

Complementiser-like *how* clauses – distribution, extraction, factivity*

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0. Introduction

- Topic of this talk: **complementiser-like *how* clauses (CLHCs)**¹ (primarily in English):
 - (1) a. John told me **how** he'd been on holiday to Spain.
 - b. John forgot **how** he'd been on holiday to Spain.
 - c. John pointed out **how**he'd been on holiday to Spain.
- **On the surface, little to distinguish CLHCs (2a) from declarative *that*-complement clauses (2b),** (other than the presence of *how* instead of *that*).
 - (2) a. John told me **how**he'd been on holiday to Spain.
 - b. John told me **that**he'd been on holiday to Spain.
- Nevertheless, **CLHCs differ considerably from *that*-clauses in terms of their syntactic and semantic behaviour** (Legate 2010).
 - o factivity:
 - (3) a. # John told me **how** the Earth is flat. (⇒ the Earth is flat)
 - b. John told me **that** the Earth is flat. (≠ the Earth is flat)
 - o extraction:
 - (4) a. * What did John tell you **how** he'd seen ~~what~~ on holiday?
 - b. What did John tell you **that**he'd seen ~~what~~ on holiday?
 - o distribution:
 - (5) a. John told me **about how**he'd been on holiday to Spain.
 - b. * John told me **about that**he'd been on holiday to Spain.

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¹ To the extent of my knowledge, the first reference in the literature to this complementiser-like use of English *how* is Melvold (1991: 116 f.n. 17). López Couso & Méndez Naya (1996) offer a historical perspective, whilst Legate (2002, 2010) focuses on the syntax of clauses introduced by this use of *how* synchronically. Legate (2010: 121) further notes that 'Caponigro and Polinsky (2008) mention the construction in passing'. Defrancq (2005, 2009) discusses the complementiser-like use of French *comment* 'how', with a particular emphasis on its narrative function.

- These differences in behaviour raise questions about the correct syntactic analysis for CLHCs.

Aims of this talk:

- **AIM 1: EMPIRICAL:** Reassess the evidence which Legate (2010) puts forward in support of analysing CLHCs as DPs.
- **Proposal:** Distributional evidence suggests **CLHCs may in fact be CPs**.
- **(Tentative) conclusion:** The distinctive properties of CLHCs can successfully be accounted for if **CLHCs are CPs**, without needing to posit a null DP layer, if the differences CLHCs show to *that*-clauses fall out from **the particular lexical properties of *how*** itself.

- **AIM 2: THEORETICAL:** The approach I propose shares with Legate's account the idea that **the presuppositional nature of CLHCs falls out from the syntactic properties of the complement clause itself**. I explore the consequences of such a view in relation to recent accounts which remove the encoding of factivity/presuppositionality from the syntax (de Cuba 2007, de Cuba & Ürögdi 2009, Haegeman & Ürögdi 2010).
- **(Tentative) proposal:**
 - There is a three-way distinction in declarative complement clause types:
 - **non-referential complement clauses** (content never presupposed)
 - **referential complement clauses** (content can be presupposed under certain predicates)
 - **truly presuppositional complement clauses** (content always presupposed).
 - **English CLHCs** represent the last type - **truly presuppositional complement clauses**
 - **A similar three-way distinction is attested in the complementation systems of other languages** (Roussou 1992, 2010 (Modern Greek); Baunaz 2011b (French)).

Overview of the presentation:

1. Introducing CLHCs
- PART 1 (→AIM 1)**
2. A DP analysis for CLHCs?
3. A CP analysis for CLHCs?
- PART 2 (→AIM 2)**
4. Consequences for factivity
5. Conclusions and directions for future research

1. Introducing CLHCs

1.1 CLHCs and other *how*-clauses

- CLHCs are not the only type of embedded clauses in English which can be introduced by *how*:
- (6) a. I asked her **how** she'd travelled to the conference. embedded interrogative
 b. I ate **how** he ate. free relative
- CLHCs differ in that they contain no obvious 'gap' (Melvold 1991, López Couso & Méndez Naya 1996) – they appear to be syntactically and semantically complete:
- (7) a. I asked her how she'd travelled to the conference ~~how~~. She told me she'd travelled by train.
 b. I ate how he ate ~~how~~ - messily.
 c. I've never told her how he didn't help me (# - unkindly).
 d. I've never told her that he didn't help me (# - unkindly).
- At first glance then, CLHCs seem to have more in common with *that*-clauses.

1.2 CLHCs and *that*-clauses

- CLHCs occur under a range of factive/non-factive predicates²:
- **reporting speech/thought**: tell someone, say, mention, report, recount, relate, detail, complain, tease, write, illustrate, remember, recall
 - **emotion**: love, relish, be amazing/strange/interesting/funny/frightening/odd/wrong
 - **understanding**: accept, believe, grasp, pick up, realise, think
 - **demonstration/perception**: demonstrate, show, see, hear, reveal, make clear to someone, explain to someone
- Nevertheless, **CLHCs can't occur as the complements to all matrix predicates which can take *that*-clauses as complements.**
 - They are excluded with certain factive (8) and non-factive (9) predicates:
- (8) a. * I'm glad **how** John's managed to find a new job. * *be glad* + CLHC
 b. I'm glad **that** John's managed to find a new job. *be glad* + *that*-clause
- (9) a. * John pretended **how** he'd gone to bed early. * *pretend* + CLHC
 b. John pretended **that** he'd gone to bed early. *pretend* + *that*-clause

² The following list is not exhaustive: CLHCs are attested with all of these predicates, but certainly with others as well. As Legate (2010: 124) notes, additional evidence that CLHCs are not to be conflated with embedded interrogatives comes from the fact that they are unable to occur 'with predicates that only select for a question', as illustrated here in (i) (her (8)):

- (i) a. It depends on whether the tooth fairy really exists.
 b. * It depends on how the tooth fairy really exists.

