On the formal heterogeneity of expletive subjects

New insights from acquisition

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Introduction

Subject drop in acquisition

- Children known to drop (compulsory) subjects, especially in Germanic – both **referential** and **expletive**, and in finite but, especially, so-called *Root Infinitive* contexts.

(1) a. Want more apple.
b. Tickles me.
c. French
Dormir petit bébé.
sleep.INF small baby
'Little baby sleep.'
d. German
bin wieder lieb
am again good
'(I) am good again.'

(Bloom et al., 1975; Hamann and Plunkett, 1998; Hamann, 1996)

(2) a. Outside cold.
b. That's cold (referring to weather).
c. Yes, is toys in there.

(Hyams, 1986, p. 63)

Subject drop in acquisition

- Several (not mutually-exclusive) factors proposed to account for subject drop in acquisition.
  - ↪ **Competence** (morphosyntactic) factors (Hyams, 1986; Hyams and Wexler, 1993, *et seq.*; see also Rizzi, 1994, on the Root Infinitive stage).
  - ↪ **Performance** factors, e.g., VP-length (Bloom, 1970; Valian, 1991; Valian and Aubry, 2005).
  - ↪ **Pragmatic** factors, e.g., topicality (Valian et al., 1996; Hauser-Grüdl, 2010).
- These either treat subjects as fully **developmentally homogenous**, or partly so (e.g., Hyams, 1986, who distinguishes [±referential]).

Introduction

→ **Subjecthood** nonetheless a morphosyntactically **distributed** notion (McCloskey, 1997; Svenonius, 2001; Poole, 2016).

- Furthermore encodes both properties known to be:
  - **Early acquired** – argument structural properties (Lidz, 2022).
  - **Late acquired** – (fine-grained aspects of) topicality (Grinstead, 2004; Serratrice et al., 2004; Friedmann et al., 2021).

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⑦ Are all subject *types* equally affected by pronoun drop?

- Conflicting results to date: comparable rates for expletives vs. referential subjects in Hyams (1986), but cf. Valian (1991).
  - → But NB: not all possible distinctions made in the studies (e.g., expletive types).

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- **This paper**: challenge the (perceived) **developmental homogeneity** of subject types with evidence from *expletive types*.
  - **We show:** Subject production in German, Dutch and English exhibits an **asymmetry** – *existential* (and other pure) expletives almost always overtly expressed; *weather* expletives heavily omitted.

↪ Complexifies the **ontogeny-phylogeny link**: historical development of expletives *at first sight* does not (fully) map onto developmental trends.

Roadmap

1. Introduction
2. Selective subject drop in West Germanic children
   - Methodology
   - Results
   - Ruling out alternatives – VP length
3. Analysis and implications
   - Previous analyses
   - Proposed learning path: successive differentiation of subject-types
   - Diachronic implications
4. Conclusion

Selective subject drop in West Germanic children

The corpus study: methodology

- Corpus study on **12 German**, **10 English** and **7 Dutch** children in CHILDES.

Language	Corpus	Files analysed	Age range	MLUw range	Total utterances
German	Miller	111	1;03-4;00	1.09-6.01	45111
	Koch	143	2;00-2;09	1.0-4.71	45890
	Leo	375	1;11-2;11	1.0-9.9	109526
	Caroline	236	0;01-4;03	1.0-6.55	22825
	Rigol	340	0;00-3;11	1.47-4.82	43641
Total / range		1094	0;00-4;03	1.0-9.9	266,993
English	Brown	214	1;06-5;02	1.48-4.94	87497
	Manchester	245	1;00-3;08	1.11-3.63	125030
Total / range		459	1;00-5;02	1.11-4.94	212,527
Dutch	van Kampen	124	1;06-5;02	1.07-6.07	40111
	Groningen	275	1;05-3;07	1.02-4.01	58752
Total / range		399	1;05-5;02	1.02-4.94	98,863

Table 1: Children studied and summary information

Structures studied

- Quantified all expletive types (weather, existential, impersonal, 'anticipatory', etc.) and their omission.
- Focus on **weather** vs. **existential** here: $N = 1293$ utterances with expletives, in 1524 obligatory contexts (461 weather vs. 1063 existential). This included, very broadly:
  - EXPL + Weather V & EXPL + COPULA + Adj (e.g., cold, hot...).
  - Structures denoting existence and/or location, usually of form EXPLETIVE + COPULA.
  - Cases of potential 'presentationals' with the same structure (EXPL + COPULA) *not* distinguished here from existentials.
- **Finite contexts** considered only: any null expletives reported therefore do *not* correlate with Root Infinitives.

Structures studied

	Weather	**Existential**
German	Expletive *es* Verbs: *regnen, schneien, donnern* Adjectives (+ copula): *kalt, heiss, warm, dunkel* (both SV and VS orders)	Expletive *es* *Es* + copula *Es gibt* construction (both SV and VS orders)
English	Expletive *it* Verbs: *rain, snow, thunder* Adjectives (+ copula): *cold, hot, warm, dark*	Expletive *there* *There* + copula
Dutch	Expletive *het* Verbs: *regen, sneeuwen, donderen* Adjectives (+ copula): *koud, heet, warm, donker* (both SV and VS orders)	Expletive *er* *Er* + copula *Er* + *liggen* ('lay'), *zitten* ('sit'), *staan* ('stand') (both SV and VS orders)

Table 2: Weather vs. existential constructions in German, English, and Dutch.

Results: children selectively drop expletive subjects

- Expletive drop is *not* homogeneous: it affects **weather expletives** in particular (53.3% null across all files), with **existential expletives** being largely overt (6.1% null; $W = 17$, $p < .0001$).

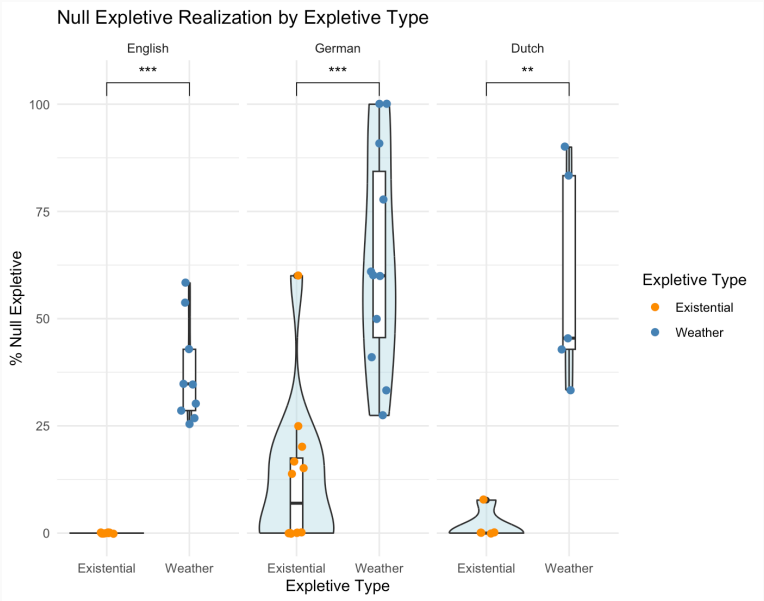

Figure 1

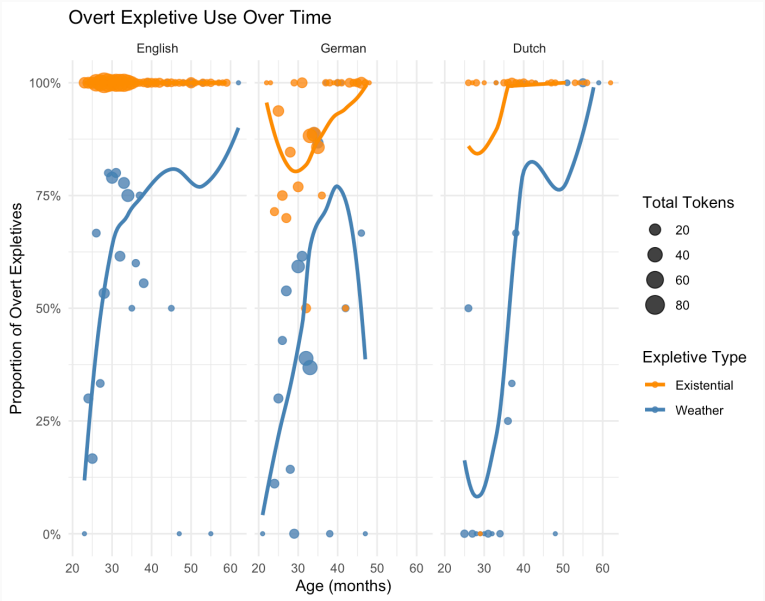

Figure 2

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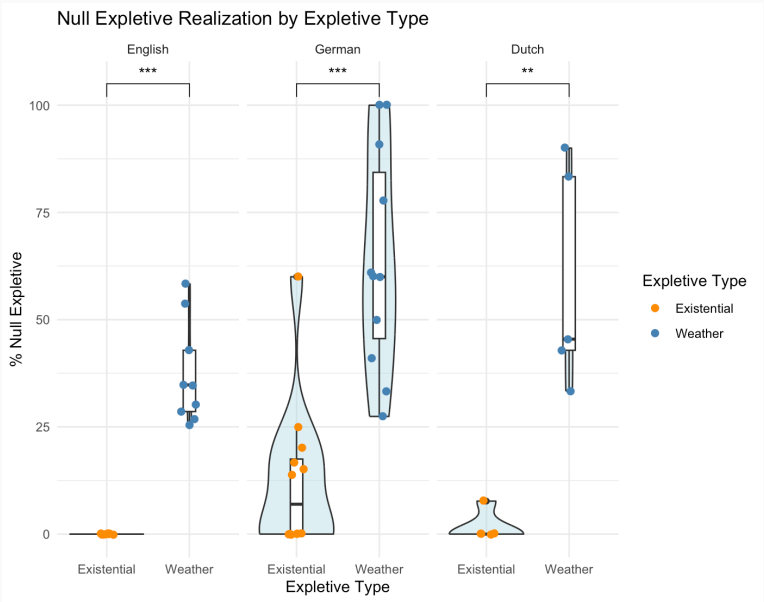

