

Dutch compound constructions in additional language acquisition: a diasystematic-constructionist approach

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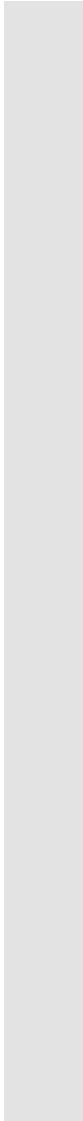
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Introduction

Introduction

Compound constructions in Dutch and French

- “[S]yntactic constructions may form an alternative to, or compete with the morphological expression of semantic and grammatical content” (Booij 2002: 301)
- In both Dutch and French, morphological and syntactic patterns are available to build **lexical multi-word units**
 - Du. *wetenschapsbeleid* ‘science policy’ vs *wetenschappelijk beleid* ‘scientific policy’ (Booij 2019: 105)
 - Fr. *village(-)vacances* vs *village de vacances* ‘holiday resort’
- Languages may significantly vary with respect to their **degree of analyticity** (cf. « Germanic / Romance Sandwich », e.g. van Haeringen 1956, Hüning et al. 2006, Lamiroy 2011)
 - Dutch is a more synthetic language than French
 - **Dutch has a stronger tendency towards compounding than French** (Van Goethem 2009; Van Goethem & Amiot 2019)

Introduction

- 3 important **differences** between Dutch and French compounding:
 1. **Productivity:** Compounding is more productive in Dutch than in French (Van Goethem 2009; Van Goethem & Amiot 2019)
 - Du. *badkamer* vs Fr. *salle de bains* 'bathroom'
 - Du. *zoutwaterzwembad* vs Fr. *piscine d'eau salée* 'saltwater pool'
 2. **Word order:** Dutch has right-headed compounding, whereas French has left-headed compounding
 - Du. *postzegel* vs Fr. *timbre-poste* '(postage) stamp'
 3. **Demarcation compound/phrase:** The distinction between compounds and (lexicalized) phrases is more clearly established in Dutch than in French (spelling, prosody, linking elements, loss of adjectival inflection)
 - Du. *hoogspanning* vs Fr. *haute tension* 'high voltage'



Research question: What is the impact of these differences on the acquisition of Dutch compounds by French-speaking learners?

Outline

- 1. State of the art
- 2. Diasystematic Construction Grammar
- 3. Aims of the study and research hypotheses
- 4. Corpus data and methods
- 5. A multilevel constructional analysis
- 6. Conclusions and discussion



1. State of the art

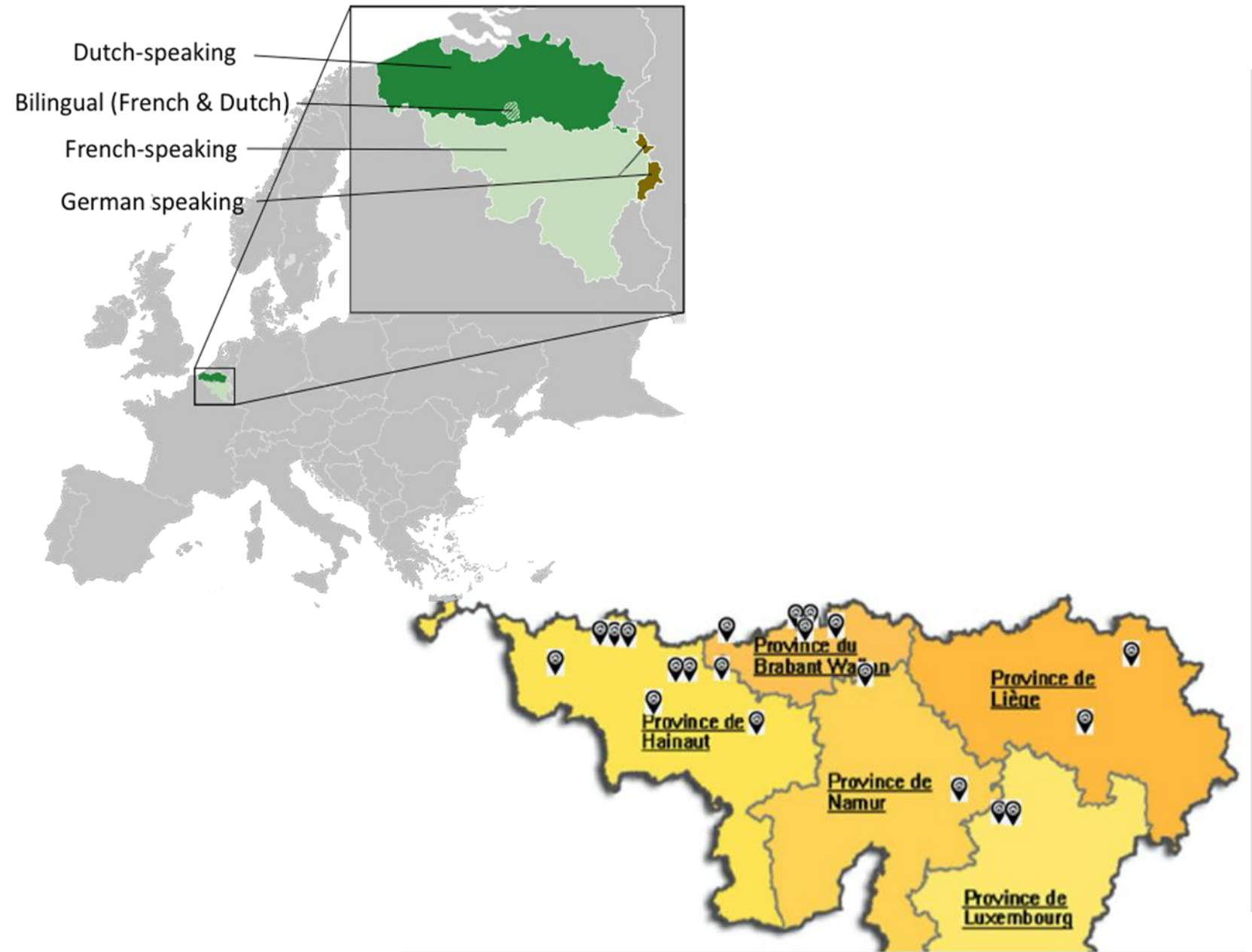
Acquisition of word-formation

- Little attention has been paid to the **acquisition of word-formation** (Lefer 2011)
- **Morphological awareness** is well documented in English (e.g. Pasquarella et al. 2011), but it is still an **uncharted territory for languages such as Dutch and French** (except for some fragmented studies, e.g. Deacon et al. 2007 for French)
- Nevertheless, several studies emphasize the **need for more explicit attention to word-formation in foreign language pedagogy** (a.o. Balteiro 2011, Jeon 2011, Leontjev et al. 2016)