- Conversely, **CLHCs cannot always be replaced by *that*-clauses**, as shown in (10)³:

(10)a. Writing in the Chemistry Central Journal, the scientists have described **how** they considered a wine to be safe if it had a TH Q of no more than one. *describe* + CLHC

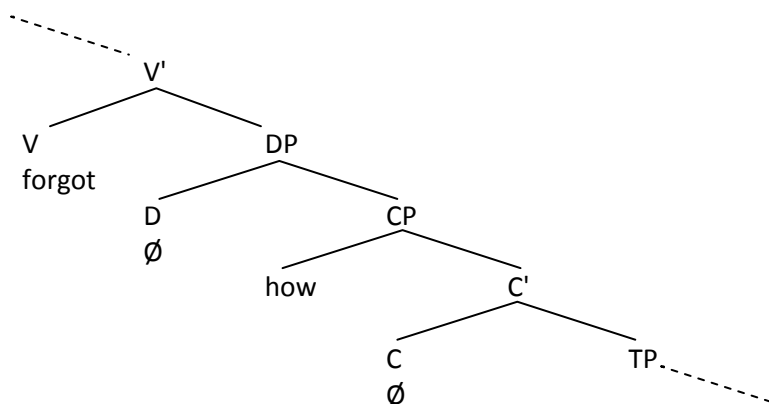
b. * Writing in the Chemistry Central Journal, the scientists have described **that** they considered a wine to be safe if it had a TH Q of no more than one. *describe* + *that*-clause

- Legate (2010): CLHCs show further differences to *that*-clauses in terms of **factivity, extraction possibilities and distribution**.

2. A DP analysis for CLHCs?

- Legate (2010) analyses CLHCs as definite DPs, proposing the structure in (11):

(11)



- Such an analysis is motivated by the behaviour of CLHCs in relation to the 3 properties noted in the introduction: **factivity, extraction and distribution**⁴:
 - Section 2.1 → factivity
 - Section 2.2 → extraction
 - Section 2.3 → distribution

Preview:

- The behaviour of CLHCs with regard to factivity and extraction is compatible with a DP analysis.
- It is less clear that a DP analysis accounts well for the distribution of CLHCs.
- All of these properties can also be accounted for under a CP analysis? (→ section 3)

³ (10a) is an attested example from *The Guardian* 30.10.2008, page 11 column 2. Thanks to Liliane Haegeman for providing this example. It is clear from the context that no manner reading is available here for *how*.

⁴ Legate (2010: 127) also discusses the inability of NPIs to be licensed in CLHCs. I do not discuss this property here due to time restrictions, although I believe it can also be accounted for under my approach to CLHCs, if NPIs can only be licensed in non-veridical environments in English, as has been claimed for French (Baunaz 2011b: 13).

2.1 CLHCs and factivity

2.1.1 Introducing factivity

- A complement clause is said to be 'factive' if its content is presupposed:

'A sentence *S* logically presupposes a sentence *P* just in case *S* logically implies *P*, and the negation of *S* also logically implies *P*' (Shanon 1976).

- Typical examples to illustrate the concept of factivity (repeated from de Cuba & Ürögdi 2009: 4):

(12)a. John resents that it's raining. (\Rightarrow it's raining)
 b. John doesn't resent that it's raining. (\Rightarrow it's raining)

(13)a. John believes that it's raining. (\nRightarrow it's raining)
 b. John doesn't believe that it's raining. (\nRightarrow it's raining)

(14)a. # John resents that the Earth is flat. (\Rightarrow the Earth is flat)
 b. John believes that the Earth is flat. (\nRightarrow the Earth is flat)

- As **these effects seem to depend upon the matrix predicate under which a *that*-clause is embedded**, it is common to refer to these as '**factive**' vs. '**non-factive**' predicates:

- **factive predicates** e.g. *resent*: truth of the complement clause is presupposed
- **non-factive predicates** e.g. *believe*: truth of the complement clause is not presupposed

2.1.2 CLHCs and presupposition

- **Content of a CLHC is presupposed**: the content of the complement clause is logically implied, even when the matrix predicate under which a CLHC is embedded is negated. **This effect arises even under non-factive** predicates such as *tell*:

(15)a. John told me **how** it's raining. (\Rightarrow it's raining)
 b. John didn't tell me **how** it's raining. (\Rightarrow it's raining)

(16)a. John told me **that** it's raining. (\nRightarrow it's raining)
 b. John didn't tell me **that** it's raining. (\nRightarrow it's raining)

(17)a. # John told me **how** the Earth is flat. (\Rightarrow the Earth is flat)
 b. # John didn't tell me **how** the Earth is flat. (\Rightarrow the Earth is flat)

(18)a. John told me **that** the Earth is flat. (\nRightarrow the Earth is flat)
 b. John didn't tell me **that** the Earth is flat. (\nRightarrow the Earth is flat)

- Further contexts which seems to suggest that the content of a CLHC is always presupposed:

- (i) **where both a presupposed and a non-presupposed reading are available for *that*-clause complements, only the presupposed reading is available with a CLHC (19)⁵:**

- (19)a. Have you discovered **that** the “cash value” of your policy has decreased or disappeared?
 b. Have you discovered **how** the “cash value” of your policy has decreased or disappeared?

