with this aux I know

       'Selim went with Raj yesterday; this I knew.' (Wali and Koul)

If we can assume that the first clause in (33) is in fact a preposed subordinate clause, we can observe that ki cannot appear when the clause it precedes is preposed. If this is the case, it suggests that ki is not selected by verbs like zana:n 'know'. If ki were selected by this verb, it should appear regardless of the ultimate location of the subordinate clause. Note that the facts in (32)-(33) are almost the mirror-image of those which hold of English that (considered a typical Force head).

(34)   a. I know that Selim went with Raj yesterday.

       b. That Selim went with Raj yesterday I know.

       c. * Selim went with Raj yesterday I know.

Further clarification of the role of ki comes from embedded questions. This particle ki can appear preceding an interrogative complement, such as that of the verb prutS 'ask'.

21

(35) tem   prutS me [ki mohnan   :s-a: bul:-v-mts mi:ra:]

      3s-Erg asked me ki Mohan-erg be-Q invite -perf Mira

      'He asked me [if/whether Mohan invited Mira]'   (Davison 2003)

The fact that <u>ki</u> can appear not only in declarative contexts, but also preceding an embedded question suggests that it cannot be a marker of force.

      There are two imaginable approaches to its distribution. The first, and more conservative, would not be consistent with the single-C view of the left periphery of the clause that has been proposed here. This approach would locate <u>ki</u> in a position in the syntax, such as the head of some specifierless phrase (we could call it SubP). Of course, a number of questions arise, including whether this category has other members, why the head does not seem to have semantic content, and why this head itself seems transparent to selection. These are not insurmountable problems, but they would require additional stipulation. Further, an approach of this kind requiring multiple projections on the left edge would force us to revisit earlier questions about how phase-hood can be defined.

      A second, somewhat more radical approach, which is in line with the single-C view of the left periphery proposed here, would be to claim that <u>ki</u> is not present in the syntactic derivation, but is instead a morphological marker of the phase edge - one that is inserted following spell-out. That is, the reason <u>ki</u> does not seem to be selected by the verb, is transparent to selection, and appears to have no semantic content is that it is not actually present during the syntactic derivation. To describe this approach more formally, <u>ki</u> would be optionally inserted in each CP phase by the morphological component in the position between the V head and the material forming the edge of the immediately lower phase selected by V. In this way, <u>ki</u> serves as an audible marker of the boundary between one CP phase and another. This approach offers a way of understanding the facts in (33). The ungrammaticality of <u>ki</u> in the structure in (33), and the contrast with English shown in (34), would be hard to understand in a view in which <u>ki</u>, like <u>that</u>, is a functional head high in the C-domain. In the proposal developed here, however, there is no similarity implied between <u>ki</u> and <u>that</u>. In the morphological account, <u>ki</u> would not be inserted by the morphological component in the position in (33) (or any other sentence-initial position for that matter) because it is not located between a V head and the material on the edge of some lower phase. This approach to <u>ki</u> (and possibly other morphemes like it) deserves

exploration in greater detail, but that is beyond the scope of this paper. For now I will tentatively adopt this proposal.

5.4 Theoretical Advantages

The feature stacking analysis presented here permits us to not only maintain the empirical ground covered by the cartographic view, but also to align the account of the left periphery with recent theoretical developments.

The feature-stacking account clearly takes advantage of the notion that a single projection can have more than one specifier. If this restriction that each head may have only one specifier can be abandoned, then we are free to assume that a number of A-bar-moved constituents may not be associated with a single head. This view not only eliminates a restriction on the grammar, but has a nice empirical result for Kashmiri as well. As mentioned above, in Kashmiri verb movement to any position that is not immediately following the focused wh or non-wh constituents is ungrammatical. Recall that in the cartographic approach there were a number of other heads available into which the verb could potentially raise, and so we required additional stipulation to ensure that the verb raised only as far as the Focus head. In the feature stacking view, there is only a single CP, and therefore only one candidate target position to which the verb could raise, C. The mechanism which ensures that the verb always immediately follows the focused element in Kashmiri is in fact the order of feature bundles in the stack. In Kashmiri, the first bundle to be valued on C must be the Focus bundle. In this way, the focused-DP or wh-phrase will be the constituent most proximate to the raised verb in the C head. This characteristic of Kashmiri is captured here as a feature of the Kashmiri lexicon.

A second theoretical development discussed with reference to the cartographic analysis in section 3 had to do with the concept of the phase. The phase provides a specific way of understanding the closed unit of the clause, and of particular relevance here, the transitional nature of the clause edge. In the cartographic approach, we determined that the definition of the phase edge would need to be tailored to include the hierarchy of left edge projections. On the other hand, in the case of the feature-stacking account presented here, establishing the phase-defining head and the phase edge is less problematic. The single C head is widely claimed to be phase-defining (Chomsky 2000, 2004). All of the specifiers of CP are unambiguously at the

phase edge. This is particularly important for accounts successive-cyclic wh-movement and wh-expletive constructions (see Manetta 2006).

The feature stacking approach may have ramifications beyond accounting for the left periphery. Chomsky (2005) has suggested that properties of a language not only reduce to the properties of the functional heads, but in fact specifically to properties of the phase-defining heads. Recent research indicates that the phase-defining head C and the phase-defining head *v* may have a number of characteristics in common. In the case of successive-cyclic movement, constituents must move to the edge of each phase in order to be accessible to the higher phase. Work by Rackowski and Richards (2005) proposes that *v*P is the position at which the wh-criterion is satisfied in Tagalog. In Manetta (2006), I argue that we can even find wh-material at the *v*P phase edge (in Hindi-Urdu), just as we find them in the CP domain in other languages. If these investigations are on the right track, we might expect to find a similar constellation of constituents appearing at the *v*P-phase edge as at the CP phase. The feature-stacking approach may then help us to account not just for the left periphery, but also for the range of constituents appearing at the edge of *v*P. In this way, the technology introduced in this paper can serve to clarify the source of parallelism and variation in these domains.

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