CLIL

- **Content and Language Integrated Learning (CLIL)** is a pedagogical approach promoted by the European Union to enhance widespread multilingualism (Coyle, Hood, & Marsh 2010)
- Although the CLIL approach has been extensively documented internationally (e.g. Ruiz de Zarobe et al. 2011, Rumlich 2016), its **impact on AL acquisition** remains unclear (Dalton-Puffer 2007)
- **Multidisciplinary project on CLIL** (2014-2019, UCLouvain & Université de Namur) exploring the linguistic, cognitive, educational and socio-affective effects of CLIL in French-speaking Belgium (cf. Hiligsmann et al. 2017)
 - General positive effect of CLIL, especially on AL Dutch
 - But limited number of case studies: phraseology (Bulon 2019), intensification (Hendrikx 2019)

CLIL in French-speaking Belgium

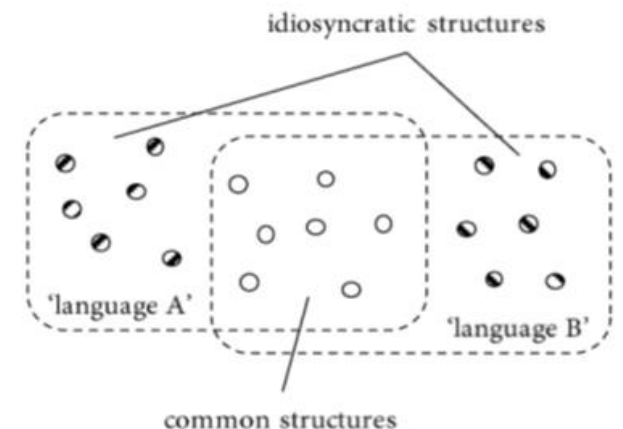




2. Diasystematic Construction Grammar

Diasystematic Construction Grammar (DCxG)

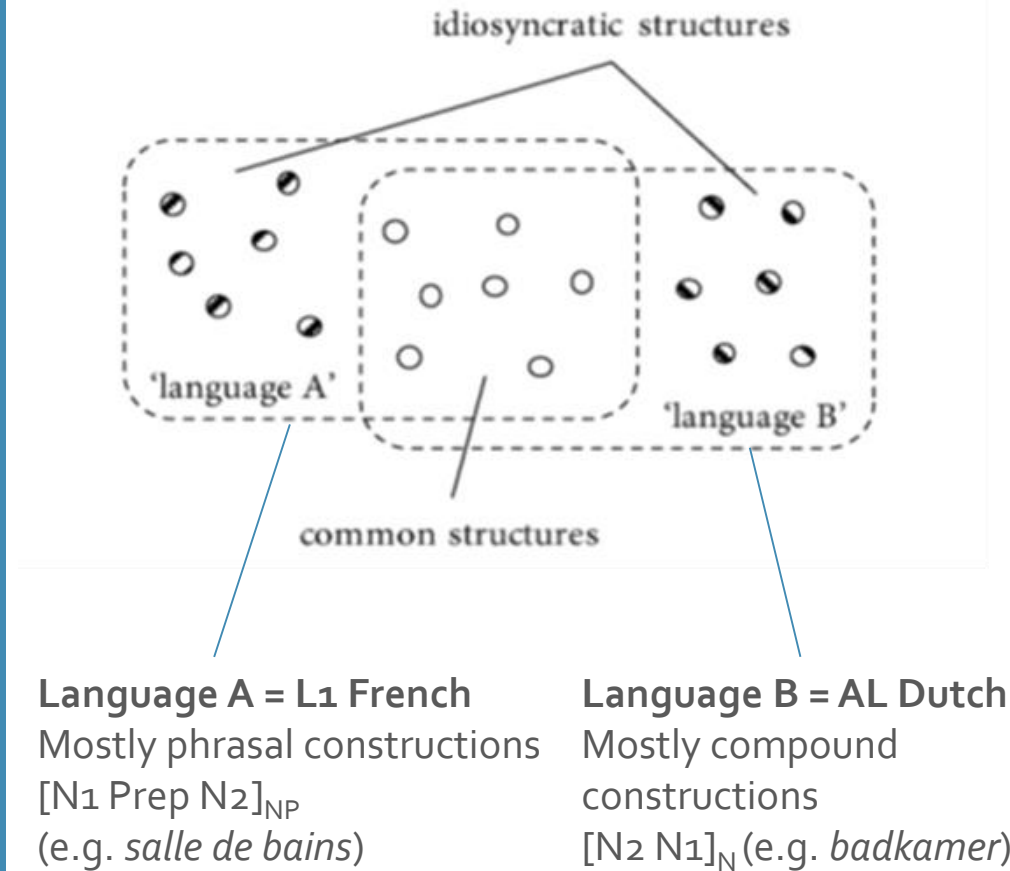
- DCxG recently developed by **Höder** (2012, 2014a, 2014b, 2018)
- **Integration of CxG into the study of multilingualism**, following the most recent cognitive insights on multilingualism
 - “multilingual speakers store and process all of their languages in terms of constructions that are organized into one common constructicon” (Höder et al. 2021: 311) ↔ earlier static conceptions of separate language systems in the bilingual’s mind
- The **multilingual constructicon**
 - contains “some constructions [that] are unspecified for language (such as abstract syntactic constructions and lexical concepts), while others (above all lexically and phonologically filled constructions) are language-specific” (Höder 2012: 247)
 - The common structures are called “**diaconstructions**”, the idiosyncratic structures are “**idioconstructions**”.



DCxG applied to AL acquisition

- DCxG first applied to **language contact** (Boas & Höder, 2018, 2021), but more recently also to **(additional) language acquisition** (Höder et al. 2021; Jach 2021; Van Goethem and Hendrikx 2021)
 - **Dynamic and emergent view on AL learning:**
 - Dynamic process of constructional reorganization involving construction addition (entrenchment of newly acquired constructions) and deletion (so-called “disentrenchment” of redundant constructions) (Höder et al. 2021)
 - ALA involves many cognitive reorganizational processes (interlingual identification, abstraction, generalization, categorization) ↔ ‘transfer’ too narrow to capture all these cognitive processes
 - **Effects of cross-linguistic similarities and differences:**
 - Typologically similar languages have more shared ‘diaconstructions’ and learners can build on their L1 constructions to form AL productions
 - The greater the typological difference between the L1 and AL, the more reorganizational processes need to take place in the learners’ construction.

