

Deconstructing quirky subjects

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Main claim

DPs exhibit a set of subjecthood properties as a function of how high they raise in the functional sequence.

Empirical motivation

Quirky subjects in Icelandic, German, Hindi, Basque, and Laz show that the subjecthood properties exhibited by DPs obey the Quirky Subject Hierarchy: binding >> PRO >> reduced relatives

Analysis in a nutshell

- T^0 is decomposed into two separate heads, Persp(ective)⁰ to host PRO and B(inding)⁰ to bind anaphora, where $fseq = \langle C > Persp > B > v > V \rangle$.
- DPs differ in (i) how high they raise in the functional sequence and (ii) whether they can undergo projecting movement from [Spec, PerspP], the highest syntactic position, to form a reduced relative.

[NP $\xrightarrow{\quad}$ [PerspP $\xrightarrow{\quad}$ Perspective⁰ [BP $\xrightarrow{\quad}$ Binding⁰ [QS ...]]]]

1 Introduction

- Quirky (nonnominative) subjects differ across languages in whether they display the full range of properties exhibited by canonical nominative subjects. To illustrate, consider Icelandic and Hindi quirky subjects.

✓ Icelandic

Icelandic quirky subjects are well-known for exhibiting all the properties canonically ascribed to subjects other than bearing nominative case and controlling verb agreement, such as binding subject-oriented anaphora and being PRO (Andrews 1976; Þráinsson 1979; Zaenen et al. 1985; Sigurðsson 1989):

(1) a. Can bind subject-oriented anaphora

Henni_i þykir [bróðir sinn_i] leiðinlegur
her.DAT thinks brother.NOM her.REFL boring

‘She_i thinks her_i brother boring’ [Zaenen et al. 1985:450]

b. Can be PRO

Ég_i vonast til [PRO_i að vanta ekki peninga]
I.NOM hope for PRO.ACC to lack not money.ACC

‘I hope not to lack money’ [Zaenen et al. 1985:454]

✗ Hindi

Hindi quirky subjects can bind subject-oriented anaphora, but cannot be PRO (e.g. Mohanan 1994; Bhatt 2003):

(2) a. Can bind subject-oriented anaphora

Mujhe_i [apne_i sab rishtedār] pasand hē
I.DAT REFL.M.PL all relative.M like be.PRS.PL

‘I like all my relatives’ [Bhatt 2003:12]

b. Cannot be PRO

*Ravi_i [PRO_i Rina pasand ā-nā] nahī
Ravi.NOM PRO.DAT Rina.NOM like come-INF NEG
chāh-tā.
want-HAB.M.SG

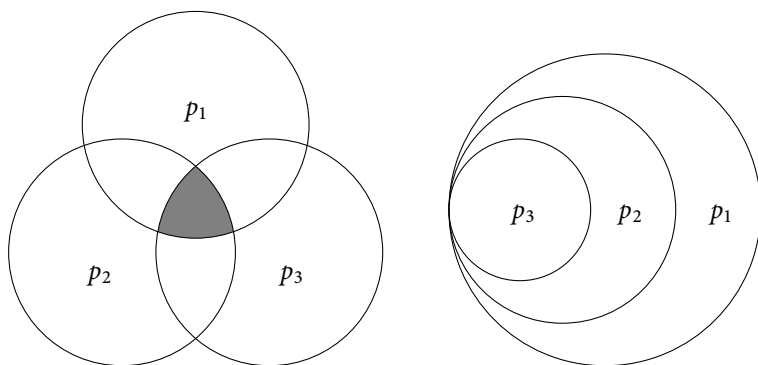
Intended: ‘Ravi doesn’t want to like Rina’

- The consensus in the literature is that quirky subjects in languages like Icelandic are “true subjects”, whereas quirky subjects in languages like Hindi are not (e.g. McFadden 2004; Preminger 2011, 2014).
- The subjecthood status of a quirky subject is determined by a suite of subjecthood diagnostics, e.g. the diagnostics of Zaenen et al. (1985).

- However, it is clear that quirky subjects in languages like Hindi are not normal obliques. They possess extra properties that are typical of subjects, but atypical of obliques, such as the ability to bind subject-oriented anaphora.
- Moreover, given the importance of quirky subjects in our understanding of the interaction between case, agreement, and movement, we do not want to base our theory on something like Icelandic quirky subjects if they might be typologically rare.

⇒ **Question**

How are subjecthood properties distributed amongst quirky subjects crosslinguistically? For example, one could imagine either of the following distributions:



- To address this question, I investigated quirky subjects in Icelandic, German, Hindi, Basque, and Laz. I used three subjecthood diagnostics: binding of subject-oriented anaphora, being PRO, and undergoing relativisation in reduced relatives.

* **Quirky Subject Hierarchy**

The pattern to emerge from the data is that the subjecthood properties crosslinguistically exhibited by quirky subjects obey an *implicational hierarchy*:

- (3) **QUIRKY SUBJECT HIERARCHY**
binding >> PRO >> reduced relatives

⇒ **Question that follows**

How do we account for this implicational hierarchy?

* **Answer in this talk**

A DP exhibits a set of subjecthood properties as a function of how high it raises in the functional sequence. The crosslinguistic variation in the behaviour of

quirky subjects is the result of quirky subjects differing across languages in how high they raise in the functional sequence.

• **Structure of this talk**

1. I present a suite of crosslinguistic subjecthood diagnostics: binding of subject-oriented anaphora, PRO, and reduced relatives.
2. Applying these diagnostics to quirky subjects in Icelandic, German, Hindi, Basque, and Laz shows that the subjecthood properties exhibited by quirky subjects constitute an implicational hierarchy, called the Quirky Subject Hierarchy (QSH).
3. I implement the QSH in the syntax by proposing the Height Conjecture: DPs exhibit subjecthood properties as a function of how high they raise in the functional sequence.
4. I discuss how the empirical generalisations encoded in the QSH are incompatible with the existing views of subjecthood in the literature.

