# Ways of wh-scope marking: Evidence from Greek

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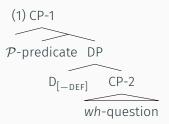
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Introduction

#### Claim

 An indefinite D-head may introduce a typical wh-question in the complement position of a proposition-selecting predicate (P):



- D<sub>[-DFF]</sub> embeds but does not l-select CP-2;
- DP is the argument of  $\mathcal{P}$  (in CP-1): D ranges over the set of (true) propositions discharged by CP-2, and returns a single proposition that is input to  $\mathcal{P}$ ;
- Being embedded, but not l-selected, CP-2 is an Unselected Embedded wh-Question (UEwhQ).

1

#### Motivation i

- (1) is a *wh*-scope marking strategy which extends the strategy proposed by Herburger (1994) for German and generates:
  - (2) Greek wh-slifting: Pu zi tora, nomizis? where lives-3sG now think-2sG "Where does s/he live now, do you think?"
  - (3) English *wh*-slifting:

    Where does he live now, do you think?

    (Ross 1973; Haddican et al. 2014)

#### Motivation ii

- (4) German wh-Integrated Parentheticals:
  - a. Was-Integrated Parenthetical (was-ip)

```
Wo wohnt er jetzt, was glaubst du?
where lives he now what believe you
"Where do you think he lives now?" (Reis 2000: 359, (3))
```

b. VERB-INITIAL INTEGRATED PARENTHETICAL (VIP) Wo wohnt er jetzt, glaubst du? where lives he now believe you "Where does he live now, do you think?"

(Reis 2000: 359, (2))

#### Import(ance)

- A clausal argument (S) may be dominated by a nominal (N) projection (Chomsky 1955/1985; Rosenbaum 1967).
- Cast in recent terms, D may dominate CP and may translate to a definite or an indefinite element (Kiparsky and Kiparsky 1971; Adger and Quer 2001; Alrenga 2005; Arsenijević 2009; Kayne 2010; Roussou 2010; Takahashi 2010; Knyazev 2016).
- The indefinite reading may arise from *polaritiness* (Adger and Quer 2001), or the declarative *that*-complementizer (Roussou 2010).
- Here, I argue that D may be a *prima facie* indefinite; i.e. existential.

#### Roadmap

- Facts
- Analysis
- Extensions
- Conclusions

#### Facts

#### Overview of facts

- German wh-IPs and English wh-slifting share the same empirical profile, in terms of distribution, interpretation and prosody.
- Vis-à-vis word order, this profile distinguishes between two patterns:
  - Was-pattern (exemplified by was-IPs);
  - V1-pattern (instantiated by VIPs and *wh-*slifting).

For space reasons, I restrict attention to German and English, as the latter extends to Greek (mutatis mutandis)

#### Word order i

• The was-pattern admits three linear arrangements:

```
(5) a. INITIAL
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```
[CP-2 Wohin ist er gegangen] [CP-1 was glaubst du ]? where-to is he gone what believe you "Where do you believe did he go?" (Reis 2000: 364, (15a))
```

#### b. SPLIT

```
[CP-2 Wohin [CP-1 was glaubst du ] ist er gegangen]? where-to what believe you is he gone "Where do you believe did he go?" (Reis 2000: 364, (15b))
```

#### Word order ii

#### c. Final

```
[CP-1] Was glaubst du ] [CP-2] wohin ist er gegangen]? what believe you where-to is he gone

"Where do you believe did he go?" (Reis 2000: 364, (15c))
```

#### Word order iii

- The V1-pattern features only two of these configurations:
  - (6) VIPs:
    - a. INITIAL

```
[CP-2 Wo wohnt er jetzt] [CP-1 glaubst du ]? where lives he now believe you "Where does he live now, do you think?
```

b. SPLIT

```
[CP-2] Wo [CP-1] glaubst du ] wohnt er jetzt]?
where believe you lives he now
"Where do you think he lives now?"
```

(Reis 2000: 359, (2))

#### Word order iv

#### c. FINAL

\*[CP-1 Glaubst du ] [CP-2 wo wohnt er jetzt]? believe you where lives he now "\*Do you think, where does he leave now?"

