# On another topic, how do acquisition orders vary?

The left periphery and topicalisation in bilinguals

Núria Bosch

*University of Cambridge*
✉ nb611@cam.ac.uk
🌐 nuria-bosch.github.io

SyntaxLab – 7 May 2024

# 1. Introduction

- Fundamental question in linguistic theory: language **universals** and language **variation**.
  - ▶ How much of this universality is domain-specific and encoded in Universal Grammar?
    Rich Universal Base Hypothesis, Poor Universal Base Hypothesis, No Universal Base Hypothesis (McFadden et al., 2021)

- Fundamental question in linguistic theory: language **universals** and language **variation**.
  - ▶ How much of this universality is domain-specific and encoded in Universal Grammar?
    Rich Universal Base Hypothesis, Poor Universal Base Hypothesis, No Universal Base Hypothesis (McFadden et al., 2021)
- In language acquisition: developmental **universals** and developmental **variation**.
  - ▶ How much of syntactic development hinges on UG-given primitives and what determines their development?
  - ▶ Strongest 'biologisation' hypothesis – **Maturation**: UG *biologises* not just universal structural primitives, but also *when* they will appear.

- Fundamental question in linguistic theory: language **universals** and language **variation**.
  - ▶ How much of this universality is domain-specific and encoded in Universal Grammar?
    Rich Universal Base Hypothesis, Poor Universal Base Hypothesis, No Universal Base Hypothesis (McFadden et al., 2021)
- In language acquisition: developmental **universals** and developmental **variation**.
  - ▶ How much of syntactic development hinges on UG-given primitives and what determines their development?
  - ▶ Strongest 'biologisation' hypothesis – **Maturation**: UG *biologises* not just universal structural primitives, but also *when* they will appear.

## Biologisation Issue

How much of syntactic development should be biologised as innate and domain-specific?

- How do children acquire functional categories, and, specifically, the left periphery?
- **Most maturational work:** the CP matures *universally* late (i.a., Radford, 1990; Rizzi, 1993; Friedmann et al., 2021).
- **Continuity**: access to (all/most) functional structure from the start (Boser et al., 1992; Hyams, 1992; Poeppel and Wexler, 1993; Westergaard, 2009).

- How do children acquire functional categories, and, specifically, the left periphery?
- **Most maturational work:** the CP matures *universally* late (i.a., Radford, 1990; Rizzi, 1993; Friedmann et al., 2021).
- **Continuity**: access to (all/most) functional structure from the start (Boser et al., 1992; Hyams, 1992; Poeppel and Wexler, 1993; Westergaard, 2009).

Emphasis on **developmental universals** → (parts of) learning paths are crosslinguistically universal, because UG specifies so

- **And developmental variation?** How do learning paths vary crosslinguistically?
  - ▶ Arguably has received less attention.
  - ▶ Though cf. Demuth (1989), Choi and Gopnik (1995), Paradis and Genesee (1996, 1997), Serratrice (1996), etc, for some data from understudied languages and bilinguals.

**Emerging tension:** we need a crosslinguistically applicable model of syntactic development that is *constrained* enough to account for developmental universals, but *flexible* enough to capture developmental (language-specific) variation

- **And developmental variation?** How do learning paths vary crosslinguistically?
  - ▶ Arguably has received less attention.
  - ▶ Though cf. Demuth (1989), Choi and Gopnik (1995), Paradis and Genesee (1996, 1997), Serratrice (1996), etc, for some data from understudied languages and bilinguals.

**Emerging tension:** we need a crosslinguistically applicable model of syntactic development that is *constrained* enough to account for developmental universals, but *flexible* enough to capture developmental (language-specific) variation

↪ *Crosslinguistic* **comparison of child data (monolingual/bilingual) key here.**

- **Today**: approaching the Biologisation Issue in two ways:
  - ▶ The development of the left-periphery in two bilinguals
  - ▶ The crosslinguistic acquisition of topicalisation strategies.
- Developmental **universals** *vs* developmental **variation**.

- **Today**: approaching the Biologisation Issue in two ways:
  - ▶ The development of the left-periphery in two bilinguals
  - ▶ The crosslinguistic acquisition of topicalisation strategies.
- Developmental **universals** *vs* developmental **variation**.

↪ **Lots of theorisation about developmental universals, less so about variation.**

*Children's syntactic development has long been known to follow a pre-dictable path in terms of order of acquisition – one whose probability occurring as a matter of chance is practically zero.*

(Vainikka and Young-Scholten, 2011, 64)

- **Today**: approaching the Biologisation Issue in two ways:
  - ▶ The development of the left-periphery in two bilinguals
  - ▶ The crosslinguistic acquisition of topicalisation strategies.
- Developmental **universals** *vs* developmental **variation**.
- → **CP consistently** emerges **early** (in some form) across all languages and children. Good candidate for a ***developmental universal***.
- → **'Late' topics** are merely a ***language-specific*** effect. It is not a *universal*, so cannot be *biologised*.
- → **Variation in the acquisition of topics** crosslinguistically follows from the **L1 parametric complexity** of each topicalisation strategy and the overall system.

- **Today**: approaching the Biologisation Issue in two ways:
  - ▶ The development of the left-periphery in two bilinguals
  - ▶ The crosslinguistic acquisition of topicalisation strategies.
- Developmental **universals** *vs* developmental **variation**.
- → A comprehensive account of the patterns has to reduce the role of UG, but this does not suffice.
- → We need an explicit learnability theory that can predict developmental *variation* as much as developmental *universals* (the analytical focus in current literature).
  - ☞ Neo-emergentist, ReCoSian[1] approaches to acquisition meet these desiderata.

---

[1] `https://recos-dtal.mmll.cam.ac.uk`.

# 2. Theoretical background

## 2.1. Approaches to the acquisition of functional categories

- **Maturation** of functional categories
  - ▶ (Arguably) **dominant** approach so far: **bottom-up** approach.
  - ▶ The top of the tree (≈ **CP**) acquired **last** (Radford, 1990; Rizzi, 1993; Friedmann et al., 2021; Diercks et al., 2023).
  - ▶ Growing Trees Hypothesis (most recent, left periphery-centred proposal): two-stage development of LP.
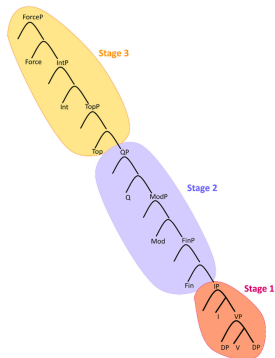


**Figure 1:** Stages in the Growing Trees Hypothesis (Friedmann et al., 2021, p. 12)

- **Maturation** of functional categories
  - ▶ More recently revived idea: **inward** approach. **CP** emerges **early**! (i.a., Galasso, 2003; Tsimpli, 2005; Heim and Wiltschko, 2021).
  - ▶ Galasso (2003)'s 'Empty Middle' approach: CP>∅>VP to CP>IP>VP.
  - ▶ Heim and Wiltschko (2021)'s Inward Growing Spine: spine matures inwardly.



**Figure 2:** Bridge Model (Hinzen and Wiltschko, 2023)

- Another approach, Tsimpli (2005): maturation in terms of **interpretable** *vs* **uninterpretable** features.

- **Maturation** of functional categories
  - ▶ More recently revived idea: **inward** approach. **CP** emerges **early**! (i.a., Galasso, 2003; Tsimpli, 2005; Heim and Wiltschko, 2021).
  - ▶ Galasso (2003)'s 'Empty Middle' approach: CP>∅>VP to CP>IP>VP.
  - ▶ Heim and Wiltschko (2021)'s Inward Growing Spine: spine matures inwardly.
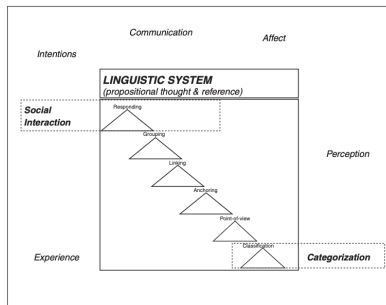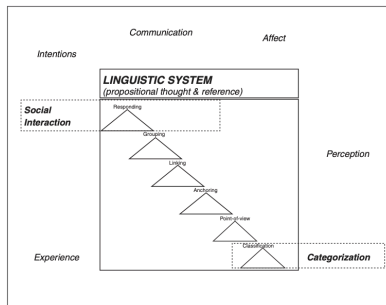


**Figure 2:** Bridge Model (Hinzen and Wiltschko, 2023)

- Another approach, Tsimpli (2005): maturation in terms of **interpretable** *vs* **uninterpretable** features.

  **Emphasis on universality: hard-coded universal acquisition orderings**

■ **Continuity**: children's initial state ≈ adult's functional inventory.
  ▶ Of various strengths:
  ▶ Strong Continuity (i.a., Poeppel and Wexler, 1993; Boser et al., 1992; Hyams, 1992)
  ▶ Weak Continuity (Underspecification of features, Lexical Learning, etc.) (i.a., Hyams, 1996; Clahsen et al., 1994).
  ▶ Westergaard (2009)'s <u>micro-cues</u> approach: sensitivity to cartographic structures early on.

---

[2] Possible underspecification of features notwithstanding.

- **Continuity**: children's initial state ≈ adult's functional inventory.
  - ▶ Of various strengths:
  - ▶ Strong Continuity (i.a., Poeppel and Wexler, 1993; Boser et al., 1992; Hyams, 1992)
  - ▶ Weak Continuity (Underspecification of features, Lexical Learning, etc.) (i.a., Hyams, 1996; Clahsen et al., 1994).
  - ▶ Westergaard (2009)'s <u>micro-cues</u> approach: sensitivity to cartographic structures early on.

**Emphasis on universality: functional structure universally available from the start**[2]

---

[2] Possible underspecification of features notwithstanding.

- Emphasis on **universals**, but some space for developmental **variation** in both.
  - ▶ Growing Trees: crosslinguistic acquisition can vary so long as it does not disturb their three stages.
  - ▶ Continuity: full/most functional structure available, instantiation of features/morphemes/items could be subject to variation.
- **How do we predict** where **crosslinguistic variation** in acquisition orderings will arise?

- Emphasis on **universals**, but some space for developmental **variation** in both.
  - ▶ Growing Trees: crosslinguistic acquisition can vary so long as it does not disturb their three stages.
  - ▶ Continuity: full/most functional structure available, instantiation of features/morphemes/items could be subject to variation.
- **How do we predict** where **crosslinguistic variation** in acquisition orderings will arise?
  - ▶ No explicit proposals for possible 'corners' of variation in Friedmann et al. (2021) and precedents.
  - ▶ Underspecification of features: which features are more/less likely to be underspecified?
  - ▶ Lexical Learning: which structures/lexical items have to be learned before we can consider CP acquired?
  - ▶ Continuity: complex task remains acquiring an L1-specific grammar (Lust, 1999, 2012), how does the child do it?
- Individual case-studies. No clear generalisability.
- → No explicit theory about which general cognitive strategies the child harnesses in the task of learning an L1-specific and UG-guided grammar.

- Emphasis on **universals**, but some space for developmental **variation** in both.
  - ▶ Growing Trees: Crosslinguistic acquisition can vary so long as it does not disturb their three stages.
  - ▶ Continuity: full/most functional structure available, instantiation of features/morphemes/items could be subject to variation.
- How do we predict where crosslinguistic variation in acquisition orderings will arise?

- Emphasis on **universals**, but some space for developmental **variation** in both.
  - ▶ Growing Trees: Crosslinguistic acquisition can vary so long as it does not disturb their three stages.
  - ▶ Continuity: full/most functional structure available, instantiation of features/morphemes/items could be subject to variation.
- How do we predict where crosslinguistic variation in acquisition orderings will arise?
  - ▶ These approaches leave room for some variation in acquisition, **but do not theorise it**.

- Emphasis on **universals**, but some space for developmental **variation** in both.
  - ▶ Growing Trees: Crosslinguistic acquisition can vary so long as it does not disturb their three stages.
  - ▶ Continuity: full/most functional structure available, instantiation of features/morphemes/items could be subject to variation.
- How do we predict where crosslinguistic variation in acquisition orderings will arise?
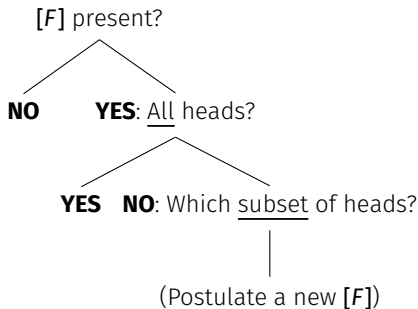  - ▶ These approaches leave room for some variation in acquisition, **but do not theorise it**.
  - → **Theories of acquisition must be supplemented with, or must incorporate, a theory of learning that can predict developmental variation.**

- **Neo-emergentism** (Biberauer, 2011, *et seq.*; Biberauer and Roberts, 2015)
  - ▶ *Emergentist generative approach*: **minimal UG**, no innate categories.
  - ▶ Development accounted for by the interaction of the **three factors** (Chomsky, 2005; Biberauer, 2019) → UG, intake and principles of data analysis/general cognition (e.g., Maximise Minimal Means).
- Maximise Minimal Means (Biberauer, 2019), one general-cognitive bias, two (of several) language-specific manifestations.
  1. **Feature Economy** (FE; generalised from Roberts and Roussou, 2003) Postulate as few [*F*]s as possible to account for the PLD.
  2. **Input Generalisation** (IG; adapted from Roberts, 2021; termed *Feature Generalisation* in Biberauer, 2020) Maximise available [*F*]s.

- **Minimax nature** → be conservative when positing [*F*]s, but liberal in generalising already-existing ones.

(1) The NO>ALL>SOME learning path

[*F*] present?

    NO        YES: All heads?