2 Subjecthood diagnostics

• **Standard subjecthood diagnostics**

The standard suite of subjecthood diagnostics comes from Zaenen et al. (1985) and includes four crosslinguistic tests for subjecthood:

1. Binding of subject-oriented anaphora
2. Being PRO
3. Raising-to-object (ECM)
4. Conjunction reduction

- These diagnostics (or a subset of them) are adopted in the recent literature on subjecthood (e.g. Sigurðsson 1989, 2002, 2004; Mohanan 1994; Fanselow 2002; Barðdal 2002; Barðdal & Eyþórsson 2003a,b, 2005; Bayer 2004; McFadden 2004; Gutiérrez-Bravo 2006; Rákosi 2006; Wunderlich 2009; Preminger 2011, 2014).

- Moreover, following Zaenen et al. (1985), the de facto assumption in the literature is that nominative case and controlling verb agreement are not properties of subjects.

- **Section outline**

I select three tests to form a revised suite of subjecthood diagnostics: (i) binding of subject-oriented anaphora and (ii) being PRO, taken from Zaenen et al. (1985), in addition to (iii) undergoing relativisation in reduced relatives.¹

2.1 Binding of subject-oriented anaphora

- Many languages have a special subclass of anaphora whose antecedent must be the subject, which are called SUBJECT-ORIENTED ANAPHORA (SOAs). English is not such a language, but Danish is:

(4) **Danish**

at Peter_i fortalte Michael_j om sig selv_{i/*j}
 that Peter told Michael about REFL
 ‘that Peter_i told Michael_j about himself_{i/*j}’ [Vikner 1985:10]

- There is some variation in whether SOAs need bound locally (e.g. Danish *sig selv*) or nonlocally (e.g. Danish *sig*), or either (e.g. Finnish *itse*), but they are crucially always bound by a subject.

⇒ Therefore, SOAs provide a crosslinguistic subjecthood diagnostic:

(5) **BINDING DIAGNOSTIC**

If XP can bind subject-oriented anaphora, XP is a subject.

2.2 PRO

- PRO can be a subject, but not an object. This generalisation holds regardless of whether PRO is subject-controlled (6), object-controlled (7), or arbitrarily-controlled (8):

(6) **Subject-controlled**

- Fernanda_i wanted [PRO_i to hug Megan]
- *Fernanda_i wanted [(Megan) to hug PRO_i]

(7) **Object-controlled**

- Fernanda told Hsin-Lun_i [PRO_i to hug Megan]
- *Fernanda told Hsin-Lun_i [(Megan) to hug PRO_i]

¹ In the interest of time, I have omitted the arguments against raising-to-object and conjunction reduction as subjecthood diagnostics.

(8) **Arbitrarily-controlled**

- [PRO_{arb} to hug Fernanda] is fantastic
- * [(Fernanda) to hug PRO_{arb}] is fantastic

⇒ Therefore, PRO provides a crosslinguistic subjecthood diagnostic:

(9) **PRO DIAGNOSTIC**

If XP can be PRO, XP is a subject.

2.3 Reduced relatives

- In reduced relative clauses (RRCs), the relativised element can only occur in the subject position:

- (10) a. the Basque_i [____i giving Stefan the rutabaga]
 b. *the German_i [Jon Ander giving ____i the rutabaga]
 c. *the rutabaga_i [Jon Ander giving Stefan ____i]

⇒ Therefore, RRCs provide a crosslinguistic subjecthood diagnostic:

(11) **REDUCED RELATIVE DIAGNOSTIC**

If XP can be relativised on in reduced relatives, XP is a subject.

- Whereas the Binding Diagnostic and the PRO Diagnostic are taken from Zaenen et al. (1985) and therefore commonly used in the literature, the Reduced Relative Diagnostic is new. As far as I am aware, it has not before been used to diagnose subjecthood.

3 Experiencer subjects

- **Assumptions**

- A QUIRKY SUBJECT is a subject marked with a nonnominative case.
- The SUBJECT is the highest base-generated argument (*working assumption*).
- By these definitions, quirky subjects include **experiencers** in Icelandic, German, Hindi, Basque, and Laz; **ergatives** in Hindi, Basque, and Laz; and **oblique objects under passivisation** in Icelandic, German, and Hindi.

⇒ In this presentation, I will focus on **experiencer quirky subjects** because they exist in all five languages under investigation and suffice to illustrate the empirical generalisation that emerges from the broader study.

- **Hindi**

Quirky subjects in Hindi can bind SOA, but cannot be PRO or undergo relativisation in RRCs.

- (12) a. **Binding Diagnostic** ✓
 Mujhe_i [apne_i sab rishtedār] pasand hē
 I.DAT REFL.M.PL all relative.M like be.PRS.PL
 ‘I like all my relatives’ [Bhatt 2003:12]
- b. **PRO Diagnostic** ✗
 *Ravi_i [PRO_i Rina pasand ā-nā] nahī
 Ravi.NOM PRO.DAT Rina.NOM like come-INF NEG
 chāh-tā.
 want-HAB.M.SG
Intended: ‘Ravi doesn’t want to like Rina’
- c. **Reduced Relative Diagnostic** ✗
 * [____i coṭ lag-ā] laṛkā_i ...
 ____.DAT hurt contact-PFV boy
Intended: ‘the hurt boy ...’

- **German**

Quirky subjects in German can bind SOA, but cannot be PRO or undergo relativisation in RRCs.

