

# V2 all the way down?

## Germanic innovations in the embedded CP of German-Italian bilinguals

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1. Introduction
2. Background
3. The data
4. Probing existing analyses
5. Proposal
6. Conclusion

## 2. Background









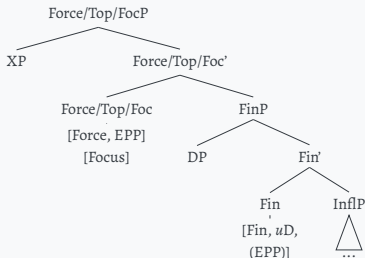




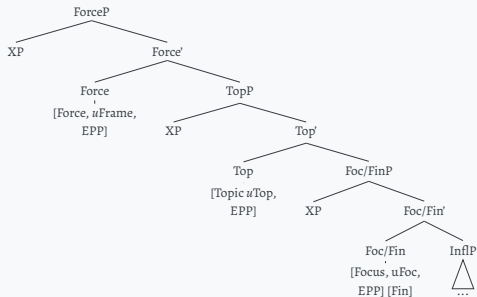




#### (4) Old English V3



(5) **Old Sicilian, Old Italian V4**



(Hsu, 2017: 18, 20)

## Background

## Embedded clauses and V2

Variation also in the extent to which embedded clauses are V-final or in whether V2 is also allowed. Broad (simplistic) macro-division often in terms of **symmetrical** and **asymmetrical** V2<sup>1</sup>. More specifically (Gärtner, 2016):

- **‘Well-behaved’ V2:** V2 is strictly asymmetric and occurs only in complementiser-less clauses.
  - German, Dutch and Afrikaans.
- **Narrow embedded V2 (*nEV2*):** V2 with complementisers, but in a constrained subset of contexts (e.g., linked to “assertion”).
  - Frisian and Mainland Scandinavian.
- **Broad embedded V2 (*bEV2*):** V2 occurs more broadly in embedded contexts.
  - Icelandic and Yiddish.

<sup>1</sup>See Biberauer (2002), Wiklund et al. (2009), i.a., for discussion of the issues in this classification.







## Embedded clauses and V2

- (8) Verb classes in Hooper & Thompson (1973: 473-74).
- a. **Class A – strongly assertive** (say, claim, report)
  - b. **Class B – weakly assertive** (suppose, believe, think)
  - c. **Class C – non-assertive** (doubt, deny, be (im)possible)
  - d. **Class D – factive** (resent, regret, be surprised)
  - e. **Class E – semi-factive** (know, realise, learn)



## Background

## Acquisition of (embedded) V2

**‘Basic’ V2**, including *topicalisation*, reported to be **early-acquired** (i.a., Boser et al., 1992; Poeppel & Wexler, 1993; van Kampen, 2010; Santelmann, 1995; Westergaard, 2009) → plausibly some (maybe simple) representation of CP at early stages.

**Acquisition of embedded word-order** varies across languages and learners.  
Lots of work on monolinguals:

- *Monolinguals*
  - Generally **V-final** order across the board in **West Germanic**, although with some errors reported (see Fritzenschaft et al., 1990, on Benny).
  - More **overgeneralisation** of Embedded V2 in **Scandinavian** languages (Westergaard & Bentzen, 2007; Heycock et al., 2013; Westergaard et al., 2014; Waldmann, 2014; Ringstad & Kush, 2021; Jensberg et al., 2024)





### 3. The data



### 3. The data

- 3.1. A precedent
- 3.2. Corpus study: Broad results
- 3.3. Corpus study: Fine-grained results



## 24/91

## A precedent

**Müller (1994, 1996, 2003)** – case-study of German-French bilingual Ivar.

Proposed explanations:

- **1994:** missetting of the V2 parameter ([+FINITE] and [WH] incorrectly assigned to different heads). Yiddish-like grammar.
- **1996:** abducting an ‘incorrect’, Yiddish-like grammar. *Not* a case of transfer.
- **2003:** *transfer* from French, as a ‘relief’ strategy in the face of ambiguous input.