- (ii) **in contexts where a non-presupposed reading is impossible, CLHCs nevertheless retain their factivity and the result is thus infelicitous:**

- (20)a. If I discover **that** a member of staff has been stealing from me, I will be most disappointed.
 b. # If I discover **how** a member of staff has been stealing from me, I will be most disappointed.

Conclusion: CLHCs behave like factive complement clauses, even under non-factive matrix predicates.

Legate’s explanation: CLHCs are definite DP. Like definite DPs, CLHCs have associated with them an existential presupposition, which accounts for their factivity.

2.2 Extraction from CLHCs

- **CLHCs are strong islands for extraction** - *wh*-extraction of both arguments and adjuncts results in ungrammaticality.
- In this regard, **their behaviour differs to that of interrogative *how*-clauses and factive *that*-clauses, both of which are weak islands** (non-factive *that*-clauses are not islands at all).

➤ CLHCs = strong islands

- | | |
|---|--|
| <p>(21)a. He told me how he’d made the cake quickly.
 b. * What did he tell you how he’d made what?
 c. * How did he tell you howhe’d made the cake how?</p> | <p>CLHC
 * argument extraction
 * adjunct extraction</p> |
|---|--|

➤ interrogative ‘manner’ *how* clauses = weak islands

- | | |
|---|--|
| <p>(22)a. He described howhe’d made the cake.
 b. What did he describe howhe’d made what?
 c. * How did he describe howhe’d made the cake how?</p> | <p>manner <i>how</i> clause
 argument extraction
 * adjunct extraction</p> |
|---|--|

➤ factive *that*-clauses = weak islands

- | | |
|--|--|
| <p>(23)a. He regrets thathe made the cake.
 b. What does he regret thathe made what?
 c. * How does he regret thathe made the cake how?</p> | <p>factive <i>that</i>-clause
 argument extraction
 * adjunct extraction</p> |
|--|--|

⁵ (19a) is an attested example cited by Beaver (2002).

➤ **non-factive *that*-clauses ≠ islands**

- | | |
|--|---------------------------------|
| (24)a. He told me that he'd made the cake quickly. | non-factive <i>that</i> -clause |
| b. What did he tell you that he'd made what ? | argument extraction |
| c. How did he tell you that he'd made the cake how ? | adjunct extraction |

- Definite DPs are also strong islands for extraction (see references in Legate 2010) – argument extraction from within a definite DP is impossible (cf. 25)⁶:

- | | |
|---|-----------------------|
| (25)a. I discovered [_{DP} John's poem about his rabbit]. | definite DP |
| b. * What did you discover [_{DP} John's poem about what ?] | * argument extraction |
| c. * What did you discover [_{DP} the poem about what ?] | * argument extraction |

Conclusion: CLHCs pattern like definite DPs in disallowing all *wh*-extraction.

Legate's explanation: CLHCs are definite DP. Therefore whatever account is given to the impossibility of *wh*-extraction from canonical definite DPs extends to explain the CLHC facts.

2.3 Distribution of CLHCs

Legate's claim: CLHCs distribute like DPs, not like CPs.

Legate's conclusion: This is explained if, syntactically, CLHCs are DPs. CLHCs share the distribution, and therefore the categorial status, of DPs

Preview:

- **English data** (→ section 2.3.1): Not all of Legate's tests seem to be robust. **To the extent that CLHCs distribute like DPs, this behaviour is shared with other *wh*-clauses analysed as CPs.**
- **Dutch data** (→ section 2.3.2): **In significant regards, CLHCs pattern like CPs rather than DPs.**

2.3.1 The distribution of CLHCs in English

- Here I assess the 4 distributional arguments put forward by Legate in support of a DP analysis of CLHCs⁷.

2.3.1.1 CLHCs can co-ordinate with DPs

- Legate's claim: if only like categories can be coordinated, examples such as (26a) must involve the coordination of two DPs.
- Assessment: it is well-known that there are numerous counter-examples to the claim that coordination can only involve constituents of the same category (Huddleston & Pullum 2006).

⁶ Example modelled on (6) from Szabolcsi & den Dikken (1999).

⁷ A more detailed discussion of the distribution of CLHCs is given in Nye (under review).

- (26)a. I've never actually told her [the truth about my feelings] or [**how** I've never really got over what happened]. DP and CLHC
 b. I've never actually told her [the truth about my feelings] or [**the fact** that I've never really got over what happened]. DP and DP
 c. I've never actually told her [the truth about my feelings] or [**that** I've never really got over what happened]. DP and CP

- Conclusion: This test tells us little about the categorial status of CLHCs.

2.3.1.2 CLHCs can occur as the complements to prepositions

- Legate's claim: CLHCs, like DPs, can occur as complement to prepositions. *that*-clauses cannot.

- (27)a. They told me about [**how** the tooth fairy doesn't really exist]. P + CLHC
 b. They told me about [the tooth fairy's non-existence]. P + DP
 c. * They told me about [**that** the tooth fairy doesn't really exist]. * P + *that*-clause⁸

- Assessment: It is true that CLHCs pattern with DPs, and contra *that*-clause CPs, in being able to occur as the complement to a preposition. However, other *wh*-clauses pattern the same.