- (13) a. **Binding Diagnostic** ✓
 [Dem Fritz]_i gefällt [das Bild von sich_i]
 the.DAT Fritz likes the.NOM picture of REFL
 ‘Fritz likes the picture of himself’
- b. **PRO Diagnostic** ✗
 *Fritz_i hofft [PRO_i geholfen zu werden]
 Fritz hopes PRO.DAT helped to be
Intended: ‘Fritz hopes to be helped’
- c. **Reduced Relative Diagnostic** ✗
 *der [____i der Fritz gefallende] Mann_i ...
 the.NOM ____.DAT the.NOM Fritz like.PTCP man
Intended: ‘the man who likes Fritz ...’

- **Basque**

Quirky subjects in Basque can bind SOA, but cannot be PRO or undergo relativisation in RRCs.

- (14) a. **Binding Diagnostic** ✓
 Jon-i_i [bere buru-a]_i gusta-tzen zaio
 Jon-DAT his head-DET.NOM like-IMPV AUX(3SG.ABS-3SG.DAT)
 ‘Jon likes himself’
- b. **PRO Diagnostic** ✗
 *Jon-ek_i [PRO_i gustatu Miren] nahi du
 Jon-ERG PRO.DAT like Miren.NOM want AUX(3SG.ABS-3SG.ERG)
Intended: ‘Jon wants to like Miren’
- c. **Reduced Relative Diagnostic** ✗
 * [____i Miren gustatu-ta-ko] gizon-a_i ...
 ____.DAT Miren.NOM like-PTCP-LOC man-DET.NOM
Intended: ‘the man who likes Miren ...’

- **Icelandic**

Quirky subjects in Icelandic can bind SOA and be PRO, but cannot undergo relativisation in RRCs.

- (15) a. **Binding Diagnostic** ✓
 Henni_i þykir [bróðir {sinn_i / *hennar_i}] leiðinlegur
 her.DAT thinks brother.NOM her.REFL her boring
 ‘She_i thinks her_i brother boring’ [Zaenen et al. 1985:450]
- b. **PRO Diagnostic** ✓
 Ég_i vonast til [PRO_i að vanta ekki peninga]
 I.NOM hope for PRO.ACC to lack not money.ACC
 ‘I hope not to lack money’ [Zaenen et al. 1985:454]
- c. **Reduced Relative Diagnostic** ✗
 * [____i ekni] bíll-inn_i ...
 ____.DAT driven car-the.NOM
Intended: ‘the driven car ...’ [Einar Freyr Sigurðsson, p.c.]

- **Laz**

Quirky subjects in Laz can bind SOA, be PRO, and undergo relativisation in RRCs.

- (16) a. **Binding Diagnostic** ✓
 [Ham biç’i-s]_i ti-muşı_i opşa a-limb-en
 this boy-DAT head-POSS.3.NOM much APPL-love-IMPV
 ‘This boy loves himself very much’ [Demirok 2013:21]

- b. **PRO Diagnostic** ✓
 Bere-ki [PRO_i layç'-epe o-limb-u] gor-um-s
 child-ERG PRO.DAT dog-PL.NOM NMS-love-NMS want-IMPV-3
 ama a-şk'urin-en
 but APPL-fear-IMPV-3
 'The child wants to love the dogs, but s/he fears' [Demirok 2013:25]
- c. **Reduced Relative Diagnostic** ✓
 [____i ma limb-eri] bere_i
 ____.DAT 1.NOM love-PTCP child.NOM
 'the child who has loved me' [Demirok, p.c.]

• **Summary of empirical findings**

The empirical findings are summarised in the table below:

	Binding	PRO	Reduced relatives
Hindi	✓	✗	✗
German	✓	✗	✗
Basque	✓	✗	✗
Icelandic	✓	✓	✗
Laz	✓	✓	✓

4 Quirky Subject Hierarchy

- The findings show that the subjecthood diagnostics do not identify a unified property of subjecthood, but rather each identify a unique property which we canonically associate with subjecthood.

* **An implicational hierarchy of subjecthood properties**

An empirical generalisation does emerge however from the data: the subjecthood properties exhibited by quirky subjects obey an *implicational hierarchy*:

- (17) **QUIRKY SUBJECT HIERARCHY (QSH)**
 binding >> PRO >> reduced relatives

- Notation: For a hierarchy $p_1 \gg p_2 \gg \dots \gg p_n$, a DP has property p_{i+1} only if it has property p_i (i.e. $p_{i+1} \rightarrow p_i$).
- The QSH captures two empirical generalisations:
 - If a quirky subject can be relativised on in RRCs, it can also be PRO and bind SOAs.
 - If a quirky subject can be PRO, it can also bind SOAs.

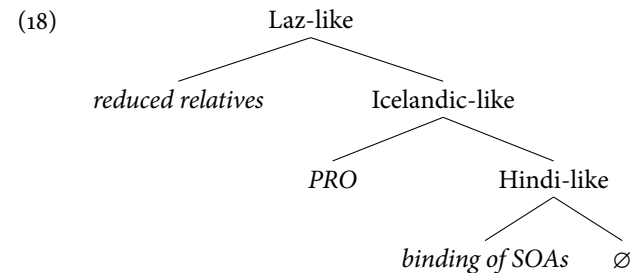
⇒ **All DPs obey the QSH**

Even though the QSH is based on an investigation of quirky subjects, it applies to all DPs:

- **Nominative subjects** → **All**
 On the highest end of the hierarchy, nominative subjects possess all of the three properties.
- **Objects** → **None**
 On the lowest end of the hierarchy, objects possess none of the three properties. If a DP possesses none of the properties, it still adheres to the QSH, but it is not a subject in any sense.
- **Quirky subjects** → **Vary**
 Quirky subjects sit somewhere in the middle, the exact position depending on the type of quirky subject and the language—this variation makes them the interesting empirical domain of inquiry.