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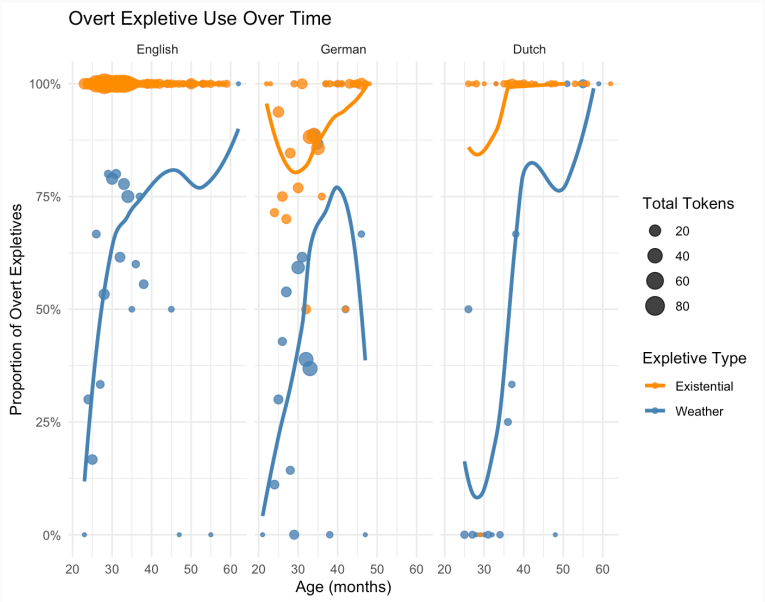


Figure 2

- **Important**: referential subjects pattern differently – usually overt in Germanic children in finite contexts (mean NS rate of 30% for age <2;6 and a rate of 5–11% >2;6; Valian, 1991).

Results: children selectively drop expletive subjects

(3) a. *Nou* ***regent***. *(Dutch, Matthijs, 2;04.24)*
now rains

'Now (it) is raining.'

b. ***Ist*** ***kalt*** *im Winter (German, Leo, 2;04.17)*
is cold in-the winter

'(It) is cold in winter.'

c. ***It***'*s* ***raining*** *out there. (English, Gail, 2;06.09)*

d. *Eine Sonne* ***gibt*** ***es*** *da (German, Caroline, 2;06.24).*
a sun gives it there

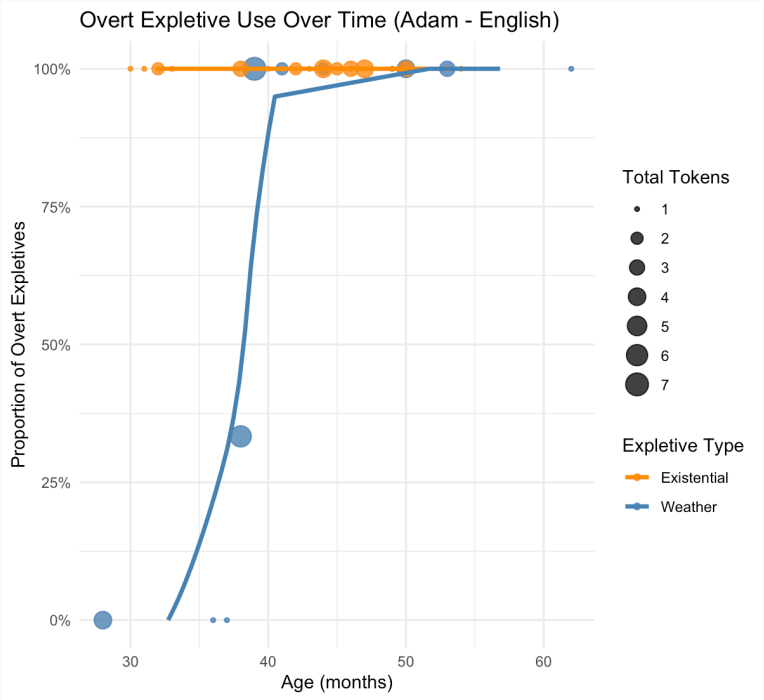
'There is a sun there.'

e. ***Is*** *nog meer in (Dutch, Laura, 3;00.18).*
is yet more in

'(There) is more in.' (in response to 'Do you want more yogurt?')

The change is often sudden

- **Zooming in**: First, drop with weather expletives is abundant early on, with later *abrupt* retraction in several children (esp. English and Dutch).



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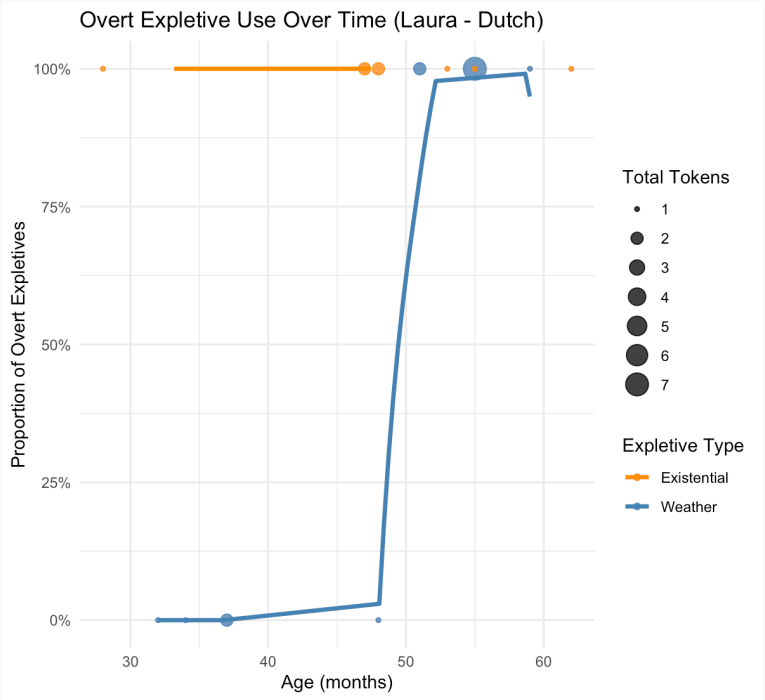

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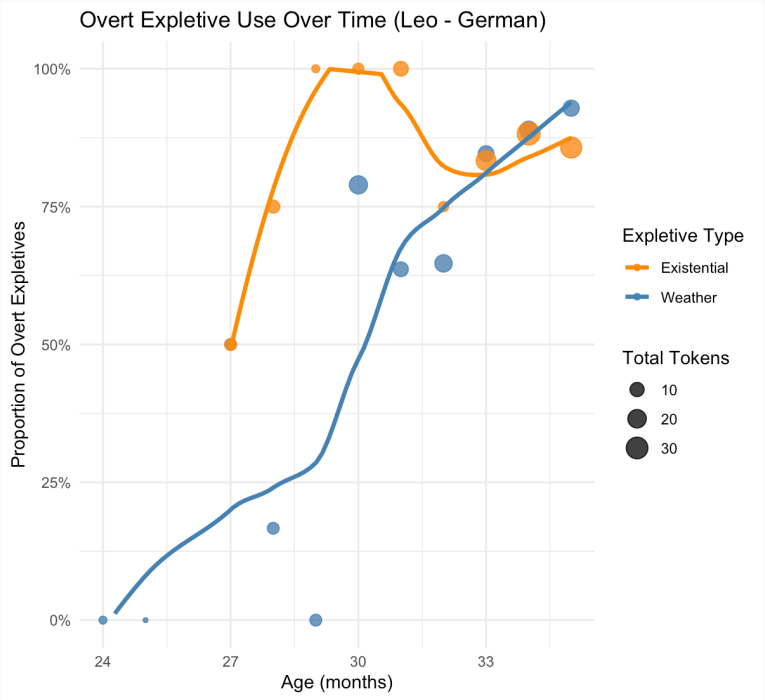

Figure 5

Emergence of obligatory contexts

- Second, **obligatory contexts** (predicates) for weather/existential expletives emerge (more or less) *simultaneously* ($V = 62$, $p = 0.1891$).

	Weather		**Existential**	
Language	Mean	SD	Mean	SD
English	25	1.58	26.4	3.97
German	26.9	3.59	27.8	4.53
Dutch	27.2	2.95	31	5.7

Table 3: Age of emergence (months) of obligatory contexts by expletive type

→ Acquisition of the relevant predicate(s) not independently responsible for the (lack of) delay in expletive production.

Impersonals in early talkers

- Third, the generalisation is *broader* and extends to **impersonals** in the children who produce them.
- **Merit (German)**: syntactically advanced child (recordings at 2;00 begin at 3.6 MLUw).
  - ! Embedding constructions and passives present from the first recording.