        YES    NO: Which subset of heads?

                    (Postulate a new [*F*])

- MMM and NO>ALL>SOME then make predictions about *formal feature postulation* that speak to two key concerns in theories of grammar construction (Biberauer and Roberts, 2015):
  - ▶ **'Parameter setting'** (following the Borer-Chomsky Conjecture)
  - ▶ **Emergence of functional categories**
- These two require separate explanations in continuity/maturation frameworks → unified in neo-emergentism, both outcomes of MMM- and [*F*]-driven learning.

(2) Schematisation of emergent parameter hierarchies



Does P(roperty) characterise L(anguage)?

NO
**macroparameter**

YES: All relevant heads?

YES
**macroparameter**

NO: A natural-class subset of heads?

YES
**mesoparameter**

NO: A further restricted natural-class subset of heads?

YES
**microparameter**

NO: Only lexically specified items?
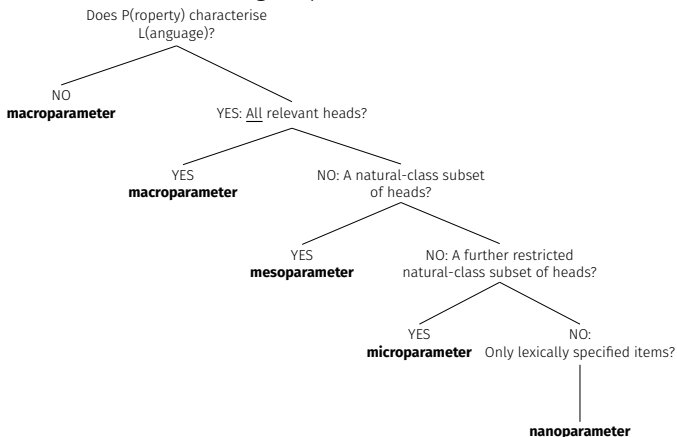
**nanoparameter**

**Later, 'microparametric' knowledge builds on earlier, more 'macroparametric' structure**

(3)   For a given value $v_i$ of a parametrically variant feature F:

    a.   **Macroparameters**: all functional heads of the relevant type share $v_i$;

    b.   **Mesoparameters**: all functional heads of a given naturally definable class, e.g. [+V], share $v_i$;

    c.   **Microparameters**: a small subclass of functional heads (e.g. modal auxiliaries) shows $v_i$;

    d.   **Nanoparameters**: one or more individual lexical items is/are specified for $v_i$.

(4) **Extended Projection** (V) **> phase** (C, v) **> Core Functional Category** or **CFC** (C, T, v) > "**cartographic field**" (e.g. Tense, Mood, Aspect, Topic, Focus) **> semantically distinct head** (e.g., Cinque, 1999; Frascarelli and Hinterhölzl, 2007).
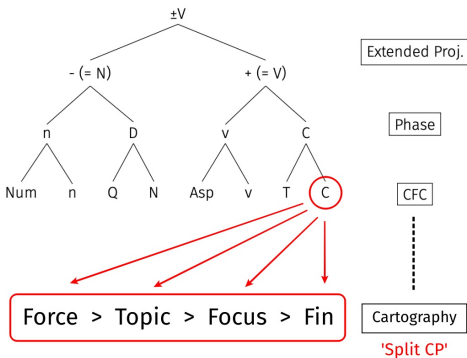


**Later, 'microparametric' knowledge builds on earlier, more 'macroparametric' structure**

(5) **Extended Projection** (V) **>** **phase** (C, v) **>** **Core Functional Category** or **CFC** (C, T, v) **>** "**cartographic field**" (e.g. Tense, Mood, Aspect, Topic, Focus) **>** **semantically distinct head** (e.g., Cinque, 1999; Frascarelli and Hinterhölzl, 2007).
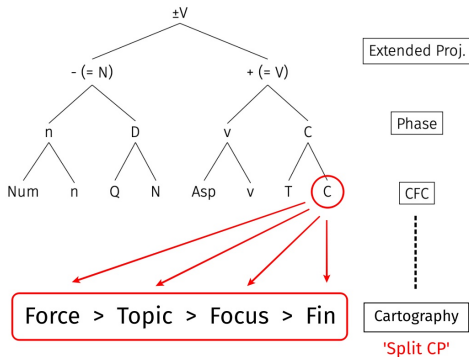


**Syntactic categories *granularise* ('become refined') during development**

- This combination of assumptions gives us an explicit theory of *both* developmental **universals** and **variation**:
  - ▶ **Where we expect (some) universality**: Bias towards *featurally simpler systems* → starting point should involve 'coarser-grained' categories and more general parametric settings.
    - ↪ Early CP, late cartography, early 'macroparametric' distinctions.
  - ▶ **Where we expect variation**: MMM-driven system and sensitive to initial conditions → *L1-specific developmental variation* correlating with the *parametric form or 'size'* of a given structure/operation in the relevant L1.
    - ↪ For structure *α*, if *α* has a **lower description length** in Language A compared to Language B, children acquiring Language A will acquire it **earlier**, *all other things equal* (Kolmogorov complexity).

## Predictions for development of left periphery

- **Bottom up (Growing Trees)**:
  - ▶ Late CP (two-stage): earlier wh-questions, but very late maturation of TopicP-ForceP.
  - ▶ 🤔 Variation?
- **Inward maturation**:
  - ▶ Early CP
  - ▶ 🤔 Variation?
- **Continuity**:
  - ▶ Early CP
  - ▶ 🤔 Variation? (Lexical Learning? Underspecification?)
- **Neo-emergentism (Biberauer and Roberts, 2015)**:
  - ▶ Early CP (but late 'cartography', not the focus here)
  - ▶ Developmental variation as a function of Kolmogorov complexity

# 2. THEORETICAL BACKGROUND

2.2. Topics crosslinguistically and their formal complexity

■ V2 system: movement of V-to-C and of an XP (the topic) to a specifier position in the CP.

(6)  a. German
    Morgen   reise       ich
    tomrrow  travel.1SG  I
    'Tomorrow I'm travelling.'

  b. Ich will        Kola trinken
    I    want.1SG  Cola drink.INF
    'I want to drink coke.'

  c. Dutch
    Geen kaas    lust ik
    no    cheese I    desire.1SG
    'Cheese, I don't like (it).'

  d. Nu  eet      ik een boterham
    now eat.1SG I  a   sandwich
    'Now I eat a sandwich.'

■ This Ā-movement treated, like English topicalisation (Haegeman, 2012), as ***operator movement*** (Koster, 1978; Haegeman, 1996) → it exhibits prototypical Ā-properties. These are shared with focalisation/wh-movement.

**Table 1:** Ā- vs. A-movement (van Urk, 2015, 23)

| A-properties | Ā-properties |
|---|---|
| Local, restricted to nominals | Long-distance, not restricted to nominals |
| No reconstruction for principle C | Reconstruction for principle C |
| No Weak Cross-over, new antecedents for anaphors | Weak Cross-over, no new antecedents for anaphors |
| No parasitic gap licensing | Parasitic gap licensing |

(7)  a.  *German, No anaphoric binding*
     *Den Studenten$_i$ hat [der Professor    von sich$_i$]    unterstützt.
     the    student-ACC has the professor.NOM of    himself supported
     Int. 'The professor of himself supported the student.'

  b.  *Sensitivity to locality constraints*
     *Den Studenten$_i$   hat Hans gefragt, [wer t$_i$    gesehen hat].
     the    student-ACC has Hans asked    who seen has
     Int. 'The students$_i$ asked Han who had seen them$_i$.'

  c.  *Obligatory reconstruction for Principle C*
     [Ein Auto für sich$_i$    allein] wünscht sich jeder achtzehnjährige
     [a    car   for himself-ACC ]    wants       every 18-year-old
     Junge$_i$
     boy
     'Every 18 year old boy wants a car for himself.'

  d.  *Parasitic gap licensing*
     Den Patienten$_i$   hat der Arzt    [ohne    *e*$_i$ anzuschauen] t$_i$ untersucht.
     the   patient-ACC has the doctor without    look-at           examined
     'The doctor has examined the patient without looking at him.'

(Grewendorf, 2005, 36)

- Topicalisation in Italian and Spanish involves primarily Clitic Left Dislocation (CLLD)[3].

(8)  *Italian*, CLLD
**Questa** la        compro  io
this       CL.DO=  buy.1SG  I
'This one I'm buying.'

(9)  *Spanish*, CLLD
I     **a mí** me      darás         un regalo?
and to me  CL.IO=  give.FUT.2SG  a   present
'And will you give ME a present?'

---

[3]Overt subjects are also often assumed to be topical (Alexiadou and Anagnostopoulou, 1998). These are orthogonal in this talk.

■ Unlike Germanic topicalisation, CLLD does not display most properties of operator movement. It presents both A- and Ā-properties → featurally distinct kind of movement, namely ***non-operator, non-quantificational movement*** (i.a., Cinque, 1990; Haegeman, 2012).

(10)  a. *Italian, Lack of Weak-Crossover effects*
        Gianni$_i$, sua madre  lo   ha       sempre apprezzato      $t_i$
        Gianni   his  mother him have.3SG always appreciate.PTCP
        'Gianni, his mother has always appreciated him.'

      b. *Italian, Inability to license parasitic gaps*
        *Gianni l'ho                 cercato        per mesi    [sensa   trovare].
        Gianni   CL.DO=AUX.HAVE.1SG look.for.PTCP for  months without find.INF
        Gianni, I have been looking for him for months without finding him.'

      c. *Spanish, Insensitivity to weak islands*
        Los libros me      pregunto   [cuándo los         leeremos]
        the  books CL.IO= wonder.1SG when      CL.DO= read.SUBJ.FUT.1PL
        'The books, I wonder when we will read them.'

      d. *Spanish, Sensitivity to strong islands*
        *A   Carlos$_i$, Pedro conoce [a    la   persona [que lo         visitó       $t_i$]].
        DOM Carlos   Pedro knows  DOM the person   that CL.DO= visit.PTCP
        '*To Carlos, Pedro knows the person who visited him.'

(Cruschina, 2011, 98-99)

■ In a nutshell, **topicalisation** manifests as **two different kinds of movement** in Germanic *vs* Romance.

▶ In Germanic: operator movement with all of topics, foci, wh-Qs.
▶ In Romance: non-operator movement for CLLD; operator movement for [FOC] and [WH]

↪ In Romance, both co-existing movement strategies **must be featurally distinguished by the child**.

# 3. Two corpus studies

3.1. Methodology

- Longitudinal analysis of 2 typically-developing bilinguals in CHILDES and PhonBank, acquiring typologically distinct languages.

**Table 2:** Children studied and summary information (Hulk, 1997; Lleó et al., 2003)

| Corpus | Child | Language | Files analysed | Age range | MLUw range |
|---|---|---|---|---|---|
| Amsterdam | Heleen | Italian | 23 | 1;09-4;06 | 1.63-5.38 |
| | | Dutch | 29 | 1;09-4;06 | 1.67-5.59 |
| PhonBLA | Simon | Spanish | 42 | 1;02-5;10 | 1.0-5.0 |
| | | German | 39 | 1;01-5;10 | 1.0-4.26 |

- Two *strongly balanced* bilinguals, with a 0.03 and 0.04 MLUw-difference in their two languages (following the metrics in Hager, 2014; Hager and Müller, 2015)
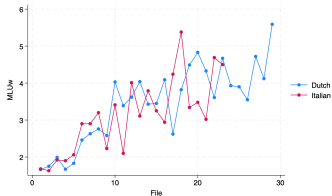


**Figure 3:** Comparison of the MLUw development in Heleen's Italian and Dutch
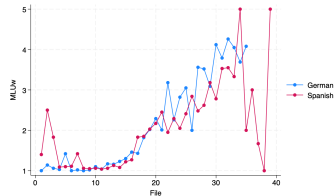


**Figure 4:** Comparison of the MLUw development in Simon's Spanish and German

- **The contribution of bilingual data** (Paradis and Genesee, 1996, 1997):
  - Matched pairs of two languages within a single individual → controls for inter-child developmental differences.
  - Helps establish the extent to which some developmental patterns are crosslinguistically shared or not.
  - Helps disambiguate existing hypotheses.

☞ **Study 1**: the acquisition of the left periphery, esp. relative acquisition orders of CP-structures.

■ CP diagnostics:
  1. Wh-questions
  2. Yes/no questions (Germanic only)
  3. V-to-C movement (Germanic only)
  4. Topics/Foci
  5. Illocutionary (main clause) complementisers (Romance only)
  6. Finite embedding

- ☞ **Study 2**: Zooming in on topics and CLLD in particular → **development of clitics** and its **interlinking** (or lack thereof) with the production of **topics**.
- ■ Quantified CLLD and cliticisation structures in their Romance languages.
- ■ Analysis of both object clitics and clitics of reflexive/impersonal verbs.

(11) a. cl + $V_{finite}$

b. $V_{non-finite}$ + cl

c. *cl + $V_{non-finite}$

(12) a. Gianni lo mangia
Gianni CL.DO= eat.3SG
'Gianni eats it.'

b. Maria ha promesso di mangiarlo
Maria AUX.HAVE.3SG promise.PTCP of eat.INF=CL.DO
'Maria promised to eat it.'

c. *Maria ha promesso di lo mangiare
Maria AUX.HAVE.3SG promise.PTCP of CL.DO= eat.INF
'Maria promised to eat it.'

(Guasti, 1993, 13)

- 👉 **Study 2**: Zooming in on topics and CLLD in particular → **development of clitics** and its **interlinking** (or lack thereof) with the production of **topics**.
- ■ Quantified CLLD and cliticisation structures in their Romance languages.
- ■ Analysis of both object topics and clitics of reflexive/impersonal verbs, and also proclitic vs enclitic pronouns.