#### Word order v

- (7) Wh-slifting:
  - a. INITIAL

[CP-2 When on earth will the children come back] [CP-1 do you think]?

b. SPLIT

[CP-2 When on earth [CP-1 do you think] will the children come back]? (fashioned on Haddican et al.'s 2014: 99, (82))

- C. FINAL
  - \*[CP-1 Do you think] [CP-2 when on earth will the children come back]?

#### Interpretation i

- CP-2 acquires the "main" question request (as Haddican et al. 2014 put it for wh-slifting). Crucially, if CP-2 is a yes/no-question, then the interpretation of CP-1 is that of a yes/no-question:
  - (8) Was-pattern:

```
[CP-1 Was glaubst du ] [CP-2 wird er morgen kommen]? what believe you will he tomorrow come "Will he come tomorrow, do yo think?" (Reis 2000: 364, (16))
```

- Therefore:
  - + Was does not necessitate a wh-interrogative reading;
  - + The wh-interrogative reading arises from CP-2 and not was.

#### Interpretation ii

- The same effect can not be demonstrated with the V1-pattern due to the lack of (an overtly realized) was. Yet, it is worth mentioning that yes/no-interrogative slifting is possible, as shown with wh-slifting in (9) (same with VIPs).
  - (9) a. Do extraterrestrials exist, do you think? (modelled on Ross's 1973: 149, (46a))
    - b. Is Raul coming, do you think? (Haddican et al. 2014: 87, (3))

#### Interpretation iii

- Although I do not discuss this further (see Vlachos 2017 for details), notice in passing that CP-1 undergoes a reduction in meaning; e.g.:
  - (10) a. Restricted interpretation of the clausal subject:
    - \*Was glaubt keiner, mit wem ist sie verheiratet? what believes nobody to whom is she married "What does nobody believe, to whom is she married?" (Reis 2002: 10, (19a))
    - b. Restricted set of proposition-selecting predicates:
      - \*Was bedauerte sie, wohin ging hans? what regretted she where-to went Hans "What did she regret, where did Hans go to?" (Reis 2002: 10, (18a))

#### Prosody

- In UEwhQs, CP-2 carries the main melody, contrary to typical wh-scope marking, where CP-1 is prosodically dominant (Reis 2000, 2002; Haddican et al. 2014).
- In UEwhQs, CP-1 is prosodically reduced and integrated in CP-2, unlike sequential wh-scope marking, where CP-1 and CP-2 are prosodically distinct (Reis 2000, 2002; Dayal 2000):
  - (11) SEQUENTIAL WH-QUESTIONS:
    - a. [CP-1 Was glaubst du ] (\): [CP-2 Wann ist Goethe geboren]? what believe you when is Goethe born
      - "What is your guess: What's Goethe's birthday?" (modelled on Reis's 2000: 361, (6c))
    - b. [CP-1 What do you think]? [CP-2 Who will Mary see]? (Dayal 2000: 171, (27b))

#### Reconstruction for Condition C i

- At least the V1-pattern observes Condition C violations:
  - (12) Predicate
    - a. INITIAL
      - \* How afraid of John; are you, does he; think?
    - b. SPLIT
      - \* How afraid of John<sub>i</sub>, does he<sub>i</sub> think, are you?

#### Reconstruction for Condition C ii

- (13) Strong crossover (Argument)
  - a. INITIAL
    - \* Which girl<sub>i</sub> saw a unicorn, did she<sub>i</sub> say?
  - b. SPLIT
    - \* Which girl<sub>i</sub>, did she<sub>i</sub> say, saw a unicorn?

#### Reconstruction for Condition C iii

• If the offended R-expression is not the head of an A'-chain, headed by an argument, the R-expression does not reconstruct:

(14) INITIAL

What did John; buy, did he; say?

(Haddican et al. 2014)

#### Reconstruction for Condition C iv

- Still, the Split order is ungrammatical:
  - (15) SPLIT
    - \* What, did hei say, did Johni buy?

#### Summary of facts

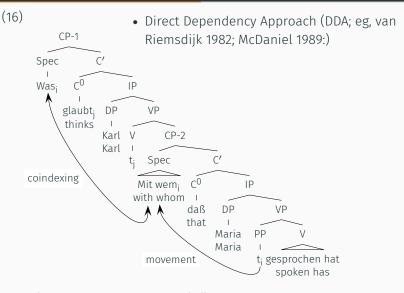
- UEwhQs admit two variants:
  - Was-pattern features three word orders: INITIAL; SPLIT; FINAL;
  - V1-pattern manifests two word orders: INITIAL; SPLIT (\*FINAL).
- CP-2 becomes interpretationally and prosodically prominent (while CP-1 is reduced in these respects).
- Condition C does not bleed (at least in the V1-pattern; there is one exception though).

