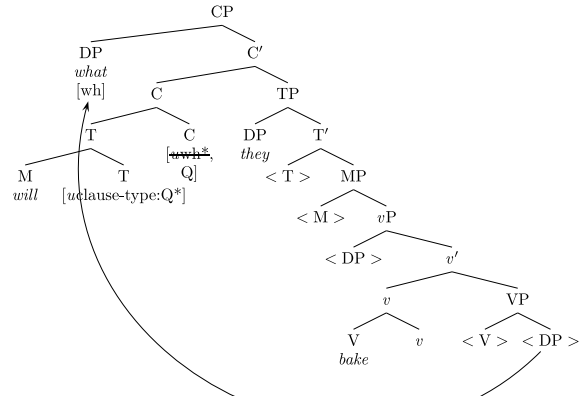# CAS LX 522
Syntax I

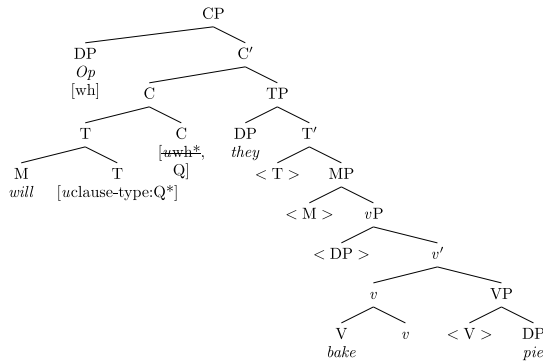V2, and *wh*-movement (continues)
(8.4, 9.1-9.3)

19

What will they bake?

- T will move to check the (now strong) [*u*clause-type:Q*] feature.
- *What* moves to SpecCP and checks the [*u*wh*] feature of C.

Will they bake pie?

- *Op* appears in yes-no questions in the same place that *wh*-words do in *wh*-questions (and we assume it has a [wh] feature as well).
- *Op* is probably like a "silent" *whether* (*wh+either*).

The wh-typology

- **English: One *wh*-word** moves to the front.
  - What did Bill give to whom?
- **Japanese: No *wh*-words** move to the front.
  - Taroo-ga dare-ni nani-o   ageta no?
    T-nom   who-to what-acc gave   Q
    'What did Taroo give to whom?'
- **Bulgarian: All *wh*-words** move to the front.
  - Kakvo na kogo   Ivan dade?
    what   to whom Ivan gave
    'What did Ivan give to whom?'
- **French: One *wh*-word or no *wh*-words** move to the front.
  - Qui   as-tu   vu?   Tu as   vu   qui?
    Who have-you seen   You have seen who
    'Who did you see?'   'Who did you see?'

---

wh-in-situ languages

- How might we account for the difference between English and Japanese (Korean, Turkish, Chinese, …) with respect to moving *wh*-words?

  - Why does one *wh*-word move in English?

  - We account for the difference between **French** (*v* moves to T) and **English** (*v* does not move to T) in terms of whether the [***uInfl:***] feature on *v* is **strong** (French) or **weak** (English) when valued by T.

Kakvo na kogo Ivan dade?

- How about languages like Bulgarian, where all of the *wh*-words move?
- [_{CP} kakvo na kogo
         [_{TP} Ivan dade <kakvo> <na kogo>]
- This one is somewhat trickier… but interesting.
  - Why do *wh*-words have to move (in general)?
  - Why is it sufficient to move just one (in English)?
  - What might we propose in order to ensure that any *wh*-word has to move?
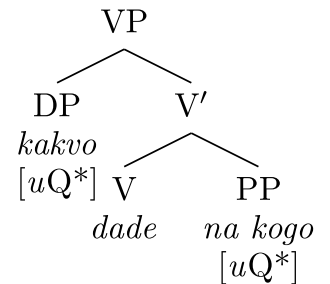
Multiple <u>wh</u>-movement

- To account for this stretches our system in several ways, but ultimately we want to be able to say that Bulgarian and English differ minimally, so we'll need to account for Bulgarian too.