- (28)a. He asked me about [how I was feeling]. P+interrogative-*how* clause
 b. I'll find out about [how much money we'd need for that]. P+'answer to question'-*how* clause
 c. She boasted about [how fast she could run]. P+degree-*how* clause
 d. I'm concerned about [whether we'll make it on time]. P+*whether*-clause

- Conclusion: CLHCs pattern no more like DPs than other *wh*-clauses, usually analysed as CPs.

2.3.1.3 CLHCs need to be case-marked

- Legate's claim (i): CLHCs, like DPs, can appear in positions to which case is assigned.

- (29)Not to mention I don't approve of **how** you fib about how many horses you have or how much money you have, or **how** you constantly beg for more horses or more money.⁹

- (30)a. They approved of [**how** Pat apologized contritely for being late]. *of* + CLHC
 b. They approved of [Pat's contrite apology]. *of* + DP
 c. *They approved of [**that** Pat apologized contritely for being late]. * *of* + declarative CP

- Assessment: Again, whilst CLHCs pattern with DPs in this regard, other *wh*-clauses also show the same behaviour.

- (31)a. He was unsure of [how I was feeling]. P+interrogative-*how* clause
 b. I am aware of [how much money we'd need for that]. P+'answer to question'-*how* clause
 c. She boasted of [how fast she could run]. P+degree-*how* clause

⁸ Example (27) is Legate's (2).

⁹ Example (29) is Legate's example (5d). She cites it as attested from:

www.equination.net/forum/viewtopic.php?p=262880&sid=5c0d83311595420d4d6a959fae5e813c.

(32) Fry often seems unsure of [whether he wants to stress satire or drama], and while a good film can be both, this film is neither. P+*whether*-clause¹⁰

- Legate's claim (ii): CLHCs, like DPs cannot appear in positions to which no case is assigned.

(33)a. * It was conceded **how** the tooth fairy doesn't exist. * CLHC in non case-marked position
 b. * It was conceded the tooth fairy's non-existence. * DP in non case-marked position
 c. It was conceded **that** the tooth fairy doesn't exist. declarative CP in non case-marked position¹¹

- Assessment: This generalisation does not always hold.

(34)a. It's funny **how** the tooth fairy doesn't exist. CLHC in non case-marked position
 b. * It's funny the tooth fairy's non-existence. * DP in non case-marked position
 c. It's funny **that** the tooth fairy doesn't exist. declarative CP in non case-marked position

- Conclusion: CLHCs do not consistently pattern like DPs in this regard. In some cases they pattern like CPs and contra DPs, in their ability to occur in positions to which no case is assigned.

2.3.1.4 CLHCs must occur in the PP complements of predicates which can take either a PP or a CP

- Legate's claim: If a predicate can take either a PP or a CP complement, the CLHC must occur in the PP complement - it can't occur as the direct complement of the matrix predicate.

(35)a. I fretted **about how** the tooth fairy doesn't exist. *fret* + P + CLHC
 b. I fretted **that** the tooth fairy doesn't exist. *fret* + declarative CP
 c. * I fretted **how** the tooth fairy doesn't exist. * *fret* + CLHC¹²

- Assessment: This generalisation does not always hold.

(36)a. I'm embarrassed **of how** I changed seats because he appeared while sleeping to be dangerous. *be embarrassed* + P + CLHC
 b. I'm embarrassed **that** I changed seats because he appeared while sleeping to be dangerous. *be embarrassed* + declarative CP
 c. * I'm embarrassed **how** I changed seats because he appeared while sleeping to be dangerous. * *be embarrassed* + CLHC¹³

(37)a. I used to be really embarrassed **how** I didn't know much about cooking. *be embarrassed* + CLHC¹⁴
 b. Today Captain Chris will be the first to admit that he is embarrassed **how** he thought of himself as a true "tough guy" at the time, and even considered getting involved in the hot new martial arts craze back then: Ultimate Fighting and Mixed Martial Arts. *be embarrassed* + CLHC¹⁵

¹⁰ From <http://www.popmatters.com/film/reviews/b/bright-young-things.shtml>. Accessed on 17/08/2010.

¹¹ Example (33) above is Legate's (7).

¹² Example (35) above is Legate's (6a-c).

¹³ Example (36) above is Legate's (6d-f).

¹⁴ From <http://startcooking.com/blog/88/Chicken-Stir-Fry-with-Scallions>. Accessed on 16/08/2010.

- Conclusion: Once again, CLHCs do not consistently pattern in a way which is dissimilar to CPs. In some cases they can occur either as the direct CP complement of a predicate or within a PP.

2.3.1.5 Conclusions from the English data

- None of the tests give conclusive proof of CLHCs patterning like DPs.
- It is indeed the case that CLHCs seem able to occur in certain environments where DPs can occur and from which *that*-clauses are excluded.
- However, given that **CLHCs pattern no more like DPs than other clauses introduced by *wh*-expressions** which are generally taken to be CPs, this does not constitute strong evidence in favour of a DP-analysis for CLHCs.

2.3.2 The distribution of CLHCs in Dutch

- Here I provide data from a pilot questionnaire study of native speakers of Dutch.

(38)a. Ik heb haar nooit verteld **hoe** hij me niet geholpen heeft.

I have her never told how he me not helped has
'I've never told her how he didn't help me.'

b. Ik heb haar nooit verteld **dat** hij me niet geholpen heeft.