**Table 3:** Clitic pronouns in Italian and Spanish

| Language | | 1SG | 2SG | 3SG | 1PL | 2PL | 3PL |
|----------|------|-----|-----|--------|-----|-----|--------|
| Italian | **DO** | mi | ti | lo/la | ci | vi | li/le |
| | **IO** | mi | ti | gli/le | ci | vi | gli |
| | **REFL** | mi | ti | si | ci | vi | si |
| Spanish | **DO** | me | te | lo/la | nos | os | la/los |
| | **IO** | me | te | le | nos | os | les |
| | **REFL** | me | te | se | nos | os | se |

# 3. TWO CORPUS STUDIES

3.2. Study 1: Results

**Table 4:** Production of CP-structures in Heleen's Italian

| Age | MLU | Wh-Q | Top/Foc | Illoc | Embed |
|---|---|---|---|---|---|
| 1;09.09 | 1.68 | | | | |
| 1;09.28 | 1.63 | ✓ | | | |
| 2;00.01 | 1.92 | ✓ | | | |
| 2;00.23 | 1.9 | | | | |
| 2;01.21 | 2.06 | ✓ | | | |
| 2;02.17 | 2.9 | ✓ | | | |
| 2;04.14 | 2.9 | ✓ | ✓ | | |
| 2;05.00 | 3.2 | ✓ | ✓ | | ✓ |
| 2;05.07 | 2.23 | ✓ | | | |
| 2;07.08 | 3.41 | ✓ | ✓ | | ✓ |
| 2;09.15 | 2.1 | ✓ | | | ✓ |
| 2;11.03 | 4.01 | | ✓ | ✓ | ✓ |
| 3;01.00 | 3.11 | ✓ | | | ✓ |
| 3;01.15 | 3.79 | ✓ | ✓ | | |
| 3;02.10 | 3.25 | ✓ | ✓ | | ✓ |
| 3;03.08 | 2.94 | ✓ | ✓ | | ✓ |
| 3;03.29 | 4.24 | ✓ | ✓ | | ✓ |
| 3;06.02 | 5.38 | | ✓ | ✓ | ✓ |
| 4;00.27 | 3.34 | ✓ | ✓ | ✓ | ✓ |
| 4;01.25 | 3.48 | ✓ | ✓ | | ✓ |
| 4;04.00 | 3.02 | ✓ | ✓ | ✓ | ✓ |
| 4;05.01 | 4.69 | ✓ | ✓ | ✓ | ✓ |
| 4;06.00 | 4.5 | ✓ | ✓ | ✓ | ✓ |

**Table 5:** Production of CP-structures in Simon's Spanish (shortened)

| Age | MLU | Wh-Q | Top/Foc | Illoc | Embed |
|---|---|---|---|---|---|
| 1;08.08 | 1.04 | | | | |
| 1;08.22 | 1.06 | | | | |
| 1;09.09 | 1.68 | | | | |
| 1;09.28 | 1.63 | | | | |
| 1;10.17 | 1.13 | | | | |
| 1;10.22 | 1.4 | | | | |
| 1;11.09 | 1.08 | ✓ | | | |
| 1;11.26 | 1.22 | | | | |
| 2;00.10 | 1.27 | | | | |
| 2;03.04 | 1.83 | | | | |
| 2;03.17 | 1.85 | | | | |
| 2;04.01 | 2.03 | | | | |
| 2;05.24 | 2.95 | | | ✓ | |
| 2;05.26 | 2.17 | ✓ | | ✓ | |
| 2;06.09 | 2.45 | ✓ | | | |
| 2;06.23 | 1.95 | ✓ | | ✓ | |
| 2;07.09 | 2.29 | | | | |
| 2;07.23 | 2.05 | | | | |
| 2;08.06 | 2.41 | | ✓ | | |
| 2;08.20 | 2.84 | ✓ | ✓ | ✓ | |
| 2;10.02 | 2.48 | ✓ | ✓ | | |
| 3;00.10 | 2.62 | | | ✓ | |
| 3;00.24 | 3.18 | ✓ | | | ✓ |
| 3;01.24 | 2.78 | ✓ | ✓ | ✓ | ✓ |
| 3;03.12 | 3.53 | ✓ | ✓ | | ✓ |
| 3;04.16 | 3.55 | ✓ | | ✓ | ✓ |
| 3;05.25 | 3.33 | ✓ | ✓ | | ✓ |
| 4;01.03 | 5.0 | | | | ✓ |
| 4;03.04 | 2.0 | | | | |
| 4;08.14 | 3.0 | | | | |

- **Very early structures**: wh-questions and illocutionary complementisers.
- First structures produced: **wh-questions**, productively from 1;09 in Heleen and around 2;05 for Simon (earlier files contain only a plausibly rote-learned form *Dondé esta?* 'Where is it?').

(13)    a.   Italian, Heleen (1;09.28, MLUw 1.63)
         Ecco Maria cosa hai          fatto?
         here   Maria what AUX.HAVE.2SG do.PTCP
         'Here (you have it), Maria, what have you done?'

      b.   Heleen (2;01.21, MLUw 2.06)
         Dov'   è        l'attro?
         where be.3SG the-other
         'Where's the other one?'

      c.   Heleen (2;02.17, MLUw 2.9)
         Come si         chiama       tuo   gatto?
         how    CL.REFL= be.called.3SG your cat
         'What your cat's name?'

- **Very early structures**: wh-questions and illocutionary complementisers.
- First structures produced: **wh-questions**, productively from 1;09 in Heleen and around 2;05 for Simon (earlier files contain only a plausibly rote-learned form *Dondé esta?* 'Where is it?').

(14)   a.  Simon (2;05.26, MLUw 2.17)
          Qué   es        esto?
          what  be.3SG this
          'What is this?'

      b.  Simon (2;05.26, MLUw 2.17)
          Qué   hay            aquí?
          what  there.be.3SG here
          'What's here'

      c.  Simon (2;05.26, MLUw 2.17)
          Dónde está     mi  locomotora?
          where  be.3SG my  train
          'Where's my train?'

■ At this same point (2;05), we also observe **illocutionary complementisers** in Simon → aligns with (preliminary) generalisation in Bosch (2023b).

(15)   a.  Spanish, Simon (2;05.24, MLUw 2.95)
        **Que**      llueve
        that.EXCL rain.3SG
        'It's raining!'

       b.  Simon (2;05.24, MLUw 2.95)
        **Que**      sube,      sube,      sube
        that.EXCL go.up.3SG go.up.3SG go.up.3SG
        'It's going up, up and up!'

       c.  Simon (2;05.26, MLUw 2.17)
        **Que**     se         ha            acabado,    era         de noche
        that.CONJ CL.REFL= AUX.HAVE.3SG finish.PTCP be.PST.3SG of  night
        'It has finished, it was late at night.'

        

- Slightly later, **ambiguous** left-dislocations, possibly **focalisations**, start emerging for Simon (Heleen produces topics/foci later).

(16)  a.  Spanish, Simon (2;08.06, MLUw 2.41)

      Y    este pinta      tú.
      and this paint.IMP you
      'This one, paint it.'

      b.  Simon (2;08.06, MLUw 2.41)

      Este 0he          pintado    rosa.
      this AUX.HAVE.1SG paint.PTCP pink
      'This one, I (have) painted it pink.'

      c.  Simon (2;08.20, MLUw 2.84)

      De navidad     quiero.
      of  Christmas want.1SG
      'I want some OF CHRISTMAS.'

■ **Unambiguous topics**, in the form of **CLLD**, emerge systematically **late**: 2;07 for Heleen and 3;03 for Simon.

(17)   a.  Italian, Heleen (2;07.08, MLUw 3.41)
           A  me mi        piace    questo qua.
           to me CL.IO=  like.3SG  this     here
           'I like this one here.'

       b.  Heleen (2;11.03, MLUw 4.01)
           Questo lo         devi       portare.
           this     CL.DO=  must.2SG  bring.INF
           'This one, you have to bring it.'

       c.  Spanish, Simon (3;03.12, MLUw 3.53)
           Eso no  lo        sé
           this not CL.DO=  know.1SG
           'This one, I don't know it.'

■ Two indicators that CLLD is late: it emerges (soon) after subordination (2;05, Heleen; 3;00, Simon) and other cases of unambiguous topics (Top > Wh structures).

(18)  a.  Italian, Heleen (2;05.00, MLUw 3.2)
      Perché   non sono    ancora calde.
      because not  be.3PL yet      hot
      'Because they aren't hot yet.'

  b.  Spanish, Simon (3;00.24, MLUw 3.18)
      Eso es       un hidroavión que  aterriza  en el   agua.
      this be.3SG a   seaplane    that land.3SG on the water
      'This is a seaplane that lands on the water.'

(19)  a.  Italian, Heleen (2;05.00, MLUw 3.2)
      Adesso chi   viene?
      today   who come.3SG
      'Today, who is coming?'

  b.  Heleen (3;03.08, MLUw 2.94)
      E    qui  cos'   è?
      and here what be.3SG
      'And here, what is it?'

  c.  Simon (3;05.25, MLUw 3.33)
      A ver      los  aviones cómo pasan.
      to see.INF the planes  how   pass.3PL
      'Let's see the airplanes, how they pass by.'

**Table 6:** Emergence of CP-structures in their Romance languages and all quantitative data obtained

|  | **Wh-Q** | **Top/Foc** | **Illoc** | **Embed** |  |
|---|---|---|---|---|---|
| Heleen | 1;09.28 | 2;05.00 | 2;11.03 | 2;05.00 | **Emergence** |
| Simon | 2;05.24 | 2;08.06 | 2;05.24 | 3;00.10 | |
| Heleen | 102 (55) | 37 | 8 | 133 | **Quantitative data** |
| Simon | 30 (18) | 10 | 19 | 14 | |

**Table 7:** Relative of emergence of diagnostics studied

| **Child** | **Order of emergence** |
|---|---|
| Heleen (It.) | Wh-Q > Top/Foc/Embed > CLLD > Illoc |
| Simon (Sp.) | Wh-Q > Illoc > Top/Foc > Embed > CLLD |

## Main generalisations

- **CP is early** in some form or another → early wh-questions, early illocutionary complementisers, some early left-dislocations.
- **Topics are late** → CLLD emphatically late relative to all structures. A few non-CLLD left-dislocations are early.
- **Challenges for bottom-up maturation**. Only part of Growing Trees' hypotheses are borne out.

## Main generalisations

- **CP is early** in some form or another → early wh-questions, early illocutionary complementisers, some early left-dislocations.
- **Topics are late** → CLLD emphatically late relative to all structures. A few non-CLLD left-dislocations are early.
- **Challenges for bottom-up maturation**. Only part of Growing Trees' hypotheses are borne out.

**Next: Which patterns carry over to Germanic?**

**Table 8:** Production of CP-structures in Heleen's Dutch

| Age | MLU | V2 | Wh | Y/N | Topic | Embed |
|---|---|---|---|---|---|---|
| 1;09.11 | 1.66 | ✓ | ✓ | ✓ | | |
| 1;10.07 | 1.75 | ✓ | ✓ | ✓ | | |
| 1;11.00 | 1.99 | ✓ | ✓ | ✓ | ✓ | |
| 2;00.21 | 1.67 | ✓ | ✓ | ✓ | ✓ | |
| 2;01.20 | 1.83 | ✓ | ✓ | ✓ | ✓ | |
| 2;02.18 | 2.46 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;03.23 | 2.63 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;05.10 | 2.76 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;06.07 | 2.58 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;07.09 | 4.03 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;08.20 | 3.39 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;10.06 | 3.62 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;11.04 | 4.04 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;00.21 | 3.43 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;01.14 | 3.45 | ✓ | ✓ | ✓ | ✓ | |
| 3;02.09 | 4.09 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;02.29 | 2.62 | ✓ | ✓ | ✓ | ✓ | |
| 3;03.28 | 3.82 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;05.02 | 4.49 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;06.05 | 4.83 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;07.02 | 4.33 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;09.01 | 3.61 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;09.22 | 4.67 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;00.27 | 3.93 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;01.25 | 3.9 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;04.00 | 3.55 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;05.02 | 4.72 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;06.00 | 4.12 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;06.01 | 5.59 | ✓ | ✓ | ✓ | ✓ | ✓ |

**Table 9:** Production of CP-structures in Simon's German (shortened)

| Age | MLU | V2 | Wh | Y/N | Topic | Embed |
|---|---|---|---|---|---|---|
| 2;01.03 | 1.46 | | | | | |
| 2;02.11 | 1.43 | | | | | |
| 2;02.25 | 1.82 | | | | | |
| 2;03.11 | 2.02 | ✓ | ✓ | | ✓ | |
| 2;03.25 | 2;29 | ✓ | | ✓ | | |
| 2;04.22 | - | | | | | |
| 2;06.04 | 2.01 | ✓ | | | ✓ | |
| 2;07.01 | 3.18 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;08.15 | 2.26 | ✓ | | ✓ | ✓ | |
| 2;09.17 | 2.82 | ✓ | ✓ | ✓ | ✓ | |
| 2;09.28 | 3.05 | ✓ | ✓ | ✓ | ✓ | |
| 2;11.18 | 2.0 | | | | | |
| 3;00.04 | 3.56 | ✓ | ✓ | ✓ | ✓ | |
| 3;00.18 | 3.26 | ✓ | ✓ | ✓ | ✓ | |
| 3;01.03 | 3.52 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;02.01 | 3.09 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;05.07 | 4.12 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;06.25 | 3.79 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;10.04 | - | | | | | |
| 4;01.16 | 4.26 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;09.25 | 4.05 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5;03.17 | 3.69 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5;10.01 | 4.08 | ✓ | ✓ | ✓ | ✓ | ✓ |

- First indicators of incipient command of CP: a distributional distinction between finite *vs* non-finite verbs, i.e., knowledge of the **V2 system** in Germanic (1;09, Heleen; 2;02, Simon).