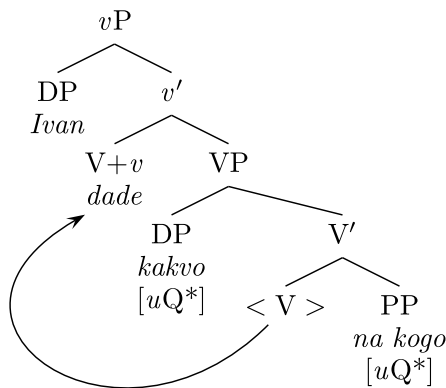- Suppose that *wh*-words in Bulgarian have the strong feature: [**uQ***].

Kakvo na kogo Ivan dade?

- For this to work, we need to suppose that it is possible for a strong feature like [**uQ***] on a *wh*-word to "wait" if there is no way to be checked yet.
  - That is, we can proceed on to *v*P (by HoP), despite the fact that there are strong features left inside VP (but not *on* VP).
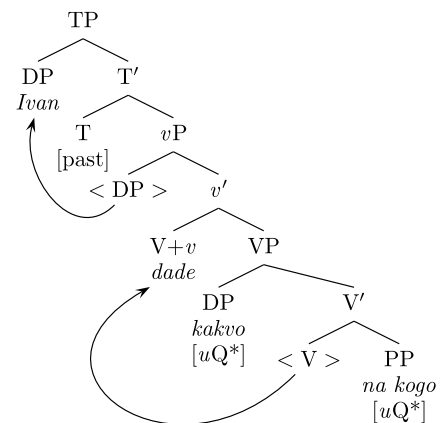
VP
DP *kakvo* [uQ*]   V'
V *dade*   PP *na kogo* [uQ*]

Kakvo na kogo Ivan dade?

- Otherwise, things proceed just as in English…

*v*P
DP *Ivan*   *v'*
V+*v* *dade*   VP
DP *kakvo* [uQ*]   V'
< V >   PP *na kogo* [uQ*]

Kakvo na kogo Ivan dade?

- Otherwise, things proceed just as in English…

TP
DP *Ivan*   T'
T [past]   *v*P
< DP >   *v'*
V+*v* *dade*   VP
DP *kakvo* [uQ*]   V'
< V >   PP *na kogo* [uQ*]

Kakvo na kogo Ivan dade?

- When we get to C, the *wh*-words finally have a way to be checked.

- We've got two choices.
  - *Na kogo* has been waiting longer.
  - Moving *kakvo* would result in a shorter move.

C'
C [Q]   TP
DP *Ivan*   T'
T [past]   *v*P
< DP >   *v'*
V+*v* *dade*   VP
DP *kakvo* [uQ*]   V'
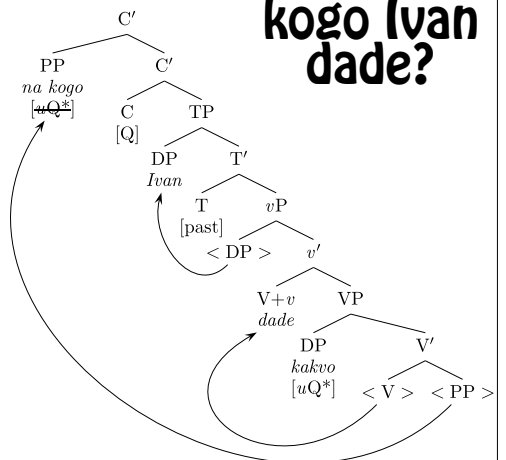< V >   PP *na kogo* [uQ*]