I have her never told that he me not helped has
'I've never told her that he didn't help me.'

2.3.2.1 CLHCs occur only in extraposed position

- Observation: CLHCs, like *dat*-clause CPs, are unable to occur in the middlefield, and obligatorily occur in extraposed position. DPs show complementary distribution – they occur in the middlefield but not in extraposed position.

(39)a. *Ik zal [**hoe** hij me toen niet geholpen heeft] nooit vergeten.

I will how he me then not helped has never forget

*CLHC in middlefield

b. Ik zal nooit vergeten [**hoe** hij me toen niet geholpen heeft].

I will never forget how he me then not helped has

extraposed CLHC

'I'll never forget how he didn't help me then'.

(40)a. *Ik zal [**dat** hij me niet geholpen heeft] nooit vergeten.

I will that he me not helped has never forget

*CP in middlefield

b. Ik zal nooit vergeten [**dat** hij me toen niet geholpen heeft].

I will never forget that he me then not helped has

extraposed CP

'I'll never forget that he didn't help me then'.

(41)a. Ik zal [het feit dat hij me toen niet geholpen heeft] nooit vergeten.

I will the fact that he me then not helped has never forget

DP in middlefield

b. *Ik zal nooit vergeten [het feit dat hij me toen niet geholpen heeft].

I will never forget the fact that he me then not helped has

* extraposed DP

'I'll never forget the fact that he didn't help me then'.

¹⁵ From <http://www.closecombattraining.com/captainchris.php>. Accessed on 16/08/2010.

2.3.2.2 CLHCs follow PP complements

- Observation: When a matrix predicate is able to take both a clausal and a PP complement, the CLHC follows the PP, with the reverse order judged highly degraded. This is the same distribution shown by (*dat*-clause) CPs. DPs, on the hand, may precede but not follow the PP.

(42)a. ?? Ik vertelde **hoe** hij me nooit geholpen had aan Marie. ?? CLHC > PP

I told how he me never helped had to Marie

b. ? Ik vertelde aan Marie **hoe** hij me nooit geholpen had. ? PP > CLHC

I told to Marie how he me never helped had

'I told Marie how he had never helped me.'

(43) a. ?? Ik vertelde **dat** hij me nooit geholpen had aan Marie. ?? CP > PP

I told that he me never helped had to Marie

b. Ik vertelde aan Marie **dat** hij me nooit geholpen had. PP > CP

I told to Marie that he me never helped had

'I told Marie that he had never helped me.'

(44)a. Ik vertelde dat verhaal aan Marie. DP > PP

I told that story to Marie

b. ??/* Ik vertelde aan Marie dat verhaal. ??/* PP > DP

'I told that story to Marie.'

2.3.2.3 Conclusions from the Dutch data

- We see that from Dutch, positive evidence is provided of contexts where CLHCs pattern like other CPs, while DPs show a different distribution.

2.3.3 Distribution of CLHCs – overall conclusions

- **From English**, we see that whilst in certain regards CLHCs do have a more 'nominal' distribution than *that*-clause CPs, this is shared with other *wh*-clauses, which are generally assumed to be CPs. **The distributional evidence for a DP analysis for CLHCs is no more compelling than for any other kind of *wh*-clause.**
- **From Dutch**, we see positive evidence that CLHCs pattern like other declarative CPs, and not like DPs.

2.4 Taking stock

- **AIM 1: EMPIRICAL:** Reassess the evidence which Legate (2010) puts forward in support of analysing CLHCs as DPs.

- The **content** of CLHCs does invariably seem to be **presupposed**.
- CLHCs are indeed **strong islands**.
- Both of these properties make CLHCs compatible with the **DP analysis** offered by Legate.

- However, **distributionally, CLHCs seem to pattern most like (*wh*-)CPs.**
- A **CP analysis** for CLHCs?

3. A CP analysis for CLHCs?

- **(Tentative) proposal:** it is not in fact necessary to posit a null D head in order to explain the presuppositionality and strong island status of CLHCs, if these can be accounted for by appealing to the particular lexical properties of *how* itself.

- **Motivations:**
 - **empirical:** CLHCs distribute like (*wh*-)CPs.
 - **theoretical:** Although **the presence of *how* instead of *that*** is the most immediately striking difference between a CLHC and a *that*-clause CP, in Legate's analysis, *how* itself plays no role in the syntax or the semantics of the CLHC. It seems to me desirable to at least explore the possibility that **the particular properties of CLHCs stem from this item overtly present in the syntax** before concluding that null structure must be responsible.

3.1 Sketch analysis

- The analysis I sketch here for CLHCs follows **Baunaz (2011b) on French *que*-clauses.**

3.1.1 Summary of the relevant properties of her account:

- Baunaz (2011b: 33) identifies three 'flavours' of *que*.
- These three types of *que* have in common their location in spec-CP and their DP status, but are distinguished by their feature content:

(i) <i>que</i> [- presuppositional]	non-quantificational
(ii) <i>que</i> [+ partitive presuppositional]	quantificational
(iii) <i>que</i> [+ specific presuppositional]	quantificational
- Features are organised hierarchically (Starke 2001, Baunaz 2011a,b). Therefore *que* [+ specific presuppositional] has a richer feature content than *que* [+ partitive presuppositional], which in turn has a richer feature content than *que* [- presuppositional]¹⁶:

(45) $Q < Q_{\text{partitive}} < Q_{\text{specific}}$

¹⁶ Baunaz (2011b: 27) considers complementiser *que* [+ specific presuppositional] to be the nominal equivalent of the pronominal *que* found in exclamatives. The relation between complementiser-like *how* and exclamative *how* is an interesting issue, but one which lies beyond the scope of this talk. I hope to pursue the topic further in future research.