## A precedent

**Müller (1994, 1996, 2003)** – case-study of German-French bilingual Ivar

- Outstanding questions
  - How widespread a pattern is Ivar's system?
  - What is the proportion of EV2 observed in other children?
  - 'Subparameters without triggering data'?
  - Need for more in-depth data collection: are there differences in word-order patterns across embedding markers in other children? (Schönenberger, 2001).
  - Current analyses contradictory: which one is empirically more successful?

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→ I take Müller (1994, *et seq.*) and the finer-grained analysis in Schönenberger (2001) as points of departure, and expand on their work.

## The data

**Corpus study** on the development of CP in 5 German-Italian (simultaneous) bilinguals. All *strongly balanced*, bar AUR (per metric in Hager & Müller, 2015).

- **Word-order in embedded clauses** and types of embedding markers produced.
  - V-final order, linear V2, linear V3 order, (ambiguous/other)?
  - Do all embedding markers display the same surface word-order?
  - If EV3, any restrictions on the type of subjects we observe? (Schönenberger, 2001).

	Files	Age	MLUw
AUR	42	1;09-4;00	1.03-4.47
CAR	70	1;08-5;07	1.0-5.20
LUC	52	1;06-4;00	1.0-4.30
LUK	63	1;07-5;00	1.0-4.70
MAR	68	1;06-5;00	1.03-4.57

**Table 1:** Children studied (Müller et al., 2006)

## The data

## Broad results

- Overgeneralisation of embedded V2 across 4 of the 5 children<sup>2</sup>.
- (11) a. Weil ich **hab** auch (recht)  
because I have too right  
'Because I'm also right.' (AUR, 3;09.01)
- b. Weiss ich nicht was **ist** das  
know I now what is this  
'I don't know what this is.' (CAR 2;09.25)
- c. Ja ist weich-e, wenn wenn **war** ich umgefallen  
yes is soft-FEM if if was I fallen  
'Yes, it is soft when I fell.' (CAR 2;11.23)
- d. Ich zeig dir wo der **fährt** mit 'm oller  
I show you where he drives with the scooter  
'I (will) show you where he is driving with the scooter.' (LUC, 3;03.04)

<sup>2</sup>I set AUR aside in the rest of the data presentation, but I will return to him later.



## The data

## Broad results

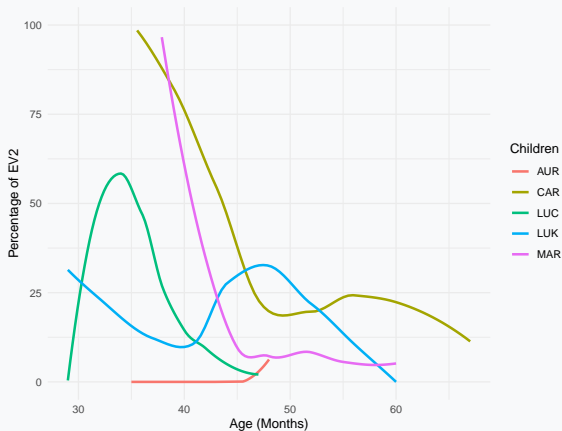
- Overgeneralisation of embedded V2 across 4 of the 5 children<sup>3</sup>.

- (12) a. Der muß runter gucken auf was **ist** passiert  
he must down look at what is happened  
'He must look down to what happened.' (LUK 2;07.15)
- b. Weil die hexe **hat** hier drin gesl- gemacht  
because the witch has here in gesl- made  
'Because the witch has made it in here.' (MAR 3;01.27)
- c. Ich zeig dir was **is** ein schwein  
I show you what is a pig  
'I (will) show you what is a pig.' (MAR 3;02.12)

<sup>3</sup>I set AUR aside in the rest of the data presentation, but I will return to him later.

# The data

## Broad results



**Figure 1:** Proportion of EV2 by child and age





# The data

## Broad results

- ! Point of inflection in EV2 proportion **coincides** with significant increase in production of V-final orders.