Kakvo na kogo Ivan dade?
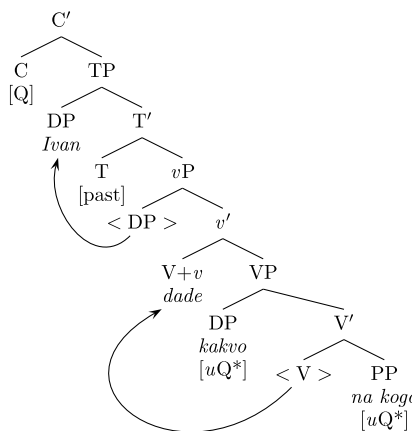
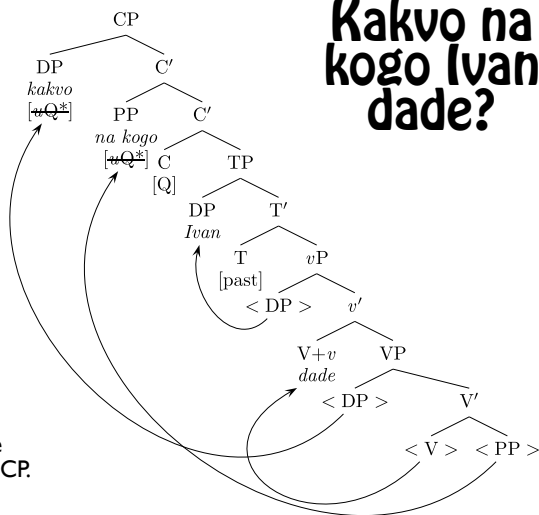Given what we see in Bulgarian, it seems that "seniority" is more important than "making the shortest move."

- Recall that the Superiority effect in English comes from a need to "make the shortest move," but in English, there's no consideration of "seniority."

C'
PP *na kogo* [uQ*]   C'
C [Q]   TP
DP *Ivan*   T'
T [past]   *v*P
< DP >   *v'*
V+*v* *dade*   VP
DP *kakvo* [uQ*]   V'
< V >   < PP >

Kakvo na kogo Ivan dade?

Tree diagram:

CP
— DP *kakvo* [uQ*]
— C′
—— PP *na kogo* [uQ*]
—— C′
——— C [Q]
——— TP
———— DP *Ivan*
———— T′
————— T [past]
————— vP
—————— < DP >
—————— v′
——————— V+v *dade*
——————— VP
———————— < DP >
———————— V′
————————— < V >
————————— < PP >

- Et voilà.

- Interesting: Point to the specifier of CP.

Cross-linguistic variation

- By now, we've accumulated a (relatively small, all things considered) set of parameters on which languages can vary, in terms of whether uninterpretable features are strong or weak.

- **Tense on Aux:**
  - **Strong** (aux moves to T): English, French, German, Irish
  - **Weak** (aux doesn't move to T): Swedish
- **Tense on v:**
  - **Strong** (*v* moves to T): French, German, Irish
  - **Weak** (*v* doesn't move to T): English, Swedish
- **EPP on T:**
  - **Strong** (subject moves to SpecTP): E, F, S, G
  - **Weak**: Irish

Cross-linguistic variation

- To this we can add the parameters of *wh*-movement…

- **[wh] on [Q]-type C:**
  - **Strong** (A *wh*-word moves to SpecCP): English, German, …
  - **Weak** (No *wh*-word need move to SpecCP): Japanese, …
  - **Optional** (either is possible): French
- **[Q] on *wh*-words:**
  - **Strong** (All *wh*-words move to SpecCP): Bulgarian, …
  - **Weak** (*Wh*-words need not move to SpecCP): English, …

Reminder: Embedded clauses

- Some verbs take DP objects:
  - Hurley grabbed [DP the notepad].
  - Hurley wrote [DP a note].

- Some verbs take entire clauses (CPs, TPs):
  - Hurley said [CP that he was taking a census].
  - Hurley seemed [TP <H.> to enjoy the task].
  - Hurley asked [CP where Ethan lived].

- It is perfectly possible to ask a question requesting information about something in an embedded clause. A "**long-distance question**".
  - What did Hurley say [CP that he was taking <what>]?

Long-distance <u>wh</u>-movement

- What did Hurley say [CP he was writing <what>]?
  - This is a question: The highest C has a [Q] (=[clause-type:Q]) feature and a [**uwh***] feature.
  - When C values the [**uclause-type:**] feature of T, it becomes [**uclause-type:Q***]. To check this feature, T moves to C.
  - When T is adjoined to C, its sister is not headed by *v*, so we "insert *do*" to pronounce the tense.
 - To check the [**uwh***] feature of C, the interrogative pronoun *what* moves up (into SpecCP).