DCxG applied to the acquisition of Dutch compounds



- During AL acquisition:

1. Dutch compounds ($[N2 \text{ } N1]_N$, e.g. *badkamer*) will have to be added to the learner's constructional network and have to be tagged as **Dutch idioconstructions**
2. Some other constructions will have to be "disentrenched", evolving into **French idioconstructions** (e.g. $[N1 \text{ Prep } N2]_{NP}$, e.g. *salle de bains* vs **kamer van bad*)
3. Some schematic phrasal constructions evolve into shared **diaconstructions**: e.g. $[N1 \text{ Prep } Det \text{ } N2]_{NP}$ (e.g. *fête pour mon anniversaire* / *feest voor mijn verjaardag*) or $[A \text{ } N]_{NP}$ (e.g. *meilleur ami* / *beste vriend*)

3. Aims of the study and research hypotheses

Aims of the study

- The **aims of this study** are threefold:
 - i. to provide a **corpus analysis of the acquisition of Dutch compounds at multiple levels of abstraction** (schematic and substantive compound constructions)
 - ii. to investigate the impact of **additional target-language input through CLIL programs** on the acquisition of compound constructions, within the context of learning Dutch in French-speaking Belgium
 - iii. to describe and interpret the results from the perspective of **DCxG**
- Focus on **Dutch nominal compounds**

Research hypotheses

- **Research hypotheses:**
 - i. **Overgeneralization of French (phrasal) idioconstructions** (mistagged as shared FR-DU diaconstructions):
 - Phrasal structures instead of compounds (**kamer van bad* instead of *badkamer*)
 - Left-headed compounds instead of right-headed compounds (**kamerbad*)
 - ii. **Positive impact of CLIL** on compound formation in AL Dutch



4. Corpus data and methods

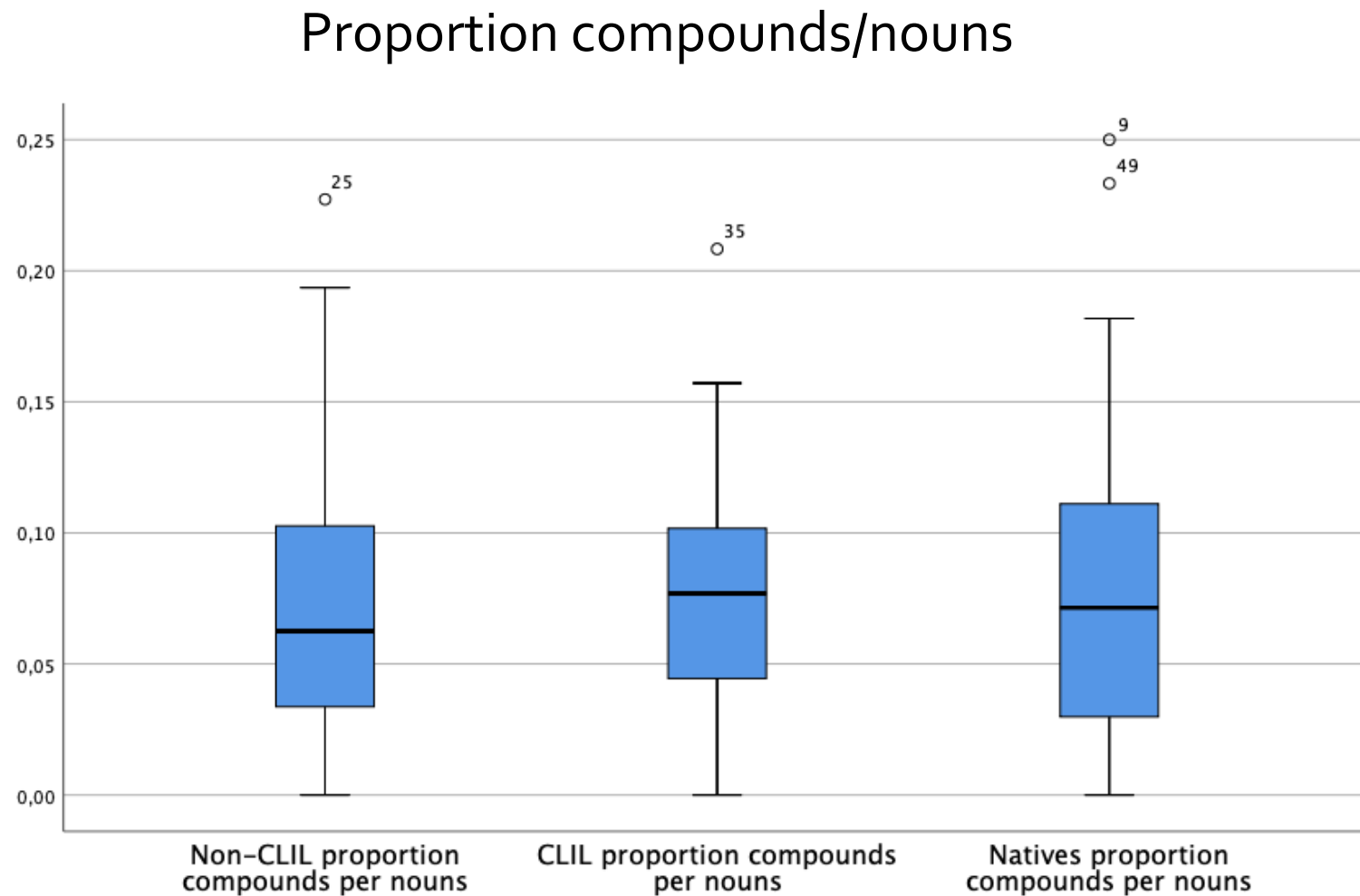
Data collection and corpus sample

- *Multilingual Traditional, Immersion and Native Corpus (MuTINCo)* (Meunier et al. 2020)
 - Written corpus collected in 2015-2017
 - 213 AL Dutch learners in 5 schools in French-speaking Belgium (CLIL + non-CLIL)
 - 59 L1 Dutch speakers (The Netherlands + Flanders)
 - 6th year of secondary school; on average 17 years old
 - Task: write an e-mail to a friend about a party or their holidays

	AL Dutch non-CLIL	AL Dutch CLIL	Native Dutch
Number of participants	84	129	59
Number of nouns	3205	5964	2146
Number of nominal compounds*	240	476	155
Proportion compounds per nouns	0,075	0,080	0,072