(20) a. Dutch, Heleen (1;09.11, MLUw 1.66)
Tomaat geven,    papa mij.
tomato  give.INF dad   me
'Tomato give dad me.'

b. Heleen (1;10.07, MLUw 1.75)
En  Heleen heeft       blote
and Heleen have.3SG bare
voeten.
feet
'And Heleen has bare feet.'

c. Heleen (1;10.07, MLUw 1.75)
Kom       eens met  [?]
come.IMP once with
Heleen.
Heleen
'Come here with Heleen.'

(21) a. German, Simon (2;03.11, MLUw 2.02)
Karussell fahren.
carrousel drive.INF
'Ride (a) carrousel'

b. Simon (2;03.11, MLUw 2.02)
Kommt    da
come.3SG there
Dampflokomotive.
steam.train
'There comes the steam train.'

c. Simon (2;03.11, MLUw 2.02)
Ich komme     gleich wieder.
I    come.3SG right   again
'I will be right back.'

- Almost simultaneously with V2: the **entire range of CP-structures emerges**, bar subordination. This involves evidence **wh-questions**, **yes/no questions** and **topics**.

(22)  a.  Dutch, Heleen (1;09.11, MLUw 1.66)
Hoe bedoel    je?
how mean.2sg you
'What do you mean?'

      b.  German, Simon (2;03.11, MLUw 2.02)
Wie heißt        das Schiff ?
how be.called.3sg the boat
'How is the boat called?'

(23)  a.  Dutch, Heleen (1;10.07, MLUw 1.75)
Wil       Lalla ook latte@s?
want.3sg Lalla also lattes
'Does Lalla also want lattes?'

      b.  German, Simon (2;03.25, MLUw 2.29)
Geht   das?
go.3sg it
'Does it work?'

■ Almost simultaneously with V2: the **entire range of CP-structures emerges**, bar subordination. This involves evidence **wh-questions**, **yes/no questions** and **topics**.

(24)  a. Dutch, Heleen (1;11.00, MLUw 1.99)
      Lamp wille      niet pakken.
      lamp  want.1SG not  grab.INF
      'The lamp, (I) don't want to grab it.'

   b. Heleen (2;01.20, MLUw 1.83)
      Dan zegt     [: zeg] ik au!
      then say.3SG say.1SG I   au
      'Then I say au!'

(25)  a. German, Simon (2;03.11, MLUw 2.63)
      Da  fahren    Autos.
      then drive.3PL cars
      'There cars drive.'

   b. Simon (2;03.11, MLUw 2.63)
      Und da    ist     Alexander.
      and  there be.3SG Alexander
      'And there is Alexander.'

**Table 10:** Emergence of CP-structures in their Germanic languages and quantitative data obtained

|  | V2 | Wh-Q | Y/N-Q | Top/Foc | Embed |  |
|---|---|---|---|---|---|---|
| Heleen | 1;09.11 | 1;09.11 | 1;09.11 | 1;11.00 | 2;02.18 | **Emergence** |
| Simon | 2;02.11 | 2;03.11 | 2;03.25 | 2;03.11 | 3;01.03 | |
| Heleen | ✓ | 176 (91) | 147 | 574 | 103 | **Quantitative data** |
| Simon | ✓ | 59 (35) | 66 | 306 | 37 | |

**Table 11:** Relative of emergence of diagnostics studied

| Child | Order of emergence |
|---|---|
| Heleen (Dutch) | V2/Wh-Q/YN-Q > Top > Embed |
| Simon (Ger.) | V2 > Wh-Q/YN-Q/Top > Embed |

## Main generalisations

- **CP is emphatically early** in some form or another → early V2, early wh-questions, early topics, early yes/no questions.
- **Topics are very early** → alongside other syntactically high structures (V-to-C, yes/no questions).
- **Significant challenges for bottom-up maturation**. Few if any of Growing Trees' hypotheses are born out.

**Table 12:** Emergence of all CP-structures for both children

|  | V2 | Wh-Q | Y/N-Q | Top/Foc | CLLD | Illoc | Embed |
|---|---|---|---|---|---|---|---|
| Heleen Italian |  | 1;09.28 |  | 2;05.00 | 2;07.08 | 2;11.03 | 2;05.00 |
| Heleen Dutch | 1;09.11 | 1;09.11 | 1;09.11 | 1;11.00 |  |  | 2;02.18 |
| Simon Spanish |  | 2;05.24 |  | 2:08.06 | 3;03.12 | 2;05.24 | 3;00.10 |
| Simon German | 2;02.11 | 2;03.11 | 2;03.25 | 2;03.11 |  |  | 3;01.03 |

**Table 13:** Relative of emergence of diagnostics studied

| Child | Order of emergence |
|---|---|
| Heleen (It.) | Wh > Top/Foc/Embed > CLLD > Illoc |
| Heleen (Dutch) | V2/Wh-Q/YN-Q > Top > Embed |
| Simon (Sp.) | Wh-Q > Illoc > Top/Foc > Embed > CLLD |
| Simon (Ger.) | V2 > Wh-Q/YN-Q/Top > Embed |

**Table 14:** Emergence of all CP-structures for both children

|  | V2 | Wh-Q | Y/N-Q | Top/Foc | CLLD | Illoc | Embed |
|---|---|---|---|---|---|---|---|
| Heleen Italian |  | 1;09.28 |  | 2;05.00 | 2;07.08 | 2;11.03 | 2;05.00 |
| Heleen Dutch | 1;09.11 | 1;09.11 | 1;09.11 | 1;11.00 |  |  | 2;02.18 |
| Simon Spanish |  | 1;11.09 |  | 2:08.06 | 3;03.12 | 2;05.24 | 3;00.10 |
| Simon German | 2;02.11 | 2;03.11 | 2;03.25 | 2;03.11 |  |  | 3;01.03 |

**Table 15:** Relative of emergence of diagnostics studied

| Child | Order of emergence |
|---|---|
| Heleen (It.) | Wh > Top/Foc/Embed > CLLD > Illoc |
| Heleen (Dutch) | V2/Wh-Q/YN-Q > Top > Embed |
| Simon (Sp.) | Wh-Q > Illoc > Top/Foc > Embed > CLLD |
| Simon (Ger.) | V2 > Wh-Q/YN-Q/Top > Embed |

Jump to slide

**Table 16:** CP-structures produced by Heleen and Simon

|  | V2 | Wh-Q | Y/N-Q | Top/Foc | Illoc | Embed |
|---|---|---|---|---|---|---|
| Heleen Italian |  | 102 (55) |  | 37 | 8 | 133 |
| Heleen Dutch | ✓ | 176 (91) | 147 | 574 |  | 103 |
| Simon Spanish |  | 30 (18) |  | 10 | 19 | 14 |
| Simon German | ✓ | 59 (35) | 66 | 306 |  | 37 |

- 10 monolinguals (and some bilinguals) in Bosch (2023a) display identical results.

**Table 17:** Emergence of topicalisation *vs* embedding markers

|  | Topicalisation | Embedding |
|---|---|---|
| Laura | 2;08.03 | 3;00.02 |
|  | 1.88 MLUw | 2.42 MLUw |
| Gisela | 2;08.00 | 2;08.00 (**same file**) |
|  | 2.61 MLUw | 2.61 MLUw |
| Martina | 1;08.17 | 1;11.20 |
|  | 1.56 MLUw | 1.99 MLUw |
| Rosa | 2;04.29 | 2;06.29 |
|  | 1.77 MLUw | 2.6 MLUw |
| Irene | 1;08.09b | 1;09.10 |
|  | 2.24 MLUw | 3.28 MLUw |
| Koki | 1;11.25 | 1;11.25 (**same file**) |
|  | 2.47 MLUw | 2.47 MLUw |
| Kerstin | 2;00.05 | 2;07.23 |
|  | 1.76 MLUw | 2.13 MLUw |
| Simone | 1;10.20 | 2;04.20 |
|  | 1.62 MLUw | 1.96 MLUw |
| Josse | 2;03.28 | 2;09.02 |
|  | 1.94 MLUw | 2.42 MLUw |
| Sarah | 2;00.17 | 3;00.19 |
|  | 1.68 MLUw | 3.52 MLUw |
| **Average** | 1.93 MLUw | 2.54 MLUw |

- 10 monolinguals (of which some bilinguals) in Bosch (2023a) display identical results.

**Table 18:** CP-structures produced at Stages 1 + 2 and its length

| | V2 | Wh-Q | Y/N-Q | Top/Foc | Illoc | Embed | Length |
|---|---|---|---|---|---|---|---|
| Laura | | 15 | | 4 | 42 | 4 | 1;10.22-3;03.21 (MLUw 1.15-2.54) |
| Gisela | | 1 | | 0 | 6 | 0 | 2;04.25-2;08.00 (MLUw 1.58-2.61) |
| Martina | | 21 | | 4 | 7 | 8 | 1;08.02-2;04.13 (MLUw 1.57-2.69) |
| Rosa | | 133 | | 12 | 3 | 8 | 1;07.13-2;10.14 (MLUw 1.27-2.5) |
| Irene | | 18 | | 3 | 10 | 4 | 1;04.16-1;11.13 (MLUw 1.32-2.95) |
| Koki | | 32 | | 7 | 2 | 4 | 1;07.20-2;04.18 (MLUw 1.96-2.69) |
| Kerstin | ✓ | 16 | 21 | 27 | | 1 | 1;10.03-2;09.11 (MLUw 1.28-2.32) |
| Simone | ✓ | 166 | 3 | 105 | | 24 | 1;10.03-2;06.23 (MLUw 1.54-2.78) |
| Josse | ✓ | 62 | 37 | 68 | | 1 | 2;00.07-2;11.09 (MLUw 1.2-3.57) |
| Sarah | ✓ | 124 | 104 | 116 | | 0 | 1;10.05-3;00.19 (MLUw 1.09-3.52) |

- **So far:** Two key results stand out from this bilingual data:
  - ▶ (i) CP is acquired early in some form, and in a way that is not contingent on structural height.
  - ▶ (ii) Crosslinguistic orders of acquisition of left-peripheral structures are more flexible than often acknowledged.

- **So far:** Two key results stand out from this bilingual data:
  - ▶ (i) CP is acquired early in some form, and in a way that is not contingent on structural height.
  - ▶ (ii) Crosslinguistic orders of acquisition of left-peripheral structures are more flexible than often acknowledged.
- Work (and talk) thus far → focus on (i), *developmentally universal* patterns.
- **Next up:** zooming in on (ii), *developmental variation*, by interrogating the development of topics, CLLD and clitics further.

# 3. TWO CORPUS STUDIES

3.3. Study 2: Results

- Study 1 uncovers an **L1-specific discrepancy** in the acquisition of **topics**.
- What's the **cause**? At least three **possibilities**:
  1. **Possibility 1**: the development of clitics *chronologically matches* the emergence of CLLD. 'Delayed' emergence of CLLD simply because *CLLD depends on the development of clitics*.
  2. **Possibility 2**: *the development of clitics and CLLD does not always coincide.* Delay due to *L1-specific complexity* of topicalisation structure (CLLD), which includes, i.a., (necessary) development of clitics.
  3. **Possibility 3**: *the development of clitics and CLLD does not always coincide.* Delay due to (necessary) development of clitics but *also to delayed maturation* of a Topic head or of CP.

- Study 1 uncovers an **L1-specific discrepancy** in the acquisition of **topics**.
- What's the **cause**? At least three **possibilities**:
  1. **Possibility 1**: the development of clitics *chronologically matches* the emergence of CLLD. 'Delayed' emergence of CLLD simply because *CLLD depends on the development of clitics*.
  2. **Possibility 2**: *the development of clitics and CLLD does not always coincide.* Delay due to *L1-specific complexity* of topicalisation structure (CLLD), which includes, i.a., (necessary) development of clitics.
  3. **Possibility 3**: *the development of clitics and CLLD does not always coincide.* Delay due to (necessary) development of clitics but *also to delayed maturation* of a Topic head or of CP.

**Shared Q: How much does the development of clitics impinge on CLLD?**

■ Recap: CLLD emerge late relative to focis.

**Table 19:** Emergence of Focalisation and CLLD in both children

|  | **Focalisation** | **CLLD** |
|---|---|---|
| Heleen (It.) | 2;05.00 file 8 | 2;07.08 file 10 |
| Simon (Sp.) | 2:08.06 file 27 | 3;03.12 file 33 |

■ Heleen's data: 7 object clitics before CLLD (starting at 2;00)

**Table 20:** Summary of production of clitics in Italian by Heleen

| Age | Object | | | With Refl/Imp verbs | | |
|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| Before 2;00 | | | | 1 | | 2 |
| 2;0-2;05 | 1 | 3 | 5 | 1 | 1 | 3 |
| 2;06-2;11 | 12 | 21 | 46 | 2 | 1 | 6 |
| 3;0-3;5 | 11 | 17 | 73 | 4 | 4 | 9 |
| 3;6-3;11 | | 3 | 22 | 6 | 2 | 5 |
| 4;0-4;5 | 13 | 7 | 55 | 9 | 2 | 25 |
| 4;6 | 1 | 10 | 9 | | | |

■ Heleen's data: 7 object pronouns before CLLD (starting at 2;00)
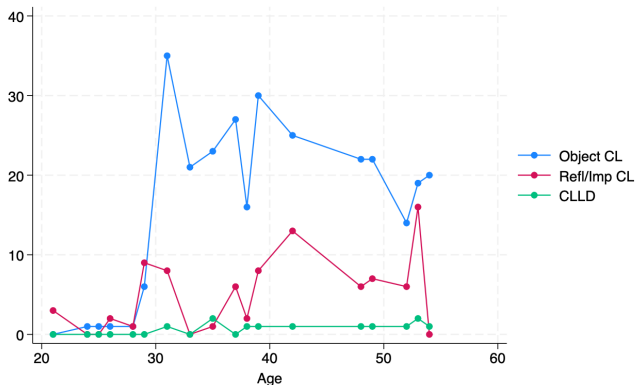


**Figure 5:** Development of object and reflexive/impersonal clitics and CLLD in Heleen

- Heleen's data: 7 object pronouns before CLLD (starting at 2;00)

(26)  a. Italian, Heleen (2;00.01, MLUw 1.92)
  Poi io lo   mangia [: mangio]!
  then I CL.DO= eat.3SG eat.1SG
  'Then I eat it!'

  b. Heleen (2;04.14, MLUw 2.9)
  Ti  piate  [= piace]!
  CL.IO= like.3SG
  'You like it!'

  c. Heleen (2;05.00, MLUw 3.2)
  Non lo   trovo  più!
  not CL.DO= find.1SG anymore
  'I can't find it anymore!'

  d. Heleen (2;05.00, MLUw 3.2)
  Ma io la   volevo  mettere.
  but I CL.DO= want.1SG put.INF
  'But I want to put it.'

