Headhunting at the Edge of the C:

A Probe-Goal Analysis for Free Relative Clauses [[1]](#footnote-1)

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# Introduction

This talk presents a preliminary analysis of Free Relative clauses (hence FRs) which makes central use of the *Agree* relation as hypothesized in much work in the Minimalist framework (Chomsky 2000, 2004; Richards 2008; Hiraiwa 2005; Pesetsky & Torrego 2005; and countless others). The core idea: *Agree* between a silent D-like probe that heads the FR, and the fronted wh-element in an embedded CP, can account for certain basic syntactic and semantic properties of wh-FRs. Initial stages of the analysis concentrate especially on English and German (along with Italian and Greek).

## Basic phenomena

* The FR in 1a: it looks like a restrictive relative but without an overt “head”:

1. a. I saw [FR what you heard *e* ]*.* FR

b. I saw [DP the thing [ which/that/∅ you heard *e* ]]. RC

1. a. I wonder [CP what you heard *e* ]. Interrog

b. \* I wonder [DP that thing ]. DP

* FRs display island sensitivity:

1. \* I saw [FR what John wonders [ who heard *e* ]]. Islands

* Wh-phrase *seems* to get two (patient) theta roles: in 1 above, hear*(what),* see*(what)*.
* Other categories, esp. PP and AdvP, can play this “double semantic role” in the FR clause and the main clause:

1. a. I’ll go [ [PP to whatever house] you direct me *e*PP].

b. I’ll drive [ [AdvP however fast ] the competition drives *e*AdvP].

## Exotic phenomena

* Case matching holds between requirements of higher and lower (FR) clause:

1. a. Ich helfe, wem du hilfst. DAT=DAT

b. Ich sehe wen du siehst. ACC=ACC

c. ?? Ich sehe, wer gekommen ist. \* ACC>NOM

d. \* Ich helfe, wem/wen du siehst. \* DAT>ACC

… but not exactly:

1. a. Ich sehe, wem du hilfst. ACC>DAT

b. Ich nehme, was dich überzeugt hat. *(syncretism)* ACC=NOM

c. [Aus wem] noch etwas herausgequetscht werden kann, ist sozial dazu

verpflichtet, es abzuliefern. NOM>PP

d. [Wessen Tochter] einen Russen heiratet, soll Russisch lernen.

NOM>GEN

English behaves differently: no FRs “looking into” PP:

1. \*From whom/whomever anything can be squeezed out is socially

obligated to deliver it.

We need “wiggle room” for Case Matching/non-matching. Other languages prefer Case-matching with higher clause (Greek, Ancient Greek, Latin; see Izvorski 1995, Alexiadou & Varlakosta 2007, Spiriadou 2007, Färber & Lindemann 2007)

Certain complex wh-Ps are blocked…

1. a. \* I read [which books] you read. ACC=ACC

b. \* Ich lese [welche Bücher] du liest. ACC=ACC

… but not necessarily:

1. a. I read [whichever books] you read.

b. Ich lese [welche Bücher] auch immer du liest.

c. [Wessen Tochter] einen Russen heiratet, soll Russisch lernen.

d. Whoever’s daughter marries a Russian should learn Russian.

# Previous approaches: classic and recent

## Long Distance relations: Bresnan & Grimshaw 1978

A “Head Hypothesis” ― FR is a wh-phrase, to which a sentence with a gap is adjoined. The gap is a pronominal coreferent with the wh-phrase, located in the D-structure (interpreted) position of the wh-phrase, and is deleted by a rule of Controlled Pro Deletion.

1. I’ll read [NP [NP whatever paperi [S John has worked on *iti→Proi* ]]].

NP

NPi

whatever paperi

John has worked

S

PP

NPi

|

*e* = Pro

P

|

on

Advantages: this can easily capture other category types, such as PP or AdvP:

1. The nurse was present [PP [PP at whatever operations] the doctor was

present *e*PP ]].