(4) a. *Der kommt da hin, so, jetzt* ***wird*** *hier mal ein herum* ***gemacht****. (2;00.24)*
he comes there in so now becomes here once one around made

'He comes there, so, now something/one thing will be made around here.'

b. ***Wenn*** *der Leon sich wehgetan hat, das ist doch nichts. (2;00.21)*
when the Leon himself hurt has that is though nothing

'When Leon hurts himself, it's nothing after all.'

c. *Und die kann ich sitzen lassen* ***s(o) lang als*** *kein(en) Papa hat. (2;00.28)*
and she can I seat let so long as no dad has

'And I can leave her as long as she doesn't have a dad.'

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→ **Merit (German)**: Initial stage with ***no* overt weather expletives** (11 obligatory contexts) – first 15 files (2;00.21-2;01.18)

↪ But two overt **impersonals** (none null).

↪ 14 overt **existentials** (out of 16 contexts).

(5) a. *Da* ***regnet*** *Ø auch.* *(2;00.21)*
there rains too

'There (it) also rains.'

b. *Aber das passt wenn Ø nicht* ***regnet****.* *(2;00.23)*
but this passes when not rains

'Aber this is fine when it rains.'

c. *Aber das passt nicht so länger, als das Ø so* ***regnet****.* *(2;00.23)*
but this passes not so longer when that Ø so rains

'But this doesn't work anymore when it rains like this.'

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(6) a. ***Es*** ***wird*** *nich(t)* ***ges(p)ielt*** *(2;00.22)*
it become not played
'It will not be played (≈ we will not play).'

b. *Da* ***gibt*** ***(e)s*** *kein Wasser, sagt die große Mutter. (2;01.01)*
there gives it no water says the big mother
'There is no water there, says the grandmother.'

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→ Early-talker following the same developmental patterns. Further, *overt* **impersonal** expletives co-existing with null weather expletives.

Selective drop isn't conditioned by VP-length

- Strongest non-syntactic alternative proposed: **VP-length** (Bloom, 1970; Valian, 1991, see also Hyams and Wexler, 1993).

→ Fourth, **VP-length *not* at fault**: weather constructions with null expletives show *shorter*, not longer, VP-lengths (mean = 2.31, vs. 3.50 words for (overt) existentials, $W = 15220$, $p < .0001$).

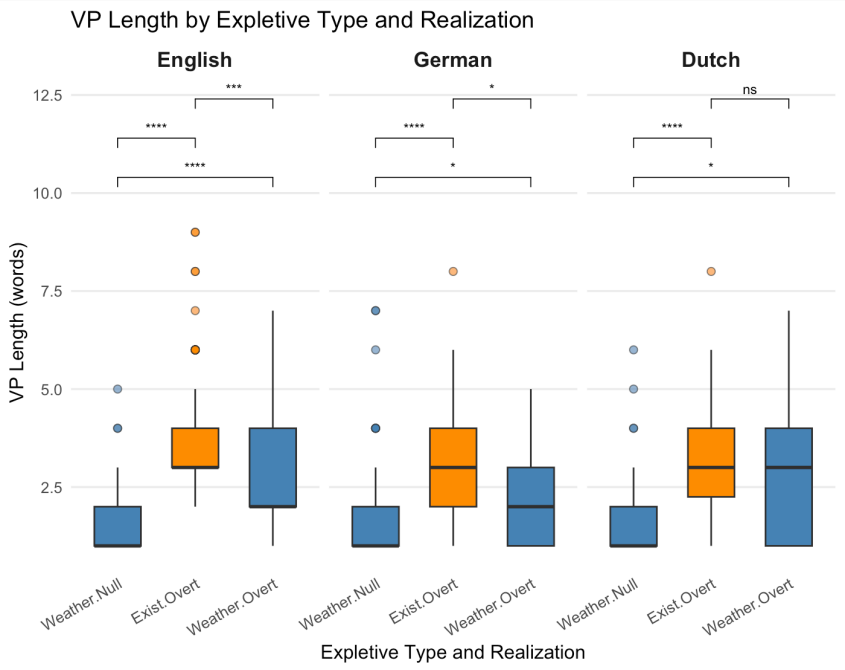

Figure 6

Taking stock

To sum up

1. Referential subject drop correlates primarily with Root Infinitives (e.g., Hyams, 2011).
   - ! Expletive subjects are dropped in *finite contexts*.
2. Expletive drop is furthermore *not* uniform: subject drop targets weather expletives, not existentials.

↪ Therefore, a novel **three-way asymmetry**.

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↪ Therefore, a novel **three-way asymmetry**.

3. Change to overt production is **sudden** – often taken to support categorical, representational changes (Snyder, 2021).
4. The asymmetry is *not* specific to weather vs. existential expletives. It preliminarily **extends to impersonals**, which pattern with existentials.
5. The asymmetry is **not attributable to (some) independent factors** (emergence of obligatory contexts, VP-length).

A grammatically-conditioned asymmetry

- **Our conclusion**: this is a three-way ***grammatically-conditioned asymmetry***.
- **Developmental heterogeneity** requires a competence-based explanation that accounts for.
  - The formal difference between referential vs. weather vs. existential expletives.
  - And *also* their relative acquisition ordering.

The asymmetry

Expletive drop selectively targets weather expletives, not existentials/impersonals. Referential subjects are generally only omitted in Root Infinitive contexts.

↪ Asymmetry holds largely *irrespective* of the overt expletive forms (e.g., syncretic vs. non-syncretic).

Analysis and implications

Previous analyses

- However, existing competence-based analyses too limited:
  - **Hyams (1986), Hyams and Wexler (1993), *et seq.***: default setting to [±pronominal] AGR.
  - **Orfitelli and Hyams (2012)**: NS stage in both production and comprehension.
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→ Extant competence *and* performance accounts together too 'coarse-grained' → **omissions cannot be reduced to [±referential]**.

Successive differentiation of subject-types

Our proposal

- We draw on Rizzi (1986)'s tripartite typology of *pro*s: $pro_{[\text{REFERENTIAL}]}$, $pro_{[\text{EXPL-ARG}]}$ ('pure' expletives), $pro_{[\text{EXPL+ARG}]}$ ('quasi-argumental' expletives).
  - Two features define this typology: [±referential] and [±argumental].
  - Crucially, *fixed* (UG-based) and *flat* feature bundles.

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  - Two features define this typology: [±referential] and [±argumental].
  - Crucially, *fixed* (UG-based) and *flat* feature bundles.
- Perspective we adopt: linguistic categories are acquired (at least partly) *emergently* through **differentiation/granularisation** (i.a., Dresher, 2009; Biberauer and Roberts, 2015; Song, 2019; Douglas, 2024).
  - More 'generic/coarse' natural classes acquired before 'finer-grained' ones.

→ **Subject/nominal acquisition learning path**: *'stratifying'* Rizzi's typology. ***Maximally contrastive*** natural classes first, before finer-grained elaboration of features of subject-types (i.a., Dresher, 2009; Cowper and Hall, 2014; Biberauer and Roberts, 2015; Biberauer, 2019).

↪ Earlier-acquired features/contrasts form the basis of extension and elaboration for later-acquired (finer-grained) distinctions.

Successive differentiation of subject-types

Some existing differentiation-related proposals

→ NO>ALL>SOME (Biberauer and Roberts, 2015) and Successive Division (Dresher, 2009) view on learning paths.

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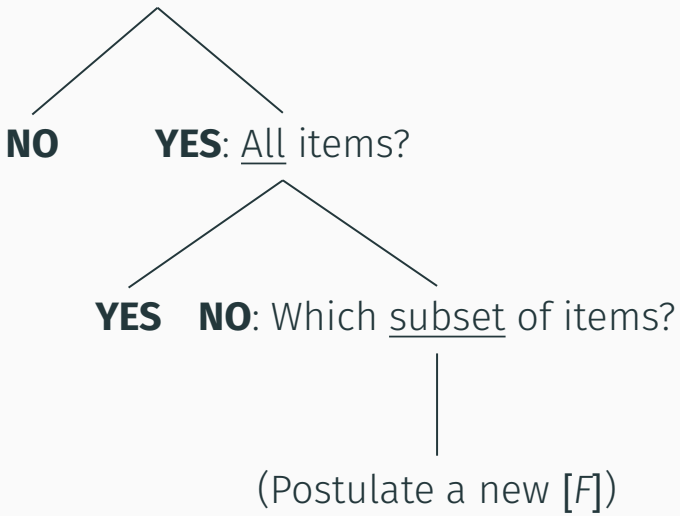

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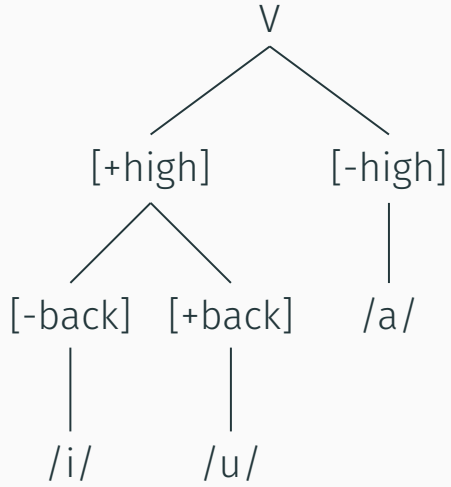