• **Typological predictions**

The QSH predicts the following typology of quirky subjects:



- ✓ The QSH predicts that the following three types of quirky subjects exist:

- Laz-like quirky subjects:**
 Can be relativised on in RRCs, be PRO, and bind SOAs.
 binding >> PRO >> reduced relatives
- Icelandic-like quirky subjects:**
 Can be PRO and bind SOAs.
 binding >> PRO >> reduced relatives
- Hindi-like quirky subjects:**
 Can bind SOAs.
 binding >> PRO >> reduced relatives

✗ The QSH predicts that the following three types of quirky subjects do *not* exist:

1. Can be relativised on in RRCs, but not be PRO.

*binding >> PRO >> reduced relatives

* binding >> PRO >> reduced relatives

2. Can be relativised on in RRCs, but not bind SOAs.

*binding >> PRO >> reduced relatives

*binding >> PRO >> reduced relatives

3. Can be PRO, but not bind SOAs.

*binding >> PRO >> reduced relatives

*binding >> PRO >> reduced relatives

• *Surveying more languages with quirky subjects*

A potential criticism of the QSH is that it is based on only five languages, even though no study of even this relatively small magnitude exists. To mitigate this concern, I have surveyed the literature on quirky subjects in eleven other languages. Insofar as the data are available (e.g. data on RRCs are rarely available), I have found no exception to the QSH.

– Faroese: Jónsson 2009; Þráinsson 2007; Þráinsson et al. 2004

– Gujarati: Mistry 2004

– Hungarian: Rákosi 2006

– Kannada: Amritavalli 2004

– Korean: Yoon 2004

– Malayalam: Jayaseelan 2004

– Marathi: Wali 2004

– Russian (?): Schoorlemmer 1994; Moore & Perlmutter 2000; Sigurðsson 2002

– Spanish: González 1988; Masullo 1993; Gutiérrez-Bravo 2006

– Telugu: Subbarao & Bhaskararao 2004

5 The Height Conjecture

* *Proposal*

A DP exhibits a set of subjecthood properties as a function of how high it raises in the functional sequence:

(19) **THE HEIGHT CONJECTURE**

a. Let $fseq$ be the functional sequence $\langle X_1 > X_2 > \dots > X_n \rangle$ such that X_i takes X_{i+1} as its complement.

b. Let $m(x)$ be the mapping from functional heads to properties $\{\langle X_1, p_1 \rangle, \langle X_2, p_2 \rangle, \dots, \langle X_n, p_n \rangle\}$ such that $p_1 \gg p_2 \gg \dots \gg p_n$.

c. Given $fseq$ and $m(x)$, a DP base-merged in $[\text{Spec}, X_k P]$ bears p_i only if it moves to $[\text{Spec}, X_i P]$ through $[\text{Spec}, X_j P]$ for all j such that $k < j < i$.

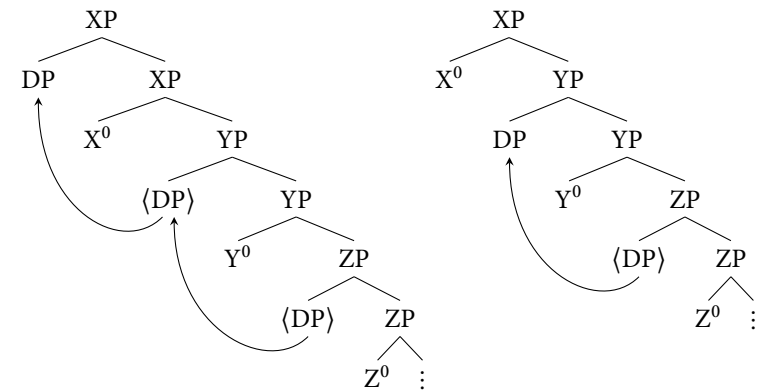
• The Height Conjecture maps an implicational hierarchy onto the syntactic structure and derives the implicational relationships via movement.²

• *Illustration of the proposal*

Take $fseq = \langle X > Y > Z > \dots \rangle$ and $m(x) = \{\langle X, x \rangle, \langle Y, y \rangle, \langle Z, z \rangle, \dots\}$:

(20) DP has properties x, y, z

(21) DP has properties y and z



• In (20), the DP raises to $[\text{Spec}, XP]$ through $[\text{Spec}, YP]$ and $[\text{Spec}, ZP]$ such that it receives all three properties: $x, y,$ and z .

² I will argue that the QSH maps onto syntactic structure high in the functional sequence. This raises the question about whether such implicational relationships exist for structure lower in the functional sequence as well, e.g. for objects. I leave this topic for future research.

- In (21), the DP only raises to [Spec, YP] through [Spec, ZP] such that it receives properties y and z , but not x .

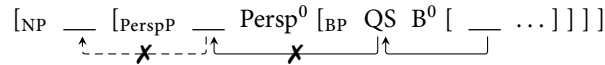
⇒ The Height Conjecture in (19c) stipulates that a DP moves cyclically through each specifier until arriving at its targeted landing site. In the following section, I implement this stipulation with particular combinations of movement-driving features. This stipulation will suffice to illustrate how the Height Conjecture accounts for the QSH, but see the appendix for a more principled explanation.