- Heleen's data: **somewhat compatible with Possibility 1**, only insofar as substantial increase in object clitics when CLLD emerges.
- Similar (near-)simultaneous emergence of clitics and CLLD reported in Guasti (1993) and Bosch (2023a) for Italian and Spanish.
- However, **clitics available early on**, albeit sparsely: 2;00 *vs* 2;07 for CLLD. Possibility 1 leaves this unaddressed.

↪ **Onto Simon: Possibility 1 must be ruled out.**

■ Simon's data: 41 object clitics, besides 89 clitics with reflexive/impersonal verbs, before CLLD emerges (starting at 2;03 for object clitics).
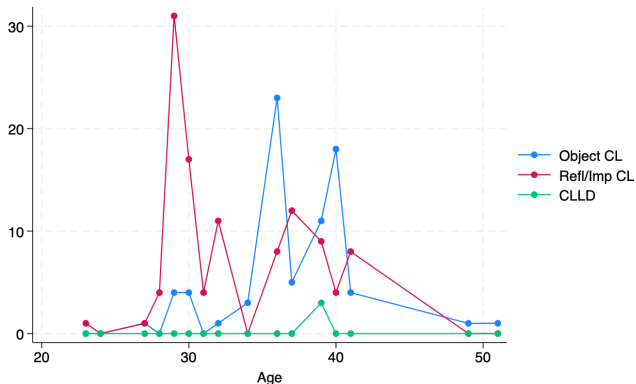
↪ **Onto Simon: Possibility 1 must be ruled out.**

■ Simon's data: 41 object clitics, besides 89 clitics with reflexive/impersonal verbs, before CLLD emerges (starting at 2;03 for object clitics).

**Table 21:** Summary of production of clitics in Spanish by Simon

| Age | Objects | | | With Refl/Imp verbs | | |
|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 1st | 2nd | 3rd |
| Before 2;00 | | | | | | 1 |
| 2;0-2;05 | 1 | 6 | | | | 36 |
| 2;06-2;11 | 3 | 1 | 7 | 4 | 1 | 21 |
| 3;0-3;5 | 11 | 1 | 51 | 9 | 1 | 32 |
| 3;6-3;11 | | | | | | |
| 4;0-4;5 | 1 | | 1 | | | |

53

↪ **Onto Simon: Possibility 1 must be ruled out.**

■ Simon's data: 41 object clitics, besides 89 clitics with reflexive/impersonal verbs, before CLLD emerges (starting at 2;03 for object clitics).



**Figure 6:** Development of object and reflexive/impersonal clitics and CLLD in Simon

↪ **Onto Simon: Possibility 1 must be ruled out.**

■ Simon's data: 41 object clitics, besides 89 clitics with reflexive/impersonal verbs, before CLLD emerges (starting at 2;03 for object clitics).

(27)  a.  Spanish, Simon (2;03.17, MLUw 1.85)
          No  me       gusta.
          not CL.IO=  like.3SG
          'I don't like it.'

      b.  Simon (2;05.26, MLUw 2.17)
          Lo       quitamos.
          CL.DO=  remove.1PL
          'We remove it.'

      c.  Simon (2;06.23, MLUw 1.95)
          Se        te       0ha            caído.
          CL.REFL=  CL.IO=  AUX.HAVE.2SG  fall.PTCP
          'You dropped it.'

      d.  Simon (2;04.01, MLUw. 2.03)
          Ya       se        ha             acabado.
          already  CL.REFL=  AUX.HAVE.3SG  finish.PTCP
          'It has already finished.'

↪ **Onto Simon: Possibility 1 must be ruled out.**

- Simon's data: clitics *can* develop very early, and well before CLLD → clitic development cannot be the sole cause of late CLLD → Possibilities 2-3 more plausible (see Marinis, 2000; Tsimpli, 2005; Babyonyshev and Marin, 2006, for other supporting data).

- Point strengthened by the fact that CLLD can emerge similarly late as other structures with (non-clitic-resumed) topics:

**Table 22:** Emergence of Foci, clitics, CLLD and Top > Wh structures

|  | Focalisation | Reflexive clitics | Object clitics | CLLD | Top > Wh |
|---|---|---|---|---|---|
| Heleen (It.) | 2;05.00 file 8 | 1;09.09 file 1 | 2;00.01 file 3 | 2;07.08 file 10 | 2;05.00 file 8 |
| Simon (Sp.) | 2:08.06 file 27 | 1;11.09 file 15 | 2;03.17 file 19 | 3;03.12 file 33 | 3;00.10 file 30 |

## Main generalisations from Study 2

- **Clitics can emerge early**: Simon's data corroborates this.
- **CLLD emerges systematically late**: after other 'yardsticks' like subordination and Topic > Wh constructions.
- **Possibility 1 ruled out**: CLLD's emergence cannot entirely hinge on the development of clitics.

## Main generalisations from Study 2

- **Clitics can emerge early**: Simon's data corroborates this.
- **CLLD emerges systematically late**: after other 'yardsticks' like subordination and Topic > Wh constructions.
- **Possibility 1 ruled out**: CLLD's emergence cannot entirely hinge on the development of clitics.

**Outstanding Q: Why is CLLD late? Maturation or L1 complexity?**

# 3. TWO CORPUS STUDIES

3.4. Interim summary

- The left-periphery in bilinguals from two perspectives:
→ Study 1:
  - ▶ **Shared crosslinguistic pathways**: (i) CP-structures emerge early and (ii) some structurally high elements (topics, illocutionary complementisers) also develop early (Bosch, 2023a).
  - ▶ **Crosslinguistic variation**: Germanic topics have a clear advantage.
  - ↪ We need a theory that predicts both.
→ Study 2:
  - ▶ **CLLD** is emphatically **late**, but **not** (entirely) because of the **development of clitics**.
  - ▶ What accounts for the discrepancy in acquisition timings in Germanic/Romance (and beyond)?

# 4. Broad implications

- **Early** command of **CP-structures** → challenges any bottom-up maturational approach.
- **Early structurally high** elements → challenges bottom-up maturation, but especially *cartographic* versions.
- **L1-dependent** acquisition pathways in **topics** → inconsistent with Friedmann et al. (2021).
- ↪ Results most consistent with **shared insight** of continuity, inward maturation and neo-emergentism: CP is an early phenomenon[4].

---

[4]Though I will argue in what follows the empirical success of the former two is *partial*.

- In particular, we have replicated two independently-established generalisations (Bosch, 2023a; Bosch and Biberauer, to appear).

## Generalisation 1: Early Acquisition of CP

CP structures emerge early on in the developmental data.

## Generalisation 2: Structural Height and Acquisition Mismatch

There is a dissociation between structural height and order of emergence. Acquisition does not proceed successively upwards; some syntactically very high elements emerge early.

- **Far more flexibility in acquisition orderings than anticipated:**
  - L1-variable acquisition of topics.
  - Structurally high structures do not emerge rigidly late.
  - Other areas of variation *across putative universal stages*: Friedmann et al. (2021) predict no evidence for Force-Topic until wh-questions emerge. Arguably slightly undermined by Table 13. Jump to table

→ I argue for the consequentiality of these findings: *undermining* Growing Trees (and similar approaches) as a *universal* pathway → Topics *cannot* be subject to rigid maturational constraints.

- Biberauer and Roberts (2015)'s **emergent categorial and parametric hierarchies**:
  - ▶ First, children access core '**macroparametric**' structural properties (see also work on 'Very Early Parameter-setting') → *basic* CP domain.
  - ▶ Once mastered, these enable ('unlock') more complex, increasingly '**micro-parametric**' refinements → more on this soon.
  - ▶ Poor UG → no maturation, no biological constraints on topics → structural height/acquisition mismatches unsurprising. Predicted to correlate with parametric complexity.
- **Dynamic systems**-inspired perspective (Bosch, 2022): neo-emergent systems are (implicitly) **Complex Adaptive Systems**
  - ▶ Structural homology: later steps refine developmentally earlier material.
  - ▶ 'Softly assembled' (non-hard-wired) development.
  - ▶ Sensitive to initial conditions: L1/path-dependent acquisition.
  - → ***Dynamically similar, but substantively dissimilar learning paths***: same learning biases lead to path-dependent acquisition orderings of 'substance/structure'.

- Phrased in DST terms, this helps **re-encode** one of the central **issues** with (cartographic) maturation:
  - ▶ Under maturation, developmental pathways are (near-)universal ***irrespective*** of initial conditions.
  - ▶ Neo-emergentism predicts significant (but crucially *constrained*) language-specific variation ***as a function of*** sensitivity to initial conditions (i.e., 'initial-conditions-specific variation').

- Phrased in DST terms, this helps **re-encode** one of the central **issues** with (cartographic) maturation:
  - Under maturation, developmental pathways are (near-)universal ***irrespective*** of initial conditions.
  - Neo-emergentism predicts significant (but crucially *constrained*) language-specific variation ***as a function of*** sensitivity to initial conditions (i.e., 'initial-conditions-specific variation').

↪ **The data here suggests we need the flexibility in the latter approach**

# 5. THE EMERGENCE OF TOPICS CROSSLINGUISTICALLY: A PARAMETRIC AND KOLMOGOROV COMPLEXITY ACCOUNT

- Accounting for L1-specific discrepancies in the acquisition of topics.
- Maturation will not work, as seen earlier: CP is early, structurally high elements are early.
- Patterns also cannot be due to the development of clitics (Study 2), or pragmatic development – new/old information is available early on (e.g., Baker and Greenfield, 1988; Bambini and Torregrossa, 2010; Clark, 2014).
- → Delay at stake is *specific* to CLLD, not shared with Germanic topics.

- **Proposed account** → parametric, Kolmogorov complexity of topicalisation strategies.
  - ▶ Languages like English or Germanic: topic/focus/wh all handled by *operator movement.* Operator movement maximally generalised in V2 system (mesoparameter).
  - ▶ Languages like Italian: system makes an *additional featural distinction*; operator (focus/wh) and non-operator/non-quantificational movement.
  - ▶ **Two movement types**, **two different kinds of movement-triggering features** to be postulated by the child → higher parametric complexity in a system with CLLD, bias towards *minimum description length*.
- Why continuity/inward maturation won't suffice:
  - ↪ They are *insufficiently predictive.* Lack of an explicit theory of L1 grammar construction, so do not directly predict this developmental variation.

- Clear typological predictions: acquisition timings of topics crosslinguistically should correlate with parametric complexity.

- Clear typological predictions: acquisition timings of topics crosslinguistically should correlate with parametric complexity.
- **French** (de Cat, 2000, 2007a,b): absence of movement effects, inability to license parasitic gaps, lack of Principle C effects, and island non-sensitivity → **Adjunction** and/or **base-generation** involved (de Cat, 2007b; Wolfe, 2021, 2022).
  - ↪ Acquired **very early**, even before all other CP-structures.
  - ↪ Adjunction independently known to play important role early on (Lebeaux, 1988; de Villiers, 1991; Hoekstra and Jordens, 1996; Roeper, 1992; Biberauer, 2018)

(28)  a.  Max 2;0.14 (MLUw 1.83)
          lui@d, ça va   là
          him    it goes there
          'That one goes there.'

     b.  Anne, 1;10.12 (MLUw 1.84)
          Mimi, elle va    toutoutou@s toutoutoutou@s
          mimi  she goes tootootoo     tootootoo
          'Mimi goes tootoot.' (Imitating a train)

     c.  Tom 2;1.11 (MLUw 2.28)
          0 est pas une fille, isabelle
            is  not a    girl  Isabelle
          'Isabelle's not a girl.'

(de Cat, 2002, 259, 260, 265)

- **European Portuguese**: CLLD productive, but peculiarly allows topicalisation without clitic resumption.
  - ↪ Non-CLLD topics acquired **very early** (Soares, 2003a,b, 2006).

(29)  *European Portuguese*, Marta 1;8.18 (MLUw 1.5)

a. Marta: N(ã)o (es)tão dodot.
   not     are     dodots
   'Dodots are not here'
   Marta: **Dodot** não há!
          Dodot   not have
   'There are no dodots' (she is talking about a baby towel's empty box.)

b. Marta: Este!
          this
   'This one!' (she takes a part of a puzzle.)
   Mother: ah   # ainda  não é     daqui.
            INTJ     belong not this here
   'This one does not belong here'
   Marta: **Este** pôr.
          this   put
   'I am going to put this one here'

(Soares, 2003a, 133)

- **European Portuguese**: CLLD productive, but peculiarly allows topicalisation without clitic resumption.
  - ↪ Non-CLLD topics acquired **very early** (Soares, 2003a,b, 2006).
- Most importantly, EP topics analysed as involving ***operator movement***: EP topicalisation licenses parasitic gaps, shows WCO effects, i.a. (Duarte, 1987; Raposo, 1997). Crucially, EP CLLD displays non-operator movement properties, like Romance CLLD.
- Formally simpler topics emerge earlier, finer-grained strategies later.