	EV2 start	EV2 decrease	V-final increase
CAR	2;08.21	<b>3;04.08</b>	<b>3;07.07</b>
LUC	2;07.30	<b>3;01.02</b>	<b>3;01.02</b>
LUK	2;07.29	<b>2;09.18</b>	<b>2;10.01</b>
MAR	3;01.27	<b>3;06.09</b>	<b>3;07.12</b>

**Table 3:** Rise and fall of EV2 vs V-final orders

- **Inverse correlation** between EV2 frequency and V-final frequency → suggesting a stage of overgeneralised EV2 before it is abandoned, even if it co-exists with V-final.

# The data

EV2 pre change-point	
CAR	100%
LUC	39.59%
LUK	47.14%
MAR	96.7%

**Table 4:** Proportion of EV2 before change-point in all children

# The data

## Finer-grained results

- By word order (V-final, linear V2, linear V3)
- By embedding marker
  - By presence/absence of (non-default) topicalisation.
  - By type of (default) subject observed (pronominal vs phrasal).

→ **Focus on EV2 stage (pre-change-point).**

# The data

## Zooming in – word order

- Like Schönenberger, we observe **two orders** in their EV2:

1. *complementiser*  $V_{fin}...$

**Linear V2**

2. *complementiser* XP  $V_{fin}...$

**Linear V3**

→ Where XP generally = Subject, with exceptions to come later.

- (13)
- Das sind für die bonbons, wenn **hab** *ich* geburstag  
this are for the chocolates if have I birthday  
'These/This are for the chocolates when I have my birthday' (CAR, 2;10.16)
  - Mama (hat) gesagt von (erster) nur nich wie **soll** *man* angucken  
mum has said of first only not how should one watch  
'Mama said from – from (first) – just not how you should watch.' (LUC, 2;07.30)
  - Nein gle- gleich wenn *das* **is** fertig dann trinkt die  
no gle- even when this is done then drink it  
'No, as soon as it is ready, drink it.' (MAR 3;05.11)





# The data

## Zooming in – word order

- **Linear V2** often emerges before **Linear V3** in the four children, and these structures co-exist thereafter.

	Linear V2	N	Linear V3	N
CAR	2;08.21	16	2;11.13	19
LUC	2;07.30	2	2;10.24	3
LUK	2;07.15	1	2;08.12	3
MAR	3;02.12	18	3;01.27	13

**Table 5:** Emergence of Linear V2 and V3 orders and attestations during EV2 stage

- Potentially suggestive of some stage-like development from Linear EV2 > EV3 (also insinuated in Schönenberger, 2001), but too small a sample.
- Additionally, Linear EV2 most common with *wh*-V2, out of all embedding contexts. *Weil* presents EV3 only.

# The data

## Zooming in – data by embedding marker

- (Non-target) EV2 with all of *weil* ‘because’, *wenn* ‘if/when’, *wh*-complements/relatives and (very rarely) *dass* ‘that’<sup>4</sup>.

## Children with *total absence* – before change-point

	<i>wenn</i>	%	<i>wh</i>	%	<i>weil</i>	%	<i>dass</i>	%	All	%
CAR	0-12	100%	0-12	100%	0-11	100%	–	–	0-35	100%
MAR	1-1	50%	0-17	100%	0-12	100%	–	–	1-30	96.7%
<b>Total</b>	1-13	7.1%	0-29	100%	0-22	100%	–	–	1-65	98.4%

**Table 6:** Proportion of EV2 by embedding marker before change-point

<sup>4</sup>Other complementisers like *ob* ‘whether’ or *als* ‘as/when’ are late-acquired, so not produced at the stage where EV2 is predominant.

## The data

## Zooming in – data by embedding marker

- (Non-target) EV2 with all of **weil** 'because', **wenn** 'if', **wh-complements/relatives** and (very rarely) **dass** 'that'<sup>5</sup>.