• Application to the QSH in a nutshell

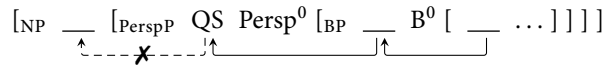
The remainder of this section details how the Height Conjecture accounts for the QSH. The analysis comprises three parts:

1. T^0 is decomposed into Persp(ective)⁰ to host PRO and B(inding)⁰ to bind SOA where Persp⁰ > B⁰.
 2. Quirky subjects vary in how high they raise in the functional sequence.
 3. When a quirky subject can raise to [Spec, PerspP], it may be able to undergo further projecting movement to form an RRC.
- These two dimensions of variation yield three types of quirky subjects:

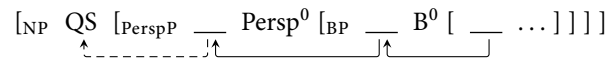
(22) Hindi-like quirky subjects



(23) Icelandic-like quirky subjects



(24) Laz-like quirky subjects



5.1 Decompose T^0

- The QSH suggests that the syntactic position canonically associated with subjects, namely [Spec, TP], serves two purposes relevant to subjecthood:
 1. To host PRO.
 2. To establish the binding relationship between SOAs and their antecedents.

⇒ T^0 should be decomposed into two separate functional heads α^0 to host PRO and β^0 to establish the binding relationship of SOAs, where α^0 crosslinguistically projects above β^0 .

$$(25) \quad fseq = \langle C > \alpha > \beta > \nu > V \rangle$$

- With the functional sequence in (25), the QSH can be derived syntactically according to the Height Conjecture: quirky subjects vary across languages in whether they raise to [Spec, αP] through [Spec, βP] or just to [Spec, βP].

• Identity of α^0 and β^0

There are a few plausible options for the identity of α^0 and β^0 . Consider the following two options:

1. α^0 and β^0 are heads standardly assumed to be in the functional sequence.
2. α^0 and β^0 are distinct functional heads whose purposes are solely to host PRO and bind SOA respectively.

- An instantiation of the first option is $\alpha^0 = T^0$ and $\beta^0 = \nu^0$, following Williams (2003) who argues that control takes place at TP and anaphora binding takes place at νP . This predicts that any XP merged in [Spec, νP] can bind SOA. I leave open whether this option is viable given other functionality typically ascribed to T^0 and ν^0 .

- For the sake of exposition, I assume the second option: $\alpha^0 = Persp(ective)^0$ and $\beta^0 = B(inding)^0$. Below, I sketch out what these specialised functional heads do.

$$(26) \quad fseq = \langle C > Persp > B > \nu > V \rangle$$

• Persp(ective)⁰

Following Sundaresan (2012), I propose that perspective, an analogue of logophoricity, is represented in the syntax as Persp⁰. Persp⁰ represents a function of type $\langle e, st \rangle$ that relates a perspective holder to an eventuality and that combines via Event Identification, like Voice⁰ (Kratzer 1996):³

$$(27) \quad [[Persp^0]] = \lambda x. \lambda e. PerspHolder(e, x) \quad \text{[Sundaresan 2012:180]}$$

- The perspectival holder contains the coordinates of the perspectival centre, e.g. time and location.
- PRO contains the coordinates of the attitude holder. By raising to [Spec, PerspP], it establishes the attitude holder as the perspectival centre.

– Deriving *de se*

The *de se* interpretation of PRO is the result of identity between the perspectival holders in the matrix clause and the embedded clause (i.e. the same coordinates). Movement of PRO to [Spec, PerspP] is a necessary, but not sufficient condition for achieving its *de se* interpretation.

³ Landau (2013) also defines control partly in terms of logophoricity.

– *Forcing de se in control clauses*

The complement of a control predicate is subject to the Perspectival Centre Constraint (28) at LF such that if a DP does not raise to [Spec, PerspP] in the complement of a control predicate, the derivation crashes at the LF interface.⁴

(28) **PERSPECTIVAL CENTRE CONSTRAINT**

The complement of a control predicate must have an explicit perspectival centre.

• *B(inding)⁰*

The connection between SOAs and the subject is standardly mediated through T⁰. The anaphor agrees with T⁰ whose specifier is its binder (e.g. Reinhart & Reuland 1993; Kratzer 2009). The same functionality can be transferred to B⁰. A simple denotation for B⁰ is in (29) where *r* is the special index borne by SOAs such that a DP must move to [Spec, BP] in order to bind DPs bearing index *r*.

$$(29) \quad \llbracket B^0 \rrbracket^g = \lambda P. \lambda x. \llbracket P \rrbracket^g[r \rightarrow x]$$

- Again, these are only sketches of analyses to show that such functional heads are feasible. Full-blown theories of control and SOA are beyond the scope of this project.

5.2 Source of variation #1: Height in the functional sequence

⇒ Quirky subjects vary in how high they raise in the functional sequence, i.e. to [Spec, PerspP] through [Spec, BP] or just to [Spec, BP]. Therefore, the Height Conjecture dictates which properties that they bear.

• *Notation*

[•F•] features trigger MERGE upon AGREE. [*F*] features are satisfied by pure AGREE. (Heck & Müller 2007)

• *Movement is driven by case-relativised probes*

Probes can be case-relativised to positions on the (Revised) Moravcsik Hierarchy (Bobaljik 2008; Preminger 2011, 2014):

(30) **THE (REVISED) MORAVCSIK HIERARCHY**

unmarked >> dependent >> lexical/inherent [Bobaljik 2008:303]

That is, [*NOM*] agrees with only nominative DPs, [*DEP*] only agrees with dependent-case and nominative DPs, and [*D*] agrees with any DP.

⁴ Another possibility is that the type of PRO is such that it must raise from its base position to avoid type mismatch, e.g. $\langle st, \langle e, st \rangle \rangle$ (shifting from a proposition to a property). This would require a different denotation of Persp⁰, but it would also account for PRO under nonattitudinal predicates, e.g. *tell* and *neglect*.