- Likewise for **Mandarin Chinese**, **Japanese** and **Korean**: topicalisation involves **operator movement** and/or **base-generation** (Hoji, 1990; Park, 1998; Kizu, 2005; Miyagawa, 2017b,a).
    - ↪ Null topics acquired very early on (Zhu and Gavarró, 2019), for Chinese, and Hirakawa (1993) and Kurumada (2009), for Japanese.
    - ↪ Topic markers possibly acquired early (~2;0) and after null subjects/topics in Japanese (Kurumada, 2009)[5].
    - ↪ Early topic and focus markers in Korean from 1;7 reported in Lee (2001).

(30)  Xue'er (1;8; mean MLUw in group of 2.01)
      %act: MOT is teaching how to pull the pen cup out.
      Nai-nai    ba.
      grandma  pull-out
      'Grandma pull (it) out.'

- Acquisition of topicalisation gradual process, however: Hu et al. (2018) suggest that the derivation of Mandarin topics may be subject to successive refinements while children acquire topic markers.

---

[5]But cf. Hirakawa (1993) who reports slightly later development.

- **Catalan and Greek**: CLLD languages involve **non-operator movement**.
  - ↪ Acquired **late**, after foci/wh-questions (Bosch, 2023a; Marinis, 2000; Tsimpli, 2005).
- Laura and Gisela (Catalan; Bosch, 2023a)
  - ▶ First CP-structures emerge at 1;10 and 2;04, respectively.
  - ▶ CLLD at 2;08 for both.
- Alexia and Elli (Greek; Tsimpli, 2005) and Janna, Maria and Mairi (Marinis, 2000)
  - ▶ Wh-questions and focusing emerge earlier, at 1;11 and 1;9, respectively.
  - ▶ CLLD at 2;1 and 2;0. In Marinis (2000), CLLD emerges at 2;09 for Janna and Maria, and 2;03 for Mairi.
- No data for (non-CLLD) topicalisation in Greek, an operator-movement dependency (Alexopoulou and Kolliakou, 2002; Georgiou, 2023).

- Now **two apparent counterexamples**: Hebrew and Brazilian Portuguese.
- **Hebrew**: no formal distinction between focalisation and topicalisation.

- Now **two apparent counterexamples**: Hebrew and Brazilian Portuguese.
- **Hebrew**: no formal distinction between focalisation and topicalisation.
  - ↪ English-like operator-movement topics?
  - ▶ If so, we predict early topics, *contra* what is observed → acquired **late** in Friedmann et al. (2021).

- Now **two apparent counterexamples**: Hebrew and Brazilian Portuguese.
- **Hebrew**: no formal distinction between focalisation and topicalisation.
  - ↪ English-like operator-movement topics?
  - ▶ If so, we predict early topics, *contra* what is observed → acquired **late** in Friedmann et al. (2021).
- No – Borer (1995) and Shlonsky (2014): Hebrew topics share distributional properties with CLLD; no WCO effects and available in environments where they are ungrammatical in English (e.g., in imperatives, or interrogatives).
- Plausibly, then, **non-operator movement** involved.
- → Hebrew fits our expectations.

- Now **two apparent counterexamples**: Hebrew and Brazilian Portuguese.
- **Brazilian Portuguese**: loss of clitics, generalised non-resumptive left-dislocation.

---

[6]NB: At 2;02 – whether this is 'late' is debatable. I set it aside, the child is plausibly an early-talker: wh-questions emerge well before at 1;07, and subordination already emerges at 2;4.

- Now **two apparent counterexamples**: Hebrew and Brazilian Portuguese.
- **Brazilian Portuguese**: loss of clitics, generalised non-resumptive left-dislocation.
  - ↪ Another candidate for early topics?
  - ▶ But acquired **late** in Meira and Grolla (2023)![6]

---

[6]NB: At 2;02 – whether this is 'late' is debatable. I set it aside, the child is plausibly an early-talker: wh-questions emerge well before at 1;07, and subordination already emerges at 2;4.

- Now **two apparent counterexamples**: Hebrew and Brazilian Portuguese.
- **Brazilian Portuguese**: loss of clitics, generalised non-resumptive left-dislocation.
  - ↪ Another candidate for early topics?
  - ▶ But acquired **late** in Meira and Grolla (2023)![6]
- BP topics and its CP argued to display complex **interactions between A- and Ā-properties**:
  - ▶ Kobayashi (2020): topicalisation (among other CP-structures) displays 'interleaved movement' (an improper chain of A- and Ā-steps of movement).
  - ▶ Lohninger (2021): TopicP in BP with mixed [A/Ā] featural properties (see also Lohninger et al., 2022).
  - ▶ Dias (2024): canonical overt subjects in BP display mixed A/Ā behaviour, following Bošković's (2024) A/ĀP projection.
- Similar to some derivations of CLLD, like Angelopoulos and Sportiche (2021) see also (Lee, 2016): first A-movement to the middle-field, like A-scrambling; then Ā-movement near T, followed by one or more Ā-movement steps to the CP.
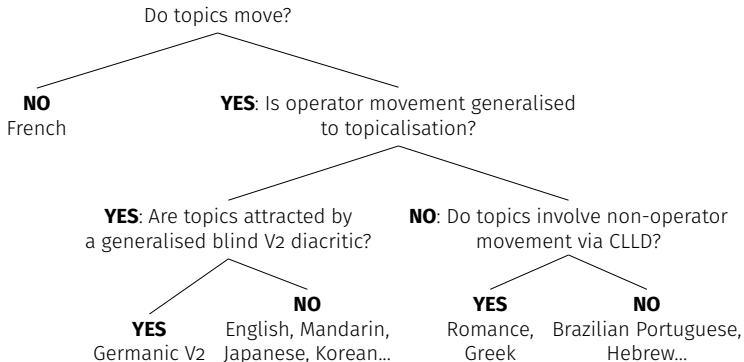- → Brazilian Portuguese is (potentially) also predicted.

---

[6]NB: At 2;02 – whether this is 'late' is debatable. I set it aside, the child is plausibly an early-talker: wh-questions emerge well before at 1;07, and subordination already emerges at 2;4.

**Table 23:** Topicalisation strategies, their acquisition and their formal complexity

| Language | Acquisition | Formal characteristics of topicalisation | Parametric complexity |
|---|---|---|---|
| French | Very early | Adjoined or base-generated | Macroparameter |
| Germanic V2 | Very early | Generalised V2 diacritic | Mesoparameter |
| Mandarin, Japanese Korean | (Possibly) early | Operator movement or base-generation[7] | Mesoparameter |
| (Most of) Romance | Late | Non-operator movement with CLLD | Microparameter |
| Greek | Late | Non-operator movement with CLLD | Microparameter |
| Hebrew | Late | Non-operator movement without CLLD | Microparameter |
| Brazilian Portuguese | Late | Topic with [A/Ā] properties | Microparameter |

---

[7]Depending on theoretical analysis.

(31)    Parametric complexity in topicalisation structures considered

Do topics move?

**NO**
French

**YES**: Is operator movement generalised
to topicalisation?

**YES**: Are topics attracted by
a generalised blind V2 diacritic?

**NO**: Do topics involve non-operator
movement via CLLD?

**YES**
Germanic V2

**NO**
English, Mandarin,
Japanese, Korean...

**YES**
Romance,
Greek

**NO**
Brazilian Portuguese,
Hebrew...

- Future extensions: **English** and **role of crosslinguistic influence**.
  - ▶ English left-dislocations **very restricted** in distribution (in Snider and Zaenen, 2006, 1% of their spoken data).
  - ▶ **Operator movement** (parametrically less complex), but **very infrequent** in PLD (plausibly) → should have acquisitional consequences.
  - ▶ Initial evidence for this → **late** acquisition of **English topics** in **monolinguals**, relative to French infants, but **earlier emergence** in **English/French bilinguals**, due to crosslinguisic transfer (Notley, 2004; Notley et al., 2007; Van der Linden and Sleeman, 2007).

■ Future extensions: **English** and **role of crosslinguistic influence**.

▶ English left-dislocations **very restricted** in distribution (in Snider and Zaenen, 2006, 1% of their spoken data).

▶ **Operator movement** (parametrically less complex), but **very infrequent** in PLD (plausibly) → should have acquisitional consequences.

▶ Initial evidence for this → **late** acquisition of **English topics** in **monolinguals**, relative to French infants, but **earlier emergence** in **English/French bilinguals**, due to crosslinguisic transfer (Notley, 2004; Notley et al., 2007; Van der Linden and Sleeman, 2007).

**Overall: Timing of topics follows from their L1-specific complexity; it is not biologically pre-coded**

Open question(s):

- **Why operator *before* non-operator movement** – raises a series of Qs:
  - ▶ First, any other simpler explanations of the data?
  - ▶ How does the child acquire/distinguish operator *vs* non-operator features with pure Ā *vs* 'mixed/hybrid' properties?
    - Diagnostics (e.g., Weak Crossover, Parasitic gaps, etc.) won't be present in the input (Pearl and Sprouse, 2013).

Open question(s):

- **Why operator *before* non-operator movement** – raises a series of Qs:
  - ▶ First, any other simpler explanations of the data?
  - ▶ How does the child acquire/distinguish operator *vs* non-operator features with pure Ā *vs* 'mixed/hybrid' properties?
    - ■ Diagnostics (e.g., Weak Crossover, Parasitic gaps, etc.) won't be present in the input (Pearl and Sprouse, 2013).

- ↪ Possibly a *semantic* or *pragmatic* cause: Quantifier-variable relationship *vs* referential/non-quantificational XP-pronoun binding? Different reconstruction/type-theoretic properties (Georgiou, 2023)? Linking via co-reference?

- ↪ Two (vague) possibilities: (i) features/dependencies that do not have **semantic effects** or do not get **interpreted at LF** (partly following the intuition in Tsimpli, 2005); (ii) **co-reference issues** (cf. Hyams, 1996; Bloom et al., 1994; Baauw, 2016).
  - ▶ Problems: clitics themselves often argued to be uninterpretable, but acquired early (likewise for $\phi$-agreement). CLLD as uninterpretable at LF controversial.

- Future extensions:
  - ▶ Other clitic constructions, e.g., Clitic Doubling (Marinis, 2000; Tsimpli, 2005).
  - ▶ Other types of argument promotion systems, e.g, voice systems (Hyams et al., 2006, on Malagasy).
  - ▶ Scrambling.
  - ▶ Role of input frequency.

# 6. Conclusion

- Inherent 'vulnerability' of (part of) the CP (Radford, 1990; Rizzi, 1993; Friedmann et al., 2021; Hulk and Müller, 2000)? I argued 'no' regarding its *syntax* and *representation*.
→ **Developmental universals *vs* variation**: Corners of 'flexibility' or 'developmental variation' as theoretically consequential.

■ Inherent 'vulnerability' of (part of) the CP (Radford, 1990; Rizzi, 1993; Friedmann et al., 2021; Hulk and Müller, 2000)? I argued 'no' regarding its *syntax* and *representation*.

→ **Developmental universals *vs* variation**: Corners of 'flexibility' or 'developmental variation' as theoretically consequential.

  ▶ 'Late' topics *not* a developmental universal (*pace* Radford, 1990; Rizzi, 1997; Friedmann et al., 2021; Meira and Grolla, 2022) → clear case-study on sensitivity to initial conditions (path-dependent development).

  ▶ Early CP as a candidate for developmental universal → challenge for bottom-up approaches

☞ Neither maturation nor continuity, as they stand, meet a critical requirement: they must be *flexible* enough to accommodate crosslinguistic *variation* in acquisition orders, and *explicit* enough to *predict* it.

■ Explanatory potential for neo-emergentism in this domain → parametric/minimax-oriented categorial hierarchy. Extended the approach to development of topics.

→ Need for a **comparative approach** to acquisition → multilingual data sheds significant light on the Biologisation Issue.