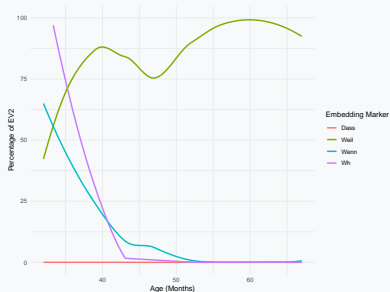
### Children with *total absence* – after change-point

	wenn	%	wh	%	weil	%	dass	%	All	%
CAR	86-7	7.5%	57-0	0%	13-195	93.8%	2-0	0%	158-202	56.1%
MAR	45-3	6.3%	57-4	6.6%	33-38	53.5%	7-0	0%	142-45	24.1%
<b>Total</b>	131-10	7.1%	114-4	3.4%	46-233	83.5%	9-0	0%	300-247	45.2%

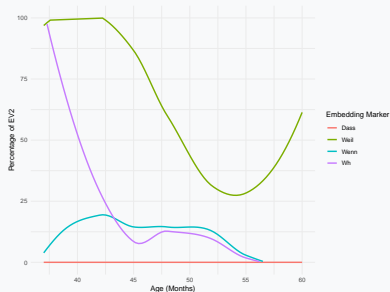
**Table 7:** Proportion of EV2 by embedding marker after change-point (CAR and MAR)

<sup>5</sup>Other complementisers like *ob* 'whether' or *als* 'as/when' are late-acquired, so not produced at the stage where EV2 is predominant.

## The data



**Figure 3:** CAR's proportion of EV2 by embedding marker (CAR and MAR)



**Figure 4:** MAR's proportion of EV2 by embedding marker

## The data

## Zooming in – data by embedding marker

- (Non-target) EV2 with all of **weil** ‘because’, **wenn** ‘if/when’, **wh-complements/relatives** and (very rarely) **dass** ‘that’<sup>6</sup>.

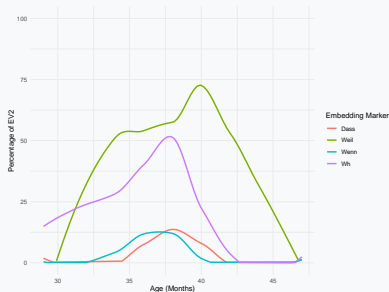
### Children with *partial absence* – all files

	wenn	%	wh	%	weil	%	dass	%	All	%
LUC	19-1	5%	14-4	22.2%	26-24	48%	13-2	13.3%	72-31	30.1%
LUK	70-0	0%	52-5	8.8%	69-36	34.3%	16-0	0%	207-41	16.5%
<b>Total</b>	89-1	1.1%	66-9	12.3%	95-60	38.7%	19-2	14.3%	279-72	20.5%

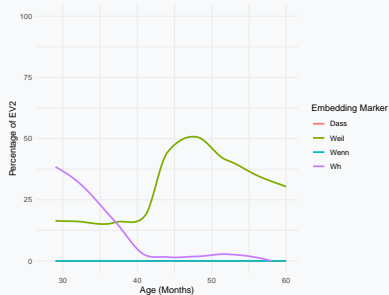
**Table 8:** Proportion of EV2 by embedding marker (LUC and LUK)

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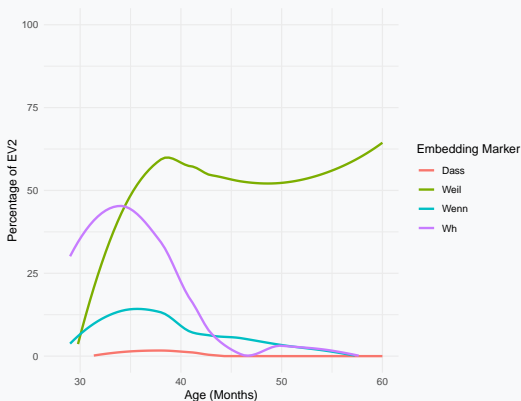


**Figure 5:** LUC's proportion of EV2 by embedding marker



**Figure 6:** LUK's proportion of EV2 by embedding marker

# The data

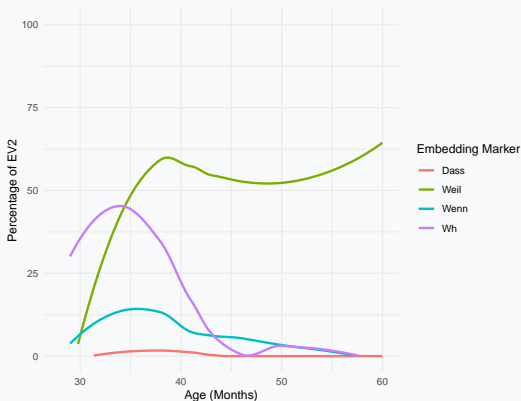


**Figure 7:** Proportion of EV2 by embedding marker, across all 4 children

<sup>7</sup>Which I set aside here, due to the small sample.