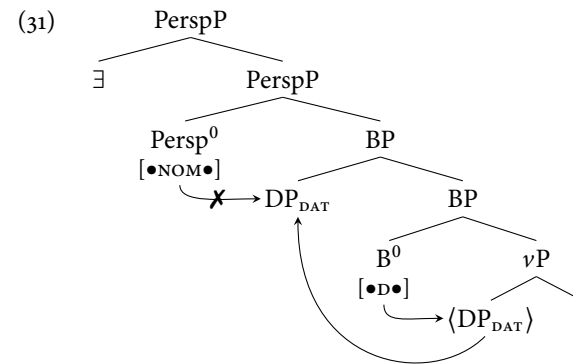
- I make use of two structure-building (EPP) probes: [•NOM•] and [•D•].

• *Assumption about probing*

Features probe down into the accessible structure until they encounter a DP. If that DP satisfies the feature, the feature agrees with the DP; otherwise, the probe aborts and discontinues searching. Therefore, only the highest DP in the structure is eligible to move to [Spec, BP] and subsequently to [Spec, PerspP].

• *Hindi-like quirky subjects*

Hindi-like quirky subjects only raise to [Spec, BP] because, in languages like Hindi, B⁰ bears [•D•], but Persp⁰ bears [•NOM•].⁵

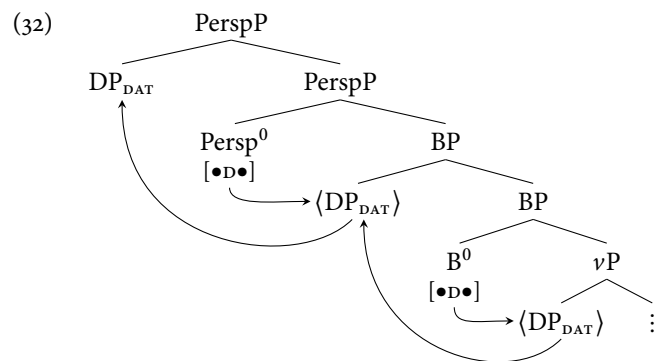


- When the quirky subject is PRO, it does not raise high enough to [Spec, PerspP] for a perspectival centre to be selected such that the Perspectival Centre Constraint is not satisfied. Hence, Hindi-like quirky subjects cannot occur in the complement of a control predicate.

⁵ Existential closure is required to avoid type mismatches, which is why the Perspectival Centre Constraint requires an *explicit* perspectival centre to be established in the complement of a control predicate. Existential closure will not satisfy the constraint.

- **Icelandic-like quirky subjects**

Icelandic-like quirky subjects raise to [Spec, BP] and then to [Spec, PerspP] because, in languages like Icelandic, both Persp⁰ and B⁰ bear [**•D•**]:



- When the quirky subject is PRO, the Perspectival Centre Constraint is satisfied because PRO has raised to [Spec, PerspP]. Hence, Icelandic-like quirky subjects can occur in the complement of a control predicate.
- Due to case-relativised probing, when a nominative DP occurs in structures like (31) and (32), it will raise all the way to [Spec, PerspP] through [Spec, BP] because a nominative DP satisfies both [**•NOM•**] and [**•D•**].

5.3 Source of variation #2: Reduced relative formation

⇒ When a quirky subject can raise to [Spec, PerspP], it may or may not be able to undergo further projecting movement to form an RRC.

- **Background: Forming a reduced relative**

To form a relative clause, the relativised element must raise to the edge of the clause. The relativised element then undergoes short projecting movement to form the head NP (Bhatt 2006).⁶

- The difference between a finite relative clause (FRC) and a reduced relative clause (RRC) is that an FRC has a CP layer and an RRC does not.
- In an FRC, the CP layer permits \bar{A} -movement to the edge of the clause.⁷ Therefore, any argument position can be relativised on:

⁶ Another prevalent analysis of relative-clause formation is that the relativised element is deleted under identity with N⁰ (e.g. Chomsky 1965). Either analysis of relative-clause formation is compatible with this paper because movement to the edge of the clause is a prerequisite in both analyses.

⁷ I am assuming that \bar{A} -movement targets [Spec, CP] (see e.g. Sauerland 1998).

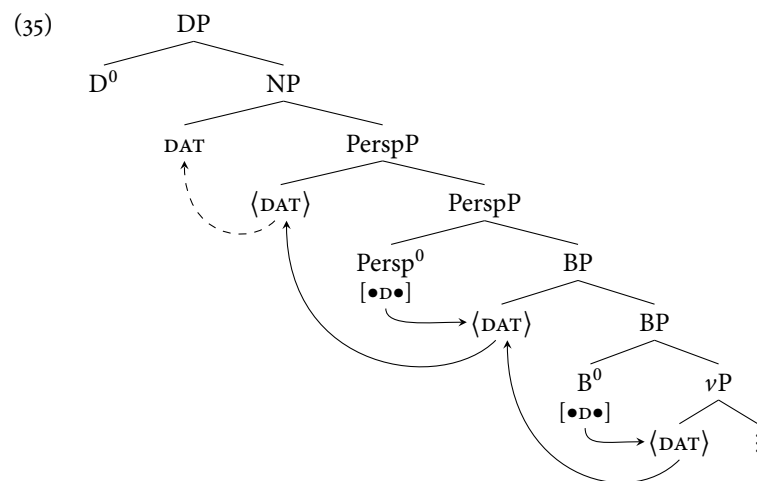
- (33)
- the Basque_i [who ____i gave Stefan the rutabaga] *Agent*
 - the German_i [who Jon Ander gave ____i the rutabaga] *Goal*
 - the rutabaga_i [that Jon Ander gave Stefan ____i] *Theme*

– In an RRC, an XP must reach the edge of the clause via other means (i.e. A-movement) to be relativised on. Therefore, only the subject can be relativised on:

- (34)
- the Basque_i [____i giving Stefan the rutabaga] *Agent*
 - * the German_i [Jon Ander giving ____i the rutabaga] *Goal*
 - * the rutabaga_i [Jon Ander giving Stefan ____i] *Theme*

- **Laz-like quirky subjects**

Laz-like quirky subjects are just like Icelandic-like quirky subjects, except they can undergo projecting movement from [Spec, PerspP] to form an RRC.⁸



- The ability of RRCs to be formed on quirky subjects in languages like Laz indicates that they occupy the specifier position of the highest syntactic projection. As predicted, in Laz, quirky subjects can also be PRO and bind SOAs.