***Excluded:** blends, derivational compounds, lexicalized compounds, proper names

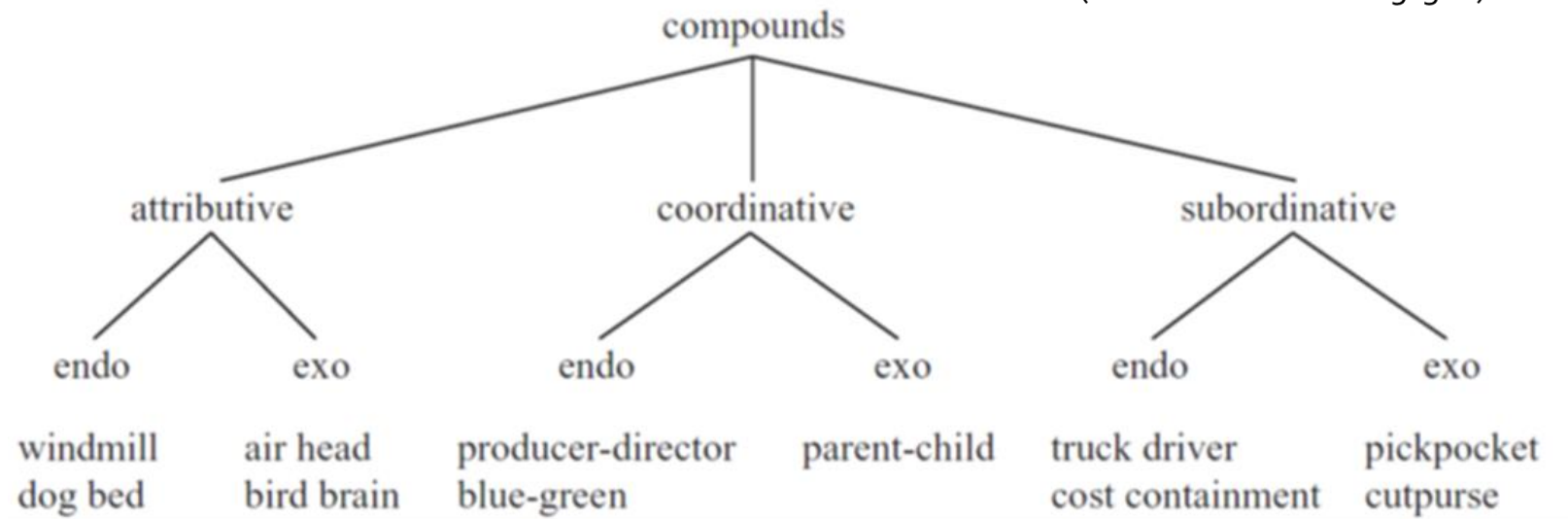
Data collection and corpus sample



Data annotation

- **Formal properties:**
 - Compound length (number of lexical components)
 - Compound structure ([NN]_N, [VN]_N, [AN]_N, ...)
- **Semantic properties :**
 - Compound function

(Bisetto & Scalise 2005: 326)



Data annotation

Accuracy:

- Accuracy of the compound (spelling mistakes, grammatical mistakes, lexical mistakes, linking morpheme, codeswitching, word order)
- Word-formation accuracy (phrase instead of compound*, simplex instead of compound, etc.)

***Checked in *Corpus Hedendaags Nederlands*: the compound had to be at least 10 times as frequent as the phrase to consider it misuse:**

e.g. *mensen van mijn klas* (1 hit) vs *mijn klasgenoten* (123 hits) → misuse

e.g. *in het centrum van de stad* (1076 hits) vs *in het stadscentrum* (956 hits) → no misuse



5. A multilevel constructional analysis

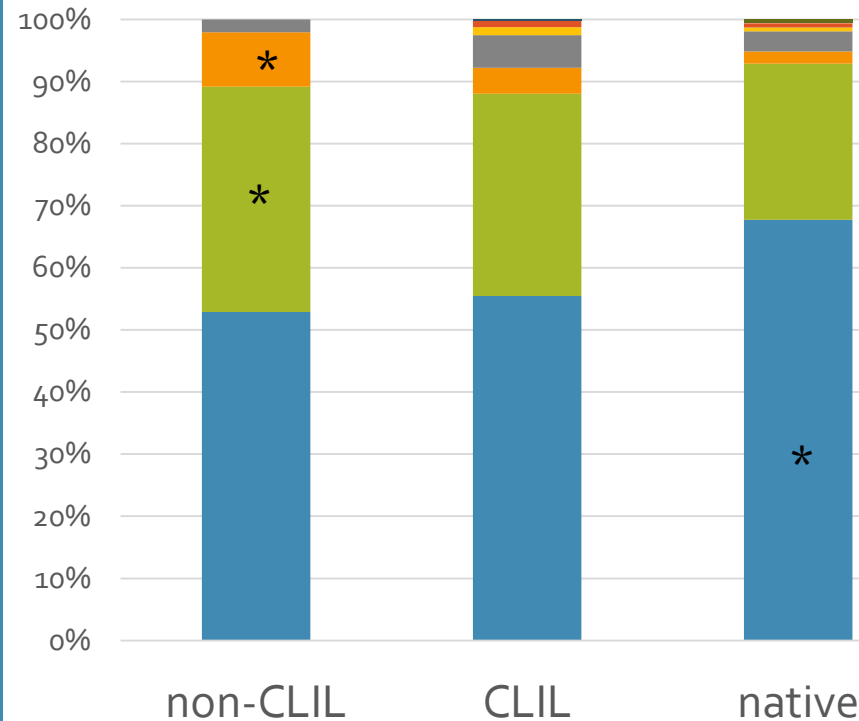
Schematic level: formal properties

Compound length	AL Dutch non-CLIL	AL Dutch CLIL	Native Dutch
2 components	227 (94,58%)	443 (93,07%)	139 (89,68%)
3 components	10 (4,17%)*	33 (6,93%)	16 (10,32%)
4 components	3 (1,25%)	0	0
Totals	240	476	155

- **2 lexical components:**
 - *Er waren veel **nachtclub** en het was niet duur.* (non-CLIL) ['night club']
- **3 lexical components:**
 - *Ik dacht vandaag weer terug aan de leuke avond die we gisteren hadden op de **kerstboomverbranding** en in de winterbar* (Native) ['lit. Christmas tree-burning']
- **4 lexical components:**
 - *We hebben een groot **voetbal wedstrijd** met anderen jongeren georganiseerd.* (non-CLIL) ['lit. football game']