# The data



**Figure 7:** Proportion of EV2 by embedding marker, across all 4 children

**Potential additional pattern? *Wh*-V2 appears more likely to be overgeneralised than *wenn*-V2<sup>7</sup>**

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! **EV2 with wh-complements** → ungrammatical in almost all Germanic languages, including the most permissive (Vikner, 1995). With the exception of Afrikaans.

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! **EV2 with wh-complements** → ungrammatical in almost all Germanic languages, including the most permissive (Vikner, 1995). With the exception of Afrikaans.

- Not just frequent but seemingly **generalised to predicates that generally disallow embedded wh-V2**: *discover*-type or ‘resolutive’ predicates.

↪ *gucken* (‘look’), *wissen* (‘know’), *hören* (‘hear’), *sagen* (‘say’), *erklären* (‘explain’).

- Some fit the characterisation of Question Predicates (McCloskey, 2006), *but* often **without the illocutionary force of a true question**.

- (15) a. Ich **erklär** wo is das wasser denn  
           I explain where is the water then  
           ‘I explain where the water is, then.’ (MAR 3;05.11)
- b. Der möchte nicht **hören** was machst du  
       he want not hear what do you  
       ‘He doesn’t want to hear what you’re doing.’ (CAR, 2;10.16)

# The data

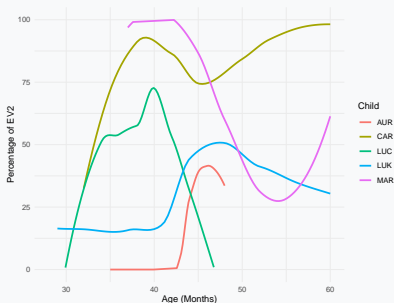
- ! Abundance of **EV2 with weil**, even after overall decrease in EV2.
- Generally felicitously used, though several ungrammatical structures exist, like (16a, 16c)<sup>8</sup>.

- (16) a. Kann keiner das kaputt machn **weil** da **is** klebe dran  
can no-one this broken make because there is glue on.it  
'No-one can break this because there is glue on it.' (MAR, 3;05.11)
- b. Das kann man aber nicht rausdrücken **weil** sonst **wär** das kaputt  
this can one but not push.out because otherwise would.be it broken.  
'But you can't push it out because otherwise it would break.' (LUC 3;05.00)
- c. Mother: Ja / aber guck ma das is der zweite ohne schuhe / diesn kung fu mann hier  
(den) (machen) wir (auch) (noch) (weg) / ja /  
Child: Ja **weil** das **is** ein räubaaa  
yes because this is a robbery  
'Yes because it's a robbery.' (consultant note: 'falscher Satzbau: "ist" muss am Ende stehen') (LUK, 4;02.28)

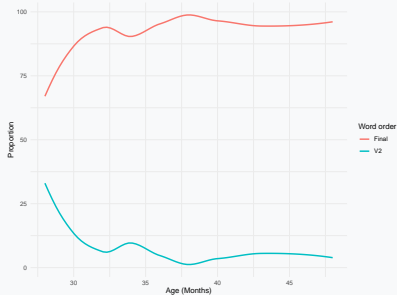
<sup>8</sup>Based on native consultation with German native speakers.

## The data

- This contrasts with *monolinguals*, e.g., Simone (Miller corpus), who appears to **default to V-final**.
  - In her production from 1;09 to 4;00, out of 284 *weil*-clauses, only 22 present EV2 – 7.7%.