# Thank you!

Slides 💻→

SCAN ME

# 7. Appendix

| Age | MLUw | Wh-Q | Top/Foc | Illoc | Embed |
|---|---|---|---|---|---|
| 1;09.09 | 1.68 | | | | |
| 1;09.28 | 1.63 | ✓ | | | |
| 2;00.01 | 1.92 | ✓ | | | |
| 2;00.23 | 1.9 | | | | |
| 2;01.21 | 2.06 | ✓ | | | |
| 2;02.17 | 2.9 | ✓ | | | |
| 2;04.14 | 2.9 | ✓ | ✓ | | |
| 2;05.00 | 3.2 | ✓ | ✓ | | ✓ |
| 2;05.07 | 2.23 | ✓ | | | |
| 2;07.08 | 3.41 | ✓ | ✓ | | ✓ |
| 2;09.15 | 2.1 | ✓ | | | ✓ |
| 2;11.03 | 4.01 | | ✓ | ✓ | ✓ |
| 3;01.00 | 3.11 | ✓ | | | ✓ |
| 3;01.15 | 3.79 | | ✓ | | |
| 3;02.10 | 3.25 | ✓ | ✓ | | ✓ |
| 3;03.08 | 2.94 | ✓ | ✓ | | |
| 3;03.29 | 4.24 | ✓ | ✓ | | ✓ |
| 3;06.02 | 5.38 | | ✓ | ✓ | ✓ |
| 4;00.27 | 3.34 | ✓ | ✓ | ✓ | ✓ |
| 4;01.25 | 3.48 | ✓ | ✓ | | ✓ |
| 4;04.00 | 3.02 | ✓ | ✓ | ✓ | ✓ |
| 4;05.01 | 4.69 | ✓ | ✓ | ✓ | ✓ |
| 4;06.00 | 4.5 | ✓ | ✓ | ✓ | ✓ |

**Table 24:** Production of CP-structures in Heleen's Italian

| Age | MLUw | Wh-Q | Top/Foc | Illoc | Embed |
|---|---|---|---|---|---|
| 1;02.09 | - | | | | |
| 1;03.06 | 2.5 | | | | |
| 1;03.19 | 1.83 | | | | |
| 1;04.08 | 1.09 | | | | |
| 1;05.04 | 1.1 | | | | |
| 1;05.29 | 1.11 | | | | |
| 1;06.12 | 1.42 | | | | |
| 1;06.26 | 1.06 | | | | |
| 1;07.11 | 1.05 | | | | |
| 1;07.23 | 1.06 | | | | |
| 1;08.08 | 1.04 | | | | |
| 1;08.22 | 1.06 | | | | |
| 1;09.09 | 1.68 | | | | |
| 1;09.28 | 1.63 | | | | |
| 1;10.17 | 1.13 | | | | |
| 1;10.22 | 1.4 | | | | |
| 1;11.09 | 1.08 | ✓ | | | |
| 1;11.26 | 1.22 | | | | |
| 2;00.10 | 1.27 | | | | |
| 2;03.04 | 1.83 | | | | |
| 2;03.17 | 1.85 | | | | |
| 2;04.01 | 2.03 | | | | |
| 2;05.24 | 2.95 | | | | |
| 2;05.26 | 2.17 | ✓ | | ✓ | |
| 2;06.09 | 2.45 | ✓ | | ✓ | |
| 2;06.23 | 1.95 | ✓ | | ✓ | |
| 2;07.09 | 2.29 | | | | |
| 2;07.23 | 2.05 | | | | |
| 2;08.06 | 2.41 | | ✓ | | |
| 2;08.20 | 2.84 | ✓ | ✓ | ✓ | |
| 2;10.02 | 2.48 | ✓ | ✓ | | |
| 3;00.10 | 2.62 | | | ✓ | |
| 3;00.24 | 3.18 | ✓ | | | |
| 3;01.24 | 2.78 | ✓ | ✓ | ✓ | ✓ |
| 3;03.12 | 3.53 | ✓ | ✓ | ✓ | ✓ |
| 3;04.16 | 3.55 | ✓ | | ✓ | ✓ |
| 3;05.25 | 3.33 | ✓ | ✓ | | ✓ |
| 4;01.03 | 5.0 | | | | ✓ |
| 4;03.04 | 2.0 | | | | |
| 4;08.14 | 3.0 | | | | |
| 5;00.12 | 1.67 | | | | |
| 5;03.23 | 1.0 | | | | |
| 5;06.07 | 5.0 | | | | |

**Table 25:** Production of CP-structures in Simon's Spanish

| Age | MLUw | V2 | Wh | Y/N | Topic | Embed |
|---|---|---|---|---|---|---|
| 1;09.11 | 1.66 | ✓ | ✓ | ✓ | | |
| 1;10.07 | 1.75 | ✓ | ✓ | ✓ | | |
| 1;11.00 | 1.99 | ✓ | ✓ | ✓ | ✓ | |
| 2;00.21 | 1.67 | ✓ | ✓ | ✓ | ✓ | |
| 2;01.20 | 1.83 | ✓ | ✓ | ✓ | ✓ | |
| 2;02.18 | 2.46 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;03.23 | 2.63 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;05.10 | 2.76 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;06.07 | 2.58 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;07.09 | 4.03 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;08.20 | 3.39 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;10.06 | 3.62 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;11.04 | 4.04 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;00.21 | 3.43 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;01.14 | 3.45 | ✓ | ✓ | ✓ | ✓ | |
| 3;02.09 | 4.09 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;02.29 | 2.62 | ✓ | ✓ | ✓ | ✓ | |
| 3;03.28 | 3.82 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;05.02 | 4.49 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;06.05 | 4.83 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;07.02 | 4.33 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;09.01 | 3.61 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;09.22 | 4.67 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;00.27 | 3.93 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;01.25 | 3.9 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;04.00 | 3.55 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;05.02 | 4.72 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;06.00 | 4.12 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;06.01 | 5.59 | ✓ | ✓ | ✓ | ✓ | ✓ |

**Table 26:** Production of CP-structures in Heleen's Dutch

| Age | MLUw | V2 | Wh | Y/N | Topic | Embed |
|---|---|---|---|---|---|---|
| 1;01.13 | 1.0 | | | | | |
| 1;03.18 | 1.14 | | | | | |
| 1;04.22 | 1.06 | | | | | |
| 1;05.27 | 1.03 | | | | | |
| 1;06.09 | 1.42 | | | | | |
| 1;06.23 | 1.0 | | | | | |
| 1;07.07 | 1.02 | | | | | |
| 1;07.21 | 1.0 | | | | | |
| 1;08.06 | 1.02 | | | | | |
| 1;08.20 | 1.1 | | | | | |
| 1;10.08 | - | | | | | |
| 1;10.22 | 1.04 | | | | | |
| 1;11.05 | 1.17 | | | | | |
| 1;11.19 | 1.16 | | | | | |
| 2;00.04 | 1.23 | | | | | |
| 2;00.17 | 1.3 | | | | | |
| 2;01.03 | 1.46 | | | | | |
| 2;02.11 | 1.43 | | | | | |
| 2;02.25 | 1.82 | | | | | |
| 2;03.11 | 2.02 | ✓ | ✓ | | ✓ | |
| 2;03.25 | 2.29 | | | ✓ | | |
| 2;04.22 | - | | | | | |
| 2;06.04 | 2.01 | ✓ | | | ✓ | |
| 2;07.01 | 3.18 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2;08.15 | 2.26 | ✓ | | ✓ | ✓ | |
| 2;09.17 | 2.82 | ✓ | | ✓ | ✓ | |
| 2;09.28 | 3.05 | ✓ | ✓ | ✓ | ✓ | |
| 2;11.18 | 2.0 | | | | | |
| 3;00.04 | 3.56 | ✓ | ✓ | ✓ | ✓ | |
| 3;00.18 | 3.26 | ✓ | ✓ | ✓ | ✓ | |
| 3;01.03 | 3.52 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;02.01 | 3.09 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;05.07 | 4.12 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;06.25 | 3.79 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3;10.04 | - | | | | | |
| 4;01.16 | 4.26 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4;09.25 | 4.05 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5;03.17 | 3.69 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5;10.01 | 4.08 | ✓ | ✓ | ✓ | ✓ | ✓ |

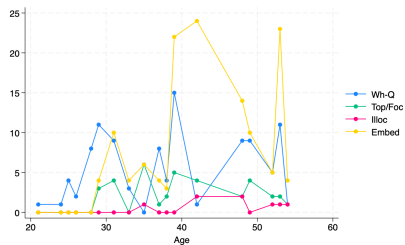**Table 27:** Production of CP-structures in Simon's German

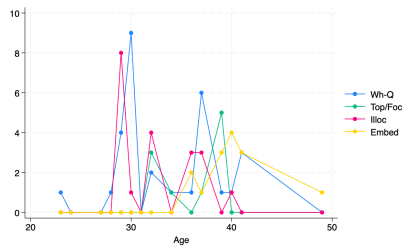**Figure 7:** Development of CP-structures in Heleen's Italian



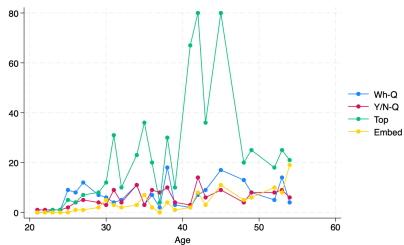**Figure 8:** Development of CP-structures in Simon's Spanish

**Figure 9:** Development of CP-structures in Heleen's Dutch
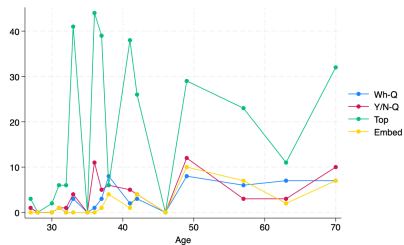


**Figure 10:** Development of CP-structures in Simon's German

# 8. References

Alexiadou, A. and Anagnostopoulou, E. (1998). Parametrizing AGR: Word order, V-movement and EPP-checking. *Natural Language & Linguistic Theory*, 16(3):491–539.

Alexopoulou, T. and Kolliakou, D. (2002). On linkhood, topicalization and clitic left dislocation. *Journal of Linguistics*, 38:193–245.

Angelopoulos, N. and Sportiche, D. (2021). Clitic dislocations and clitics in French and Greek. *Natural Language & Linguistic Theory*, 39:959–1022.

Baauw, S. (2016). The acquisition of binding and coreference. In Lidz, J., Snyder, W., and Pater, J., editors, *The Oxford Handbook of Developmental Linguistics*. Oxford University Press, Oxford.

Babyonyshev, M. and Marin, S. (2006). Acquisition of Romanian pronominal clitics. *Catalan Journal of Linguistics*, 5:17–44.

Baker, N. D. and Greenfield, P. M. (1988). The development of new and old information in young children's early language. *Language Sciences*, 10(1):3–34.

Bambini, V. and Torregrossa, J. (2010). Cognitive categories behind early Topic/Comment structures. In Chini, M., editor, *Topic, strutture dell'informazione e acquisizione linguistica*, pages 35–58. Franco Angeli, Milan.

Biberauer, T. (2011). In defence of lexico-centric parametric variation: two 3rd factor-constrained case studies. Paper presented at the *Workshop on Formal Grammar and Syntactic Variation: Rethinking Parameters* (Madrid).

Biberauer, T. (2018). Peripheral significance: a phasal perspective on the grammaticalisation of speaker perspective. Talk presented at *DiGS 20* (York), June. `https://www.york.ac.uk/media/languageandlinguistics/documents/conferences/digs20/Biberauer_handout_DiGS20.pdf`.

Biberauer, T. (2019). Factors 2 and 3: Towards a principled approach. *Catalan Journal of Linguistics (Special Issue)*, pages 45–88.

Biberauer, T. (2020). Emergent variation from a minimalist perspective: on the significance of imperatives. Talk presented at *Abralin ao Vivo - Linguists Online* (online), 22 July.

Biberauer, T. and Roberts, I. (2015). Rethinking formal hierarchies: A proposed unification. *Cambridge Occasional Papers in Linguistics*, 7:1–31.

Bloom, P., Barss, A., Nicol, J., and Conway, L. (1994). Children's knowledge of binding and coreference: Evidence from spontaneous speech. *Language*, 70(1):53–71.

Borer, H. (1995). The Ups and Downs of Hebrew Verb Movement. *Natural Language & Linguistic Theory*, 13:527–606.

Bosch, N. (2022). Emergence, Complexity and Developing Grammars: a reinterpretation from a Dynamical Systems perspective. *Cambridge Occasional Papers in Linguistics*, 14(1):1–33.

Bosch, N. (2023a). *Emergent Syntax and Maturation: a neo-emergentist approach to syntactic development.* MPhil thesis, University of Cambridge.

Bosch, N. (2023b). Not all complementisers are late: a first look at the acquisition of illocutionary complementisers in Catalan and Spanish. *Isogloss. Open Journal of Romance Linguistics*, 9:1–39.

Bosch, N. and Biberauer, T. (to appear). Emergent Syntactic Categories and Increasing Granularity: Evidence from a Multilingual Corpus Study. In *Proceedings of the 48th Boston University Conference on Language Development (BUCLD)*. Cascadilla Proceedings Project.

Boser, K., Lust, B., Santelmann, L., and Whitman, J. (1992). The Syntax of CP and V-2 in Early Child German (ECG): The Strong Continuity Hypothesis. In *Proceedings of the Northeast Linguistic Society (NELS) 22*, pages 51–66. University of Massachussets, Amherst.

Bošković, Z. (2024). On wh and subject positions, the epp, and contextuality of syntax. *The Linguistic Review*, 41(1):7–58.

Choi, S. and Gopnik, A. (1995). Early acquisition of verbs in korean: a cross-linguistic study. *Journal of Child Language*, 22(3):497–529.

Chomsky, N. (2005). Three factors in language design. *Linguistic Inquiry*, 36(1):1–22.

Cinque, G. (1990). *Types of A-bar Dependencies*. Linguistic Inquiry Monographs. MIT Press, Cambridge.

Cinque, G. (1999). *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford University Press, Oxford.

Clahsen, H., Eisenbeiss, S., and Vainikka, A. (1994). The Seeds of Structure: A Syntactic Analysis of the Acquisition of Case Marking. In Hoekstra, T. and Schwartz, B., editors, *Language Acquisition Studies in Generative Grammar*, pages 85–118. John Benjamins, Amsterdam.

Clark, E. V. (2014). Pragmatics in acquisition. *Journal of Child Language*, 41(S1):105–116.

Cruschina, S. (2011). Focalisation and word order in old Italo-Romance. *Catalan Journal of Linguistics*, 10:95–132.

de Cat, C. (2000). Structure Building and the Acquisition of Dislocations in Child French. In Howell, S. C., Fish, S. A., and Keith-Lucas, T., editors, *Proceedings of the 24th Annual Boston University Conference on Language Development*, pages 242–252. Cascadilla Press, Somerville, MA.

de Cat, C. (2002). *French Dislocation*. PhD thesis, University of York, York, UK.

de Cat, C. (2007a). *French Dislocation: Interpretation, Syntax, Acquisition*. Oxford University Press, Oxford.

de Cat, C. (2007b). French Dislocation without Movement. *Natural Language & Linguistic Theory*, 25:485–534.

de Villiers, J. (1991). Why questions? In Maxfield, T. and Plunkett, B., editors, *Papers in the acquisition of WH*, pages 155–173. UMOP, University of Massachussets, Amherst.