Schematic level: formal properties

Compound structure



[N+N]_N

- Daarna trekken we meer het **regenwoud** in en gaan we daar op safari. (Native) ['rainforest']

[V+N]_N

- We zullen met de auto gaan omdat mijn moeder voor het **vliegtruig** bang is? (Non-CLIL) ['airplane']

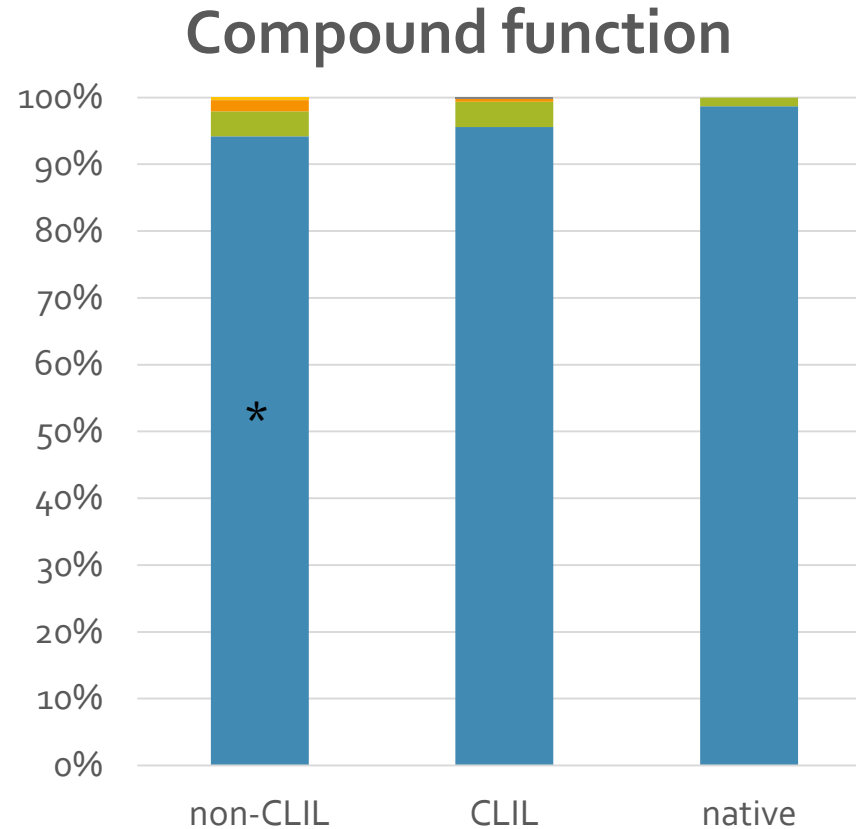
[A+N]_N

- Ze heeft een auto gehad van haar ouders, een nieuwe gsm van zijn **grootouders** en ze heeft veel geld gehad (non-CLIL) ['grandparents']

[Prep/Adv+N]_N

- Het **tegendeel** is onwaarschijnlijk, niet waar? (CLIL) ['lit. against part; opposite']

Schematic level: semantic properties



Attributive endocentric

- *het was de verjaardag van mijn **buurjongen**.* (Non-CLIL) ['neighbour boy']

Attributive exocentric

- *We konden ook alcohol drinken zelfs als we nog **snotneuzen** zijn, ik moet toch aanvaarden dat ik vandaag een kater heb* (CLIL) ['lit. snot noses; brats']

Subordinative endocentric

- *Daarna hebben we de GSM gedrogen met een **haardroger** en we hebben zijn geld op de chauffage gezet.* (CLIL) ['hairdryer']

Subordinative exocentric

- *Er waren veel mensen in de straten en wij waren bang voor **pickpocketen**.* (CLIL)