1. I’ll drive [AdvP [AdvP however fast you want me to drive *e*AdvP ]].

It also can derive many “Missing Preposition” effects (see also Larson 1985, Camponigro & Pearl 2008):

1. a. I’ll live [in whatever town] you live *e*PP.

b. I’ll live in [whatever town] you live in *e*NP.

c. The nurse was present at whatever hours the doctor was present

(at) *e*.

d. The nurse was present during whatever hours the doctor was present

(\*during) *e*.

In 13.c, Pro = PPtemporal or NP *then* = “at that time.” Not possible with *during* (13d).

Some disadvantages:

* Long-distance, unbounded relation for Controlled Pro deletion, yet conditioned exactly like movement
* Right-extraposition of S/CP in Germanic includes wh-phrase (Groos & van Riemsdijk 1981); but there is no S´, or even S, containing wh-P:

1. a. Willst du uns {das Buch} nicht leihen {\*das Buch}, [S/CP das du uns

beschrieben hast ]?

b. Willst du uns {\*was} nicht leihen, {was} du uns beschrieben hast ]?

* Difficulties with complex wh-P — how does controlled Pro Deletion “reach out” of NP?

1. a. [[Whoever’s books] [S *e* sell well]] will become a millionaire.

b. [[Wessen Bücher] [S *e* sich gut verkaufen]] wird Millionär.

These examples will be seen to be central to our approach.

## Movement of wh-phrase: Groos & van Riemsdijk 1981 (G&v.R)

A “COMP” hypothesis ― an FR is an NP/DP/XP with an empty head; wh-P is in the Comp of an embedded sentence, moved there by ordinary wh-movement:

1. I’ll read [NP [N e ] [S´/CP whatever paper [S/TP John has worked on *t* ]]].

NP

COMP

NPi

whatever paper

John has worked

S´

PP

NPi

|

*t*

P

|

on

N

|

∅

S

We add to this the **Comp Accessibility Hypothesis** (= G&v.R, 20):

1. The COMP of a free relative clause is syntactically accessible to matrix rules such as subcategorization and case marking, and furthermore it is the wh-phrase in COMP, not the empty head, which is relevant for the satisfaction of the matrix requirements.

Advantages:

* Extraposition facts (extrapose S´ = CP) for German is captured.
* Case-matching (to the extent that it is strict) accommodated: Matrix clause “sees” the same NP that the lower FR clause “sees.”

Disadvantages:

* Why does matrix select/case-mark Comp, rather than S´, or the NP projection of the empty head?
* How is Case-mismatch (outside of syncretism) ever tolerated?
* Again a problem with complex wh-Ps: why are the *which*-cases out (19a), and how does the matrix clause select the deeply embedded *wessen* (19b)?

1. a. \* I’ll read [NP [N ∅ ] [S´/CP [NP which paper] [S/TP John has worked on *t* ]]].

b. [NP [N ∅ ][S´ [NP [NP Wessen] Bücher] [S sich gut verkaufen]]]] wird

Millionär.

## Disappearing CP: Ott 2011

Basic idea: In recent Minimalist approaches (Chomsky 2000, 2004 et al.), Transfer, at each phase level, relieves syntax of access to structure now amenable to interpretation. Hypothesis: CP of FR is so entirely devoid of features that as it transfers its complement TP, the whole CP disappears (as far as syntax goes) except for what’s on its edge:

1. a. [CP whatever [C [TP you work on *t* ]] *Transfer entire CP* 🡪

b. whatever . . . *Merge into higher clause* 🡪

c. [VP read whatever ] . . .

🡪 “I’ll read whatever you work on.”

Advantages:

* No heavy machinery: very elegant.
* Provides immediate explanation for why higher clause “sees” into Spec CP (Groos & van Riemsdijk’s COMP-visibility intuition) for purposes of theta-marking and Case marking/valuation.
* Locates the difference between FR and interrogative CPs neatly in terms of feature-content of the phase head: other interrogative Cs retain some interpretable features after Transfer; but FR C has none remaining.