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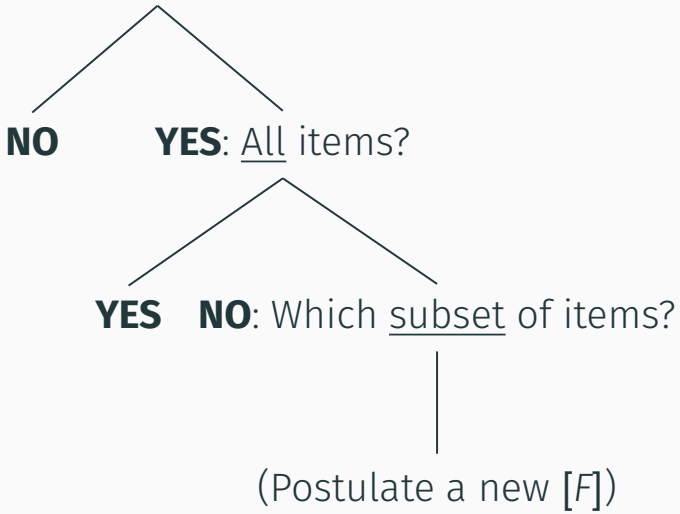

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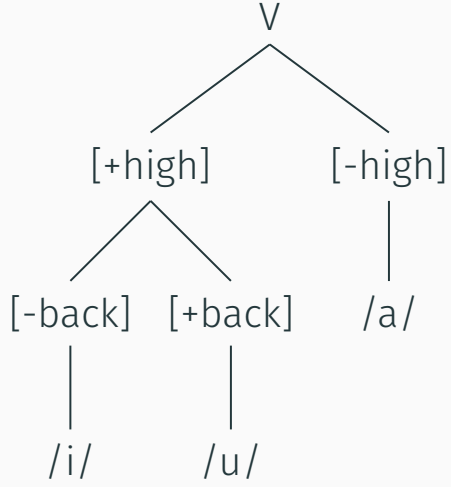

↪ **Same logic for 'carving out' the subject space**: [F]s encoding the differences subject types are not all equally accessible for the child at the start.

Successive differentiation of subject-types

→ **Attempt 1** **A subject-centred acquisition learning path**: *'stratifying'* Rizzi's original typology.

- Premise: [±referential] 'ranked' before [±argumental] in the differentiation tree. Why?
  - [±referential] concerns more accessibly 'reality'-anchored notions, e.g., a visible and perceptually salient entity (Bambini and Torregrossa, 2010).
  - [±argumental] highlights a *grammar-internal* contrast – arguments vs. adjuncts.

1. **Referential** subjects appear to be established first → **[+referential]** posited for those subjects.
2. [+referential] is set against **[-referential]** elements, where **existentials** are picked out as maximally contrastive with referential subjects.
3. **[±argumental]** kicks in later, ultimately differentiating between two thus-far unacquired types – **quasi-argumental** vs. non-argumental subjects.

Successive differentiation of subject-types

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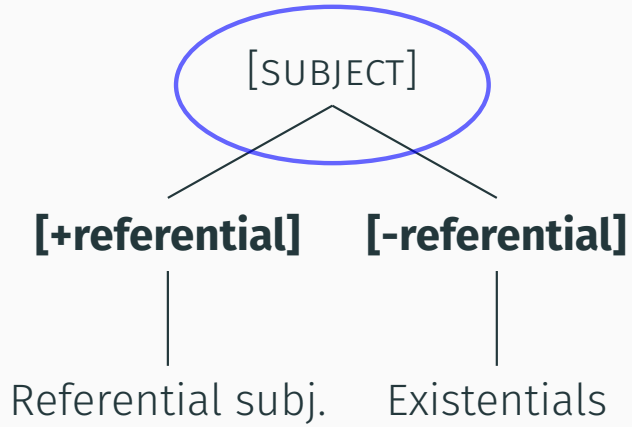

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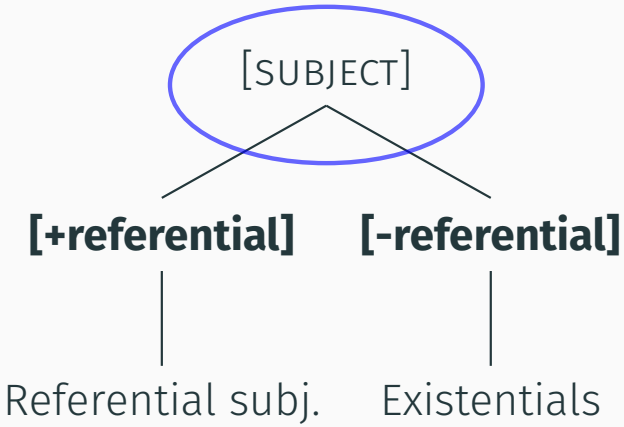

(11) Step 2 (Germanic)

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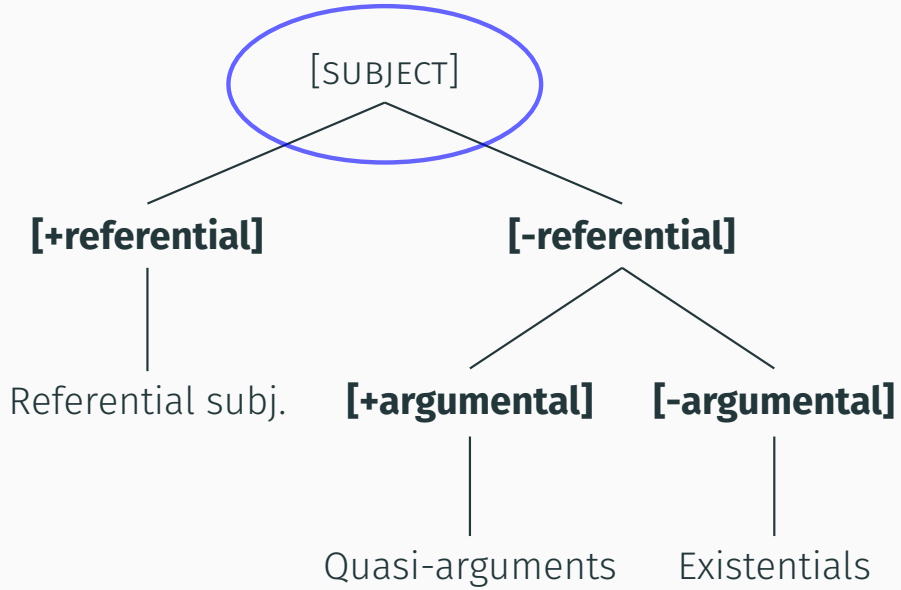
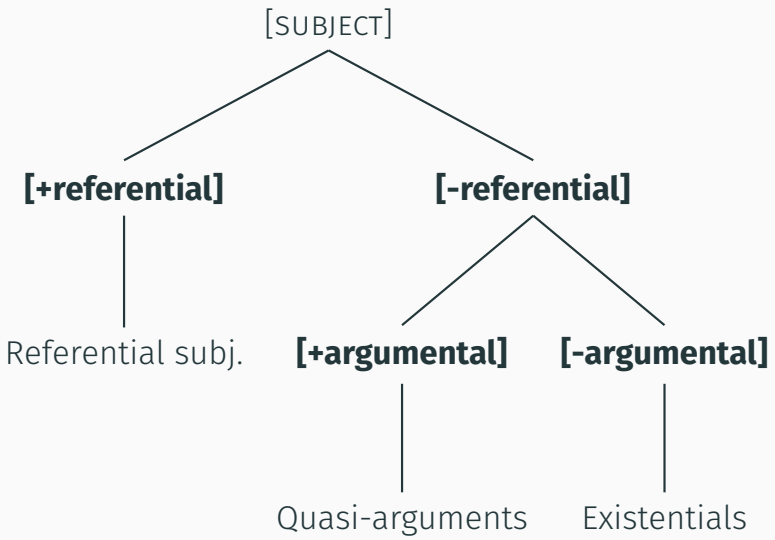


Successive differentiation of subject-types

- However, resulting account is *still* too limited:
  1. Why are 'existentials' acquired first within [-referential]? Why are quasi-argumentals hard?
  2. [+referential] inaccurately lacks [±argumental] specification, under this implementation.
  3. How does the development of subjects fit in with other nominal elements also specified for [±referential, argumental]?



Successive differentiation of subject-types

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Successive differentiation of subject-types

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→ **Proposed way forward:** *go beyond* Rizzi's (1986) featural typology to understand acquisition. Change the level of analysis:

- Focus on children's categorisation and development of ***nominal ([N]-specified) elements*** broadly (incl., but not just, subjects).
- And how the acquisition of featural distinctions here impinges on children's encoding of subject and expletive types.

Successive differentiation of subject-types

↪ **Attempt 2** Understanding expletive development through the lens of **an acquisition path for nominal elements broadly**.

- **Same differentiation and granularisation logic as above:** [F]s encoding the differences between subject types are not all equally accessible for the child at the start.

Successive differentiation of subject-types

↪ **Attempt 2** Understanding expletive development through the lens of **an acquisition path for nominal elements broadly**.

- **Same differentiation and granularisation logic as above:** [F]s encoding the differences between subject types are not all equally accessible for the child at the start.
- **Two additional tools:**
  1. *Additional feature*, **[±topic]** – to understand which nominal distinctions are picked out first.
     - Topic-comment distinction early acquired: salient entity identified by speaker (TOPIC), about which information is provided (COMMENT) (i.a., de Cat, 2007; Krifka, 2008; Bambini and Torregrossa, 2010; van Kampen, 2010; Bosch and Biberauer, 2025).
  2. Follow **'Big DP' analyses** (i.a., Kayne, 1994; Uriagereka, 1995) in taking *existential* expletives to derivationally start with their *associates* → **[Expletive [$_{DP}$ Associate]]**
     - ! This does *not* hold of weather expletives, which are acquired as independent DPs.