[CP what   T+C [TP H <T> say [CP he was writing <what>]]]
  [wh] [uct:Q*]+[Q, uwh*]
        did

Long distance <u>wh</u>-movement

- At first glance, there seems to be no limit on how far a *wh*-word can move any more than there is a limit on how many clauses you can embed:
  - What did Jack bring?
  - What did Charlie hear [CP Jack brought _]?
  - What did Claire say [CP Charlie heard [CP Jack brought _]]?
  - What did Kate think [CP Claire said [CP Charlie heard [CP Jack brought _]]]?
- *And yet…*

Islands

- Hurley claimed [CP that the list does not include Ethan].

- Who did Hurley claim [CP that the list does not include _]?

- Jack believes
  [DP the claim [CP that the list does not include Ethan]].

- *Who does Jack believe
 [DP the claim [CP that the list does not include _]]?

NP Sea
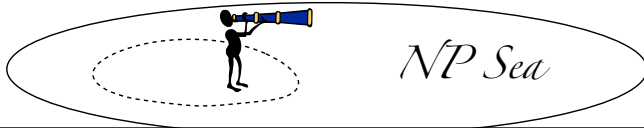
Islands

- Hurley claimed [CP that the list does not include Ethan].

- Who did Hurley claim [CP that the list does not include _]?

- Jack believes
  [DP the claim [CP that the list does not include Ethan]].

- *Who does Jack believe
  [DP the claim [CP that the list does not include _]]?

- *Who* starts out **inside the DP.**

- The DP forms a sort of **barrier to movement**.

- **Complex Noun Phrase island**

NP Sea
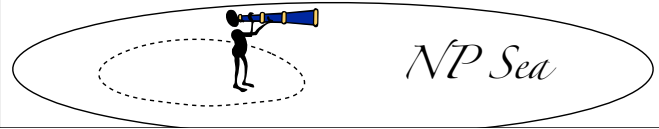
Locality

- **The generalization** (which we hope to explain):
  A *wh*-word cannot move out of a DP.

- This is a **locality condition**, a requirement that
  wh-movement not go too far (where escaping from
  inside a DP counts as "too far").

- We have a bit of a paradox, then: *Wh*-words seem to
  be able to move arbitrarily far (e.g., from any number
  of embedded clauses)—but *wh*-words cannot move
  too far (e.g., out of a DP).

Can wh-words go arbitrarily far?

- Assuming that moving a *wh*-word out from inside a
  DP is impossible because it is moving the *wh*-word
  "too far", we should go back to look at why we
  thought *wh*-words *could* move arbitrarily far.

- What did Kate think [CP Claire said
  [CP Charlie heard [CP Jack brought _]]]?

- Where do *wh*-words generally move?

  - What will Ethan do _?

What exactly is going on?

- What exactly did you buy?
- What did you buy exactly?
  - All the students will buy a textbook.
  - The students will all buy a textbook.

- What exactly did he say [CP that he wants]?
- What did he say [CP that he wants exactly]?
- What did he say [CP exactly that he wants]?

Scottish Gaelic complementizer agreement

- Bha mi ag ràdh   **gun** do bhuail i   e.
  was I **ASP** saying **that PRT** struck she him
  'I was saying that she hit him.'

- Tha mi a' smaoineachadh **gu** bheil Iain air a mhisg.
  am I **ASP** thinking   **that** is   Iain on his drink
  'I think that Iain is drunk.'

- Cò   bha   thu ag ràdh   **a**   bhuail i?
  who were you **ASP** saying **that** struck   she
  'Who were you saying that she hit?'

- Cò   tha thu a' smaoineachadh **a** tha air a mhisg?
  who are you **ASP** thinking   **that** is on his drink
  'Who do you think is drunk?'

Inversion in Spanish

- Maria contestó la pregunta.
  Maria answered the question
  'Maria answered the question.'

- Contestó la pregunta Maria.
  answered the question Maria
  'Maria answered the question.'

- Qué querían esos dos?
  what wanted those two
  'What did those two want?'

- *Qué esos dos querían?
  what those two wanted
  ('What did those two want?')

> When a *wh*-word is in SpecCP, the subject must appear after the VP.