Substantive level: frequency and productivity

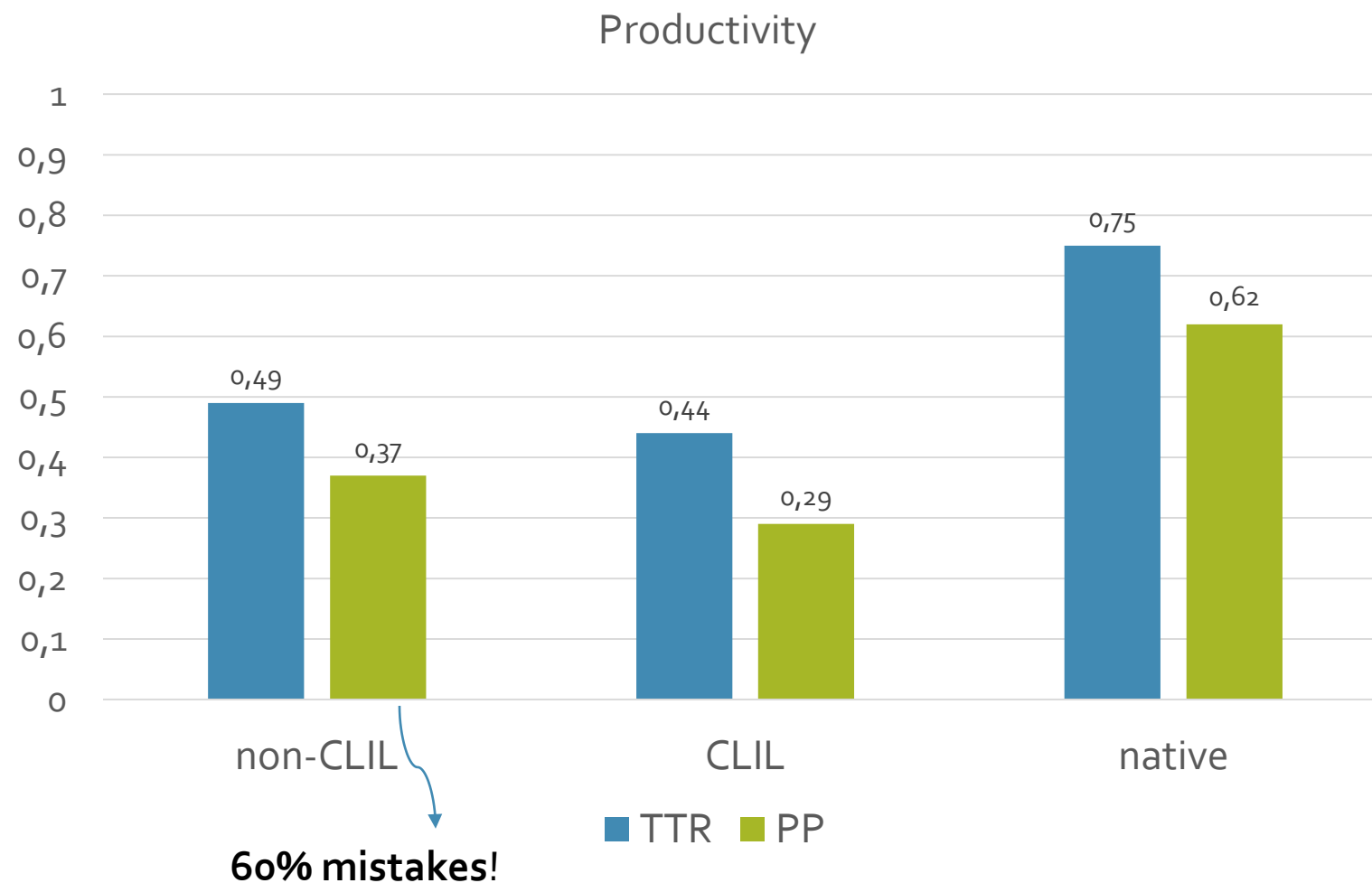
Most frequent compounds per condition

Top 5	AL Dutch non-CLIL	AL Dutch CLIL	Native Dutch
1	<u>zwembad</u> (27) 'swimming pool'	<u>verjaardag</u> (54) 'birthday'	<u>zwembad</u> (9) 'swimming pool'
2	<u>verjaardag</u> (22) 'birthday'	<u>zwembad</u> (52) 'swimming pool'	<u>verjaardag</u> (6) 'birthday'
3	<u>vliegtuig</u> (19) 'aeroplane'	<u>vliegtuig</u> (17) 'aeroplane'	<u>verjaardagsfeest</u> (5) 'birthday party'
4	**aeroport (6)	*Paasvakantie 'Easter holidays' (10), <u>verjaardagsfeest</u> (10)	°dansvloer (4) 'dance floor'
5	*voetbal (5) / *volleybal (5) / <u>verjaardagsfeest</u> (5)	*ziekenhuis (9) 'hospital'	°halfuur (3) / <u>vliegtuig</u> (3) / °zonsondergang 'sunset' (3)
Totals	240	476	155

- ° = occurs in native corpus, but not in the learner corpora
- * = occurs in learner corpora, but not in native corpus
- ** = misuse (codeswitching)

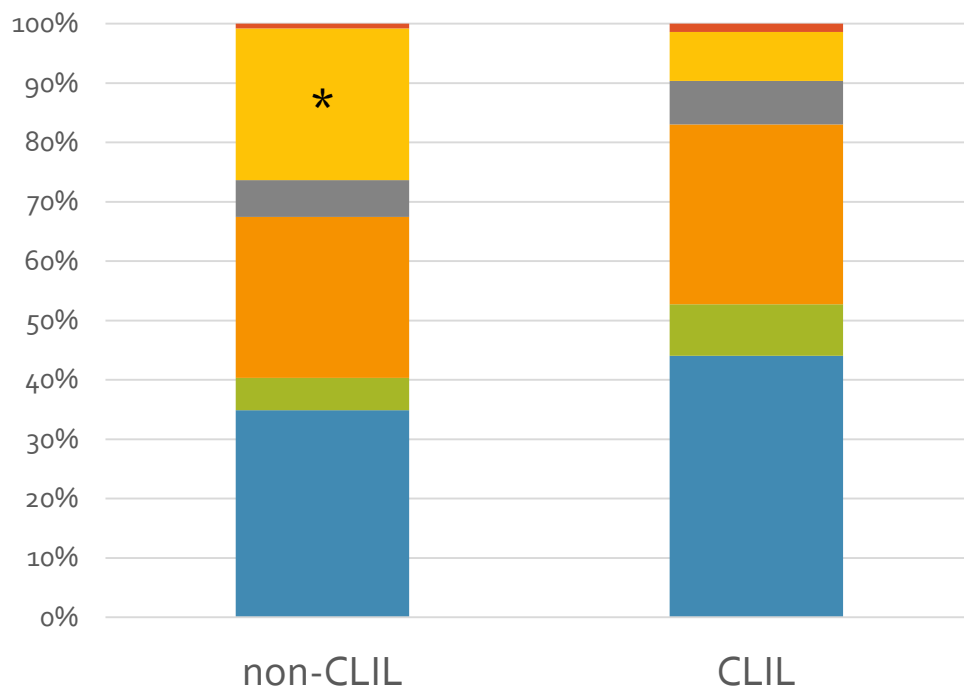
Substantive
level:
frequency and
productivity

Productivity of compounds per condition



Substantive level: accuracy

Misuse in the compound nouns



Spelling mistake

- *De vlucht was so lang en de **vlichtuig** was niet leuk.* (Non-CLIL) [vliegtuig]

Grammatical mistake

- *Iedereen houdt van **vuurwerken**, en een beetje in de frisse, zwarte nacht stappen en naar de sterren kijken* (CLIL) [vuurwerk]

Code switching (FR/ENG)

- *Het koek kwam van mijn vriend die een **aspirant-pâtissier** is.* (Non-CLIL)

Lexical mistake

- *Bovendien waren er geen proper **voetweg** zoals het uitgelegt werd in onze guide.* (CLIL) [wandelpad]

Mistake in the linking morpheme

- *Daarna hebben we een **aardbeienstaart** gegeten dat de koker had gemaakt.* (CLIL) [aardbeientaart]