Successive differentiation of subject-types

- Connection between [TOPIC] and Big DP analyses of existentials.
  - Associate in existentials is necessarily non-topical – existentials/presentationals are rhematic structures.

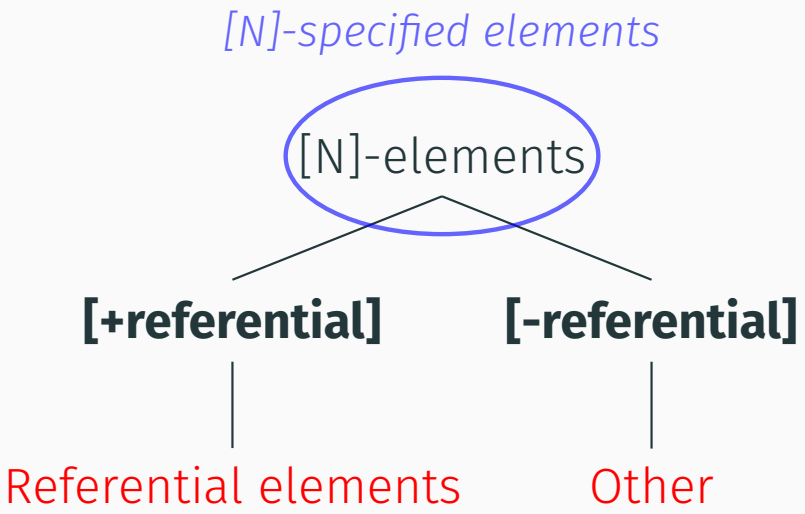
  → The existential expletive will *also* then be [-topic].

→ Acquisition of [±topic] in referential subjects will then have knock-on effects for existentials, in a way that does *not* apply to weather expletives → **[±topic] helps flesh out the featural specification of the former only.**

Successive differentiation of subject-types

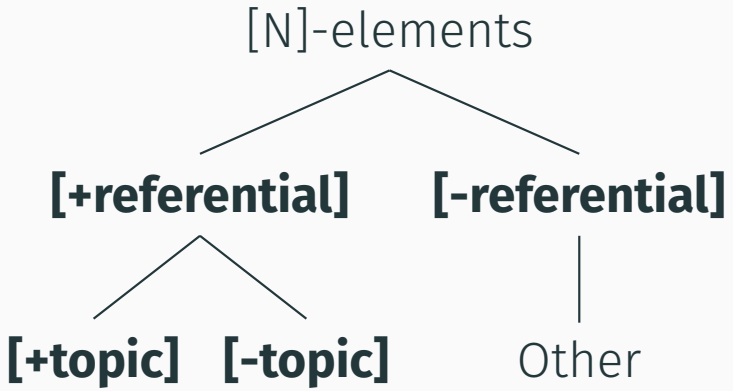
↪ **Attempt 2** understanding expletive development through the lens of **an acquisition path for nominal elements generally**.

1. **Step 1** (early acquired): distinguish [+referential] (e.g., visible/distinguishable entities) from other nominal elements.



Successive differentiation of subject-types

2. **Step 2** (also early acquired): distinguish between [+topic] and [-topic] in the domain of visible/distinguishable entities (see Krifka, 2008; Bambini and Torregrossa, 2010; van Kampen, 2010, on early acquisition of topic-comment).



Successive differentiation of subject-types

2. **Step 2** (also early acquired): distinguish between [+topic] and [-topic].
   → This crucially gives us a handle on why **existentials** would be formally encoded early within the [-referential] class – specification of [-topic] in the (referential) associate will impact existentials.

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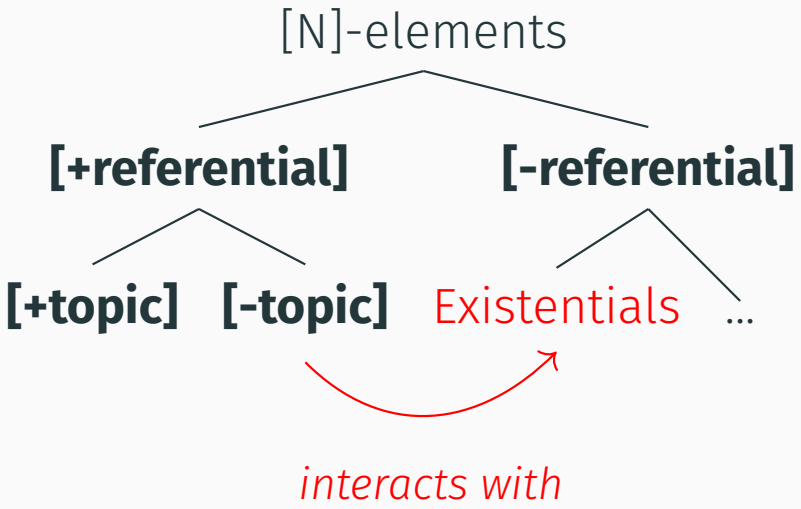

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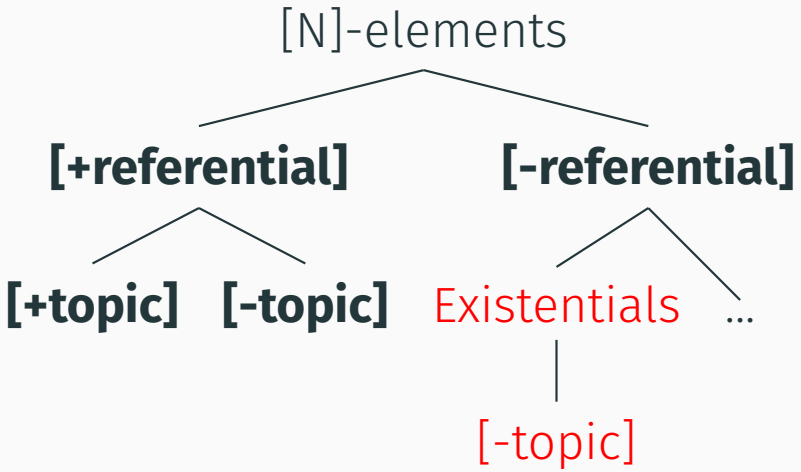

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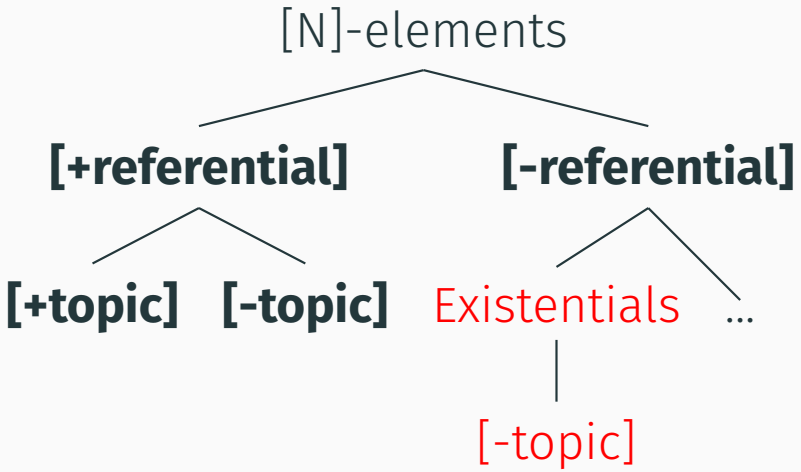
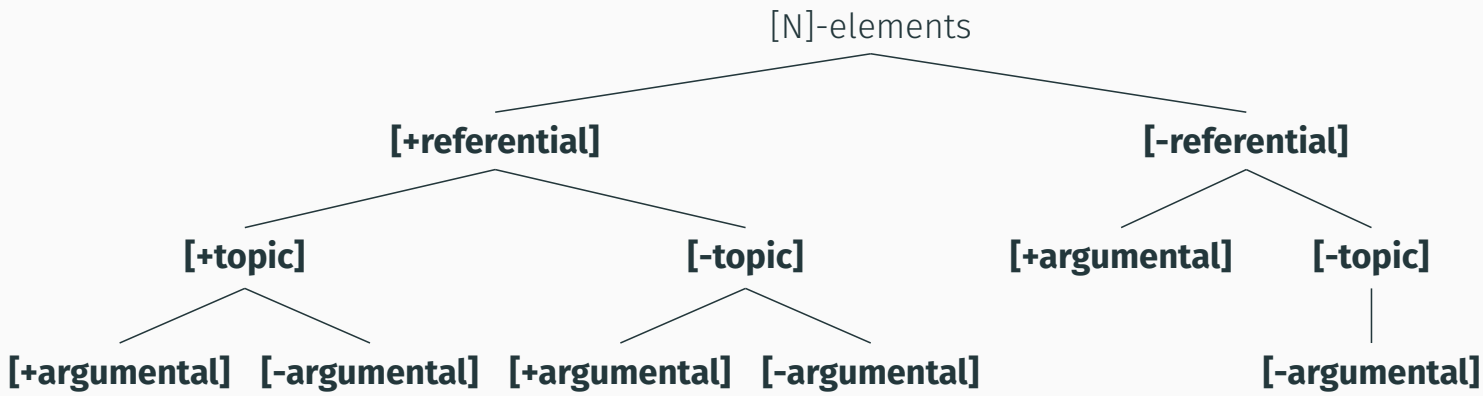


! **Note**: at this point **weather expletives** do *not* fit into any of these acquired distinctions. No connection with [+referential] elements, and so weather expletives remain unspecified for [±topic].