**Figure 8:** Proportion of EV2 with *weil* across all the children



**Figure 9:** Proportion of EV2 with *weil* in a monolingual (Simone)

# The data

- CAR and MAR, and to a lesser extent, LUC, **default instead to EV2**.
- Adult-like distribution of *weil* achieved significantly later
  - ↪ **50%** EV2 with *weil* in **adult corpora** (Kempen & Harbusch, 2016).
  - ↪ Likely much *lower* in **child-directed speech**. MAR's adult input across all files (1;08-5;00) contains 62 *weil*-clauses, only 2 of which show V2 – **3.2%**.

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  - ↪ Likely much *lower* in **child-directed speech**. MAR's adult input across all files (1;08-5;00) contains 62 *weil*-clauses, only 2 of which show V2 – **3.2%**.
- **Semantico-pragmatic distribution** of word order with *weil* plausibly **not acquired yet** (Antomo & Steinbach, 2010): possibly prioritising instead a structurally-based hypothesis (Gagliardi, 2012) and/or due to pragmatic difficulties (Lewis et al., 2017).

## The data

- Finally, other embedding markers found, but they are produced **late** and so with V-final order: *damit* ‘so that’, *ob* ‘whether’, *als* ‘when’, *obwohl* ‘although’...
- Importantly, too, *Dass*-drop (‘Ø’ below) with bridge verbs (EV2) is also rare.

<i>damit</i>			<i>ob</i>		<i>als</i>		$\emptyset$	
CAR	11-0	3;04.22	18-0	4;03.09	23-0	4;01.00	20	4;02.11
LUC	4-0	3;01.12	1-0	3;10.29	2 (0)	2;11.07	1	3;04.15
LUK	3-0	3;04.25	5-0	2;11.26	5-0	4;01.20	4	3;08.03
MAR	—	—	2-0	4;08.09	—	—	3	4;10.11

**Table 9:** Attestations and emergence of other embedding markers



# The data

## Zooming in – embedding marker and topicalisation

! **Asymmetry** in which embedding markers present topicalisation with EV2.

- *Weil*-clauses with a (non-default) topic with EV2 are abundant. Very rarely, this is found with *dass*.

- (17) a. Weil **das** könn wir auch ziehn und das könn wir nich so  
because this can we also pull and this can we not so  
schieben  
push  
'Because we can pull this and we can't push that.' (CAR, 3;05.06)
- b. Weil **die** ham wir [s]on woanders geleg  
because it have we already elsewhere put  
'Because we have already put this somewhere else.' (LUC, 2;11.07)

# The data

## Zooming in – embedding marker and topicalisation

- ! **Asymmetry** in which embedding markers present topicalisation with EV2.
- *Weil*-clauses with a (non-default) topic with EV2 are abundant. Very rarely, this is found with *dass*<sup>9</sup>.

(18) a. Mama papa sagen dass da sind eier dinne / okay ↑  
 mum dad say that there are eggs in  
 ‘Mum (and) dad say that there are eggs in there.’ (LUC, 3;02.06)

→ Embedded topicalisation with *wenn* and *wh*-complements is systematically **unattested** when these present EV2<sup>10</sup>.

<sup>9</sup>Plausibly, the latter could simply be due to *dass* being later-acquired.

<sup>10</sup>With one exception in LUK: *Ich gucke, was da ist ist passiert* ‘I am looking at what happened there’

# The data

## Zooming in – embedding marker and type of subject

- Further, most embedding markers display an **apparent restriction on subject types**, bar *weil* (as in Schönenberger, 2001).
- Particularly true of *wenn* ‘if’, plausibly also *wh*-complements.
- Almost always **pronominal** subjects follow  $Comp \rightarrow Comp\ Subj_{pron}\ V_{fin} \dots$

	Subj <sub>pron</sub>	Subj <sub>DP</sub>	Topic
CAR	13 ( <i>wenn</i> ), 3 ( <i>wh</i> ), 84 ( <i>weil</i> )	1 ( <i>wh</i> ), 26 ( <i>weil</i> )	31 ( <i>weil</i> )
LUC	1 ( <i>wenn</i> ), 1 ( <i>wh</i> ), 14 ( <i>weil</i> )	3 ( <i>weil</i> )	7 ( <i>weil</i> ), 2 ( <i>dass</i> )
LUK	2 ( <i>wh</i> ), 10 ( <i>weil</i> )	–	6 ( <i>weil</i> )
MAR	1 ( <i>wenn</i> ), 1 ( <i>wh</i> ), 18 ( <i>weil</i> )	5 ( <i>weil</i> )	16 ( <i>weil</i> )