## Analysis

#### Overview of analysis

- It is uncontroversial that wh-IPs fall under wh-scope marking of the German/Hindi sort (Reis 2000, 2002; for wh-scope marking, see van Riemsdijk 1982, McDaniel 1989, Dayal 1994, and the collection of papers in Lutz et al. 2000, among many others).
- However, there is a debate as to if *wh*-slifting should be treated in terms of *wh*-scope marking (Kayne 1998; Lahiri 2002; Stepanov and Stateva 2016), or not (Haddican et al. 2014).
- Since wh-IPs and wh-slifting have the same empirical profile, and wh-IPs are wh-scope marking, then wh-slifting must be wh-scope marking as well.
- UEwhQs (wh-IPs and wh-slifting) extend the subordination strategy of wh-scope marking (Herburger 1994) to typical wh-questions.

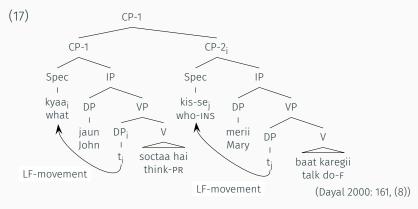
### Subordination in wh-scope marking i



(modelled on Dayal's 2000: 158, (1b))

#### Subordination in wh-scope marking ii

• Indirect Dependency Approach (IDA; eg, Dayal 1994:)



#### Subordination in wh-scope marking iii

- DDA is by definition predicated upon subordination.
- Dayal (2000) explores I/VP-adjunction alternatives to the juxtaposition of CP-2 in (17), yielding pseudo-subordination.
- Herburger (1994) proposes a true-subordination strategy for IDA:
  - (18) a. Was glaubst die Maria, wen sie gesehen hat? what thinks Maria who she seen has "Who does Mary think see saw?"
    - b. [<sub>CP-1</sub> Was<sub>i</sub> + C ... [<sub>DP</sub> t<sub>i</sub> [<sub>CP-2</sub> wen sie gesehen hat]]]? (modelled on Lahiri's 2002: 513, (44)–(45))

#### Subordination in wh-scope marking iv

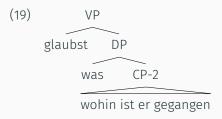
- Herburger (1994) proposes that the [D CP-2] denotation may map transparently to a [D CP-2] syntax:
  - D (ie, was) translates at LF to an existential (∃-)quantifier;
  - ∃ ranges over the set of propositions discharged by CP-2;
  - $\exists$  returns the single proposition which is the argument of  $\mathcal{P}$ .

#### Subordination in UEwhQs i

- The facts from Condition C say that CP-2 must originate from the complement position of  $\mathcal P$  so that a term in CP-1 may c-command a term in CP-2.
- $\mathcal{P}$  does not select wh-interrogatives, like CP-2 (eg, Grimshaw 1979).
- CP-2 is the complement of an element that not only provides the appropriate argument to P, but also forms the right constituent with CP-2; ie, was:
  - Translates at LF to a ∃-quantifier, which ranges over the set of propositions discharged by CP-2;
  - Returns the single proposition that is input to  $\mathcal{P}.$

#### Subordination in UEwhQs ii

• The fragment in (19) exemplifies this:

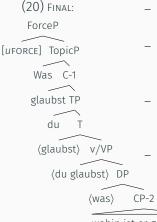


#### Word order in UEwhQs i

- The fact that was does not necessitate a wh-question reading of CP-1 means that was lacks wh-feature to agree with the Force of CP-1, which types the clause.
- The fact that CP-1 is prosodically reduced means that was cannot be associated with Focus either.
- So, was is compatible with a head that encodes neither Force nor Focus features; ie, Topic.
- The fact that CP-2 determines the wh-interrogative reading of CP-1 means that the wh-element heading CP-2 agrees with the Force of CP-1.