Successive differentiation of subject-types

3. **Step 3** (later-acquired): distinguish *syntactic/thematic* roles of the nominal elements – **[±argumental]**.
    - Weather expletives being external arguments vs. existentials, which are adjoined in their Big DP.



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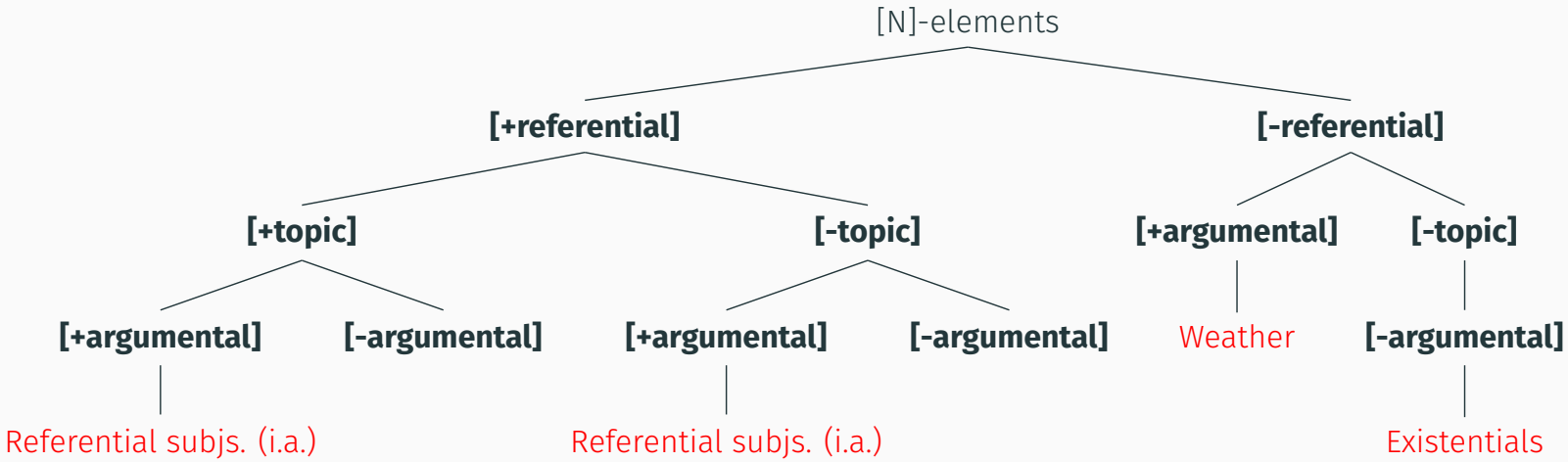

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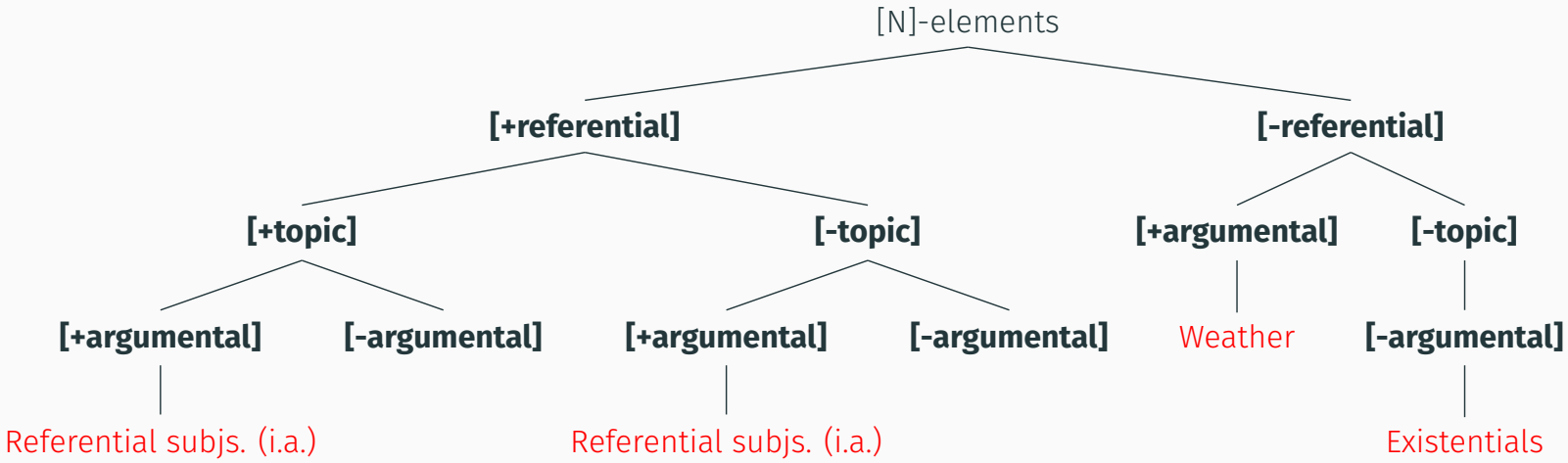

- Nature of [±argumental] – to differentiate arguments vs. adjuncts – means it should apply to all categories differentiated thus far.

Successive differentiation of subject-types

To probe further - patterns of crosslinguistic variation

- Several points of **microvariation** in the Germanic developmental patterns – these also appear formally-grounded:
  - ***Es* syncretism in German** → dropping of existentials at higher rates; slower to reduce expletive dropping, in both existentials vs. weather.
  - **English subject (EPP) requirement** → existential *there* in English is never dropped.
  - **Distributional complexity of Dutch *er*** → existentials emerge later in this language and are less frequent; highly multi-functional item (van Dijk and Coopmans, 2013).
  - ? **The case of German *Es gibt*** → syntactically quasi-argumental, but behaves developmentally with other existentials.

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  - ? **The case of German *Es gibt*** → syntactically quasi-argumental, but behaves developmentally with other existentials.
- Range of **productive predictions** from the proposed differentiation learning path.
  - Subjects of **weather** predicates in languages that permit **pronominal/full DP** (non-expletive) subjects should be early-acquired (Eriksen et al., 2015, for a review).

Diachronic implications

! Ontogeny does not straightforwardly recapitulate diachrony (*pace* Paul, 1880; Lightfoot, 1979)

↪ **Weather/quasi-argumental** expletives consistently established *before* **existentials** and other **'pure'** expletives in Old Germanic (Haiman, 1974; Silva-Villar, 1996; Williams, 2000; Richards and Biberauer, 2005; Fuß and Hinterhölzl, 2023).

! But suggestive variation observed depending on L1-properties:

- **Northern Italian Dialects** (NIDs) with ***full* subject clitic paradigms** → overt weather expletives *before* overt existential expletives (Renzi and Vanelli, 1983).
- **NIDs** with ***partial* SCL paradigms** → *null* weather expletives in the presence of other expletive types (Pescarini, 2022).
- Further variation in **contact varieties** (e.g., creoles; Nicolis, 2008).

Diachronc implications

! Ontogeny does not straightforwardly recapitulate diachrony (at first sight!)

→ Tentative suggestion: variation could tie to how children successively elaborate the existing (subject) system – this being L1-dependent.

- Recall: **earlier-acquired** = **basis for extension** and grammar elaboration (e.g., Biberauer, 2019).
  - ↪ 'Starting point' influences how null/overtness is extended (or not) to expletive types.

Diachronic implications

Old Germanic (Falk, 1993; Allen, 1995; Williams, 2000; Biberauer and Roberts, 2005; Richards and Biberauer, 2005; Biberauer and van Kemenade, 2011)

- **Stage I:** V1 declaratives, all structures lacking a referential topic → absence of rhematic presentationals/existentials and weather expletives.
- **Stage II:** V2 is regularised → optional 'dummies' introduced to mark *absence* of fronted topics in existentials and weather constructions.
  - Obligatory overtness of referentials in SpecvP then **extended** to other argumental items – **weather expletives**, also in SpecvP (Biberauer and Roberts, 2005; Deal, 2009).
  - No specialised subject position at SpecTP at this point.
- **Stage III:** obligatorisation of **existentials** ('pure' expletives in TP) occurred after development of an EPP (see, e.g., Falk, 1993; Biberauer and Roberts, 2005).

Diachronic implications

- **NIDs with *full* SCL paradigms**: diachronically, weather expletives emerge *before* existential expletives (e.g., Renzi and Vanelli, 1983).
  - Already-existing *complete* set of *overt* [+ref, +top, +arg] SCLs in the system.

  → **Extension** of 'overtness' to **featurally closest class** (**[+argumental]** items), to, finally, existentials (featurally most distinct) (see also Pescarini, 2014).

Table 4: Examples of paradigms of subject clitics in Italo-Romance dialects. (Pescarini, 2022, p. 6)

	Olivone, Tessin	**Verona, Veneto**	**Grumello d.M., Lombardy**	**Fornero v.S., Piedmont**	**Piverone, Piedmont**
1SG	a		(a)	i	i
2SG	tu	te	(a)ta	ti	at
3SG (M/F)	u/ra	(e)l/la	al/(a)	al/la	al/la
1PL	a		a n	i	i
2PL	a		(a)	i	i
3PL (M/F)	i	i/le	(a)i	i	a

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Table 5: Expletive clitics in impersonal environments (Pescarini, 2022, p. 6).