Disadvantages:

* Still not clear how Case-mismatch might be tolerated
* CP-extraposition in German problematic
* Still not clear why *which/welche* cases are out:

1. \* I’ll read [CP [which paper] [you work on *t* ]].

* Makes wrong predictions for theta-role and agreement in complex embedded cases:

1. a. [CP [wessen Bücher] C [TP *t* sich gut verkaufen]] *Transfer entire CP!* 🡪

b. wessen Bücher… *Merge into higher clause* 🡪

c. [vP[ wessen Bücher… ] v [ wird Millionär ]]]

… *wessen Bücher* is not an argument of the higher clause, nor does the higher T agree with it.

## Relabeling: Cecchetto & Donati 2011 (following Donati 2006)

Free Relatives behave syntactically like the element in Spec CP because the element in Spec CP, having moved into a checking relation with C itself projects; what appears to be a CP is actually a DP:

1. [DP what [CP C [TP I did *twhat* ]]

Additional assumption: non-heads cannot reproject/relabel.

Advantages:

* No heavy machinery: very elegant
* Difference between headed Relative Clause and Free relative clause is purely a matter of whether wh- or C projects
* Rules out *which/welche* cases: since only heads can relabel/reproject, no complex wh-P can reproject…

Problems:

* Why should only heads re-project?
* We know that complex wh-Ps *are* possible…

C&D note this and assert that such cases are not “true” FRs. Examples all involve Italian *–unque*, English *–ever*:

1. a. [qualunque costituente] che venga sposato in Comp

b. [whichever constituent] (that) is moved to Comp

They provide evidence that *whichever/qualunque* in such cases are some sort of indefinite quantifier, induced by *–ever/–unque*. Example: cooccurance of complementizer *che/that* in (XX), not possible with FRs.

But: this cannot handle cases of complex genitives:

1. [[Whoever’s books] *e* sell well] will become a millionaire.

C&D *have* identified an indefinite quantifier use of *–ever* that certainly exists in Italian and English:

1. I’ll buy whoever’s books.

But these *coexist* with true complex FRs. Note the selectional difference between the previous and the following:

1. I’d like to meet whoever’s books (\*that) sell over a million copies.

Thus we come to our summary observation:

1. **Summary observation:** complex DPs are possible in FRs, and crucial to a solid structural analysis.

# Our approach: Empty D head plus probing

If (re-)projection is problematic, how do we get an FR to be something whose feature-content reflects the fronted wh-element?

**Basic Claim:** Bresnan and Grimshaw are right about there being a pronominal element: but it’s not in the FR CP clause, but is the very head Groos & van Riemsdijk call empty. We call it (for now) DFR. (Cf. Harbert 1983, Spiriadou 2007 for precedents.) Groos & van Riemsdijk are right about Comp Accessibility: the contents of Comp are accessible to a probe DFR, which Agrees with a goal and picks up the goals features. Why is it accessible? Because Spec CP is the *edge* of phase-head C and is thus visible to further syntactic computation.

1. [DP DFR [CP *wh-*P [ C [ … *~~wh~~*~~-P~~ … ]]]]

Agree

What are the features of DFR? Hypothesis:

1. DFR = { iPhi[ ], uOp[+] }

Translation: DFR has interpretable but unvalued Phi-features, and uninterpretable, but valued Operator features (Pesetsky & Torrego 2005, Cable 2008).

1. **D-identification:** pronominal D is interpreted as coreferent/semantically identical (including, perhaps, categorially?) with whatever it Agrees.

Thus the phonologically empty D-head is referentially dependent on something with operator features. Since it has unvalued features, it may act as a probe. It looks into its complement CP to see what it can see.