Demuth, K. (1989). Maturation and the acquisition of the sesotho passive. *Language*, 65(1):56–80.

Dias, T. (2024). Slippery subjects in Brazilian Portuguese. Talk presented at the *49º Incontro di Grammatica Generativa* (IGG49, IUSS Pavia).

Diercks, M., Johns, K., Bar-Server, and Bossi, M. (2023). Developmental Minimalist Syntax. Ms. `https://lingbuzz.net/lingbuzz/007134`.

Duarte, I. (1987). *A Construção de Topicalização na Gramática do Português: Regência, Ligação e Condições sobre Movimento*. PhD thesis, Universidade de Lisboa.

Frascarelli, M. and Hinterhölzl, R. (2007). Types of topics in German and Italian. In Schwabe, K. and Winkler, S., editors, *On information structure, meaning and form: Generalizations across languages*, pages 87–116. John Benjamins, Amsterdam.

Friedmann, N., Belletti, A., and Rizzi, L. (2021). Growing Trees: The acquisition of the left periphery. *Glossa: a journal of general linguistics*, 6(1):131.

Galasso, J. (2003). *The Acquisition of Functional Categories: A Case Study*. IUCL Publications, Indiana University.

Georgiou, R. (2023). Greek topicalization: How do properties move? *Glossa: a journal of general linguistics*, 8(1).

Grewendorf, G. (2005). The asymmetry of short and long wh-extraction in German. *Recherches linguistiques de Vincennes*, 33:35–54.

Guasti, M. T. (1993). Verb Syntax in Italian Child Grammar: Finite and Nonfinite Verbs. *Language Acquisition*, 3(1):1–40.

Haegeman, L. (1996). Verb second, the split CP and null subjects in early dutch finite clauses. *Generative Grammar in Geneva Papers*, 4(2):135–175.

Haegeman, L. (2012). *Adverbial Clauses, Main Clause Phenomena, and the Composition of the Left Periphery: The Cartography of Syntactic Structures, Volume 8*. Oxford University Press.

Hager, M. (2014). *Der Genuserwerb bei mehrsprachig aufwachsenden Kindern. Eine longitudinale Untersuchung bilingualer und trilingualer Kinder der Sprachenkombinationen deutsch-französisch/italienisch/spanisch, französisch-italienisch/spanisch und deutsch-spanisch-katalanisch*. PhD thesis, Bergische Universität Wuppertal.

Hager, M. and Müller, N. (2015). Ultimate attainment in bilingual first language acquisition. *Lingua*, 164:289–308.

Heim, J. and Wiltschko, M. (2021). Acquiring the form and function of interaction: a comparison of the acquisition of sentence-final particles and tag questions in the Brown corpus. Talk presented at *LAGB Annual Meeting 2021* (online), 8 September.

Hinzen, W. and Wiltschko, M. (2023). Modelling non-specific linguistic variation in cognitive disorders. *Journal of Linguistics*, 59(1):61–87.

Hirakawa, M. (1993). Null Subjects Versus Null Objects in an Early Grammar of Japanese. *McGill Working Papers in Linguistics*, 9:30–45.

Hoekstra, T. and Jordens, P. (1996). From adjunct to head. In Hoekstra, T. and Schwartz, B., editors, *Language Acquisition Studies in Generative Grammar*, pages 119–149. John Benjamins.

Hoji, H. (1990). Theories of anaphora and aspects of Japanese syntax. Ms, USC, Los Angeles.

Hu, S., Guasti, M., and Gavarró, A. (2018). Chinese Children's Knowledge of Topicalization: Experimental Evidence from a Comprehension Study. *Journal of Psycholinguistic Research*, 47:1279–1300.

Hulk, A. (1997). The Acquisition of French Object Pronouns by a French/Dutch Bilingual Child. In *Proceedings of GALA*. Edinburgh.

Hulk, A. and Müller, N. (2000). Bilingual First Language Acquisition at the Interface between Syntax and Pragmatics. *Bilingualism: Language and Cognition*, 3(3):227–244.

Hyams, N. (1992). Morphosyntactic development in Italian and its relevance to parameter-setting models: Comments on the paper by Pizzuto and Casselli. *Journal of Child Language*, 19(3):695–709.

Hyams, N. (1996). The Underspecification of Functional Categories in Early Grammar. In Clahsen, H., editor, *Generative Perspectives on Language Acquisition: Empirical findings, theoretical considerations and crosslinguistic comparisons*, pages 91–127. John Benjamins, Amsterdam.

Hyams, N., Ntelitheos, D., and Manorohanta, C. (2006). Acquisition of the Malagasy Voicing System: Implications for the Adult Grammar. *Natural Language & Linguistic Theory*, 24(4):1049–1092.

Kizu, M. (2005). Topicalization and cleft constructions. In Kizu, M., editor, *Cleft Constructions in Japanese Syntax*, pages 9–56. Palgrave Macmillan UK, London.

Kobayashi, F. H. (2020). Proper Interleaving of A- & A'-movement: a Brazilian Portuguese Case Study. Ms., MIT. Available at `https://lingbuzz.net/lingbuzz/005609`.

Koster, J. (1978). *Locality principles in syntax*. Foris, Dordrecht.

Kurumada, C. (2009). The acquisition and development of the topic marker wa in L1 Japanese: The role of NP-wa? in child-mother interaction. In Corrigan, R., Moravcsik, E. A., Ouali, H., and Wheatley, K., editors, *Formulaic Language: Acquisition, loss, psychological reality, and functional explanations*, volume 2, page 347. John Benjamins, Amsterdam.

Lebeaux, D. (1988). *Language acquisition and the form of the grammar*. PhD thesis, University of Massachussets.

Lee, C. (2001). Acquisition of Topic and Subject Markers in Korean. In Nakayama, M., editor, *Issues in East Asian Language Acquisition*, volume 7 of *Kurosio Linguistics Workshop*. Kurosio Publishers, Tokyo.

Lee, M.-K. (2016). Spanish Clitic Left Dislocation as a Non-quantificational A'-movement. *Language Research*, 52(2):283–310.

Lleó, C., Kuchenbrandt, I., Kehoe, M., and Trujillo, C. (2003). Syllable Final Consonants in Spanish and German Monolingual and Bilingual Acquisition. In Müller, N., editor, *(In)Vulnerable Domains in Multilingualism*, pages 191–220. John Benjamins, Amsterdam, Philadelphia.

Lohninger, M. (2021). Focus on Topic! An A-percolation account to multiple WH-questions and cross-clausal A-dependencies. Talk at NWLC 37.

Lohninger, M., Kovač, I., and Wurmbrand, S. (2022). From Prolepsis to Hyperraising. *Philosophies*, 7(2).

Lust, B. (1999). Universal grammar: The strong continuity hypothesis in first language acquisition. In Bhatia, T. K. and Ritchie, W. C., editors, *Handbook of child language acquisition*, pages 111–155, San Diego, CA. Academic Press.

Lust, B. (2012). Tracking universals requires grammatical mapping. In Grohmann, K. K. and Shelkovaya, A., editors, *Linguists of Tomorrow: Selected Papers from the 1st Cyprus Postgraduate Student Conference in Theoretical and Applied Linguistics*, page 105. Cambridge Scholars Publishing (CSP), Newcastle upon Tyne.

Marinis, T. (2000). The acquisition of clitic objects in Modern Greek : single clitics, clitic doubling, clitic left dislocation. *ZAS Papers in Linguistics*, 15:259–281.

McFadden, T., Sundaresan, S., and Zeijlstra, H. (2021). On the nature of crosslinguistic variation: Insights from anaphora. Ms. Available at `https://ling.auf.net/lingbuzz/005979`.

Meira, M. and Grolla, E. (2022). The 'Growing Trees' approach and the Development of the Left Periphery of the Sentence in Brazilian Portuguese. Talk presented at *Generative Approaches to Language Acquisition (GALA) 15* (Goethe Universität Frankfurt), September 22-24.

Meira, M. and Grolla, E. (2023). The Underlying Structure of Interrogatives in Brazilian Portuguese: Evidence from Acquisition Data. In Gappmayr, P. and Kellogg, J., editors, *Proceedings of the 47th annual Boston University Conference on Language Development*, pages 562–575. Cascadilla Press, Somerville, MA.

Miyagawa, S. (2017a). *Agreement Beyond Phi*. MIT Press, Cambridge, MA.

Miyagawa, S. (2017b). Topicalization. *Gengo Kenkyu*, 152:1–29.

Notley, A. (2004). The acquisition of topicalisation structures in French–English bilinguals: Testing models of cross-linguistic influence. Unpublished manuscript.

Notley, A., van der Linden, E. H., and Hulk, A. C. J. (2007). Cross-linguistic influence in bilingual children: The case of dislocation. In Baauw, S., Drijkoningen, F., and Pinto, M., editors, *Romance Language and Linguistic Theory: Selected Papers From 'Going Romance'*, pages 229–259. John Benjamins, Amsterdam.

Paradis, J. and Genesee, F. (1996). Syntactic Acquisition in Bilingual Children: Autonomous or Interdependent? *Studies in Second Language Acquisition*, 18(1):1–25.

Paradis, J. and Genesee, F. (1997). On Continuity and the Emergence of Functional Categories in Bilingual First-Language Acquisition. *Language Acquisition*, 6(2):91–124.

Park, Y.-M. (1998). *Zur Theorie der A'-Bewegung*. Maz Niemeyer, Tübingen.

Pearl, L. and Sprouse, J. (2013). Syntactic Islands and Learning Biases: Combining Experimental Syntax and Computational Modeling to Investigate the Language Acquisition Problem. *Language Acquisition*, 20(1):23–68.

Poeppel, D. and Wexler, K. (1993). The Full Competence Hypothesis of Clause Structure in Early German. *Language*, 69(1):1–33.

Radford, A. (1990). *Syntactic theory and the acquisition of English syntax: The nature of early child grammars of English*. Wiley Blackwell, Oxford.

Raposo, E. (1997). Definite/Zero Alternations in Portuguese: Towards a Unified Theory of Topic Constructions. In Schwegler, A., Tranel, B., and Uribe-Etxebarria, M., editors, *Romance Linguistics: Theoretical Perspectives*, pages 197–212. John Benjamins, Amsterdam.

Rizzi, L. (1993). Some notes on linguistic theory and language development: The case of root infinitives. *Language Acquisition*, 3(4):371–393.

Rizzi, L. (1997). The fine structure of the left periphery. In Haegeman, L., editor, *Elements of grammar*, pages 281–337. Kluwer, Dordrecht.

Roberts, I. (2021). *Diachronic Syntax*. Oxford University Press, Oxford, 2nd edition.

Roberts, I. and Roussou, A. (2003). *Syntactic change: A minimalist approach to grammaticalization*. Cambridge University Press, Cambridge.

Roeper, T. (1992). From the initial state to V2: Acquisition principles in action. In Meisel, J., editor, *The Acquisition of Verb Placement: Functional Categories and V2 Phenomena in Language Acquisition*, pages 333–370. Kluwer, Dordrecht.

Serratrice, L. (1996). The emergence of functional categories in bilingual first language acquisition. In *Proceedings of the Edinburgh Linguistics Department Conference 96*, pages 170–181.

Shlonsky, U. (2014). Topicalization and focalization: a preliminary exploration of the hebrew left periphery. In Cardinaletti, A., Cinque, G., and Endo, Y., editors, *Peripheries*, pages 327–341. H. Syobo, Tokyo.

Snider, N. and Zaenen, A. (2006). Animacy and syntactic structure: Fronted NPs in English. In Butt, M., Dalrymple, M., and King, T. H., editors, *Intelligent Linguistic Architectures: Variations on Themes by Ronald M. Kaplan*. CSLI Publications, Stanford.

Soares, C. (2003a). Computational complexity and the acquisition of the CP field in European Portuguese. In *Proceedings of ConSOLE*, pages 125–140.

Soares, C. (2003b). The C-domain and the acquisition of European Portuguese: The case of wh-questions. *Probus: International Journal of Romance Linguistics*, 15:147–176.

Soares, C. (2006). *La syntaxe de la périphérie gauche en portugais européen et son acquisition*. PhD thesis, University of Paris 8, Paris.

Tsimpli, I. M. (2005). Peripheral positions in early Greek. In Stavrou, M. and Terzi, A., editors, *Advances in Greek Generative Syntax: In honor of Dimitra Theophanopoulou-Kontou*, pages 179–216. John Benjamins, Amsterdam.

Vainikka, A. and Young-Scholten, M. (2011). *The Acquisition of German: Introducing Organic Grammar*. De Gruyter Mouton, Berlin.

Van der Linden, E. and Sleeman, P. (2007). Clitic dislocation: Evidence for a low topic position. In Los, B. and van Koppen, M., editors, *Linguistics in the Netherlands 2007*, pages 173–187. John Benjamins, Amsterdam.

van Urk, C. (2015). *A uniform syntax for phrasal movement: A case study of Dinka Bor*. PhD thesis, Massachusetts Institute of Technology, Department of Linguistics and Philosophy.

Westergaard, M. (2009). *The Acquisition of Word Order*. John Benjamins, Amsterdam.

Wolfe, S. (2021). *Syntactic Change in French*. Oxford University Press, Oxford.

Wolfe, S. (2022). Microvariation and change in the romance left periphery. *Probus*, 34(1):235–272.

Zhu, J. and Gavarró, A. (2019). Testing language acquisition models: null and overt topics in Mandarin. *Journal of Child Language*, 46(4):707–732.