3.1.2 Accounting for the properties of CLHCs

(Tentative) proposal: *how* is also a quantificational DP, base-generated in spec-CP, which bears a [+presuppositional] feature.

- The **presuppositionality of CLHCs results from the fact that a [+presuppositional] complementiser introduces the clause.**
- **The strong island status of the CLHC results from the fact that [+presuppositional] is the richest feature content possible** for a quantificational item. Assuming **feature-based Relativised Minimality** (Starke 2001, Rizzi 2004, Haegeman & Ürögdi 2010, and in particular Baunaz's (2011b) implementation of this for French *que*), *wh*-extraction of any item past a [+specific presuppositional] complementiser will fail, as it will never have a richer feature content than the complementiser.

(46) * Q_[+presuppositional] ... Q_[+presuppositional] ... Q_[+presuppositional]

- The **distribution of CLHCs is determined by the same principles which govern the distribution of other *wh*-CPs.**

3.1.3 Similarities between the CP and the DP analyses

- The CP **analysis is not a complete departure from Legate's account.** It rather provides an alternative means of capturing the intuition that CLHCs are 'more nominal' in their syntactic and semantic behaviour than *that*-clauses.
- Whereas Legate's explanation for **the similarities which CLHCs show to definite DPs** in terms of syntactic and semantic behaviour is that CLHCs are DPs, in the approach sketched above, these are **attributed to the presence of the feature [+presuppositional], standardly associated with nominals which are interpreted as specific, on *how*.**

3.1.4 Open questions

- Many **questions remain about the specific implementation of such an approach for English**, including but not limited to:
 - What is the precise mechanism by which presence of a [+presuppositional] complementiser ensures that the content of the clause is interpreted as being presupposed?
 - The feature system which Baunaz (2011b) proposes for *que* has already been independently proposed for the nominal domain in French (Baunaz 2011a). Is there any support for such a feature system in English? Is there motivation for *how* being a DP in English? How does *that* fit into the system?
 - If *how* is base-generated in spec-CP, and there is no other operator movement to the CP domain from lower in the clause, then Main Clause Phenomena, e.g. argument fronting, spw are predicted to be acceptable (Haegeman & Ürögdi 2010). Preliminary research suggests that this may indeed be the case, but further investigation is needed to confirm this.

3.1.5 Advantages of a CP analysis for CLHCs

- Despite the many open questions, I consider a CP analysis for CLHCs along these lines to have the following advantages:
 - o CLHCs have the **same CP status as the other *wh*-clauses** with which they pattern distributionally.
 - o The **distinctive properties of CLHCs** – their presuppositionality and strong island status – are **tied to the lexical properties of an item which is overt in the syntax – *how***.
 - o In positing a null DP layer to explain the factivity of a clause, Legate's account appears to be in the vein of traditional accounts (Kiparsky & Kiparsky 1971) and runs counter to recent approaches taken to factive clauses which see these as involving fewer functional projections in comparison to their non-factive equivalents, not more (Haegeman 2006, de Cuba 2007, de Cuba & Ürögdi 2009). A CP analysis of CLHCs avoids such issues.

- **Conclusions:**

- For the time being this is merely a sketch of the direction a CP analysis of CLHCs might take.
- However, for the empirical and theoretical reasons given above, I consider such an approach to be worth pursuing, and intend to do so in future research.

4. Consequences for factivity

- In the CP analysis sketched **for CLHCs** in 3.1.2 above, just as in the DP analysis Legate proposes (presented in section 2), **presuppositionality is syntactically encoded in the complement clause itself**, even if the way in which this is implemented differs between the accounts.
- Given the data presented in section 2.1.2 to show that **the content of a CLHC is invariably presupposed**, regardless of the syntactic properties of the matrix clause, this seems to be the right outcome.
- However, it goes against the grain of certain recent accounts of so-called 'factive clauses'.

- **AIM 2: THEORETICAL:** The approach I propose shares with Legate's account the idea that **the presuppositional nature of CLHCs falls out from the syntactic properties of the complement clause itself**. I explore the consequences of such a view in relation to recent accounts which remove the encoding of factivity/presuppositionality from the syntax (de Cuba 2007, de Cuba & Ürögdi 2009, Haegeman & Ürögdi 2010).

4.1 Referentiality vs. factivity

4.1.1 De Cuba & Ürögdi (2009)

- **de Cuba & Ürögdi (2009)** discuss English *that*-clause- (and Hungarian *hogy*-) complements.
- They argue (following de Cuba 2007) that **factivity is not directly encoded in the syntax – there are no 'factive complement clauses'** as such.
- Rather there are **referential CPs** (CPs) and **non-referential CPs** (cPs):

- **REFERENTIAL CP (CP):** ‘a referential entity that denotes a proposition without illocutionary force (a sentence radical in the sense of Krifka 1999), a semantic object encoding a proposition (without a necessary commitment to its truth) about which the complex sentence makes an assertion’ (de Cuba & Ürögdi 2009: 9).
 - **NON-REFERENTIAL CP (cP):** ‘a non-referential semantic object denoting a speech act, which adds a new proposition or an open question to the context. A cP properly contains a CP both syntactically and semantically. When a verb takes a cP as its complement, the information focus of the complex sentence is the cP’ (de Cuba & Ürögdi 2009: 9).
- ‘Certain predicates will be shown to be compatible only with one or other type of complement, but this grouping does not follow directly from the factivity of the predicate...a large number of verbs can select either cP or CP (although the choice impacts on interpretation and syntactic behaviour)’ (de Cuba & Ürögdi 2009: 9-10).