Datapoint	**Weather v.**	**Existential v.**	**Seem-Type v.**	**Impersonal se**	**Necessity v.**
Carcare, Liguria	U ciov	U j-è	U smija...	U s diz	U bisogna
Cesena, Em.Romagna	E piov	U j-è	E per...	U s dis	∅ bisogna
Monno, Lombardy	El plof	El g'e	El par	∅ s dis	∅ gna
Rocca P., Veneto	El piof	L'è	∅ somea	∅ se dis	∅ moza
Aldeno, Trentino	El piove	∅ gh'e	∅ par	∅ se dis	∅ bisogna
	'it rains'	*'there is . . .'*	*'it seems that . . .'*	*'one says'*	*'it is needed . . .'*

Diachronic implications

- **NIDs with *partial* SCL paradigms**: *null* weather expletives persist.
  - Pescarini (2022): gaps in SCL system positively correlated with lack of weather expletives.
  - Initial system contains [+ref, +top, +arg] SCLs that are both overt and null.

  → Pressure to generalise/extend 'overtness' to weather expletives should not come into play.

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→ **Upshot:** *extension-based* account of subject realisation patterns predicts distinct, L1-specific extension patterns, which directly depend on what is already in the grammar/system.

→ This kind of systems- and L1-driven perspective can help us make correct predictions for the ontogeny, diachrony, and their (perceived) divergences.

↪ **Ontogeny and phylogeny *do* match**, despite surface appearances, but in a more **nuanced** way.

Conclusion

Conclusion and outlook

New perspective on subject drop: children's production of subjects reflects *progressive formal differentation and granularisation*, elaborating on earlier-acquired distinctions.

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- **Previously unnoticed asymmetry** → Subject drop 'tracks' formal properties of expletive types: **referential** vs. **quasi-argumental** vs. **'pure'** expl. subjects.
  - Lends novel developmental reality to independently-proposed formal differences within subject types (e.g., Chomsky, 1981; Rizzi, 1986).
  - Challenges performance-*only* accounts and nuances competence approaches relying on a binary (and even ternary) typology (Rizzi, 1982, 1986).

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↪ **Hypothesis** → **categorial differentiation** analysis as a first explanation:
  - Stratifies and elaborates Rizzi's originally 'flat' featural typology.
  - Incorporates early role of [TOPIC] in the differentiation path of nominal elements → rationalises why existential expletives would be earlier-acquired.

- Potential for neo-emergentist perspective to help elucidate developmental and diachronic L1-variation in overt/null realisation of subjects.

Some avenues for future work

- A full analysis of other expletive constructions (raising, impersonal, extraposition, etc.).
  - Including Holmberg's Other Generalisation (Roberts, 2019, p. 225), the later development of extraposition *it* vs. *there* (Kirby and Becker, 2007)...
- Comparative research on acquisition and diachrony of subjects in languages instantiating different expletive systems (e.g., French, Scandinavian languages, etc.).
- Can we corroborate the approach's predictions with experimental/comprehension data?
- Effect of predicate type (copula vs. lexical verb) on expletive omission patterns (see, e.g., Valian, 1991; Sano and Hyams, 1994).

Thank you!

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Slides 💻→

References

Allen, C. (1995). *Case marking and reanalysis: Grammatical relations from Old to Early Modern English*. Oxford University Press, Oxford.

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

Biberauer, T. and Roberts, I. (2005). Changing EPP-parameters in the history of english: Accounting for variation and change. *English Language and Linguistics*, 9(1):5–46.

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

References ii

Biberauer, T. and van Kemenade, A. (2011). Subject positions and information-structural diversification in the history of english. *Catalan Journal of Linguistics*, 10:17–69.

Bloom, L. (1970). *Language Development: Form and Function in Emerging Grammars*. MIT Press, Cambridge, MA.

Bloom, L., Lightbown, P., and Hood, L. (1975). Structure and variation in child language. *Monographs of the Society for Research in Child Development*, 40(2):1–79.

Bosch, N. and Biberauer, T. (2025). On Another Topic, How Do Acquisition Orders Vary? The Left-Periphery and Topicalization in Bilingual and Monolingual Acquisition. In *Proceedings of the 49th Boston University Conference on Language Development (BUCLD)*, pages 129–144, Somerville, MA. Cascadilla Proceedings Project.

Chomsky, N. (1981). *Lectures on Government and Binding*. Mouton de Gruyter, Berlin.

References iii

Cowper, E. and Hall, D. C. (2014). Reductio ad discrimen: Where features come from. *Nordlyd*, 41(2):145–164.

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

Deal, A. R. (2009). The origin and content of expletives: evidence from 'selection'. *Syntax*, 12(4):285–323.

Douglas, J. (2024). Exploring emergence with substance-free categories, `https://ling.auf.net/lingbuzz/007826`. Unpublished Ms.

Dresher, B. E. (2009). *The Contrastive Hierarchy in Phonology*. Cambridge University Press, Cambridge.

Eriksen, P. K., Kittilä, S., and Kolehmainen, L. (2015). The world is raining: Meteorological predicates and their subjects in a typological perspective. In Helasvuo, M.-L. and Huumo, T., editors, *Subjects in Constructions – Canonical and Non-Canonical*, volume 16 of *Constructional Approaches to Language*, pages 205–228. John Benjamins, Amsterdam/Philadelphia.

References iv

Falk, C. (1993). Non-referential subjects and agreement in the history of swedish. *Lingua*, 89:143–180.

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.

Fuß, E. and Hinterhölzl, R. (2023). On the historical development of pronouns referring to situations: The rise of pre-finite 'expletives' in german. *Historical Syntax*, 7(2).

Grinstead, J. (2004). Subjects and interface delay in child spanish and catalan. *Language*, 80(1):40–72.

Haiman, J. (1974). *Targets and Syntactic Change*. Mouton, The Hague.

Hamann, C. (1996). Null arguments in german child language. *Language Acquisition*, 5:155–208.

Hamann, C. and Plunkett, K. (1998). Subjectless sentences in child danish. *Cognition*, 69:35–72.

Hauser-Grüdl, N. (2010). Topicality in l1-acquisition. In *Comparative and Contrastive Studies of Information Structure*, pages 199–230. John Benjamins.

Hyams, N. (1986). *Language Acquisition and the Theory of Parameters*. Reidel, Dordrecht.

Hyams, N. (2011). Missing subjects in early child language. In de Villiers, J. and Roeper, T., editors, *Handbook of Generative Approaches to Acquisition*, pages 13–53. Springer, Berlin.

Hyams, N. and Wexler, K. (1993). On the grammatical basis of null subjects in child language. *Linguistic Inquiry*, 24(3):421–459.

Kayne, R. S. (1994). *Antisymmetry in Syntax*. MIT Press, Cambridge, MA.

Kirby, S. and Becker, M. (2007). Which it is it? the acquisition of referential and expletive it. *Journal of Child Language*, 34(3):571–599.

Krifka, M. (2008). Basic notions of information structure. *Acta Linguistica Hungarica*, 55(3-4):243–276.

Lidz, J. (2022). Parser-grammar transparency and the development of syntactic dependencies. *Language Acquisition*, 30(3–4):311–322.

Lightfoot, D. W. (1979). *Principles of Diachronic Syntax*, volume 23 of *Cambridge Studies in Linguistics*. Cambridge University Press, Cambridge.

McCloskey, J. (1997). Subjecthood and subject positions. In Haegeman, L., editor, *Elements of Grammar*, pages 197–235. Kluwer, Dordrecht.

Nicolis, M. (2008). The null subject parameter and correlating properties: The case of creole languages. In Biberauer, T., editor, *The Limits of Syntactic Variation*, pages 271–294. John Benjamins Publishing Company, Amsterdam.

Orfitelli, R. and Hyams, N. (2012). Children's grammar of null subjects: Evidence from comprehension. *Linguistic Inquiry*, 43(4):563–590.

Paul, H. (1880). *Principien der Sprachgeschichte*. Max Niemeyer, Halle/Saale.

Pescarini, D. (2014). La distribuzione dei clitici soggetto espletivi: Tipologia e prospettive parametriche. *L'Italia Dialettale*, 75:229–246.

Pescarini, D. (2022). Expletive subject clitics in northern italo-romance. *Languages*, 7(4):265.

Poole, E. (2016). Deconstructing subjecthood. Manuscript, University of Massachusetts Amherst.

Renzi, L. and Vanelli, L. (1983). I pronomi soggetto in alcune varietà romanze. In Benincà, P., Cortelazzo, M., Prosdocimi, A. L., Vanelli, L., and Zamboni, A., editors, *Scritti in onore di G.B. Pellegrini*, pages 120–145. Pacini, Pisa.

Richards, M. and Biberauer, T. (2005). Explaining expl. In den Dikken, M. and Tortora, C., editors, *The Function of Function Words and Functional Categories*, pages 115–153. John Benjamins Publishing Company.

Rizzi, L. (1982). *Issues in Italian Syntax*. Foris, Dordrecht.

Rizzi, L. (1986). Null objects in italian and the theory of pro. *Linguistic Inquiry*, 17(3):501–557.

Rizzi, L. (1993/1994). Some notes on linguistic theory and language development: The case of root infinitives. *Language Acquisition*, 3:371–393.

Roberts, I. (2019). *Parameter Hierarchies and Universal Grammar*. Oxford University Press, Oxford.

Sano, T. and Hyams, N. (1994). Agreement, finiteness, and the development of null arguments. In Gonzáles, M., editor, *Proceedings of NELS 24*, pages 543–548, Amherst, MA. GLSA.

Serratrice, L., Sorace, A., and Paoli, S. (2004). Crosslinguistic influence at the syntax–pragmatics interface: Subjects and objects in english–italian bilingual and monolingual acquisition. *Bilingualism: Language and Cognition*, 7(3):183–205.