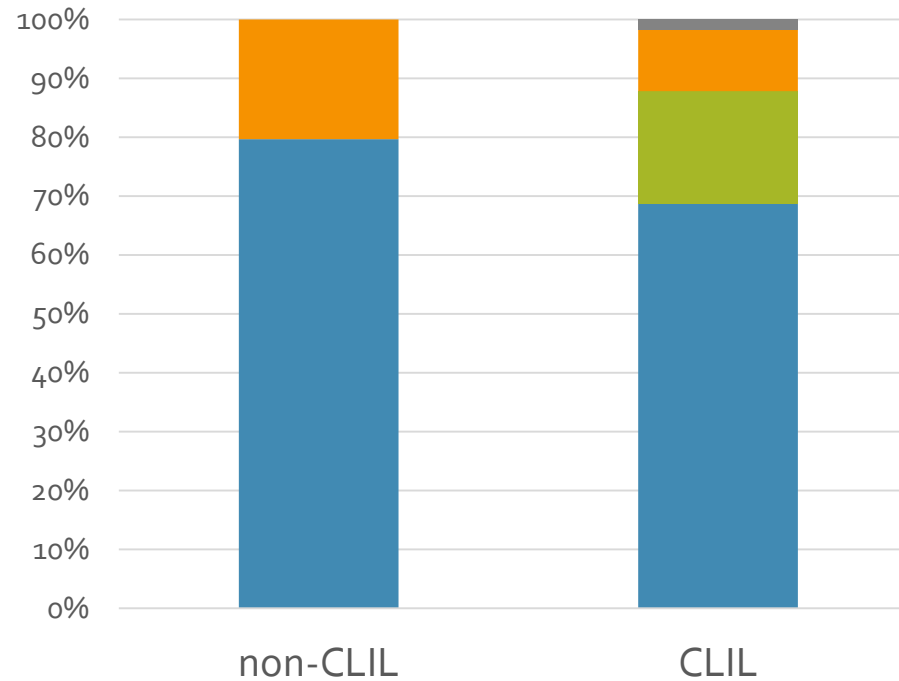
Mistake in the word order

- *hij was in dezelfde **schoolmuziek** als jij en jullie kennen elkaar sinds ongeveer zes jaren.* (CLIL) [muziekschool]

	Non-CLIL	CLIL
Total number of mistakes in compounds	129 (53,75%)	218 (45,80%)
Total number of compound nouns with mistakes	111 (46,25%)	188 (39,50%)
Total number of compound nouns	240	476

Substantive level: accuracy

Word-formation mistakes



Phrase instead of compound

- *ik kan niet goed zwemmen maar ik had 2 **lessen van zwembad** (...).* (non-CLIL) [zwemlessen]

Compound instead of phrase

- *dat was een idee op mijn zusje en mijn **bestvriend** Floriane.* (non-CLIL) [beste vriend]

Simplex instead of compound

- *Daarna zijn we naar Venesie gegaan met een **stap** in Padoue waar we de stad, de katedraal en de klooster hebben bezocht.* (CLIL) [uitstap]

Compound instead of simplex

- *Ik was de **kookman**, ik weet het als het best idee was want ik heb nooit koken van mijn hele leven* (CLIL) [kok]

	Non-CLIL	CLIL
Total number of word-formation mistakes	19	68
Total number of nouns	3205	5964
Proportion word-formation mistakes/nouns	0.59%	1.14%*



6. Conclusions and discussion

Main results

Multilevel constructional analysis:

➤ Schematic level:

- **Compound length:**
 - Learners use 2-component compounds more frequently than natives; natives use more often 3-component compounds
- **Compound structure:**
 - [N+N]_N compounds are predominant in the native and learner datasets
 - Compared to the natives, the learners use more often [V+N]_N compounds (cf. high frequency of *verjaardag* 'birthday', *zwembad* 'swimming pool', *vliegtuig* 'plane')
- **Compound function:**
 - Attributive endocentric compounds are predominant in the native and learner datasets

➤ Substantive level:

- **Productivity:**
 - Lower productivity (both TTR and PP) of compounds in learner group; natives use a greater variety of compounds (e.g. *dansvloer* 'dance floor', *halfuur* 'half-hour') (in spite of a smaller dataset!)
- **Accuracy:**
 - Mostly spelling and grammatical mistakes in compound use (+ codeswitching in non-CLIL group)
 - 'phrase instead of compound' is the most frequent word-formation mistake in learner group

Discussion

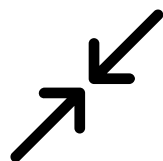
Cf. Research hypotheses

(1) Overgeneralization of French (phrasal) idi constructions (mistagged as FR-DU diaconstructions)?

- ✓ Phrasal structures instead of compounds
→ 'phrase instead of compound' (e.g. **lessen van zwembad*) is indeed the most frequent word-formation mistake in the learner group
(= mistagged as FR-DU diaconstruction instead of FR idi construction)
→ However, also cases of overgeneralization of Dutch compounds (compound instead of phrase/simplex, e.g. **bestvriend*, **kookman*)
~ difficulty: competition between compounds and phrases in Dutch
- ✗ Left-headed compounds instead of right-headed compounds
→ Difference in word order between FR/DU does not seem to be an obstacle (few mistakes)
(= DU right-headed word order correctly tagged as DU idi construction by the learners)
~ saliency of distinctive word order + learnt through frequent compounds

Discussion

(2) Positive impact of CLIL on compound formation in AL Dutch?



- Only partial positive impact of CLIL:

- Many mistakes in both groups!
- At the **schematic** level:
 - Results of the CLIL group are closer to the results of the natives with respect to **compound length, structure and function**
- At the **substantive** level:
 - Higher **productivity** scores in non-CLIL group, but affected by more misused types and hapaxes
 - More **misuse in compound formation** (significantly more codeswitching) in non-CLIL group (= overgeneralization of FR substantive idioconstructions)
 - Significantly more **word-formation mistakes** in CLIL group ('simplex instead of compound' and 'compound instead of simplex')

- The **non-CLIL** learners still heavily **rely on their L1 constructions** to create compounds (codeswitching, e.g. **aeroport*)
- Especially the **CLIL** learners seem to go a bit more beyond their L1 and gradually **entrench the AL Dutch idioconstructions**, not only at the **substantive level** (concrete frequent compounds, e.g. *ziekenhuis*), but also applying the **abstract compound schema** [N₂N₁]_N to creatively form new compounds, with varying success however (e.g. **voetweg*, **kookman*)