⁸ As the case of the quirky subject does not preserve in the matrix clause in Laz, we may need some mechanism of case overwriting. See Deal (2014) who proposes such an analysis for relative clauses in Nez Perce.

⇒ **Support for a height distinction**

This provides support for quirky subjects being at different heights in different languages. However, it is not as fine-grained a diagnostic as one would like because it can only distinguish between the highest and not highest position.

• **An aside: Similarities with Representation Theory**

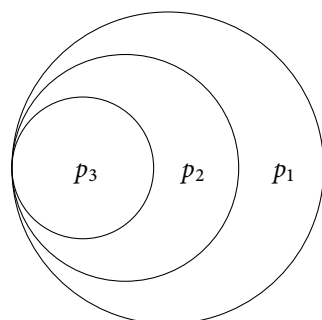
In Representation Theory (RT), each level defines its own particular kind of subject (Williams 2003:80–93). For example, the subject in TP can be controlled and the subject in LP (Logic Phrase) is identified with EPP subjects.

- Williams (2006) exploits this notion to explain the difference between subjects in English, which can be PRO, and in Russian, which cannot be PRO. In English, the surface subject is the subject in both TP and LP. In Russian, the surface subject is only the subject in LP, which is why it cannot be PRO.
- Equating timing in RT with height in standard theory, the Height Conjecture and the notion of subject in RT share the same intuition, although the reasoning is from a different angle and the implementation differs.

6 The nature of subjecthood

- According to the QSH, the distribution of subjecthood properties follows a subset relationship, as illustrated below.

(36)



- We are left to decide what we want to label as “subjects”, but this choice of labelling is inconsequential. What is important is that the subjecthood properties bear a subset relationship to one another.

• **Section outline**

This section considers precisely what the QSH entails for the different views of subjecthood found in the literature. The conclusion will be that the existing views are incompatible with the QSH.

6.1 Gradient view

- A view of subjecthood, which is common particularly in the LFG literature, is that subjecthood is *gradient* or *on a continuum* (e.g. Mohanan 1994; Barðdal 2002; Barðdal & Eyþórsson 2003a,b, 2005; Bayer 2004; Keenan 1976):

(37) **GRADIENT VIEW**

A DP is a subject iff it possesses any subset of the maximal set of subjecthood properties.

- This view is largely a response to the crosslinguistic variation of quirky subjects.

⇒ **Empirical problem**

Even though the gradient view is compatible with the QSH, it makes typological predictions that do not bear out. If subjecthood is genuinely gradient, for x number of subjecthood properties, we expect to find 2^x different types of DPs.

- This typological prediction is incompatible with the QSH.

6.2 Absolute-metric view

- Following Zaenen et al. (1985), another common view of subjecthood is that the suite of subjecthood diagnostics constitute an *absolute metric of subjecthood* (e.g. Zaenen et al. 1985; Sigurðsson 1989, 2002, 2004; McFadden 2004; Gutiérrez-Bravo 2006; Rákosi 2006; Preminger 2011, 2014):

(38) **ABSOLUTE-METRIC VIEW**

A DP is a subject iff it passes every diagnostic.⁹

- “I am using the term quirky subject to refer specifically to instances of non-nominative noun-phrases that pass the full battery of subjecthood diagnostics.” (Preminger 2011:129)

• **Unified property of subjecthood**

One interpretation of this view is that there is some unified property of subjecthood. Therefore, a DP should either pass every diagnostic or fail every diagnostic because the diagnostics all probe for the same property.

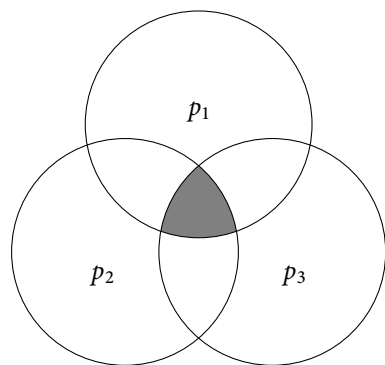
- ⇒ This strict interpretation is incompatible with the QSH because in the languages under investigation, excluding Laz, quirky subjects pass only *some* of the diagnostics, an outcome that this interpretation predicts to be impossible.

⁹ Given the QSH, this view effectively amounts to saying that a DP must pass the Reduced Relative Diagnostic to be a subject.

- **Concatenation of properties**

Another interpretation is that the conjunction of all the properties makes a DP a subject:

(39)



⇒ This view predicts that we should find DPs that exhibit each property independently. For example, we should find a DP that can be PRO, but not bind SOA. However, this prediction is incompatible with the QSH.