## Basic cases: the edge of C

1. I saw [FR who you saw ].

DPFR

who

|

iPhi[+]

iOp[ ]

you saw

CP

*t*who

DFR

|

iPhi[ ]

uOp[+]

TP

C

agree

W*ho* has raised out of the C phase because it has an unvalued feature (Chomsky 2000, 2004, Pesetsky & Torrego 2005 etc.). DFR probes the edge of C, and finds a complete match of formal features. DFR is thus completely identified, and DPFR can be interpreted as that D head with CP restriction.

## Complex cases: the edge of the edge of the edge of. . . C

1. [FR Whoever’s books sell well ] becomes a millionaire.

DPFR

DP2

whoever

|

iPhi[+]

iOp[ ]

sell well

CP

*t*whoever’s books

DFR

|

iPhi[ ]

uOp[+]

TP

C

agree

DP

’s

NP

books

Crucially: DFR does not Agree with the entire DP projection *whoever’s books,* which lacks an operator feature. *Whoever* bears an operator feature, so Match is with *whoever.* This yields the correct semantic and Agreement behavior ([+human], [3sg] in the matrix clause). We can even get deeper embedding:

1. [ Whoever’s father’s family ] has a lot of money will get rich.

DPFR

DP2

whoever

|

iPhi[+]

iOp[ ]

has a lot of money

CP

*t*whoever’s

father’s family

DFR

|

iPhi[ ]

uOp[+]

TP

C

agree

DP

’s

NP

father

’s

NP

family

## Why *which/welche* are out…

1. \* I’ll buy which books you recommend.

DPFR

A/D

which

|

uPhi[+]

iOp[ ]

sell well

CP

*t*which books

DFR

|

iPhi[ ]

uOp[+]

TP

C

agree

DP

NP

books

D

|

iPhi[+]

The problem: Pronominal DFR matches *which,* but *which* is not a full DP projection; it appears wedded to the adjectival component of the DP (cf. German/Old English adjectival agreement: *welche/welcher/welchen* etc.). It has insufficient referential features by which to interpret the D head; its Phi-features are purely formal, uninterpretable features, participating in internal harmony like the Phi-features of an adjective.

## … but *whichever/welche* *auch immer* are okay

Assumption: *–ever* reflects an operator feature in D (see Kayne 1995, cf. Treddinick 2005). German has a null operator which licenses *auch immer:*

1. a. [DP who –ever ]

b. [DP which [D´ –ever [NP books ]]]

c. [DP welche [D´ ∅ever [NP Bücher ]]]

Then the DFR probe will now find higher DP projection with full Match of formal features:

1. I’ll buy whichever books you recommend.

DPFR

A/D

which

|

uPhi[+]

iOp[ ]

sell well

CP

*t*whichever books

DFR

iPhi[ ]

uOp[+]

TP

C

agree

DP

iPhi´[+]

iOp[ ]

NP

books

D

|

–ever

iPhi´[+]

iOp[ ]

agree

The DP projection bears both Phi and operator features (cf. previous trees!) by virtue of the *–ever* operator in D. D of course has the usual Phi-features of the DP as well. Further assumption: the Op feature of which undergoes Agree with the Op feature of *–ever* and the features are thus shared and/or unified; we assume this is possible even if the features are not yet valued (see Frampton & Gutman 2004, Pesetsky & Torrego 2005, Danon 2011).

Presumably, *–ever* also bears interpretable features not shared by *which/welche*, but picked up by full identification of DFR with DP, and contributing to the semantics of the DP. The German case, in which the *–ever* operator is null, reveals that the semantics it contributes to DPFR licenses *auch immer* in CP:

1. Ich lese [ D{Op-ever} [welche Bücher] C [ auch immer sich gut verkaufen ]]].

# CP-extraposition

This comes for free. Repeated from section 1:

1. Willst du uns [ DFR *t*CP ] nicht leihen, [CP was du uns beschrieben hast ]?

# DFR: Something more abstract than D

DFR appears to be licensed by anything amenable to pronominalization (i.e. the mirror image of B & G’s “Pro”); can include null P of Camponigro & Pearl 2008:

1. a. I’ll drive [AdvP DFR [CP [however quickly] [ you drive *t*AdvP-however quickly ]]].

b. She left [PP DFR+P [ when [ I left [PP P∅ *t*NP-when ]]]]

c. I’ve like [PP DFR [CP where [ we just ran (past) *t*NP-where ]]].