#### Word order in UEwhQs ii

• Putting this together, we have the FINAL order in (20), which completes the fragment in (19):



- Lacking [wн], was does not "intervene"
   between matrix Force and CP-2:
- Assuming that l-selection (Pesetsky 1991) formally translates to Agree (Adger 2003), was (lacking [wн]) can not l-select CP-2;
- Not being l-selected, CP-2 may feature T-to-C raising, despite being subordinate (McCloskey 2006);
- Being associated with matrix Force, CP-2 acquires interpretational and prosodic CP-2 prominence, despite being subordinate.

wohin ist er gegangen

#### Word order in UEwhQs iii

- Was-movement to Topic is necessitated for reasons that have to do
  with the interpretation of was itself: in order to translate to a
  ∃-quantifier that ranges over propositions, was must raise to the
  left-periphery of CP-1.
- So, a FINAL arrangement where both was and CP-2 surface in situ is ungrammatical, as (21) demonstrates, despite forming a constituent.

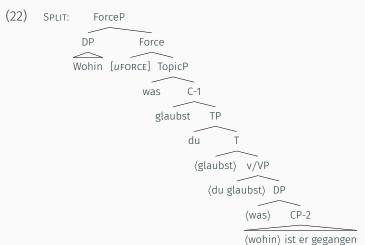
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(21) *[CP-1 Du glaubst [DP [D was [CP-2 wohin ist er you believe what where-to is he gegangen]]]]?
gone
"Where do you believe did he go?"
```

#### Word order in UEwhQs iv

- However, Agree between matrix Force and the wh-phrase introducing CP-2 does not relate to the interpretation of the wh-phrase itself: CP-2 is a well-formed operator-variable chain (in the sense of Browning 1987).
- Agree relates to the interpretation of the matrix Force, and apparently, renders wh-movement optional.

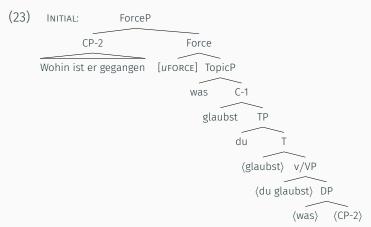
#### Word order in UEwhQs v

• Optional wh-movement generates the SPLIT variant:



#### Word order in UEwhQs vi

• Basque-like clausal pied-piping (Arregi 2003), which is parasitic on *wh*-movement, gives the INITIAL variant:



#### Word order in UEwhQs vii

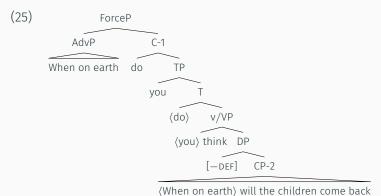
- Despite forming a constituent, was and CP-2 do not move together, as they target distinct heads; Topic and Force respectively (just as they don't surface in situ together).
- Hence, the ungrammatical (24a), which explores the possibility that was and CP-2 move together, and (24b), which assumes the additional possibility of wh-subextraction from [Spec,CP-2]:
  - (24) a. FINAL-like
    - \* [ $_{ForceP}$  [ $_{TopP}$  [ $_{DP}$  Was [ $_{CP-2}$  wohin ist er gegangen]] [ $_{C-1}$  glaubst du  $\langle DP \rangle$ ]]?
    - b. Split-like
      - \* [ForceP Wohin [TopP [DP was [CP-2 (wohin) ist er gegangen]] [C-1 glaubst du (DP)]]?

#### Word order in UEwhQs viii

- A wh-scope marker (was) extends the scope of the wh-chain in CP-2 beyond the clausal boundaries that this chain figures (cf, DDA; IDA; and variants).
- This means that in the (literal) absence of a scope marker, the wh-element from CP-2 must move in order to acquire matrix scope.
- The V1-pattern then which lacks a scope marker does not admit the FINAL order due to the obligatoriness of wh-movement (which sharply contrasts with the was-pattern).

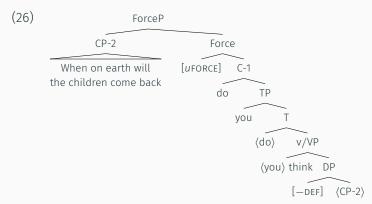
#### Word order in UEwhQs ix

• The SPLIT order is obligatory:



#### Word order in UEwhQs x

• The INITIAL variant is optional, due to clausal pied-piping:



#### Word order in UEwhQs xi

- Notice that D<sub>[\_DEF]</sub> does not constitute an island to wh-extraction:
  - (27) a. ??Which man did you discover [ $_{DP}$  the poem about  $\langle$  which man $\rangle$ ]?
    - b. Which man did you discover [ $_{DP}$  a poem about  $\langle$  which  $_{man}\rangle$ ]

(modelled on Szabolcsi's 2006: 483, (22) & (23))