- **Weaker version**

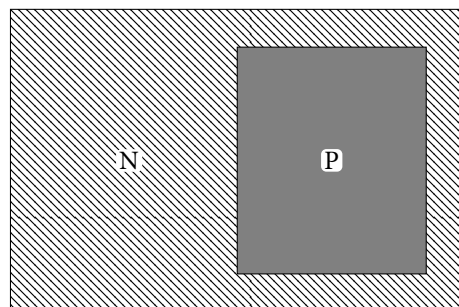
Maintaining this view requires weakening the absolute-metric view such that only some diagnostics are necessary for subjecthood and others are extra properties that only subjects can possess:

(40) **ABSOLUTE-METRIC VIEW (WEAK)**

A DP must possess some minimal set of properties to be a subject, but subjects may also commonly possess a number of additional properties.¹⁰

- In other words, there is a set of properties P that subjects *can* possess, but only a subset of these properties N does a subject *need* to possess:

(41)



¹⁰ Although no one in the literature explicitly argues for this view of subjecthood, at least as far as I am aware, it is what the absolute-metric view would be forced into given the QSH.

- For example, N might include being PRO and P might include being able to be relativised on in a RRC.

⇒ **Conceptual problem**

The designation between subject and nonsubject is arbitrary. We can simply redefine the notion of subjecthood to include those languages where we want quirky subjects to be true subjects by including and excluding specific diagnostics.

- For example, if we want Icelandic quirky subjects to be true subjects, we assert that the Binding Diagnostic and the PRO Diagnostic are the two necessary diagnostics. If we want Hindi quirky subjects to be true subjects, we assert that only the Binding Diagnostic is necessary.

⇒ **Not expressive enough**

The real problem with this weaker absolute-metric view is that it is not expressive enough because it only has two levels. The QSH requires more articulation to capture the implicational relationships. Once you start adding these extra layers to (41), it starts to look like (36).

- In this sense, the QSH is an improvement on this view given the data.

7 Conclusion

- I have presented a suite of crosslinguistic subjecthood diagnostics: binding of subject-oriented anaphora, PRO, and reduced relatives.
- The behaviour of quirky subjects in Icelandic, German, Hindi, Basque, and Laz on these diagnostics constitutes an implicational hierarchy:

(42) **QUIRKY SUBJECT HIERARCHY (QSH)**

binding >> PRO >> reduced relatives

- To account for the QSH, I have proposed the Height Conjecture: DPs exhibit a set of subjecthood properties as a function of how high they raise in the functional sequence.
- The QSH is the result of DPs differing in (i) how high they raise in the functional sequence and (ii) whether they can undergo projecting movement from [Spec, PerspP], the highest syntactic position, to form a reduced relative.
- The absolute-metric and gradient views of subjecthood are incompatible with the empirical generalisation encapsulated in the QSH.

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Appendix: Downwards feature percolation

- As discussed earlier, the Height Conjecture stipulates that a DP moves cyclically through each specifier until arriving at its targeted landing site. Until now, I have abstracted away from this stipulation by using only particular combinations of movement-driving features, which derives this cyclic movement.

- **Problem**

Only certain combinations of probes on Persp^0 and B^0 are possible given the Height Conjecture and the QSH:

- (43) a. $\text{Persp}^0: [\bullet\text{NOM}\bullet], B^0: [\bullet\text{NOM}\bullet]$ ¹¹
 b. $\text{Persp}^0: [\bullet\text{D}\bullet], B^0: [\bullet\text{D}\bullet]$
 c. $\text{Persp}^0: [\bullet\text{NOM}\bullet], B^0: [\bullet\text{D}\bullet]$
 d. $*\text{Persp}^0: [\bullet\text{D}\bullet], B^0: [\bullet\text{NOM}\bullet]$

- The combination $[\bullet\text{D}\bullet]-[\bullet\text{NOM}\bullet]$ would allow a dative DP to skip over [Spec, BP], i.e. a dative DP that can be PRO but not bind SOA—which violates the QSH.

⇒ **Generalisation**

The probe on Persp^0 must be a subset of the probe on B^0 .

- **Assumption**

Operations apply simultaneously at SPELLOUT (Chomsky 2007, 2008).

- **Proposal**

To account for this generalisation, I propose a system of downwards feature percolation:

(44) DOWNWARDS FEATURE PERCOLATION

When a functional head α^0 probes into the structure to satisfy the feature [F], α^0 copies [F] onto every functional head in its search path until it finds a suitable goal.

(45) UNION PROBING

When a head has two probes $[F_1]$ and $[F_2]$, it probes with the union of these two features $[F_1] \cup [F_2]$.

- **Application to the QSH**

Languages differ with respect to whether Persp^0 has access to $[\bullet\text{NOM}\bullet]$ and $[\bullet\text{D}\bullet]$ and B^0 has access to $[\bullet\text{NOM}\bullet]$ and $[\bullet\text{D}\bullet]$.

- **Hindi-like languages:**

$\text{Persp}^0: [\bullet\text{NOM}\bullet], B^0: [\bullet\text{NOM}\bullet]$ and $[\bullet\text{D}\bullet]$

- **Icelandic-like and Laz-like languages:**

$\text{Persp}^0: [\bullet\text{NOM}\bullet]$ and $[\bullet\text{D}\bullet], B^0: [\bullet\text{NOM}\bullet]$ and $[\bullet\text{D}\bullet]$

- In any given derivation, Persp^0 and B^0 each receive a probe at random, contingent on which probes are accessible to each head given the language.

⇒ Consider when Persp^0 receives $[\bullet\text{D}\bullet]$ and B^0 receives $[\bullet\text{NOM}\bullet]$ —the illicit combination. Whenever Persp^0 probes down into the structure, it copies $[\bullet\text{D}\bullet]$ onto B^0 . As $[\bullet\text{NOM}\bullet] \cup [\bullet\text{D}\bullet]$ is equivalent to $[\bullet\text{D}\bullet]$, the illicit combination is effectively overwritten.

¹¹ One might consider English to be a $[\bullet\text{NOM}\bullet]-[\bullet\text{NOM}\bullet]$ language if experiencer arguments of verbs like *seem* are treated as datives because these arguments are ineligible to be subjects but block another DPs raising over them, i.e. they intervene.