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Discussion and conclusions

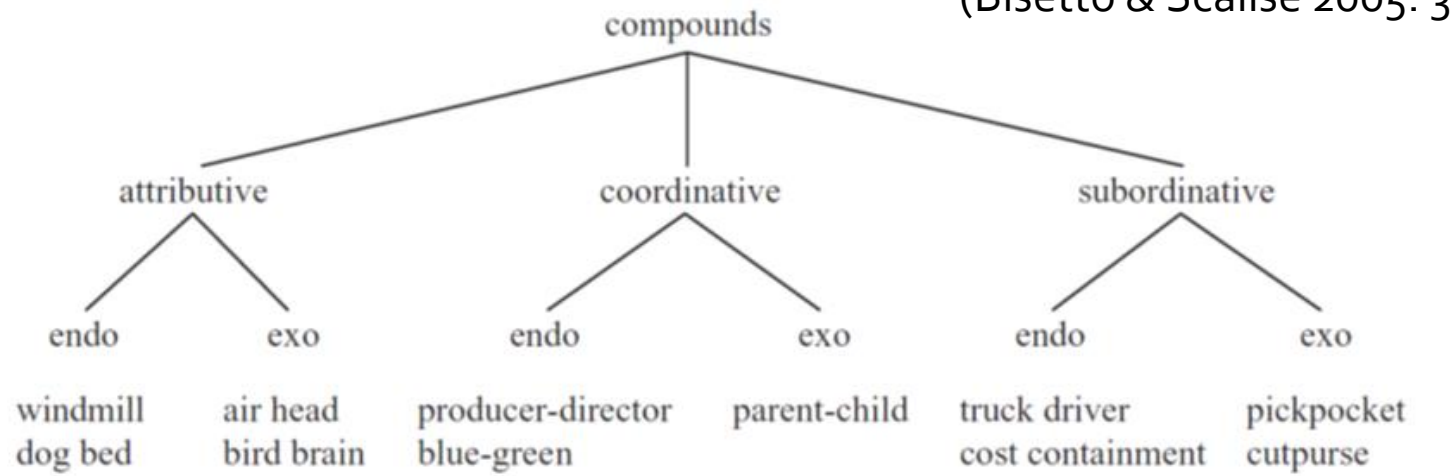
- **Benefits of the DCxG approach:**
 - The **constructionist** approach invites us to approach additional language acquisition at **different levels of abstraction**
 - The results found for one level are not systematically transposable to another one
 - Allows for a more fine-grained analysis of the acquisition of specific linguistic structures
 - Combining CxG with the **most recent insights into multilingualism** DCxG an interesting model to explore additional language acquisition
 - Learner corpus research framed in DCxG provides **indirect access to the cognitive restructuring processes** taking place in the minds of language learners

Data annotation: formal properties

Formal properties	Categories of the variable	Examples
Compound length	Number of lexical components	2: <i>voetbal</i> 'football'
		3: <i>voetbalclub</i> 'football club'
Compound structure	$[N+N]_N$	<i>telefoonnummer</i> 'phone number'
	$[V+N]_N$	<i>surfplaatsje</i> 'surfing site'
	$[A+N]_N$	<i>rondtrip</i> 'round trip'
	$[Num+N]_N$	<i>vijftal</i> 'about five'
	$[NP+N]_N$	<i>onderwaterwereld</i> 'lit. under water world; the universe under the water'

Data annotation: semantic properties

(Bisetto & Scalise 2005: 326)



Compound function	Example
Attributive endocentric	<i>windmolen</i> 'windmill'
Attributive exocentric	<i>leeghoofd</i> 'air head'
Coordinative endocentric	<i>hotel-restaurant</i>
Coordinative exocentric	<i>ouder-kind(relatie)</i> 'parent-child (relationship)'
Subordinative endocentric	<i>kurkentrekker</i> 'corkscrew'
Subordinative exocentric	<i>zakkenroller</i> 'pickpocket'

Data annotation: accuracy of the compound

Accuracy of the compound	Example
Spelling mistakes	* <i>vliechtuig</i>
Lexical mistakes	* <i>lievelingseetje</i> (lievelingseten)
Grammar mistakes (gender/number)	* <i>dit e-mail</i> * <i>mijn nieuwe zonnebrilen</i>
Linking morpheme	* <i>verjaarssdag</i>
Word order	* <i>schoolmuziek</i> (muziekschool)
Codeswitching (FR/ENG)	<i>pasta met *basilic sauce</i> * <i>football</i>

Data annotation: word-formation accuracy

Word-formation accuracy	Example
Phrase instead of compound*	* <i>vakantie van Pasen</i> (Paasvakantie)
Simplex instead of compound	<i>een *stap in Padoue</i> (uitstap)
Compound instead of phrase	* <i>vrijtijd</i> (vrije tijd)

***Checked in *Corpus Hedendaags Nederlands*: the compound had to be at least 10 times as frequent as the phrase to consider it misuse:**

e.g. *mensen van mijn klas* (1 hit) vs *mijn klasgenoten* (123 hits) → misuse

e.g. *in het centrum van de stad* (1076 hits) vs *in het stadscentrum* (956 hits) → no misuse

Semi-
schematic
level:
frequency and
productivity

Variation in the modifier position – TTR

	AL Dutch non-CLIL	AL Dutch CLIL	Control corpus native Dutch
X-feest	6 tokens, 2 types (TTR = 0,33)	14 tokens, 4 types (TTR = 0,28)	5 tokens, 1 type (TTR = 0,20)
X- vakantie	8 tokens, 4 types (TTR= 0,5)	14 tokens, 3 types (TTR = 0,21)	3 tokens, 2 types (TTR = 0,67)

Semi-
schematic:
frequency and
productivity

Variation in the head position - TTR

	AL Dutch non-CLIL	AL Dutch CLIL	Control corpus native Dutch
verjaardags-X	6 tokens, 2 types (TTR = 0,33)	14 tokens, 4 types (TTR = 0,28)	5 tokens, 1 type (TTR = 0,20)
lievelings-X	8 tokens, 8 types (TTR= 1)	6 tokens, 6 types (TTR = 1)	1 token, 1 type (TTR = 1)

Substantive level: accuracy hapaxes

Accuracy hapaxes

	non-CLIL		CLIL	
Spelling	20	22,47%	34	24,46%
Grammatical	12	13,48%	16	11,51%
Lexical	6	6,74%	15	10,79%
Linking morpheme	3	3,37%	11	7,91%
Codeswitching	12	13,48%*	4	2,88%
Word order	1	1,12%	2	1,44%
Compound instead of phrase	4	4,49%	0	0
Total mistakes in hapaxes	58		82	
Hapaxes with mistakes	53	59,55%	74	53,24%
Total hapaxes	89		139	

- **Spelling:** *We kwamen op **zaterdag avond** aan a een hele dag rijden . (CLIL)*
- **Codeswitching:** *Het koek kwam van mijn vriend die een **aspirant-pâtissier** is. (non-CLIL)*
- **Compound instead of phrase:** *Als cadeaus heb il twee mooie parfume van een goede **artisanaalwinkel** die ik goed kend. (non-CLIL)*

Outlook

- **Perspectives for future research:**
 - Impact of CLIL on accuracy while controlling for general vocabulary knowledge and extracurricular target-language input
 - Other morphological constructions: adjectival compounds, complex verbs, derivations
 - Follow-up project: comparison of AL learners with novice translators