**Table 10:** Type of subject by embedding marker during the EV2 stage

# The data

## Zooming in – embedding marker and type of subject

- What causes this? Two options:
  1. **Syntactic cause** – Schönenberger (2001): grammatical constraint on subjects and embedding markers, which follows from their structural position and the nature of pronominal items at this developmental stage.
  2. **Extrasyntactic cause**: frequency? distribution of pronominal vs non-pronominal items in child speech?

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### Zooming in – embedding marker and type of subject

- What causes this? Two options:
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    2. **Extrasyntactic cause**: frequency? distribution of pronominal vs non-pronominal items in child speech?
- I argue against (1) → **V-final clauses show the same skew, especially at early stages, suggesting it cannot be (only) due to the syntactic derivation of EV2.**

# The data

- Even V-final *wenn* clauses display very few cases of non-pronominal subjects.
- Non-pronominal subjects emerge late, often *after* EV2 has been retracted from, and holds for children who do *not* show an EV2 stage (AUR).

	V-final <i>wenn</i>	Subj <sub>DP</sub>	Start	End of EV2 stage
AUR	35	1 (2.9%)	3;09.01	No EV2
CAR	86	10 (11.6%)	4;02.25	3;04.08
LUC	19	2 (10.5%)	3;01.02	3;01.02
LUK	70	6 (8.5%)	2;10.01	2;09.18
MAR	46	3 (6.5%)	4;00.13	3;06.09

**Table 11:** Non-pronominal subjects with V-final *wenn*

→ Suggests a **skewed distribution** in pronominal/non-pronominal subjects of **potentially wider scope**, independent of EV2.

# The data

## Interim summary: explananda

1. Total or partial absence of V-final at early stages.
2. Inverse correlation between frequency of V-final and EV2.
3. Co-existence of EV2 and EV3.
4. EV2 observed with all of *wenn*, *weil*, *wh*-complements and (rarely) *dass* – but with *differential* behaviour.
5. *Weil* (and possibly *dass*) allow topicalisation with EV2; *wenn* and *wh*-complements do *not*.

# The data

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  3. Co-existence of EV2 and EV3.
  4. EV2 observed with all of *wenn*, *weil*, *wh*-complements and (rarely) *dass* – but with *differential* behaviour.
  5. *Weil* (and possibly *dass*) allow topicalisation with EV2; *wenn* and *wh*-complements do *not*.
- ↪ Highly parallel to the description in Schönenberger (2001), and, partly, to Müller (1994, *et seq.*).
- However, apparent skew in subject types is a by-product of the distribution of (non-)pronominal subjects.



## 4. Probing existing analyses







## The data vs existing analyses

- Recall *wh*-V2 unexpected, given the typology in modern Germanic. Some evidence that it's genuine V2 (in at least some children) – movement above negation and adverbs, cf. Danish examples below.

(22) Jeg ved ikke...

I know now...

- ... hvorfor koen *altid* **står** inde i huset
- \*... hvorfor koen **står** *altid* inde i huset
- ... why cow-the (stands) always (stands) inside in house-the

(Vikner, 1995: 73)



















## 5. Proposal



## My analysis

- Point of departure: **extension** of a *Germanic* pattern (V- and XP-movement to CP) that is subsequently **formally integrated** into the bilinguals' German.
- Analysis in terms of elaboration or **complexification of the embedded CP**.
- **My initial assumptions/aims:**
    - Minimal ontology/machinery. Maximal role of third factors and input (Chomsky, 2005).
    - Emergent syntactic categories → Emergent cartography (or comparable structure) (i.a., Ramchand & Svenonius, 2014; Scontras et al., 2017; Biberauer & Roberts, 2015; Leivada & Westergaard, 2019; Larson, 2021).
    - Supporting, *to the extent possible*, the representations assumed during development with empirical data.