Successive inversion

- Juan pensaba que Pedro le   había dicho que…
  Juan thought that Pedro to-him had said   that
  la   revista había publicado   ya   el articulo.
  the journal had published already the article
  'Juan thought that Pedro had told him that the journal had
  published the article already.'

- Qué pensaba Juan que le   había dicho Pedro…
  what thought Juan that to-him had said   Pedro
  que había publicado la revista?
  that had published the journal
  'What did Juan think that Pedro had told him that the
  journal had published?'

Successive inversion

- Juan pen…
  Juan thou…
  la   revista h…
  the journal had …
  'Juan thought that … m that the journal had
  published the art…le alrea…'

- Qué pensaba Juan que le   había dicho Pedro…
  what thought Juan that to him had said   Pedro
  que había publicado la revista?
  that had published the journal
  'What did Juan think that Pedro had told him that the
  journal had published?'

> When a *wh*-word is in SpecCP, the subject must appear after the VP.

> When a *wh*-word is in SpecCP, the subject must appear after the VP.

> When a *wh*-word is in SpecCP, the subject must appear after the VP.

That "unbounded" movement…

- It looks like (where we can tell), a *wh*-word that
  moves from inside an embedded clause **actually
  moves first to the SpecCP of the
  embedded clause, and then moves on**.

- [$_{CP}$ What did you say
       [$_{CP}$ <what> that Pat would eat <what>]] ?

- Compare:
  [$_{CP}$ [$_{TP}$ Pat seems [$_{TP}$ <Pat> to be likely [$_{TP}$
       <Pat> to appear [$_{TP}$ <Pat> to cry]]]]]

That "unbounded" movement…

- This means: **Where it looked like *wh*-words
  were moving over great distances, those
  distances were traversed in small steps.**

- What did Kate think [$_{CP}$ <what> Claire said
       [$_{CP}$ <what> Charlie heard
       [$_{CP}$ <what> Jack brought <what>]]]?

- If *wh*-movement is in fact constrained not to move
  "too far", this explains how it can *look* like *wh*-
  movement is unbounded.

What it means to move too far

- Having gotten an idea about what *is* happening, let's go back to
  our theory to figure out how we can ensure that it does.

- We need to allow a *wh*-word to move from one SpecCP to a
  higher SpecCP.

  - [$_{CP}$ What did Al say [$_{CP}$ <what> that Bart stole <what>]]?

- We need to prevent a *wh*-word from moving from further
  inside a CP to a higher SpecCP.

  - [$_{CP}$ What did Al say [$_{CP}$ that Bart stole <what>]]?

What it means to move too far

- A common idea about this is to say that sentences are built up in "chunks", called **phases**.

- **A CP constitutes a phase.**

- Once you've built a phase, you can't "see into it" further than the specifier.

  - [$_{CP}$ C$_{[uwh*]}$ [$_{TP}$ Al T say [$_{CP}$ that [$_{TP}$ Bart stole what…

  - [$_{CP}$ C$_{[uwh*]}$ [$_{TP}$ Al T say [$_{CP}$ what that [$_{TP}$ Bart stole <what>…

- So, in order for [$uwh*$] to be checked, *what* must be visible to it.

Technical implementation

- To allow *what* to move to an embedded SpecCP, we need to be able to add (optionally) a [$uwh*$] feature even to a C that is not itself [clause-type:Q].

  [$_{CP}$ C$_{[uwh*]}$ [$_{TP}$ Al T say [$_{CP}$ what that [$_{TP}$ Bart stole <what>…

- If you don't, the topmost [$uwh*$] can never be checked.

- **Embedded C may optionally bear [$uwh*$].**

Wh-islands

- Having gotten this far, we predict that it is not possible to turn this

  Pat asked [$_{CP}$ who kidnapped the Lindbergh baby].

  into a question asking about the kidnappee:

  *Who did Pat ask [$_{CP}$ who kidnapped <who>]?

- See why?

Wh-islands

- An embedded question forms another kind of an "island", generally called a **wh-island**.

  - The embedded C already had a [$uwh*$] feature, which was checked by moving the first *wh*-word into SpecCP. By the time we get to the main clause C, it can no longer see a *wh*-word inside the embedded clause.

- *Who did Pat ask [$_{CP}$ who kidnapped <who>]?