4 logical possibilities in the system they outline:

(i)	* Factive predicate	+	non-referential CP complement
(ii)	Factive predicate	+	referential CP complement
(iii)	Non-factive predicate	+	non-referential CP complement
(iv)	Non-factive predicate	+	referential CP complement

(i) * Factive predicate + non-referential CP complement

- ‘the semantic restriction that factive verbs impose on their complement indirectly renders their combination with a cP infelicitous: a cP encodes a speech act, which, by definition, must contain some novel component in order to be felicitous (i.e. it must be ‘unresolved’), while factive verbs require that the truth of their complement be resolved’ (de Cuba & Ürögdi 2009: 9).

(ii) **Factive predicate** + **referential CP complement**

(47) John resents that it’s raining. (⇒ It’s raining)

(iii) **Non-factive predicate** + **non-referential CP complement**

(48) John believes that it’s raining. (≠ It’s raining)

(iv) **Non-factive predicate** + **referential CP complement**

(49) John TOLD me that it’s raining. (≠ It’s raining)

- ‘while a non-factive verb selecting a CP [=referential CP] patterns with factive constructions in a number of ways (in terms of syntax, semantics and prosody), such a construction does not yield a factive reading on the complement’ (De Cuba & Ürögdi 2009: 19).
- Can we be sure that CLHCs under non-factive predicates are truly presuppositional, and are not simply referential CPs showing the ‘factive-like’ effect which de Cuba & Ürögdi discuss?

4.1.2 CLHCs and referentiality

Preview: Cases of ‘non-factive predicate + CLHC’ show different behaviour to the ‘non-factive predicate + referential CP’ cases discussed by De Cuba & Ürögdi (2009). **CLHCs always get a factive reading.** Therefore CLHCs cannot simply be equated with referential CPs.

- The cases de Cuba & Ürögdi discuss involve:
 - (i) the matrix predicate occurring in the past tense.
 - (ii) focus upon the matrix predicate.
 - (iii) only certain non-factive matrix predicates e.g. *tell, say*.
 - (iv) loss of apparent ‘factive’ effect in a context denying the truth of the complement clause.
- Whilst **CLHCs may also seem to be favoured under certain non-factive predicates e.g. *tell*, especially in the past tense**, they are not restricted to such contexts. **They do not require focus upon the matrix predicate, and there is never any loss of factivity.**

(i) a matrix predicate occurring in past tense form

- CLHCs are not restricted to occurring under non-factive predicates which are in the past tense:

- (50)a. John’s telling him now **how** it’s raining/**#how** the earth is flat.
 b. John’s going to tell him later **how** it’s raining/**#how** the earth is flat.

(ii) focus upon the matrix predicate

- No particular focus is required upon a non-factive predicate with a CLHC complement.

(iii) only certain non-factive matrix predicates e.g. *tell, say*.

- CLHCs are able to occur under a range of non-factive predicates¹⁷:

- (51) He’d begun by saying **how** the more time he’d spent with her the more he’d wanted to spend.
 #...which was blatantly false.

- (52) In the aftermath of the London bombings, newspapers reported **how** he would start fights with fellow pupils at the Matthew Murray Secondary school in Leeds.
 #...but this was found to be a fabrication.

¹⁷ (51) is an attested example from *Love all* by Elizabeth Jane Howard, Pan books (2009: 331). Thanks to Liliane Haegeman for providing this example. (52) is also an attested example, from <http://news.bbc.co.uk/2/hi/4678837.stm>. (53) and (54) are modelled on attested examples, from http://www.gamespot.com/pc/strategy/warhammer40000dawnofwarsoulstorm/show_msgs.php?topic_id=m-1-40903589&pid=943419&page=5 and <http://www.joystiq.com/profile/2572717/> respectively.

(53)a. He vowed **how** he will avenge the stain on his honour.
 #...but I can't really see him taking action.

(54)a. It's obvious **how** what was shown is not possible at this moment in time.
 b. It's isn't obvious **how** what was shown is not possible at this moment in time.
 #Technology is progressing faster than you think.

(iv) loss of apparent 'factive' effect in a context denying the truth of the complement clause

- As illustrated above, in all these instances of CLHCs appearing under a range of non-factive complement clauses, the CLHCs can only receive a presupposed interpretation, and are infelicitous in contexts which deny the truth of the complement clause.

Conclusion:

- CLHCs share with referential CPs the fact that under a factive predicate, the content of the complement clause is presupposed.
- CLHCs are however differentiated from referential CPs by the fact that their content remains presupposed even under a non-factive predicate.
- CLHCs therefore seem to represent a truly inherently factive type of complement clause.