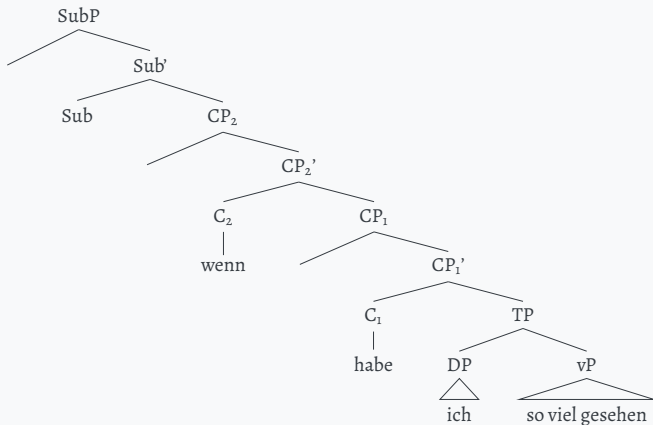




# My analysis

## Syntactic account

- (25) Ich bin da drauf, wenn war ich, war so krank, **wenn habe ich** so viel gesehen











## My analysis

(Partial) developmental account

- First, the ‘status’ of the system, the CP and the knowledge in play *before* embedding is acquired.
- I assume **early development of (some form of) the CP** (like Continuity, inward maturation, i.a.) *pace* bottom-up maturation (cf. Radford, 1990, *et seq.*).
- All 5 children support this (Bosch & Biberauer, to appear).

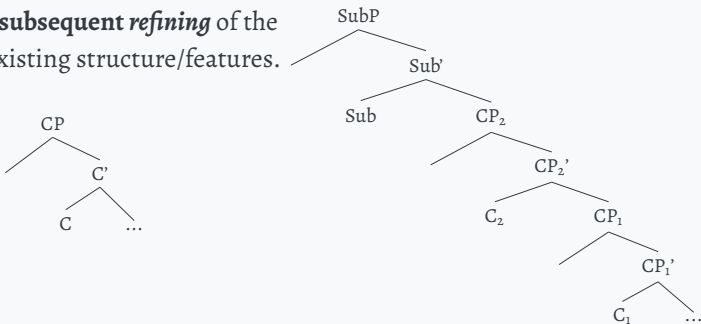
	V2	Wh-Q	Y/N-Q	Top/Foc	Embed
HEL	1;09.11	1;09.11	1;09.11	1;11.00	2;02.18
SIM	2;02.11	2;03.11	2;03.25	2;03.11	3;01.03
AUR	2;10.10	3;05.11	2;10.10	2;10.10	2;11.18
CAR	1;10.08	1;10.08	1;10.08	1;11.12	2;08.21
LUC	2;01.19	2;05.16	2;05.16	2;02.22	2;06.13
LUK	2;03.06	2;03.06	2;03.06	2;04.09	2;05.06
MAR	2;00.16	2;04.16	2;04.16	2;04.16	3;01.27

**Table 12:** Emergence timings of CP-structures in their Germanic languages.

## My analysis

## Syntactic account

- Insofar as CP emergent, this **leaves room for subsequent *refining*** of the already-existing structure/features.



## My analysis

(Partial) developmental account

## Main clauses

- **CP is early acquired** → following Biberauer & Roberts (2015) (among several others, Soares, 2006; Roeper & de Villiers, 2011; Ramchand & Svenonius, 2014), this is initially a *basic* CP.
  - Eventually **PLD ‘forces’ a more expanded (main-clause) CP** → to acquire main-clause phenomena that require more CP-structure.
    - Frame setters, Contrastive Left Dislocation, Hanging Topic Left Dislocation → Haegeman & Greco (2016), particularly exploited in urban vernaculars (Walkden, 2017; Meelen et al., 2020; Sluckin, 2025).
- That these more articulated CP-structures emerge late has independent support in Germanic but, particularly, in Romance (Soares, 2006; Bosch, 2023; Bosch & Biberauer, to appear).

























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