Op

- In fact, remember when we looked at yes-no questions and suggested that even they have a "silent *whether*" (**Op**)?

- Pat wondered [$_{CP}$ Op if Hauptmann kidnapped the Lindbergh baby].

  *Who did Pat wonder [$_{CP}$ Op if Hauptmann kidnapped <who>]?

- Evidence that *Op* is really there.

Complex Noun Phrase islands

- We can use the same kind of explanation for the Complex Noun Phrase islands:

- *Who does Jack believe
  [$_{DP}$ the claim [$_{CP}$ that the list does not include _]]?

- If we suppose that DP, like CP, is a phase.

- *Who does Jack believe
  [$_{DP}$ the claim [$_{CP}$ that the list does not include _]]?

Adjunct islands

- One last type of island we'll consider is the **adjunct island**. Generally: A *wh*-word cannot escape an adjoined modifier.

  - Dr. Hibbert laughed [_{CP} when Homer lost a finger].

  - *What did Dr. Hibbert laugh [_{CP} when Homer lost]?

- We don't yet have a good explanation for this. So far, we predict these should be possible.

Adjunct islands

- To account for the islandhood of adjuncts in our system, we will add one further condition:

- **The specifier of a phase is only visible to feature matching if the phase gets a θ-role.**
  - *Note:* Adger makes this one step more complicated, to account for "subject islands" but we won't do that here.

- Adjuncts differ from arguments in precisely this property.

In sum…

- Sentences are "chunked" into **phases** as they are built up. Phases are **CP** and **DP**.
- A feature outside of a phase cannot match a feature further inside the phase than its specifier.
- This leads to **island phenomena**, configurations in which a *wh*-word would be "trapped":
  - **CNP islands:** A *wh*-word cannot get to the specifier of DP and so is not visible from outside.
  - ***Wh*-islands:** A *wh*-word cannot get to the specifier of an embedded question (that already has a *wh*-word, or *Op*, in its specifier).
  - **Adjunct islands:** Even the specifier is not visible if the phase did not get a θ-role.

Islands

?   [John -ed call the police [after you stole what

Islands

what

? -ed [John -ed call the police [after you stole what

Islands

what

? -ed [John -ed call the police [after you stole what

Islands

? -ed [John -ed call the police [after you stole what

what

"Island effects" are a property of <u>movement</u>

1) Jack believes [DP the claim [**CP** that the list does not include Ethan]]?

2) *Who does Jack believe [DP the claim [**CP** that the list does not include _]]?

3) Who believes [DP the claim [**CP** that the list does not include who]]?

4) Dr. Hibbert laughed [**CP** when Homer lost a finger].

5) *What did Dr. Hibbert laugh [**CP** when Homer lost _]?

6) Who laughed [**CP** when Homer lost what]?

- So long as the *wh*-phrase doesn't *move*, it seems that there's no problem with simply having a *wh*-phrase inside an island.

"Island effects" are a property of <u>movement</u>

- Japanese: a *wh*-in-situ language.

- Taroo-ga **[DP** Hanako-ni **nani-o** ageta hito-ni **]** aimasita ka?
  T-nom   H-dat   what-acc gave man-dat met.pol Q
  '*What did Taro meet [the man that gave _ to Hanako]?'

- Taroo-ga **[CP** Hanako-ga **nani-o** yomu maeni **]** dekakemasita ka?
  T-nom   H-nom   what-acc read before   left.pol   Q
  '*What did Taro leave [before Hanako read _]?'

- ***Wh*-words don't move. Islands don't matter.**

Why phases?

- One of the main motivations behind phases (conceptually—empirically, there is plenty of evidence) is that is makes computation easier.
  - That is, again, the system is lazy. It works in chunks, it never has to look too far to find a feature for checking.

- What happens when a phase is "committed"?
  - The standard idea is that the *phonological interpretation* and *semantic interpretation* of that chunk becomes fixed, and can't be altered later. Terminology: **"Spell-out"**

- Terminology: The requirement that movement not go "too far" (not escape a committed phase) was known in the old days as **Subjacency**—you may still encounter this term when talking to linguists at parties (or reading older papers).