*(examples based on C&P)*

# Side note on Case Matching/Non-matching: DFR-DWH “wiggle room” and genitive Case-matching phenomena

Case-matching is a topic for future discussion! Spiriadou 2007: Agree between D and wh-P can explain Case-attraction (in Greek) as opposed to Germanic/Romance: D and wh-P can valued via separate mechanisms, with only one Spell-out of Case realized.

1. tha dhosume (?)opju/\*opjos erthi ena vivlio

will give-1pl who-gen/who/nom come-3sg a book-acc

“We will give a book to everyone who comes”

Note that approaches which posit the same syntactic object in two Case relations (G&v.R, Ott, C&D) run into trouble in a scheme of Case-valuation (Chomsky 2000 op cit., Richards to appear): Case can only be valued once, so Agree in the higher clause should always fail. In our approach there are two DPs getting Case valued: wh-P and DPFR. The Agree relation must be the source of conditions for matching.

Note: cases where wh-P is not the DP in Agree relation with DFR: Case matching is with the DP, not the wh-P which transmits its Phi- and semantic-features up to DFR!

1. Ich gedenke der armen Kinder, und…

a. … ich gedenke, wessen Kinder ich gedenke.

b. \* … ich gedenke, wessen Kinder ich liebte.

We are investigating Roberts 2010 for clues as to whether fine-grained exploration of Case features can provide subset relations for other cases of Case-mismatching.

# Remaining problems: very many!

## What exactly is this null DFR? Why is it null?

We don’t know. Sometimes it’s not null? Romance/Slavic examples (if these are FRs):

1. J’ai compris ce qu’il a dit.

Perhaps semantic/semantic “redundancy” enforces null phonology; cf. Roberts 2011 on incorporation/pro-drop.

## Case hierarchy

Why exactly NOM>ACC>DAT>PP for simple wh-Ps in FR (see section 1)? We are investigating Roberts 2010 for clues as to whether fine-grained exploration of Case features can provide subset relations for other cases of Case-mismatching.

## I’ll sing however silly a song you sing

Structures are unclear for such cases.

## Whose

Why does it resist FRs in English?

1. \* I’ll introduce you to whose books I’ve sold/

## German vs. English PP-FRs

We saw above:

1. a. [Aus wem] noch etwas herausgequetscht werden kann, ist sozial dazu

verpflichtet, es abzuliefern.

b. \* [From whom/whomever] anything can be squeezed out is socially

obligated to deliver it.

Why this difference in transparency? (a) Different phase timing for PP; (b) different possibilities for preposition stranding…

## Why *what* in FRs but not RCs; *that* in RCs but not FRs?

We are investigating the feature-content of D; Old English into Early Modern English had FRs with *that*. See Watanabe 2009 for an approach based on changing status of features in D.

## Correlatives, Pseudoclefts, Transparent Free Relatives, etc.

How far can we extend this approach?

# Summary

Faced with the relatively neglected problem of complex wh-phrases in Free Relatives, we have resurrected the Comp analysis originally due to Groos & van Riemsdijk and reconsidered the “Comp Accessibility Condition” offered there. In its place, we posit an Agree relation between a null head DFR and an Operator element in its CP complement. This provides structures which capture the basic syntactic and semantic behavior of wh-FRs in English and German, while providing highly suggestive avenues for richer understanding of the phenomena, avenues that allow at least in principle for the variation we see within and across languages.

1. This talk represents ongoing work done in collaboration with Günther Grewendorf and Eric Fuß, as a part of Forschergruppe 1783: Relativsätze, Goethe Universität Frankfurt / Max Planck Institut Göttingen. [↑](#footnote-ref-1)