## Condition C reconstruction in UEwhQs i

- Based on the results of an online acceptability judgement task, Bruening and Khalaf (2017) propose that the generalization in (28) captures the distribution of Condition C reconstruction in general (see Adger et al. 2017 for similar results and reasoning):
  - (28) RECONSTRUCTION FOR BIDING CONDITION C

Where a phrase XP with head X occupies the head of an A'-chain:

- a. If X is a predicate, only X and the head Y of its complement reconstruct;
- b. If X is an argument, only X reconstructs.

  (Bruening and Khalaf 2017: 11, (26))

## Condition C reconstruction in UEwhQs ii

- The V1-pattern of UEwhQs provides independent empirical support to (28):
  - (29) a. \*[XP How afraid [YP of John;]] are you does he; think \_\_?
    - b.  $[XP What [YP did John_i buy]] did he_i say <math>\_$ ?
    - c. \*[XP Which girli] saw a unicorn did she; say \_\_?

# Summary of analysis i

- UEwhQs are predicated upon the subordination strategy of wh-scope marking, and yield two patterns: was vs. V1.
- · Was-pattern:
  - Lacking [wн], was does not l-select CP-2 and does not type CP-1;
  - Was obligatorily moves to TopicP for reasons of interpretation;
  - The wh-element heading CP-2 agrees with matrix Force;
  - Optional wh-movement from [Spec,CP-2] to [Spec,ForceP], parasitically followed by clausal pied-piping, yields three possible arrangements: INITIAL; SPLIT; FINAL;
  - Association of CP-2 with matrix Force assigns interpretational and prosodic prominence ("main" clause effect) to CP-2 despite syntactic subordination.

# Summary of analysis ii

#### • V1-pattern:

- Absence of a wh-scope marker renders wh-movement from [Spec,CP-2] to [Spec,ForceP] compulsory; hence, the SPLIT order, and the ungrammaticality of the FINAL one;
- Clausal pied-piping makes available the INITIAL variant;
- Reconstruction C effects provide independent empirical support to an accumulating body of experimental studies and render the subordination strategy to UEwhQs the only viable approach.

#### Conclusions

- Completing a picture that has long remained incomplete, D<sub>[-DEF]</sub>
  may mediate the association between a predicate with a clausal
  complement.
- The predicate is proposition-selecting and the complement is a typical wh-question.
- Despite being embedded, the wh-question is not l-selected; hence, UEwhQ.
- UEwhQs fall under wh-scope marking and may be of (at least) two types: was (German; English) and V1 (English).
- Both types of UEwhQs are unified under the subordination strategy of wh-scope marking, which extends to typical wh-questions.

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# Thank you!



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# Subordination with(out) l-selection

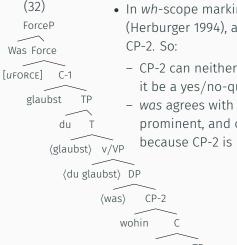
# Wh-scope marking vs. UEwhQ i

- Typical wh-scope marking features the exact opposite cluster of properties from (the was-pattern of) UEwhQs (Reis 2000):
  - CP-2 does not manifest T-to-C raising (Verb-final):
  - (30) Was glaubst du, wohin er gegangen ist? what believe you where-to he gone is "Where do you think that he went?" (Reis 2000: 374, (45))

# Wh-scope marking vs. UEwhQ ii

- CP-2 may not be a yes/no-question:
- (31) \*Was glaubst du, ob er nach Paderborn gegangen ist? what believe you whether he to Paderborn gone is (Reis 2000: 374, (46))
- Only the FINAL order is possible: CP-2 must linearly follow CP-1;
- CP-1 is interpretationally and prosodically prominent.

# Wh-scope marking vs. UEwhQ iii



- In wh-scope marking, was comes with [wH] (Herburger 1994), and, unlike in UEwhQs, l-selects CP-2. So:
  - CP-2 can neither feature T-to-C fronting, nor can it be a yes/no-question;
  - was agrees with Force; hence, CP-1 becomes prominent, and only the FINAL order is available, because CP-2 is not associated with Force.

er gegangen ist