Silva-Villar, L. (1996). The diachronic syntax of expletive creation. *Anuario Del Seminario De Filología Vasca "Julio De Urquijo"*, 30(1):173–193.

Snyder, W. (2021). A parametric approach to the acquisition of syntax. *Journal of Child Language*, 48(5):862–887.

Song, C. (2019). *On the Formal Flexibility of Syntactic Categories*. PhD thesis, University of Cambridge.

Svenonius, P. (2001). Introduction. In Svenonius, P., editor, *Subjects, Expletives, and the EPP*, pages 3–28. Oxford University Press, Oxford.

Uriagereka, J. (1995). Aspects of the syntax of clitic placement in western romance. *Linguistic Inquiry*, 26:79–123.

Valian, V. (1991). Syntactic subjects in the early speech of american and italian children. *Cognition*, 40:21–81.

Valian, V. and Aubry, S. (2005). When opportunity knocks twice: Two-year-olds' repetition of sentence subjects. *Journal of Child Language*, 32(3):617–641.

Valian, V., Hoeffner, J., and Aubry, S. (1996). Young children's imitation of sentence subjects: Evidence of processing limitations. *Developmental Psychology*, 32(1):153–164.

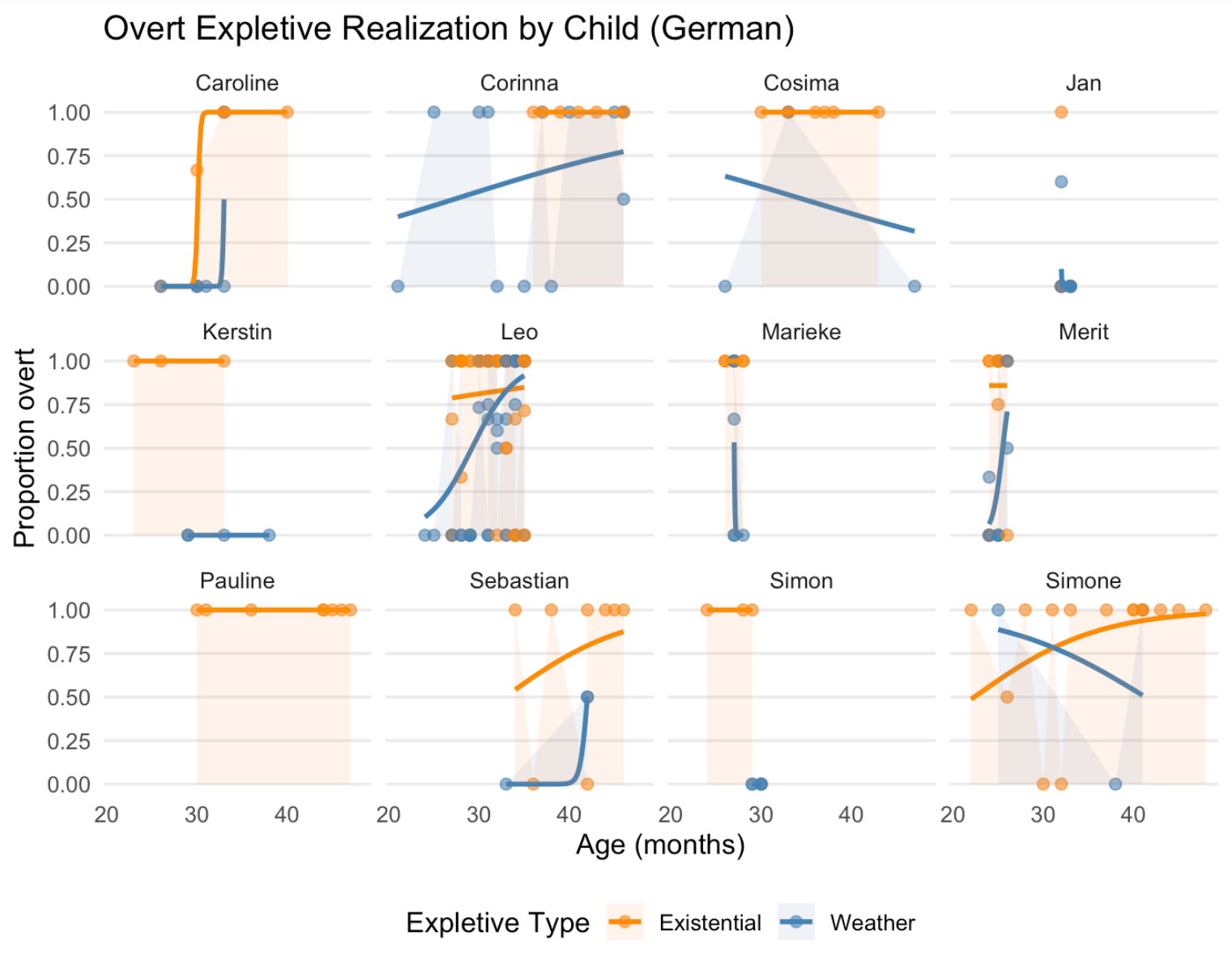
van Dijk, C. and Coopmans, P. (2013). On the acquisition of daar and er. *Linguistics in the Netherlands*, 30(1):73–88.

van Kampen, J. (2010). Typological guidance in the acquisition of V2 Dutch. *Lingua*, 120(2):264–283.

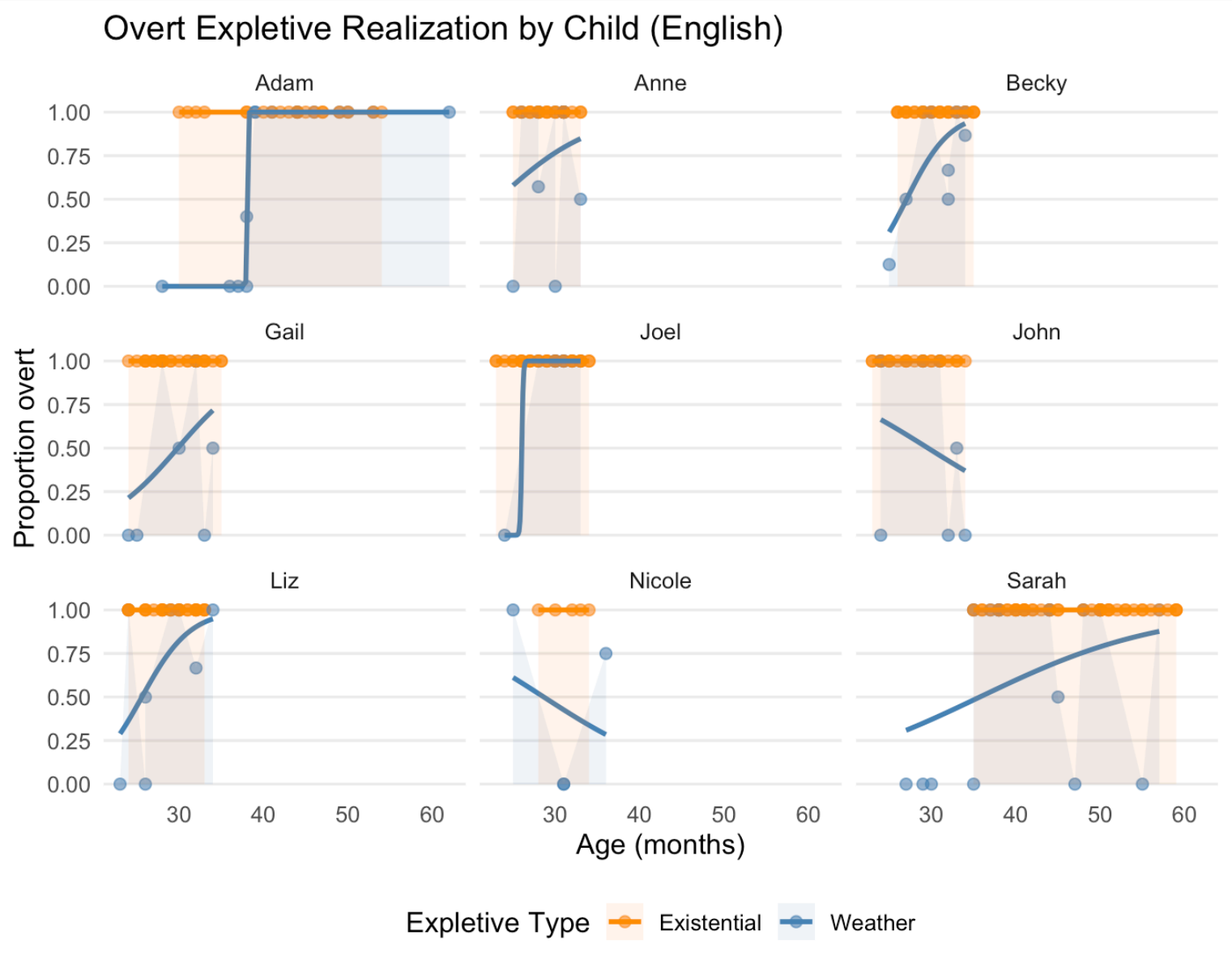
References x

Williams, A. (2000). Null subjects in middle english existentials. In Pintzuk, S., Tsoulas, G., and Warner, A., editors, *Diachronic Syntax: Models and Mechanisms*. Oxford University Press, Oxford.

Appendix I: Developmental curves by Child



Appendix I: Developmental curves by Child



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