4.2 Consequences for the system of complementation in English

- The fact that CLHCs represent an inherently presuppositional type of complement clause does not imply that in all complement clauses where a presuppositional effect arises, this must be syntactically encoded in the complement clause itself.
- I consider the analysis sketched here for CLHCs to be an extension to, not a replacement for, accounts such as that of de Cuba & Ürögdi (2009):

(i) non-/referential CP under non-factive predicate	→ non-presuppositional interpretation
(ii) referential CP under factive predicate	→ presuppositional interpretation
(iii) CLHC under non-/factive predicate	→ presuppositional interpretation

i.e. presuppositionality can arise:

- **EITHER** from the presence of a referential complement in combination with a factive predicate (factive *that*-clauses).
- **OR** it can be directly encoded in the syntax of a complement clause, in which case it is independent of the lexico-semantic content of the matrix predicate (CLHCs).

- Potential support for such a three-way distinction comes from:

a) an interesting correlation between presuppositionality and island strength:

- | | |
|---|-----------------|
| (i) non-presuppositional complement clause | → ≠ island |
| (ii) presuppositional complement clause (factive predicate + referential CP) | → weak island |
| (iii) presuppositional complement clause (presuppositional complement clause) | → strong island |

- Question: Does island strength correlate with presupposition strength (as in French, see below)? i.e. is the presupposition associated with a CLHC somehow stronger than that associated with a factive *that*-clause. Or is it the difference in source of the presupposition which accounts for the difference in island strength in English?

b) data from other languages:

French:

- As discussed above in section 3.1, Baunaz (2011b) identifies three types of *que*-complement clause in French.
- As she observes, island strength shows a positive correlation with degree of presuppositionality:

(i)	<i>que</i> [- presuppositional]	→ ≠ island
(ii)	<i>que</i> [+ partitive presuppositional]	→ weak island
(iii)	<i>que</i> [+ specific presuppositional]	→ strong island

Modern Greek:

- Roussou (1992, 2010) discusses two declarative complementisers which introduce finite clauses in Modern Greek, *pu* and *oti*, which also seem to give rise to a three-way system:

(i)	non-factive predicate + <i>oti</i> -complement clause	no presupposition
(ii)	factive predicate + <i>oti</i> -complement clause	weak presupposition → weak island
(iii)	(non-)factive predicate + <i>pu</i> - complement clause	strong presupposition → strong island
- Note that, as observed by Legate (2010: 132), CLHCs are also found in both French (cf. 55)¹⁸ and Modern Greek (cf. 56)¹⁹:

(55) Sartre raconte dans les Mots **comment** il a fait
 Sartre recounts in *Words* **how** he has made
 enfance commune avec le cinéma...
 childhood.FEM.SG common.FEM.SG with the cinema...
 'Sartre recounts in *Words* how he and cinema grew up together'.

(56) mu ipan **pos** arghises sto
 CL.1PS.GEN.SG tell.PAST.ACT.3PS.PL **how** be.late.PAST.2PS.SG to.the.NEUT.ACC.SG.
 radevu
 appointment.NEUT.ACC.SG
 'They told me how you were late for the appointment'.

- Question: How do CLHCs intersect with the three types of declarative complement clause already independently identified in French and Modern Greek?

¹⁸ Example (55) above is an abbreviated version of example (1) from Defrancq (2009), cited from *Le Monde* 13.01.1994, p.R03. The English gloss and translation are my own. See Defrancq (2005, 2009) for further discussion of CLHCs in French.

¹⁹ Example (56) is example (29) from Legate (2010). She attributes the example to Effi Georgala (p.c.).

5. Conclusions and directions for future research

5.1 Conclusions

- **AIM 1: EMPIRICAL:** Reassess the evidence which Legate (2010) puts forward in support of analysing CLHCs as DPs.
 - **CP analysis** for CLHCs **preferred** to a DP analysis **on both empirical and theoretical grounds**.
 - **CP analysis accounts better for the distribution of CLHCs**, and **ties their distinctive properties** of presuppositionality and prevention of all extraction **to the lexical properties of *how***, without the need to posit an additional empty projection.
 - **CP account captures the intuition that presuppositionality should be syntactically encoded** in a CLHC, **and that CLHCs are somehow ‘more nominal’** than *that*-clauses, **but by attributing to both CLHCs and definite DPs a [+presuppositional] feature**, rather than a common categorial status.

- **AIM 2: THEORETICAL:** The approach I propose shares with Legate’s account the idea that **the presuppositional nature of CLHCs falls out from the syntactic properties of the complement clause itself**. I explore the consequences of such a view in relation to recent accounts which remove the encoding of factivity/presuppositionality from the syntax (de Cuba 2007, de Cuba & Ürögdi 2009, Haegeman & Ürögdi 2010).
 - **The content of a CLHC is inherently presupposed**.
 - It was therefore suggested that **in addition to the referential vs. non-referential CP distinction** made by the above-cited authors, **a third inherently presuppositional type of complement clause needs to be identified**.
 - **Evidence** in support of such a three way distinction was offered both **from correspondences between presuppositionality and island status** on the one hand, **and from the apparent existence of such a distinction cross-linguistically** on the other.

5.2 Directions for further research

- Whilst I have made the case for a CP analysis of CLHCs, here I have offered only a sketch of how this could be implemented. I hope to offer a fully-fledged CP analysis for CLHCs in future work.
- I also wish to explore in greater depth the suggestive correlation between strength/source of presupposition, and island strength.
- This will include a more detailed consideration of the complementation patterns in languages such as French and Modern Greek, which seem to replicate at least to some extent the distinctions found in English.
- It will also include investigation of the possibilities for finite declarative clause complementation in some of the other languages which have CLHCs: German, Norwegian, Italian, Romanian, Hebrew, Polish, Czech...

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